LED Lighting Solutions

2020

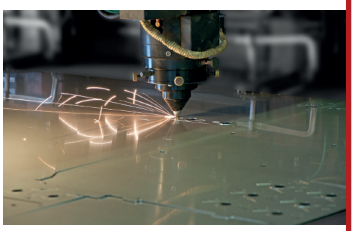
Explosion-protected electrical equipment

CORTEM® GROUP

50 YEARS

To be sure to be safe.

CORTEM GROUP
To be sure to be safe



Since 1968, Cortem S.p.A. has been designing and manufacturing explosion-proof and weather-proof electrical equipment addressed to hazardous areas. Thanks to a continuous effort in technical innovation and improvement, it's today a leader in this field, able to provide a whole range of products, meeting on-shore and off-shore applications.

The peculiarity of the Technology Group Cortem, formed by Cortem, Elfit and Fondisonzo companies, is the experience gained in the Ex field which results not only in the furniture of simple Ex-products, but also in engineered and customized solutions. All our products are designed and manufactured internally according to different methods of protection such as 'Ex d' flameproof, 'Ex e' increased safety, 'Ex de' mixed and 'Ex n' no sparkling, using primary aluminium alloys, stainless steels and plastic materials that assure resistance and duration. The aluminum alloy used by Cortem has passed all tests required by EN 60068-2-30 Standard (hot/humid cycles) and EN 60068-2-11 Standard (salt spray test). All our products in aluminium alloy are protected by an epoxy coating RAL 7035. This treatment, only provided by Cortem Group, guarantees a durable protection.

Cortem production range can be summarized as follows:

- Lighting fixtures, obstruction lighting fixtures, floodlights and hand lamps.
- Junction and pulling boxes, control stations.
- Signalling and control equipment, plugs and sockets.
- Cable glands and electrical fittings.
- Special products: switchgears and panel boards according to customer's specifications.

90% of our production are located in the Oil & Gas sector both off-shore and on-shore, but also in chemical, pharmaceutical plants and in all those manufacturing areas where the presence of explosive atmospheres may occur such as grain silos, woodworks and paper mills. We invest every year some of our resources to develop innovative products that meet the market needs and, for this reason, our R&D department studies the best solution valuating normative and market price issues, plant and security aspects.

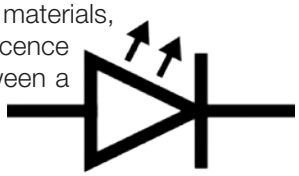
With more than 30 agencies, 90 distributors, 7 partners and 3 production centers displaced, Cortem provides a local and qualified presence around the world. For Cortem "displacing" does not means transferring facilities, resources and know-how in low cost Countries, but replicating a successful model of industrial organization in which environment safety, product quality, compliance with standards, technical and after-sales services are the fundamentals of our corporate mission.

The pay-off "to be sure to be safe" represents our pride and passion for what we design and manufacture.

Ensuring an adequate level of illumination of the plants is one of the main problems observed, in order to guarantee the safety in the workplace. In particular, the lighting fixtures addressed to electrical system installed in areas with danger of explosion are designed with even greater attention to get good illumination and reduction of risk conditions. Cortem Group LED lighting fixtures have been designed to ensure the proper dissipation of the LED temperature and, therefore, the best operation for a longer life of the product.

Introduction

1. LEDs Operation



LED, acronym of Light Emitting Diode, is formed by layers of different semiconductor materials, thanks to the electrical energy is converted into photons through the electroluminescence phenomenon: an electromagnetic radiation is released as a result of recombination between a hole and an electron.

This technology provides significant gains in efficiency compared to other sources of light, in which most of the electricity is converted into heat and only a small fraction into light.

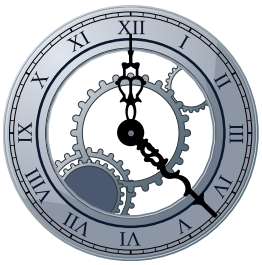
2. Advantages of LED technology

- **Energy savings**

With the same illumination, LED technology allows to obtain a greater efficiency compared to traditional lighting sources. In addition to a lower consumption with an equal illumination, it's not necessary to use color filters as the light emitted is already colored and particularly bright. This is a great advantage if you consider that, for example, red colored glass, filters only 20% of the light emitted.

Comparing LED technology and discharge lamps, we can say that a mercury vapor lamp of 400 W can be replaced by a EWL-801 series lighting fixtures of 110 W, with an energy saving of more than 70%.

- **Increased duration**



Compared to incandescent lamps, LEDs have a lower loss of brightness over time and a high resistance to shock and vibration; therefore, they have longer life in heavy installations.

The useful life of LED systems is estimated of 50.000-100.000 hours (10-20 years, 12 hours a day) respect to 4.000-5.000 hours (11-14 months) of high-pressure sodium lamps and 9.000 hours of mercury vapor lamps (10-14 months, 12 hours per day).

According to estimates, the brightness of a LED system after 50.000 hours drops to 70% compared to the initial value and this can be considered the end of the LED useful life.

- **Strong reduction in maintenance operations**

The maintenance costs of LED lighting equipment are estimated at around a tenth of the systems currently in use.

- **Quality of light and improved safety (better visibility in critical condition and reliability of the lamp)**

The light emitted by high-pressure sodium lamps is yellow, not corresponding to the sensitivity peak of the human eye: not all colors are faithfully reproduced and, therefore, it's required more light to ensure a safe vision.

LEDs, instead, emit cold white light, allowing a safe lighting and a visual confort for users: it lowers the reaction times for the unexpected, goes through the fog much better and increases the quality of images captured by security cameras.

The Color Rendering Index (CRI) indicates the fidelity of color reproduction on a scale from 1 to 100. Sodium lamps have an index of 20, while LEDs between 70 and 80. Some studies indicate that should be chosen light sources with a spectrum prevailing in the blue band, such as LEDs, without requiring high luminance values. The high-pressure sodium lamps have a spectrum

centered in the red band, outside of the sensitivity peak of the human eye.

Furthermore, the high number of LEDs installed in a lighting fixture is a guarantee and reliability factor because, in the case of failure of one or more LEDs, our lighting equipment continues to operate. Finally, while discharge lamps requires a preheating time for their complete ignition, LED lighting fixtures have immediate ignition (Instant Restrike).

- **Reduced environmental impact**

The environmental impact is practically zero thanks to the absence of toxic and noxious substances in components such as gases, mercury vapors, sodium, etc..

Furthermore, there are no emission of ultraviolet radiation: any mutagenic potential damage to people and, a factor not to be ignored, low attraction of dust and insects.

- **Low light pollution**

The traditional lamps are omnidirectional and spread the light in all directions. For this reason, it's necessary to provide the lighting fixture with a reflector to recover the half: the final luminous efficiency is 50%. LED, on the contrary, is directional and emits a light beam well defined and, therefore, minimizes the light pollution.

- **Photobiological risk**

Cortem Group, always committed to technological innovation and safety of people and environment, submitted the LED EWL series lighting fixtures and floodlights to the test for the photobiological risk, as provided by IEC 62471, EN 62471 and CEI EN 62471 standards currently in force, and by the Legislative Decree N° 81 of April, 9th 2008 which introduced the risk assessment.

These standards, as well as providing guidance for the photobiological safety evaluation, define the exposure limits (EL), the measurement techniques and the classification scheme for the evaluation and control of photobiological risks.

The IEC 62471 standard contains several construction requirements related to the ANSI/IESNA RP-27.2 standard which is valid in North America.

The test reports proved that EWL series, both in the version without optics, with standard beam of 120°, and in the versions with optics concentrating the light beam (10°, 20°, 40°), are fully compliant with the requirements of the "Exempt Group".

- **New certification 'Ex op is'**

But what is the safe optical radiation?

First of all, it must not be confused with the photo-biological safety (CEI EN 62471:2010) which concerns any LED lighting fixtures and considers the possible damages to the human eye that light source may cause.

"Op is" safe optical radiation is disciplined by the IEC 60079-28 Ed.2 standard which specifically concerns the EX world (ATEX/IECEX).

In particular, the standard identifies two parameters measuring the danger of a lighting emission: the optical power (mW) and the optical irradiation (mW/sqmm).

Historically this standard was applied to the use of laser sources and to the resulting risks. In latest time its application represents a further safety for LED light sources with divergent beam used for simple lighting.

In the case of classified areas, an optical source may represent a trigger when exceeds defined power values and beam collimation.

The "op is" protection is applied when the radiation is not enclose in a defined place, but comes out from the device (as it happens for light beam that comes out from the lighting fixture) and its aim is to guarantee that the optical power emission or optical irradiation emission not exceed the expected levels, also in damage conditions.

3. How to choose the right LED lighting fixture

To choose the perfect LED lighting fixture it's necessary to follow these steps:

1. Analyze the electrical and environmental characteristics of the plant to be illuminated and the type of installation required from the point of view of weight and size.
2. Determine the illuminance values required.
3. Compare the electrical and photometric characteristics between the traditional discharge lighting sources and the lighting fixtures with LED technology.
4. Simulate the lighting system and calculate the number of the necessary light sources using the .IES and .LDT files for lighting calculations.
5. Calculate the ROI (Return On Investment).

• Units of measurement of lighting engineering

These are the main lighting units of measurement to consider in the design of a new plant.

The luminous flux: it's the amount of light emitted from a light source in the unit of time. It's measured in **lumen** and it's represented by Φ.

The number of lumens emitted by a light source tells us how much light produces such source. For example, a 100W incandescent lamp produces 1.400 lumens; a 23W compact fluorescent lamp produces 1.450 lumens. Obviously, the brand and the quality of the lamp affect this parameter.

The light intensity: it's the amount of luminous flux emitted in a certain direction and in the unit of the solid angle, which is measured in steradians. The unit of measure is the candles (cd) and it's represented by **I**. The light intensity gives an indication of how the light is penetrating in a certain direction. For this reason, when we speak about hand-lamps or signaling devices, we use the **candles (cd)** as unit of measure.

The illumination: it's the amount of luminous flux per unit area. It's measured in **lux**.

The illumination is used for the evaluation of the impression of the light on the floor. It can only be calculated by computer through the EULUMDAT or IES files. For example, in Italy specific standards, such as the UNI EN 12464-2 "Lighting of outside workplaces", establish minimum values of lux for various applications.

In petrochemicals, the illumination is expected from 20 to 200 lux. Different process areas require different illuminations. The system engineer will make the right considerations in order to establish the proper lighting fixture.

The Colour Rendering Index: it's a measure of how the colors illuminated by a source appear natural. The color rendering index tells us how a light source is able to reproduce the color of an object illuminated. High values of CRI (Color Rendering Index) means high color matching. It's indicated with **CRI** (or IRC or Ra).

The UNI 10380 Standard divides the set of possible values of the color rendering index into five groups:
- 1A: Ra ≥ 90%
- 1B: 80% ≤ Ra < 90%
- 2: 60% ≤ Ra < 80%
- 3: 40% ≤ Ra < 60%
- 4: 20% ≤ Ra < 40%

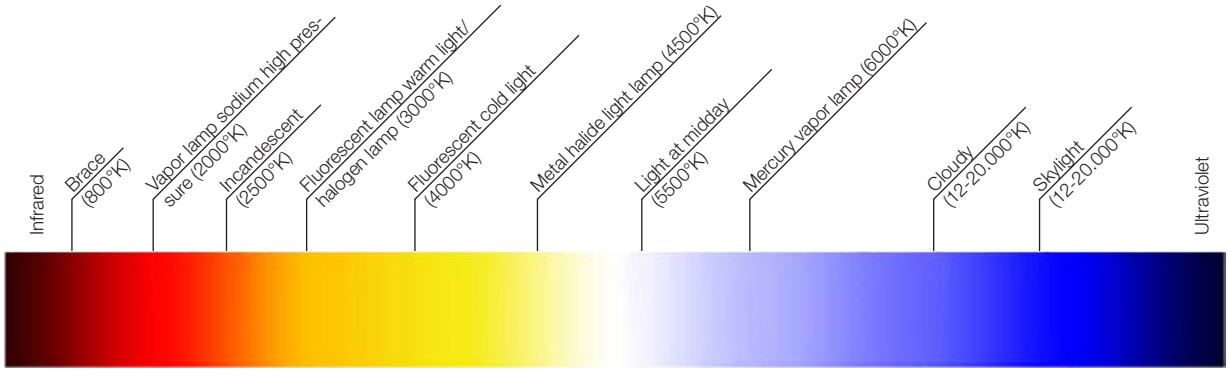
CRI=90 CRI=70 CRI=50

The luminous efficiency: it's the relation between the flux emitted by a light source and the electric power consumption expressed in Watts. It's denoted by **Φ/P** and measured in **Lm/W**.

The lighting performance: it's the relationship between the amount of useful flux and the total amount of flux emitted by the light source. It's denoted by η and it's measured in **%**.

Luminous efficiency, light output and LED: it's clear that the overall efficiency of a lighting fixture is the result of the luminous efficiency by the light output. In the case of a LED lighting fixtures, the light output is given equal to 100% and, therefore, the measured luminous flux is the actual of the lighting fixture.

The Colour Temperature: it's the lighting parameter that quantifies the tone of light. It's measured in **°K** (Kelvin). Usually we talk about warm white or cool white. Our LED lighting fixtures have a standard color temperature ranging from 5.700°K to 6.500°K.

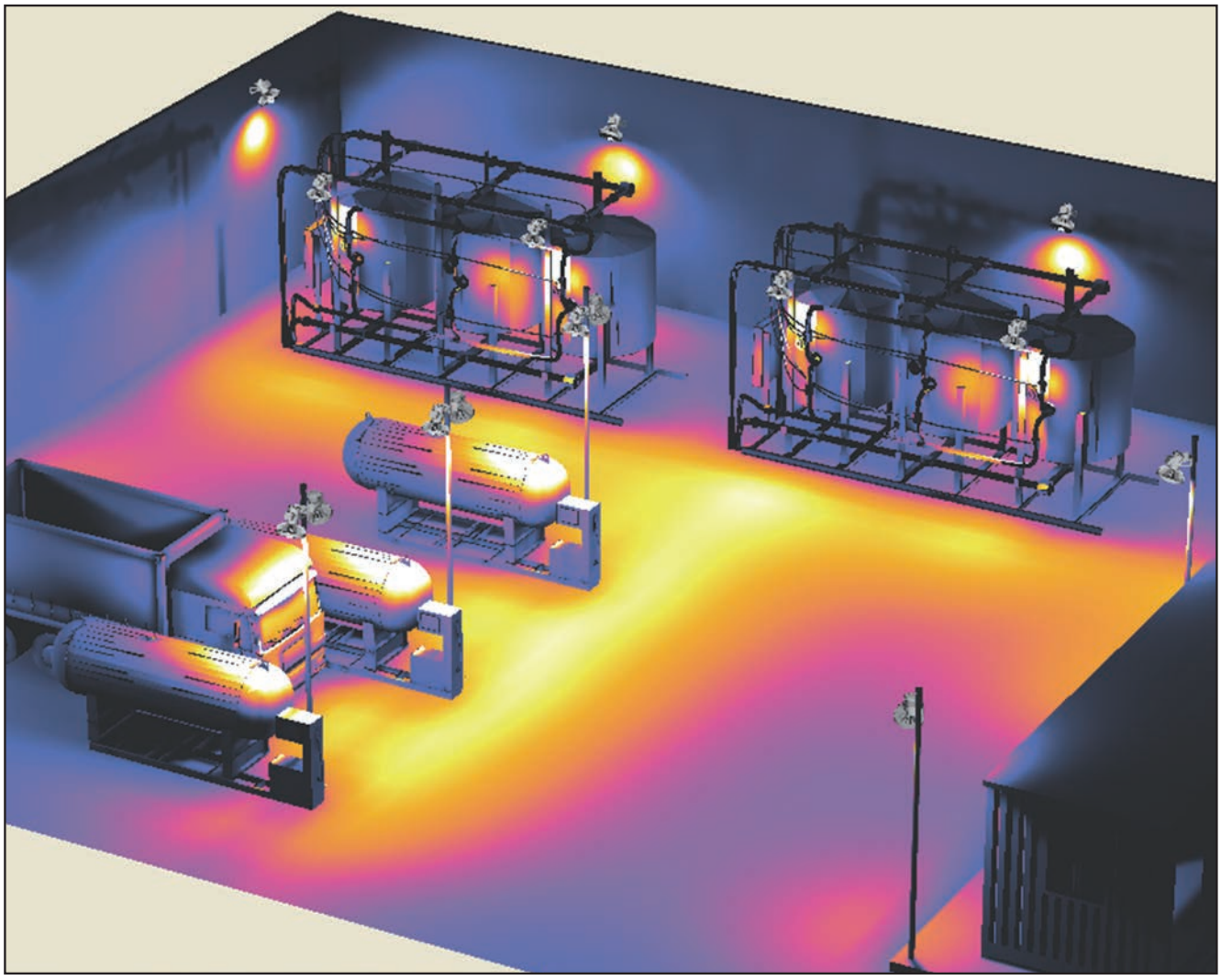


- **Comparison between traditional light sources and lighting fixtures with LED technology**

For each product contained in this brochure you can find the comparison, in terms of candles peak, between Cortem discharge lighting fixtures and LED light sources.

- **Use the .IES and .LDT files for lighting calculations**

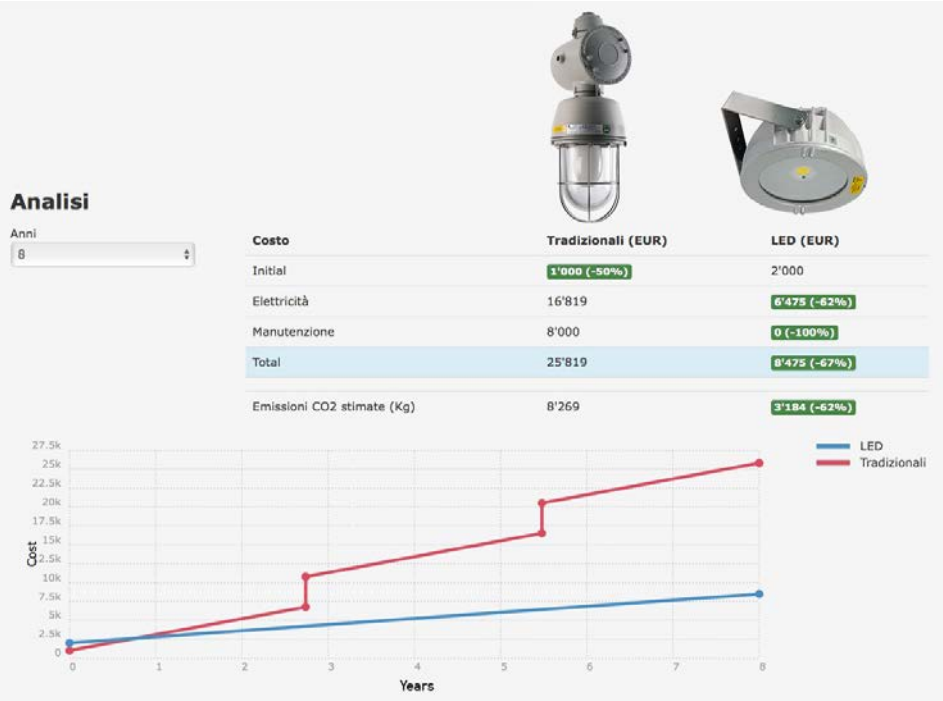
The availability of reliable and accurate photometric data of the light sources is a fundamental requirement for any lighting designer for the plan of a good lighting system. On Cortem Group web site you can download .LDT and .IES lighting data files for the design and simulation of lighting levels in 2D and 3D, rendering and ray tracing.



Calculation of ROI (Return On Investment)

Cortem Group has developed a tool to calculate the ROI (Return on Investments) relevant to the purchase of LED lighting fixtures comparing the purchasing, energy, maintenance and installation costs between LED and traditional light sources. Have a look at www.cortemgroup.com

LED savings analysis



This tool allows you to calculate the cost savings resulting from the purchase of LED lighting fixtures respect to traditional ones comparing lighting parameters, consumption, maintenance costs and average lifetime.

Please note that this tool doesn't use nominal data but only real information, calculated by laboratory through the photometric data files. The final analysis is therefore related to effective and not only estimated savings.

- ### Declarations about the maintenance of the light flow

Currently, several LED lighting manufacturers produce test results according to the LM-80 as the basis for Lx *(luminous flux)*, By *(gradual degradation)* and Cz *(abrupt deterioration of the light)* statements as maintenance thresholds for LED lighting fixtures.

The LM-80 requires to test LEDs for 6.000 hours and recommends testing for 10.000 hours. It requires tests at three surface temperatures (55°C, 85°C and a third temperature determined by the manufacturer) to see the effects of the temperature on the light output and specify the additional test conditions to ensure consistent and comparable results.

In fact, the main LED manufacturers try their products at the minimum of 6.000 or 10.000 hours provided by the LM-80, and then apply extrapolation methods as described in TM-21 *(Provides recommendations for the long-term projection of LED luminous flux maintenance using the data obtained during tests in accordance with IES LM-80-08)* to get the values L_{90}, L_{70} and L_{50}. The device manufacturers translate these curves into specific curves of the LED lighting fixture.

LM-80: Regarding the measurement of the luminance maintenance of LED light sources (single LEDs or multi chips). It consists of a real size for the first 6.000 hours, combined with an extrapolation until the end of life. Many lighting fixture manufacturers translate the LED light source curve in the illumination LED device maintenance curve using the TM-21 recommendations.

Cortem Group, according to the type of lighting fixtures and the built-in LED model installed, has designed and manufactured specific housings suitable for the dissipation features required by the manufacturer of LEDs, in order to dissipate LEDs heat generated during operation and thus optimizing, during the engineering phase, the ability to last in time with the least power and luminous flux loss.

In addition, always paying close attention to the functional guarantee and the end-of-life aspect, Cortem Group analysed all the constructive and product quality variables, in order to minimize possible defects resulting from so-called "child mortality" and possible implications for a proper dimensioning of the drivers, for uses in environments with positive or negative temperatures. All of the above considerations are of an exemplary nature and they are not intended for a specific product of Cortem. For each specific product is necessary to refer to the technical data sheets.

LED Lighting Products for Hazardous Areas

INDEX

Illustration	Description	Max. Lumen Output	Max Watta-ge	Max. Efficiency lm/W	Mounting					Application					Pag.
					Pendant	Ceiling	Pole	Wall	Structure	Indoor	Outdoor	Signalling	Inspection	Emergency	
	Lighting fixture with LED series **EVE-L**	1214	17	71	●	●	●	●	●	●	●				1
	Low bay LED lighting fixtures series **EVML**	1030	19	57		●	●	●	●	●	●				11
	LED lighting fixtures series **EVL**	19125	154	124	●	●	●	●	●	●	●				21
	LED lighting fixtures series **EVNL**	19125	154	124	●	●	●	●	●	●	●				29
	High bay LED lighting fixtures series **EWL**	23000	177	130	●	●	●	●	●	●	●				37
	LED floodlights series **EVL..B**	3700	42	88	●	●	●	●	●	●	●				45
	LED floodlights series **EVLN..B**	19477	152	128	●	●	●	●	●	●	●				51
	LED floodlights series **EWL../..**	17000	188	91	●	●	●	●	●	●	●				59
	LED floodlights series **SLED**	30799	290	106		●	●	●	●	●	●				67
	Lighting fixtures with LED Tube series **EVFD-L**	9150	80	114	●	●	●	●	●	●	●				75
	Lighting fixtures with LED Tube series **EXEL-...L**	5637	56	100	●	●	●	●	●	●	●				81
	Lighting fixtures with LED Tube series **FLF** and **FLFE**	5414	52	104	●	●	●	●	●	●	●				91
	LED lighting fixtures series **FLF** and **FLFE** with LED **strips**	7828	61	128	●	●	●	●	●	●	●				99

LED Lighting Products for Hazardous Areas

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Illustration	Description	Max. Lumen Output	Max Watt	Max. Efficiency lm/W	Mounting					Application					Pag.
					Pendant	Ceiling	Pole	Wall	Structure	Indoor	Outdoor	Signalling	Inspection	Emergency	
	Lighting fixtures with LED Tube series **EXENC-L**	7383	52	142	●	●	●	●	●	●	●				109
	Torce portatili a LED serie **L**	200	1,5	133						●	●	●	●		115
	Hand LED torches series **LHL**	1600	17	94						●	●	●	●		123
	Low intensity LED obstruction lighting fixtures **XLFE-4/1**								●		●	●			127
	Medium intensity LED Obstruction lighting fixtures **XLFE-MIB**								●		●	●			135
	LED traffic lights series **CCA-02E/S..LD**							●	●	●	●	●			141
	Emergency LED lighting fixture series **LFEE**							●	●	●	●			●	149
	Emergency LED lighting fixture series **LFED**							●	●	●	●			●	155
	Emergency LED lighting fixture series **CCA-03EX**	595 (x2)	20	59,5				●	●	●	●			●	161

EVE-L

- Zone 1, 2, 21, 22
- Saving in energy, maintenance and installation costs
- Instant illumination (LED)
- Designed to last over time

Electronic LED lighting system

4 Joule shock resistant borosilicate glass globe

Bright comfort

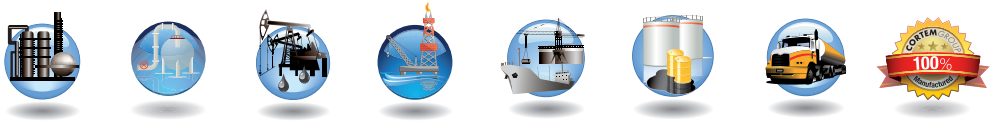
Stainless Steel Protective guard

CORTEM GROUP®

EVE...L series Lighting Fixture with LED

EVE-5050L, EVE-5060L and EVE-5060L1 series Cortem lighting fixtures are designed to provide an optimal replacement to the conventional incandescent lamps and to provide a valid alternative for the energy-saving lamps in hazardous areas where it's necessary to light up using light sources close to the operator and to the equipment.

Application sectors:



Oil refineries | Chemical and petrochemical plants | Onshore plants | Offshore plants | Oil loading/ unloading jetties | Fuel depots | Fuel tanker loading/ unloading areas | 100% Cortem product

CERTIFICATION DATA

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II 2GD Ex de IIC T6 Gb - Ex tb IIIC T85°C Db IP66			
Certification:	ATEX CESI 12 ATEX 006			
	IEC Ex IECEx CES 07.0004	All IEC Ex and TR CU certification data can be downloaded at www.cortemgroup.com		
	TR CU AVAILABLE			
Standards:	CENELEC EN 60079-0: 2012, EN 60079-1: 2007, EN 60079-7: 2007, EN 60079-31: 2009 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2011, IEC 60079-1: 2007, IEC 60079-7: 2007, IEC 60079-31: 2008 European Directive 2006/95 Low voltage European Directive 2004/108 Electromagnetic compatibility European Directive 2003/108 WEEE Waste electrical and electronic equipment European Directive 2011/64 RoHS			
Class temperature:	80°C (T6)			
Ambient temperature:	EV..5060L1 -20°C +40°C	EV..5050L EV..5060L -20°C +50°C		
Degree of protection:	IP66			

EVE...L series Lighting Fixture with LED

ORIGINAL PRODUCT

MECHANICAL FEATURES

Body:	Low copper content aluminium alloy
Globe:	Shock and temperature resistant borosilicate glass with aluminium shade ring
Gaskets:	Silicone acid/hydrocarbon resistant
Guard:	Electro-polished stainless steel. Can also be supplied on request without a guard as the lighting fixture has passed the glass breakage test (4 Joule EN60079-0 / IEC60079-0)
Mounting:	See "EV series dimensional drawings"
Bolts and screws:	Stainless steel
Coating:	Polyester coating Ral 7035 (Light grey)
Corrosion Resistance:	The STANDARD of the aluminium alloy used by Cortem has passed the tests required by standards EN60068-2-30 (hot/humid cycles) and EN60068-2-11 (salt mist tests)

ELECTRICAL FEATURES

LED:	n. 3 LEDs for EVE-5050L, n. 7 LEDs for EVE-5060L and EVE-5060L1
Rated voltage:	230 Vac/dc, 110/230 Vac/dc only for EVE-5050L
Rated frequency:	50/60 Hz
Connection:	Direct connection to terminal board L, N, Pe. Section 4mm^2

Section view EVE-5050L

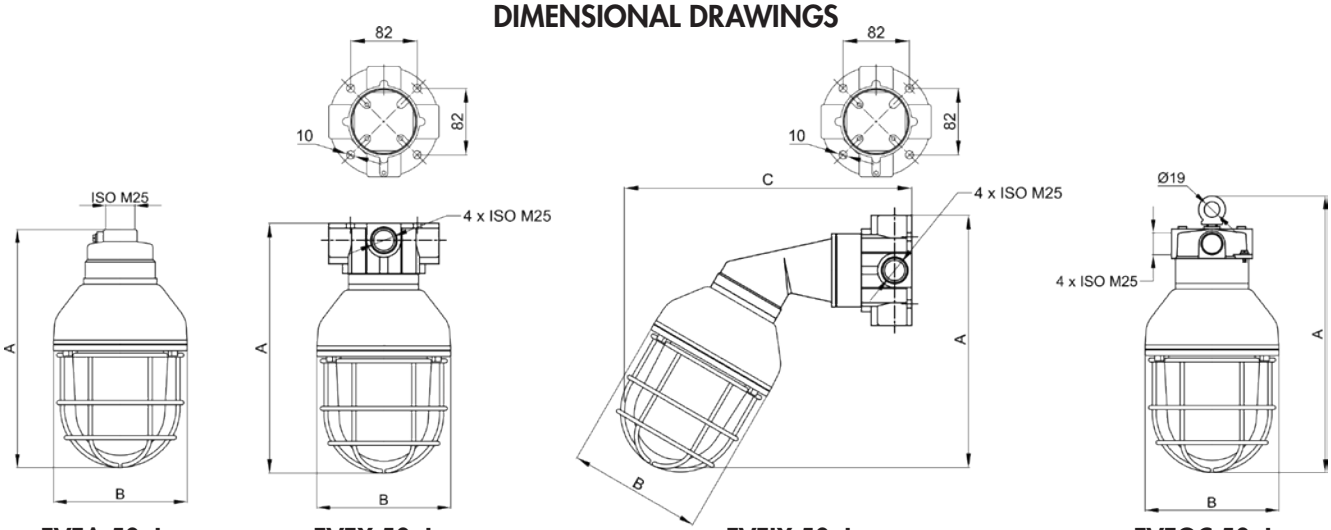
ACCESSORIES AVAILABLE / SPECIAL REQUESTS

Cable gland: NEV20SIB for armoured cable or NAV20SIB for non-armoured cable.
Special request Ex 2GD Ex d IIC T6 Gb Ex tb IIIC T85°C IP66. Code example: EVA-5050L
Rated voltage: 24 Vac/dc (code EV..-5050L/**24**)

EVE...L series Lighting Fixture with LED selection chart

Code	Dimensions mm			Lamp type	Watt	Class Ta =+40°C	Max surface temperature °C	Weight kg	mm
	A	B	C						
EVEA-5050L	261	150	-	LED	8	T6	51	2,6	160x150x330
EVEA-5060L	323	170	-	LED	13	T6	54	3,2	190x170x390
EVEA-5060L1	323	170	-	LED	17	T6	57	3,2	190x170x390
EVEX-5050L	260	150	-	LED	8	T6	51	3,0	160x150x330
EVEX-5060L	322	170	-	LED	13	T6	54	3,9	190x170x390
EVEX-5060L1	322	170	-	LED	17	T6	57	3,9	190x170x390
EVEIX-5050L	285	150	310	LED	8	T6	51	3,5	190x170x390
EVEIX-5060L	339	170	344	LED	13	T6	54	4,1	260x210x490
EVEIX-5060L1	339	170	344	LED	17	T6	57	4,1	260x210x490
EVEGC-5050L	296	150	-	LED	8	T6	51	2,8	160x150x330
EVEGC-5060L	358	170	-	LED	13	T6	54	3,6	190x170x390
EVEGC-5060L1	358	170	-	LED	17	T6	57	3,3	190x170x390

DIMENSIONAL DRAWINGS

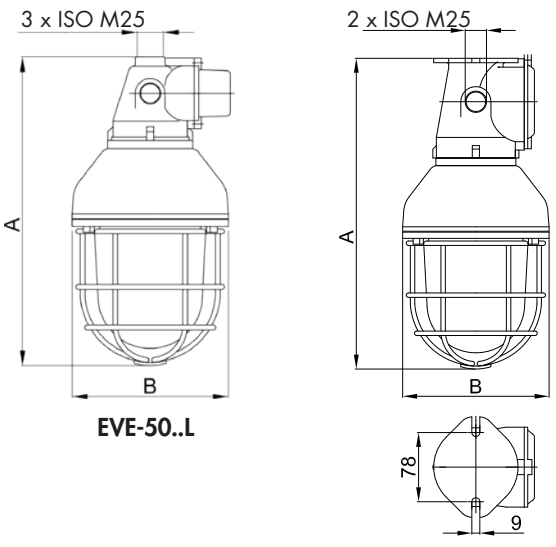


EVEA-50..L.. **EVEX-50..L..** **EVEIX-50..L..** **EVEGC-50..L..**

Lighting fixtures for loop-in/loop-out execution

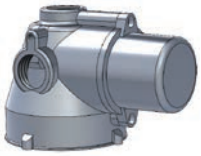
Code	Dimension mm		Watt	Weight kg	mm
	A	B			
EVE-5050L	300	150	8	2,7	160x150x330
EVE-5060L	358	170	13	4,0	190x170x390
EVE-5060L1	358	170	17	4,1	190x170x390
EVES-5050L	325	150	8	2,7	160x150x330
EVES-5060L	384	170	13	4,0	190x170x390
EVES-5060L1	358	170	17	4,1	190x170x390

DIMENSIONAL DRAWINGS



EVE-50..L **EVES-50..L**

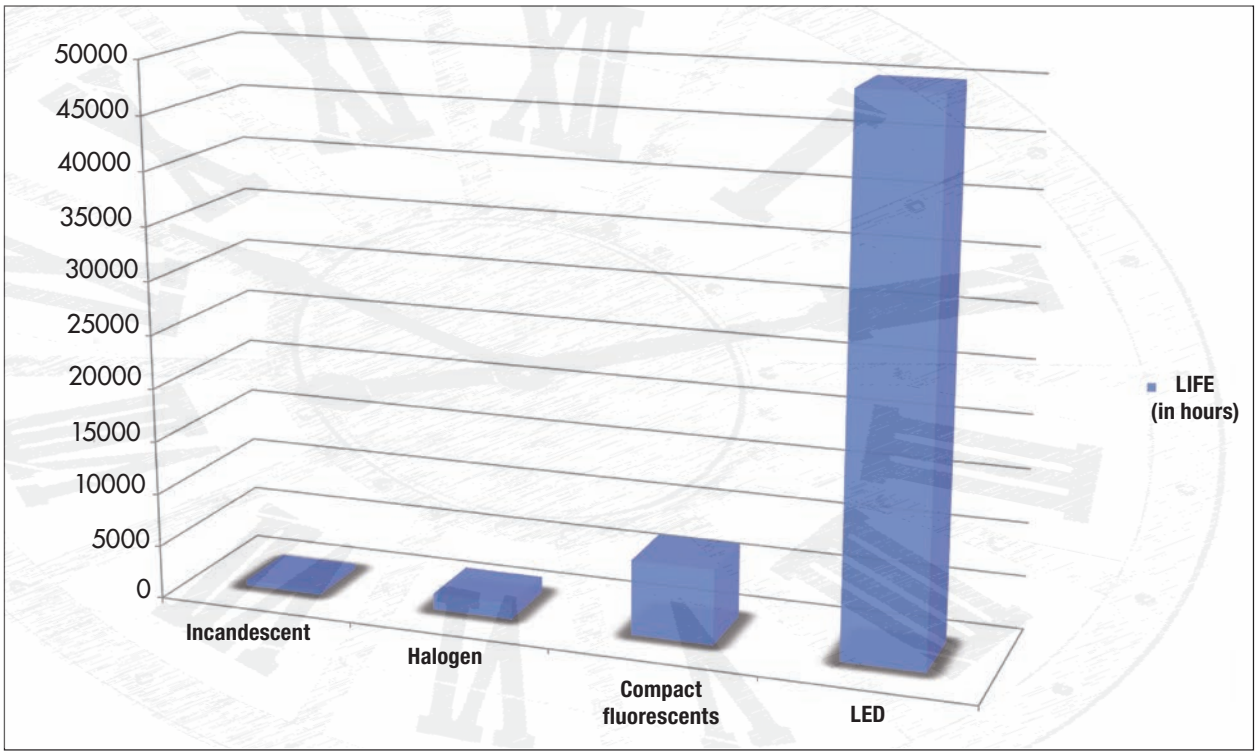
EVE...L series Accessories and spare parts available on request

ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	KEY
	LED plate with electronic circuit complete with diffuser, heat dissipator and frame.	EVE-5050L	n. 3 power LEDs. Diffuser in polycarbonate. Aluminium dissipator and frame	**G-0571/1**	SPARE PART
		EVE-5060L EVE-5060L1	n. 7 power LEDs. Diffuser in polycarbonate. Aluminium dissipator and frame	**G-0572/1**	SPARE PART
	Power supply electronic	EVE-5050L	90 - 264 Vac 50/60 Hz	**RT-6LED**	SPARE PART
		EVE-5060L	220 - 240 Vac 50/60 Hz	**RV-16LED**	SPARE PART
		EVE-5060L1	220 - 240 Vac 50/60 Hz	**RV-17LED**	
	Protective guard	EVE-5050L	Material: electro-polished stainless steel	**G50-0417**	SPARE PART
		EVE-5060L		**G60-0417**	
	OR gasket	Globo 50	Materiale: NBR	**OR-4512SH70**	SPARE PART
		Globo 60		**K15-131**	
	Ex e pendant mounting EVE		3 x ISO M25	**G-0444**	SPARE PART
	Ex e pendant mounting EVES		2 x ISO M25	**G-0439**	SPARE PART
	Globe with shade ring	EVE-5050L	Borosilicate glass globe Threaded aluminium shade ring	**G50-0440CM**	SPARE PART
		EVE-5060L		**G60-0440CM**	
	Pendant eyebolt		Material: galvanised steel	**GOF-8**	SPARE PART

EVE...L series Accessories and spare parts available on request

ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	KEY
	Pendant mounting EVEA		1 x ISO M25	**G-0213I**	
	Pendant mounting with eyebolt EVEGC		4 x ISO M25	**G-0216I**	
	Ceiling mounting EVEX		4 x ISO M25	**G-0214I**	
	Wall mounting with bracket EVEIX		4 x ISO M25	**G-0215I**	
	Reflector	EVE-5050L	White painted aluminium Stainless steel	**G50-427 G50-427IN**	
		EVE-5060L..	White painted aluminium Stainless steel	**G60-427 G60-427IN**	
	Dome reflector	EVE-5050L	Contact our Sales Office for availability		
		EVE-5060L..	White painted aluminium	**G60-427D**	
	30° inclined dome reflector	EVE-5050L	Contact our Sales Office for availability		
		EVE-5060L..			
	Cable gland		For models and codes, visit www.cortemgroup.com	**NAV25IB NEV25IB**	
	Articulated bracket for sloping mounting (have a look at installation and mounting methods)		Material: galvanised steel	**G-0543**	
	Warning signs on the frame	On request	Materials: translucent film on plexiglass and aluminium frame	**G-0513**	

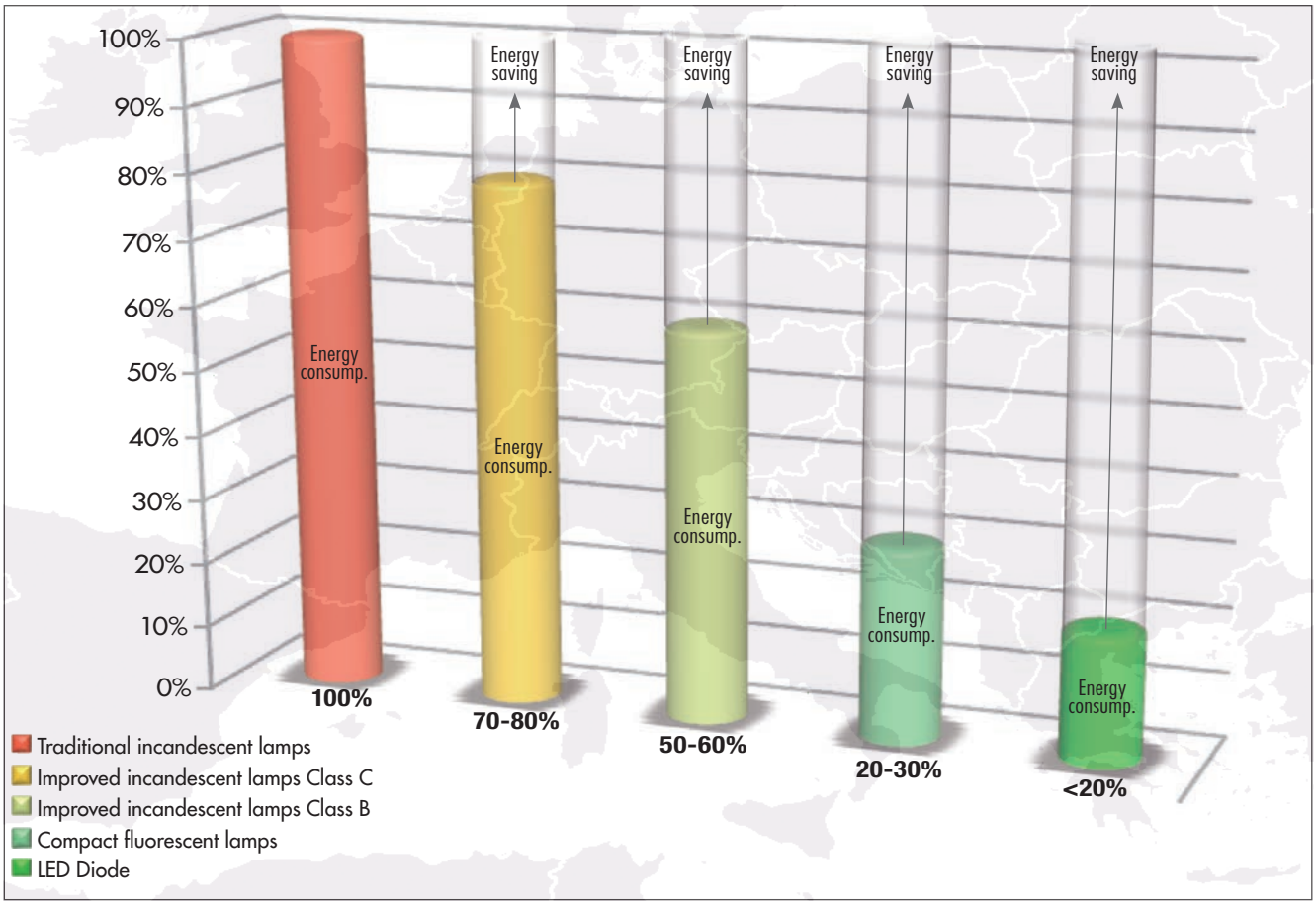
Estimate of average life period between several types of lamps



The respect of two basic conditions, the internal temperature and the intensity of current, guarantees a life of LEDs equal to 100,000 hours.

Comparison of consumption between different types of lamps

The return investment is 18 to 24 months without considering the savings in maintenance costs.



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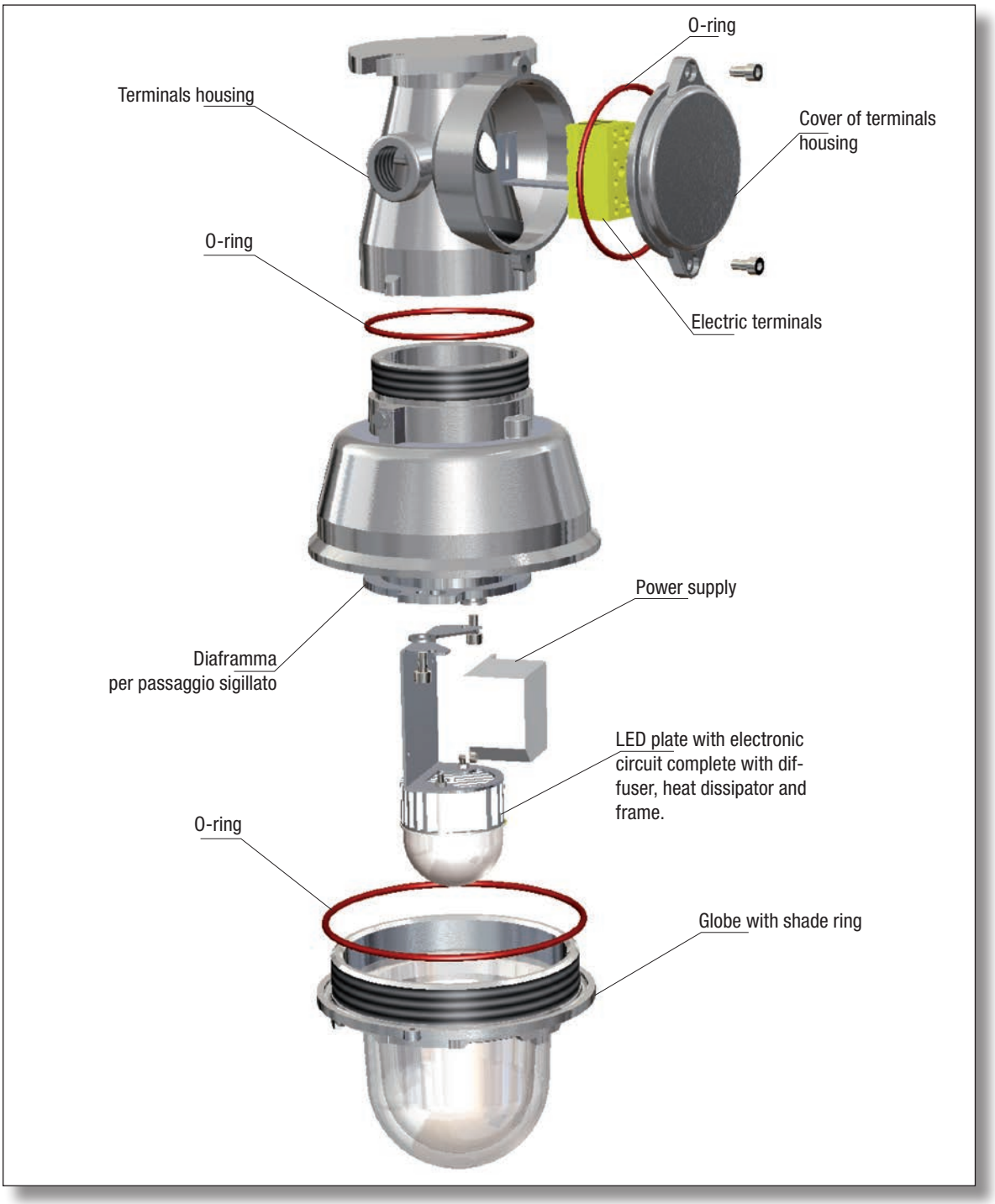
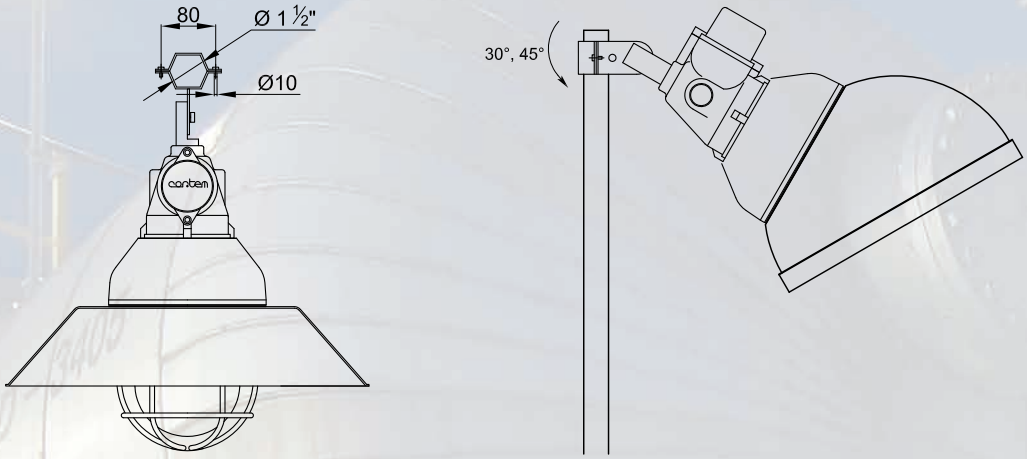
EXPLODED DIAGRAM OF EVE-5050L LIGHTING FIXTURES

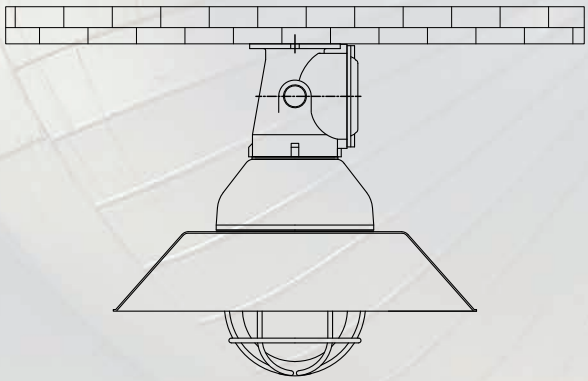


Installation and mounting methods

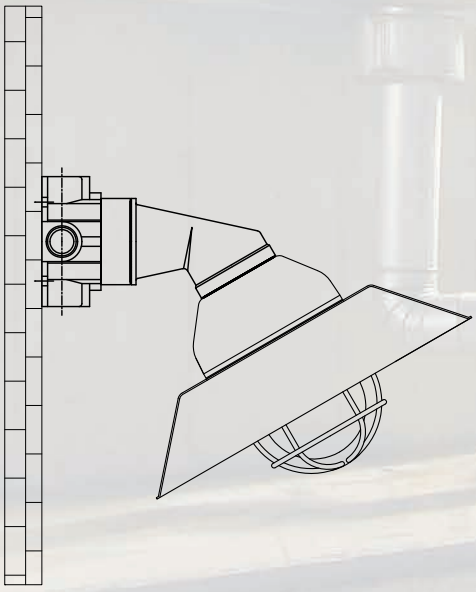
Example of mounting with articulated bracket



Example of ceiling mounting with lighting fixture for loop-in / loop-out



Example of wall mounting



Dimension in mm

Photometric diagram

EVE-5050L, PEACK CD EQUIVALENTS

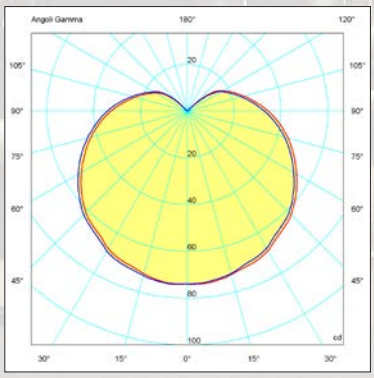
			
EVE-5050L (8W) LED	EVA (15W) Fluorescent	EVA (50W) Halogen	EVA (75W) Incandescent

EVE-5060L, PEACK CD EQUIVALENTS

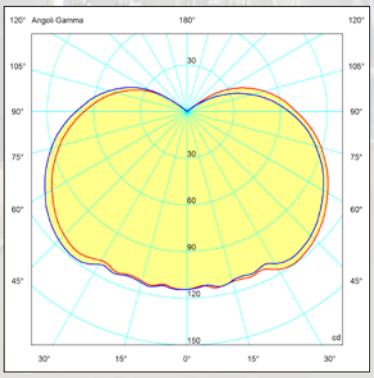
			
EVE-5060L (13W) LED	EVA (30W) Fluorescent	EVA (110W) Halogen	EVA (150W) Incandescent

EVE-5060L1, PEACK CD EQUIVALENTS

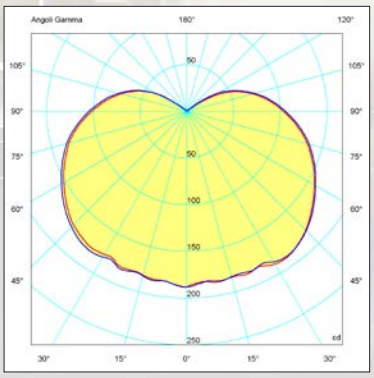
			
EVE-5060L1 (17W) LED	EVA (40W) Fluorescent	EVA (150W) Halogen	EVA (200W) Incandescent



EVE-5050L Luminous flux: 430 lm



EVE-5060L Luminous flux: 795 lm



EVE-5060L1 Luminous flux: 1200 lm

On Cortem Group web site you can download .LDT and .IES lighting data files for the design and simulation of lighting levels in 2D and 3D, rendering and ray tracing.

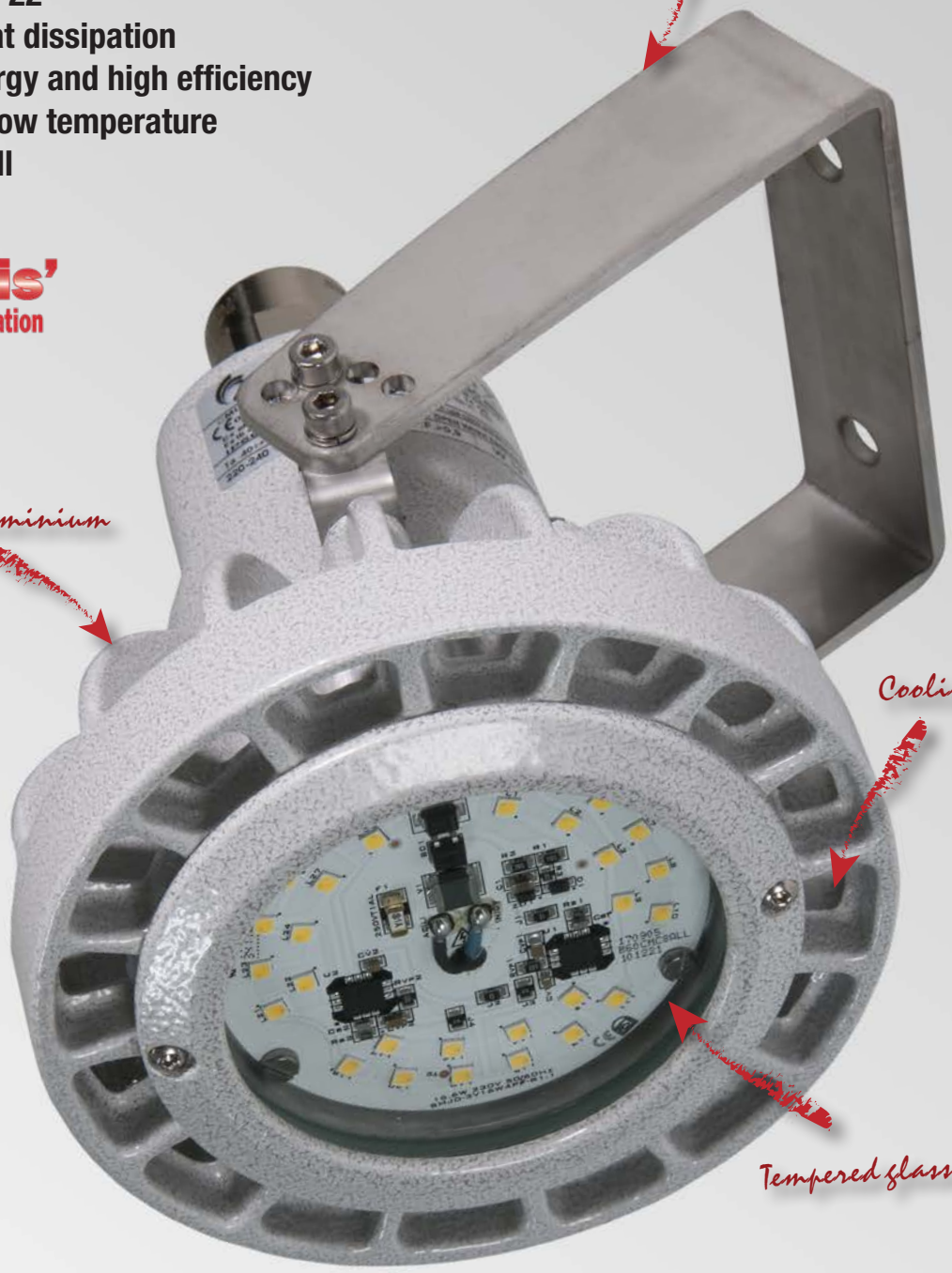
= plane 90270

= plane 0180

EVML

- Zone 1, 2, 21, 22
- Excellent heat dissipation
- Saves in energy and high efficiency
- Suitable for low temperature
- Easy to install
- Small size

'Ex op is'
safe optical radiation



LED resin-bonded electronic board

Orientable bracket detail

Lighting fixture with round windows detail

CORTEM GROUP®

EVML Low Bay LED lighting fixture

EVML lighting fixtures have been designed to offer a Low Bay lighting fixture that could replace incandescent equivalents with lower costs. They are suitable for the illumination of areas in which it's necessary to limit the obstruction such as tunnels, passages, corridors, stairways and command and control cabins (code EVML-50). They can also be used to illuminate and monitor hazardous materials contained inside tanks and cisterns thanks to a bracket for the coupling with the porthole flange (code EVML-50/O..). The model with the side entry meets, at last, some specific installation needs, reducing the overall dimensions (code EVML-50L). The Low Bay LED lighting fixtures has been specifically designed to meet the technical requirements of LEDs. In effect, the body fins act as a heat dissipater for the LED plate meaning that more powerful lighting can be installed without causing any deterioration of the LEDs. The universal steel mounting bracket complies with all application requirements and it allows the directionality of the light and an easy installation at low heights in all those areas defined as dangerous for the presence of explosive gas and dust as Zone 1, 2, 21, 22. The protective flat glass is resistant to impact and high temperatures and ensures non polluting illumination to the surrounding environment.

Application sectors:

Oil refineries | Chemical and petrochemical plants | Anti light pollution | Offshore plants | Onshore plants | Perimeter lighting | Oil loading/ unloading jetties | Stairs Handrails

CERTIFICATION DATA

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II 2GD Ex eb mb op is IIC T.. Gb - Ex tb op is IIIC T..°C Db IP66			
Certification:	ATEX CML 19 ATEX 3019X			
	IEC Ex IECEx CML 19.0003X	All IEC Ex, TR CU certification data can be downloaded at www.cortemgroup.com		
	TR CU AVAILABLE			
Standards:	CENELEC EN 60079-0: 2018, EN 60079-7: 2015, EN 60079-18: 2015, EN 60079-28: 2015, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2017, IEC 60079-18: 2014, IEC 60079-28: 2015, IEC 60079-31: 2013, IEC 60079-7: 2015 European Directive 2006/95 Low voltage European Directive 2004/108 Electromagnetic compatibility European Directive 2003/108 WEEE Waste electrical and electronic equipment European Directive 2011/64 RoHS			
Class temperature:	See selection table EVML-50			
Ambient temperature:	-40°C +40°C	-40°C +50°C	-40°C +60°C	
Degree of protection:	IP66			

EVML Low Bay LED lighting fixture

EVML-50

EVML-50L

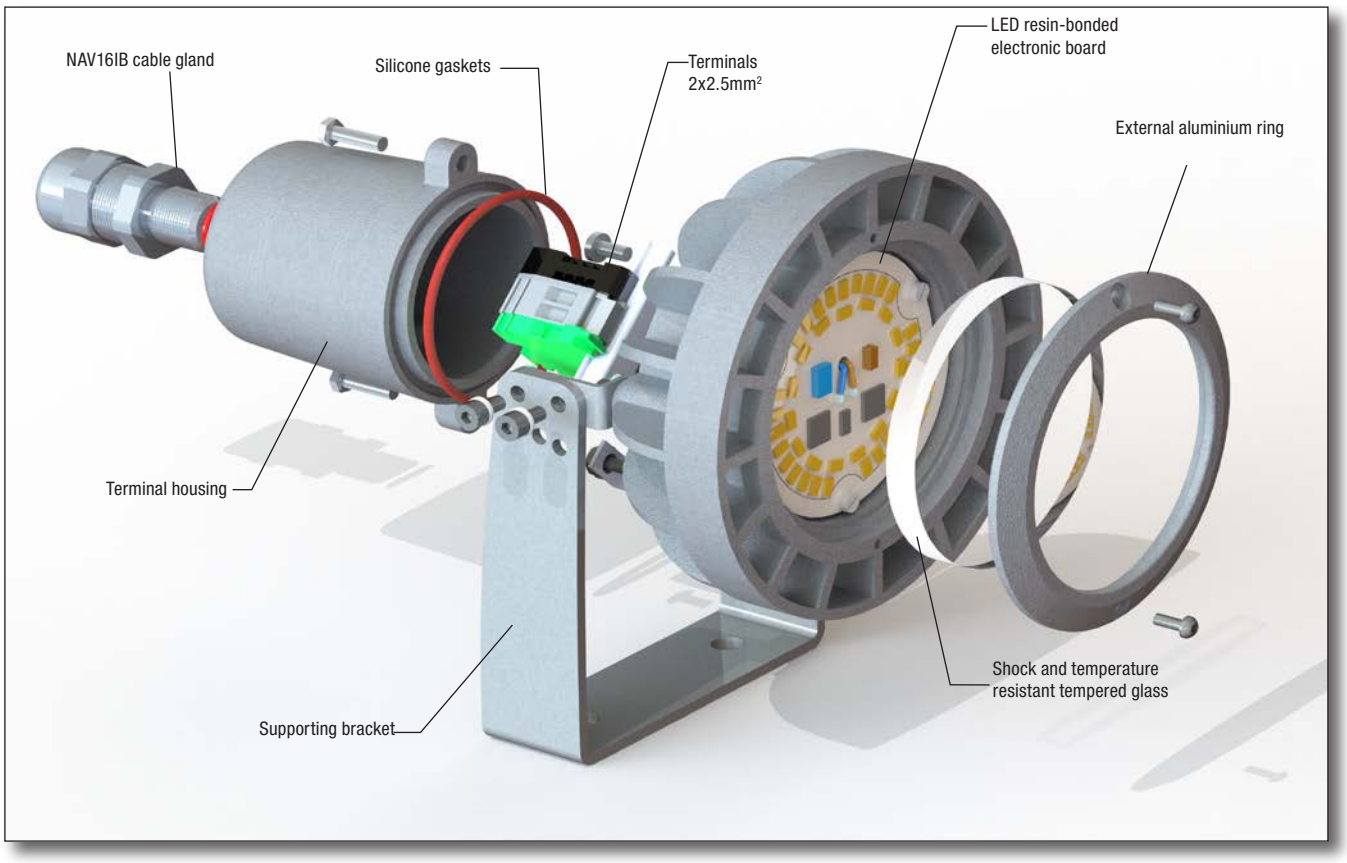
EVML-50/O

ORIGINAL PRODUCT

MECHANICAL FEATURES

Body:	Low copper content aluminium alloy fitted with cooling fins for better heat dissipation
Glass face:	Shock and temperature resistant tempered glass
Gaskets:	Acid, hydrocarbon and high temperature resistant silicone
Supporting brackets:	Stainless steel AISI 316L
Bolts and screws:	Stainless steel
Entries:	1 x ISO M16 entries. Fixture supplied with NAV16IB cable gland
Coating:	Polyester coating Ral 7035 (Light grey)
Corrosion Resistance:	The STANDARD of the aluminium alloy used by Cortem has passed the tests required by standards EN60068-2-30 (hot/humid cycles) and EN60068-2-11 (salt mist tests)

EXPLODED DIAGRAM OF EVML-50 LIGHTING FIXTURE



EVML-50 and EVML-50L series selection chart

Code	Watt	Supply voltage	Class temperature*			Weight kg	mm
			Ta <+40°C	Ta <+50°C	Ta <+60°C		
EVML-50(L)	17 W	220-240 Vac	T5/95°C	T4/105°C	T4/115°C	1,1	162x140x157
EVML-50(L)**/110**	12 W	110 Vac/dc	T6/64°C	T6/74°C	T5/84°C	1,1	162x140x157
EVML-50(L)**/12**	15 W	12 Vac/dc	T6/66°C	T6/76°C	T5/86°C	1,1	162x140x157
EVML-50(L)**/24D**	15 W	24 Vdc	T6/66°C	T6/76°C	T5/86°C	1,1	162x140x157
EVML-50(L)**/24A**	12 W	24 Vac	T6/64°C	T6/74°C	T5/84°C	1,1	162x140x157
EVML-50(L)**/48D**	14 W	48 Vdc	T5/81°C	T5/91°C	T4/101°C	1,1	162x140x157
EVML-50(L)**/48A**	14 W	48 Vac	T6/77°C	T5/87°C	T4/97°C	1,1	162x140x157

* Temperature classes valid for the installation of the lighting fixture in a vertical position.
For improved temperature classes, check the different possible installation inclinations of the lighting fixture in the safety, use and maintenance instructions

Electrical features*	EVML-50	EVML-50/110
Power supply:	220-240 Vac	110 Vac
Rated frequency:	50-60 Hz	50-60 /0 Hz
Power consumption:	17 W	12 W
Connection:	Direct connection to terminal board L, N, Pe. Section 2,5mm^2	
Power factor:	>0,95	>0,96
Rated current:	75 mA	100 mA
EMC (electromagnetic compatibility):	EN 55015, EN 61547, IEC 61000-3-2, IEC 61000-3-3, IEC 61000-4-...	
THD (total harmonic distortion):	<25%	
Over-voltage protection:	4 kV	5 kV
Photometric features		
LED Multichip:	Seoul	Seoul
Viewing angle:	120°	120°
Colour temperature:	5000 K	4200 K
CRI:	80	80
Instant Restrike:	YES	YES
Lumen:	**1282 lm**	**720 lm**
Maximum light intensity:	**543 cd**	**287 cd**
Overall efficiency:	**75 lm/W**	**60 lm/W**

* In the case of installations in harsh environments with strong peaks or impurities on the power supply line, it is advisable to use a surge protector for greater protection of the lighting fixture. Cortem offers the G-1064 surge protector which can be installed in a safe area or inside an explosion-proof enclosure.

EVML Low Bay LED lighting fixture

EVML LOW VOLTAGE

Electrical features	EVML-50/12	EVML-50/24D	EVML-50/24A	EVML-50/48D	EVML-50/48A
Power supply:	12 Vac/dc	24 Vdc	24 Vac	48 Vdc	48 Vac
Rated frequency:	50-60 /0 Hz	0 Hz	50-60 Hz	0 Hz	50-60 Hz
Power consumption:	15 W	15 W	12 W	14 W	14 W
Connection:	Direct connection to terminal board L, N, Pe. Section 2,5 mm^2				
Power factor:	>0,95	-	>0,95	-	>0,95
Rated current:	1,47 A	630 mA	540 mA	307 mA	318 mA
EMC (electromagnetic compatibility):	EN 55015, EN 61547, IEC 61000-3-2, IEC 61000-3-3, IEC 61000-4-...				
THD (total harmonic distortion):	<25%				
Over-voltage protection:	5 kV	5 kV	5 kV	5 kV	5 kV
Photometric features					
LED Multichip:	Samsung	Samsung	Samsung	Samsung	Samsung
Viewing angle:	120°	120°	120°	120°	120°
Colour temperature:	5700 K	5700 K	5700 K	5700 K	5700 K
CRI:	80	80	80	80	80
Instant Restrike:	YES	YES	YES	YES	YES
Lumen:	**1365 lm (dc)**	**1458 lm**	**1092 lm**	**1361 lm**	**1256 lm**
Maximum light intensity:	**565 cd**	**371 cd**	**368 cd**	**569 cd**	**373 cd**
Overall efficiency:	**88 lm/W**	**97 lm/W**	**91 lm/W**	**96 lm/W**	**90 lm/W**

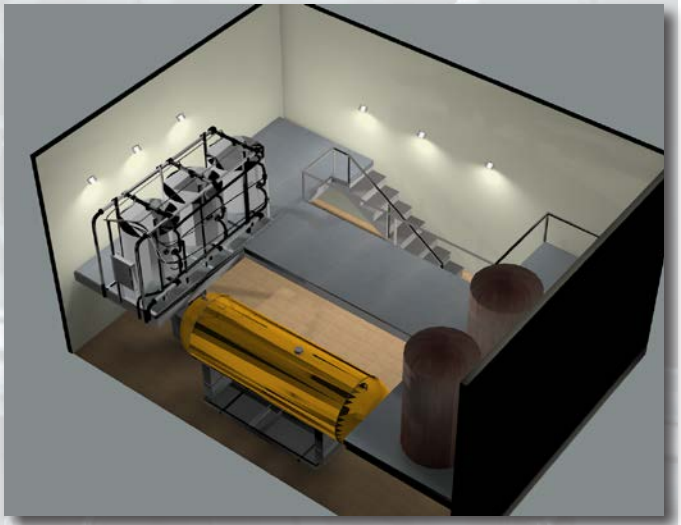
ACCESSORIES AVAILABLE / SPECIAL REQUESTS

U bolt for pole mounting
Different colour temperature (code EVML-50**/3000K**)

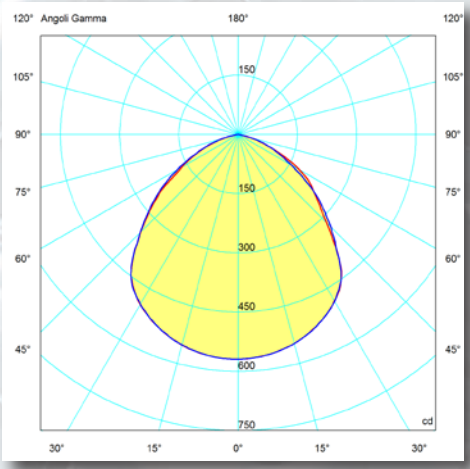
EVML Low Bay LED lighting fixture

EVML-..., equivalenze

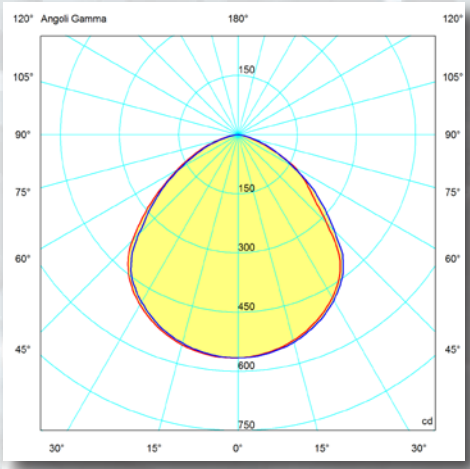
			
EVML-50 (17W) LED	(100W) Incandescent	(70W) Halogen	(23W) Electronic
Typical energy savings	81%	73%	17%



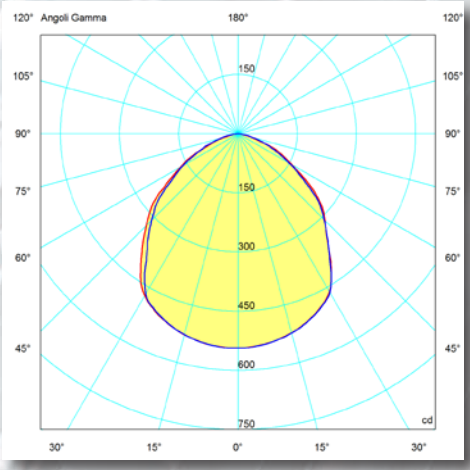
Example of lighting design made with EVML-50 LED Low Bay lighting fixtures



EVML-50/48D Luminous flux: 1361 lm

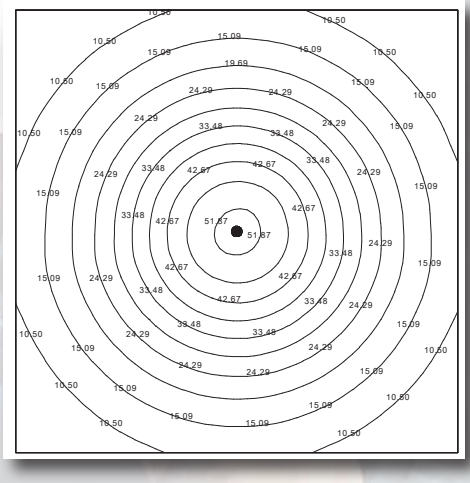


EVML-50/48D Luminous flux: 1361 lm



EVML-50 Luminous flux: 1282 lm

EVML-50 illumination on the floor expressed in lux in a room 5m x 5m with the lighting fixtures centrally placed at **2,5m** in height



On Cortem Group web site you can download .LDT and .IES lighting data files for the design and simulation of lighting levels in 2D and 3D, rendering and ray tracing.

= plane 90270
= plane 0180

EVML LED tank/vessel inspection lighting fixture

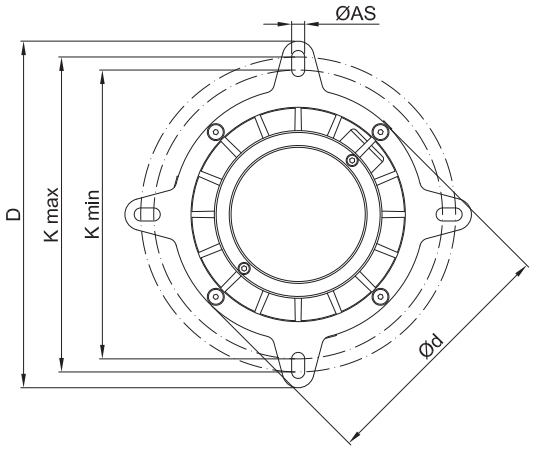
EVML-50/O.. TANK/VESSEL INSPECTION LIGHTING FIXTURES

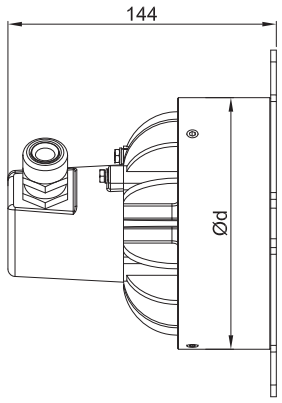
Code		Kmax	Kmin	ØAS	D	Ød	Round window acc. DIN28120
EVML-50/.../010	①	169	155	7	186	135	100
EVML-50/.../012	②	194	180	7	211	160	125
EVML-50/.../015	③	222	208	9	243	185	150
EVML-50/.../020	④	282	258	9	303	235	200

/...:			
	No number	For 220 Vac	**24A** For 24 Vac
	110	For 110 Vac/dc	**48D** For 48 Vdc
	12	For 12 Vac/dc	**48A** For 48 Vac
	24D	For 24 Vdc	

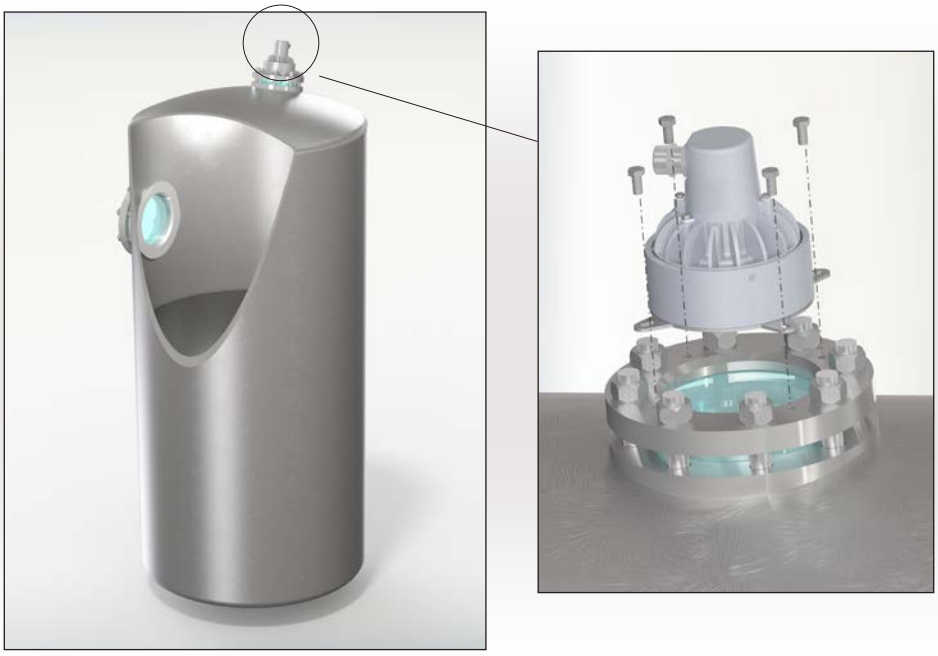
NEW

DIMENSIONAL DRAWING





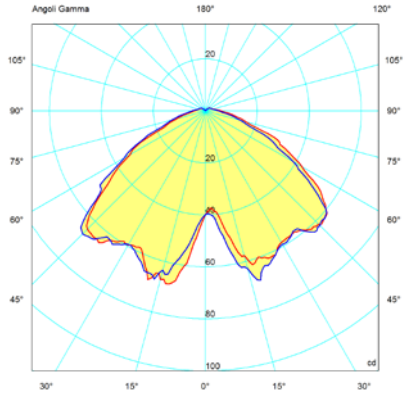
Application example made with EVML-50/O12 LED lighting fixtures with round windows

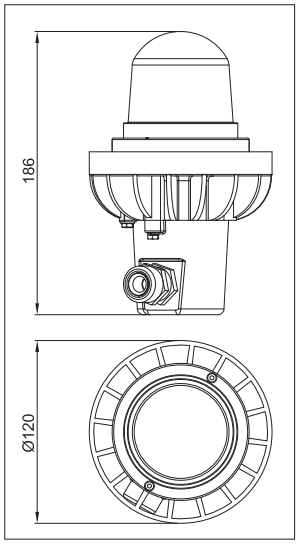


Obstruction lighting EVML-50/G...

EVML-50/G are the new lighting fixtures which feature a LED plate and a globe of different colours: blue, red, green, amber or clear. They can be installed in locations where obstacles, dangers are needed to be signalled and for any visual communication. They replace acoustic signals in places where they are not applicable.

Code	Colour
EVML-50/.../GG	Amber
EVML-50/.../GR	Red
EVML-50/.../GV	Green
EVML-50/.../GB	Blue
EVML-50/.../GI	Clear



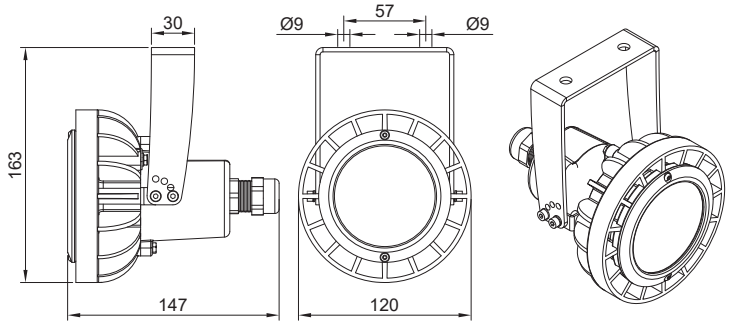


NEW

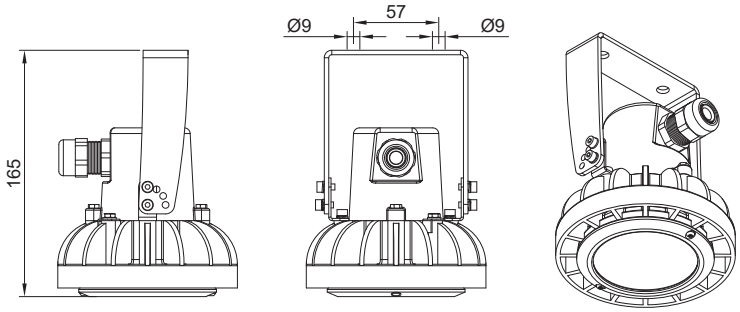
/...:	**No number**	For 220 Vac	**24A**	For 24 Vac/dc
	110	For 110 Vac/dc	**48D**	For 48 Vdc
	12	For 12 Vac/dc	**48A**	For 48 Vac
	24D	For 24 Vdc		

DIMENSIONAL DRAWINGS

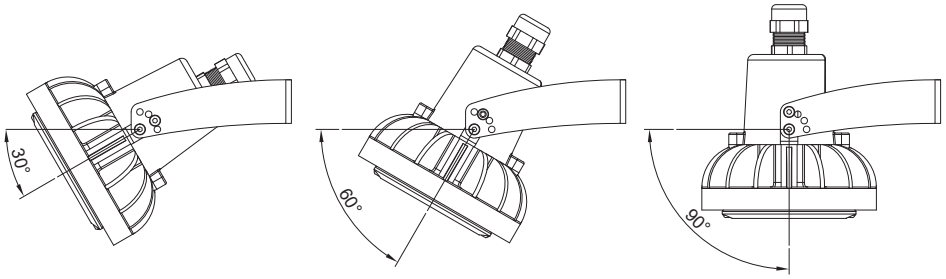
EVML-50 (rear cable entry)



EVML-50L (side cable entry)



Tilt degrees for lighting fixture installation EVML-50



EVML-50P hand-held lighting fixture

The LED EVML-50P hand-held lighting fixture, powered with cable, has been designed to be used mainly in inspection and maintenance activities on industrial plants, in tanks and in all those places where there is a potentially dangerous atmosphere formed by gas and dust. The EVML-50P series hand-held lighting fixture is characterized by a non-slip handle and a high degree of body strength combined with excellent light performance. A further peculiarity of this hand-held lighting fixture is the possibility of being powered with different voltages at 12, 24, 48, 110 and 220 V ac/dc for a wider use.

Classification: 2014/34/UE	Group II	Category 2GD	
Installazion: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)	
Execution:	CE 0722 Ex II 2GD Ex e mb IIC T.. Gb Ex tb IIIC T..°C Db IP66		
Certificate:	ATEX	CML 19 ATEX 3019X	
	IEC Ex	IECEx CML 19.0003X	For all IEC Ex and TR CU certification data, download the certificate from www.cortemgroup.com
	TR CU	AVAILABLE	
Standard:	CENELEC EN 60079-0: 2018, EN 60079-7: 2015, EN 60079-18: 2015, EN 60079-28: 2015, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2017, IEC 60079-18: 2014, IEC 60079-28: 2015, IEC 60079-31: 2013, IEC 60079-7: 2015 European Directive 2006/95 Low voltage European Directive 2004/108 Electromagnetic compatibility European Directive 2003/108 WEEE European Directive 2011/64 RoHS		
Temp. class:	See “selection table”		
Ambient temp.:	-40°C +40°C (+50°C +60°C)		
Protection rating:	IP66		

FEATURES

- Low copper content aluminium alloy fitted with cooling fins for better heat dissipation.
- Polyester coating Ral 7035.
- Shock and temperature resistant tempered glass.
- Non-slip black handle.
- High corrosion resistance.
- Suitable for offshore / onshore environments.
- Easy connection.
- Cable gland for non-armored cable NAV20IB, cable range 6.5 ÷ 14.

ACCESSORIES AVAILABLE / SPECIAL REQUESTS

5 meters long cable and SPY series plug (example code EVML-50/24DP**T**)

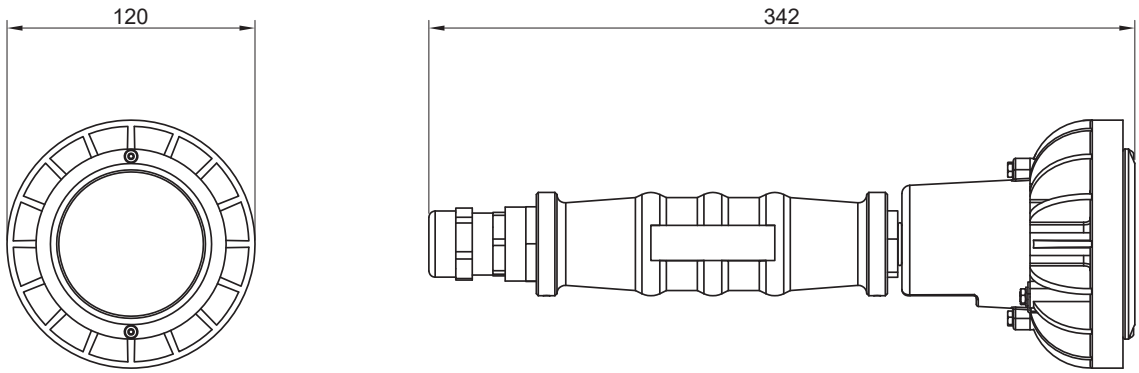
Hook for hand-held lighting fixture (code G-1061)

EVML-50P hand-held lighting fixture

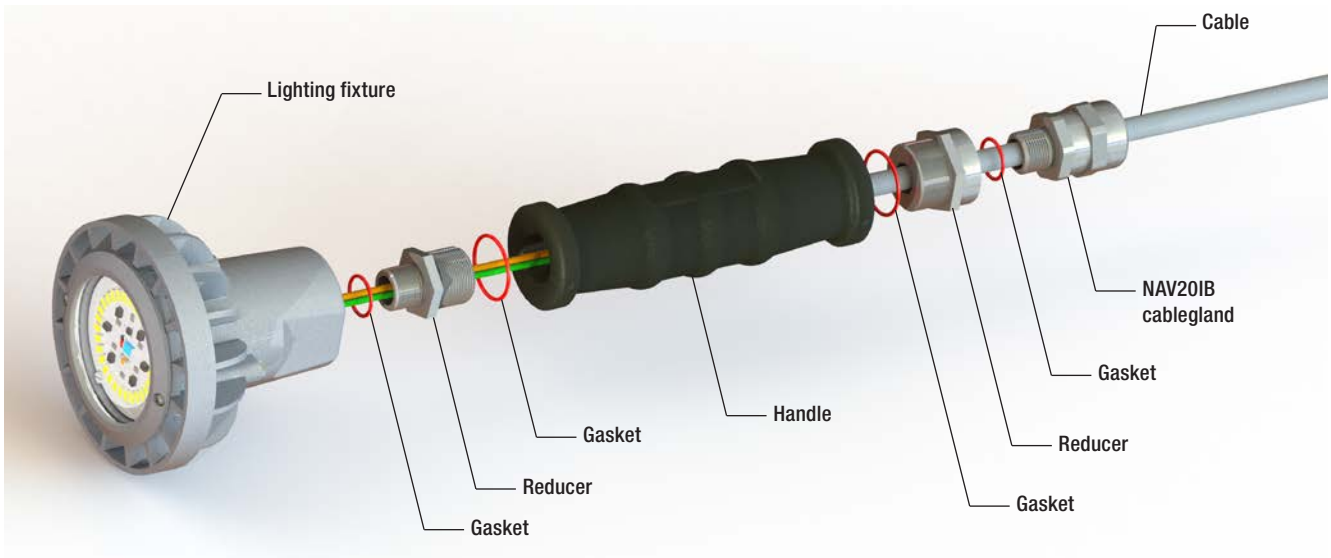
EVML-50P lighting fixture selection chart

Code	Watt	Supply voltage	Temperature class			Weight kg	mm
			Ta <+40°C	Ta <+50°C	Ta <+60°C		
EVML-50P	19 W	220-240 Vac	T5/95°C	T4/105°C	T4/115°C	1.4	
EVML-50/110P	12 W	110 Vac/dc	T6/64°C	T6/74°C	T5/84°C	1.4	
EVML-50/12P	18 W	12 Vac/dc	T6/66°C	T6/76°C	T5/86°C	1.4	
EVML-50/24DP	16 W	24 Vdc	T6/66°C	T6/76°C	T5/86°C	1.4	
EVML-50/24AP	13 W	24 Vac	T6/64°C	T6/74°C	T5/84°C	1.4	
EVML-50/48DP	15 W	48 Vdc	T5/81°C	T5/91°C	T4/101°C	1.4	
EVML-50/48AP	15 W	48 Vac	T6/77°C	T5/87°C	T4/97°C	1.4	

DIMENSIONAL DRAWING



EXPLODED DIAGRAM OF EVML-50P



MSU Signalling lightings

The MSU series signalling lighting equipment is designed to be used in hazardous areas as indicator of dangers and for any communication need, replacing also acoustic signals. It is a multi-unit device formed by a metal sheet base, fixable on walls, poles, etc., by EVML-50/G signalling lighting equipment and by an 'Ex e' aluminum junction box SA series. The EVML- 50/G signalling lighting equipment are available with a LED and globe of different colours: blue, red, green, amber and clear.

FEATURES

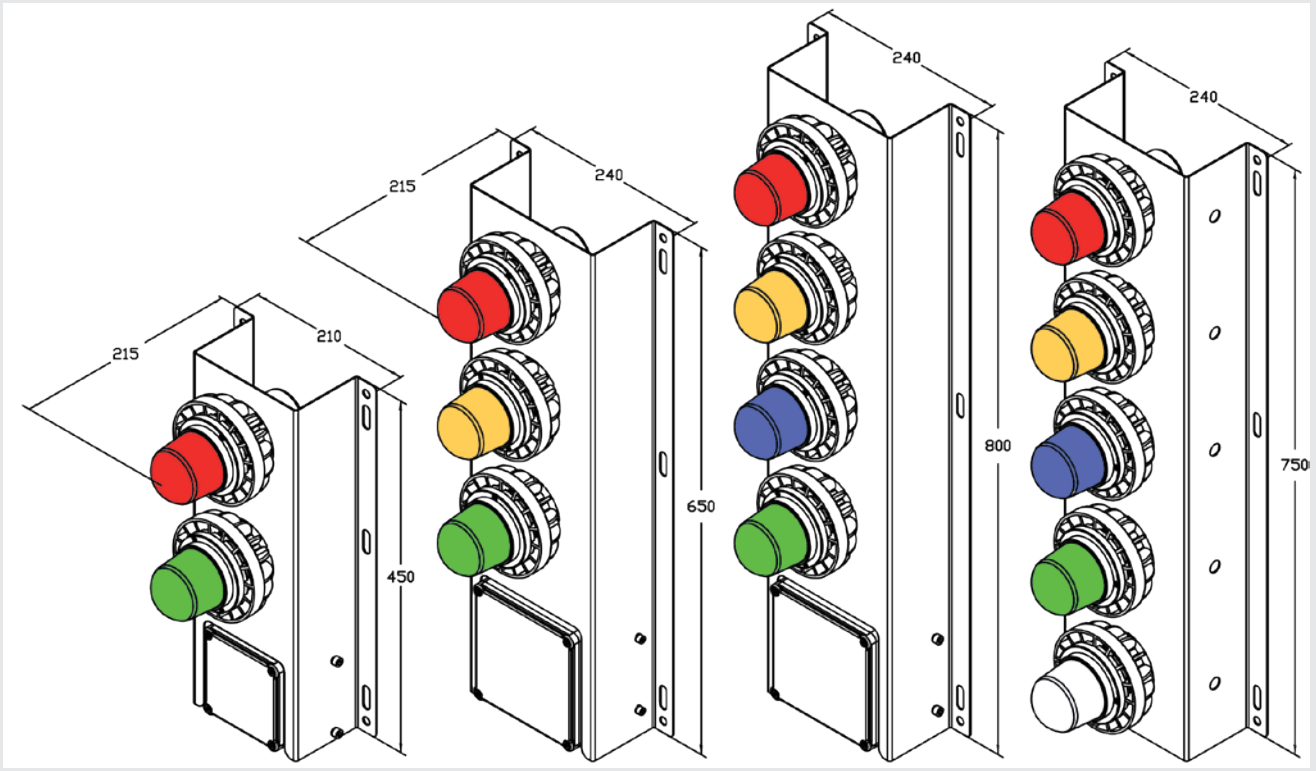
- Pre-wired ready to use multi-signalling unit
- Corrosion resistant
- Coating RAL7035
- Suitable for offshore / onshore & harsh environments
- 'Ex e' termination area
- Quick and easy to terminate
- Cablegland NAV25IB, range cable 11 ÷ 20
- High ingress protection IP66
- Extreme temperature range -40°C...+60°C
- Light enhancing lens, 5 colour options
- Up to 5 beacon positions
- Power supply: 230 Vac
- Rated frequency: 50-60 Hz
- Lumen (single signal lamps): 1032 lm
- Max. light intensity (single signal lamps): 385 cd

ACCESSORIES AVAILABLE / SPECIAL REQUESTS

Different rated voltage 110 Vac/dc
Different combination upon requests

Code	Type Lamp	Device	Watt	Class (Ta = +40°C)	Max surface temperature °C (Ta= +40°C)
MSU-2RV	LED	2-way	19 W	T6	60
MSU-3RGV	LED	3-way	19 W	T6	60
MSU-4RGBV	LED	4 -way	19 W	T6	60
MSU-5RGBVI	LED	5-way	19 W	T6	60

DIMENSIONAL DRAWINGS



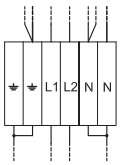
MSU-2RV
Red
Green

MSU-3RGV
Red
Ambrer
Green

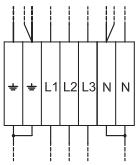
MSU-4RGBV
Red
Amber
Blue
Green

MSU-5RGBVI
Red
Amber
Blue
Green
Colorless

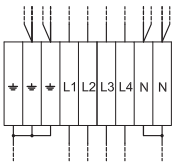
ELECTRICAL CONNECTION



MSU-2RV

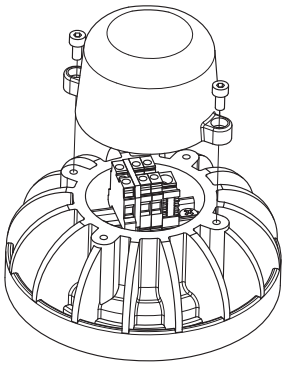


MSU-3RGV



MSU-4RGBV

Wiring inside the junction box



MSU-3RGV

Electrical connection directly to the entrance of the lighting fixtures

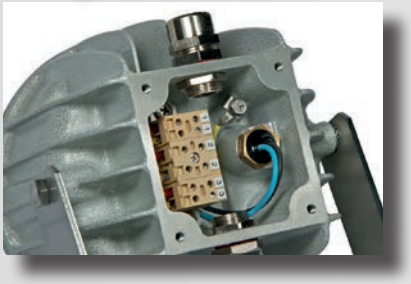
EVL

NEW TECHNOLOGY

- Zone 1, 2, 21, 22
- Replaces traditional discharge lamps more than 400W
- Saves in energy, maintenance and installation costs
- Instant, bright illumination
- Suitable for GAS category IIC and IIB+H_2

'Ex op is'
safe optical radiation

Ex e terminal housing for a quick connection



Entries

EVL series High bay LED lighting fixture

The new LED lighting fixtures EVL series has been developed with the aim of redefining the concepts of compactness, versatility and ease of installation thanks to high intensity and efficiency LED plates. The EVL series consists of four lighting fixtures sizes and represents the LED alternative for all those areas where it was normal to use lighting fixtures with discharge lamps of low and medium power greater than 400W. The body, made of aluminium alloy, is equipped with fins that act as a heat sink allowing a fast and effective dispersion of heat generated by the normal operation of the LED. The geometric conformation of the cooling fins was also designed with the objective of minimizing the deposit of combustible dust, allowing the self-cleaning of the lighting fixture by air or water present in the environment. Furthermore, thanks to the absence of UV emission, there is no ionization of the air particles around the lighting fixture, an intrinsic characteristic of LED technology which limits the attraction of dust and insects. The design of the lamp body, in addition to being functional to the duration of the system, gives the equipment very high light efficiency. The electrical connection is easier thanks to a 'Ex e' terminal housing which allows the entry with a 'Ex e' cable gland (no barrier). In addition, an opposed plugged hole permits the through wiring connection.

Application sectors:

Oil refineries | Chemical and petrochemical plants | Onshore plants | Offshore plants | Onshore plants | Perimeter lighting | Oil loading/ unloading jetties | 100% Cortem product

CERTIFICATION DATA

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II 2GD Ex db eb op is IIC T... Gb - Ex tb op is IIIC T...°C Db			
Certification:	ATEX EPT 19 ATEX 3323 X			
	IEC Ex IECEx SEV 19.0043X			
Standards:	CENELEC EN 60079-0: 2018, EN 60079-1: 2014, EN 60079-7: 2015, EN 60079-28: 2015, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2017, IEC 60079-1: 2014, IEC 60079-28: 2015, IEC 60079-31: 2013, IEC 60079-7: 2015			
Ambient temperature:	-40°C +60°C			
Degree of protection:	IP66			

* For ambient temperature +60°C see "EVL series selection chart" a pagina 26.

EVL series High bay LED lighting fixture

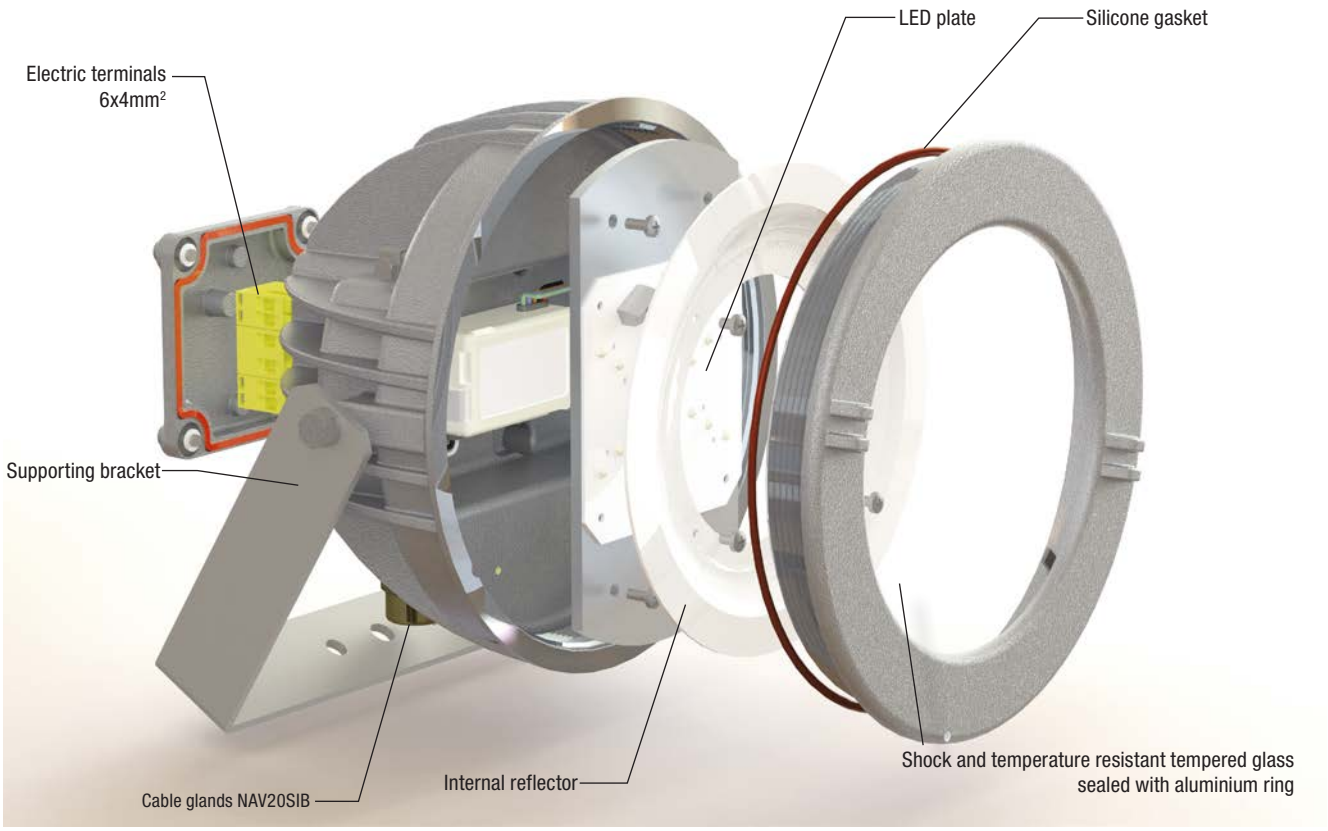
EXEMPT FROM PHOTOBIOLOGICAL RISK (STANDARD IEC / EN 62471)

ORIGINAL PRODUCT

MECHANICAL FEATURES

Body:	Low copper content aluminium alloy fitted with cooling fins for better heat dissipation
Glass face:	Shock and temperature resistant tempered glass sealed with aluminium ring
Gaskets:	Acid, hydrocarbon and high temperature resistant silicone
Supporting bracket:	Stainless steel 316L
Bolts and screws:	Stainless steel
Entries:	2 x ISO M20 entries. Fixture kit with PLG1IB plug and NAV20SIB cable gland
Coating:	Polyester coating Ral 7035 (Light grey)
Corrosion Resistance:	The STANDARD of the aluminium alloy used by Cortem has passed the tests required by EN60068-2-30 (hot/humid cycles) and EN60068-2-11 (salt mist tests)

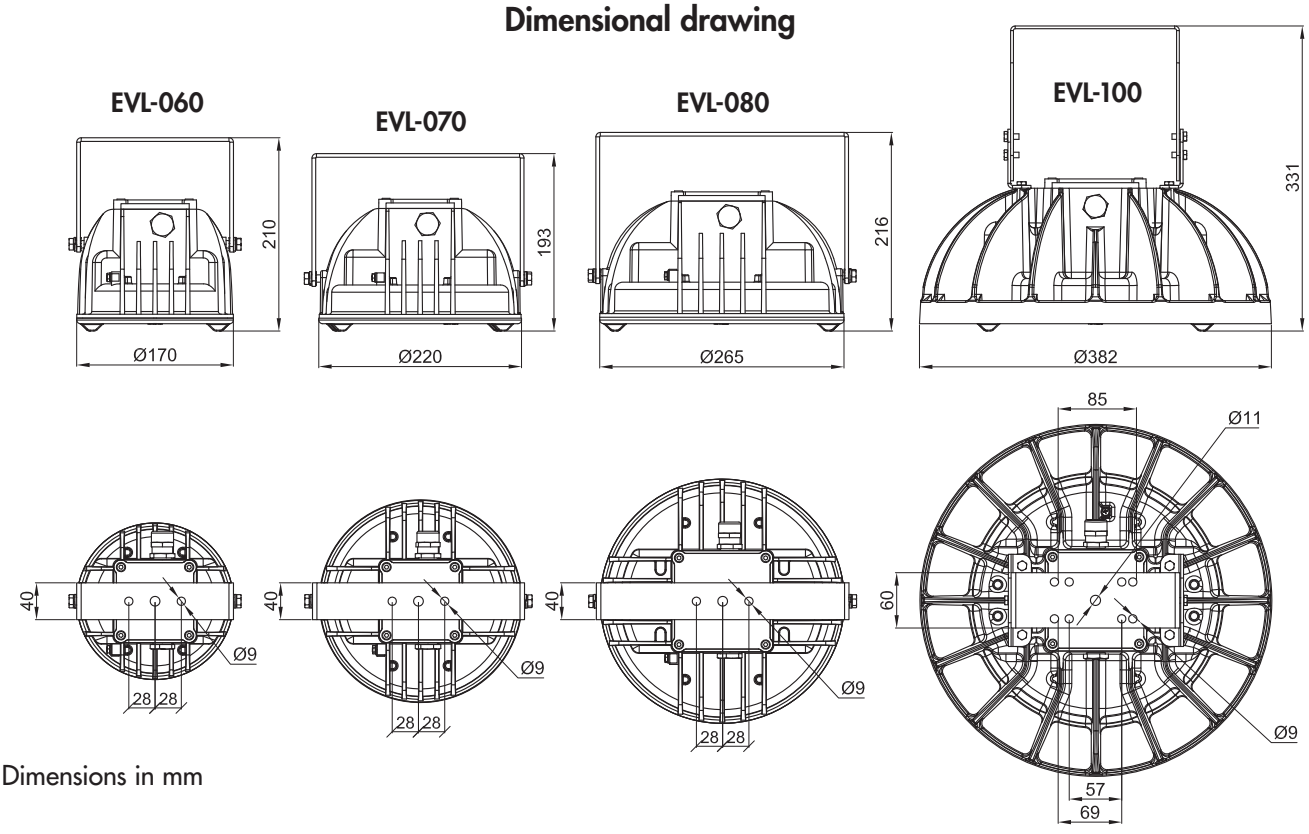
EXPLODED DIAGRAM OF EVL-070 LIGHTING FIXTURE



EVL series selection chart

Code	Maximum permitted power value	Class / Max surface temp. °C			Lumen	Maximum light intensity	Overall efficiency	Weight kg	mm
		TA=+40°C	TA=+50°C	TA=+60°C					
EVL-060030	30 W	T6 / 85°C	T5 / 100°C	T5 / 100°C	2778 lm	1179 cd	94,8 lm/W	3,5	215x205x170
EVL-060040	40 W	T6 / 85°C	T5 / 100°C	T5 / 100°C	3992 lm	1527 cd	97,9 lm/W	3,5	215x205x170
EVL-060050	50 W	T5 / 100°C	N/A	N/A	4643 lm	1765 cd	92,1 lm/W	3,5	215x205x170
EVL-070050	50 W	T5 / 100°C	T5 / 100°C	T4 / 135°C	6332 lm	2130 cd	120,1 lm/W	5,2	250x235x165
EVL-070060	60 W	T5 / 100°C	T5 / 100°C	T4 / 135°C	7259 lm	2458 cd	118,9 lm/W	5,2	250x235x165
EVL-070070	70 W	T5 / 100°C	N/A	N/A	7852 lm	2659 cd	110,3 lm/W	5,2	250x235x165
EVL-070080	80 W	T5 / 100°C	N/A	N/A	8237 lm	2801 cd	103,5 lm/W	5,2	250x235x165
EVL-080080	80 W	T5 / 100°C	T5 / 100°C	T4 / 135°C	8461 lm	2900 cd	105,8 lm/W	7,2	290x290x170
EVL-080090	90 W	T4 / 135°C	T4 / 135°C	T4 / 135°C	9466 lm	3296 cd	105,2 lm/W	7,2	290x290x170
EVL-080100	100 W	T4 / 135°C	N/A	N/A	10315 lm	3586 cd	103,2 lm/W	7,2	290x290x170
EVL-080120	120 W	T4 / 135°C	N/A	N/A	11603 lm	4019 cd	98,3 lm/W	7,2	290x290x170
EVL-100140	140 W	T4 / 135°C	T4 / 135°C	T4 / 135°C	15260 lm	5213 cd	111,4 lm/W	11,2	385x385x250
EVL-100160	160 W	T4 / 135°C	T4 / 135°C	T4 / 135°C	17535 lm	6032 cd	109,2 lm/W	11,2	385x385x250
EVL-100180	180 W	T4 / 135°C	T4 / 135°C	T4 / 135°C	18535 lm	6635 cd	103,0 lm/W	11,2	385x385x250
EVL-100200	200 W	T4 / 135°C	N/A	N/A	20123 lm	7156 cd	101,4 lm/W	11,2	385x385x250
EVL-100220	220 W	T4 / 135°C	N/A	N/A	21818 lm	7595 cd	100,1 lm/W	11,2	385x385x250

Dimensional drawing



Dimensions in mm

EVL series High bay LED lighting fixture

Electrical features	EVL-060..	EVL-070..	EVL-080..	EVL-100..
Power supply:	120-277 Vac	120-277 Vac	120-277 Vac	120-277 Vac
Rated frequency:	50-60 Hz ±5%	50-60 Hz ±5%	50-60 Hz ±5%	50-60 Hz ±5%
Power consumption*:	..030 30 W	..050 50 W	..080 80 W	..140 140 W
	..040 40 W	..060 60 W	..090 90 W	..160 160 W
	..050 50 W	..070 70 W	..100 100 W	..180 180 W
	-	..080 80 W	..120 120 W	..200 200 W
	-	-	-	..220 220 W
Connection:	Direct connection to terminal board L, N, Pe. Section 4mm², suitable for loop-in/loop-out			
Power factor:	>0,93	>0,95	>0,97	>0,96
Rated current:	..030 140 mA	..050 230 mA	..080 350 mA	..140 640 mA
	..040 180 mA	..060 270 mA	..090 400 mA	..160 710 mA
	..050 220 mA	..070 310 mA	..100 440 mA	..180 800 mA
	-	..080 360 mA	..120 530 mA	..200 890 mA
	-	-	-	..220 970 mA
EMC (electromagnetic compatibility):	EN 55015, EN 61547, IEC 61000-3-2, IEC 61000-3-3, IEC 61000-4-...			
THD (total harmonic distortion):	<15% 100-240 Vac			
Protección de sobretensiones:	2 kV	2 kV	6 kV	2 kV
Driver performances:	Over-Voltage protection, Over-Current protection, Short-Circuit protection			
Dimmer (on request):	(0-10 V) or PWM or resistor	(0-10 V) or PWM or resistor	(0-10 V) or PWM or resistor	(0-10 V) or PWM or resistor
Photometric features				
LED Multichip:	High power LED	High power LED	High power LED	High power LED
Viewing angle:	120°	120°	120°	120°
Colour temperature:	5700 K	5700 K	5700 K	5700 K
CRI:	>70	>70	>70	>70
Instant Restrike:	SI	SI	SI	SI
L80:	> 63500 h	> 60500 h	> 61000 h	> 60000 h

* *Test at 230Vac*

ACCESSORIES AVAILABLE / SPECIAL REQUESTS

CRI values higher
Dimmer
Different colour temperature
U bolt for pole mounting
Eyebolt
Cover with direct connection for pole
Stanchion mounting with fixed orientation at 25°

EVL series High bay LED lighting fixture

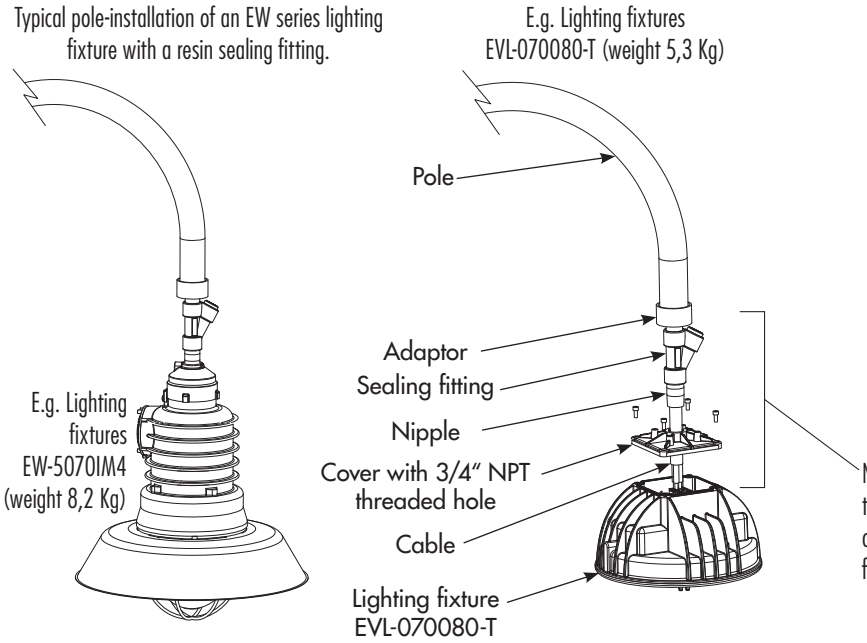
ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	KEY
	Pendant eyebolt	Ø interno 20	Material: galvanised steel	G0F-8	ACCESSORY SPARE PART
	U bolt for pole mounting	Poste Ø1 1/2"	Material: stainless steel AISI 316L	UBD5S	ACCESSORY SPARE PART
	Cover with direct connection for pole	EVL-060... EVL-070...	Material: aluminium alloy with threaded hole 3/4" NPT (Different threads on request)	B-498	SPARE PART
		EVL-080... EVL-100...		B-499	
	Supporting bracket	EVL-060...	Material: stainless steel AISI 316L	G-764IN	SPARE PART
		EVL-070...		G-765IN	
		EVL-080...		G-766IN	
		EVL-100...		G-827	
	Power supply	EVL-060030	120-277 Vac	LEDDEVL060/2	SPARE PART
		EVL-060040		LEDDEVL060/2/1	
		EVL-060050		LEDDEVL060/2	
		EVL-070050	120-277 Vac	LEDDEVL070/1	
		EVL-070060		LEDDEVL070/1/2	
		EVL-070070		LEDDEVL070/1/3	
		EVL-070080		LEDDEVL080/4/1	
		EVL-080080	120-277 Vac	LEDDEVL080/4	
		EVL-080090		LEDDEVL080/4/2	
		EVL-080100		LEDDEVL080/4/3	
		EVL-080120		LEDDEVL080/5/2	
		EVL-100140	120-277 Vac	LEDDEVL100/1/1	
		EVL-100160		LEDDEVL100/1	
		EVL-100180		LEDDEVL100/1/2	
		EVL-100200		LEDDEVL100/1/3	
		EVL-100220		LEDDEVL100/1/4	
	Cable gland	ISO M20	std. range cable 6,3÷11,6	NAV20SIB	SPARE PART
	Front ring with glass	EVL-060...	Aluminium ring Borosilicate glass face	G60-0587	SPARE PART
		EVL-070...		G70-0587	
		EVL-080...		G80-0587	
		EVL-100...		G100-0587	

Obstruction lighting fixtures

The obstruction lighting fixtures are feature a LED plate and a globe of different colours: blue, red, green, amber. They can be installed in locations where obstacles, dangers are needed to be signalled and for any visual communication. They replace acoustic signals in places where they are not applicable.

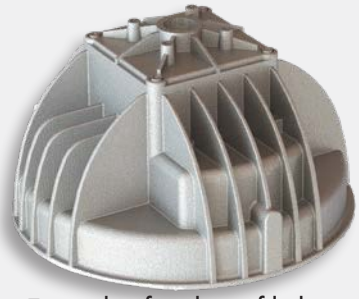
REPLACEMENT OF OLD LIGHTING FIXTURES POLE-MOUNTED

Using the lighting fixture with direct connection for pole mounting EVL-...-T series, it is possible to replace the old lighting fixtures with 3/4 "NPT or ISO 7/1 threaded entries.



Note: it is necessary to preserve, during the installation, the IP protection degree of the terminal box using a sealing fitting.

3/4" NPT threaded entry



Example of coding of lighting fixtures with direct pole connection EVL-070070-**T**

Transportable version EVL-...-PS complete with cable 8 meters long, sockets model PY216V and plug model SPY216V.
To order the transportable lighting fixture without socket and plug, omit the S in the code: **EVL-...-P**.

Weight (without socket):

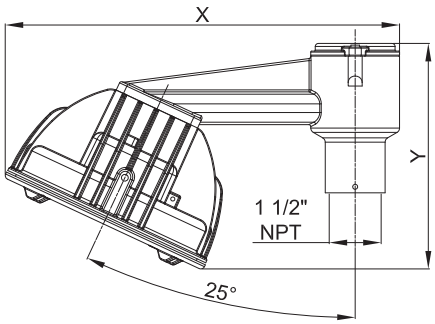
EVL-060...-P	7,5 Kg
EVL-070...-P	9,2 Kg
EVL-080...-P	11,2 Kg
EVL-100...-P	15,2 Kg

EVL series High bay LED lighting fixture

Stanchion mounting with fixed orientation at 25°

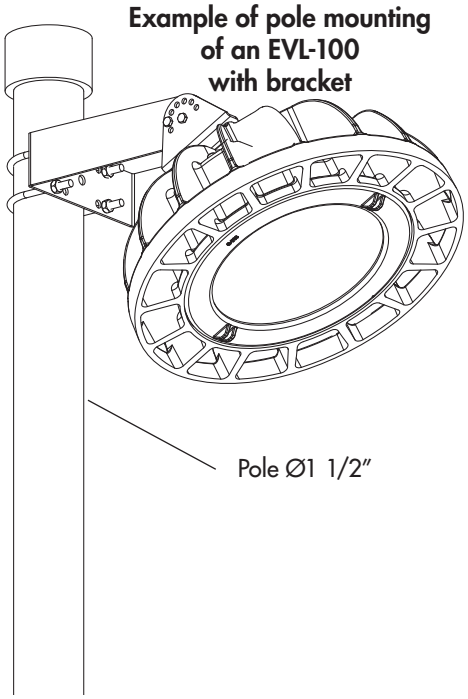
Direct connection to terminal board L, N, Pe.
Section 4mm², suitable for loop-in/loop-out

Code	X	Y	Peso kg	mm
EVL-060...-IX	372	215	4,5	372x170x215
EVL-070...-IX	395	226	6,0	372x327x226
EVL-080...-IX	419	242	8,2	351x351x242
EVL-100...-IX	478	280	12,0	412x412x280

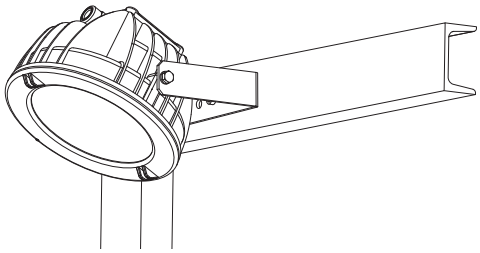


Installation and mounting methods

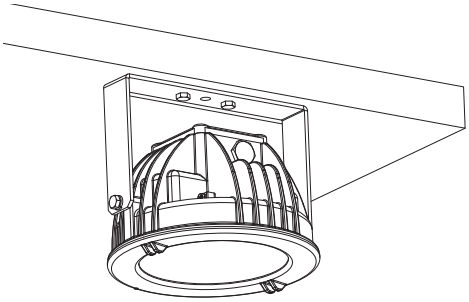
Example of pole mounting of an EVL-100 with bracket



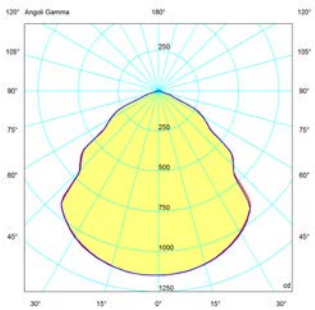
Example of wall or structure mounting of an EVL-070



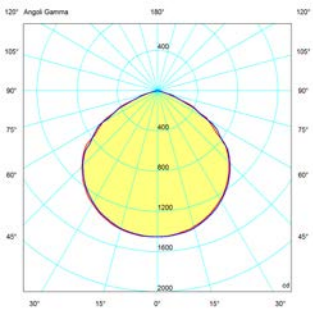
Example of ceiling mounting of an EVL-070



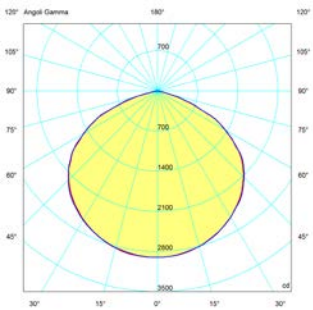
Photometric diagrams



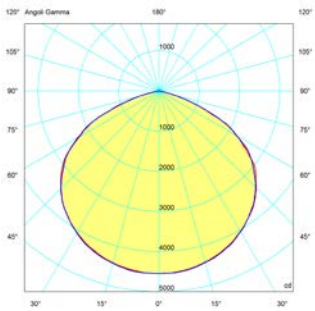
EVL-060030 Luminous flux: 2778 lm



EVL-070050 Luminous flux: 6332 lm



EVL-080080 Luminous flux: 8461 lm



EVL-100140 Luminous flux: 15260 lm

On Cortem Group web site you can download .LDT and .IES lighting data files for the design and simulation of lighting levels in 2D and 3D, rendering and ray tracing.

= plane 90270
= plane 0180

EVNL

- Zone 2, 22
- Replaces traditional discharge lamps exceeding 400W
- Savings on energy costs, maintenance and installation
- Immediate high-intensity activation

Ex casing and terminal holder for quick connection

COB LED lighting

Cooling fins for high levels of heat dissipation

EVNL series, High Bay LED lighting fixtures for zone 2, 22

Cortem Group presents the new range of LED lighting, suitable for plants in zone 2 and zone 22 and with which it aims to meet market needs, keeping cost reductions at the foreground, improving the quality of the product and increasing the lighting solution specifications.
The advantage of the EVNL lighting fixtures is the implementation of the "Ex nR" version which classifies the equipment as a restricted breathing device. The careful design together with the meticulous choice of materials to seal the lighting fixture limits the entry of flammable gases, vapours or mists during normal operation of the lighting fixture.
This series of LED lighting fixtures is made using "COB" (ChipOnBoard) LED lighting, Multichip LEDs formed of an LED matrix connected to each other and covered with a layer of diffused phosphorus. The particular design of the body in aluminium alloy allows quick and easy dispersion of the heat generated during normal operation of LED lights. Furthermore, the geometric structure of the cooling fins has been designed to minimise the deposits of combustible dust and allow air or water present in the surrounding area to exert a cleaning action on the fixture.
The lighting fixtures of the EVNL Series can be powered by a cable and a simple "Ex e" cable gland with a single gasket, without needing to carry out sealing interventions in the field. Furthermore, an entry point with an opposing plug allows the in/out connection for connecting multiple lighting bodies onto one single power line.

Sectors for use:

Petroleum refineries | Chemical and petrochemical plants | Anti-light pollution | Offshore plants | Onshore plants | Lighting of perimeter zones | Petroleum loading/ unloading pontoons | 100% produced by Cortem

CERTIFICATION DATA

Classification:	Group II	Category 3GD		
Installation: EN 60079.14	zone 2 (Gas)	zone 22 (Dust)		
Execution:	CE Ex II 3GD Ex nR IIC T.. Gc - Ex tc IIIC T..°C Dc IP66			
Certificate:	ATEX CML 17 ATEX 4159X			
	IEC Ex IEC Ex CML 17.0081X	For all IEC Ex and INMETRO certification data, download the certificate from www.cortemgroup.com		
	INMETRO DNV 17.0140X			
Standard:	CENELEC EN 60079-0: 2013, EN 60079-15: 2010, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2011, IEC 60079-15: 2010, IEC 60079-31: 2013			
Temperature class:	85°C (T6) / 135°C (T4)	100°C (T5) / 135°C (T4)		
Ambient temperature:	-40°C +50°C	-40°C +60°C		
	For details regarding the temperatures, see "Selection table"			
Protection rating:	IP66			

EVNL series, High Bay LED lighting fixtures for zone 2, 22

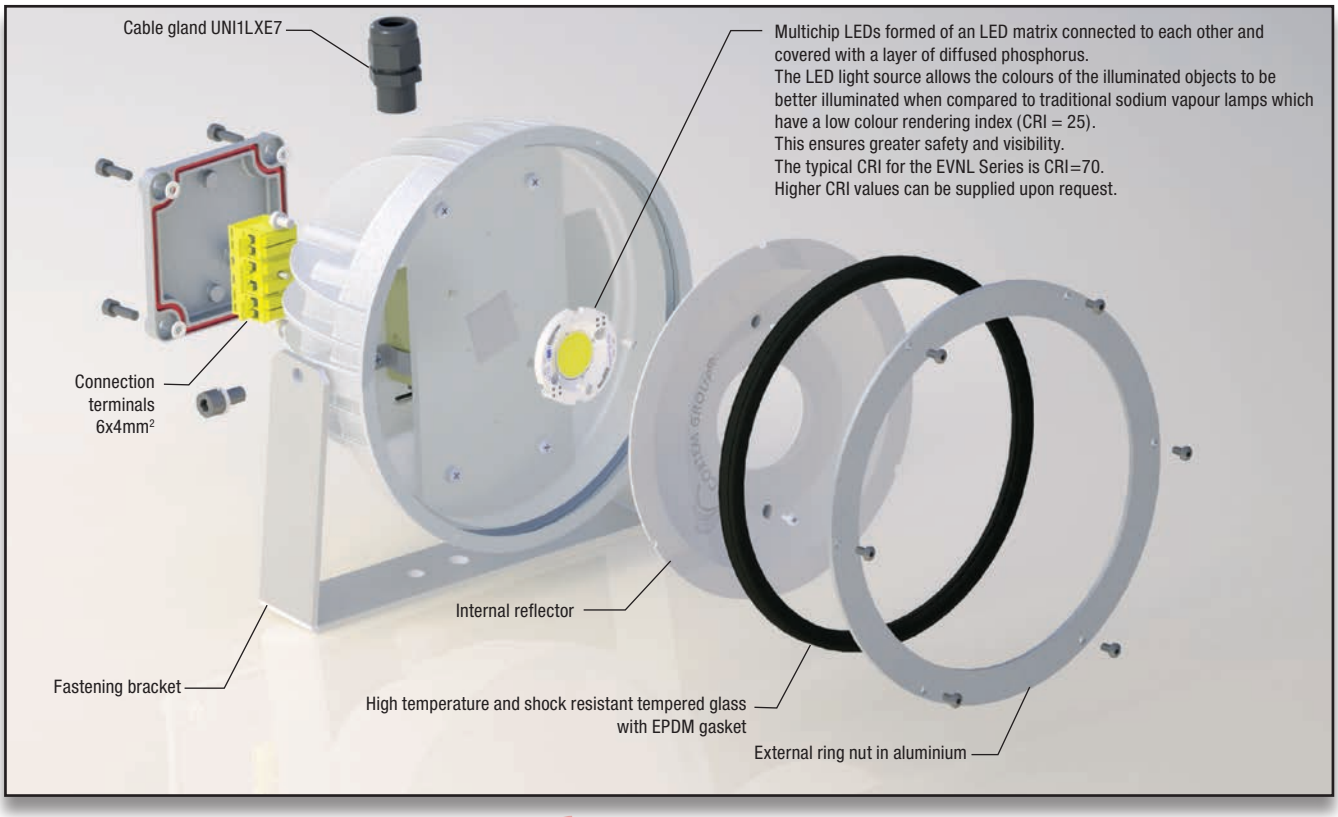
EXEMPT FROM PHOTOBIOLOGICAL RISK (STANDARD IEC / EN 62471)

ORIGINAL PRODUCT

MECHANICAL CHARACTERISTICS

Body:	Aluminium alloy with low copper content. With cooling fins for high levels of heat dissipation.
Transparent front cover:	High temperature and shock resistant tempered glass
Gasket:	EPDM resistant to acids, hydrocarbons and high temperatures
Fastening bracket:	Stainless steel
Screws:	Stainless steel
Entry points:	2 ISO M20 entry points Fixture complete with a PLG1ILXE7 plug and UNI1LXE7 cable gland
Coating:	Polyester RAL 7035 (Light grey)
Corrosion Resistance:	The STANDARD of the aluminium alloy used by Cortem has passed the tests required by the Standard EN60068-2-30 (hot-humid cycles) and EN60068-2-11 (salt fog test)

EXPLODED VIEW OF LIGHTING FIXTURE EVNL-70



EVNL series, High Bay LED lighting fixtures for zone 2, 22

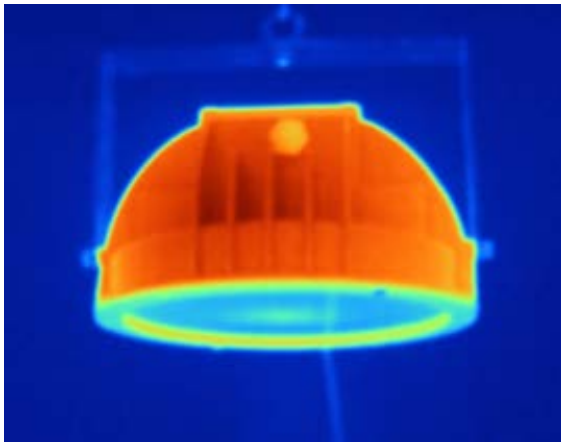
Electrical specifications	EVNL-60	EVNL-70	EVNL-80	EVNL-100
Supply voltage:	120-277 Vac	120-277 Vac	220-240 Vac	100-277 Vac
Rated frequency:	50-60 Hz ±5%	50-60 Hz ±5%	50-60 Hz	50-60 Hz
Lamp power consumption:	27 W*	54 W*	78 W*	154 W*
Connection:	Cable entry directly to the terminal board L, N, PE. Max. cross-section 4 mm2, suitable for in-out			
Power factor:	>0,93	>0,91	>0,98	>0,96
Rated current:	127 mA	250 mA	350 mA	720 mA
EMC (Electromagnetic compatibility):	EN 55015, EN 61547, IEC 61000-3-2, IEC 61000-3-3, IEC 61000-4-...			
THD (Total Harmonic Distortion):	<15% 100-240 Vac			
Over-voltage protection:	2 kV	2 kV	6 kV	2 kV
Driver performance levels:	Over-Voltage Protection, Over-Current Protection, Short-Circuit Protection			
Dimming (upon request):	(0-10 V)	(0-10 V)	(0-10 V)	(0-10 V) o PWM or resistor
Photometric specifications				
LED Multichip:	Cree CXB	Cree CXB	Cree CXB	Citizen
Viewing angle:	115°	115°	115°	115°
Colour temperature:	5700 K	5700 K	5700 K	5000 K
CRI:	70	70	70	70
Instant Restrike:	YES	YES	YES	YES
L80:	> 61000	> 61000	> 61000	> 61000
Lumen:	**3587 lm**	**7216 lm**	**9932 lm**	**19477 lm**
Maximum lighting intensity:	**1364 cd**	**2592 cd**	**3490 cd**	**6923 cd**
Overall efficiency:	**131 lm/W**	**133 lm/W**	**127 lm/W**	**128 lm/W**

** Test at 230Vac*

ACCESSORIES UPON REQUEST / SPECIAL IMPLEMENTATIONS

Dimming (code EVNL-80/**D**)
Different colour temperatures (code EVNL-80/**2700K**)
Additional U-bolts for assembly to a pole
Eye bolt
Metal cable gland

EVNL Series Selection table



THERMOGRAPHIC DETECTION EVNL-70

After an initial transitory period, the lamp reaches thermal stability. The thermographic detection is shown in this image.

With an ambient temperature of 23°C (shown by the blue colour in the background), the highest temperature reached by the LED lamp is 55°C .

These thermal performance levels are tangible proof of the high efficiency of LED light sources.

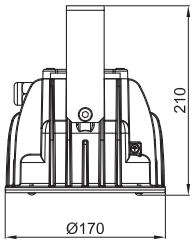
The temperature distribution on the fins which is a result of precise Thermal Management, should also be noted.

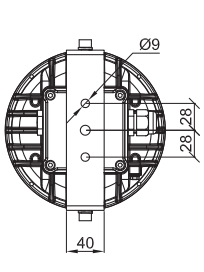
Code	Transparent part	Lamp type	Watt*	Class / Max surface temperature °C		Weight kg	mm
				+50°C	+60°C		
EVNL-60	GLASS	LED	27 W	T6 / 83°C	T5 / 93°C	2,5	215x205x170
EVNL-70	GLASS	LED	54W	-	T4 / 122°C	3,3	250x235x165
EVNL-80	GLASS	LED	78 W	-	T4 / 122°C	4,3	290x290x170
EVNL-100	GLASS	LED	152 W	-	T4 / 122°C	9,2	385x385x250

** Test at 230Vac*

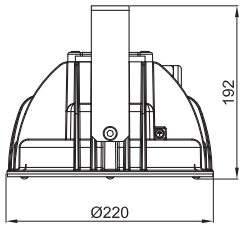
DIMENSIONAL DRAWINGS

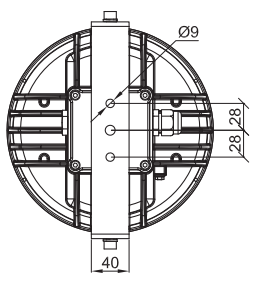
EVNL-60



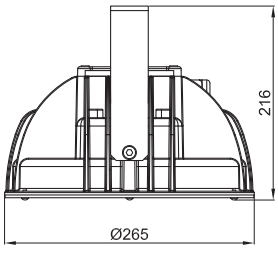


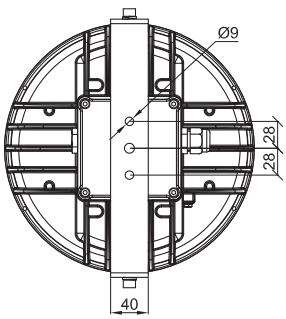
EVNL-70



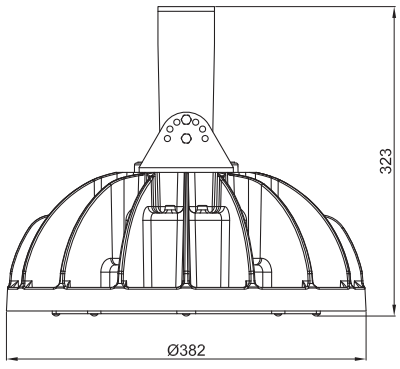


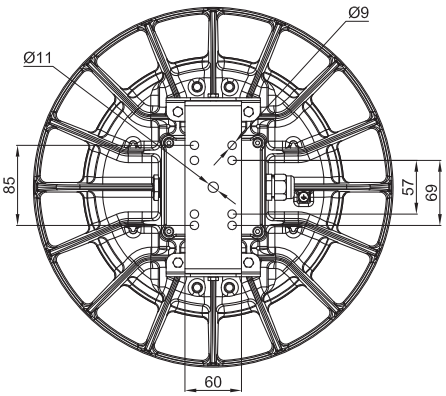
EVNL-80





EVNL-100





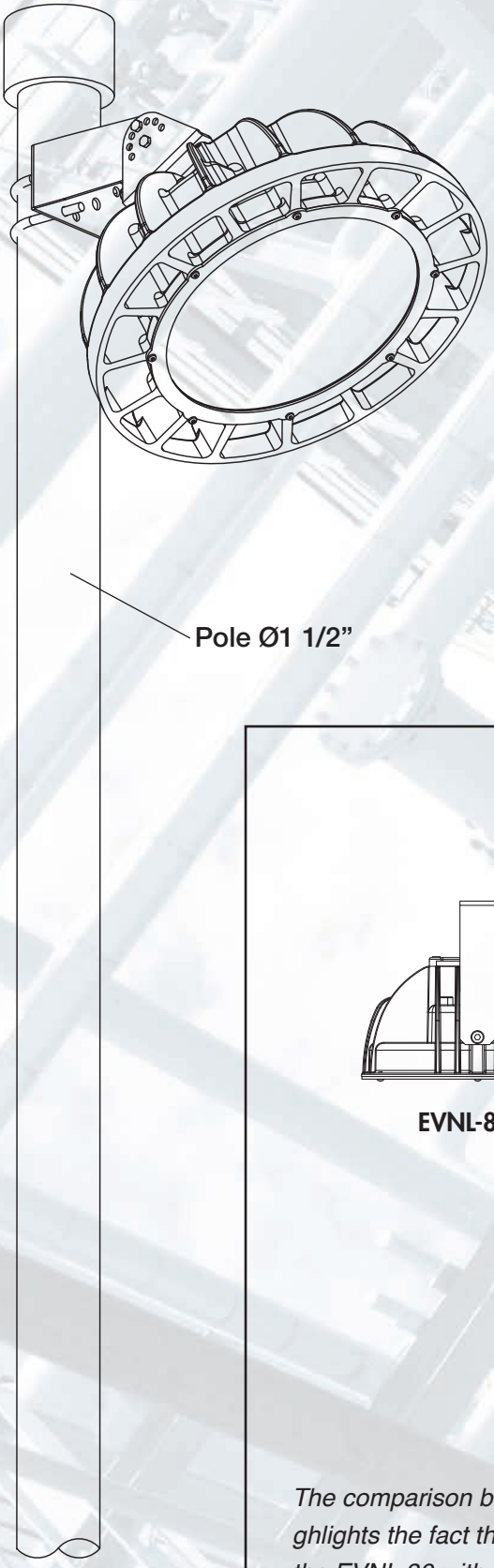
Dimensions in mm

Accessories upon request and spare parts for lighting fixtures of the EVNL Series

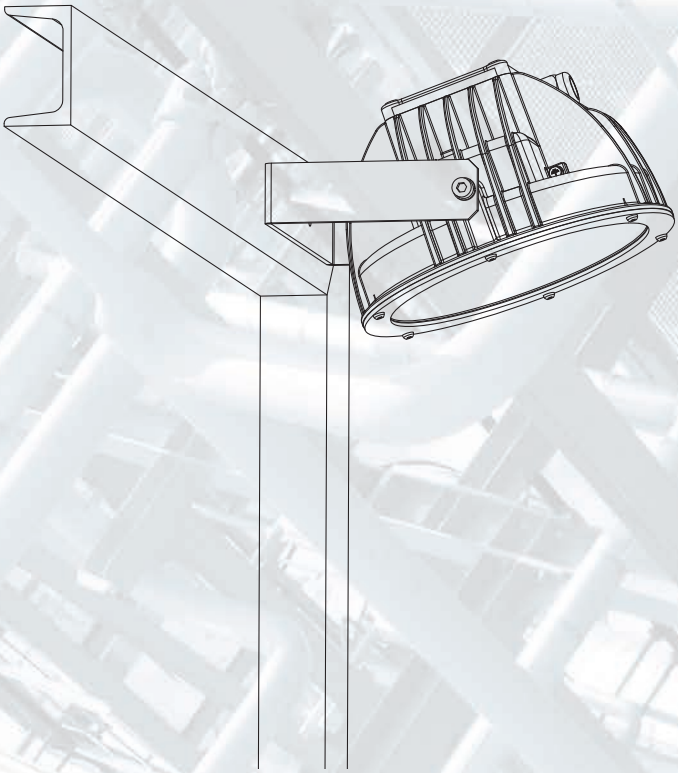
ILLUSTRATION	DESCRIPTION	MODEL	CHARACTERISTICS	CODE	KEY
	Suspended eye bolt	Ø interno 20	Material: galvanized steel	GOF-8	ACCESSORY, SPARE PART
	U-bolt for pole assembly	per pali Ø1 1/2″	Material: stainless steel AISI 316L	UBD5S	ACCESSORY, SPARE PART
	Fastening bracket	EVNL-60	Material: stainless steel AISI 316L	G-764IN	SPARE PART
		EVNL-70		G-765IN	
		EVNL-80		G-766IN	
		EVNL-100		G-827	
	Holder	EVNL-60	Body material: PBT contacts: CuSn	HOLDEVL-60	SPARE PART
		EVNL-70		HOLDEVL-70	
		EVNL-80		HOLDEVL-80	
		EVNL-100		HOLDEVL-100	
	Electronic power unit	EVNL-60	120-277 Vac	LEDDEVL60	SPARE PART
		EVNL-70	120-277 Vac	LEDDEVL70	
		EVNL-80	220-240 Vac	LEDDEVL80/2	
		EVNL-100	100-277 Vac	LEDDEVL100	
	Cable gland	ISO M20	std. cable range 7-12	UNI1LXE7	SPARE PART
	Glass + gasket	EVNL-60	Tempered front glass and black gasket in EPDM	G-831 + G-944	SPARE PART
		EVNL-70		G-830+ G70-955	
		EVNL-80		G-829 + G80-955	
		EVNL-100		G-852 + G100-955	

Installation and assembly methods

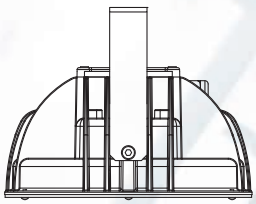
Example of mounting on a pole (EVNL-100)



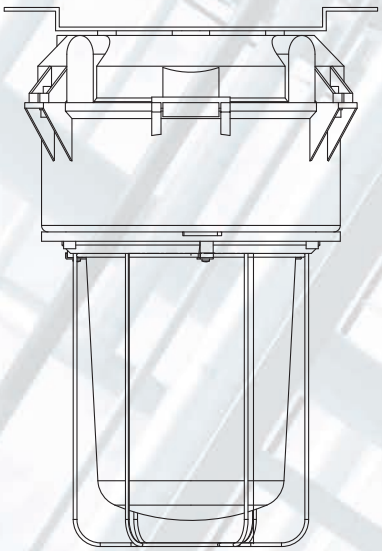
Example of mounting on a wall or structure (EVNL-80)



Less space required and lighter (Compact)
=
More economical supporting structures and greater available space



EVNL-80



EWNX-100F6 (Mercury)

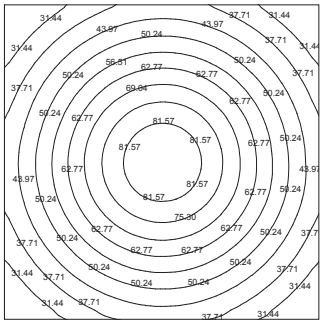
The comparison between two lighting fixtures highlights the fact that less space is occupied by the EVNL-80 with equal lighting yield

Photometric curves and specifications

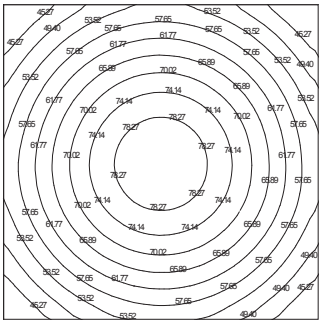
EVNL-..., equivalence

EVNL-60 (27 W) EVNL-70 (54 W) EVNL-80 (78 W) EVNL-100 (152 W) LED	(125 W) (250 W) (400 W) (>400 W) Mercury	(70 W) (150 W) (250 W) (400 W) Sodium	(70 W) (150 W) (250 W) (>400 W) Metal halide
Typical energy savings	78%	62%	62%

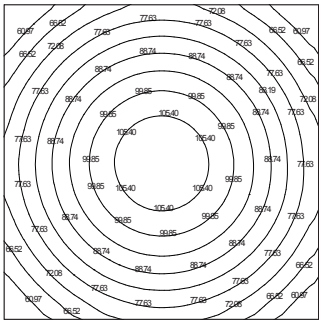
Floor lighting relating to **EVNL-60** expressed in lux in a room 5 m x 5 m with fixture at the centre at **3.5m** height.



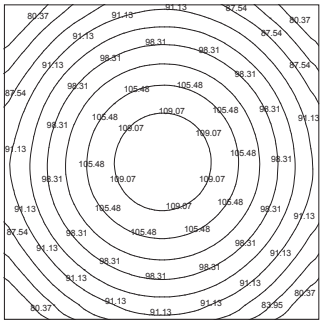
Floor lighting relating to **EVNL-70** expressed in lux in a room 5 m x 5 m with fixture at the centre at **5m** height.

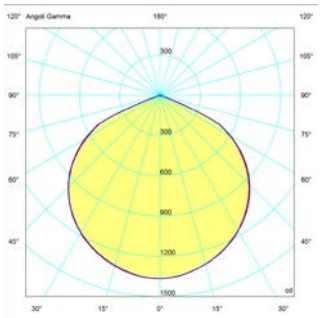


Floor lighting relating to **EVNL-80** expressed in lux in a room 5 m x 5 m with fixture at the centre at **5m** height.

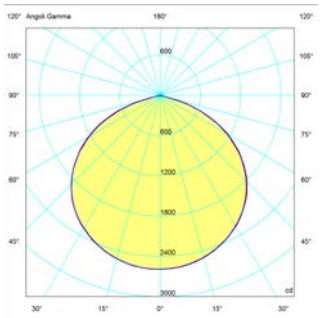


Floor lighting relating to **EVNL-100** expressed in lux in a room 5 m x 5 m with fixture at the centre at **7m** height.

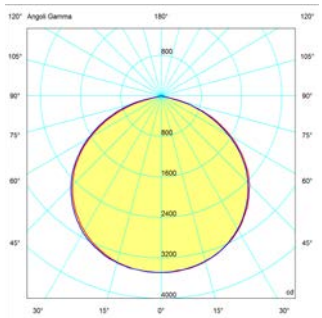




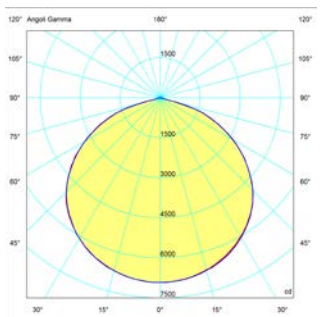
EVNL-60 Luminous flux: 3587 lm



EVNL-70 Luminous flux: 7216 lm



EVNL-80 Luminous flux: 9932 lm



EVNL-100 Luminous flux: 19477 lm

The lighting solution files for the design, planning and simulation of lighting levels in 2D-3D, rendering and ray-tracing are available from www.cortemgroup.com.

= plane 90270
= plane 0180

EWL

- Zone 1, 2, 21, 22
- Replaces traditional discharge lamps of up to 750W
- Saves in energy, maintenance and installation costs
- Instant, bright illumination
- Suitable for GAS category IIC
- 5 years warranty

'Ex op is'
safe optical radiation

EWL Series High bay LED lighting fixture

EWL series LED High Bay lighting fixture combines a light and compact design with improved performance and reliability over time in terms of safety, efficiency and energy saving guaranteeing a lifespan of 20 years of constant high quality illumination. The EWL series is suitable for installation at low and medium heights in all those areas defined as hazardous due to the presence of gases and explosive dusts such as Zones 1, 2, 21 and 22. The universal steel mounting bracket complies with all application requirements. Unlike the rest of the market that offers a modification of LEDs inside old lighting fixtures, the EWL series has been specifically designed to meet the technical requirements of LEDs. In effect, the body of the lamp acts as a heat dissipater for the LED plate meaning that more powerful lighting can be installed without causing any deterioration of the actual LEDs. The protective shockproof glass plate is resistant to high temperatures and ensures that light emissions do not pollute the surrounding environment. The LED board is positioned in a separate "chamber" housing the electronic power supply system and this in turn is separated by an "Ex e" terminal box housing that is used to connect the lighting fixture to the electronic power supply system through a cable gland with an Ex (non barrier)
O-ring as specified in EN/IEC 60079-14. The fact that discharge lamps containing mercury are not used in hazardous areas makes these light fixtures eco-compatible and they have a no cost environmental impact in the event of recycling. LED lights can be fitted with a lens that changes their photometric properties meaning that the same lamp body can replace a traditional discharge lamp lighting fixture (EV, EW, EWA series). A further advantage in using EWL series LED fixtures lies in the knowledge that the degree of illumination will never just fade. If one LED fails, the others keep on working and when the lamp is turned on, the light reaches its maximum level instantly.

Application sectors:

Raffinerie petrolifere | Oil refineries | Anti light pollution | Offshore plants | Onshore plants | Perimeter lighting | Oil loading/ unloading jetties | 100% Cortem product

CERTIFICATION DATA

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II 2GD Ex db eb op is IIC T.. Gb - Ex tb IIIC T..°C Db IP66			
Certification:	ATEX CML 16 ATEX 1348			
	IEC Ex CML 16.0118	All IEC Ex, TR CU and INMETRO certification data can be downloaded at www.cortemgroup.com		
	TR CU AVAILABLE			
	INMETRO DNV 14.0153			
Standards:	CENELEC EN 60079-0: 2012 A11 COR1: 2013, EN 60079-1: 2014, EN 60079-7: 2015, EN 60079-31: 2014, EN 60079-28: 2015 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2011, IEC 60079-1: 2014-06, IEC 60079-28: 2015, IEC 60079-31: 2013, IEC 60079-7: 2015 European Directive 2006/95 Low voltage European Directive 2004/108 Electromagnetic compatibility European Directive 2003/108 WEEE Waste electrical and electronic equipment European Directive 2011/64 RoHS			
Class temperature:	85°C (T6)	100°C (T5)		
Ambient temperature:	-40°C +60°C Standard	-20°C +60°C (EWL-80/EWL-801)	-40°C +60°C (EWL-80C/EWL-801C)	
Degree of protection:	IP66			

EWL Series High bay LED lighting fixture

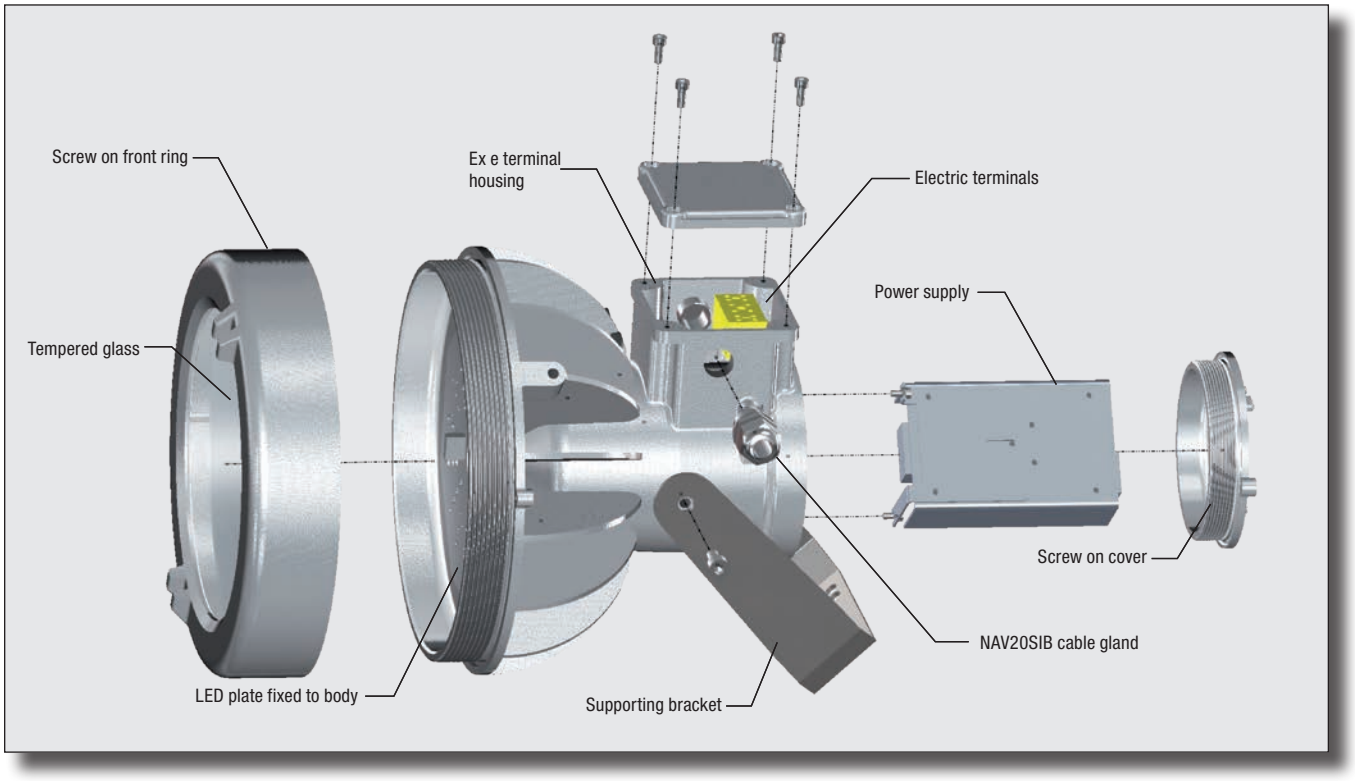
EXEMPT FROM PHOTOBIOLOGICAL RISK (STANDARD IEC / EN 62471)

ORIGINAL PRODUCT

MECHANICAL FEATURES

Body:	Low copper content aluminium alloy fitted with cooling fins for better heat dissipation
Glass face:	Shock and temperature resistant tempered glass sealed with aluminium ring
Gaskets:	Acid, hydrocarbon and high temperature resistant silicone
Supporting bracket:	Stainless steel 316L
Bolts and screws:	Stainless steel
Entries:	2 x ISO M20 entries. Fixture kit with PLG1IB plug and NAV20SIB cable gland
Coating:	Polyester coating Ral 7035 (Light grey)
Corrosion Resistance:	The STANDARD of the aluminium alloy used by Cortem has passed the tests required by standards EN60068-2-30 (hot/humid cycles) and EN60068-2-11 (salt mist tests)

EXPLODED DIAGRAM OF EWL-80 LIGHTING FIXTURE



EWL Series High bay LED lighting fixture

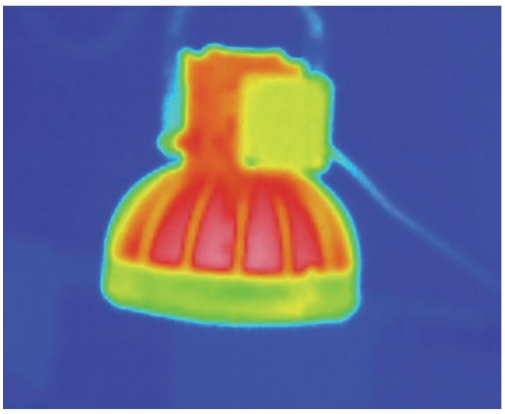
Electrical features	EWL-70	EWL-80 EWL-80C	EWL-801 EWL-801C	EWL-100	EWL-1001
Power supply:	220-240 Vac ±10%	100-277 Vac ±10% (24 Vdc **EWL-80/24**) (48 Vdc **EWL-80/48**)	220-240 Vac ±10%	100-277 Vac ±10% (24 Vdc **EWL-100/24**) (48 Vdc **EWL-100/48**)	100-277 Vac ±10%
Rated frequency:	50-60 Hz ±5%	50-60 Hz ±5%	50-60 Hz ±5%	50-60 Hz ±5%	50-60 Hz ±5%
Power consumption:	40 W *	55 W *	110 W *	188 W * (183 W a 12,24,48 Vdc)	177 W *
Connection:	Direct connection to terminal board L, N, Pe. Section 4mm², suitable for loop-in/loop-out				
Power factor:	>0,95 *	>0,95 *	>0,95 *	>0,95 *	>0,95 * >0,96
Rated current:	185 mA *	260 mA *	508 mA *	850 mA *	800 mA*
Initial current:	1,55 A	2 A	-	2,70 A	-
Initial current/Rated current:	8	8	-	3	-
EMC: (electromagnetic compatibility)	EN 55015, EN 61547, IEC 61000-3-2, IEC 61000-3-3, IEC 61000-4-...				
THD: (total harmonic distortion)	<15% 100-240 Vac				
Over-voltage protection:	2 kV	2 kV	6 kV	2 kV	2 kV
Driver performances:	Over-Voltage protection, Over-Current protection, Short-Circuit protection				
Dimmer (on request):	(0-10 V)	(0-10 V)	(0-10 V)	(0-10 V) or PWM or resistor	(0-10 V) or PWM or resistor
Photometric features					
LED:	Cree XTE	Cree XTE	Cree XTE	Cree XTE	Cree XPL
Viewing angle:	120°	120°	120°	120°	120°
Type:	Cool White	Cool White	Cool White	Cool White	Cool White
Group::	R4	R4	R4	R4	R4
Colour temperature:	5700 K	5700 K	5700 K	5700 K	5700 K
CRI:	>70	>70	>70	>70	>70
Instant Restrike:	YES	YES	YES	YES	YES
L80:	> 60500	> 60500	> 60500	> 60500	> 72600
Lumen:	**3700 lm**	**6050 lm**	**10100 lm**	**17000 lm**	**23000 lm**
Maximum light intensity:	**1560 cd**	**2840 cd**	**4330 cd**	**6100 cd**	**7035 cd**
Overall efficiency:	**85 lm/W**	**110 lm/W**	**91 lm/W**	**91 lm/W**	**130 lm/W**

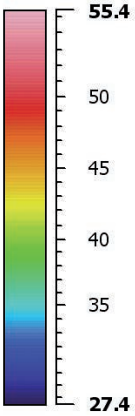
** Test at 230Vac*

ACCESSORIES AVAILABLE / SPECIAL REQUESTS

Rated voltage: 12 Vdc (example code EWL-80/**12**)
Dimmer: (code EWL-80/**D**)
Different colour temperature (code EWL-80/**2700K**)
U bolt for pole mounting
Eyebolt
Special version for 12 Vdc, 24 Vdc, 48 Vdc applications with direct entry of the power cable in the lighting fixture (code EWL-80...**SB**)

EWL series selection chart





THERMAL IMAGING

Following a very brief initial period, the lamp reaches thermal stability. This image shows the heat detected. With the ambient temperature at 28°C (as shown by the blue background) the LED lamp barely touches 56°C at the hottest point.

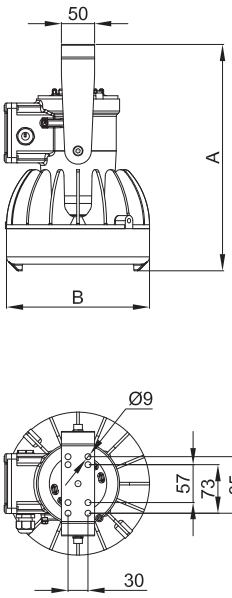
This thermal performance is tangible proof of the high efficiency of LED lamps as a source of light.

It is also worth noting the distribution of heat on the fins that are the result of sophisticated Thermal Management.

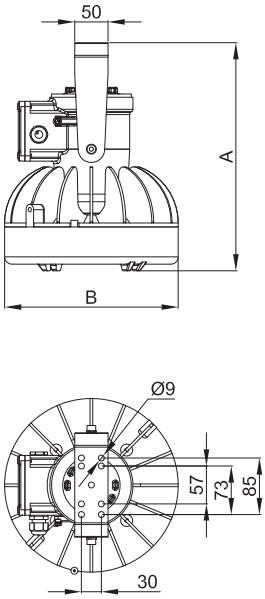
Code	Lamp Type	Dimensions mm A	Dimensions mm B	Class (+40°C)	Max Surface temperature °C (+40°C)	Class (+60°C)	Max Surface temperature °C (+60°C)	Weight kg	mm
EWL-70	LED	340	215	T6	65	T6	85	6,4	290x270x330
EWL-80	LED	343	260	T6	65	T6	85	8,6	290x270x330
EWL-801	LED	343	260	T6	80	T5	100	8,6	290x270x330
EWL-80C	LED	373	260	T6	65	T6	85	9,5	290x270x330
EWL-801C	LED	373	260	T6	80	T5	100	9,5	290x270x330
EWL-100	LED	484	385	T6	80	T5	100	19,4	420x410x560
EWL-1001	LED	484	385	T6	80	T5	100	19,6	420x410x560

DIMENSIONAL DRAWING

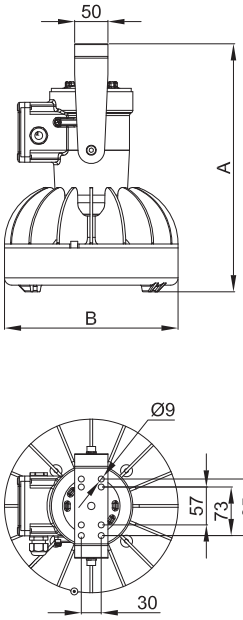
EWL-70



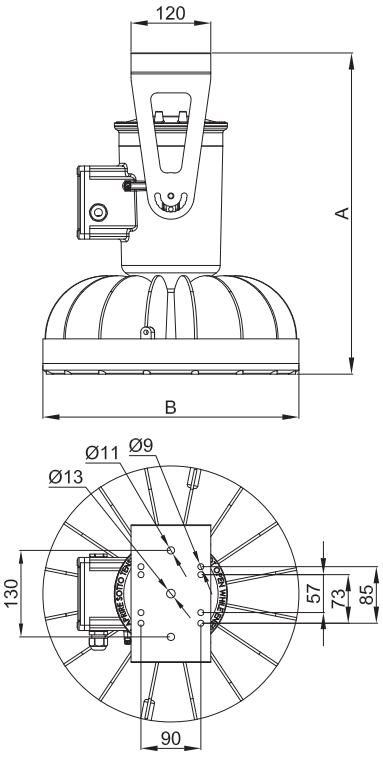
EWL-80
EWL-801



EVL-80C
EWL-801C



EWL-100
EWL-1001

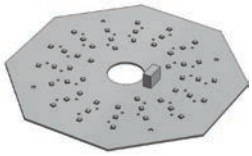
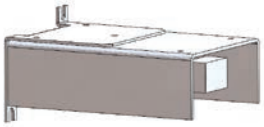


Dimensioni in mm

DON'T FORGET TO ORDER THE ACCESSORIES

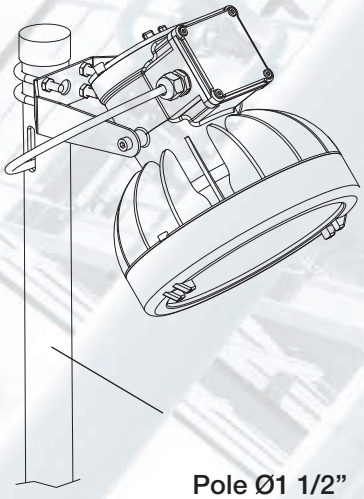
Example: Type of lighting fixture EWL -80 + UBD5G U bolt for pole mounting + other...see key

EWL Accessories and spare parts available on request

ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	KEY
	Pendant eyebolt	Ø interno 20	Material: galvanised steel	G0F-8	ACCESSORY SPARE PART
	U bolt for pole mounting	per pali Ø1 1/2"	Material: stainless steel 316L	UBD5S	ACCESSORY SPARE PART
	Supporting bracket	EWL-70 EWL-80...	Material: stainless steel 316L	G-750	SPARE PART
	Supporting bracket	EWL-100...	Material: stainless steel 316L	G-753	SPARE PART
	LED positioned on plate with electronic circuit	EWL-70	Plate material: IMS (insulated metal substrate)	G-659	SPARE PART
		EWL-80		G-747	
		EWL-80/24		G-667	
		EWL-100		G-748	
		EWL-100/24		G-688	
		EWL-1001		G-825	
	Cable gland	ISO M20	std. range cavo 6,3÷11,6	NAV20SIB	SPARE PART
	Power supply circuit	EWL-70	220 - 240 Vac	RV-40LED	SPARE PART
		EWL-80	120 - 240 Vac 120 - 370 Vdc 50-60 Hz	RSLD070-45	
		EWL-80/24	24 Vdc	RT-70LED	
		EWL-801	220 - 240 Vac	LEDDEVL80/2	
		EWL-100	100 - 240 Vac 120 - 370 Vdc 50-60 Hz	HLG-185H-C700B	
		EWL-100/24	24 Vdc	RT-240LED	
		EWL-1001	100 - 240 Vac 120 - 370 Vdc 50-60 Hz	HLG-185H-C700B	
	Front ring with glass	EWL-70...	Aluminium ring Borosilicate glass face	G70-0556	SPARE PART
		EWL-80...		G80-0556	
		EWL-100...		G100-0556	

Installation and mounting methods

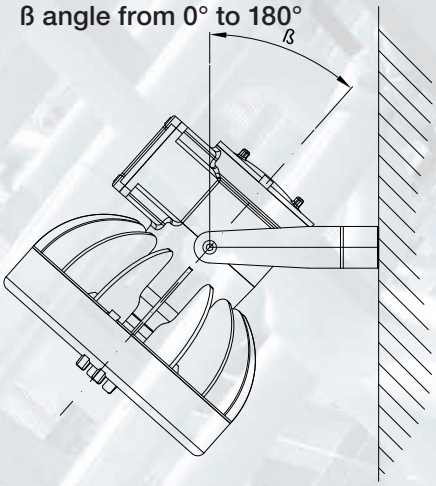
Example of pole mounting



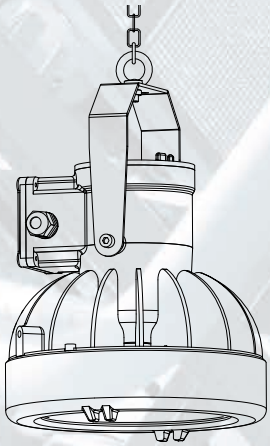
Pole Ø1 1/2”

Example of wall mounting

ß angle from 0° to 180°



Example of pendant mounting with eyebolt



Special version for 12 Vdc*, 24 Vdc, 48 Vdc applications with direct entry of the power cable in the lighting fixture (code EWL-80SB..., execution II 2GD Ex db op is IIC T.. Gb - Ex tb IIIC T..°C Db IP66)

Order code:

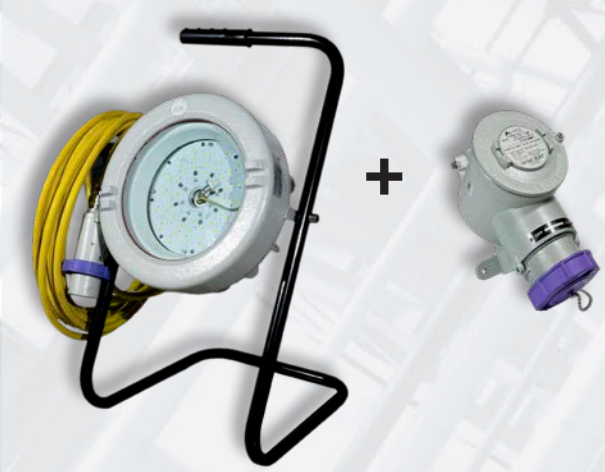
EWL-80SB ☐ ☐

Power supply:
12 = 12 Vdc*
24 = 24 Vdc
48 = 48 Vdc

Viewing angle:
blank = 120°
/10 = 10°
/20 = 20°
/40 = 40°

* On special request

Transportable version EWL-80SBTS.. complete with cable 8 meters long, sockets model PY216V and plug model SPY216V



Weight: 9.7 Kg (without socket)

Order code:

EWL-80SBTS ☐ ☐

Power supply:
12 = 12 Vdc*
24 = 24 Vdc
48 = 48 Vdc

Viewing angle:
blank = 120°
/10 = 10°
/20 = 20°
/40 = 40°

To order the transportable lighting fixture without socket and plug, omit the S in the code.

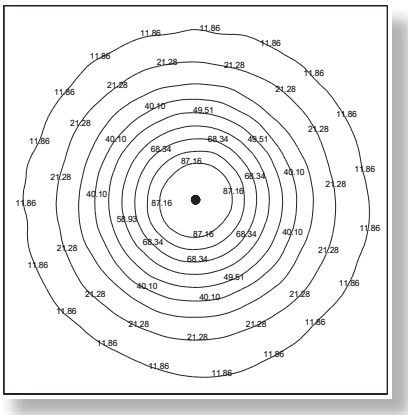
Exemple: **EWL-80SBT48/10**

* On special request

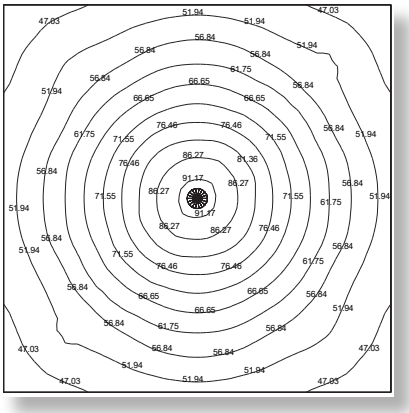
Example Peak Cd equivalents

				
EWL-70 (40W) EWL-80 (55W) EWL-801 (110W) EWL-100 (188W) EWL-1001 (177W) LED	(150W) (250W) (400W) (750W) - Mercury	(100W) (150W) (250W) (450W) (700W) Metal halide	(70W) (100W) (200W) (250W) (400W) Sodium	(320W) (500W) (1000W) (1500W) - Incandescent
Typical energy savings				

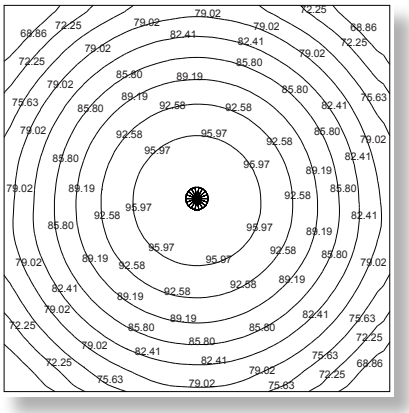
EWL-70 illumination on the floor expressed in lux in a room 5m x 5m with the lighting fixtures centrally placed at **3.5m** in height

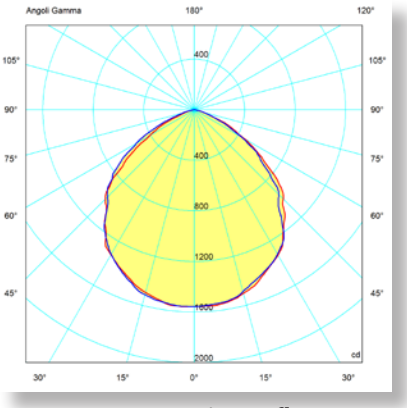


EWL-80 illumination on the floor expressed in lux in a room 5m x 5m with the lighting fixtures centrally placed at **5m** in height

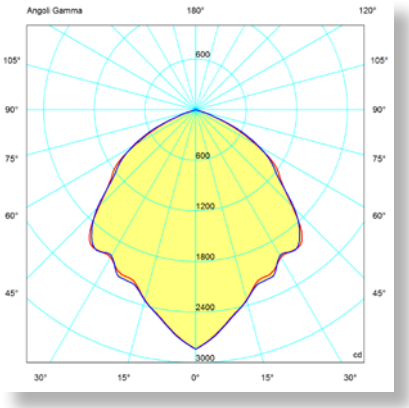


EWL-100 illumination on the floor expressed in lux in a room 5m x 5m with the lighting fixtures centrally placed at **7m** in height.

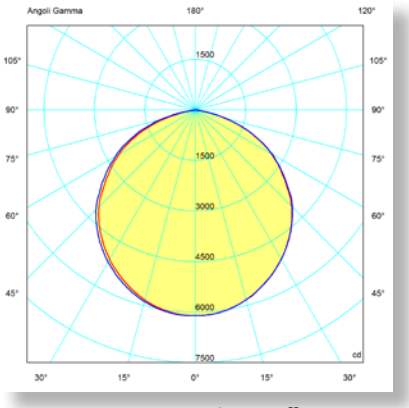




EWL-70 Luminous flux: 3700 lm



EWL-80 e EWL-80SB... Luminous flux: 6050 lm



EWL-100 Luminous flux: 17000 lm

On Cortem Group web site you can download .LDT and .IES lighting data files for the design and simulation of lighting levels in 2D and 3D, rendering and ray tracing.

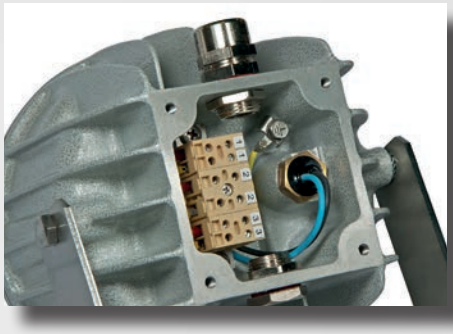
= plane 90270
= plane 0180

EVL-B

- Zone 1, 2, 21, 22
- Replaces traditional discharge lamps more than 400W
- Saves in energy, maintenance and installation costs
- Suitable for GAS category IIC

'Ex op is'
safe optical radiation
WORK IN PROGRESS

Ex e terminal housing for a quick connection



CORTEM GROUP®

EVL-...B series LED floodlights

The new LED EVL -... B series floodlights combines a light and compact design with great versatility, ease of installation and high lighting performance thanks to high intensity and efficiency LED plates which may be combined along with lens available with light beam with different shades.
The EVL -... B series consists of two sizes that can replace traditional floodlights with discharge lamps of low and medium power: EVL-60B floodlight reaches 2.270 lm while the EVL-70B one has a light output of 3.700 lm. The design of the finned body, made of aluminium alloy, acts as a heat dissipater for the LED plate, allowing a fast and effective dispersion of heat generated by the normal operation of the LEDs. Furthermore, the air particles around the floodlight do not ionize, an intrinsic characteristic of LED technology that limits the attraction of dust and insects thanks to the absence of UV emission. EVL -... B series floodlights can be powered through an electric cable and a simple 'Ex e' cable gland (no barrier). Moreover, an opposed plugged hole permits the through wiring connection. EVL-60B series floodlight can be supplied, on request, with colored LED to meet special needs such as the signalling of avoiding/ forbidden hazardous areas (red), the presence of chemicals (green) or the need to ward off wild animals and insects (yellow).

Application sectors:

Oil refineries | Chemical and petrochemical plants | Anti light pollution | Offshore plants | Onshore plants | Perimeter lighting | Oil loading/ unloading jettie | 100% Cortem product

DATI DI CERTIFICAZIONE

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II 2GD Ex de IIC T.. Gb - Ex tb IIIC T..°C Db IP66			
Certification:	ATEX ITS 14 ATEX 18144			
	IEC Ex IECEx ITS 14.0061	All IEC Ex, CT RU and INMETRO certification data can be downloaded at www.cortemgroup.com		
	TR CU AVAILABLE			
	INMETRO DNV 15.0173			
Standards:	CENELEC EN 60079-0: 2012, EN 60079-1: 2009, EN 60079-7: 2007, EN60079-31: 2009 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2011, IEC 60079-1: 2007-04, IEC 60079-31: 2013, IEC 60079-7: 2006-07			
Ambient temperature:	See "ambient temperature range" table			
Degree of protection:	IP66			

STANDARD AMBIENT TEMPERATURE RANGE FOR EVL-...B FLOODLIGHTS

LED FLOODLIGHTS	EVL-60B		EVL-70B
AMBIENT TEMPERATURE	-20°C +40°C	-20°C +60°C	-20°C +60°C
CLASS TEMPERATURE	T6	T5	T4
MAXIMUM SURFACE TEMPERATURE	85°C	100°C	135°C

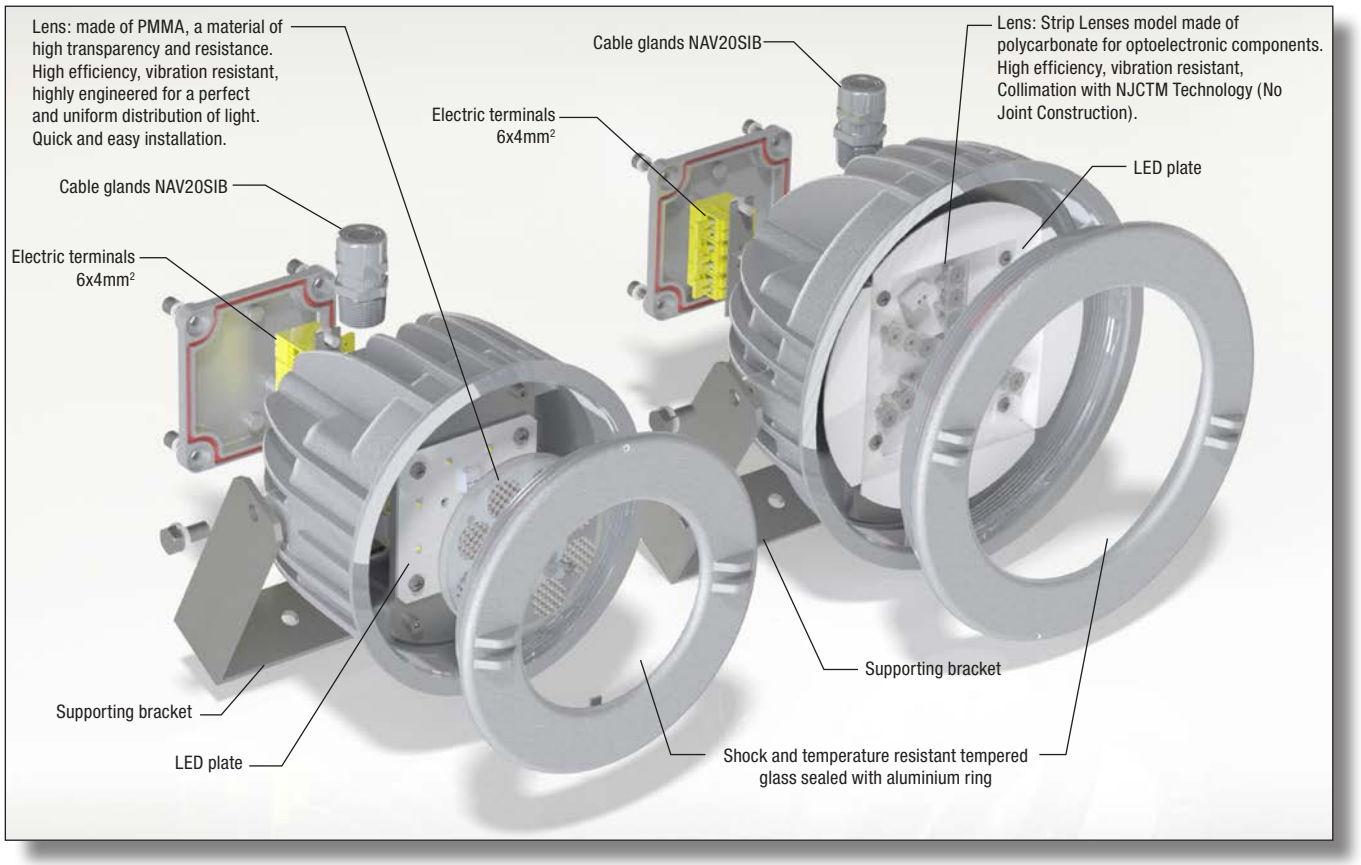
EVL-...B series LED floodlights

ORIGINAL PRODUCT

MECHANICAL FEATURES

Body:	Low copper content aluminium alloy fitted with cooling fins for better heat dissipation
Glass face:	Shock and temperature resistant tempered glass sealed with aluminium ring
Gaskets:	Acid, hydrocarbon and high temperature resistant silicone
Supporting bracket:	Stainless steel
Bolts and screws:	Stainless steel
Entries:	2 x ISO M20 entries. Fixture kit with PLG1IB plug and NAV20SIB cable gland
Coating:	Polyester coating Ral 7035 (Light grey)
Corrosion Resistance:	The STANDARD of the aluminium alloy used by Cortem has passed the tests required by standards EN60068-2-30 (hot/humid cycles) and EN60068-2-11 (salt mist tests)

EXPLODED DIAGRAM OF EVL-...B FLOODLIGHTS



EVL-...B series LED floodlights

Elettrical features	EVL-60B	EVL-70B
Power supply:	120/240/277 Vac	120/240/277 Vac
Rated frequency:	50-60 Hz ±5%	50-60 Hz ±5%
Power consumption:	33 W*	42 W*
Connection:	Direct connection to terminal board L, N, Pe. Section 4mm2, suitable for loop-in/loop-out	
Power factor:	>0,9*	>0,94*
Rated current:	148 mA	199 mA
EMC (electromagnetic compatibility):	EN 55015, EN 61547, IEC 61000-3-2, IEC 61000-3-3, IEC 61000-4-...	
THD (total harmonic distortion):	<15% 100-240 Vac	
Over-voltage protection:	2 kV	2 kV
Driver performances:	Over-Voltage protection, Over-Current protection, Short-Circuit protection	
Dimmer (on request):	(0-10 V)	(0-10 V)
Photometric features		
LED Multichip:	Cree XTE	Cree XTE
Colour temperature:	5700 K	5700 K
CRI:	>70	>70
Instant Restrike:	YES	YES
L80:	> 60500	> 60500
Lumen:	**2650 lm**	**3700 lm**
Maximum light intensity:	**1136 cd**	**1560 cd**
Overall efficiency:	**84 lm/W**	**88 lm/W**

** Test at 230Vac*

ACCESSORIES AVAILABLE / SPECIAL REQUESTS

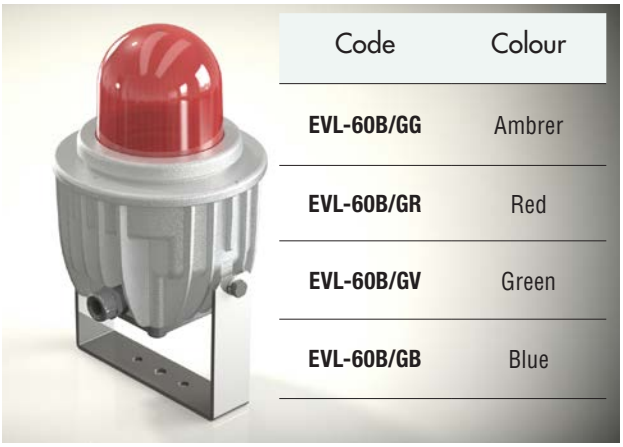
CRI values higher
Dimmer: (code EVL-70B**/D**)
Different colour temperature (code EVL-70**/2700K**)
U bolt for pole mounting
Eyebolt

EVL-60B series floodlights can be provided with colored LEDs to meet particular requirements of signaling and lighting.

Code	Color	Possible uses
EVL-60B	White	Version for standard lighting
EVL-60B/R	Red	Red light / indication of dangerous areas
EVL-60B/V	Green	Green light/ detection of chemicals
EVL-60B/G	Amber (yellow)	Yellow light / removal of wild animals and insects
EVL-60B/BL	Blue	Blue light for specific applications

Obstruction lighiting EVL-60B/G...

EVL-60B/G are the new lighting fixtures which feature a LED plate and a globe of different colours: blue, red, green, amber. They can be installed in locations where obstacles, dangers are needed to be signalled and for any visual communication. They replace acoustic signals in places where they are not applicable.



Code	Colour
EVL-60B/GG	Ambrer
EVL-60B/GR	Red
EVL-60B/GV	Green
EVL-60B/GB	Blue

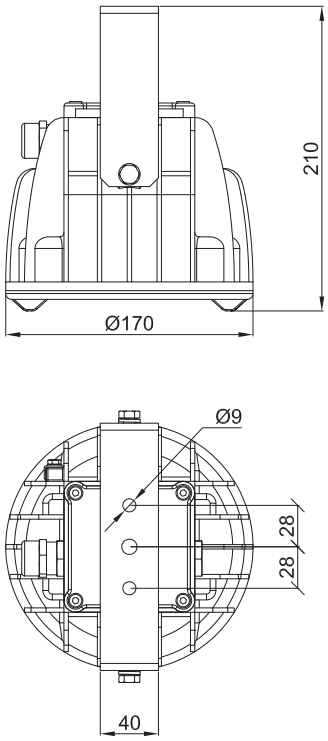
EVL ...B series selection chart, accessories and spare parts

Code	Typo Lamp	Watt*	Class	Max surface temperature °C	Weight kg	mm
EVL-60B	LED	33 W	T5/T6	85/100	3,5	215x205x170
EVL-70B	LED	42 W	T4	135	5,2	250x235x165

** Test at 230Vac*

DIMENSIONAL DRAWING

EVL-60B



EVL-70B

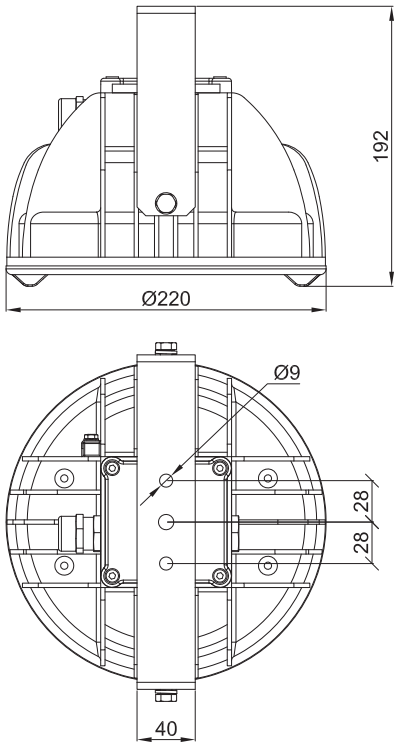


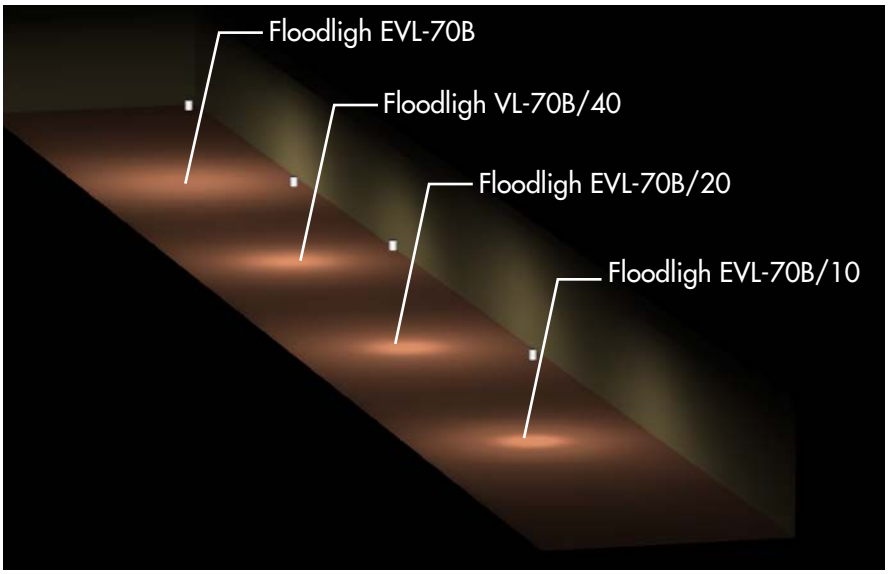
ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	KEY
	Pendant eyebolt	Ø inner 20	Material: galvanised steel	**G0F-8**	ACCESSORY SPARE PART
	U bolt for pole mounting	for poles Ø1 1/2"	Material: stainless steel 316L	**UBD5S**	ACCESSORY SPARE PART
	Supporting bracket	EVL-60B	Material: stainless steel 316L	**G-764IN**	SPARE PART
		EVL-70B		**G-765IN**	
	Power supply	EVL-60B	120-277 Vac	**LEDDEVL60B**	SPARE PART
		EVL-70B	120-277 Vac	**LEDDEVL70B**	
	Cable gland	ISO M20	std. range cable 6,3÷11,6	**NAV20SIB**	SPARE PART
	Front ring with glass	EVL-60B	Aluminium ring borosilicate glass face	**G60-0587**	SPARE PART
		EVL-70B		**G70-0587**	

Features and photometric diagrams

Lenses available

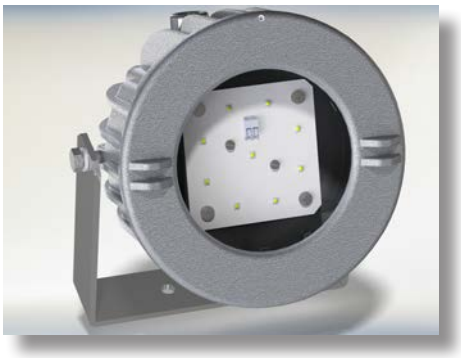
Angle beam	EVL-60B	EVL-70B
10°	-	EVL-70B/10
20°	-	EVL-70B/20
40°	-	EVL-70B/40
60°	EVL-60B/60	-
80°	EVL-60B/80	-
120°	EVL-60B	EVL-70B

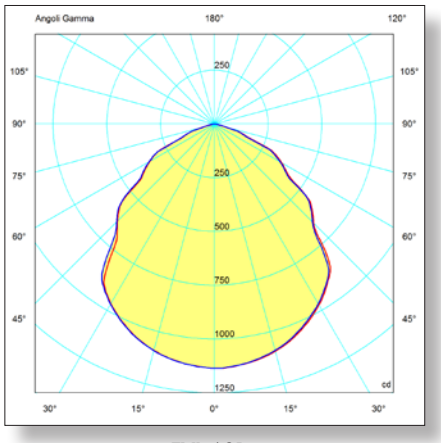
EVL-...B LED series floodlights is equipped with lenses capable to provide an adequate lighting for any application requirements of small and medium size, always taking into consideration an appropriate installation distance.



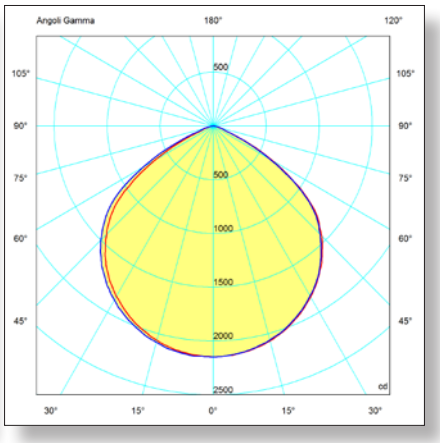
Ground lighting with different light beams available with the EVL-70B series floodlights.

The floodlights with 120° light angle beam are supplied with no optics installed on the LED plate.





EVL-60B
Luminous flux: 2650 lm



EVL-70B
Luminous flux: 3700 lm

Comparison between LED floodlights with lenses and floodlights with traditional light sources.

	EVL-60B/60	EVL-70B/40
Incandescent	300 W	500 W
Mercury vapour	250 W	400 W
Metal halide	150 W	250 W

On Cortem Group web site you can download .LDT and .IES lighting data files for the design and simulation of lighting levels in 2D and 3D, rendering and ray tracing.

= piano 90270
= piano 0180

EVNL-B

- Zone 2, 21, 22
- Replaces traditional discharge lamps exceeding 400W
- Savings on energy costs, maintenance and installation
- Immediate high-intensity activation

'Ex op is'
safe optical radiation

Ex casing and terminal holder for quick connection

LED multi plate

Cooling fins for high levels of heat dissipation

EVNL-B Series LED floodlights and fixtures for zone 2, 21, 22

Cortem Group is pleased to present its lighting fixtures and floodlights of the EVNL-B series, suitable for plants in zone 2, 21 and 22, keeping cost reductions at the foreground, improving the quality of the product and increasing the lighting solution specifications. The advantage of the EVNL-B lighting fixtures is the implementation of the "Ex nR" version combined with the "Ex op is" which classifies the equipment as a restricted breathing device with certified optical safety. The careful design, together with the meticulous choice of materials to seal the lighting fixture, limits the entry of flammable gases, vapours or mists during normal operation of the lighting fixture. The particular design of the body in aluminium alloy allows quick and easy dispersion of the heat generated during normal operation of LED lights. Furthermore, the geometric structure of the cooling fins has been designed to minimise the deposits of combustible dust and allow air or water present in the surrounding area to exert a cleaning action on the fixture.
The EVNL-B series can be supplied with 10°, 20° and 40° optics (60° and 80° optics are also available for the EVNL-60B series) fitted directly on the LED board, which modify the photometry allowing different concentrations of the light beam. An advantage provided by the LED floodlights of the EVNL-B series is the assurance that lighting will never fail.
In fact, if one LED stops working, the others will continue. Furthermore, during the activation stage, the light reaches its maximum power emission immediately.

Sectors for use:

Petroleum refineries | Chemical and petrochemical plants | Anti-light pollution | Offshore plants | Onshore plants | Lighting of perimeter zones | Petroleum loading/ unloading pontoons | 100% produced by Cortem

CERTIFICATION DATA

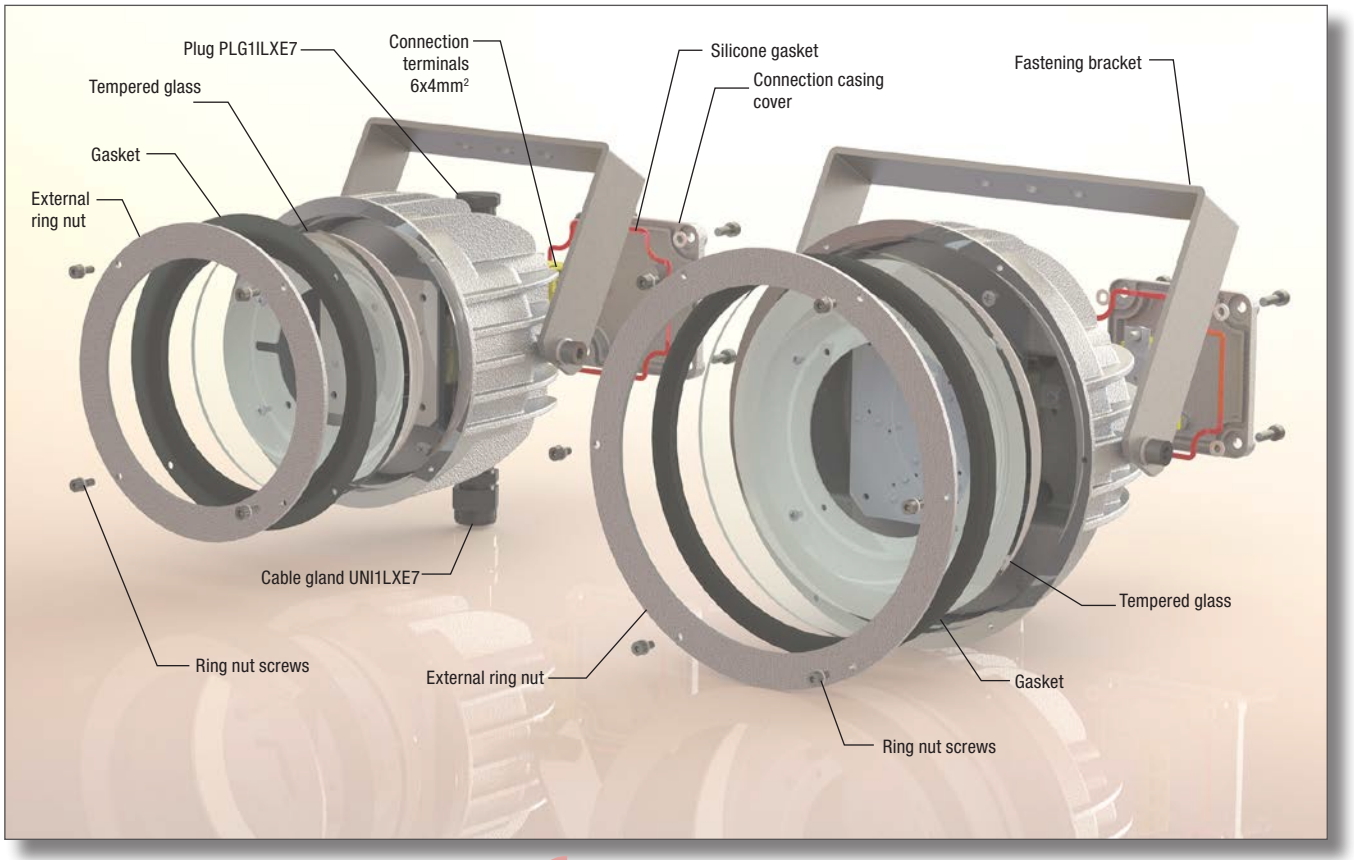
Classification:	Group II	Category 2D/3GD		
Installation: EN 60079.14	zona 2 (Gas)	zona 21, 22 (Dust)		
Execution:	CE 0722 Ex II 2D Ex tb op is IIIC T...°C Db IP66			zone 21
	CE Ex II 3GD Ex nR IIC T.. Gc - Ex tc IIIC T..°C Dc IP66			zone 2, 22
Certificate:	ATEX CML 17 ATEX 3162X			
	ATEX CML 17 ATEX 4159X			
	IEC Ex IECEx CML 17.0081X	For all IEC Ex and INMETRO certification data, download the certificate from www.cortemgroup.com		
	INMETRO DNV 17.0140X			
Standard:	CENELEC EN 60079-0: 2013, EN 60079-15: 2010, EN 60079-28: 2015, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2011, IEC 60079-15: 2010, IEC 60079-28: 2015, IEC 60079-31: 2013			
Temperature Class:	85°C (T6) / 135°C (T4)	100°C (T5) / 135°C (T4)		
Ambient temperature:	-40°C +50°C	-40°C +60°C		
	For details regarding the temperatures, see "Selection table"			
Protection rating:	IP66			

ORIGINAL PRODUCT

MECHANICAL CHARACTERISTICS

Body:	Aluminium alloy with low copper content. With cooling fins for high levels of heat dissipation
Transparent front cover:	High temperature and shock resistant tempered glass
Gasket:	EPDM resistant to acids, hydrocarbons and high temperatures
Fastening bracket:	Stainless steel
Screws:	Stainless steel
Entry points:	2 ISO M20 entry points Fixture complete with a PLG1ILXE7 plug and UNI1LXE7 cable gland
Coating:	Polyester RAL 7035 (Light grey)
Corrosion Resistance:	The STANDARD of the aluminium alloy used by Cortem has passed the tests required by the Standard EN60068-2-30 (hot-humid cycles) and EN60068-2-11 (salt fog test)

EXPLODED VIEW OF LIGHTING FIXTURE EVNL-60B AND EVNL-70B

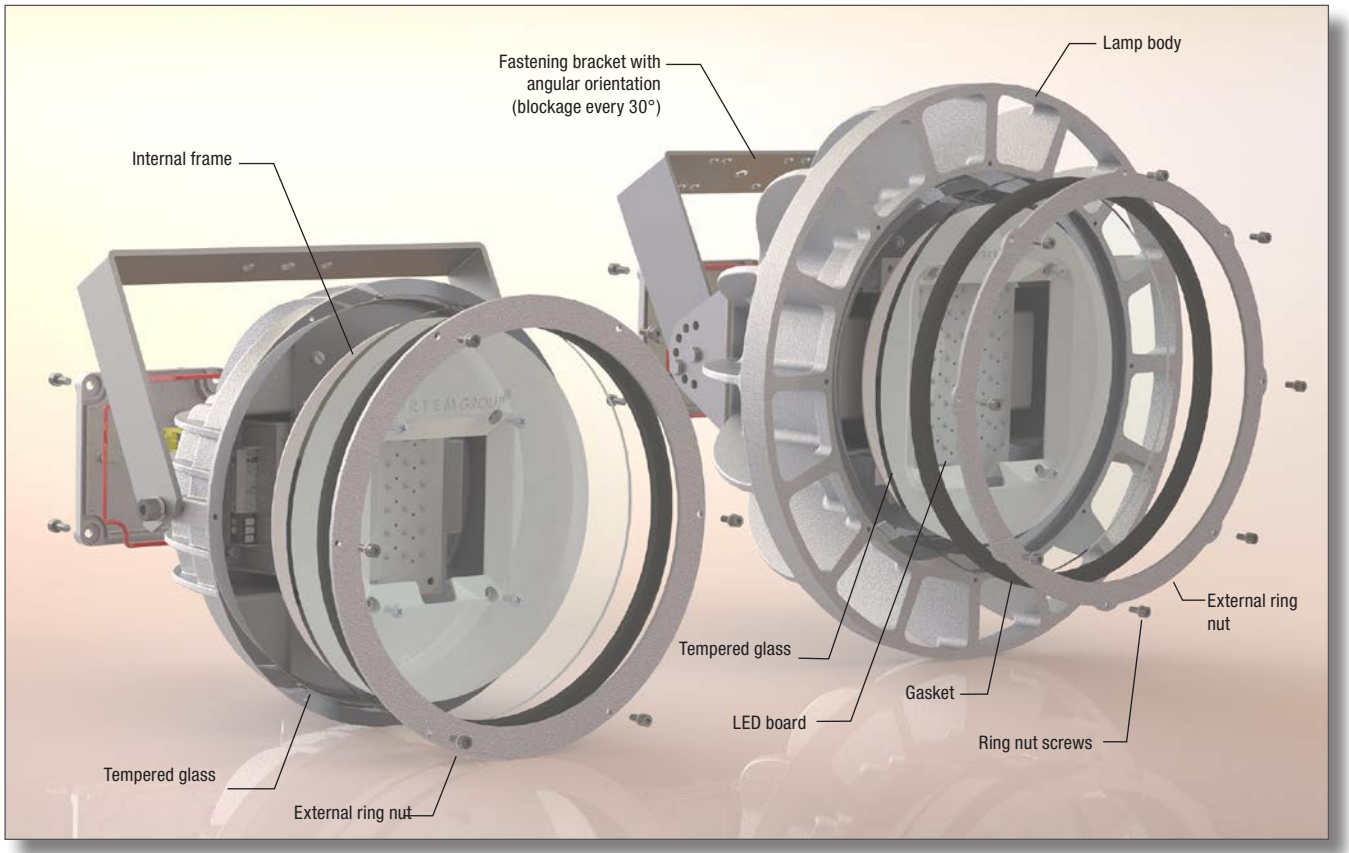


EVNL-B Series LED floodlights and fixtures for zone 2, 21, 22

Electrical specifications	EVNL-60B	EVNL-70B	EVNL-80B	EVNL-100B
Supply voltage:	120/240/277 Vac	120/240/277 Vac	220-240 Vac	100-277 Vac
Rated frequency:	50-60 Hz ±5%	50-60 Hz ±5%	50-60 Hz	50-60 Hz
Lamp power consumption:	30 W*	41 W*	81 W*	158 W*
Connection:	Cable entry directly to the terminal board L, N, PE. Max. cross-section 4 mm², suitable for in-out			
Power factor:	>0,94	>0,96	>0,98	>0,96
Rated current:	137 mA	186 mA	361 mA	717 mA
EMC (Electromagnetic compatibility):	EN 55015, EN 61547, IEC 61000-3-2, IEC 61000-3-3, IEC 61000-4-...			
THD (Total Harmonic Distortion):	<15% 100-240 Vac			
Over-voltage protection:	2 kV	2 kV	6 kV	2 kV
Driver performance levels:	Over-Voltage Protection, Over-Current Protection, Short-Circuit Protection			
Dimming (upon request):	(0-10 V)	(0-10 V)	(0-10 V)	(0-10 V) PWM or resistor
Photometric specifications				
LED Multichip:	Cree XTE	Cree XTE	Cree XTE	Cree XTE
Viewing angle	120°			
Colour temperature:	5700 K	5700 K	5700 K	5700 K
CRI:	>70	>70	>70	>70
Instant Restrike:	YES	YES	YES	YES
L80:	> 63500	> 60500	> 63500	> 60500
Lumen:	**2862 lm**	**4865 lm**	**8757 lm**	**16437 lm**
Maximum lighting intensity:	**1070 cd**	**1600 cd**	**2996 cd**	**6072 cd**
Overall efficiency:	**96 lm/W**	**118 lm/W**	**108 lm/W**	**104 lm/W**

** Test at 230Vac*

EXPLODED VIEW OF LIGHTING FIXTURE EVNL-80B AND EVNL-100B



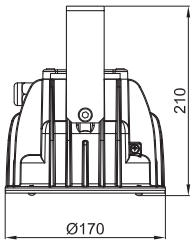
EVNL-B Series Selection table

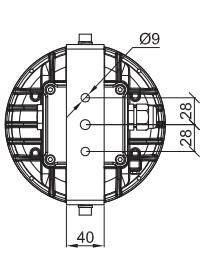
Code	Transparent part	Lamp type	Watt*	Class / Max surface temperature °C		Weight kg	mm
				+50°C	+60°C		
EVNL-60B	GLASS	LED	30 W	T6 / 83°C	T5 / 93°C	2,5	215x205x170
EVNL-70B	GLASS	LED	41W	-	T4 / 122°C	3,3	250x235x165
EVNL-80B	GLASS	LED	81 W	-	T4 / 122°C	4,3	290x290x170
EVNL-100B	GLASS	LED	158 W	-	T4 / 122°C	9,2	385x385x250

** Test at 230Vac*

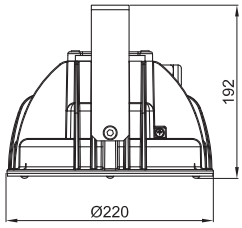
DIMENSIONAL DRAWINGS

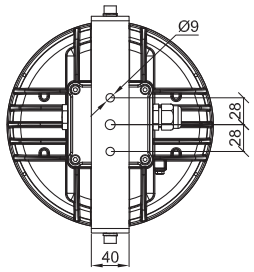
EVNL-60B...



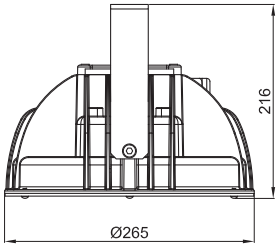


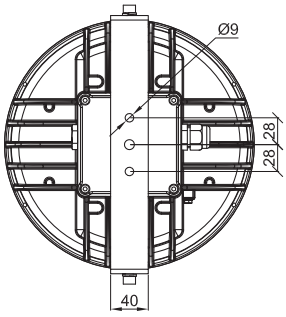
EVNL-70B...



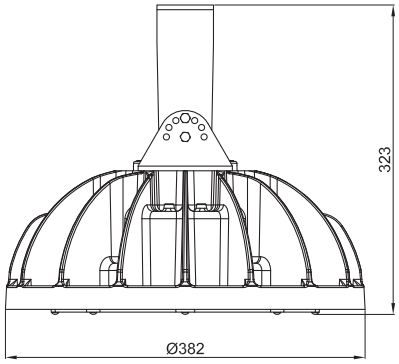


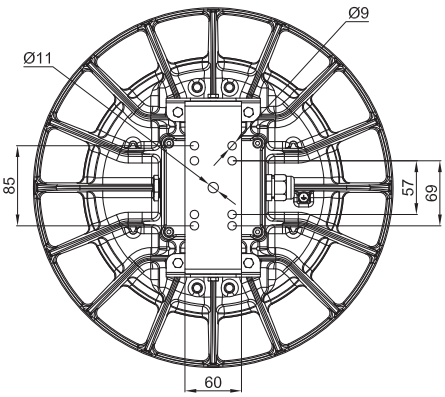
EVNL-80B...





EVNL-100B...





Dimensions in mm

ACCESSORIES UPON REQUEST / SPECIAL IMPLEMENTATIONS

Dimming (code EVNL-80/**DB**)
Different colour temperatures (code EVNL-80/**2700KB**)
Additional U-bolts for assembly to a pole
Eye bolt
Metal cable gland

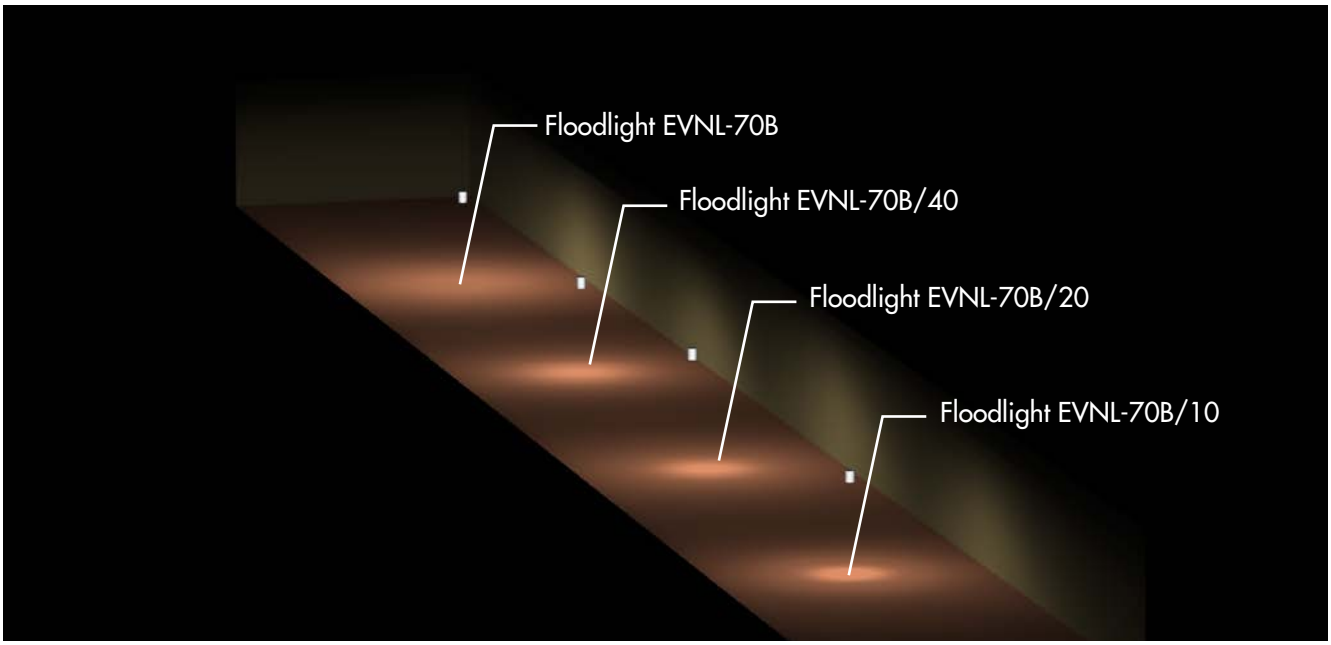
Optics available for the floodlight version

Opening of luminous beam	EVNL-60B...	EVNL-70B..	EVNL-80B...	EVNL-100B...
10°	-	EVNL-70B/10	EVNL-80B/10	EVNL-100B/10
20°	-	EVNL-70B/20	EVNL-80B/20	EVNL-100B/20
40°	-	EVNL-70B/40	EVNL-80B/40	EVNL-100B/40
60°	EVNL-60B/60	-	-	-
80°	EVNL-60B/80	-	-	-


EVNL-60B...

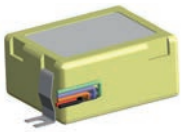

EVNL-70B..., EVNL-80B..., EVNL-100B...

The range of LED floodlights belonging to the EVNL...B Series has optics able to provide sufficient lighting for any small or medium sized application requirement, always taking into consideration a suitable installation distance.



Floor lighting with different luminous beams provided with the floodlight EVNL-70B.

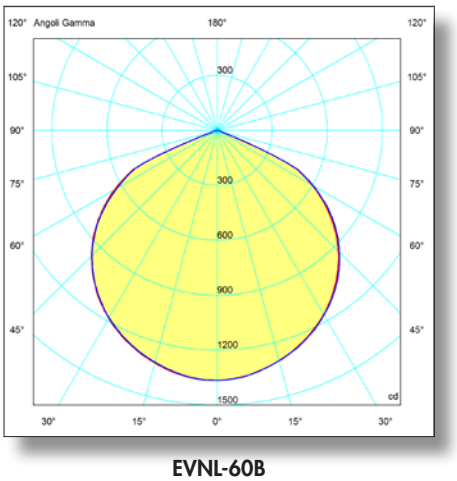
Accessories upon request and spare parts for lighting fixtures of the EVNL-B Series

ILLUSTRATION	DESCRIPTION	MODEL	CHARACTERISTICS	CODE	LEGEND
	Suspended eye bolt	internal Ø 20	Material: galvanized steel	GOF-8	ACCESSORY SPARE PART
	U-bolt for pole assembly	for poles Ø1 1/2"	Material: stainless steel AISI 316L	UBD5S	ACCESSORY SPARE PART
	Fastening bracket	EVNL-60B	Material: stainless steel AISI 316L	G-764IN	SPARE PART
		EVNL-70B		G-765IN	
		EVNL-80B		G-766IN	
		EVNL-100B		G-827	
	Electronic power unit	EVNL-60B	120-277 Vac	LEDDEVL60B	SPARE PART
		EVNL-70B	120-277 Vac	LEDDEVL70B	
		EVNL-80B	220-240 Vac	LEDDEVL80/1	
		EVNL-100B	100-277 Vac	LEDDEVL100	
	Cable gland	ISO M20	std. cable range 7-12	UNI1LXE7	SPARE PART
	Glass + gasket	EVNL-60B	Tempered front glass and black gasket in EPDM	G-831 + G-944	SPARE PART
		EVNL-70B		G-830+ G70-955	
		EVNL-80B		G-829 + G80-955	
		EVNL-100B		G-852 + G100-955	

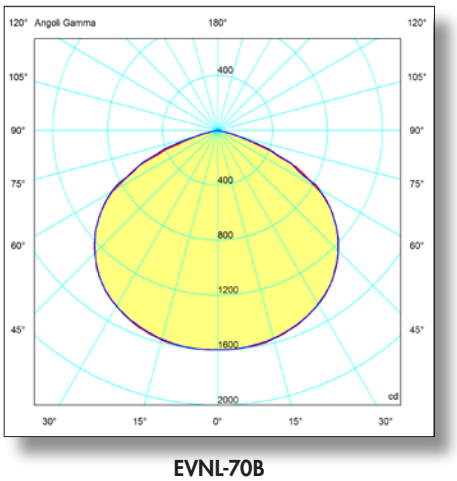
Photometric curves and specifications

Comparison between LED floodlight with lenses and floodlights with traditional light sources.

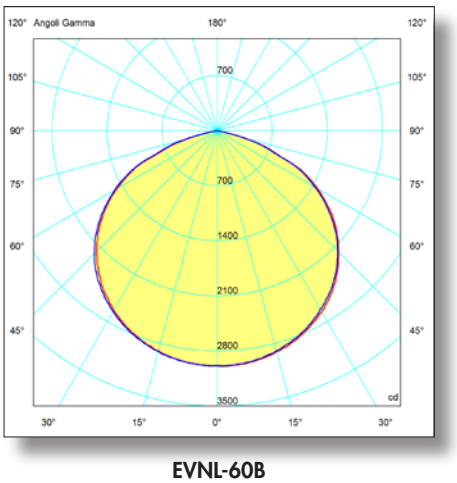
	EVNL-60B/60	EVNL-70B/40	EVNL-80B/..	EVNL-100B/..
Incandescent	300 W	500 W	600 W	1000 W
Mercury-vapour	250 W	400 W	>400 W	>400 W
Metal halides	150 W	250 W	>250 W	>400 W



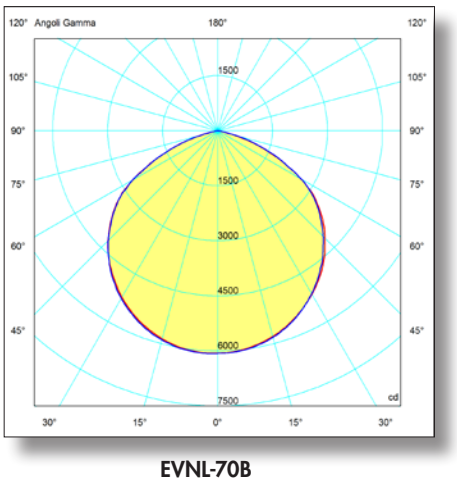
EVNL-60B
Luminous flux: 2862 lm



EVNL-70B
Luminous flux: 4865 lm



EVNL-60B
Luminous flux: 8757 lm



EVNL-70B
Luminous flux: 16437 lm

The lighting solution files for the design, planning and simulation of lighting levels in 2D-3D, rendering and ray-tracing are available from www.cortemgroup.com.

= plane 90270
= plane 0180

EWL

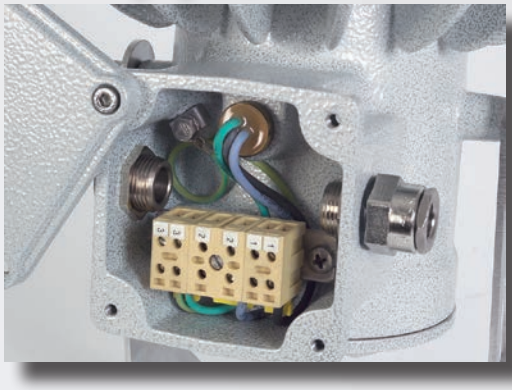
- Zone 1, 2, 21, 22
- Saves in energy, maintenance and installation costs
- Instant, bright illumination
- Suitable for GAS category IIC
- 5 years warranty

'Ex op is'
safe optical radiation

Painted aluminium body

Mounting bracket

Ex e terminal board housing for fast connection



EWL-../.. series LED floodlights

EWL series LED floodlight combines a light and compact design with improved performance and reliability over time in terms of safety, efficiency and energy saving guaranteeing a lifespan of 20 years of constant high quality illumination. The EWL series is suitable for installation in all those areas defined as hazardous due to the presence of gases and explosive dusts such as Zones 1, 2, 21 and 22. The universal steel mounting bracket and base comply with all application requirements. Unlike the rest of the market that offers a modification of LEDs inside old lighting fixtures, the EWL series has been specifically designed to meet the technical requirements of LEDs. In effect, the body of the lamp acts as a heat dissipater for the LED plate meaning that more powerful lighting can be installed without causing any deterioration of the actual LEDs. The protective shockproof glass plate is resistant to high temperatures and ensures that light emissions do not pollute the surrounding environment. The LED board is positioned in a separate "chamber" housing the electronic power supply system and this in turn is separated by an "Ex e" terminal box housing that is used to connect the lighting fixture to the electronic power supply system through a cable gland with an Ex (non barrier) O-ring as specified in EN/IEC 60079-14. The fact that discharge lamps containing mercury are not used in hazardous areas makes these light fixtures eco-compatible and they have a no cost environmental impact in the event of recycling. LED lights can be fitted with a lens that changes their photometric properties meaning that the same lamp body can replace a traditional discharge lamp lighting fixture (RLEE series). A further advantage in using EWL series LED fixtures lies in the knowledge that the degree of illumination will never just fade. If one LED fails, the others keep on working and when the lamp is turned on, the light reaches its maximum level instantly.

Application sectors:

Oil refineries | Chemical and petro-chemical plants | Anti light pollution | Offshore plants | Onshore plants | Perimeter lighting | Oil loading/ unloading jetties | 100% Cortem product

CERTIFICATION DATA

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II 2GD Ex db eb op is IIC T.. Gb - Ex tb IIIC T..°C Db IP66			
Certification:	ATEX CML 16 ATEX 1348			
	IEC Ex CML 16.0118	All IEC Ex, TR CU and INMETRO certification data can be downloaded at www.cortemgroup.com		
	TR CU AVAILABLE			
	INMETRO DNV 14.0153			
Standards:	CENELEC EN 60079-0: 2012 A11 COR1: 2013, EN 60079-1: 2014, EN 60079-7: 2015, EN 60079-31: 2014, EN 60079-28: 2015 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2011, IEC 60079-1: 2014-06, IEC 60079-28: 2015, IEC 60079-31: 2013, IEC 60079-7: 2015 European Directive 2006/95 Low voltage European Directive 2004/108 Electromagnetic compatibility European Directive 2003/108 WEEE Waste electrical and electronic equipment European Directive 2011/64 RoHS			
Class temperature:	85°C (T6)	100°C (T5)		
Ambient temperature	-40°C +60°C Standard	-20°C +60°C (EWL-80/EWL-801)	-40°C +60°C (EWL-80C/EWL-801C)	
Degree of protection:	IP66			

EWL-../.. series LED floodlights

EXEMPT FROM PHOTOBIOLOGICAL RISK (STANDARD IEC / EN 62471)

ORIGINAL PRODUCT

MECHANICAL FEATURES

Body:	Low copper content aluminium alloy fitted with cooling fins for better heat dissipation
Glass face:	Shock and temperature resistant tempered glass sealed with aluminium ring
Gaskets:	Acid, hydrocarbon and high temperature resistant silicone
Supporting bracket:	Stainless steel 316L
Bolts and screws:	Stainless steel
Entries:	2 x ISO M20 entries. Floodlight kit with PLG1IB plug and NAV20SIB cable gland
Coating:	Polyester coating Ral 7035 (Light grey)
Corrosion Resistance:	The STANDARD of the aluminium alloy used by Cortem has passed the tests required by standards EN60068-2-30 (hot/humid cycles) and EN60068-2-11 (salt mist tests)

Optical systems:

- Model: Strip Lenses
- High efficiency
- Vibration resistant
- Material: Optical PC, polycarbonate for optoelectronic components
- Manufactured with NJCTM (No Joint Construction) technology, i.e. the elimination of the collimator applied to the lens thus ensuring perfect mating of the LED and the lens. Perfect collimation is guaranteed by the positioning and hot riveting of the lugs to provide direct fixing to the LED
- Three different light emission angles

ACCESSORIES AVAILABLE / SPECIAL REQUESTS

Rated voltage: 12 Vdc, 24 Vdc, 48 Vdc (example code EWL-100/40/24)
Dimmer: (code EWL-80/10/D)
Base for horizontal adjustment on request
Different colour temperature

EWL-../.. series LED floodlights

Electrical features	EWL-70	EWL-80 EWL-80C	EWL-801 EWL-801C	EWL-100/...
Power supply:	220-240 Vac ±10%	100-277 Vac ±10% (12 Vdc **EWL-80/12**) (24 Vdc **EWL-80/24**) (48 Vdc **EWL-80/48**)	220-240 Vac ±10%	100-277 Vac ±10% (12 Vdc **EWL-100/12**) (24 Vdc **EWL-100/24**) (48 Vdc **EWL100/48**)
Rated frequency:	50-60 Hz ±5%	50-60 Hz ±5%	50-60 Hz ±5%	50-60 Hz ±5%
Power consumption:	40 W	55W (65 W a 24 Vdc)	110W	188 W
Connection:	Direct connection to terminal board L, N, Pe. Section 4mm^2, suitable for loop-in/loop-out			
Power factor:	>0,95 *	>0,95 *	>0,95 *	>0,95 *
Rated current:	185 mA *	260 mA *	508 mA *	800 mA *
Initial current:	1,55 A	2 A	-	2,70 A
Initial current/Rated current:	8	8	-	3
EMC (electromagnetic compatibility):	EN 55015, EN 61547, IEC 61000-3-2, IEC 61000-3-3, IEC 61000-4-...			
THD (total harmonic distortion):	<15% 100-240 Vac			
Over-voltage protection:	2 kV	2 kV	6 kV	2 kV
Driver performances:	Over-Voltage protection, Over-Current protection, Short-Circuit protection			
Dimmer (on request):	(0-10 V)	(0-10 V)	(0-10 V)	(0-10 V) or PWM or resistor
Photometric features				
LED:	Cree XTE	Cree XTE	Cree XTE	Cree XTE
Viewing angle:	10°, 20° o 40° depending on the lenses			
Type:	Cool White	Cool White	Cool White	Cool White
Group:	R4	R4	R4	R4
Colour temperature:	5700 K	5700 K	5700 K	5700 K
CRI:	>70	>70	>70	>70
Instant Restrike:	SI	SI	SI	SI
L80:	> 60500	> 60500	> 60500	> 60500
Lumen:	**3700 lm**	**6050 lm**	**10100 lm**	**17000 lm**
Maximum light intensity:	**33180 cd (EWL-70/10)** **14450 cd (EWL-70/20)** **5850 cd (EWL-70/40)**	**71000 cd (EWL-80/10)** **30900 cd (EWL-80/20)** **12500 cd (EWL-80/40)**	**118670 cd (EWL-801/10)** **51680 cd (EWL-801/20)** **20900 cd (EWL-801/40)**	**199740 cd (EWL-100/10)** **86980 cd (EWL-100/20)** **35180 cd (EWL-100/40)**
Overall efficiency:	**85 lm/W**	**110 lm/W**	**91 lm/W**	**91 lm/W**

** Test at 230Vac*

EWL-../.. series selection chart

Code	Lamp type	Dimensions mm A	Dimensions mm B	Class (+40°C)	Max surface temperature °C (+40°C)	Class (+60°C)	Max surface temperature °C (+60°C)	Weight kg	mm
EWL-70/..	LED	340	215	T6	65	T6	85	6,4	290x270x330
EWL-80/..	LED	343	260	T6	65	T6	85	8,6	290x270x330
EWL-801/..	LED	343	260	T6	80	T5	100	8,6	290x270x330
EWL-80C/..	LED	373	260	T6	65	T6	85	9,5	290x270x330
EWL-801C/..	LED	373	260	T6	80	T5	100	9,5	290x270x330
EWL-100/..	LED	484	385	T6	80	T5	100	19,4	420x410x560

Order code example

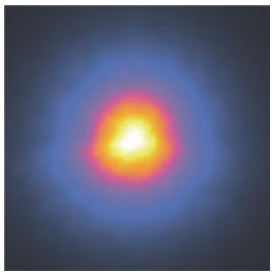
EWL - **70** / **10**

Size

10 Narrow (10°)
20 Medium (20°)
40 Wide (40°)

Examples of illumination diagrams on the horizontal plane

10° lens (Narrow)

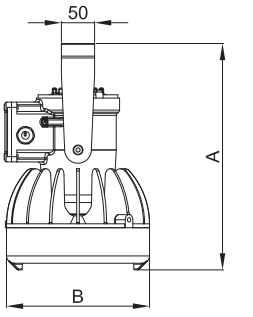


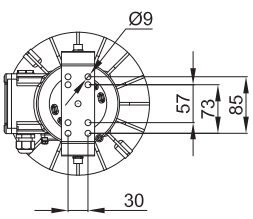
20° lens (Medium)

40° lens (Wide)

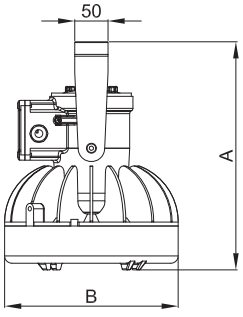
DIMENSIONAL DRAWING

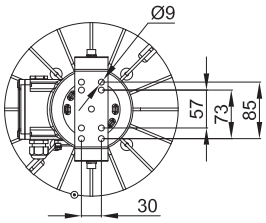
EWL-70/..



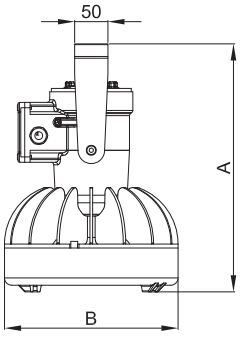


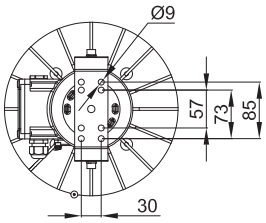
EWL-80../...



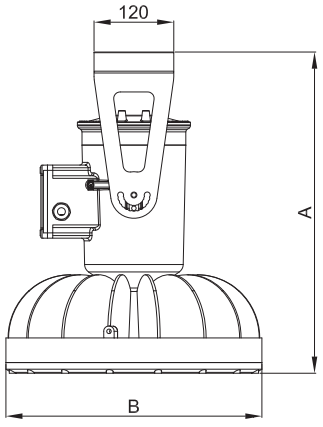


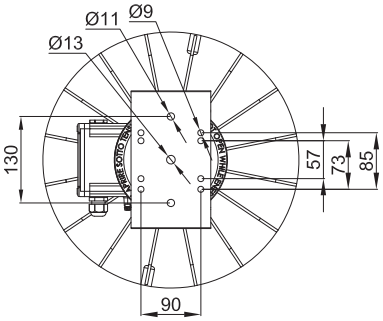
EWL-80C../...





EWL-100/...





Dimensions in mm

CORTEM GROUP®

EWL-../.. Accessories and spare parts available on request

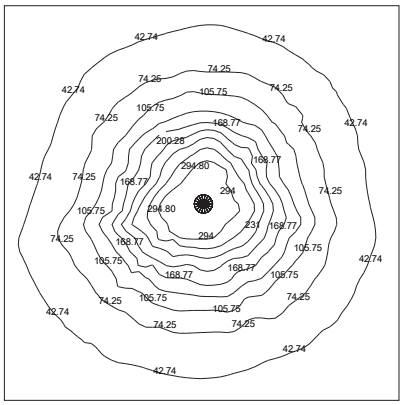
ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	KEY
	Base for horizontal adjustment	EWL-70 EWL-80	Material: aluminium RAL 7035	G-161	ACCESSORY SPARE PART
	Swivel base for horizontal adjustment	EWL-100		G-326 G-327	
	Supporting bracket	EWL-70 EWL-80...	Material: stainless steel AISI316L	G-750	SPARE PART
	Supporting bracket	EWL-100...	Material: stainless steel AISI316L	G-753	SPARE PART
	Cable gland	ISO M20	std. range cable 6,3÷11,6	NAV20SIB	SPARE PART
	Power supply circuit	EWL-70	220 - 240 Vac	RV-40LED	
		EWL-80	120 - 240 Vac 120 - 370 Vdc 50-60 Hz	RSLD070-45	
		EWL-80/24	24 Vdc	RT-70LED	SPARE PART
		EWL-801	220 - 240 Vac	LEDDEVL80/2	
		EWL-100	100 - 240 Vac 120 - 370 Vdc 50-60 Hz	HLG-185H-C700B	
		EWL-100/24	24 Vdc	RT-240LED	
	Front ring with glass	EWL-70	Aluminium ring Borosilicate glass face	G70-0556	SPARE PART
		EWL-80		G80-0556	
		EWL-100		G100-0556	

Example Peak Cd equivalents

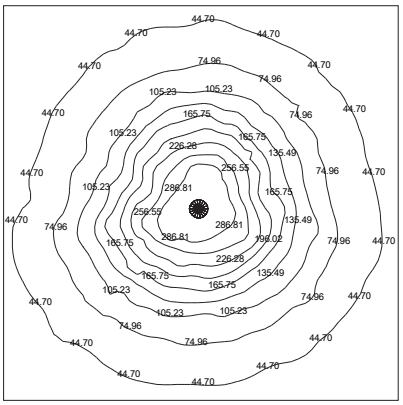
EWL-70/40 (40W)	EWL-80/40 (55W)	EWL-801/40 (110W)	EWL-100/40 (188W)
			
250W HIM/(HPSV)	400W HIM/(HPSV)	>600W HIM/(HPSV)	1000W HIM/(HPSV)
400W Hg	1.5x400W Hg	1000W Hg	>1000W Hg
500W INC	1.5x500W INC	>1000W INC	2x1000W INC

Isolux diagrams

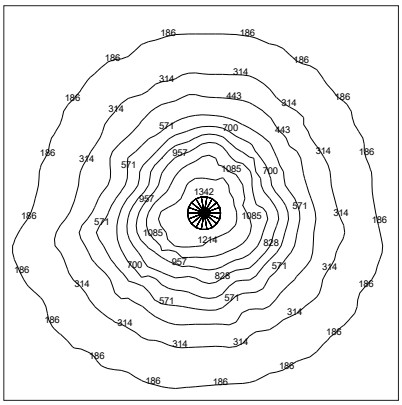
EWL-70/10 illumination on the floor expressed in lux in a room 5m x 5m with the floodlight perpendicular placed at a distance of **10m.**



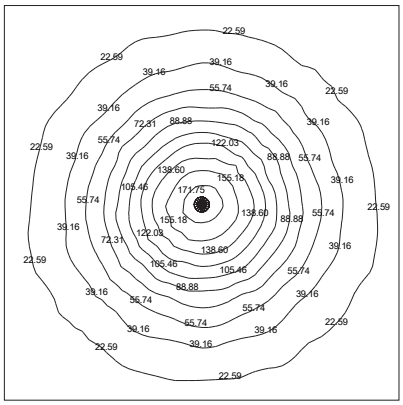
EWL-80/10 illumination on the floor expressed in lux in a room 5m x 5m with the floodlight perpendicular placed at a distance of **13m.**



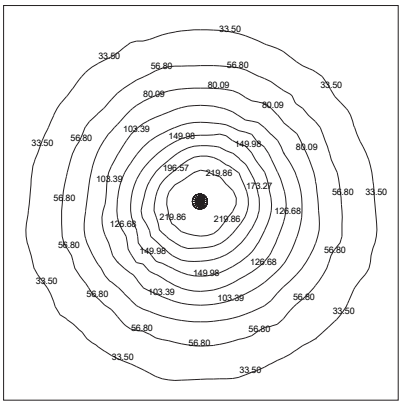
EWL-100/10 illumination on the floor expressed in lux in a room 5m x 5m with the floodlight perpendicular placed at a distance of **20m.**



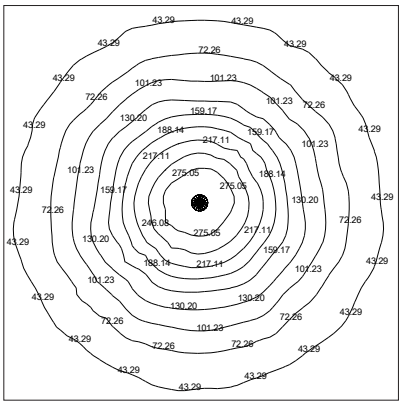
EWL-70/20 illumination on the floor expressed in lux in a room 6m x 6m with the floodlight perpendicular placed at a distance of **8m.**



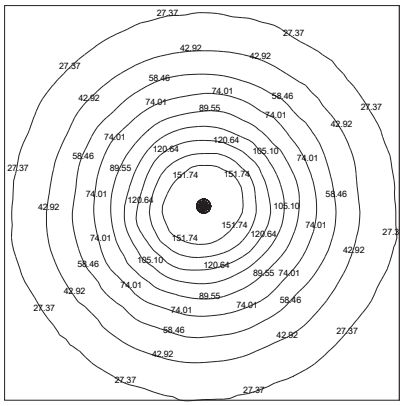
EWL-80/20 illumination on the floor expressed in lux in a room 7m x 7m with the floodlight perpendicular placed at a distance of **10m.**



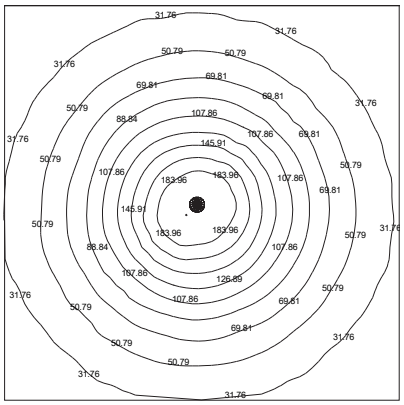
EWL-100/20 illumination on the floor expressed in lux in a room 10m x 10m with the floodlight perpendicular placed at a distance of **15m**.



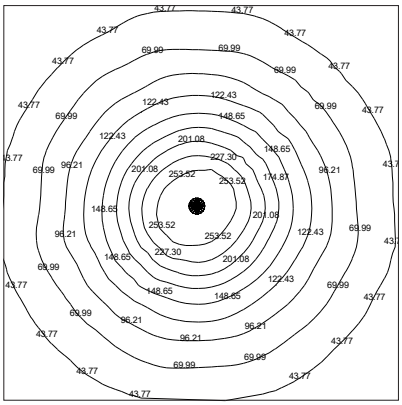
EWL-70/40 illumination on the floor expressed in lux in a room 6m x 6m with the floodlight perpendicular placed at a distance of **6m.**



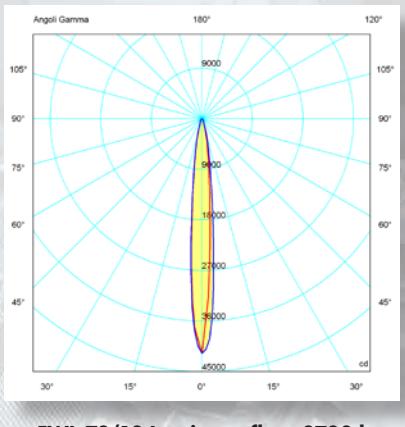
EWL-80/40 illumination on the floor expressed in lux in a room 8m x 8m with the floodlight perpendicular placed at a distance of **7m.**



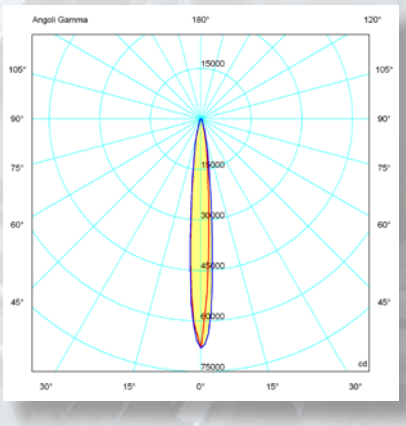
EWL-100/40 illumination on the floor expressed in lux in a room 10m x 10m with the floodlight perpendicular placed at a distance of **10m.**



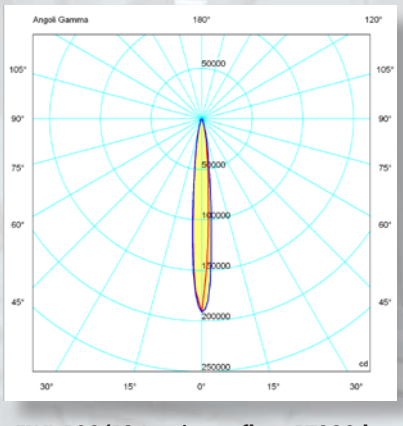
Photometric diagrams



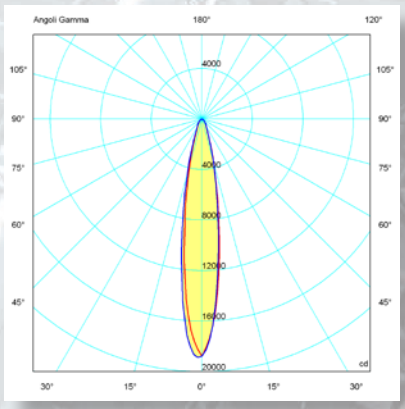
EWL-70/10 Luminous flux: 3700 lm



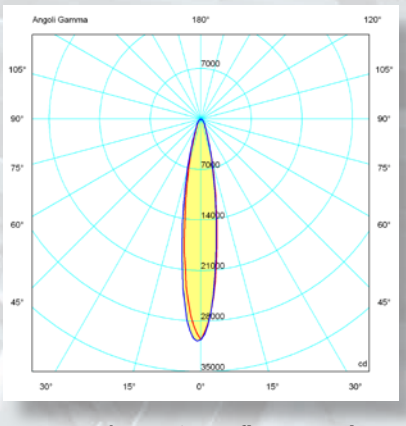
EWL-80/10 Luminous flux: 6050 lm



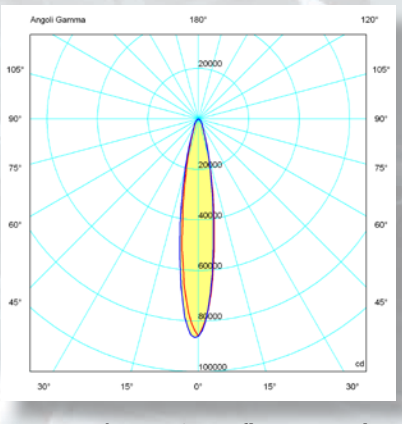
EWL-100/10 Luminous flux: 17000 lm



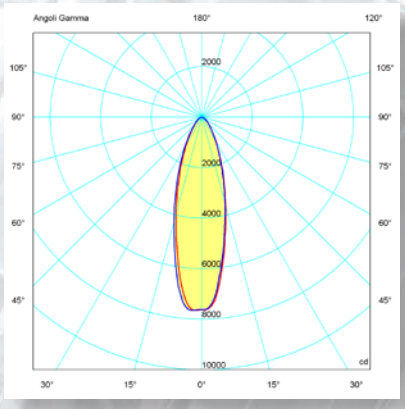
EWL-70/20 Luminous flux: 3700 lm



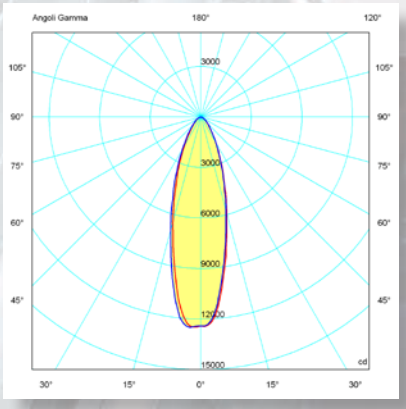
EWL-80/20Luminous flux: 6050 lm



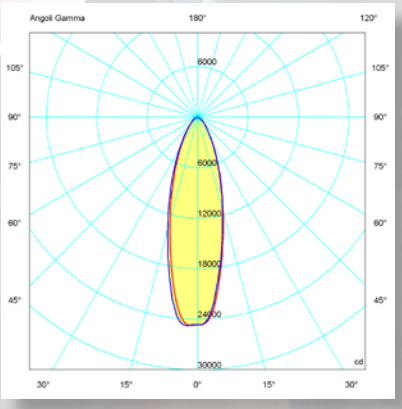
EWL-100/20 Luminous flux: 17000 lm



EWL-70/40 Luminous flux: 3700 lm



EWL-80/40 Luminous flux: 6050 lm



EWL-100/40 Luminous flux: 17000 lm

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= plane 90270
= plane 0180

SLED

- Zone 1, 2, 21, 22
- Mechanical strength
- Reliability over time
- Instant, bright illumination

Painted aluminium body and cover

Tempered glass

Ex e terminal board housing for fast connection

Mounting bracket

SLED series LED floodlights

SLED series floodlights with LED technology combine lightweight, compact design, high performance in terms of reliability, safety, efficiency and energy saving. The SLED-250, 400 and 600 models are characterized by LEDs with optics "square shaped beam" that permits a light distribution and a perfectly uniform lighting in every direction. This photometry makes them particularly suitable for installation in the perimeter areas or wall in all those areas defined as dangerous for the presence of gas, explosive dust, such as Zone 1, 2, 21, 22. On the other hand, the SLED 401, 601, 1000 and 1001 have no reflector optics and are characterized by a diffused light beam and greater Lumen Output. The finned body of the floodlight acts as a heat sink for the LED plate, allowing the installation of greater light output without incurring the deterioration of the LEDs. The flat protective glass is resistant to shocks and high temperatures and ensures an environment friendly lighting. Due to their high luminous output and to a white light with a colour rendering index greater than 70, SLED series floodlights are able to replace the traditional rectangular floodlights that use discharge lamps sodium vapour or metal halide, guaranteeing lighting quality and visual comfort.

Application sectors:

Oil refineries | Chemical and petrochemical plants | Anti light pollution | Offshore plants | Onshore plants | Perimeter lighting | Oil loading/ unloading jetties | 100% Cortem product

CERTIFICATION DATA

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II 2GD Ex de IIB+H2 T5/T6 Gb - Ex tb IIIC T100°C T85°C Db IP66			
Certification:	ATEX CML 19 ATEX 1312			
	IECEx IECEx CML 17.0004		All IEC Ex, TR CU and INMETRO certification data can be downloaded at www.cortemgroup.com	
	TR CU AVAILABLE For SLED-250, SLED-400, SLED-600			
	INMETRO DNV 19.0034 X For SLED-250, SLED-400, SLED-600, SLED-1000			
Standards:	CENELEC EN 60079-0: 2012, EN 60079-7: 2007, EN 60079-18: 2009, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2011, IEC 60079-1: 2014-06, IEC 60079-28: 2015, IEC 60079-31: 2013, IEC 60079-7: 2015 European Directive 2006/95 Low voltage European Directive 2004/108 Electromagnetic compatibility European Directive 2003/108 WEEE Waste electrical and electronic equipment European Directive 2011/64 RoHS			
Degree of protection:	IP66			

Ambient temperature, Class. temperature, Max. surface temp:

Code	($IIB+H_2$)		(for IIB only)	
SLED-250	-20°C +40°C T6/85°C	-20°C +60°C T5/100°C	-40°C +40°C T6/85°C	-40°C +60°C T5/100°C
SLED-400	-20°C +40°C T6/85°C	-20°C +60°C T5/100°C	-40°C +40°C T6/85°C	-40°C +60°C T5/100°C
SLED-600	-20°C +40°C T6/85°C	-20°C +60°C T5/100°C	-40°C +40°C T6/85°C	-40°C +60°C T5/100°C
SLED-401	-20°C +40°C T5/98°C	-	-40°C +40°C T5/99°C	-
SLED-601	-20°C +40°C T5/90°C	-20°C +50°C T5/100°C	-40°C +40°C T5/90°C	-40°C +50°C T5/100°C
SLED-1000	-20°C +40°C T5/93°C	-20°C +50°C T4/103°C	-40°C +40°C T5/93°C	-40°C +50°C T4/103°C
SLED-1001	-20°C +40°C T6/85°C	-20°C +55°C T5/100°C	-40°C +40°C T6/85°C	-40°C +55°C T5/100°C

SLED series LED floodlights

SLED-250

SLED-400

SLED-600

EXEMPT FROM PHOTOBIOLOGICAL RISK (STANDARD IEC / EN 62471)

ORIGINAL PRODUCT

SLED-401

SLED-601

SLED-1000

MECHANICAL FEATURES

Body: Low copper content aluminium alloy fitted with cooling fins for better heat dissipation
Glass face: Shock and temperature resistant tempered glass sealed with aluminium ring
Supporting bracket: Galvanised steel
Gaskets: Acid, hydrocarbon and high temperature resistant silicone
Bolts and screws: Stainless steel
Entries: 2 x ISO M20 entries (SLED-250, SLED-401);
(Floodlight kit with plug PLG1IB and cable gland NAVS20IB)
ISO M25 entries (SLED-400, SLED-600, SLED-401, SLED-1000, SLED-1001)
(Floodlight kit with plug PLG2IB and cable gland NAV25IB)
Coating: Polyester coating Ral 7035 (Light grey)

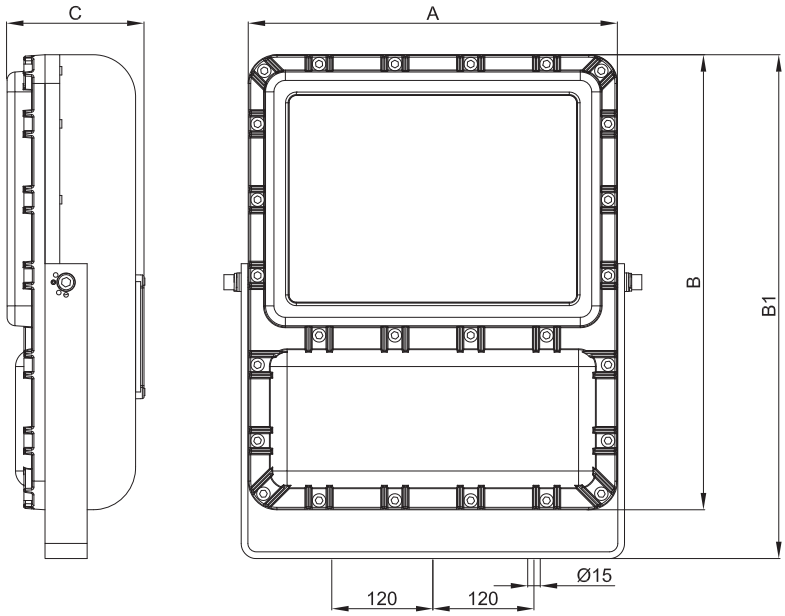
Corrosion Resistance: The STANDARD of the aluminium alloy used by Cortem has passed the tests required by standards EN60068-2-30 (hot/humid cycles) and EN60068-2-11 (salt mist tests)

ACCESSORIES AVAILABLE / SPECIAL REQUESTS

Different colour temperature (code SLED-250**/2700K**)

Code	Dimensions mm				Watt	Class / Max surface temp. °C				Weight kg	mm
	A	B	B1	C		TA=+40°C	TA=+50°C	TA=+55°C	TA=+60°C		
SLED-250	310	360	460	135	122 W	T6/85°C	-	-	T5/100°C	13,5	470x345x150
SLED-400	360	444	520	145	194 W	T6/85°C	-	-	T5/100°C	20,3	540x410x180
SLED-600	440	540	600	165	290 W	T6/85°C	-	-	T5/100°C	32,4	600x465x180
SLED-401	310	360	460	135	180 W	T5/98°C	-	-	-	13,5	470x345x150
SLED-601	360	444	520	145	290 W	T5/90°C	T5/100°C	-	-	20,3	540x410x180
SLED-1000	440	540	600	165	400 W	T5/93°C	T4/103°C	-	-	32,4	600x465x180
SLED-1001	440	540	600	165	500 W	T6/85°C	T5/95°C	T5/T100°C	-		600x465x180

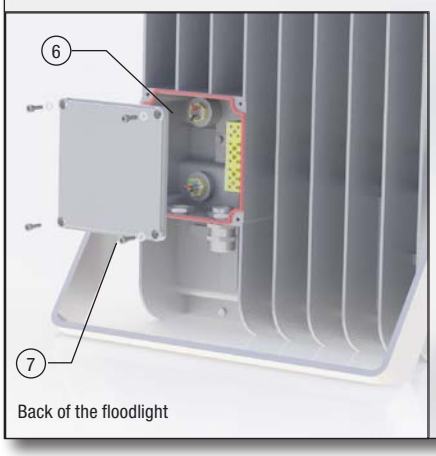
DIMENSIONAL DRAWING



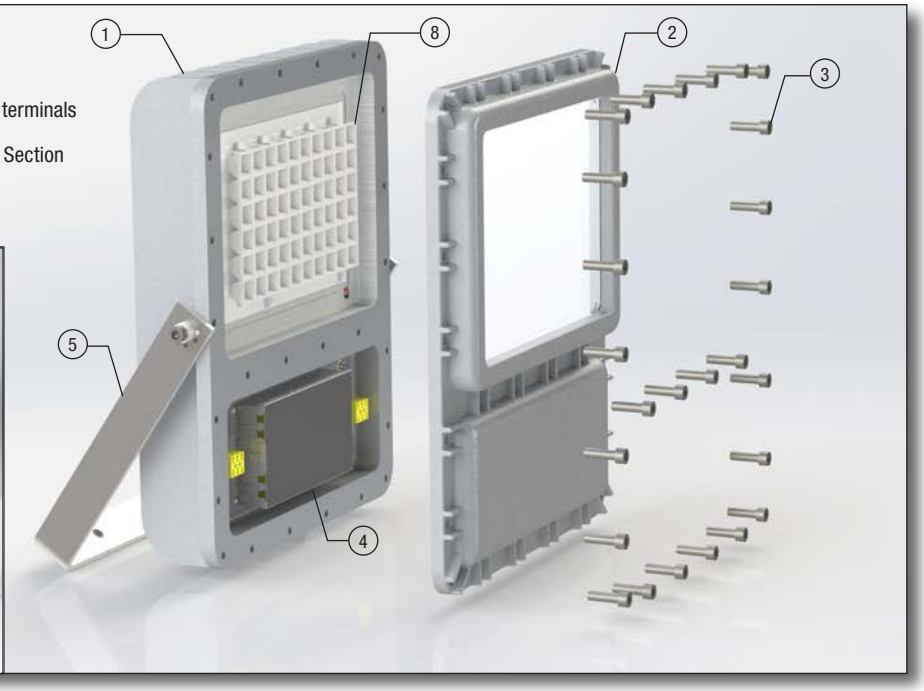
Dimensions in mm

EXPLODED DIAGRAM OF SLED-600 FLOODLIGHT

Descriptions:
1. Body including optics and LED board
2. Cover with tempered glass
3. UNI5931 stainless steel screws
4. 'Ex e ' housing complete with power supply and terminals
5. Mounting bracket
6. 'Ex e' housing complete with terminals L, N, PE, Section max. 4 mm², suitable for loop-in, loop-out
7. Cover equipped with captive screws
8. Reflector optics



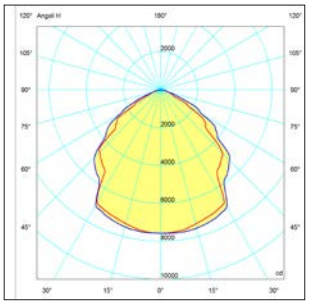
Back of the floodlight



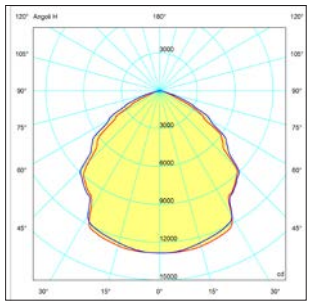
SLED series LED floodlights "square shaped beam"

Electrical features	SLED-250	SLED-400	SLED-600
Power supply:	100-277 Vac ±10%	120-277 Vac ±10%	120-277 Vac ±10%
Rated frequency:	50-60 Hz ±5%	50-60 Hz ±5%	50-60 Hz ±5%
Power consumption*:	122 W	194 W	290 W
Connection:	Direct connection to terminal board L, N, Pe. Section 4mm2, suitable for loop-in/loop-out		
Power factor*:	>0,95	>0,96	>0,97
Rated current*:	559 mA	877 mA	1303 mA
EMC (electromagnetic compatibility):	EN 55015, EN 61547, IEC 61000-3-2, IEC 61000-3-3, IEC 61000-4-...		
THD (total harmonic distortion):	<15% 100-277 Vac	<20% 120-277 Vac	<20% 120-277 Vac
Over-voltage protection:	2 kV	4 kV	4 kV
Driver performances:	Over-Voltage protection, Over-Current protection, Short-Circuit protection		
Dimmer (on request):	(0-10 V) o PWM	(0-10 V)	(0-10 V)
Photometric features			
Viewing angle:	60°	60°	60°
LED:	Cree	Cree	Cree
Type:	Cool White	Cool White	Cool White
Colour temperature:	~ 6500 K	~ 6500 K	~ 6500 K
CRI**:	>70	>70	>70
Instant Restrike:	YES	YES	YES
L80:	> 72600 h	> 72600 h	> 72600 h
Lumen:	**12387 lm**	**20744 lm**	**30799 lm**
Maximum light intensity:	**5206 cd**	**23491 cd**	**33976 cd**
Overall efficiency:	**101 lm/W**	**107 lm/W**	**106,2 lm/W**

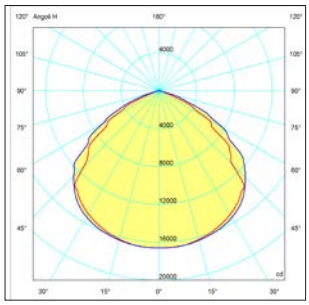
** Test at 230Vac*
*** Different CRI on request*



SLED-250 Luminous flux: 12387 lm



SLED-400 Luminous flux: 20744 lm



SLED-600 Luminous flux: 30799 lm

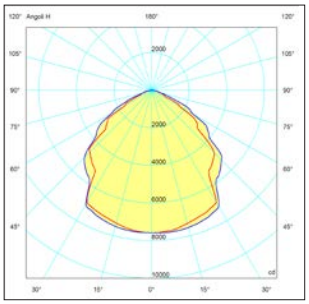
On Cortem Group web site you can download .LDT and .IES lighting data files for the design and simulation of lighting levels in 2D and 3D, rendering and ray tracing.

= plane 90270
= plane 0180

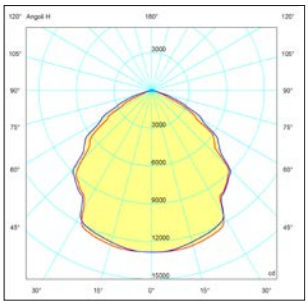
SLED series LED floodlights

Electrical features	SLED-401	SLED-601	SLED-1000	SLED-1001 NEW
Power supply:	120-277 Vac ±10%	120-277 Vac ±10%	120-277 Vac ±10%	100-240 Vac ±10%
Rated frequency:	50-60 Hz ±5%	50-60 Hz ±5%	50-60 Hz ±5%	50-60 Hz ±5%
Power consumption*:	180 W	290 W	400 W	500 W
Connection:	Direct connection to terminal board L, N, Pe. Section 4mm², suitable for loop-in/loop-out			
Power factor*:	>0,98	>0,98	>0,97	>0,96
Rated current*:	798 mA	1281 mA	1793 mA	2277 mA
EMC (electromagnetic compatibility):	EN 55015, EN 61547, IEC 61000-3-2, IEC 61000-3-3, IEC 61000-4-...			
THD (total harmonic distortion):	<10% 220-240 Vac	<10% 220-240 Vac	<20% 120-277 Vac	<10% 220-240 Vac
Over-voltage protection:	6-10 kV	6-10 kV	2-4 kV	6-10 kV
Driver performances:	Over-Voltage protection, Over-Current protection, Short-Circuit protection			
Dimmer (on request):	(0-10 V) o PWM	(0-10 V) / PWM	(0-10 V) / PWM	(0-10 V) / PWM
Photometric features				
Viewing angle:	98°	100°	105°	110°
LED:	Cree	Cree	Cree	Cree
Type:	Cool White	Cool White	Cool White	Cool White
Colour temperature:	~ 5700 K	~ 5700 K	~ 5700 K	~ 5000 K
CRI**:	>70	>70	>70	>70
Instant Restrike:	YES	YES	YES	YES
L80*:	> 72600 h	> 72600 h	> 72600 h	> 118000
Lumen:	**18490 lm**	**32092 lm**	**46145 lm**	**58045 lm**
Maximum light intensity:	**7600 cd**	**12899 cd**	**16600 cd**	**22360 cd**
Overall efficiency:	**102 lm/W**	**110 lm/W**	**115 lm/W**	**117 lm/W**

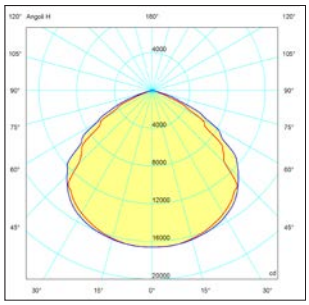
** Test at 230Vac*
*** Different CRI on request*



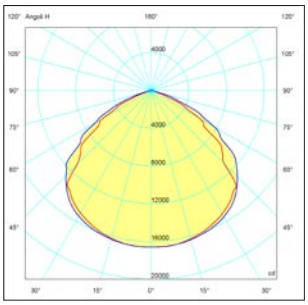
SLED-401 Luminous flux: 18490 lm



SLED-601 Luminous flux: 32092 lm



SLED-1000 Luminous flux: 46145 lm



SLED-1001 Luminous flux: 58045 lm

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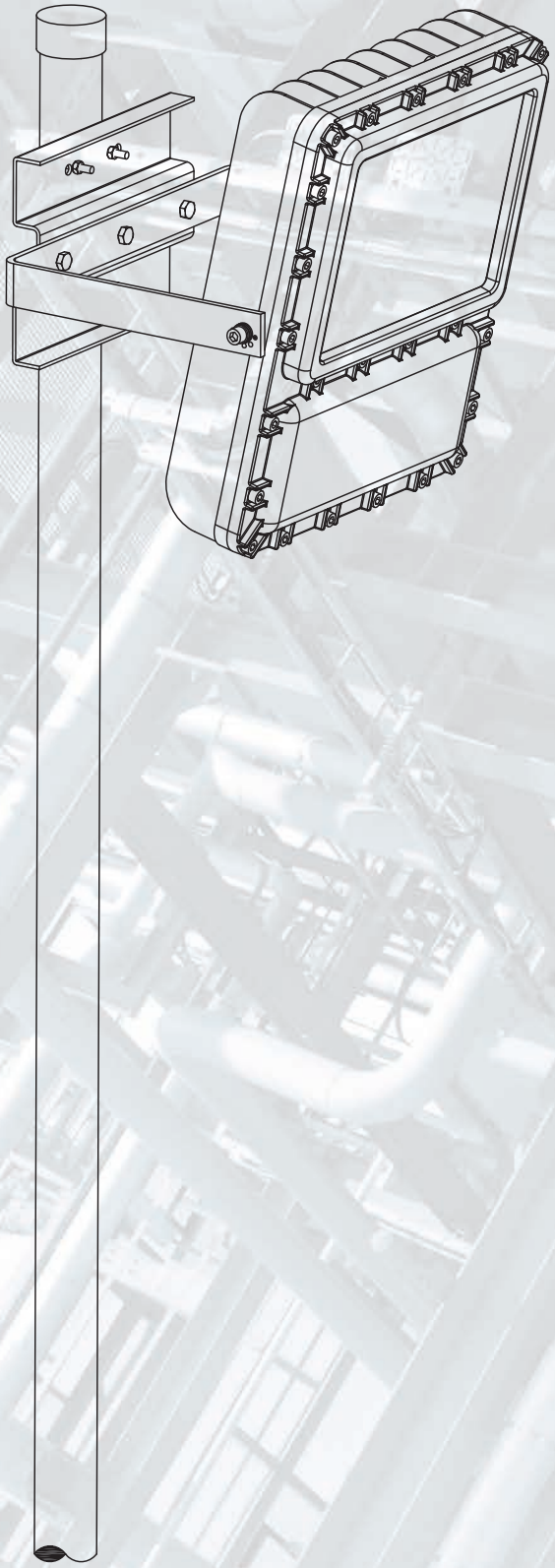
= plane 90270
= plane 0180

SLED series Accessories and spare parts available on request

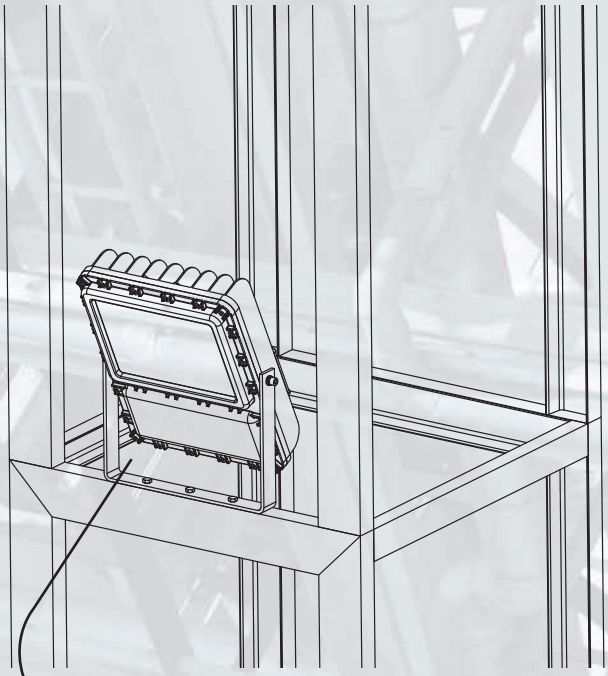
ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	KEY
	Reinforced supporting bracket for mounting on movement facilities	SLED-600 SLED-1000 SLED-1001	Material: galvanised steel	G-558/1	ACCESSORY SPARE PART
	Frame for pole mounting	Per tutti i modelli	Material: galvanised steel	G-0534	ACCESSORY SPARE PART
	Swivel base for 360° adjustment	SLED-400 SLED-601 SLED-600 SLED-1000 SLED-1001	Material: aluminum RAL 7035 painted	G-326 + G-327	ACCESSORY SPARE PART
	Cable gland for nonarmored cables	SLED-250 SLED-401	std. range cable 6,3÷11,6	NAV20SIB	ACCESSORY SPARE PART
		SLED-400 SLED-601 SLED-600 SLED-1000 SLED-1001	std. range cable 11÷20	NAV25IB	
	Front ring with glass	SLED-250 SLED-401	Low copper content aluminium alloy with tempered glass	G250-0622	SPARE PART
		SLED-400 SLED-601		G400-0622	
		SLED-600 SLED-1000 SLED-1001		G-0622	
	Supporting bracket	SLED-250 SLED-401	Material: galvanised steel	G-901	SPARE PART
		SLED-400 SLED-601		G-896	
		SLED-600 SLED-1000 SLED-1001		G-558	
	Optics	SLED-250 SLED-400 SLED-600	Material: polycarbonate	PIXEL12	SPARE PART
	Power supply	SLED-250	100-277 Vac	LEDDEVL100	SPARE PART
		SLED-400	120-277 Vac	LEDDSLED600	
		SLED-600	120-277 Vac	LEDDSLED600	
		SLED-401	120-277 Vac	LEDDSLED401	
		SLED-601	120-277 Vac	LEDDSLED601	
		SLED-1000	120-277 Vac	LEDDEVL100 (x2)	
		SLED-1001	100-277 Vac	LEDDSLED1001	

Installation and mounting methods SLED series

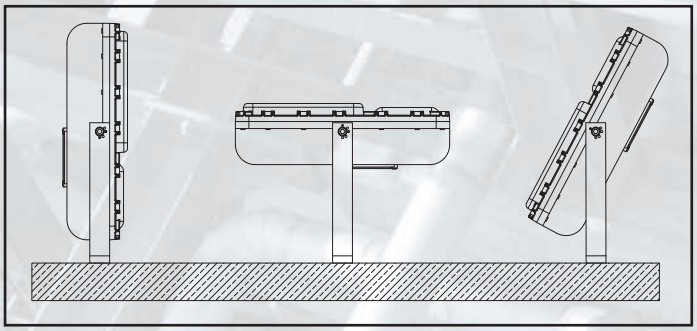
Example of pole mounting



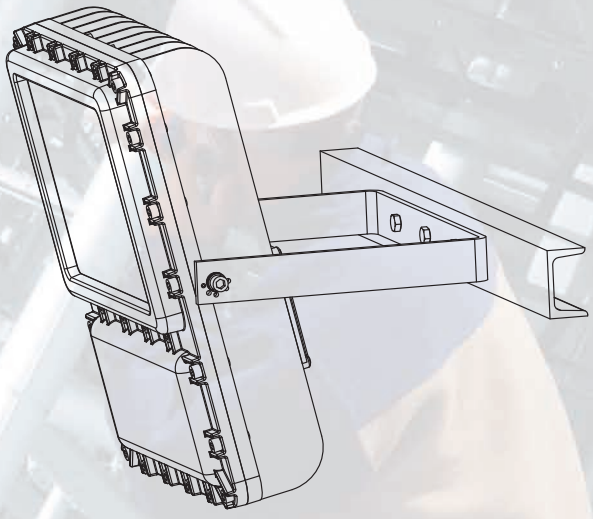
Example of vertical mounting on structure



Angle of rotation of 360 °



Example of horizontal mounting on structure



EVFD-L

- Zones 1, 2, 21, 22
- With Cortem LED strips
- Easy relamping
- Designed to last

'Ex op is'
safe optical radiation

Reflector in galvanized steel white painted

Body and head in painted aluminium

Opening of electrical parts housing

High mechanical strength

Silicone resin

Electrical component housing

EVFD-L Series Lighting fixtures with LED strips

As their high mechanical resistance, EVFD LED lighting fixtures are recommended for use in all those hazardous areas where the atmosphere is constantly contaminated with fumes, gases and dusts. These units have been designed to provide the even distribution of light without taking up the limited vertical space available. The specially curved reflector and the transparency of the tempered glass tube combine to allow light to diffuse over a wide range and provide more pleasant, less tiring working conditions. All the electrical components are housed in an aluminium "enclosure" that can be easily removed from the fixture for maintenance work. Simply cleaning the glass tube ensures constant excellent illumination over time. As specified in the appropriate installation standard (EN/IEC 60079-14), the only "entry" to the fixture must be through an Ex "barrier" cable gland (sealed) or, in the case of a conduit system, with an EYS, EZS series sealing fitting.

Sectors for use:

Petroleum refineries | Chemical and petro-chemical plants | Oil and combustible liquid depots | Offshore plants | Onshore plants | Stair handrails | Farm produce applications | 100% produced by Cortem

CERTIFICATION DATA

Classification:	Group II	Category 2GD			
Installation: EN 60079.14	zona 1 - zona 2 (Gas)	zona 21 - zona 22 (Polveri)			
Marking:	CE 0722 Ex II 2GD Ex db op is IIB T6 Gb - Ex tb op is IIIC T85°C Db IP66				
	CE 0722 Ex II 2GD Ex db op is IIB+H_2 T6 Gb - Ex tb op is IIIC T85°C Db IP66				
Certification:	ATEX EPT 17 ATEX 2880 X				
	IECEx IECEx SEV 18.0004				
Standards:	CENELEC EN 60079-0: 2012+A11:2013, EN 60079-1: 2014, EN 60079-31: 2014, EN 60079- 28: 2015 and EUROPEAN DIRECTIVE 2014/34/UE European Directive 2006/95 Low voltage European Directive 2004/108 Electromagnetic compatibility European Directive 2003/108 WEEE Waste electrical and electronic equipment European Directive 2011/64 RoHS				
Class temperature:	85°C (T6)				
Ambient temperature:	Standard Ex db op is IIB -40°C +60°C		On request Ex db op is IIB+H2 -20°C +60°C		
Degree of protection:	IP66				

This equipment can be used in an environment containing explosive atmosphere and with the presence of hydrogen.

EVFD-L Series Lighting fixtures with LED strips

EVFD-1L

EVFD-2L

ORIGINAL PRODUCT

MECHANICAL FEATURES

Body:	Low copper content aluminium alloy
External tube:	Shock and high temperature resistant borosilicate glass
Seal:	Silicone resin between the aluminium heads and the glass strips
Gaskets:	Silicon acid/hydrocarbon resistant
External reflector:	White painted galvanised steel
Bolts and screws:	Stainless steel
Mounting:	2 x galvanised steel brackets with Ø9 slots
Entries:	3 x 3/4" threaded NPT. Fixture complete with 2 x PLG2NA aluminium plugs
Coating:	Polyester coating Ral 7035 (Light grey)
Corrosion Resistance:	The STANDARD of the aluminium alloy used by Cortem has passed the tests required by standards EN60068-2-30 (hot/humid cycles) and EN60068-2-11 (salt mist tests)

ELECTRICAL FEATURES

Ballast:	Electronic
Rated voltage:	120-240 Vac (EVFD-1L) 100-277 Vac (EVFD-2L)
Rated frequency:	50/60 Hz
Connection:	Direct to the terminal board L, N, Pe section 4 mm^2 terminal board suitable for through wiring connection
Power factor:	0,98
Wiring:	Silicone rubber cables with glass braid insulation for high temperatures

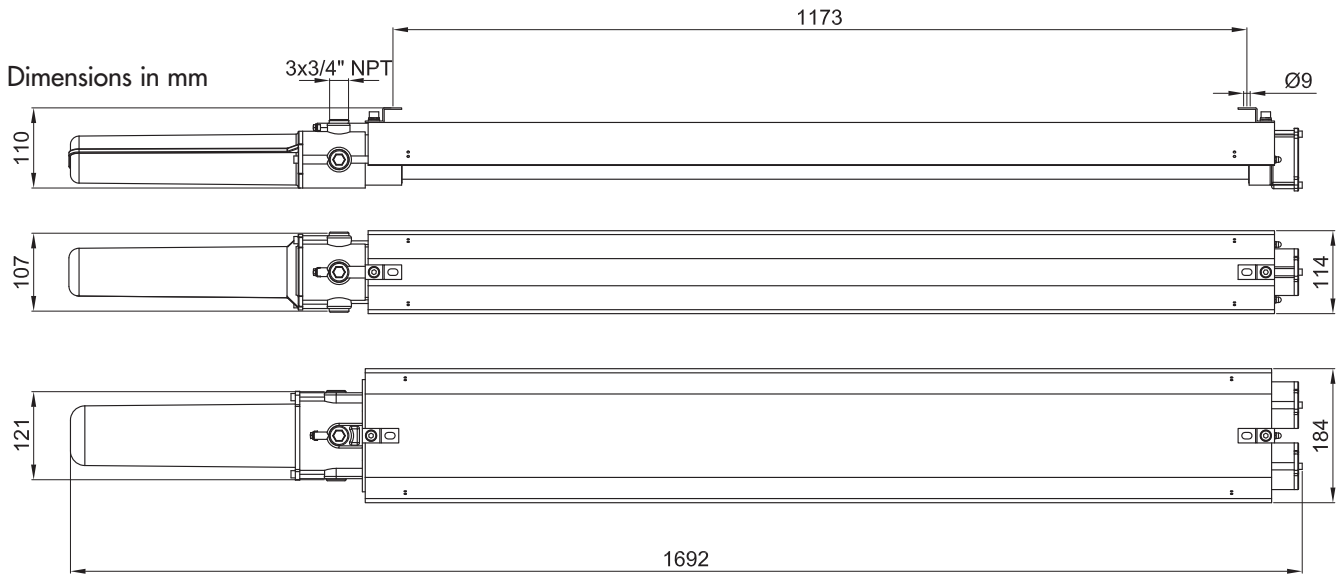
ACCESSORIES AVAILABLE / SPECIAL REQUESTS

Installation mounting brackets
Stainless steel external reflector
Stainless steel guard
Re-lamping bracket for use on in-line lighting fixtures
Cable gland: FB2NBK for armoured cable or FGAB2NBK for non-armoured cable
GAS UNI ISO 7/1 thread

EVFD-L Series Lighting fixtures with LED strips

Code	Type	N. Strips	Power supply	Lumen	Watt*	Weight kg	mm
EVFD-1L	1 x Cortem LED strips	1	120/240 Vac	4575	38	6,6	2090x120x155
EVFD-2L	2 x Cortem LED strips	2	100/277 Vac	9150	80	10,4	2090x120x155

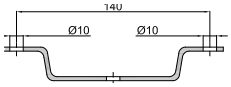
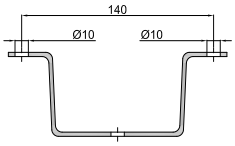
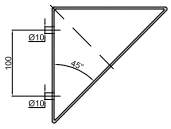
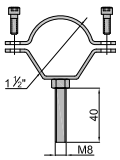
DIMENSIONAL DRAWING



Features	EVFD-1L	EVFD-2L
Power supply:	120-240 Vac	100-277 Vac
Rated frequency:	50-60 Hz	50-60 Hz
Power consumption:	38 W*	80 W*
Connection:	Entrata cavi direttamente alla morsettiera L, N, PE. Sez max. 4 mm2, adatta per l'entra-esci	
Power factor:	>0,96*	>0,96*
Rated current:	172 mA*	362 mA*
EMC (electromagnetic compatibility):	EN 55015, EN 61547, IEC 61000-3-2, IEC 61000-3-3	
THD (total harmonic distortion):	20%	20%
Over-voltage protection:	1 kV	6 kV
Driver performances:	Protection Over-Voltage, Protection Over-Current, Protection Short-Circuit	
LED:	Luxeon	
Viewing angle:	120°	120°
Colour temperature:	5000 K	5000 K
CRI:	80	80
Instant Restrike:	YES	YES
Lumen:	**4575 lm**	**9150 lm**
Maximum light intensity:	**1602 cd**	**3204 cd**
Overall efficiency:	**120 lm/W**	**114 lm/W**

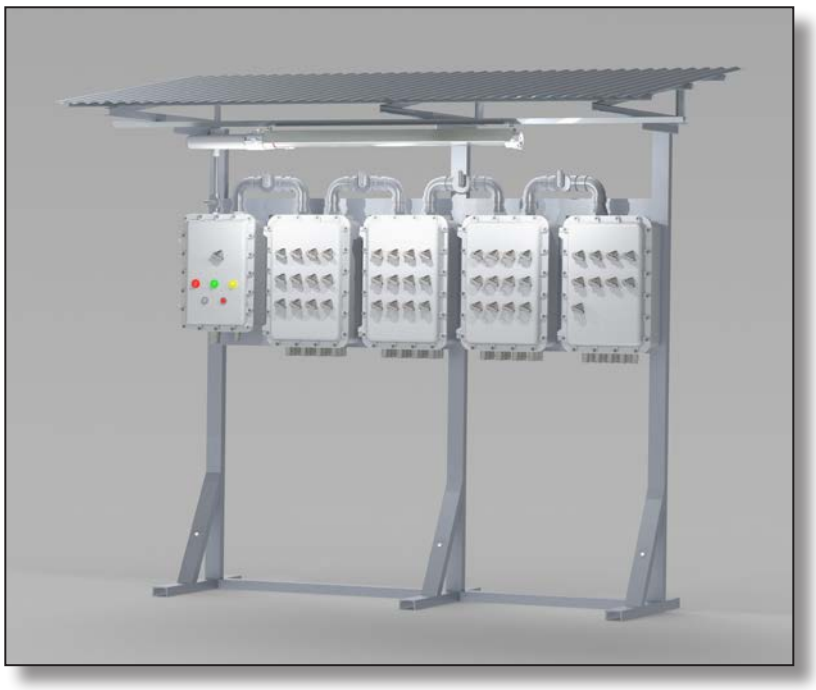
** Test carried out at 230Vac*

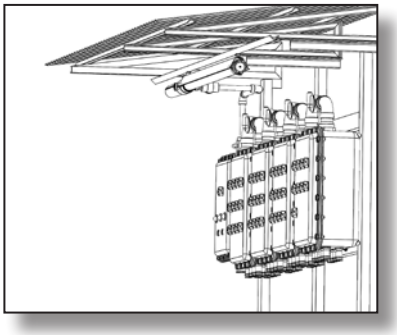
EVFD-L Series Lighting fixtures with LED strips

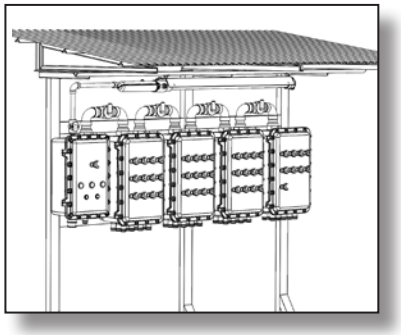
ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	KEY
	Tige	Length: 250 mm	Material: stainless steel	BRF8MIN/250	
	Type U eyebolt		Material: galvanised steel	GOF-8	
	Type D bracket complete with screws		Material: bracket: galvanised steel screws: stainless steel	G-0609	
	Type V bracket complete with screws		Material: bracket: galvanised steel screws: stainless steel	G-0610	
	Type D bracket complete with screws		Material: bracket: galvanised steel screws: stainless steel	G-0611	
	Type P bracket		Material: galvanised steel	G-0480	
	Cable gland		For models and codes, visit www.cortemgroup.com	FB2NBK FGAB2NBK	
	Guard	EVFD-1L	AISI 316L stainless steel Electro-polished	G136-0418S	
		EVFD-2L		G236-0418S	
	Stainless steel reflector	EVFD-1L	Stainless steel plate	G136-455IN	
		EVFD-2L		G236-455IN	
	Standard reflector	EVFD-1L	White painted galvanised steel	G136-455	
		EVFD-2L		G236-455	
	Power supply circuit	EVFD-1L	120-240 Vac	LEDDEVFD1L	
		EVFD-2L	100-277 Vac	LEDDEVFD2L	
	LED strip	EVFD-1L	LED module with contacts	LTT36500	
		EVFD-2L			

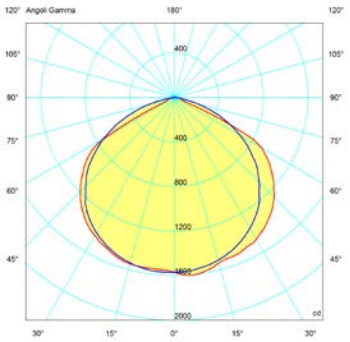
INSTALLATION AND MOUNTING METHODS

Control panel completely designed and manufactured by Cortem.
The lighting fixture used according to customer specifications to optimize the power consumption is the LED lighting fixture EVFD-1L model.

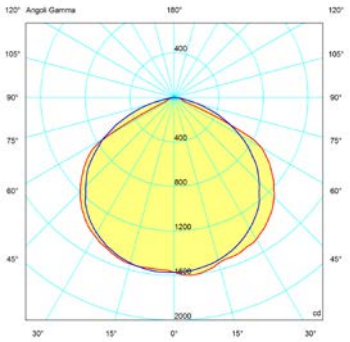








EVFD-1L Luminous flux: 4575 lm



EVFD-2L Luminous flux: 9150 lm

EVFD-2L series lighting fixture
Typical pole-mounted installation with P-type brackets (model G-0480)

On Cortem Group web site you can download .LDT and .IES lighting data files for the design and simula- tion of lighting levels in 2D and 3D, rendering and ray tracing.

= plane 90270
= plane 0180

EXEL-L

- Complete with high efficiency LED strips
- Quick access to the internal electrical equipment
- Double locking system operated by hexagonal-head tool
- Zone 1, 2, 21, 22

'Ex op is'
safe optical radiation

Reinforced polyester resin body

Certified LED strips

Hinges

Transparent polycarbonate cover

Detail of the internal side

EXEL-L series lighting fixture with Cortem resin-bonded LED strips

EXEL-L series increased safety lighting fixtures for LEDs resin-bonded strips are suitable to be installed in hazardous areas where a high degree of protection and resistance against corrosion is required. EXEL-L series is GRP made and features the 'Ex de mb op is' according to the safe optical radiation standard. It's equipped with LED strips sealed in a transparent resin. The LED strips are manufactured by Cortem and they are certified and supplied along with the lighting fixture. The through wiring double ended makes installation on field easier and faster. The transparent cover is clipped into place on both sides of the fixture body with 8 clips on the EXEL-215L model and 14 clips on the EXEL-230L unit. This ensures excellent protection against dust and water over time. A safety switch housed inside the lighting fixture cuts off automatically the power supply when the lighting fixture is opened for the LED module and/or electrical component replacement. The EXEL-L series provides twelve models fitted with a Ni-Cd battery with electronic inverter for use in emergency operation. Thanks to the use of LED technology applied also on the emergency models, the operating time and the energy saving are considerably greater.
A red LED warning light comes off if the battery needs to be replaced due to a short circuit or if the battery itself is dead.

Application sectors:

Offshore plants | Farm produce applications | Onshore plants | Low temperatures | Chemical and petrochemical plants | Waste water purification | Naval installations | 100% Cortem product

CERTIFICATION DATA

Classification:	Group	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II 2GD - Ex db eb mb op is IIC T6/T5 Gb Ex tb op is IIIC T...°C Db IP66			
Certification:	ATEX CML 15 ATEX 3188X			
	IEC Ex CML 15.0044X	All IEC Ex, TR CU and INMETRO certification datacan be downloaded at www.cortemgroup.com		
	TR CU AVAILABLE			
	INMETRO DNV 12.0055 X			
Standards:	CENELEC EN60079-0: 2012, EN60079-1: 2007, EN60079-7: 2007, EN60079-18: 2015, EN60079- 28: 2015, EN60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE. IEC60079-0: 2011, IEC60079-1: 2007-04, IEC60079-18: 2014, IEC60079-28: 2015, IEC60079- 31: 2013, IEC60079-7: 2006-07			
Class temperature:	85°C (T6)	100°C (T5)		
Ambient temperature:	-40°C +40°C (T6) -40°C +55°C (T5)	With emergency -20°C +50°C (T5)	Separate emergency -20°C +50°C (T5)	
Degree of protection:	IP66			

EXEL-L series lighting fixture with Cortem resin-bonded LED strips

EXEMPT FROM PHOTOBIOLOGICAL RISK (STANDARD IEC / EN 62471)

ORIGINAL PRODUCT

MECHANICAL FEATURES

Body:	Black shock and UV resistant fibreglass reinforced anti-static polyester resin
Diffuser:	Transparent polycarbonate, shock and UV resistant
Protected opening system:	Sliding system operated by a hexagonal-head tool (for safety reasons, the fixture can not be opened without the tool)
Gasket:	Acid/hydrocarbon resistant expanded silicone
Reclining frame:	Aluminium and stainless steel
Inner fixed frame:	Extruded aluminium
Bolts and screws:	Stainless steel
Entries:	4 x Ø25.5 entries (suitable for ISO M25x1.5 threads). Lighting fixture kit contains 3 model PLG2ILXE7 plugs and 2 model NAVP25IXE-X6DS cable glands for non-armoured cable
Mounting:	Nickel plated brass inserts with 2 x M8 holes

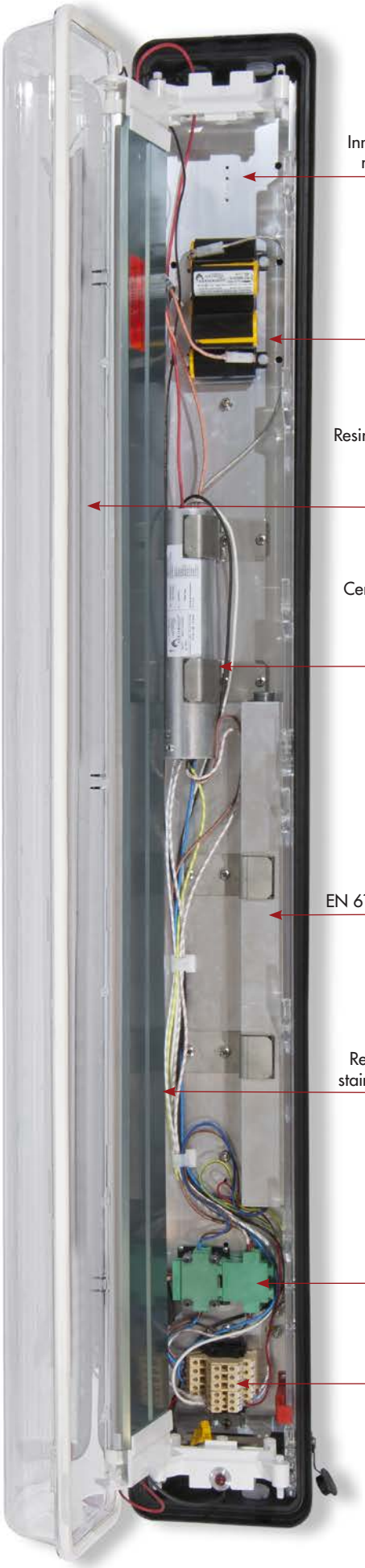
ELECTRICAL FEATURES

Ballast:	Electronic
Rated voltage:	110/277 Vac/dc (EXEL-215L, EXEL-130L) 220/240 Vac/dc (EXEL-230L) 220/240 Vac (EXEL-115L)
Rated frequency:	50/60 Hz
Connection:	Directly to terminal board L, N, Pe section 4 mm^2 terminal board with jumpers suitable for through wiring double ended
Emergency unit:	Electronic inverter 110/240 Vac 50/60 Hz, 110-270 Vdc. Batteries Ni/Cd, 4 Ah o 7 Ah, 6V
Wiring:	Silicone rubber cables with glass braid insulation for high temperatures

ACCESSORIES AVAILABLE / SPECIAL REQUESTS

Installation brackets
Grey polyester resin body (code EXEL-215L**G**)
Cable entry: 4 x Ø20.5 holes. Lighting fixture kit contains 3 model PLG1ILXE7 plugs and 2 model NAVP20IXE cable glands for non-armoured cable (code EXEL-215L/**20**)
Earthing continuity plates for metal cable glands

EXEL-L series lighting fixture with Cortem resin-bonded LED strips



Inner fixed frame in extruded aluminium for components housing

Battery pack

Resin-bonded LED strips certified by Cortem
CE Ex II 2GD
Ex e mb IIC T.. Gb
Ex mb IIIC T..°C Db IP6x

Certified electronic inverter housed in cylindrical aluminium box with one end sealed to allow passage of cables

Electronic ballast by Cortem according to:
EN 61347-1, EN 61347-2-13, EN 62384, EN 61000-3-2, EN 61000-4-5, EN 55015, EN 61547

Reclining frame in alluminium and stainless steel for LED tubes housing

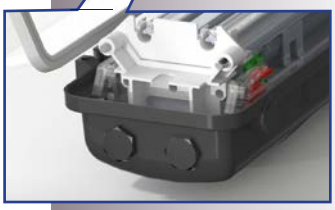
Safety switch

Terminal board section 4 mm²

Quick access

Thanks to the new reclining frame on which the LED strips are housed, it's possible an easy access to the inside part of the lighting fixture. This system simplifies the maintenance and any interventions on the electrical part by the operator, ensuring greater safety and quick service

180° opening of the transparent diffuser by means of a hexagonal-head tool



Manually loosening the two screws, you can recline entirely the frame and access directely to the electrical components.

Internal electrical components easily accessible by the operator for a rapid replacement in case of fault.
Wiring is carried out with safety and without that detached parts of the frame obstacle maintenance operations.

EXEL-L series lighting fixture with Cortem resin-bonded LED strips

Normal working

Code	Dimensions mm A	A1	B	C	Watt	LED strips n°	Power supply	Weight kg	mm
EXEL-115L	785	420	185	155	17	1	220-240 Vac 50/60Hz	4,9	195x155x820
EXEL-215L	785	420	185	155	29	2	110-277 Vac/dc 50/60Hz	4,9	195x155x820
EXEL-130L	1370	720	185	155	29	1	110-277 Vac/dc 50/60Hz	9,2	196x155x1400
EXEL-230L	1370	720	185	155	56	2	220-240 Vac/dc 50/60Hz	9,2	196x155x1400

Normal + emergency working

Code	Dimensions mm A	A1	B	C	Operating type	LED strips n°	Power supply	Watt	Discharge time in minutes	Weight kg	mm
EXEL-115LEF4..	785	420	185	155	normal + emergency	1	220-240 Vac 50/60Hz	17	180’	7,2	196x155x820
EXEL-215LEF4..	785	420	185	155	normal + emergency	2	110-240 Vac/dc 50/60Hz	29	180’	7,2	196x155x820
EXEL-130LEF4..	1370	720	185	155	normal + emergency	1	110-240 Vac/dc 50/60Hz	29	180’	10,1	196x155x1400
EXEL-230LEF4..	1370	720	185	155	normal + emergency	2	220-240 Vac/dc 50/60Hz	56	180’	10,1	196x155x1400
EXEL-115LEF7..	785	420	185	155	normal + emergency	1	220-240 Vac 50/60Hz	17	240’	7,2	196x155x820
EXEL-215LEF7..	785	420	185	155	normal + emergency	2	110-240 Vac/dc 50/60Hz	29	240’	7,2	196x155x820
EXEL-130LEF7..	1370	720	185	155	normal + emergency	1	110-240 Vac/dc 50/60Hz	29	240'	10,1	196x155x1400
EXEL-230LEF7..	1370	720	185	155	normal + emergency	2	220-240 Vac/dc 50/60Hz	56	240’	10,1	196x155x1400

Single and double lamp units with separate emergency battery pack for temperatures of -20°C to + 55°C
example code EXEL-115LEF4**E**

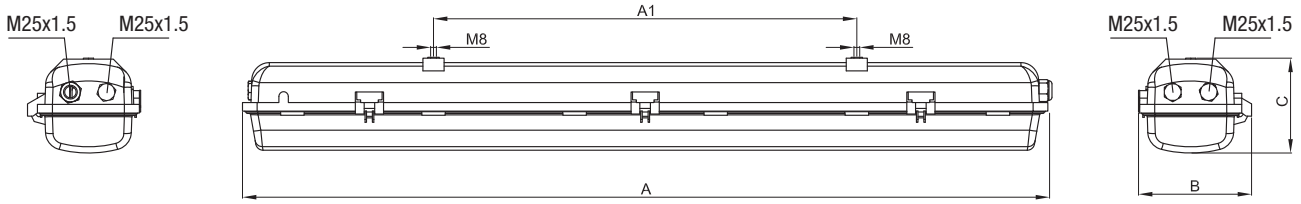
Only emergency working

Code	Dimensions mm A	A1	B	C	Operating type	LED strips n°	Power supply	Discharge time in minutes	Weight kg	mm
EXEL-115LEE4..	785	420	185	155	only emergency	1	110-240 Vac ±10% 50/60Hz	180’	7,2	196x155x820
EXEL-130LEE4..	1370	720	185	155	only emergency	1	110-240 Vac/dc ±10% 50/60Hz	180’	10,1	196x155x1400
EXEL-115LEE7..	785	420	185	155	only emergency	1	110-240 Vac ±10% 50/60Hz	240’	7,2	196x155x820
EXEL-130LEE7..	1370	720	185	155	only emergency	1	110-240 Vac/dc ±10% 50/60Hz	240’	10,1	196x155x1400

Single and double lamp units with separate emergency battery pack for temperatures of -20°C to + 55°C
example code EXEL-115LEE4**E**

EXEL-L series lighting fixture with Cortem resin-bonded LED strips

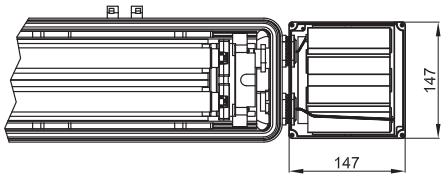
DIMENSIONAL DRAWING

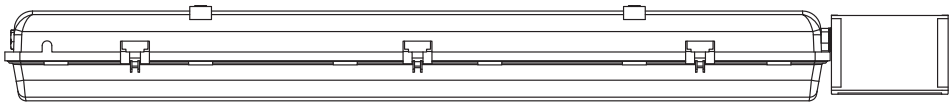


Single and double lamp units with separate emergency battery pack for temperatures of -20°C to + 55°C

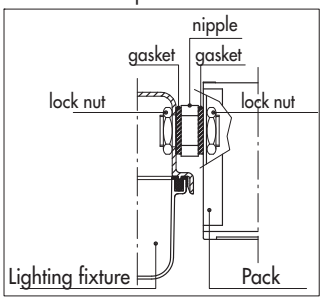
Emergency lamp for temperatures of -20°C + 55°C

Batteries contained in a separate pack
type SA141410/P in polyester resin.





Close up of connections

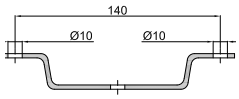
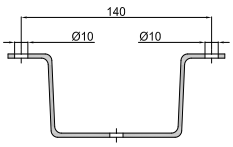
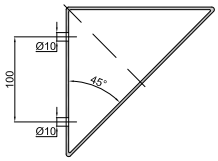


Protección externa SA141410/P
en resina de poliester

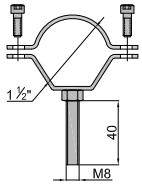
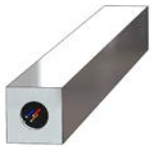
Dimensions in mm

DON'T FORGET TO ORDER THE ACCESSORIES

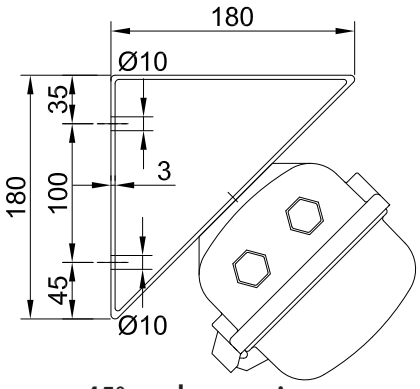
Example: Type of lighting fixture EXEL-215L + U bracket G-0609 + other ...see key

ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	KEY
	Tige	Length: 250 mm	Material: stainless steel	BRF8MIN/250	ACCESSORY SPARE PART
	Eyebolt		Material: galvanised steel	GOF-8	ACCESSORY SPARE PART
	Type U bracket complete with screws		Material: bracket: galvanised steel screws: stainless steel	G-0609	ACCESSORY SPARE PART
	Type V bracket complete with screws		Material: bracket: galvanised steel screws: stainless steel	G-0610	ACCESSORY SPARE PART
	Type D bracket complete with screws		Material: bracket: galvanised steel screws: stainless steel	G-0611	ACCESSORY SPARE PART

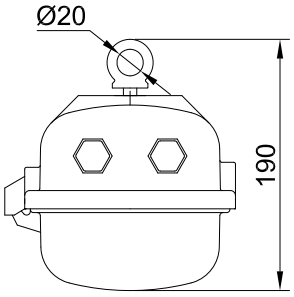
EXEL-L series lighting fixture with Cortem resin-bonded LED strips

ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	KEY
	Type P bracket		Material: bracket: galvanised steel screws: stainless steel	G-0480	
	LED resin-bounded module	EXEL-115L	LED strips exec. Ex mb	B115-0300/1	
		EXEL-215L		B215-0300/1	
		EXEL-130L		B130-0300/1	
		EXEL-230L		B230-0300/1	
	Transparent diffuser	EXEL-115L	Material: polycarbonate	B18-363	
		EXEL-215L			
		EXEL-130L		B36-363	
		EXEL-230L			
	Non-armoured cable gland complete with rubbers, seal and lock nut	ISO M25x1,5	Ex e II IP 66/67 (std. range cavo 10-18)	NAVP25IXE-X6DS	
	Plug with seal and lock nut	ISO M25x1,5	Ex e II IP 66/67	PLG2ILXE7	
	Hexagonal-head tool	Hexagon 10		CLAFT10	
	Electronic inverter		110-240 Vac, 110-270 Vdc	EI-30L/2	
	Battery pack		4 Ah 6V NiCd 7 Ah 6V NiCd	G-0309B G-0309	
	Electronic ballast	EXEL-115L	220/240 Vac 50/60Hz	EB115L	
		EXEL-215L EXEL-130L	110/277 Vac/dc 50/60 Hz	EB215L	
	Electronic ballast	EXEL-230L	220/240 Vac/dc 50/60 Hz	EBL4040-2	
	Earthing continuity plates for metal cable glands	Holes M25x1.5	Material: brass	B-479	
		Holes M20x1.5		B-479/1	

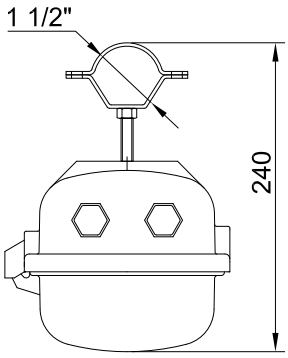
EXEL-L series lighting fixture with Cortem resin-bonded LED strips



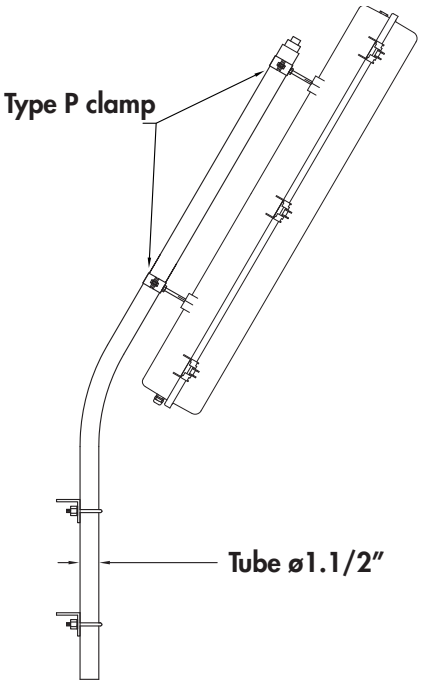
45° angle mounting
TYPE "D"



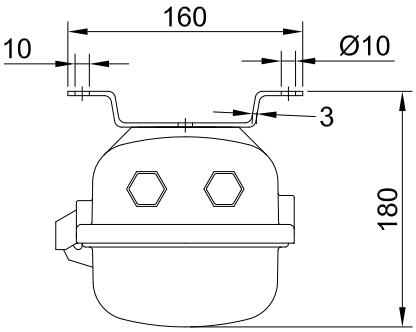
Pendant mounting
with eyebolt TYPE "O"



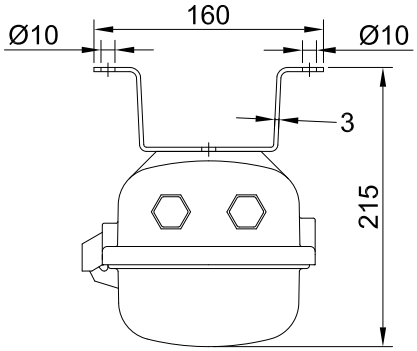
Mounting using 1.1/2"
metal clamps TYPE "P"



Standard pole mounting



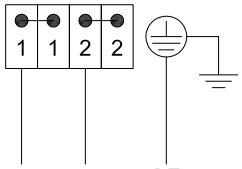
Low ceiling mounting with
clamp TYPE "U"



High ceiling mounting with
clamp TYPE "V"

Wiring diagrams

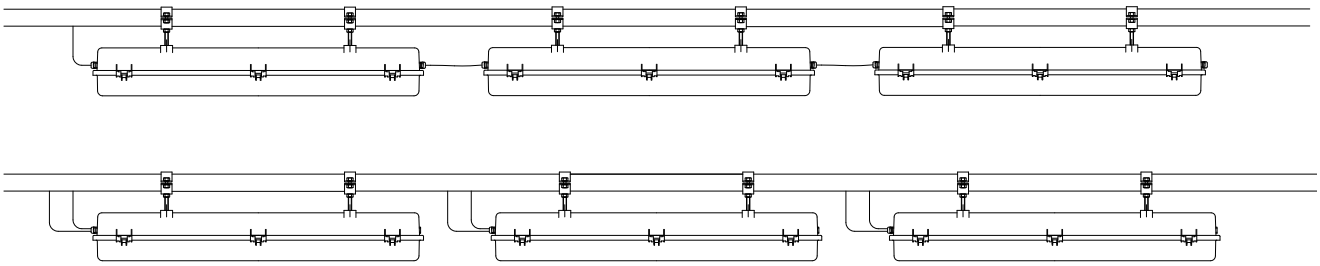
Normal lighting fixture



L N PE

Power supply

**Connections can be made on either side of the fixture body
for simple, fast installation**

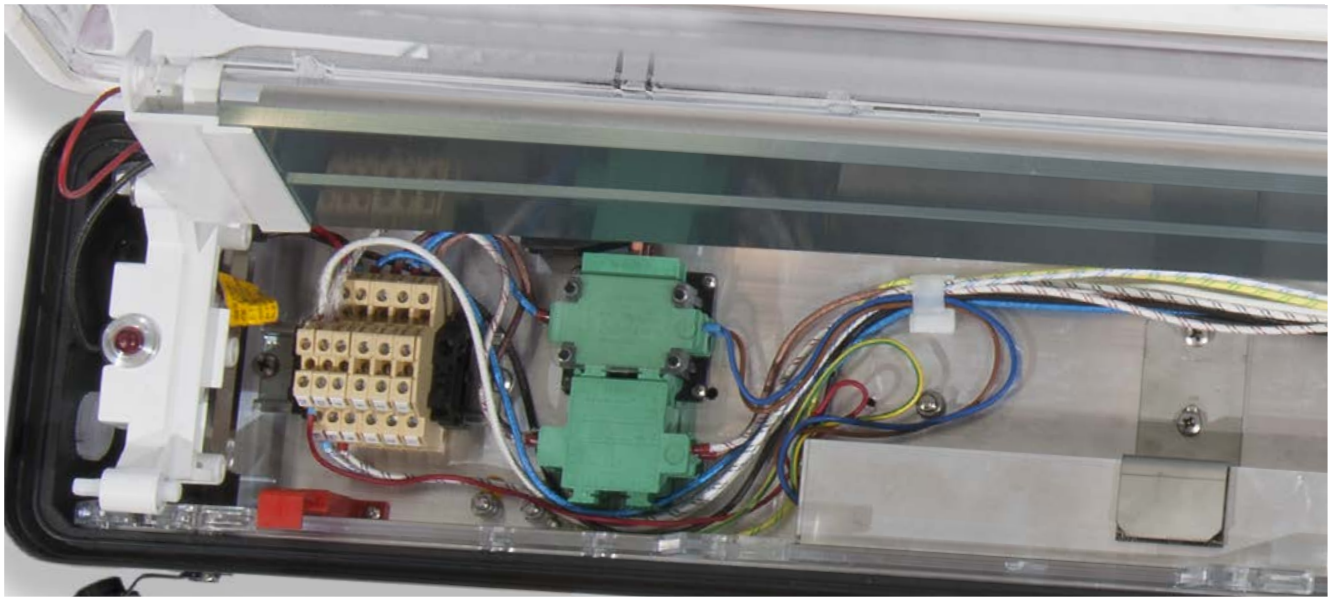


EXEL-L series lighting fixture with Cortem resin-bonded LED strips

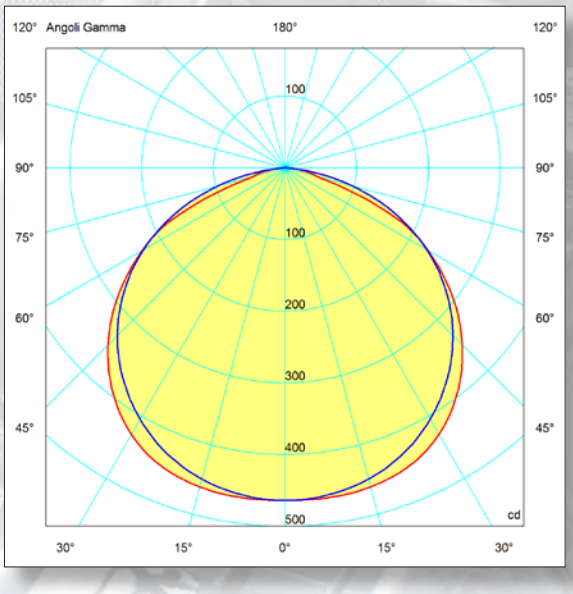
Electrical features	EXEL-115L	EXEL-215L	EXEL-130L	EXEL-230L
Power supply:	220-240 Vac	110-277 Vac/dc	110-277 Vac/dc	220-240 Vac/dc
Rated frequency:	50-60 Hz	50-60 Hz	50-60 Hz	50-60 Hz
Power consumption:	17 W	29 W	29 W	56 W
Connection:	Direct connection to terminal board L, N, Pe. Section 4mm^2, suitable for loop-in/loop-out			
Power factor:	>0,94 *	>0,93 *	>0,93 *	>0,98 *
Rated current:	81 mA*	146 mA*	146 mA*	265 mA*
EMC (electromagnetic compatibility):	EN 55015, EN 61547, IEC 61000-3-2, IEC 61000-3-3			
THD (total harmonic distortion):	<4% 230 Vac, 50 Hz			
Over-voltage protection:	4 kV	4 kV	4 kV	4 kV
Driver performances:	Over-Voltage protection, Over-Current protection, Short-Circuit protection			

Photometric features				
LED:	Resin-bonded LED strips			
Viewing angle:	120°	120°	120°	120°
LED Colour temperature:	5000 K	5000 K	5000 K	5000 K
CRI:	80	80	80	80
Instant Restrike:	SI	YES	SI	YES
Lumen:	**1426 lm**	**2850 lm**	**2817 lm**	**5637 lm**
Maximum light intensity:	**464 cd**	**927 cd**	**960 cd**	**1920 cd**
Overall efficiency:	**84 lm/W**	**98 lm/W**	**98 lm/W**	**100 lm/W**

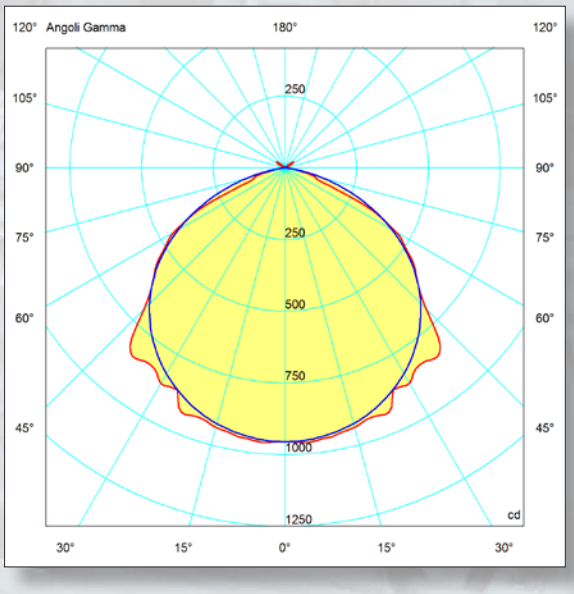
** Test at 220Vac*



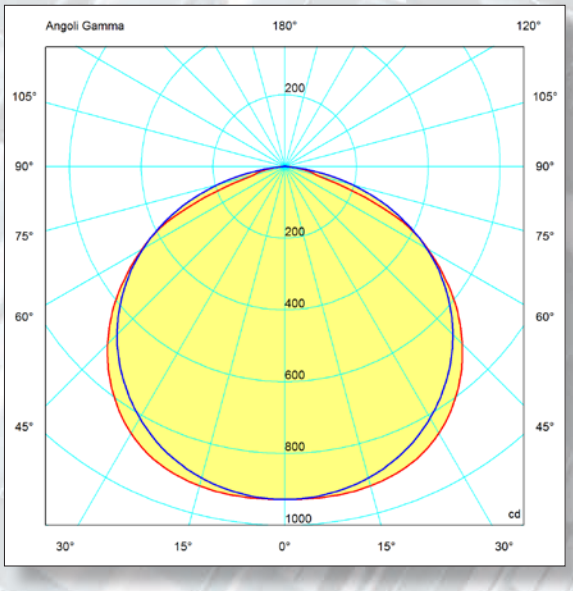
EXEL-L series lighting fixture with Cortem resin-bonded LED strips



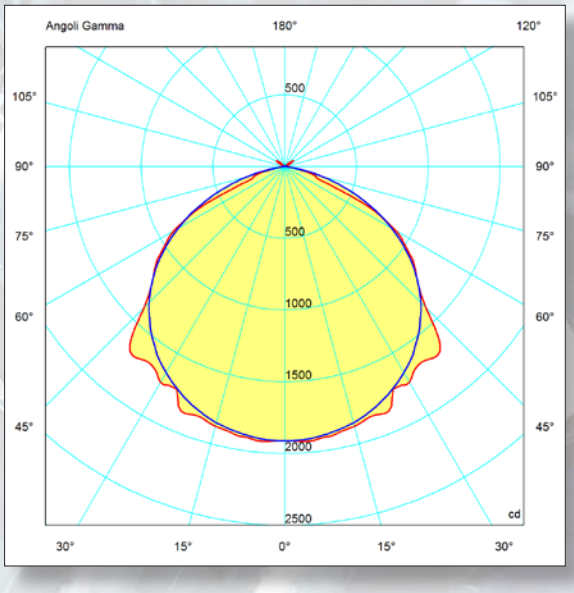
EXEL-115L



EXEL-130L



EXEL-215L



EXEL-230L

On Cortem Group web site you can download .LDT and .IES lighting data files for the design and simulation of lighting levels in 2D and 3D, rendering and ray tracing.

= plane 90270
= plane 0180

FLFE..L
FLF..L

- Zone 1, 2, 21, 22
- With LED tubes
- Easy re-lamping
- Designed to last over time

"Ex e" terminal board housing

4 Joule shock resistant borosilicate glass

White painted reflector/frame

Simplified maintenance

Ex d execution type FLF..L

FLFE...L, FLF...L series Lighting fixtures with LED tubes

Lighting fixtures for LED tubes FLFE-...L (Ex de) and FLF-...L (Ex d) series have two low copper content aluminium heads fitted with G13 lamp holder, a tempered borosilicate glass tube that is resistant to changes in heat and a white painted aluminium reflector. The 'Ex de' lighting fixture features an "Ex e" terminal board housing that allows entry to the lamp with a cable gland with an "Ex" seal (normal) as specified in installation standard (EN/IEC 60079.14). The entry to the 'Ex d' lighting fixtures must be through an Ex "barrier" cable gland (sealed) or, in the case of a conduit system, with an EYS, EZS series sealing fittings. The round cross section of the lamp provides a better "Cx" coefficient with less resistance to the wind and less accumulation of dust. For this reason, these units are recommended for use in hazardous places where climatic and environmental conditions are severe and as they require less maintenance thanks to a very high ageing index. As the electrical components are housed on a frame with guides, re-lamping is quick and efficient. The fact that the fixture is fitted with a glass tube as opposed to a plastic material, makes it more effective and with a longer lifespan.

Application sectors:

Oil refineries | Chemical and petro-chemical plants | Oil and combustible liquid depots | Offshore plants | Onshore plants | Stair handrails | Farm produce applications | 100% Cortem product

CERTIFICATION DATA

Classification:	Group II	Category 2GD			
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)			
Marking:	CE 0722 Ex II 2GD Ex db op is IIC T6 Gb - Ex tb op is IIIC T71÷T80°C Db IP66 (FLF)				
	CE 0722 Ex II 2GD Ex db eb op is II C T6 Gb - Ex tb op is IIIC T71÷T80°C Db IP66 (FLFE)				
Certification:	ATEX CESI 09 ATEX 008				
	IECEx CES 11.0021	All IEC Ex, INMETRO and TR CU certification data can be downloaded at www.cortemgroup.com			
	TR CU AVAILABLE				
	INMETRO DNV 12.0159				
Standards:	CENELEC EN 60079-0: 2012, EN 60079-1: 2014, EN 60079-7: 2007, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0:2004, IEC 60079-1:2007, IEC 60079-7:2006, IEC 61241-0:2004, IEC 61241-1:2004 European Directive 2006/95 Low voltage European Directive 2004/108 Electromagnetic compatibility European Directive 2003/108 WEEE Waste electrical and electronic equipment European Directive 2011/64 RoHS				
Class temperature:	85°C (T6)				
Ambient temperature:	Standard -20°C +55°C	with emergency -20°C +50°C	special with emergency -20°C +55°C (T5)		
Degree of protection:	IP66				

FLFE...L, FLF...L series Lighting fixtures with LED tubes

FLFE-...L (Ex de)

FLF-...L (Ex d)

MECHANICAL FEATURES

ORIGINAL PRODUCT

Body:	Low copper content aluminium alloy heads
External tube:	Shock and high temperature resistant borosilicate glass
Gaskets:	Acid/hydrocarbon resistant NBR on covers
Inner frame:	White painted aluminium that acts as reflector
Bolts and screws:	Stainless steel
Cap chain:	Stainless steel
Mounting:	2 x M8 holes
Entries:	2 x ISO M25 entries for FLFE, fixture kit with PLG2IB plug and NAV25IB cable gland 2 x 3/4" threaded NPT for FLF. Fixture set with 1 x PLG2NA plug
Coating:	Polyester coating Ral 7035 (Light grey)
Corrosion Resistance:	The STANDARD of the aluminium alloy used by Cortem has passed the tests required by standards EN60068-2-30 (hot/humid cycles) and EN60068-2-11 (salt mist tests)

ELECTRICAL FEATURES

Lamp holders:	Bi-pin G13
Rated voltage:	220/240 V AC
Rated frequency:	50/60 Hz
LED tubes:	11-22-31 W max.
Connection:	Direct to the terminal board L, N, Pe section 4 mm^2 with jumpers suitable for input/output
Power factor:	0,98
Emergency unit:	Electronic inverter 110V/240V, 50/60Hz. Batteries Ni/Cd, 4 Ah o 7 Ah, 6 V
Wiring:	Silicone rubber cables with glass braid insulation for high temperatures
Safety:	Internal safety switch installed for emergency lighting fixtures

NOTE: The technical and electrical specifications may be changed without notice due to continuous developments of LED technology.

ACCESSORIES AVAILABLE / SPECIAL REQUESTS

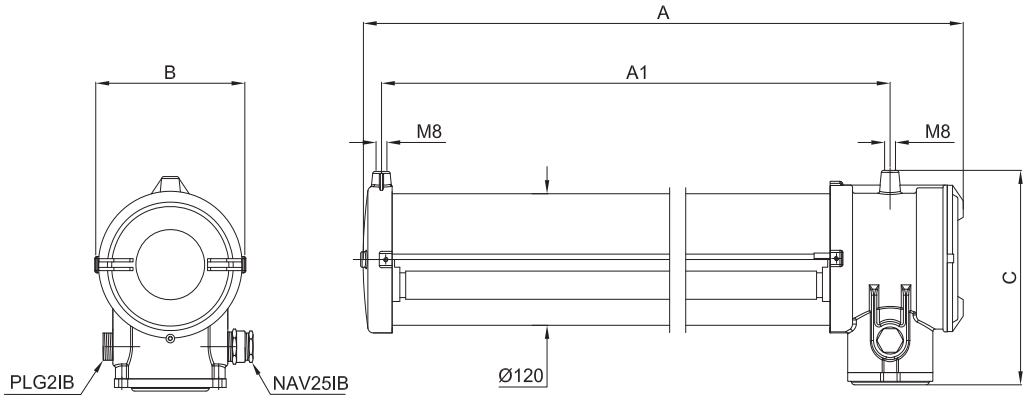
Different rated voltages
Installation mounting brackets
Stainless steel or galvanized steel guard with external aluminium protection
External aluminium protection recommended for outdoor installations
Re-lamping bracket for use on in-line lighting fixtures
Cable gland: FGAB2NBK for armoured cable or FB2NBK for non-armoured cable (only for FLF...L)
Lighting fixture with separate emergency battery pack for temperatures of -20°C to +55°C (code FLFE-222EF7**E**)
Cable entry: 2 x ISO M20 holes. Lighting fixture with 1 model PLG1IB plugs and 1 model NAV20SIB cable glands for non-armoured cable (code FLFE-111LEF4/**20**)

FLFE...L, FLF...L series Lighting fixtures with LED tubes

Ex de lighting fixtures										
Code	Dimensions mm				LED tubes n°	Power supply	Lumen*	Watt*	Weight kg	mm
	A	A1	B	C						
FLFE-111L	725	640	142	197	1	220/240 Vac	925	11	5,0	240x230x800
FLFE-211L	725	640	142	197	2	220/240 Vac	1850	11	5,0	240x230x800
FLFE-122L	1325	1240	142	197	1	220/240 Vac	2150	22	7,8	240x230x1410
FLFE-222L	1325	1240	142	197	2	220/240 Vac	4300	22	7,8	240x230x1410
FLFE-131L	1625	1540	142	197	1	220/240 Vac	2700	31	9,5	240x230x1700
FLFE-231L	1625	1540	142	197	2	220/240 Vac	5400	31	9,5	240x230x1700

* Indicative information depending on the installed tube

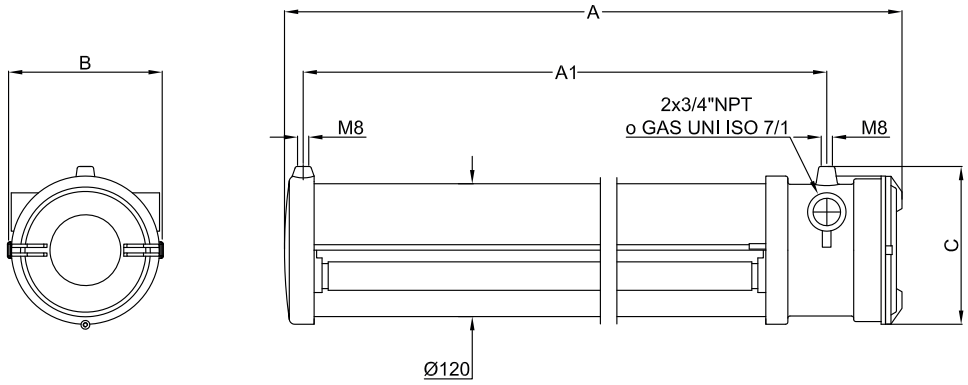
DIMENSIONAL DRAWING



Ex d lighting fixtures										
Code	Dimensions mm				LED tubes n°	Power supply	Lumen*	Watt*	Weight kg	mm
	A	A1	B	C						
FLF-111L	725	640	142	145	1	220/240 Vac	925	11	4,5	240x230x800
FLF-211L	725	640	142	145	2	220/240 Vac	1850	11	4,5	240x230x800
FLF-122L	1325	1240	142	145	1	220/240 Vac	2150	22	7,3	240x230x1410
FLF-222L	1325	1240	142	145	2	220/240 Vac	4300	22	7,3	240x230x1410
FLF-131L	1625	1540	142	145	1	220/240 Vac	2700	31	9,0	240x230x1700
FLF-231L	1625	1540	142	145	2	220/240 Vac	5400	31	9,0	240x230x1700

* Indicative information depending on the installed tube

DIMENSIONAL DRAWING



Lighting fixtures Ex de with emergency unit												
Code	Dimension mm				Operating type	N° of Lamp	Power supply	Lumen* (in emergency)	Watt*	Discharge time in minutes	Weight kg	mm
	A	A1	B	C								
FLFE-111LEF4	725	640	142	197	normal+emergency	1	110/240 Vac	946	11	90	5,0	240x230x800
FLFE-211LEF4	725	640	142	197	normal+emergency	2	110/240 Vac	946	11	90	5,0	240x230x800
FLFE-122LEF4	1325	1240	142	197	normal+emergency	1	110/240 Vac	1731	22	40	7,8	240x230x1410
FLFE-222LEF4	1325	1240	142	197	normal+emergency	2	110/240 Vac	1731	22	40	7,8	240x230x1410
FLFE-111LEE4	725	640	142	197	only emergency	1	110/240 Vac	946	11	90	5,0	240x230x800
FLFE-122LEE4	1325	1240	142	197	only emergency	1	110/240 Vac	1731	22	40	7,8	240x230x1410
FLFE-111LEF7	725	640	142	197	normal+emergency	1	110/240 Vac	960	11	120	5,0	240x230x800
FLFE-211LEF7	725	640	142	197	normal+emergency	2	110/240 Vac	960	11	120	5,0	240x230x800
FLFE-122LEF7	1325	1240	142	197	normal+emergency	1	110/240 Vac	1757	22	60	7,8	240x230x1410
FLFE-222LEF7	1325	1240	142	197	normal+emergency	2	110/240 Vac	1757	22	60	7,8	240x230x1410
FLFE-111LEE7	725	640	142	197	only emergency	1	110/240 Vac	960	11	120	5,0	240x230x800
FLFE-122LEE7	1325	1240	142	197	only emergency	1	110/240 Vac	1757	22	60	7,8	240x230x1410

* Indicative information depending on the installed tube

DIMENSIONAL DRAWINGS

Dimensions in mm

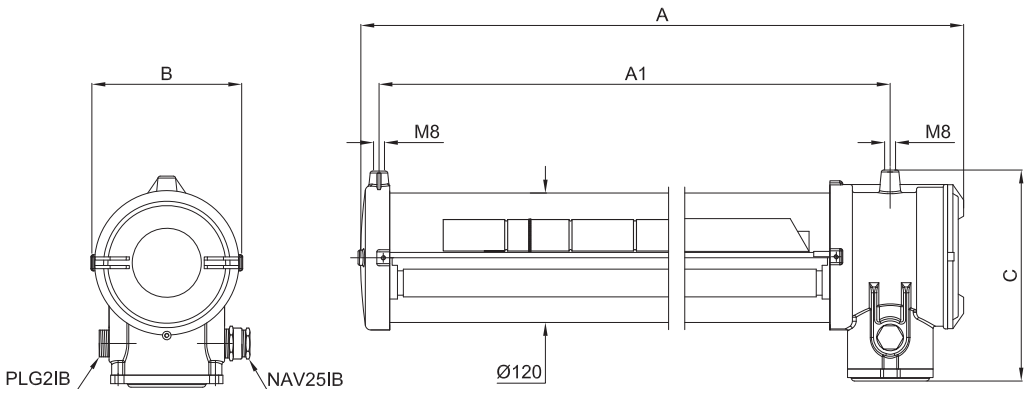


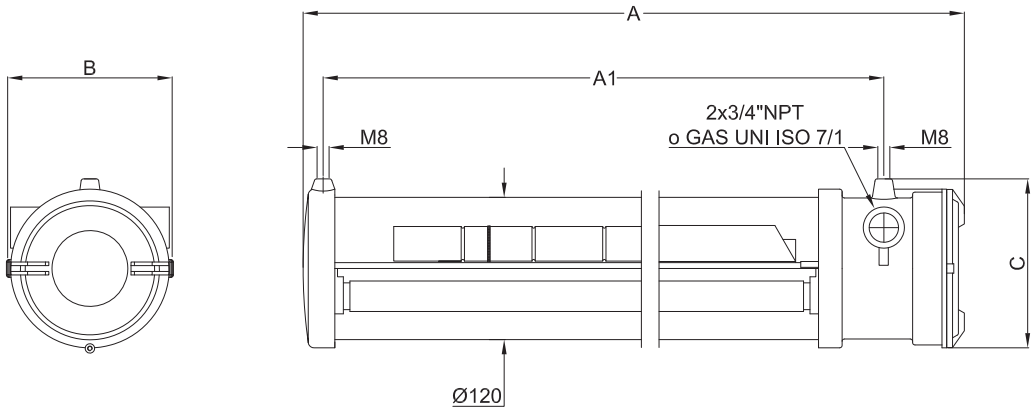
Tabella di selezione serie FLFE...L, FLF...L

Lighting fixtures Ex d with emergency unit												
Codice	Dimension mm				Operating type	N° of Lamp	Power supply	Lumen* (in emergency)	Watt*	Discharge time in minutes	Weight kg	mm
	A	A1	B	C								
FLF-111LEF4	725	640	142	145	normal+emergency	1	110/240 Vac	946	11	90	5,0	240x230x800
FLF-211LEF4	725	640	142	145	normal+emergency	2	110/240 Vac	946	11	90	5,0	240x230x800
FLF-122LEF4	1325	1240	142	145	normal+emergency	1	110/240 Vac	1731	22	40	7,8	240x230x1410
FLF-222LEF4	1325	1240	142	145	normal+emergency	2	110/240 Vac	1731	22	40	7,8	240x230x1410
FLF-111LEE4	725	640	142	145	only emergency	1	110/240 Vac	946	11	90	5,0	240x230x800
FLF-122LEE4	1325	1240	142	145	only emergency	1	110/240 Vac	1731	22	40	7,8	240x230x1410
FLF-111LEF7	725	640	142	145	normal+emergency	1	110/240 Vac	960	11	120	5,0	240x230x800
FLF-211LEF7	725	640	142	145	normal+emergency	2	110/240 Vac	960	11	120	5,0	240x230x800
FLF-122LEF7	1325	1240	142	145	normal+emergency	1	110/240 Vac	1757	22	60	7,8	240x230x1410
FLF-222LEF7	1325	1240	142	145	normal+emergency	2	110/240 Vac	1757	22	60	7,8	240x230x1410
FLF-111LEE7	725	640	142	145	only emergency	1	110/240 Vac	960	11	120	5,0	240x230x800
FLF-122LEE7	1325	1240	142	145	only emergency	1	110/240 Vac	1757	22	60	7,8	240x230x1410

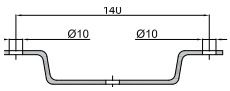
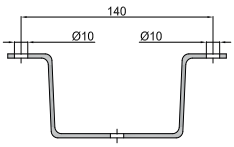
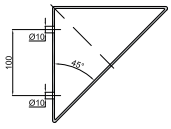
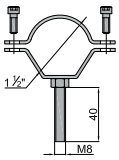
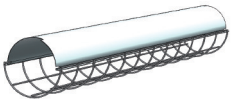
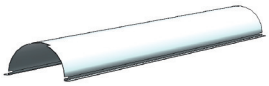
* Indicative information depending on the installed tube

DIMENSIONAL DRAWINGS

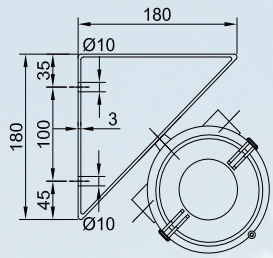
Dimensions in mm



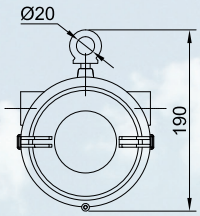
FLFE...L, FLF...L series Accessories and spare parts available

ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	KEY
	LED tubes G13 fitting	11 W Max. 22 W Max. 31 W Max.	Contact our Sales Office for availability		
	Tige	Longitud: 250 mm	Material: stainless steel	BRF8MIN/250	
	Type O eyebolt		Material: galvanised steel	GOF-8	
	Type U bracket complete with screws		Material: bracket: galvanised steel screws: stainless steel	G-0609	
	Type V bracket complete with screws		Material: bracket: galvanised steel screws: stainless steel	G-0610	
	Type D bracket complete with screws		Material: bracket: galvanised steel screws: stainless steel	G-0611	
	Type P bracket		Material: galvanised steel	G-0480	
	Guard with Light blue/white painted 10/10 aluminium external protection	11 W	Stainless steel guard	G18-0529	
		22 W		G36-0529	
		31 W		G58-0529	
		11 W	Galvanised steel guard	G18-0529G	
		22 W		G36-0529G	
		31 W		G58-0529G	
	External protection	11 W	Light blue/white painted 10/10 aluminium external protection	G18-568	
		22 W		G36-568	
		31 W		G58-568	
		11 W	10/10 stainless steel AISI 304 external protection	G18-568IN	
		22 W		G36-568IN	
		31 W		G58-568IN	
	Cable gland	FLF...L	For models and codes, visit www.cortemgroup.com	FB2NBK FGAB2NBK	
	Lamp holder	FLF..-1..L	G13 250 V, 4 A	STU3249-12/S	
		FLF..-2..L			
	Inverter		110/230 V 50/60 Hz	03240E205I/240	
	Battery pack		4Ah 6V NiCd	BATT4AH/D	
			7Ah 6V NiCd	BATT7AH/D	
	Re-lamping bracket with clip system for use on in-line lighting fixtures		Material: galvanised steel	G-0318 + G-0318/1	

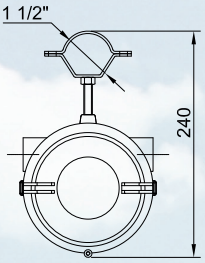
Installation and mounting methods and photometric diagrams



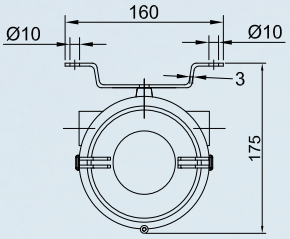
45° angle mounting
TYPE "D"



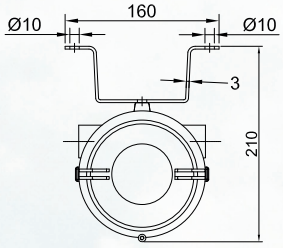
Pendant mounting with
eyebolt TYPE "O"



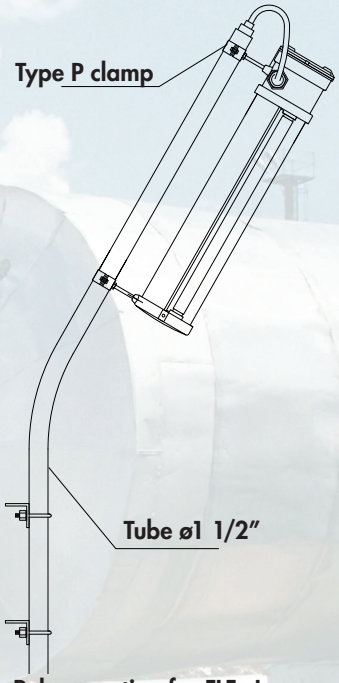
Mounting using 1.1/2"
metal clamps TYPE "P"



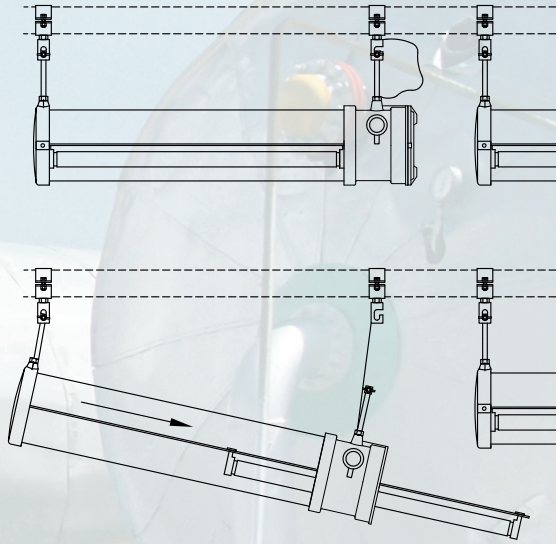
Low ceiling mounting with
clamp TYPE "U"



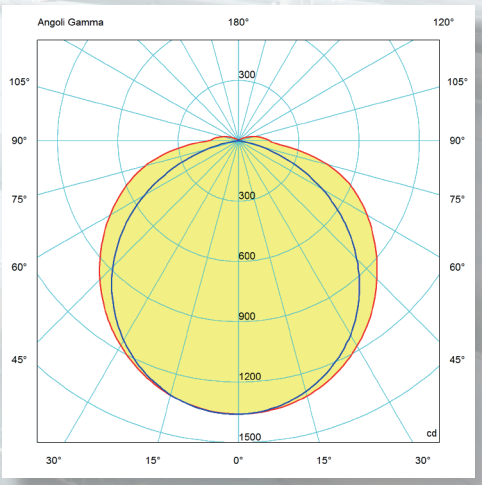
High ceiling mounting with
clamp TYPE "V"



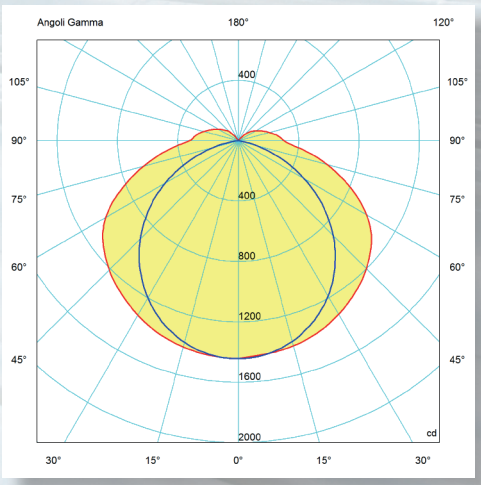
Pole mounting for FLF...L
with barrier cable gland



Mounting system with quick release clip for easy fluorescent tube replacement. System suitable for installing in-line lighting fixtures.



FLFE-222L / FLF-222L



FLFE-231L / FLF-231L

On Cortem Group web site you can download .LDT and .IES lighting data files for the design and simulation of lighting levels in 2D and 3D, rendering and ray tracing.

= plane 90270
= plane 0180

FLFE..L
FLF..L

- Zone 1, 2, 21, 22
- With LED strips
- Easy re-lamping
- Designed to last over time

'Ex op is'
safe optical radiation

4 Joule shock resistant borosilicate glass

White painted reflector/frame

Simplified maintenance

FLFE...L, FLF...L series Lighting fixtures with LED strips

Lighting fixtures for LED strips FLFE-...L (Ex de) and FLF-...L (Ex d) series have two low copper content aluminium heads, a tempered borosilicate glass tube that is resistant to changes in heat and a white painted aluminium reflector. The 'Ex de' lighting fixture features an "Ex e" terminal board housing that allows entry to the lamp with a cable gland with an "Ex" seal (normal) as specified in installation standard (EN/IEC 60079.14). The entry to the 'Ex d' lighting fixtures must be through an Ex "barrier" cable gland (sealed) or, in the case of a conduit system, with an EYS, EZS series sealing fittings. The round cross section of the lamp provides a better "Cx" coefficient with less resistance to the wind and less accumulation of dust. For this reason, these units are recommended for use in hazardous places where climatic and environmental conditions are severe and as they require less maintenance thanks to a very high ageing index. As the electrical components are housed on a frame with guides, any maintenance is quick and efficient. The fact that the fixture is fitted with a glass tube as opposed to a plastic material, makes it more effective and with a longer lifespan.

Application sectors:

Oil refineries | Chemical and petro-chemical plants | Oil and combustible liquid depots | Offshore plants | Onshore plants | Stair handrails | Farm produce applications | 100% Cortem product

CERTIFICATION DATA

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II 2GD Ex db op is IIC T6 Gb - Ex tb op is IIIC T71÷T80°C Db IP66 (FLF)			
	CE 0722 Ex II 2GD Ex db eb op is IIC T6 Gb - Ex tb op is IIIC T71÷T80°C Db IP66 (FLFE)			
Certification:	ATEX CESI 09 ATEX 008			
	IECEx CES 11.0021	All IEC Ex certification data can be downloaded at www.cortemgroup.com		
Standards:	CENELEC EN 60079-0: 2012, EN 60079-1: 2014, EN 60079-7: 2007, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0:2004, IEC 60079-1:2007, IEC 60079-7:2006, IEC 61241-0:2004, IEC 61241-1:2004 European Directive 2006/95 Low voltage European Directive 2004/108 Electromagnetic compatibility European Directive 2003/108 WEEE Waste electrical and electronic equipment European Directive 2011/64 RoHS			
Class temperature:	80°C (T6)			
Ambient temperature:	Normal operation or emergency with separate batteries -20°C +55°C	Emergency with batteries installed inside -20°C +50°C		
Degree of protection:	IP66			

FLFE...L, FLF...L series Lighting fixtures with LED strips

MECHANICAL FEATURES

ORIGINAL PRODUCT

Body:	Low copper content aluminium alloy heads
External tube:	Shock and high temperature resistant borosilicate glass
Gaskets:	Acid/hydrocarbon resistant NBR on covers
Inner frame:	White painted aluminium that acts as reflector
Bolts and screws:	Stainless steel
Cap chain:	Stainless steel
Mounting:	2 x M8 holes
Entries:	2 x ISO M25 entries for FLFE, fixture kit with PLG2IB plug and NAV25IB cable gland 2 x 3/4" threaded NPT for FLF. Fixture set with 1 x PLG2NA plug
Coating:	Polyester coating Ral 7035 (Light grey)
Corrosion Resistance:	The STANDARD of the aluminium alloy used by Cortem has passed the tests required by standards EN60068-2-30 (hot/humid cycles) and EN60068-2-11 (salt mist tests)

ELECTRICAL FEATURES

Rated voltage:	110/277 Vac (FLF/FLFE-102L, FLF/FLFE-201L) 220/240 Vac (FLF/FLFE-101L, FLF/FLFE-202L)
Rated frequency:	50/60 Hz
Connection:	Direct to the terminal board L, N, Pe section 4 mm^2 with jumpers suitable for input/output
Power factor:	>0,98
Emergency unit:	Electronic inverter 110V/240V, 50/60Hz. Batteries Ni/Cd, 4 Ah o 7 Ah, 6 V
Wiring:	Silicone rubber cables with glass braid insulation for high temperatures
Safety:	Internal safety switch installed for emergency lighting fixtures

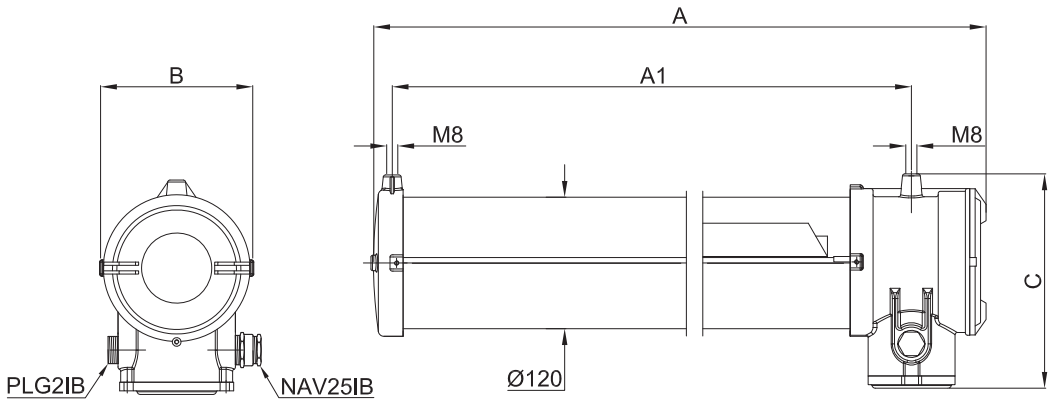
NOTE: The technical and electrical specifications may be changed without notice due to continuous developments of LED technology.

ACCESSORIES AVAILABLE / SPECIAL REQUESTS

Different rated voltages
Installation mounting brackets
Stainless steel or galvanized steel guard with external aluminium protection
External aluminium protection recommended for outdoor installations
Cable gland: FGAB2NBK for armoured cable or FB2NBK for non-armoured cable (only for FLF...L)
Lighting fixture with separate emergency battery pack for temperatures of -20°C +55°C only for FLFE...L (code FLFE-101LEF7**E**)
Rated voltage: 110/230 Vac/dc (FLFE-.../**S**)
110/277 Vac/dc (FLF-.../**277**)
Cable entry: 2 x ISO M20 holes. Lighting fixture with 1 model PLG1IB plugs and 1 model NAV20SIB cable glands for non-armoured cable (code FLFE-101LEF4/**20**)

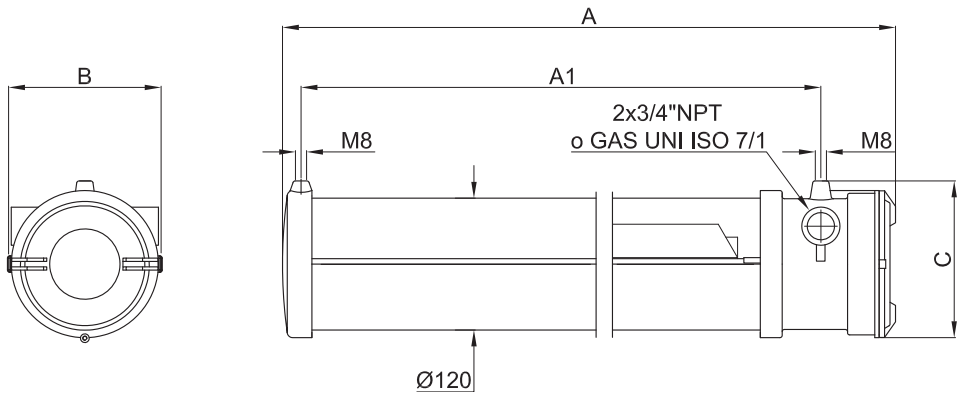
Ex de lighting fixtures									
Code	Dimensions mm				Strips n°	Power supply	Watt	Weight kg	mm
	A	A1	B	C					
FLFE-101L	725	640	142	197	1	220/240 Vac	21	5,0	240x230x800
FLFE-201L	725	640	142	197	2	110/277 Vac	34	5,1	240x230x800
FLFE-102L	1325	1240	142	197	1	110/277 Vac	34	7,8	240x230x1410
FLFE-202L	1325	1240	142	197	2	220/240 Vac	61	7,9	240x230x1410

DIMENSIONAL DRAWING



Ex d lighting fixtures									
Code	Dimensions mm				Strips n°	Power supply	Watt	Weight kg	mm
	A	A1	B	C					
FLF-101L	725	640	142	145	1	220/240 Vac	21	4,5	240x230x800
FLF-201L	725	640	142	145	2	110/277 Vac	34	4,6	240x230x800
FLF-102L	1325	1240	142	145	1	110/277 Vac	34	7,3	240x230x1410
FLF-202L	1325	1240	142	145	2	220/240 Vac	61	7,4	240x230x1410

DIMENSIONAL DRAWING

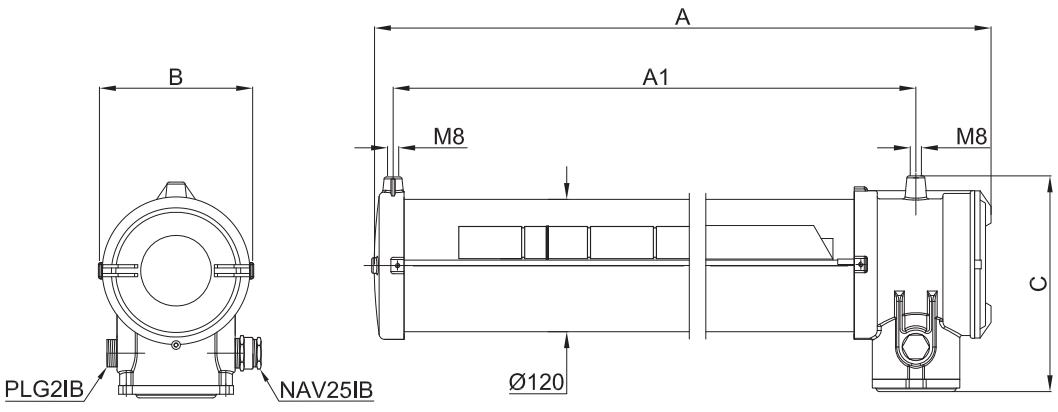


FLFE...L, FLF...L series Lighting fixtures with LED strips

Code	Dimension mm A	A1	B	C	Operating type	N° of strips	Power supply	Lumen* (in emergency)	Watt	Discharge time in minutes	Weight kg	mm
FLFE-101LEF4	725	640	142	197	normal+emergency	1	220/240 Vac	1847 lm	21	180’	5,5	240x230x800
FLFE-201LEF4	725	640	142	197	normal+emergency	2	110/277 Vac	1847 lm	34	180’	5,6	240x230x800
FLFE-102LEF4	1325	1240	142	197	normal+emergency	1	110/277 Vac	3688 lm	34	180’	8,3	240x230x1410
FLFE-202LEF4	1325	1240	142	197	normal+emergency	2	220/240 Vac	3688 lm	61	180’	8,4	240x230x1410
FLFE-101LEF7	725	640	142	197	normal+emergency	1	220/240 Vac	1847 lm	21	240’	5,5	240x230x800
FLFE-201LEF7	725	640	142	197	normal+emergency	2	110/277 Vac	1847 lm	34	240’	5,6	240x230x800
FLFE-102LEF7	1325	1240	142	197	normal+emergency	1	110/277 Vac	3688 lm	34	240'	8,4	240x230x1410
FLFE-202LEF7	1325	1240	142	197	normal+emergency	2	220/240 Vac	3688 lm	61	240’	8,4	240x230x1410
FLFE-101LEE4	725	640	142	197	only emergency	1	220/240 Vac	1847 lm	21	180’	5,5	240x230x800
FLFE-102LEE4	1325	1240	142	197	only emergency	1	110/277 Vac	3688 lm	34	180’	8,3	240x230x1410
FLFE-101LEE7	725	640	142	197	only emergency	1	220/240 Vac	1847 lm	21	240’	5,5	240x230x800
FLFE-102LEE7	1325	1240	142	197	only emergency	1	110/277 Vac	3688 lm	34	240'	8,4	240x230x1410

DIMENSIONAL DRAWINGS

Dimensions in mm

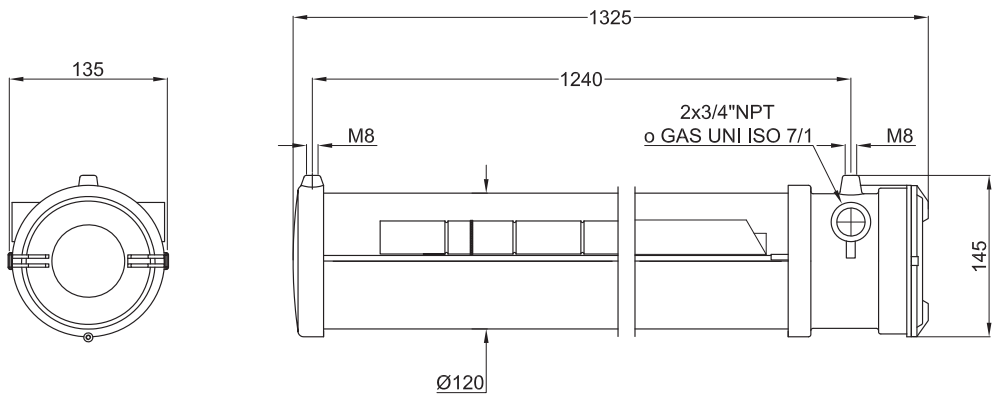


FLFE...L, FLF...L series Lighting fixtures with LED strips

Codice	Dimension mm A	A1	B	C	Operating type	N° of strips	Power supply	Lumen* (in emergency)	Watt	Discharge time in minutes	Weight kg	mm
FLF-101LEF4	725	640	142	197	normal+emergency	1	220/240 Vac	1847 lm	21	180’	5,0	240x230x800
FLF-201LEF4	725	640	142	197	normal+emergency	2	110/277 Vac	1847 lm	34	180’	5,1	240x230x800
FLF-102LEF4	1325	1240	142	197	normal+emergency	1	110/277 Vac	3688 lm	34	180’	7,8	240x230x1410
FLF-202LEF4	1325	1240	142	197	normal+emergency	2	220/240 Vac	3688 lm	61	180’	7,9	240x230x1410
FLF-101LEF7	725	640	142	197	normal+emergency	1	220/240 Vac	1847 lm	21	240’	5,0	240x230x800
FLF-201LEF7	725	640	142	197	normal+emergency	2	110/277 Vac	1847 lm	34	240’	5,1	240x230x800
FLF-102LEF7	1325	1240	142	197	normal+emergency	1	110/277 Vac	3688 lm	34	240'	7,9	240x230x1410
FLF-202LEF7	1325	1240	142	197	normal+emergency	2	220/240 Vac	3688 lm	61	240’	7,9	240x230x1410
FLF-101LEE4	725	640	142	197	only emergency	1	220/240 Vac	1847 lm	21	180’	5,0	240x230x800
FLF-102LEE4	1325	1240	142	197	only emergency	1	110/277 Vac	3688 lm	34	180’	7,8	240x230x1410
FLF-101LEE7	725	640	142	197	only emergency	1	220/240 Vac	1847 lm	21	240’	5,0	240x230x800
FLF-102LEE7	1325	1240	142	197	only emergency	1	110/277 Vac	3688 lm	34	240'	7,9	240x230x1410

DIMENSIONAL DRAWINGS

Dimensions in mm



FLFE...L, FLF...L series Lighting fixtures with LED strips

Electrical features	FLF/FLFE...101L	FLF/FLFE...201L	FLF/FLFE...102L	FLF/FLFE...202L
Power supply:	220-240 Vac	110-277 Vac	110-277 Vac	220-240 Vac
Rated frequency:	50-60 Hz	50-60 Hz	50-60 Hz	50-60 Hz
N° of LED strips:	1	2	1	2
Power consumption:	21 W*	34 W*	34 W*	61 W*
Connection:	Direct connection to terminal board L, N, Pe. Section 4mm², suitable for loop-in/loop-out			
Power factor:	>0,94 *	>0,93 *	>0,93 *	>0,98 *
Rated current:	81 mA*	146 mA*	146 mA*	265 mA*
EMC (electromagnetic compatibility):	EN 55015, EN 61547, IEC 61000-3-2, IEC 61000-3-3			
THD (total harmonic distortion):	<4% 230 Vac, 50 Hz			
Over-voltage protection:	4 kV	4 kV	4 kV	4 kV
Driver performances:	Over-Voltage protection, Over-Current protection, Short-Circuit protection			
Photometric features				
LED:	LED strips			
Viewing angle:	120°	120°	120°	120°
Colour temperature:	5000 K	5000 K	5000 K	5000 K
CRI:	80	80	80	80
Instant Restrike:	Yes	Yes	Yes	Yes
Lumen:	**1900 lm**	**3934 lm**	**3700 lm**	**7828 lm**
Maximum light intensity:	**678 cd**	**1330 cd**	**1311 cd**	**2659 cd**
Overall efficiency:	**91 lm/W**	**116 lm/W**	**110 lm/W**	**128 lm/W**

** Test at 230Vac*

DON'T FORGET TO ORDER THE ACCESSORIES

Example: Type of lighting fixture FLF-201L + Type P bracket G-0480 + other ...see key

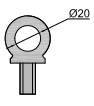
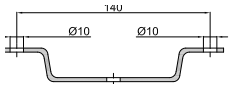
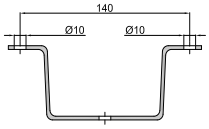
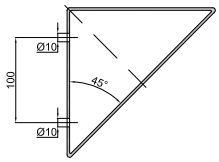
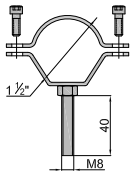
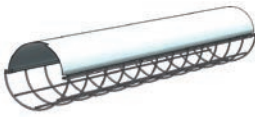
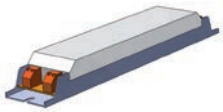
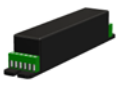
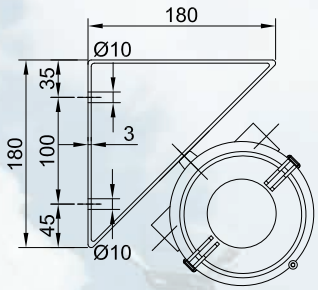
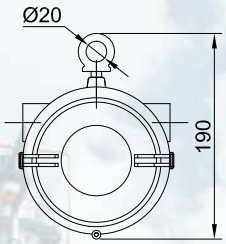
ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	KEY
	Tige	Longitud: 250 mm	Material: stainless steel	BRF8MIN/250	
	Type O eyebolt		Material: galvanised steel	GOF-8	
	Type U bracket complete with screws		Material: bracket: galvanised steel screws: stainless steel	G-0609	
	Type V bracket complete with screws		Material: bracket: galvanised steel screws: stainless steel	G-0610	

ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	KEY
	Type D bracket complete with screws		Material: bracket: galvanised steel screws: stainless steel	G-0611	
	Type P bracket		Material: galvanised steel	G-0480	
	Guard with Light blue/white painted 10/10 aluminium external protection	FLF/FLFE.....1L	Stainless steel guard	G18-0529	
		FLF/FLFE.....2L		G36-0529	
		FLF/FLFE.....1L	Galvanised steel guard	G18-0529G	
		FLF/FLFE.....2L		G36-0529G	
	External protection	FLF/FLFE.....1L	Light blue/white painted 10/10 aluminium external protection	G18-568	
		FLF/FLFE.....2L		G36-568	
		FLF/FLFE.....1L	10/10 stainless steel AISI 304 external protection	G18-568IN	
		FLF/FLFE.....2L		G36-568IN	
	Cable gland	FLF...L	For models and codes, visit www.cortemgroup.com	FB2NBK FGAB2NBK	
		FLF/FLFE...101L	220/240 Vac 50/60Hz 220/240 Vdc	LEDDEXEL115L	
		FLF/FLFE...201L FLF/FLFE...102L	110/277 Vac 50/60 Hz 110/277 Vdc	LEDDEXEL215L	
		FLF/FLFE...202L	220/240 Vac 50/60 Hz 220/240 Vdc	LEDDEXEL230L	
	Inverter		110/230 V 50/60 Hz	INVERTER/LED/1	
	Battery pack		4Ah 6V NiCd	BATT4AH/D	
			7Ah 6V NiCd	BATT7AH/D	
	Re-lamping bracket with clip system for use on in-line lighting fixtures		Material: galvanised steel	G-0318 + G-0318/1	

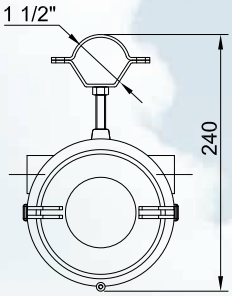
Installation and mounting methods and photometric diagrams



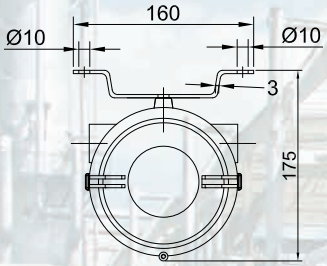
45° angle mounting
TYPE "D"



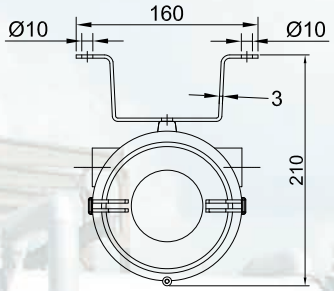
Pendant mounting with
eyebolt TYPE "O"



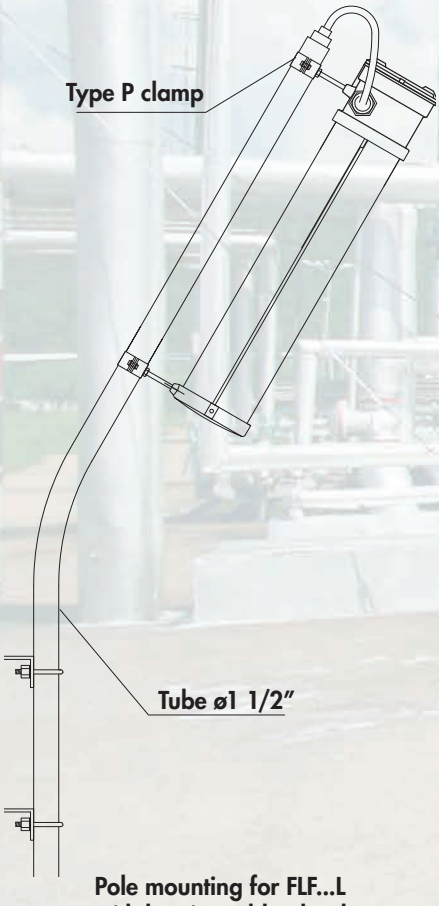
Mounting using 1.1/2"
metal clamps TYPE "P"



Low ceiling mounting with
clamp TYPE "U"

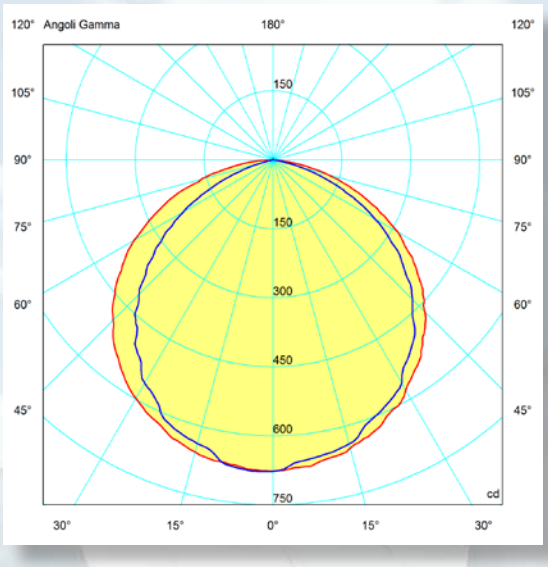


High ceiling mounting with
clamp TYPE "V"

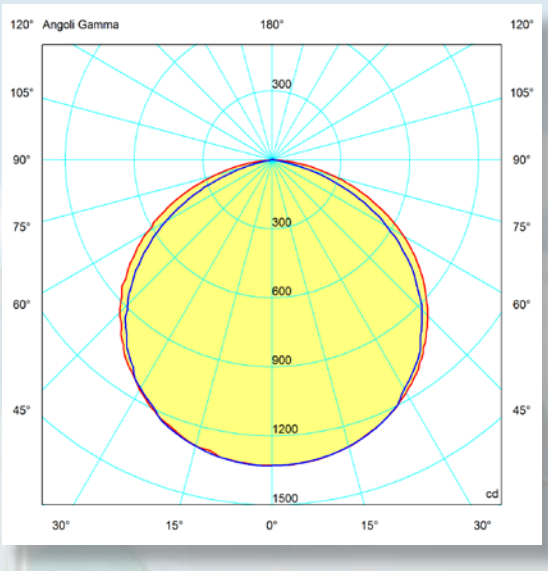


Pole mounting for FLF...L
with barrier cable gland

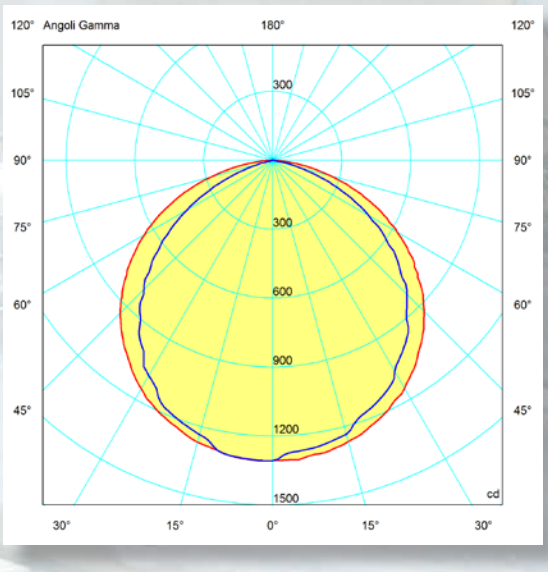
Installation and mounting methods and photometric diagrams



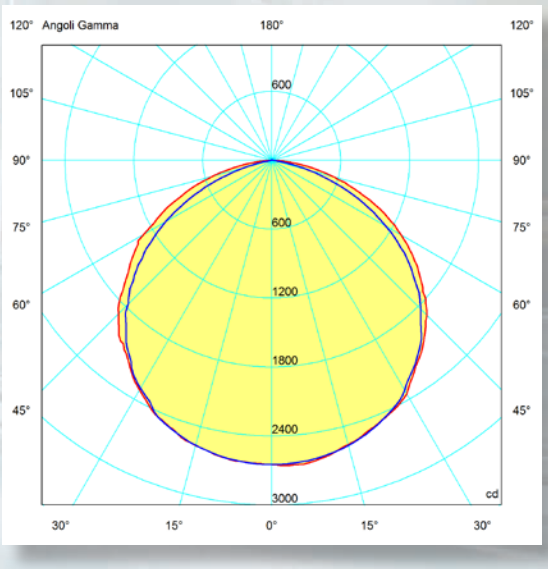
FLF/FLFE...101L



FLF/FLFE...201L



FLF/FLFE...102L



FLF/FLFE...202L

On Cortem Group web site you can download .LDT and .IES lighting data files for the design and simulation of lighting levels in 2D and 3D, rendering and ray tracing.

= plane 90270
= plane 0180

EXENC-L

- Zone 2, Zone 21-22
- Low installation costs
- Locking system operated by hexagonal-head tool
- High quality electrical components

'Ex op is'
safe optical radiation

Resin body reinforced polyester

Fixing Brackets

Transparent hood in polycarbonate

Connection terminals

High luminous intensity LED

Strips made with Cortem LED strips

Locking system operated by hexagonal-head tool

EXENC-L series lighting fixtures for LED strips “industrial series”

EXENC-L series lighting fixtures with LED strips can be installed in hazardous industrial plant units designated as Zone 2 and Zone 21-22. A careful research of the materials and the choice of the most performing electrical components give to EXENC-L, in addition to a considerable duration, greater safety in all environments where a high protection against corrosion, dust, water and humidity is required.
They can be installed in both outdoor and indoor industrial environments such as refineries, petrochemical plants, rubber producing plants, paper mills, tunnels, galleries and, in general, in all those production processes where environmental conditions would deteriorate any other material and put the safety of the operating environment at risk. Lighting fixture EXENC-L have been designed for loop-in, loop-out connection, reducing installation costs and thus avoiding the use of junction boxes.

Application sectors:

Offshore plants | Farm applications | Onshore plants | Low temperatures | Chemical and petrochemical plants | Waste water purification | Distillation industry | Painting plants

CERTIFICATION DATA

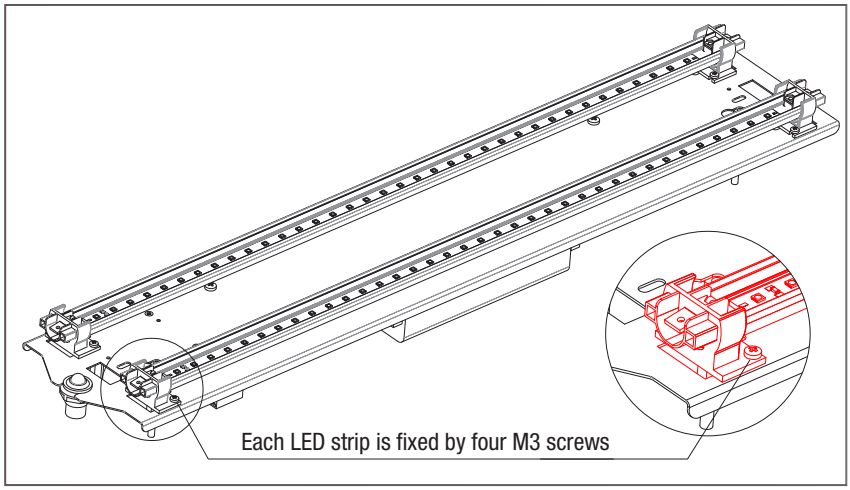
Classification:	Group II	Category 3GD/2D		
Installation: EN 60079.14	zone 2 (Gas)	zone 21-22 (Polveri)		
Marking:	CE Ex II 3GD Ex nA IIC T4 Gc - Ex tc IIIC T...°C Dc IP 66			
	CE 0722 Ex II 2D Ex tb IIIC T4°C Db - Ex tb op is IIIC T...°C Db IP66			
Certification:	ATEX CML 18 ATEX 3073X	3GD		
	ATEX CML 18 ATEX 4072X	2D		
	IEC Ex CML 18.0044X	All IEC Ex and INMETRO certification data can be downloaded at www.cortemgroup.com		
	INMETRO DVN 19.0018 X			
Standards:	CENELEC EN60079-0: 2012+A11:2013, EN60079-28: 2015, EN60079-15: 2010, EN 60079-31: 2014 and EUROPEAN DIRECTIVE2014/34/UE. IEC60079-0:2011, IEC60079-15:2010, IEC60079-28:2015, IEC60079-31: 2013 European Directive 2006/95 Low voltage European Directive 2004/108 Electromagnetic compatibility European Directive 2003/108 WEEE Waste electrical and electronic equipment European Directive 2011/64 RoHS			
Class temperature:	55°C (T4)	62°C (T4)	62°C (T4)	
Ambient temperature:	-20°C +47°C	-40°C +47°C (ONLY FOR NORMAL VERSION)		
Degree of protection:	IP66			

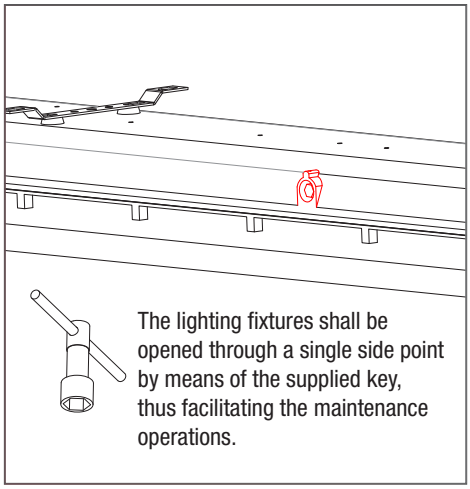
EXENC-L series lighting fixtures for LED strips “industrial series”

ORIGINAL PRODUCT

MECHANICAL FEATURES

Body:	Black shock and UV resistant fibreglass reinforced anti-static polyester resin
Diffuser:	Transparent polycarbonate, shock and UV resistant
Protected opening system:	Sliding system operated by a hexagonal socket (for safety reasons, the fixture cannot be opened without the tool)
Gasket:	Acid/hydrocarbon resistant expanded silicone
Inner frame/reflector:	White painted steel
Bolts and screws:	Stainless steel
Entries:	2 x Ø25.5 entries (suitable for ISO M25 threads). Lighting fixture kit contains 1 x model PLG2ILXE7 plugs and 1 x model NAVP25IXE-XEU25LDS cable glands for non-armoured cable
Mounting:	Two steel brackets





ELECTRICAL FEATURES

Ballast:	Electronic
Rated voltage:	220-240 Vac/dc
Rated frequency:	50/60 Hz
Connection:	Connected directly to terminal board L N, Pe section 4 mm² terminal board with jumpers for input-output
Emergency unit:	Electronic inverter 220/240V, 50/60Hz. Batteries Ni/Cd, 4 Ah or 7 Ah, 6 V
Wiring:	Silicone rubber cables with glass braid insulation for high temperatures

ACCESSORIES AVAILABLE / SPECIAL REQUESTS

Additional UNI2LXE7SDS cable gland for unarmoured cable

EXENC-L series selection chart

Single and double strip

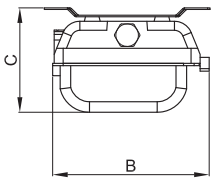
Code	Dimensions mm				Power Supply	LED strips n°	Watt*	Weight kg	mm
	A	B	C	A1					
EXENC-101L	802	206	160	642	220-240 Vac 50-60Hz	1	13	4,2	855x245x180
EXENC-201L	802	206	160	642	220-240 Vac 50-60Hz	2	26	4,7	855x245x180
EXENC-102L	1400	206	160	800	220-240 Vac 50-60Hz	1	25	7,4	1425x245x180
EXENC-202L	1400	206	160	800	220-240 Vac 50-60Hz	2	52	7,9	1425x245x180

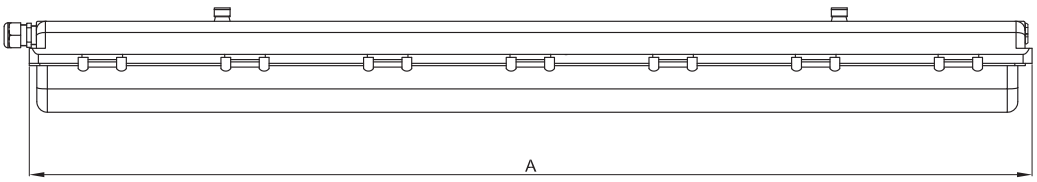
* Actual values measured at 230V

Single and double strip with emergency unit

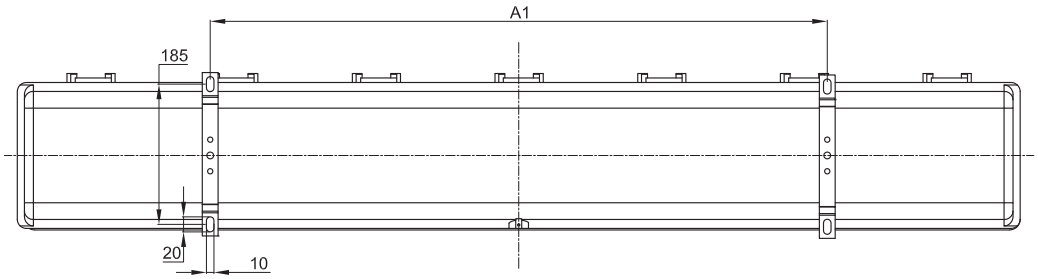
Code	Dimensions mm				Operating type	LED strips n°	Battey Ah	Discharge time minutes	Watt	Weight kg	mm
	A	B	C	A1							
EXENC-201LEF4	802	206	160	642	normal+emergency	2	4	180’	26		855x245x180
EXENC-202LEF4	1400	206	160	800	normal+emergency	2	4	120’	52		1425x245x180
EXENC-201LEF7	802	206	160	642	normal+emergency	2	7	240’	26		855x245x180
EXENC-202LEF7	1400	206	160	800	normal+emergency	2	7	240’	52		1425x245x180
EXENC-101LEF4	802	206	160	642	normal+emergency	1	4	180’	13		855x245x180
EXENC-102LEF4	1400	206	160	800	normal+emergency	1	4	120’	25		1425x245x180
EXENC-101LEF7	802	206	160	642	normal+emergency	1	7	240’	13		855x245x180
EXENC-102LEF7	1400	206	160	800	normal+emergency	1	7	240’	25		1425x245x180
EXENC-101LEE4	802	206	160	642	only emergency	1	4	180’	13		855x245x180
EXENC-102LEE4	1400	206	160	800	only emergency	1	4	120’	25		1425x245x180
EXENC-101LEE7	802	206	160	642	only emergency	1	7	240’	13		855x245x180
EXENC-102LEE7	1400	206	160	800	only emergency	1	7	240’	25		1425x245x180

DIMENSIONAL DRAWINGS



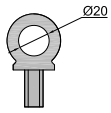
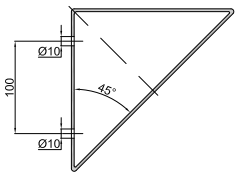
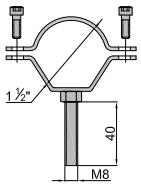


Close up of mounting

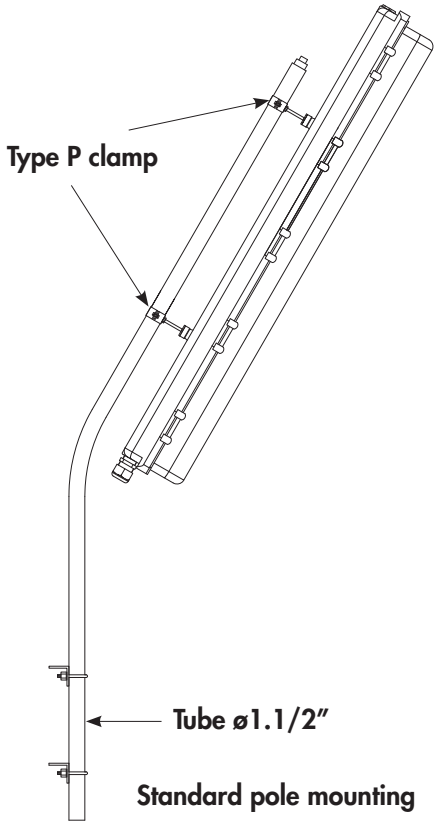


Dimensioni in mm

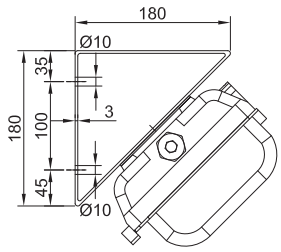
EXENC-L series Accessories and spare parts available on request

ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	KEY
	Tige	Length: 250 mm	Material: stainless steel	BRF8MIN/250 + G-992	
	Eyebolt		Material: galvanised steel	GOF-8 + G-992	
	Type D bracket complete with screws		Material bracket: galvanised steel screws: stainless steel	G-0611/1	
	Type P bracket		Material: galvanised steel	G-0480 + G-992	
	LED strips	EXENC-101L EXENC-201L	Linear LED module	LTT36700N	
		EXENC-102L EXENC-202L		LTT72700N	
	Electronic power supply	EXENC-101L	230 V 50/60 Hz	LEDDEXEN202CL	
		EXENC-201L			
		EXENC-102L			
		EXENC-202L			
	Battery pack		4Ah 6V NiCd	BATT4AH/D	
			7Ah 6V NiCd	BATT7AH/D	
	Electronic inverter		110/240V 50/60Hz	INVERTER/LED/1	
	Non-armoured cable gland complete with rubber, gasket and lock nut	ISO M25x1,5	Ex e II IP 66/67 (std. range cavo 10÷18)	NAVP25IXE-XEU25LDS	
	Plug with gasket and lock nut	ISO M25x1,5	Ex e II IP 66/67	PLG2ILXE7	

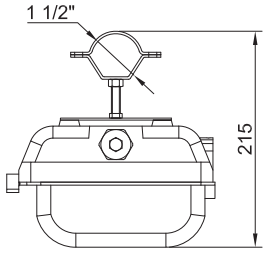
Installation and mounting methods EXENC-L series



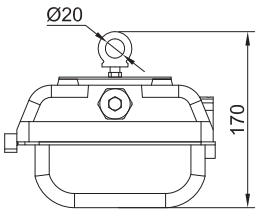
Standard pole mounting



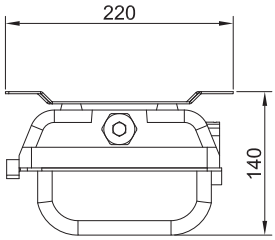
45° angle mounting
TYPE "D"



Mounting with 1.1/2"
metal clamps TYPE "P"



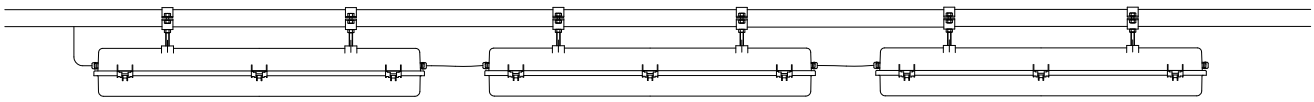
Pendant mounting with
eyebolt TYPE "O"

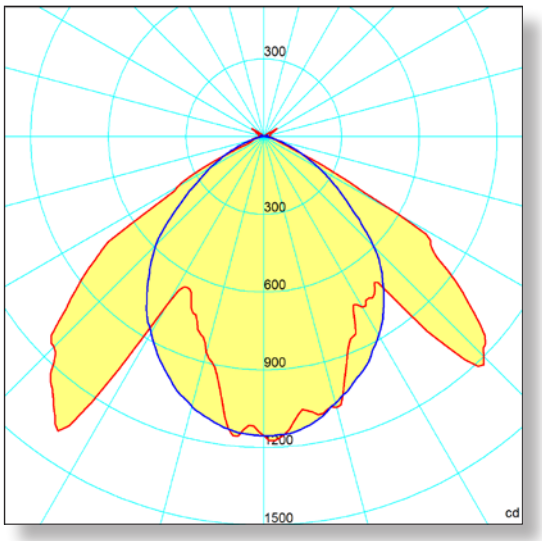


Low ceiling mounting with
clamp TYPE "U"
(Brackets included)

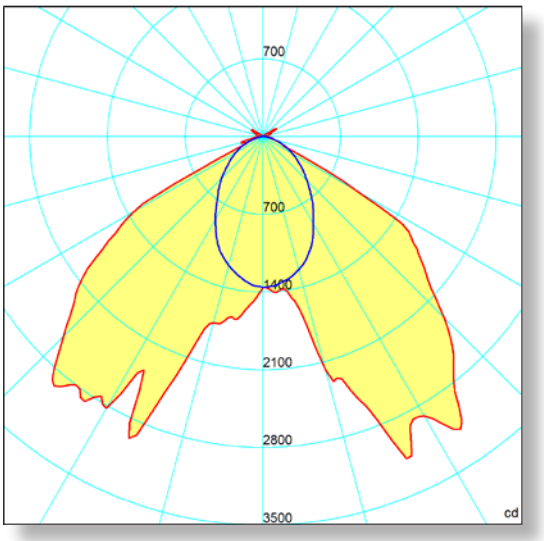
Dimensions in mm

Loop-in loop-out connections for simple and fast installation





EXENC-201L
Lumen: 3200 lm
Maximom light intensity: 1386 cd



EXENC-202L
Lumen: 7383 lm
Maximom light intensity: 3205 cd

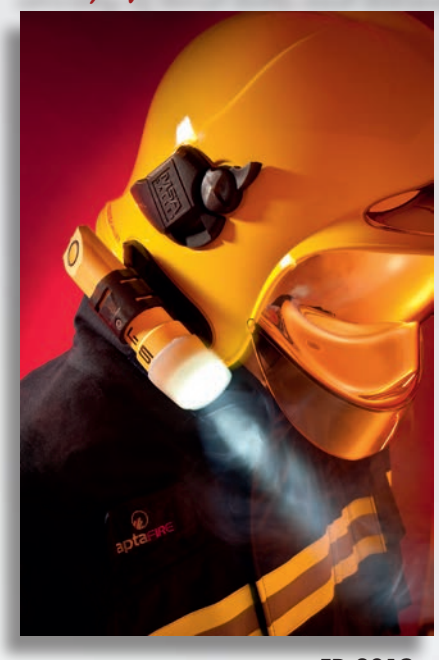
On Cortem Group web site you can download .LDT and .IES lighting data files for the design and simulation of lighting levels in 2D and 3D, rendering and ray tracing.

= piane 90270
= piane 0180

L-3000, L-5, L-5R

- High efficiency
- Smart energy saving
- IP67 protection rating
- Exceptional ergonomic design
- Zone 0, 1, 2

L-5 series adapts to fit a variety of hard hats and helmets



CORTEM GROUP®

L-3000 portable LED torch

The L-3000 torch has been designed to combine efficient lighting with user-selected operating time settings. It features high-performance LEDs, a new built-in dual optic system, a digital monitor showing battery status and a lighting management system, making it one of the most in-demand torch models in the industry.
The distinguishing feature of this torch is the option of controlling lighting based on individual user requirements: there are three different light output presets, allowing you to choose between a 4, 6 or 8-hour operating time. Held by hand or adapted in its holster, the rotating head provides versatility at all times while you are working. Its external clip means
you can hang the torch off your belt, jacket or anything else, freeing up your hands.

Application sectors:

- Oil refineries
- Chemical and petro-chemical plants
- Agriculture and food plants
- Offshore plants
- Pharmaceutical industries
- Powder magazines
- Onshore plants
- Fuel depots

CERTIFICATION DATA

Classification:	Group II	Category 1GD			
Installation:	zone 0 - 1 - 2 (Gas)	zone 20 - 21 - 22 (Dust)			
Marking:	CE Ex II 1GD Ex ia IIC T4 Ga - Ex ia IIIC T85°C Da IP67				
Certificate:	ATEX LOM 12 ATEX 2087X	Portable LED torch: L-3000			
Standards:	EN 60079-0: 2009; EN 60079-11: 2012; EN 60079-26: 2007 ed alla DIRETTIVA EUROPEA 2014/34/UE				
Temperature class:	135°C (T4)				
Ambient Temp.:	-20°C +40°C				
Degree of protection:	IP67				

L-3000 portable LED torch

Impact resistance and mechanical strength

Battery run time in hours and minutes

Rechargeable batteries

Revolutionary optics

0° / 45° / 90° rotating head

FEATURES

Torch L-3000

Body:	Thermoplastic resin with high impact strength and resistance to extreme temperatures and corrosive substances
LEDs:	2 x 135 lm LEDs (total light output 200 lm)
Front lens:	Shatterproof clear polycarbonate with built-in dual optics
Head:	Rotates to 3 positions: 0° / 45° / 90°
Operation:	Operating time of both LEDs can be set to 4, 6 or 8 hours: - maximum light output > 4hrs - maximum light output > 6h - low light output > 8h
Operation monitoring:	Digital display located on rotating head indicating remaining hours and minutes of light
Operation test:	Warning given in the last 15 minutes when battery charge is running low
Switches:	Two ergonomically designed buttons made from a soft-touch material; oversized to ensure ease of use, even with gloved hands
Battery:	3.7V lithium ion battery; easy for user to replace

Battery charger:

Marking:	CE, e9
Protection:	IP54
Switch off:	Automatic end of charging
Charge indicators:	Red LED: charging Green LED: batteries charged
Power supply:	CC:12 V. AC: 100/240 V, 50/60 Hz
Types and dimensions:	Single:75x105x60 mm Battery charger for 3 torches: 205x105x60 mm Battery charger for 5 torches: 405x105x60 mm

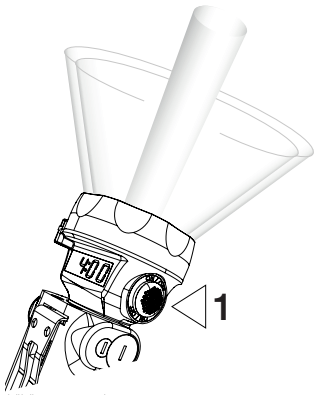
ACCESSORIES AVAILABLE / SPECIAL REQUESTS

Holster
Battery charger for 1, 3 or 5 torches

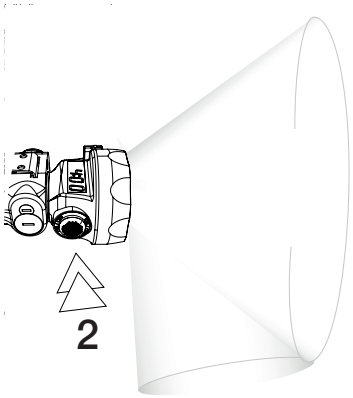
L-3000 portable LED torch

Code	Dimension mm L	Dimension mm Ø	Light output	Light intensity	Discharge time	Weight kg
L-3000	225	70	Tot. 200 lm	15.000 cd	Max. 8 ore	0,5

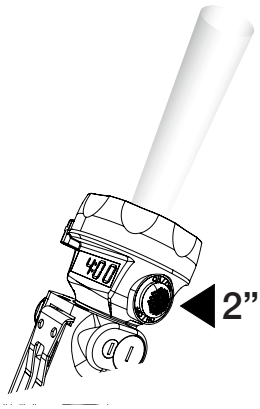
MODES



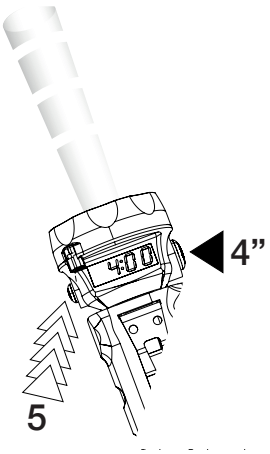
Switch on
Press button once
Both LEDs are on, offering diffused light and a focussed beam all at once. At the same time, the display comes on, showing the remaining operating time.



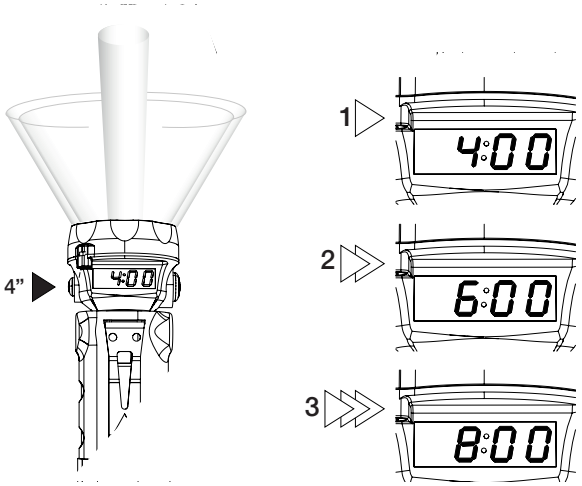
Diffused light
Press button twice
Only the LED located behind the optical diffuser is kept on, giving the light beam a wider angle.
The special design of the optics means the LED manages to even light the area underneath, near the user's feet.



Focused beam
Keep button pressed
Holding down the button for two seconds switches on the LED located behind the focused spot beam optics, setting the torch to booster mode.
Power is concentrated in a single LED and the light beam reaches its maximum distance and penetration.
Press the On!Off button again to go back to the previous position.

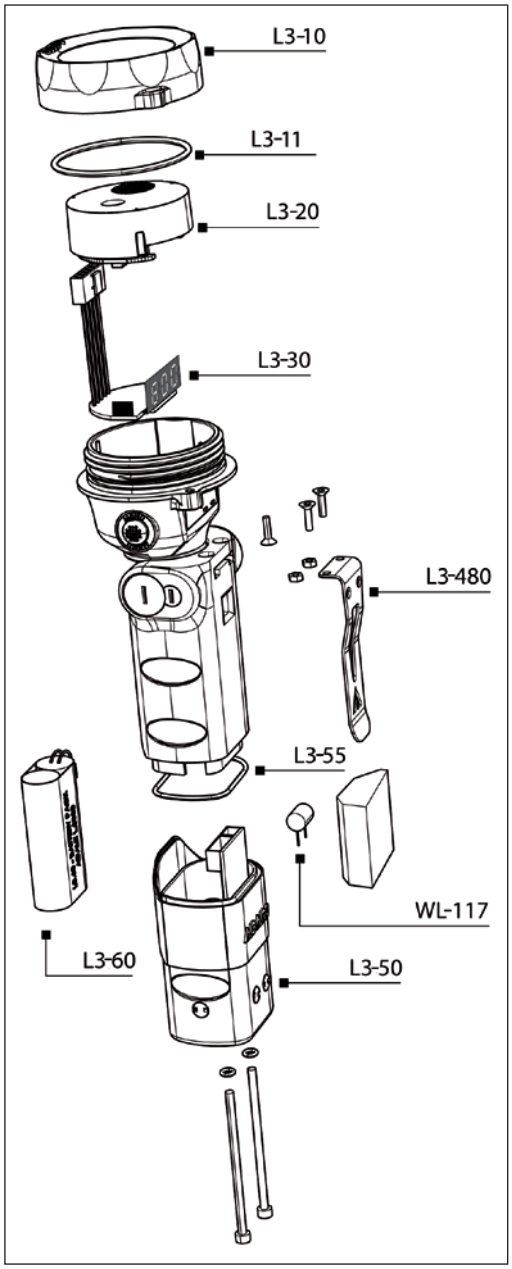


Strobe light
Menu button
Holding the On!Off button down for four seconds sets the torch to strobe mode. Using the Menu button, you can select up to five different flashing rates.



Consumption map
Holding the Menu button down for 4 seconds activates programming mode for setting the torch's operating time and light output. Based on the 4, 6 or 8-hour setting, the electronics automatically adjust the light output level and consequently consumption levels.

L-3000 portable LED torch



DESCRIPTION	CODE	KEY
Torch end cap with clear lens	L3-10	
End cap O-ring	L3-11	
Optics and LED card	L3-20	
PCB and display	L3-30	
Complete clip	L3-480	
Body O-ring	L3-55	
Battery pack	L3-60	
Torch body with battery charger PCB	L3-50	

DON'T FORGET TO ORDER THE ACCESSORIES

Example: Torch L-3000 + Battery charger C-1000 + other...see key

ILLUSTRATION	DESCRIPTION	FEATURES	CODE	KEY
	Single battery charger	Voltage 100-240V	C-1000	
		Voltage 12V	CV-1000-12V	
		Voltage 12/24V	CV-1000-24V	
	Battery charger for three torches	Voltage 100-240V	C-3000	
		Voltage 12V	CV-3000	
		Voltage 12/24V	CV-3000-24	
	Battery charger for five torches	Voltage 100-240V	C-5000	
		Voltage 12V	CV-5000-12	
		Voltage 12/24V	CV-5000-24	
	Holster		586-06-580	

L-5, L-5S and L-5R portable LED torch

The L-5 hard hat torch, L-5S portable torch and L-5R rechargeable portable torch have been developed with the aim of reducing consumption and increasing light quality and output. To achieve this goal, we have fitted the torches with the latest generation LEDs and an automatic system to adjust light output based on input from a sensor. Designed mainly for use on hard hats and helmets, they are accessorized with fittings of various kinds, making them a valuable aid when used in conjunction with the L-3000 portable torch.

Application sectors:

Oil refineries | Chemical and petro-chemical plants | Agriculture and food plants | Offshore plants | Pharmaceutical industries | Powder magazines | Onshore plants | Fuel depots

CERTIFICATION DATA

Classification:	Group II	Category 1GD			
Installation:	zone 0 - 1 - 2 (Gas)	zone 20 - 21 - 22 (Dust)			
Marking:	CE ⟨Ex⟩ II 1GD Ex ia IIC T4 Ga - Ex ia IIIC T85°C Da IP67				
Certificate:	ATEX LOM 12 ATEX 2004	Portable LED torch : L-3000			
Standards:	EN 60079-0: 2009; EN 60079-11: 2007 and EUROPEAN DIRECTIVE 2014/34/UE				
Temperature class:	135°C (T4)				
Ambient Temp.:	-20°C +40°C				
Protection rating:	IP67				

L-5, L-5S and L-5R portable LED torch

FEATURES

Torch

Body:	Thermoplastic resin with high impact strength and resistance to extreme temperatures and corrosive substances
LEDs:	1 x 135lm LED
Front lens:	Shatterproof clear polycarbonate
Sensor:	Light sensor for automatic light output adjustment
Batteries:	4xAAA/R0 alkaline batteries; 3.6V with L5, L-5S torch Rechargeable lithium batteries; 3.6V with L5-R torch
Battery run time:	Maximum output > 4 hrs Medium output > 8 hrs Low output > 30 hrs
Operation test:	Warning given in the last 15 minutes when battery charge is running low
Switch:	Ergonomically designed button; oversized to ensure ease of use, even with gloved hands

Battery charger:

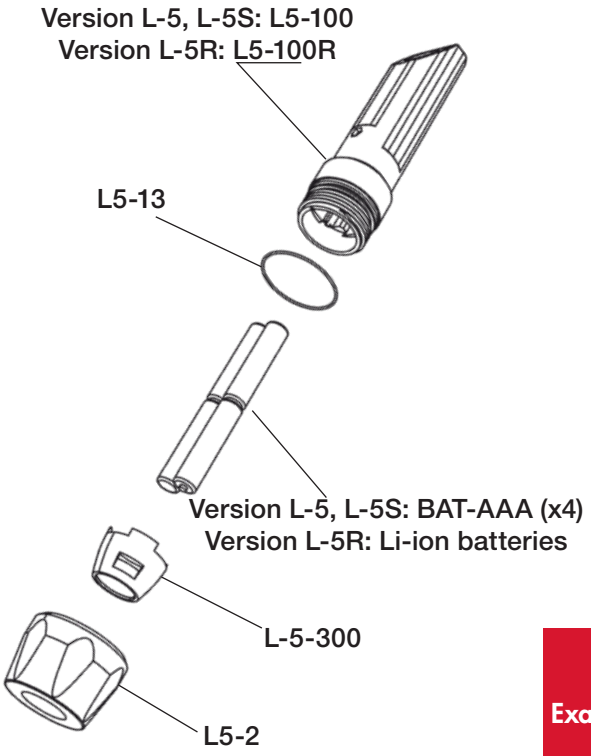
Marking:	CE, e9
Protection:	IP54
Charge duration:	Max. 4-5 hrs
Switch off:	Automatic end of charging
Charge indicators:	Red LED: charging Green LED: batteries charged
Power supply:	DC: 12V AC: 100/240 V, 50/60 Hz
Types and dimensions:	Single: 75x100x120 mm
Battery charger for 3 torches:	230x100x120 mm
Battery charger for 5 torches:	410x100x120 mm

ACCESSORIES AVAILABLE / SPECIAL REQUESTS

Battery charger for 1, 3 or 5 torches
Holster

L-5, L-5S and L-5R portable LED torch

Code	Dimensions mm L	Dimensions mm Ø	Light output	Light intensity	Description	Weight kg
L-5	150	44	Max. 135 lm	1.600 cd	Helmet torch	0,125
L-5S	150	44	Max. 135 lm	1.600 cd	Portable torch	0,125
L-5R	150	44	Max. 135 lm	1.600 cd	Rechargeable torch	0,125



DESCRIPTION	MODEL	CODE	KEY
Torch body	L-5	L5-100	
	L-5R	L5-100R	
End cap O-ring		L5-13	
Batteries	L-5	BATT-AAA (x4)	SPARE PART
	L-5R	L5-BAT	
LED module		L5-300	
Torch end cap with clear lens		L5-2	

DON'T FORGET TO ORDER THE ACCESSORIES

Example: Torch L-5R + Battery charger CL5-1 + other...see key ACCESSORY

ILLUSTRATION	DESCRIPTION	CODE	KEY
	Single battery charger	CL5-1	ACCESSORY SPARE PART
	Battery charger for three torches	CL5-3	ACCESSORY SPARE PART
	Battery charger for five torches	CL5-5	ACCESSORY SPARE PART
	Holster	CL5-8	ACCESSORY SPARE PART
	Hard hat adapters	Please seek advice on models from our sales department	ACCESSORY SPARE PART

LHL

- Zone 1, 2, 21, 22
- LED lamp
- Energy saving
- Lightweight and ergonomic
- Lighting comfort

Transparent tube in polycarbonate

LED circuit sealed with transparent resin

PVC handle grip

Stainless steel hook

LED hand-lamp LHL-...P series

The hand-lamp LHL-...P series for LED tubes of 9/17 Watt have been designed for the work of inspection and maintenance in all those potentially explosive places for the presence of gas and dust as petrochemical industries, off-shore facilities, the areas of tank control and the process areas.
They are robust and easy to handle at the same time with a high degree of IP protection and excellent performance in light output.
The LED modules used for LHL-...P series hand-lamp allow to get an excellent color spectrum thanks to the type of light emitted by the LED.

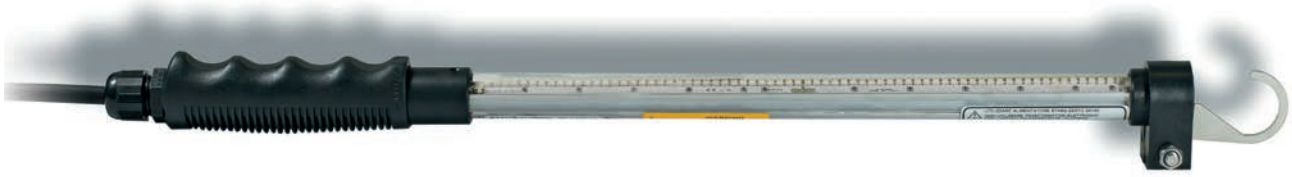
Application sectors:

Oil refineries | Gas Chemical and petrochemical plants | Onshore plants | Offshore plants | Oil loading/ unloading jetties | Fuel liquid depots | Fuel tanker loading/ unloading areas | Perimeter lighting

CERTIFICATION DATA

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zona 1 - 2 (Gas)	zona 21 - 22 (Dust)		
Marking:	CE Ex II 2 G Ex e mb IIC T5/T4 (Gb)			
	CE Ex II 2 D Ex mb IIIC T95°C/T130°C (Db) IP66			
Certification:	ATEX CEC 13 ATEX 043			
	TR CU AVAILABLE	All TR CU certification data can be downloaded at www.cortemgroup.com		
Standards:	CENELEC EN 60079-0: 2009; EN 60079-7: 2007; EN 60079-18: 2009; EN 60079-31: 2009			
Class temperature:	135°C (T4)	100°C (T5)		
Ambient temperature:	-20°C +50°C	Special -20°C +60°C		
Degree of protection:	IP66			

LED hand-lamp LHL-...P series



ORIGINAL PRODUCT

MECHANICAL FEATURES

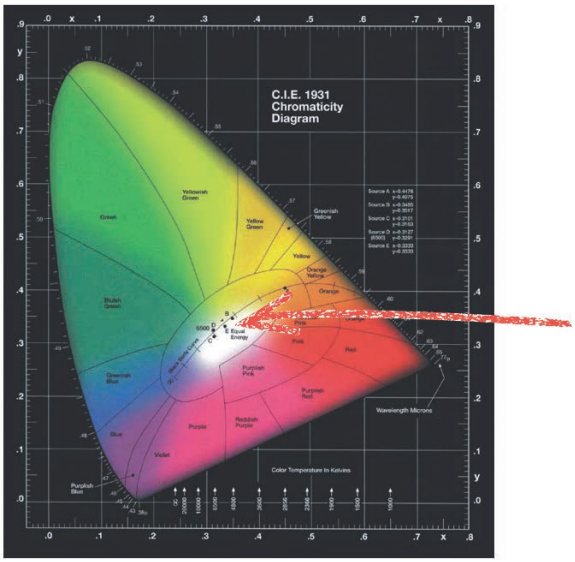
Body: Transparent tube in polycarbonate, V0 (UL94) resistant to shock and UV rays
Handle: Non-slip P.V.C. (polyvinyl chloride plasticized with non-toxic plasticizers)
Mounting: Hand-held lamp with stainless steel hook
Cable gland: Model UNI01 in polyammide

ELECTRICAL FEATURES

Power supply: 24 Vdc
Cable: H07RN-F 2x1 mm^2 lenght 5 m
LED source: Module with 72 LED)
Lifetime: > 50.000 hours

ACCESSORIES AVAILABLE / SPECIAL REQUESTS

Different cable lengths



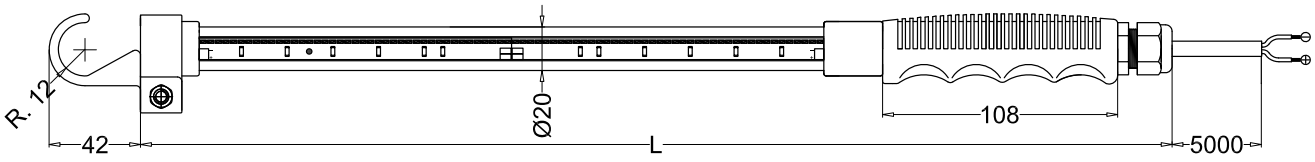
	LHL-10P	LHL-20P
Luminous flux (lm)	790	1580
Colour rendering index (Ra)	80	80
Luminous efficiency (lm/w)	87,78	92,94

The color temperature of the light produced is around 5500 K, almost the color temperature of day-light.
The pure white, also called achromatic point of reference corresponding to the point of equal energy in the C.I.E. diagram, is placed between 5455 K and 5500 K.

LHL-...P series selection chart

Code	Dimensions mm L	Type Lamp	Power supply	Watt	Class Ta =+40°C	Class Ta =+50°C	Class Ta =+60°C	Weight kg	mm
LHL-10P	475	LED	24 Vdc	9	T5	T5	T4	1,4	
LHL-20P	760	LED	24 Vdc	17	T5	T5	T4	2,3	

DIMENSIONAL DRAWING



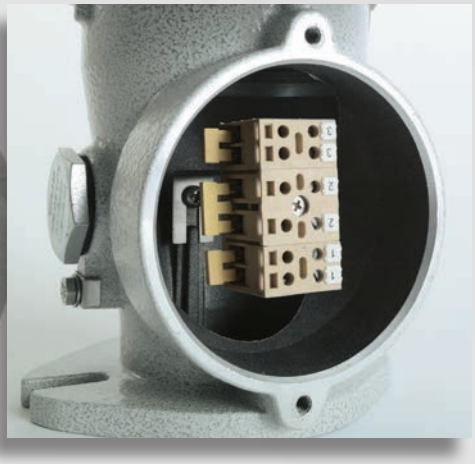
XLFE-4/1

Borosilicate glass globe

- Zone 1, 2, 21, 22
- Obstruction warnings
- LOW INTENSITY LED technology
- Lamp lifespan more than 10 years
- Complies with ICAO, FAA

Painted aluminium body

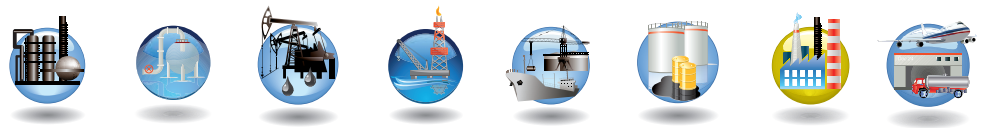
Ex e terminal box for fast connection



Low intensity XLFE-4/1 LED Obstruction lighting fixtures

XLFE-4... /1 series low intensity lighting fixtures are suitable to be installed on towers or high buildings as obstacle signaling devices thanks to the high power and luminous efficiency light source developed by Cortem Group making full use of the experience gained in the world of LED lighting in the recent years. The XLFE-4... /1 lighting fixture, red in color with a luminous intensity of more than 32 candles, complies with the ICAO Annex 14 standard for low intensity aviation warning lamps type A and type B (corresponding to the FAA L-810). The XLFE-4... /1 series is equipped with an internal reflector in chromium-plated anticorodal aluminium alloy and it can be provided with double circuit (main/spare). They are also available for industrial signaling in flashing operation and with different light colors upon request.

Application sectors:



Oil refineries | Chemical and petrochemical plants | Onshore plants | Offshore plants | Oil loading/ unloading jetties | Combustible liquid depots | High buildings | Aircraft storage facilities Hangars

CERTIFICATION DATA

Classification:	Gruppo II	Categoria 2GD			
Installation: EN 60079.14	zona 1 - zona 2 (Gas)	zona 21 - zona 22 (Polveri)			
Marking:	CE 0722 Ex II 2GD Ex de IIC T6 Gb; Ex tb IIIC Db IP66				
Certification:	ATEX CESI 03 ATEX 046				
	IECEx CES 12.0020				
	TR CU AVAILABLE	All IEC Ex and TR CU certification data can be downloaded at www.cortemgroup.com			
Standards:	CENELEC EN 60079-0: 2009, EN 60079-1: 2007, EN 60079-7: 2007, EN 60079-31: 2009, EN 60598-1:2008+A11:2009, EN60598-2-1:1989 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2011, IEC 60079-1: 2007-04, IEC 60079-31: 2008, IEC 60079-7:2006 European Directive 2006/95 Low voltage European Directive 2004/108 Electromagnetic compatibility European Directive 2003/108 WEEE Waste electrical and electronic equipment European Directive 2011/64 RoHS				
Class temperature:	100°C (T5)				
Ambient temperature:	-20°C +55°C	Special -50°C +55°C			
Degree of protection:	IP66				

Low intensity XLFE-4/1 LED Obstruction lighting fixtures

ORIGINAL PRODUCT

MECHANICAL FEATURES

Body:	Low copper content aluminium alloy
Globe:	Shock and temperature resistant borosilicate glass sealed with aluminium shade ring
Internal reflector:	In chromed aluminum
Gaskets:	Silicone acid/hydrocarbon and high temperatures resistant
Heat dissipater:	Internally fitted in extruded aluminium
Mounting:	See "XLFE-4/1 series dimensional drawings"
Bolts and screws:	Stainless steel
Entries:	2 ISO M25 entries
Coating:	Epoxy coating Ral 7035 (light grey)
Corrosion Resistance:	The STANDARD of the aluminium alloy used by Cortem has passed the tests required by standards EN60068-2-30 (hot/humid cycles) and EN60068-2-11 (salt mist tests)

ELECTRICAL FEATURES

LEDs:

4 x LEDs fitted to electronic plate with single circuit

8 x LEDs fitted to electronic plate with double circuit

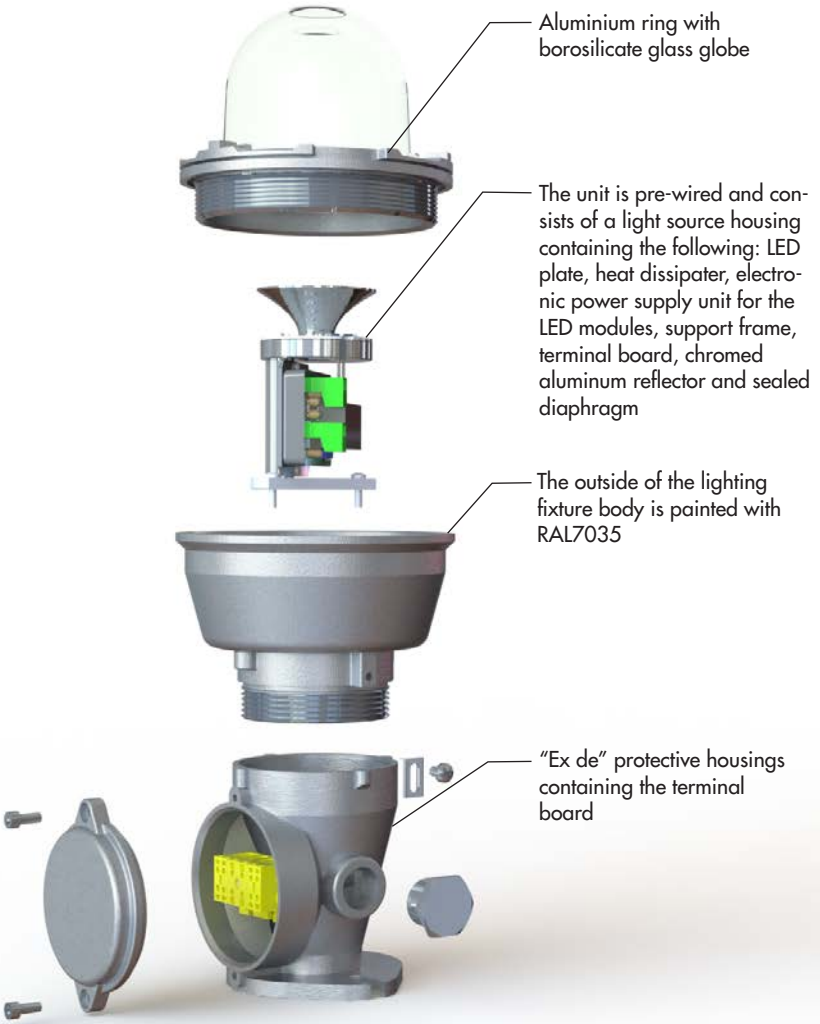
- High resistance to vibration (longer lifespan if installed in severe operating conditions)
- Estimated lifespan 100,000 hours (12 hours per day for 20 years)

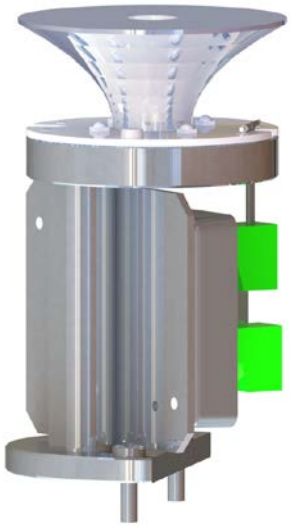
Obstruction lighting fixtures	Rated voltage	Rated frequency	Working current	Peak current
XLFE..024..	24 Vdc ±10%	-	0.145 A	0.45 A
XLFE..110..	110 Vac ±10%	50/60 Hz		
XLFE..230..	230 Vac ±10%	50/60 Hz		

ACCESSORIES AVAILABLE / SPECIAL REQUESTS

Special markings in Ⓔx II 2GD Ex d IIC T5 Gb; Ex tb IIIC T.. Db IP66. (sample code: XLF-4V1101/1)
Cable gland: NAV25IB for armoured cable or NEV25IB for non-armoured cable
Yellow light (XLFE-4G../1), blue light (XLFE-4B../1), green light (XLFE-4V../1)
Ex or watertight protected control panel

EXPLODED DIAGRAM OF XLFE-4/1 OBSTRUCTION LIGHTING FIXTURE





ICAO, FAA standard. The red XLFE-4/1 unit with light intensity more than 32 candles complies with ICAO Annex 14 Aerodromes vol I. June 2016 (corresponding to the FAA model of code L-810). In compliance with this standard, the luminous flux of the lighting fixture on the horizontal plane is 360° while it is less than 10° on the vertical plane.

Single and double A board with a second circuit can be supplied therefore with 4 + 4 LEDs fitted. This innovative system guarantees the correct management with an external panel in the event of a failure in the first circuit thus eliminating the need for costly 2 fixtures applications. For order codes, see the selection chart (not available for flashing lights).

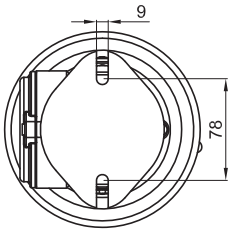
Single LED circuit
XLFE...1/1
- fixed light and flash -

Double LED circuit
XLFE...2/1
- fixed light and flash -

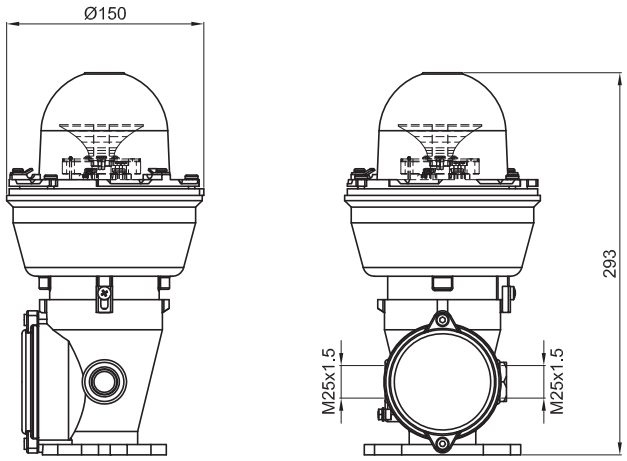
Dimensional designs low intensity XLFE-4/1

DIMENSIONAL DRAWING

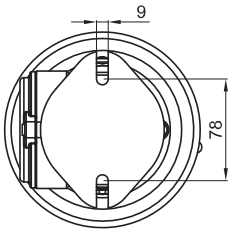
Low intensity XLFE-4...1/1



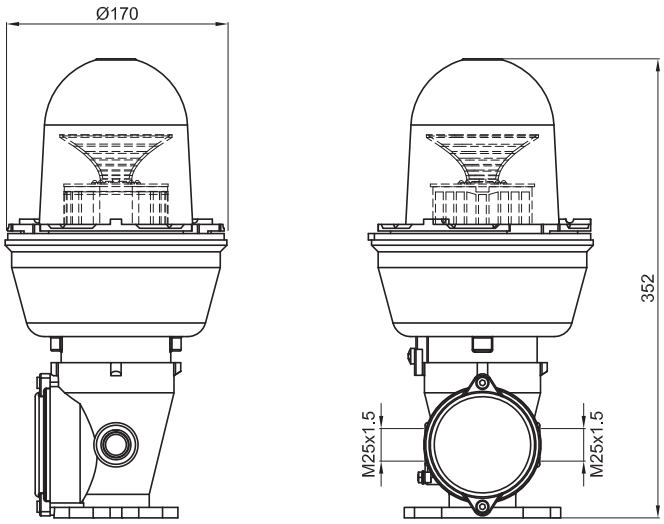
Close up of mounting



Low intensity XLFE-4...2/1



Close up of mounting



Dimensions in mm

Selection chart low intensity XLFE-4/1

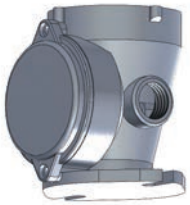
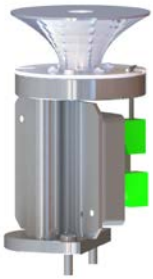
Code	Colour light	Power supply	Type of light	Type of circuit	Weight kg	mm
XLFE-4R024F1/1	Red	24 Vdc	Fixed	Individual	2,1	160x150x330
XLFE-4R024F2/1	Red	24 Vdc	Fixed	Double	2,1	160x150x330
XLFE-4R024L1/1	Red	24 Vdc	Flash	Individual	2,1	160x150x330
XLFE-4R230F1/1	Red	110-230 Vac	Fixed	Individual	3,0	190x170x390
XLFE-4R230F2/1	Red	110-230 Vac	Fixed	Double	3,0	190x170x390
XLFE-4R230L1/1	Red	110-230 Vac	Flash	Individual	3,0	190x170x390
XLFE-4R230L2/1	Red	110-230 Vac	Flash	Double	3,0	190x170x390

DON'T FORGET TO ORDER THE ACCESSORIES

Example: Type of lighting fixture XLFE-4R024F1 + Cable gland NAV25IB + other ...see key

ACCESSORY

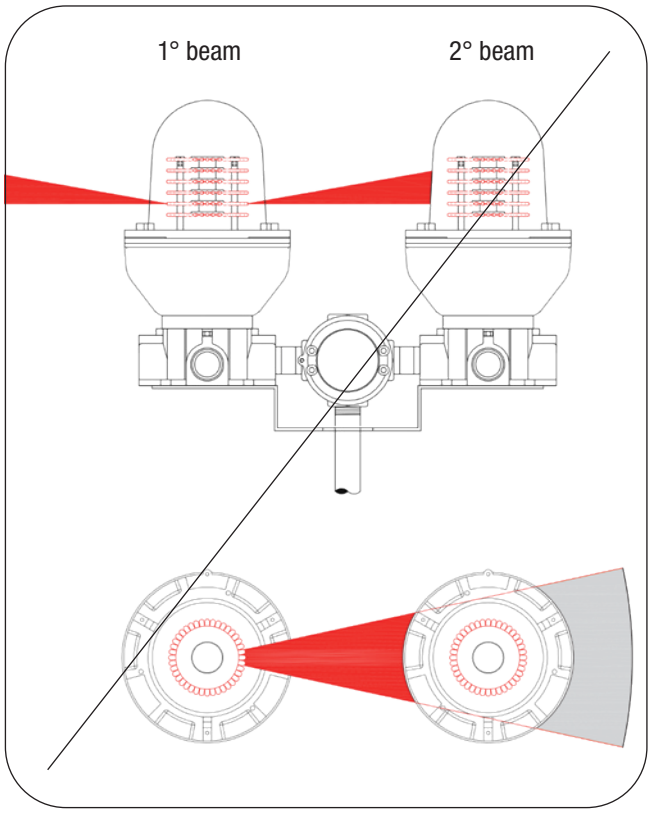
Accessories and spare parts available on request XLFE-4/1

ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	KEY
	Globe with shade ring	XLFE-4...1/1	Borosilicate glass globe Threaded aluminium shade ring	G50-0440CM	SPARE PART
		XLFE-4...2/1		G60-0440CM	
	O-ring	XLFE-4...1/1	Material: silicone	OR-4512SH70S	SPARE PART
		XLFE-4...2/1		K21-131S	
	'Ex e' type structure mounting		2 x entries ISO M25	G-0439	SPARE PART
	Kit complete with LED plate, heat dissipater, reflector and power supply. For colour LEDs enter the letter: R: red V: green B: blue G: yellow es. EC-48/R024F1	XLFE-4..024F1/1	1 circuit, fixed, 24 Vdc	EC-48/..024F1	SPARE PART
		XLFE-4..024F2/1	2 circuit, fixed, 24 Vdc	EC-48/..024F2	
		XLFE-4..024L1/1	1 circuit, flash, 24 Vdc	EC-48/..024L1	
		XLFE-4..230F1/1	1 circuit, fixed, 110-230 Vac	EC-48/..230F1	
		XLFE-4..230F2/1	2 circuits, fixed, 110-230 Vac	EC-48/..230F2	
		XLFE-4..230L1/1	1 circuit, flash, 110-230 Vac	EC-48/..230L1	
		XLFE-4..230L2/1	2 circuits, flash, 110-230 Vac	EC-48/..230L2	
	Cable gland		For cable gland models and codes see www.cortemgroup.com	NAV25IB NEV25IB	ACCESSORY SPARE PART

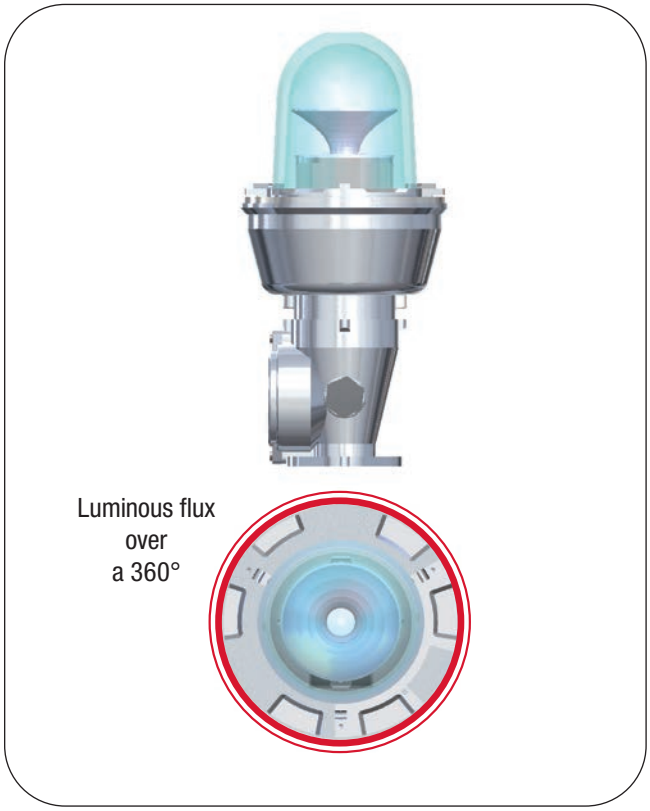
Features, installation and mounting methods

The double fixtures system requested in the event of an emergency failure, is more expensive due to the installation of 2 applications complete with terminal block and fitting it is also less functional as the beam of light is inevitably covered by the second beam. As can be seen in the diagram below, the luminous flux of the new XLFE-4...2/1 obstruction lighting fixture reaches a full 360° on the horizontal plane with no hindrances thus eliminating the problem of illumination and making installation easier.

Obsolete 2 fixture system

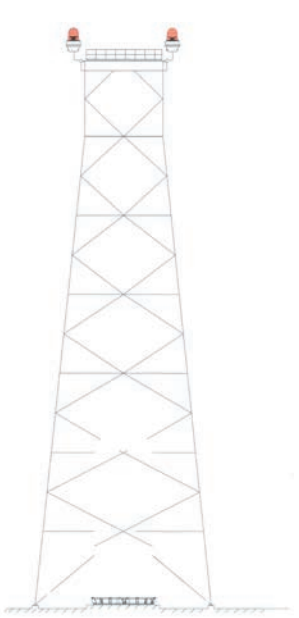


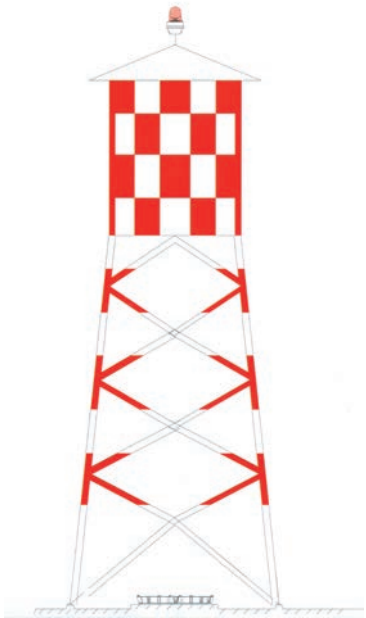
New XLFE-4...2/1 obstruction lighting fixture



Examples of structure fitting.

Refer to ICAO and FAA standards for all installation specifications or contact the sales offices





XLFE-LIB

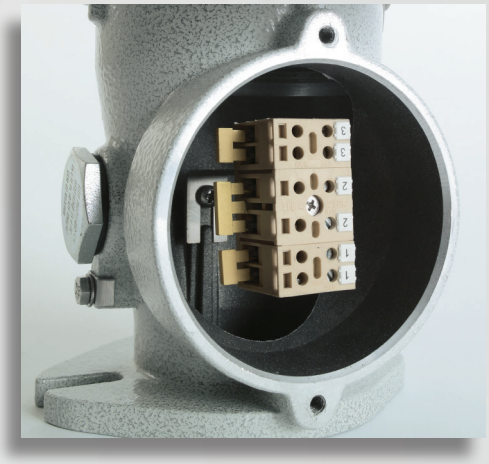
- Zone 1, 2, 21, 22
- Obstruction warnings
- LOW INTENSITY LED technology
- Lamp lifespan more than 10 years
- Complies with ICAO, FAA

'Ex op is'
safe optical radiation

Borosilicate glass globe

Painted aluminium body

Ex e terminal box for fast connection

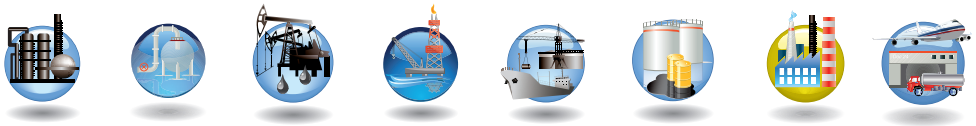


CORTEM GROUP®

Low intensity XLFE-LIB LED Obstruction lighting fixtures

XLFE-LIB series low intensity lighting fixtures are suitable to be installed on towers or high buildings as obstacle signalling devices at night thanks to the high power and luminous efficiency light source developed by Cortem Group. The XLFE-LIB lighting fixture, red in color with a luminous intensity of more than 32 candles, complies with the ICAO Annex 14 standard for low intensity aviation warning lamps type B (corresponding to the FAA L-810). Type B low intensity obstacle warning lights are designed for buildings with low extension and height above the ground of less than 45 meters. The XLFE-LIB series can be supplied to satisfy also the requests for obstacle warning lights low intensity type A since satisfies the photometric and light intensity requirements. They are also available for industrial signalling in flashing operation and with different light colors upon request. It is equipped with an internal reflector in chromium-plated anticorodal aluminium alloy.

Application sectors:



Oil refineries | Chemical and petrochemical plants | Onshore plants | Offshore plants | Oil loading/ unloading jetties | Combustible liquid depots | High buildings | Aircraft storage facilities Hangars

CERTIFICATION DATA

Classification:	Gruppo II	Categoria 2GD		
Installation: EN 60079.14	zona 1 - zona 2 (Gas)	zona 21 - zona 22 (Polveri)		
Marking:	CE 0722 Ex II 2GD Ex db eb op is IIC T6 Gb; Ex tb op is IIIC T75°C Db IP66			
Certification:	ATEX CML 19 ATEX 1333X			
	IECEx IECEx CML 19.0102X			
Standards:	CENELEC EN 60079-0: 2012+A11: 2013, EN 60079-1: 2014, EN 60079-31: 2014, EN 60079-28: 2015, EN 60079-7: 2015 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2011, IEC 60079-1: 2014-06, IEC 60079-28: 2015, IEC 60079-31: 2013, IEC 60079-7: 2015 European Directive 2006/95 Low voltage European Directive 2004/108 Electromagnetic compatibility European Directive 2003/108 WEEE Waste electrical and electronic equipment European Directive 2011/64 RoHS			
Class temperature:	55°C (T6)	75°C (T6)		
Ambient temperature:	-40°C +40°C (T6)	-40°C +60°C (T5)		
Degree of protection:	IP66			

Low intensity XLFE-LIB LED Obstruction lighting fixtures

ORIGINAL PRODUCT

MECHANICAL FEATURES

Body: Low copper content aluminium alloy
Glass face: Shock and temperature resistant borosilicate glass sealed with aluminium shade ring
Internal reflector: In chromed aluminum
Gaskets: Silicone acid/hydrocarbon and high temperatures resistant
Mounting: See "XLFE-LIB series dimensional drawings"
Bolts and screws: Stainless steel
Entries: 2 ISO M25 entries
Coating: Epoxy coating Ral 7035 (light grey)

Corrosion Resistance: The STANDARD of the aluminium alloy used by Cortem has passed the tests required by standards EN60068-2-30 (hot/humid cycles) and EN60068-2-11 (salt mist tests)

ELECTRICAL FEATURES

LEDs: 4 x LEDs fitted to electronic plate with single circuit

- High resistance to vibration (longer lifespan if installed in severe operating conditions)
- Estimated lifespan 100,000 hours (12 hours per day for 20 years)

Obstruction lighting fixtures	Rated voltage	Rated frequency
XLFE-LIB-R230F	100-240 Vac ±10%	50/60 Hz
XLFE-LIB-R024F	18-32 Vdc ±10%	-

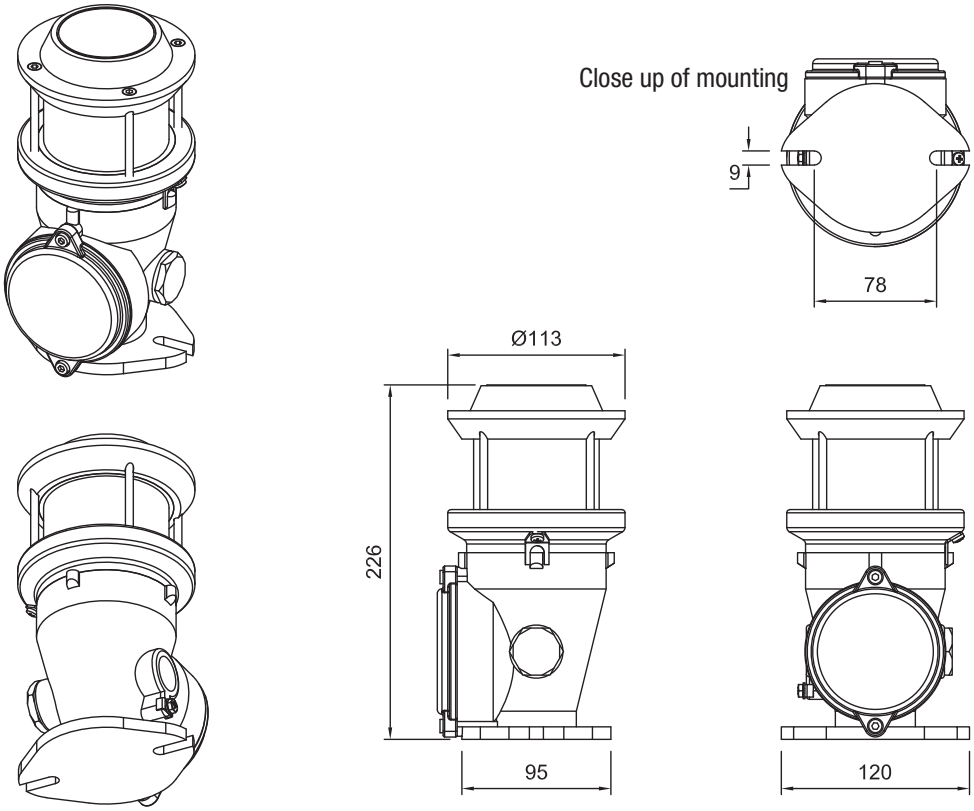
ACCESSORIES AVAILABLE / SPECIAL REQUESTS

Cable gland: NAV25IB for armoured cable or NEV25IB for non-armoured cable
Ex or watertight protected control panel

Low intensity XLFE-LIB LED Obstruction lighting fixtures

Code	Colour light	Type of light	Type of circuit	Power	Weight kg	mm
XLFE-LIB-R230F	Red	Fixed	Individual	6 W	2 Kg	232x125x125
XLFE-LIB-R024F	Red	Fixed	Individual	6 W	2 Kg	232x125x125

DIMENSIONAL DRAWING



Features	XLFE-LIB
Type of product:	Obstruction lighting fixture Low intensity
Light source:	LED
Color:	Red
Typical use:	Night hours
Power consumption:	6 W
Connection:	Direct connection to terminal board L, N, Pe. Section 4mm^2, suitable for loop-in/loop-out
Vertical beam spread:	> 10°
Minimum light intensity (360°):	>32 cd in nighttime
Horizontal coverage:	360°

XLFE-MIB

- Zone 1, 2, 21, 22
- Obstruction warnings MEDIUM INTENSITY type B
- LED technology
- Lifespan more than 10 years
- Complies with ICAO, FAA

XLFE-MIB Medium intensity LED Obstruction lighting fixtures

XLFE-MIB series Medium intensity LED Obstruction lighting fixtures can be installed in hazardous areas of industrial plants classified as Zone 1, Zone 2, Zone 21, Zone 22.
The light source was developed by Cortem Group upon the experience of the past in the world of LED lighting. In fact, the use of a new LED generation and of the reflector internally designed has allowed the reduction of external dimensions to Ø176x205mm.
The red XLFE-MIB series lighting fixture, with an intensity of more than 2000 candles and flashing operation, complies with the requirements of the ICAO Annex 14 for aviation obstruction warning lights of medium-intensity B type (corresponding to the FAA type of initials L- 864).
The XLFE-MIB series has been designed for Zone 1 with an 'Ex db' optical source. The particular design avoids any type of optical error typical of the glass globes.
As required by the ICAO regulations, the XLFE-MIB series has a flashing operation, standard at 20 fpm, upon request at 40 fpm.
The light source also complies with EN/IEC 60079-28 standard ("op is" protection).
The installation is facilitated by the reduced dimensions, the wiring is done with cable gland in a 'Ex e' enclosure, avoiding the use of sealed cable glands or the resin finishing at high heights.
The signalling device is not a stand-alone device but it is part of a system that provides power from a panel. This choice reduces maintenance operations by making the power supplies accessible from the management panel.

Application sectors:

Oil refineries | Chemical and petrochemical plants | Onshore plants | Offshore plants | Oil loading/ unloading jetties | Combustible liquid depots | High buildings | Aircraft storage facilities Hangars

CERTIFICATION DATA

Classification:	Group II	Category 2GD		
Installation:: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II 2GD Ex db eb op is IIC T4 Gb; Ex tb op is IIIC T110°C Db IP66			
Certification:	ATEX CML 19 ATEX 1333X			
	IECEx IECEx CML 19.0102X			
Standards:	CENELEC EN 60079-0: 2012+A11: 2013, EN 60079-1: 2014, EN 60079-31: 2014, EN 60079-28: 2015, EN 60079-7: 2015 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2011, IEC 60079-1: 2014-06, IEC 60079-28: 2015, IEC 60079-31: 2013, IEC 60079-7: 2015 European Directive 2006/95 Low voltage European Directive 2004/108 Electromagnetic compatibility European Directive 2003/108 WEEE Waste electrical and electronic equipment European Directive 2011/64 RoHS			
Class temperature:	110°C (T4)	130°C (T4)		
Ambient temperature:	XLFE-MIB -40°C +40°C	XLFE-MIB/1 -40°C +60°C		
Degree of protection:	IP66			

XLFE-MIB Medium intensity LED Obstruction lighting fixtures

ORIGINAL PRODUCT

MECHANICAL FEATURES

Body:	Low copper content aluminium alloy fitted with cooling fins for better heat dissipation
Glass face:	Shock and temperature resistant borosilicate glass sealed with aluminium shade ring
Internal reflector:	Chrome-plated aluminum
Gaskets:	Silicone acid/hydrocarbon and higt temperatures resistant
Mounting:	See "XLFE-MIB series dimensional drawings"
Bolts and screws:	Stainless steel
Entries:	1 ISO M20 entry
Coating:	Polyester coating Ral 7035 (light grey)
Corrosion Resistance:	The STANDARD of the aluminium alloy used by Cortem has passed the tests required by standards EN60068-2-30 (hot/humid cycles) and EN60068-2-11 (salt mist tests)

ACCESSORIES AVAILABLE / SPECIAL REQUESTS

Ex or watertight protected control panel

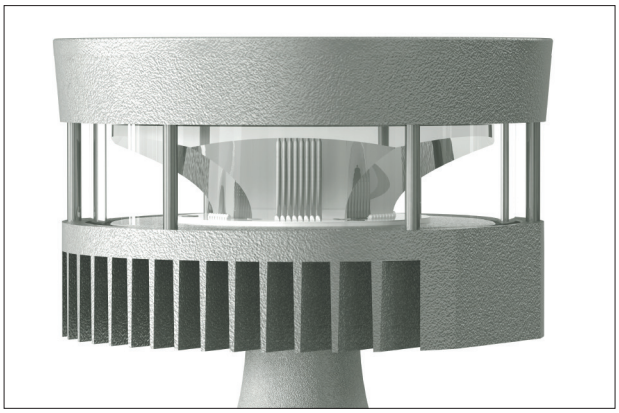
Cable gland: NAV25IB for non-armoured cable or NEV25IB for armoured cable
Birds deterrent **(G-1010)**

COMPLIANCE

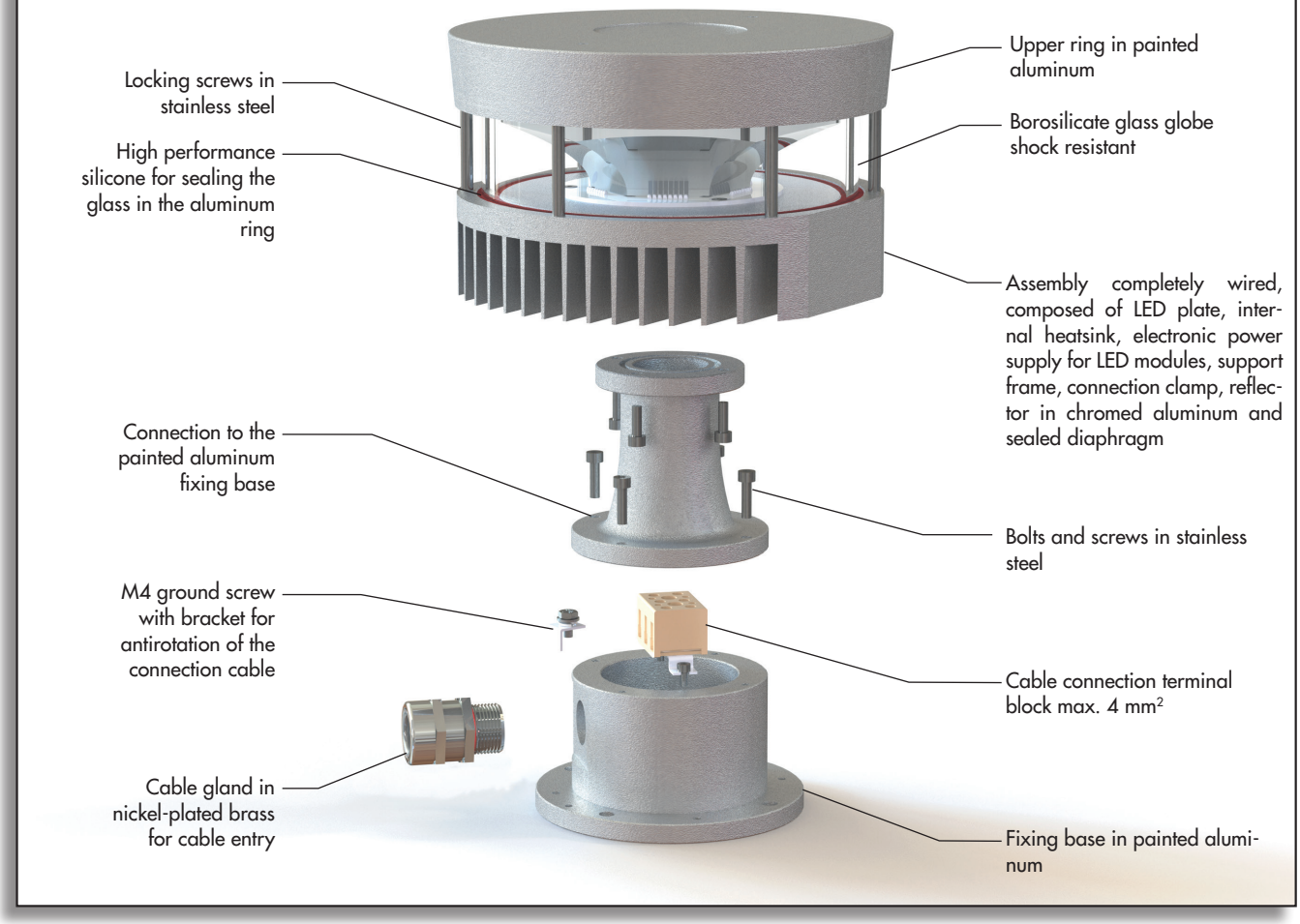
ICAO Regulations, FAA. The red XLFE-MIB series lighting fixtures with luminous intensity of more than 2000 candles complies with the ICAO Annex 14 Aerodromes vol. I. June 2016 (corresponding to the FAA model, L-864 code). In accordance with the provisions of this standard, the luminous flux of the lighting fixture on the horizontal plane is 360° while on the vertical plane it is 3°.

PATENTED

Italian Patent Pending



EXPLODED DIAGRAM OF XLFE-MIB OBSTRUCTION LIGHTING FIXTURE

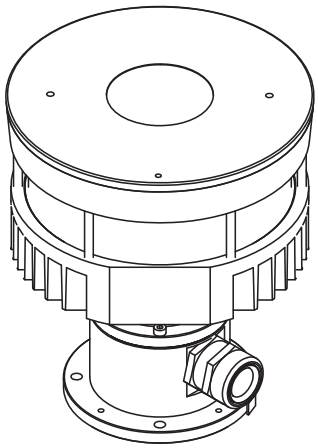


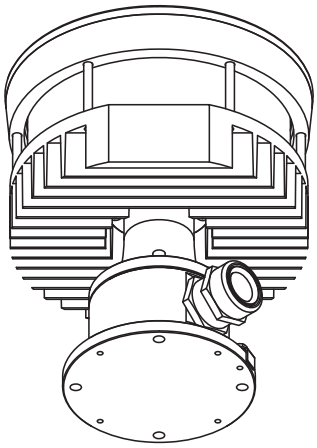
Features	XLFE-MIB
Type of product:	Obstruction lighting fixture Average intensity Type B
Light source:	LED
Color:	Red
Typical use:	Night
Supply voltage:	110-121 Vdc
Power consumption:	30 W
Connection:	Direct connection to terminal board L, N, Pe. Section 4mm²
Flashing rate:	20 - 40 fpm (flash per minute)
Vertical beam spread:	3°
Minimum light intensity (360°):	2000 cd
Horizontal coverage:	360°

XLFE-MIB Medium intensity LED Obstruction lighting fixtures

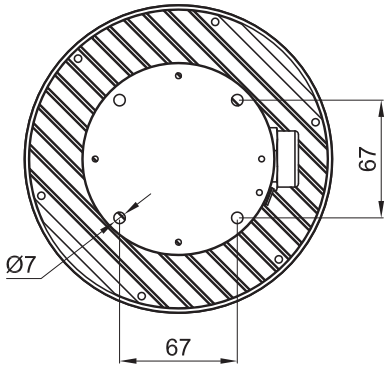
Code	Colour light	Power supply	Type of light	Type of circuit	Power consumption	Ambient Temperature	Weight kg	mm
XLFE-MIB	Red	110-121 Vdc	Flash	Single	30 W	-40°C +40°C	5	260x250x300
XLFE-MIB/1	Red	110-121 Vdc	Flash	Single	30 W	-40°C +60°C	5	260x250x300

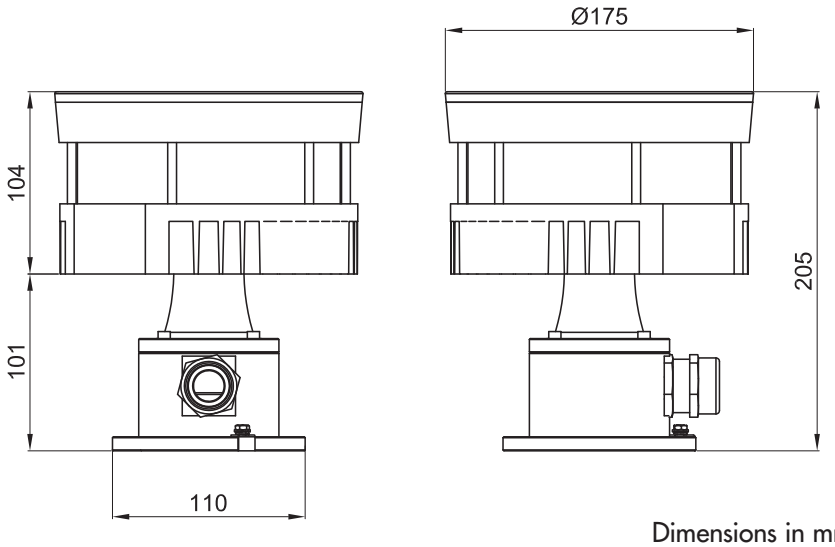
DIMENSIONAL DRAWING



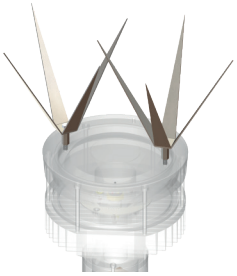


Close up of mounting

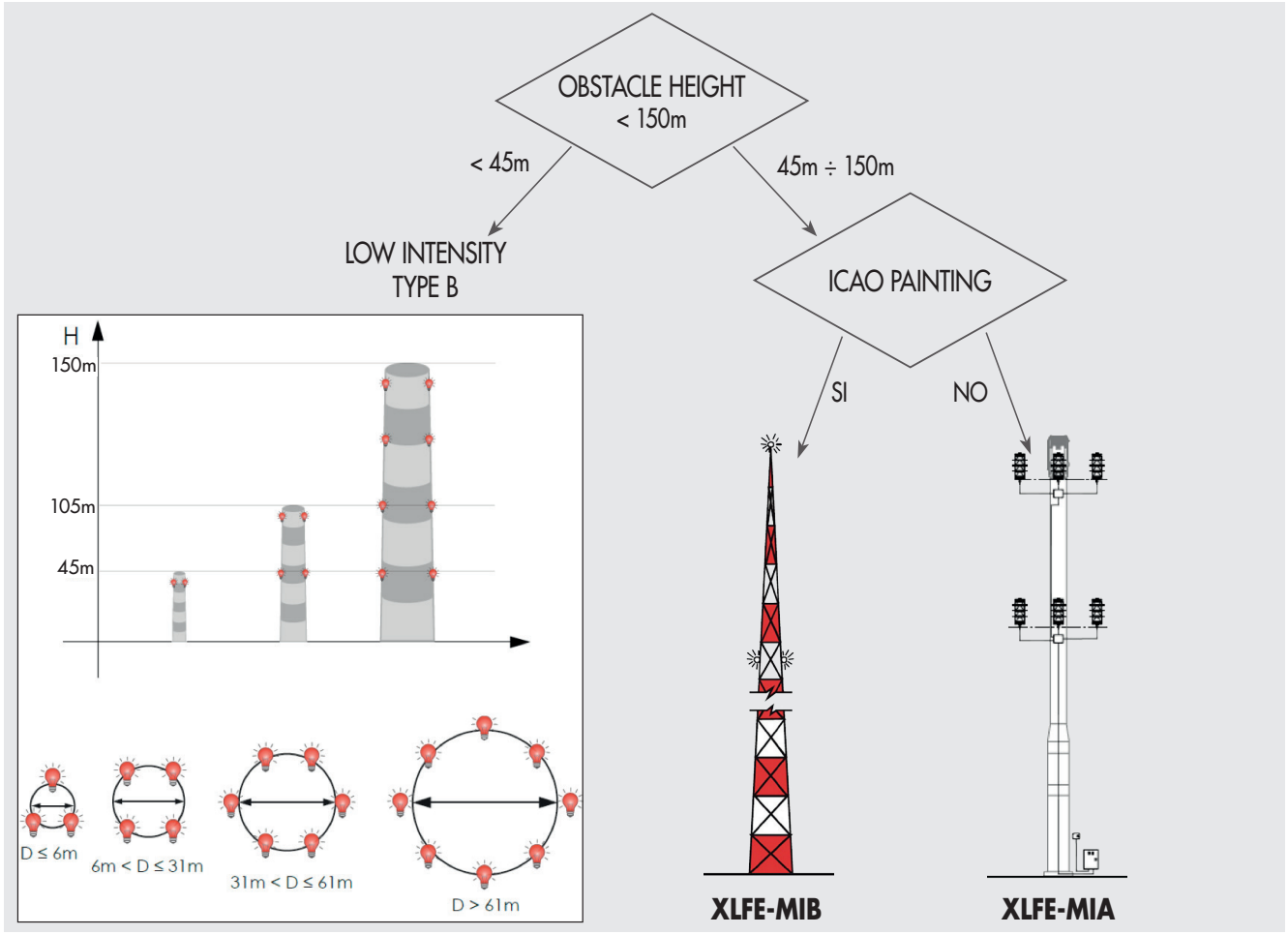


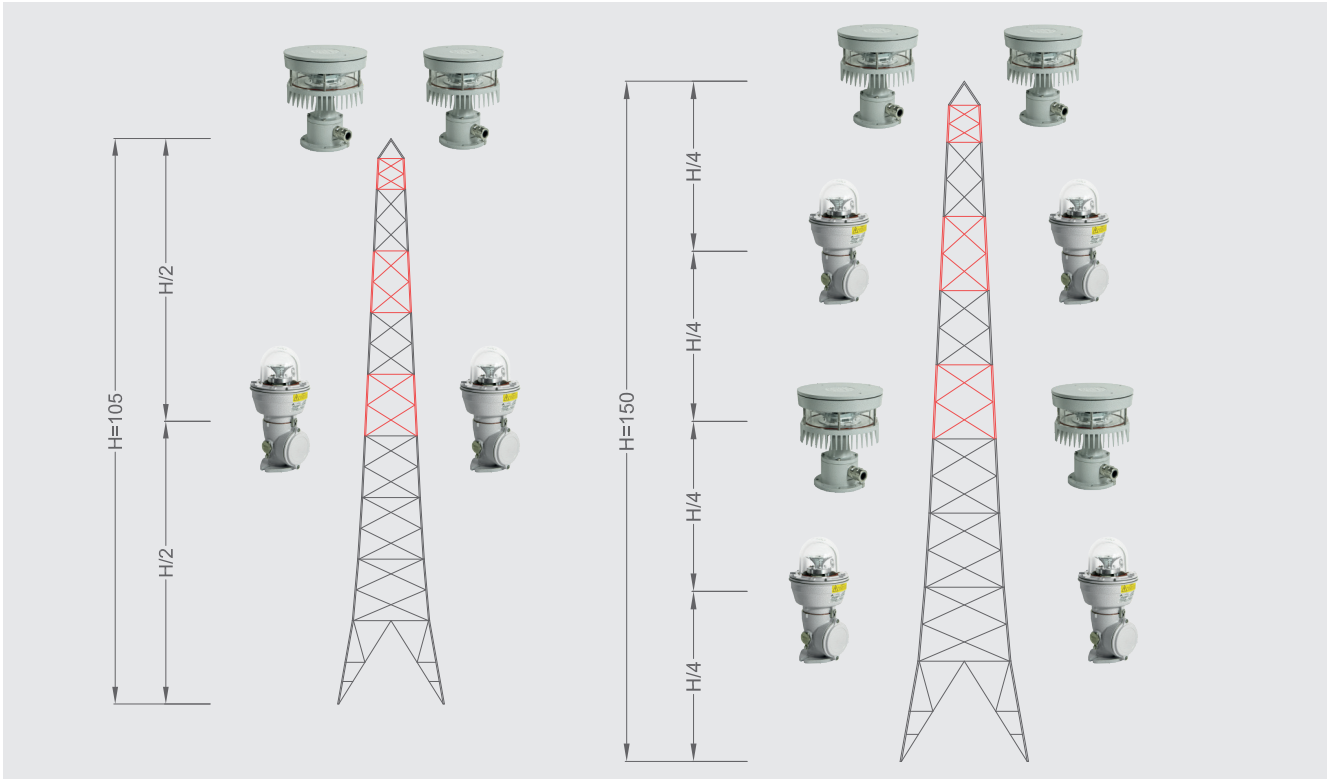


Dimensions in mm

ILLUSTRATION	DESCRIPTION	FEATURES	CODE	KEY
	Bird dissuader	Material: Stainless steel AISI 316L	G-1010	SPARE PART

XLFE-MIB Medium intensity LED Obstruction lighting fixtures





XLFE-MIA

- Zone 1, 2, 21, 22
- Obstruction warnings MEDIUM INTENSITY type A
- LED technology
- Lifespan more than 10 years
- Easy to install
- Complies with ICAO, FAA

'Ex op is'
safe optical radiation

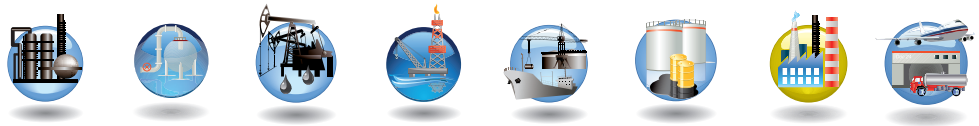
Ex e terminal box for fast connection

CORTEM GROUP®

XLFE-MIA Medium intensity LED Obstruction lighting fixtures

XLFE-MIA series medium intensity LED Obstruction lighting fixtures can be installed in hazardous areas of industrial plants classified as Zone 1, Zone 2, Zone 21, Zone 22. The light source was developed by Cortem Group research & development department upon the experience of the past in the world of LED lighting.
The white color XLFE-MIA, with an intensity greater than 20,000 candles in daytime operation and greater than 2,000 candles in nighttime operation, complies with ICAO annex 14 for aviation obstruction warning lights of medium-intensity type A (corresponding to the FAA type of initials L-865).
The XLFE-MIA series has been designed for Zone 1 with an 'Ex db' optical source. The particular design avoids any type of optical error typical of the glass globes. The lamp body performs both the function of explosion protection and heat sink, thus avoiding the use of resin-coated optics, which are subject to deterioration over time.
As required by the ICAO regulations, the XLFE-MIA series has a flashing operation, standard at 20 fpm, upon request at 40 fpm. The light source also complies with EN/IEC 60079-28 standard ("op is" protection). The installation is eased by the reduced dimensions, the wiring is done with cable gland in a 'Ex eb' enclosure, avoiding the use of sealed cable glands or the resin finishing at high heights.
The signalling device is not a stand-alone device but it is part of a system that provides power from a control panel. This choice reduces maintenance operations by making the power supplies accessible from the control panel.
With this system it is possible to manage the control of the lighting equipment failures, the eventual switching on of the spare indicators, the synchronization between different control panels also via cable or GPS technology.

Application sectors:



Oil refineries | Chemical and petrochemical plants | Onshore plants | Offshore plants | Oil loading/ unloading jetties | Combustible liquid depots | High buildings | Aircraft storage facilities Hangars

CERTIFICATION DATA

Classification:	Group II	Category 2GD		
Installation:: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II 2GD Ex db eb op is IIC T.. Gb; Ex tb op is IIIC T..°C Db IP66			
Certification:	ATEX CML 19 ATEX 1333X			
	IECEx IECEx CML 19.0102X			
Standards:	CENELEC EN 60079-0: 2018, EN 60079-1: 2014, EN 60079-31: 2014, EN 60079-28: 2015, EN 60079-7: 2015 and DIRETTIVA EUROPEA 2014/34/UE IEC 60079-0: 2017, IEC 60079-1: 2014-06, IEC 60079-28: 2015, IEC 60079-31: 2013, IEC 60079-7: 2017 European Directive 2006/95 Low voltage European Directive 2004/108 Electromagnetic compatibility European Directive 2003/108 WEEE Waste electrical and electronic equipment European Directive 2011/64 RoHS			
Class temperature:	70°C (T6)	90°C (T5)		
Ambient temperature:	-40°C +40°C (T6)	-40°C +60°C (T5)		
Degree of protection:	IP66			

XLFE-MIA Medium intensity LED Obstruction lighting fixtures

ORIGINAL PRODUCT

MECHANICAL FEATURES

Body:	Low copper content aluminium alloy fitted with cooling fins for better heat dissipation
Finish:	Anodic oxidation surface treatment suitable for structural parts with high corrosion resistance requirements.
Glass face:	Shock and temperature resistant borosilicate glass sealed with aluminium shade ring
Internal reflector:	Chrome-plated aluminum
Gaskets:	Silicone acid/hydrocarbon and higt temperatures resistant
Mounting:	See "XLFE-MIA series dimensional drawings"
Bolts and screws:	Stainless steel
Entries:	1 ISO M20 entry
Corrosion Resistance:	The STANDARD of the aluminium alloy used by Cortem has passed the tests required by standards EN60068-2-30 (hot/humid cycles) and EN60068-2-11 (salt mist tests)

ACCESSORIES AVAILABLE / SPECIAL REQUESTS

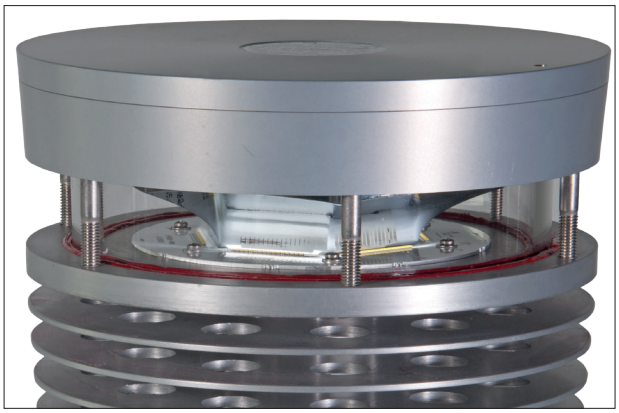
Ex or watertight protected control panel
Cable gland: NAV20IB for non-armoured cable or NEV20IB for armoured cable
Heat shield
Polyester painting

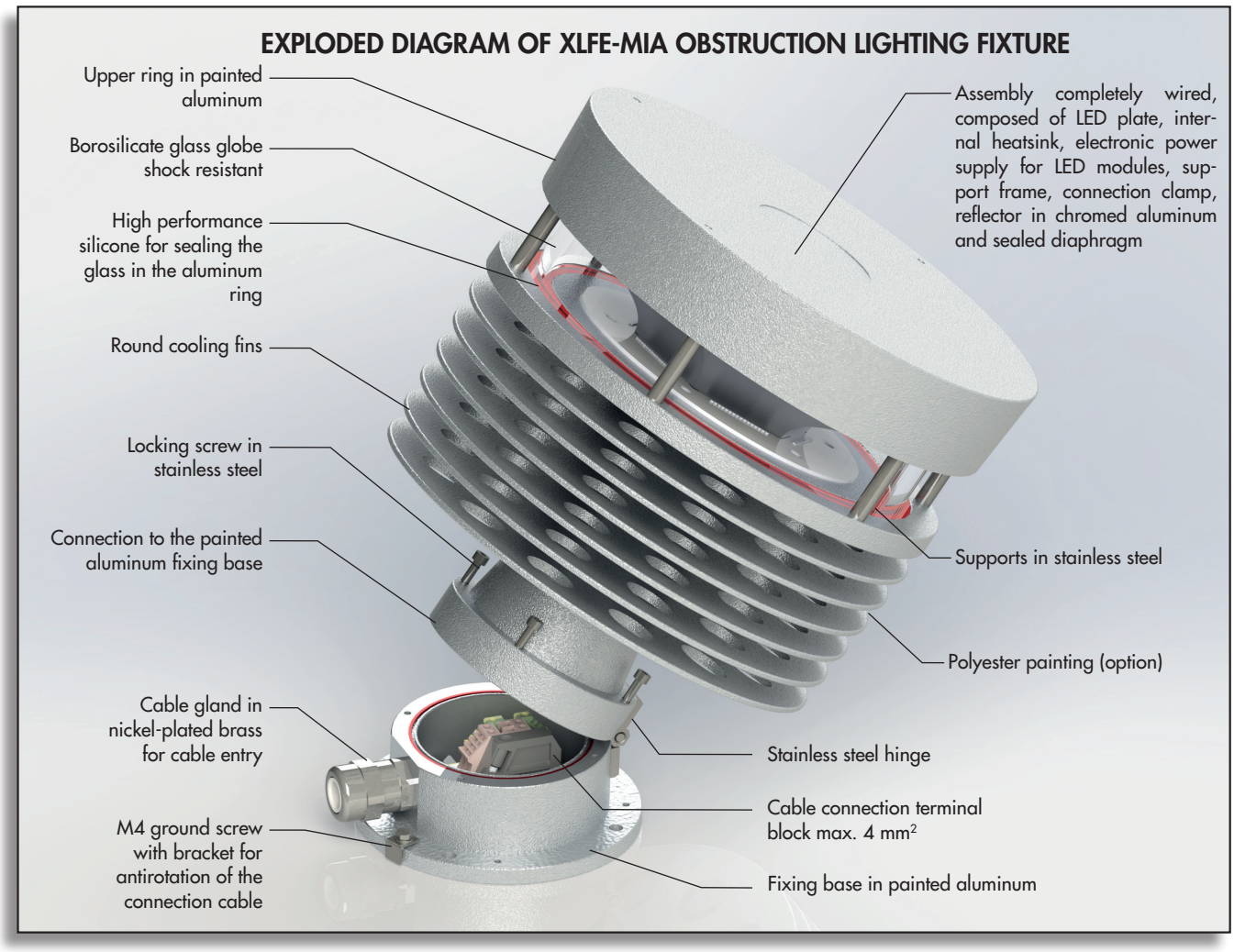
COMPLIANCE

ICAO Regulations, FAA. The white XLFE-MIA series lighting fixtures, with an intensity greater than 20,000 candles in daytime operation and greater than 2,000 candles in nighttime operation, complies with ICAO annex 14 vol I. June 2016 for aviation obstruction warning lights of medium-intensity type A (corresponding to the FAA type of initials L-865). In accordance with the provisions of this standard, the luminous flux of the lighting fixture on the horizontal plane is 360° while on the vertical plane it is 3°.

PATENTED

Italian Patent Pending

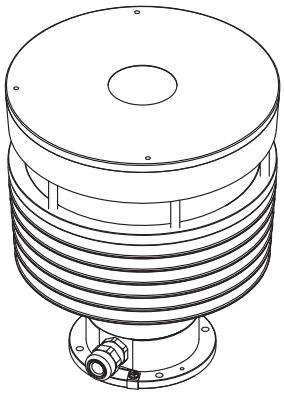


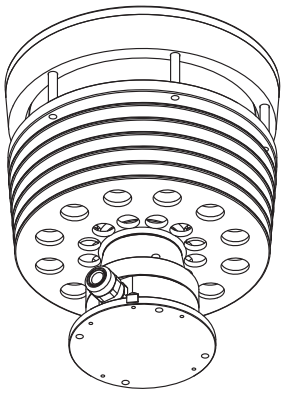


Features	XLFE-MIA
Type of product:	Obstruction lighting fixture Average intensity Type A
Light source:	LED
Color:	White
Typical use:	Day and night hours
Power consumption:	60 W
Connection:	Direct connection to terminal board L, N, Pe. Section 4mm²
Flashing rate:	20 - 40 fpm (flash for minute)
Vertical beam spread:	3°
Minimum light intensity (360°):	20.000 cd daytime operation 2.000 cd in nighttime
Horizontal coverage:	360°

XLFE-MIA Medium intensity LED Obstruction lighting fixtures

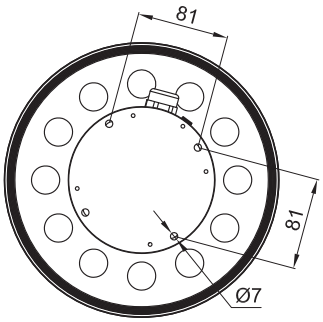
Code	Colour light	Type of light	Type of circuit	Power	Weight kg	mm
XLFE-MIA	White	Flash	Single	60 W	8,5	260x250x300

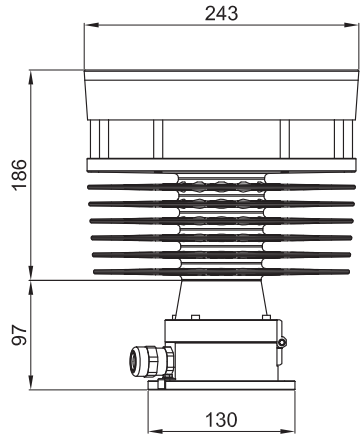


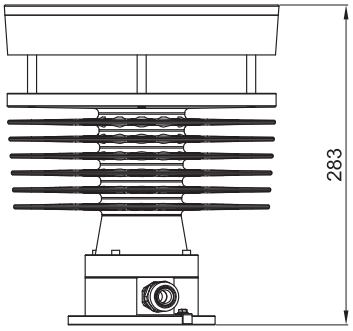


DIMENSIONAL DRAWING

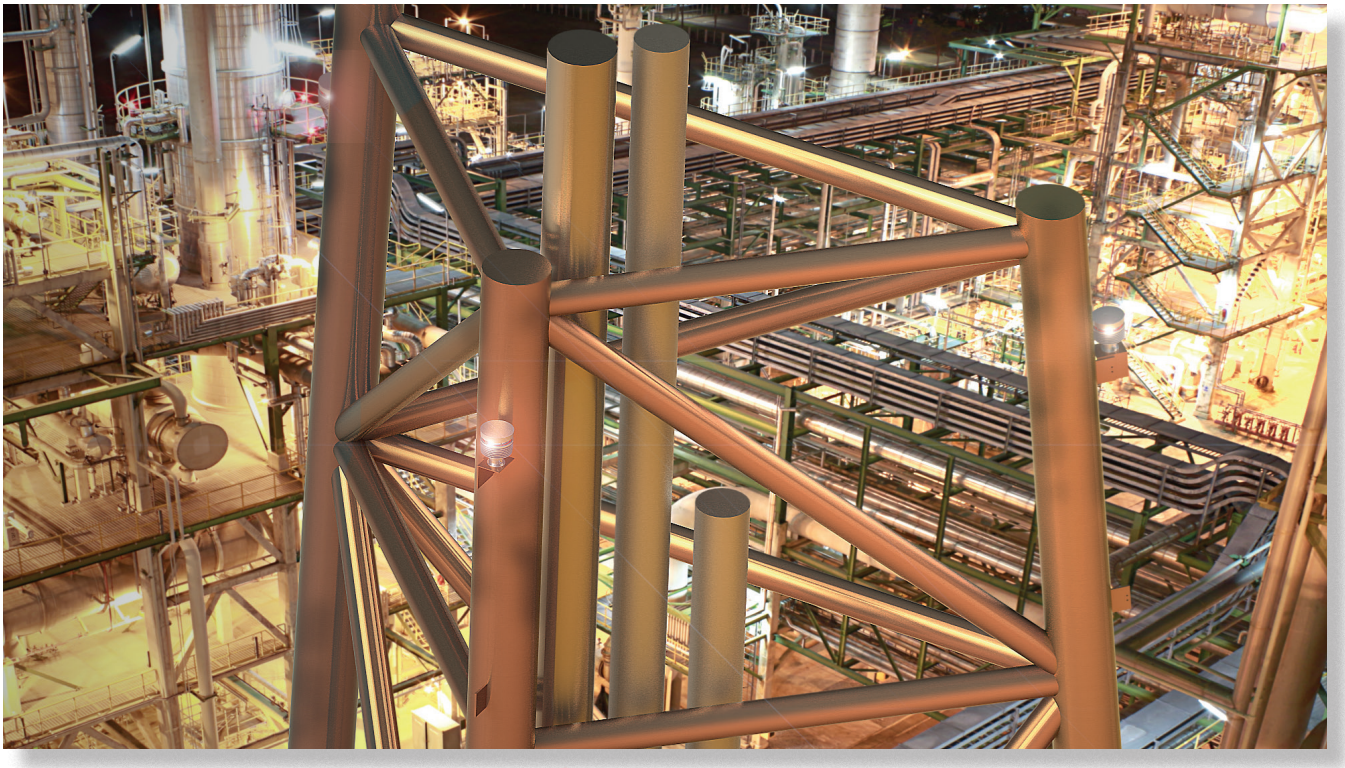
Close up of mounting



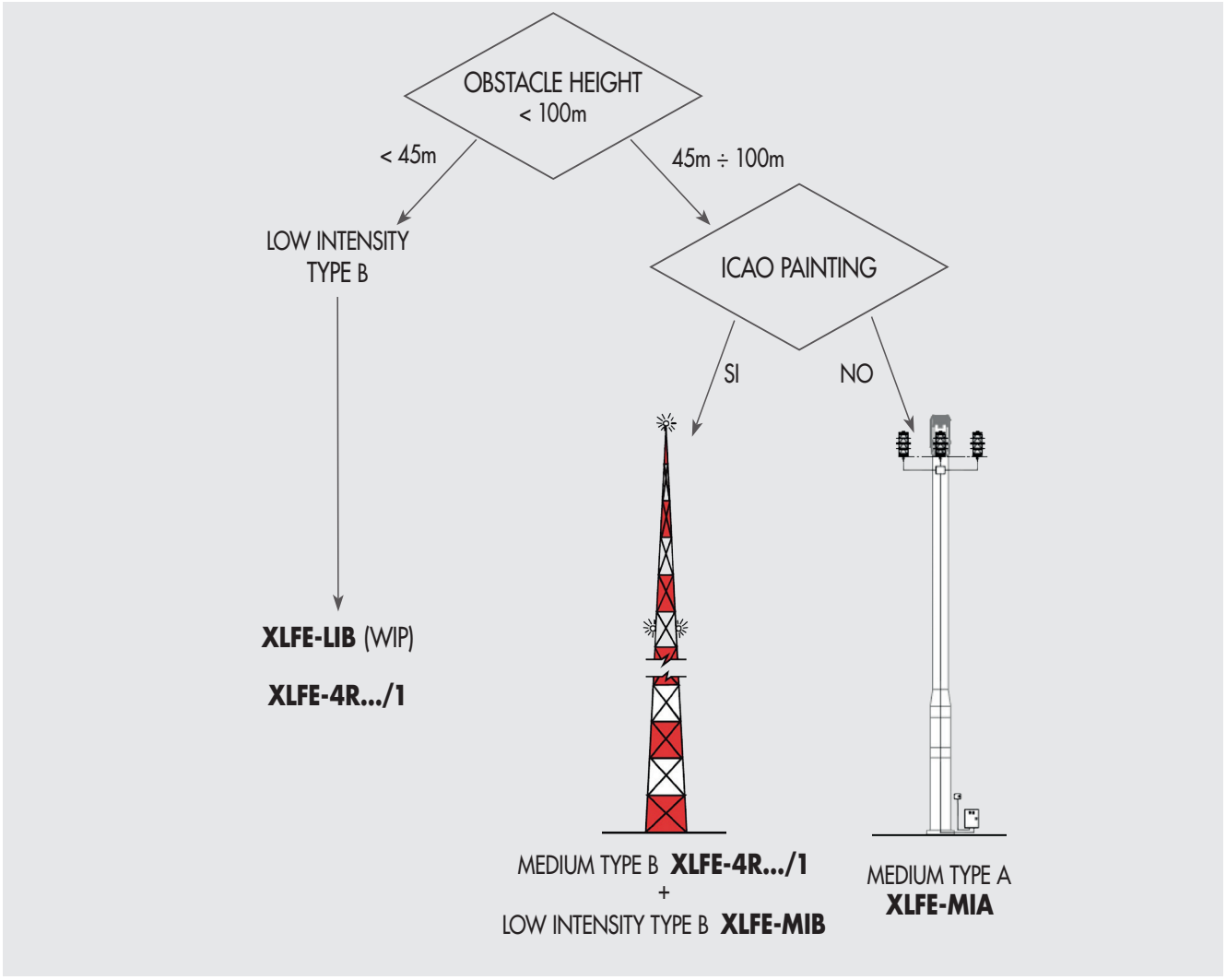




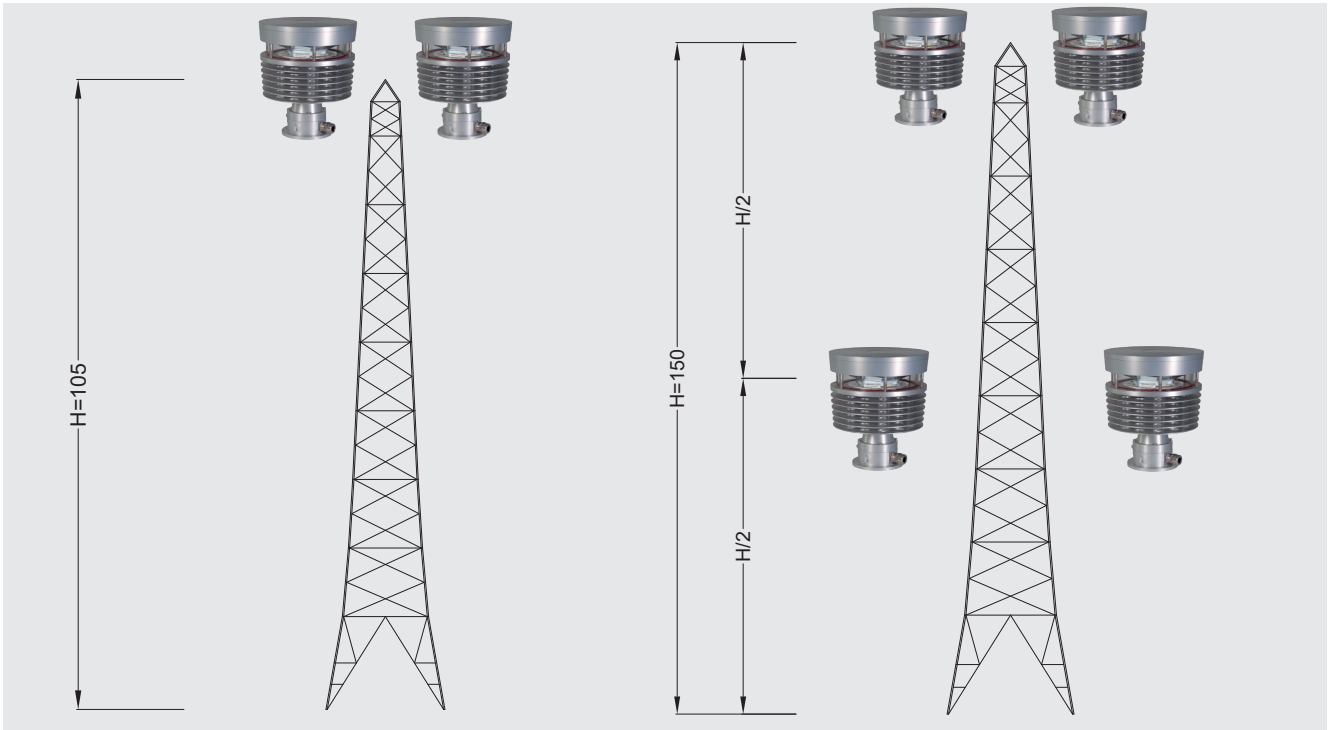
Dimensions in mm



Products selection flow-chart



Mounting scheme



CCA-02E/SLD

- Lower maintenance costs
- Lower power consumption
- LED technology
- Zones 1, 2, 21, 22

CORTEM GROUP®

CCA-02E/S...LD LED traffic lights

CCA-02E/S...LD series traffic light system is the result of research and development activities into the new LED lighting technology that can achieve optimum light efficiency, immediate power response times and very low power consumption.
These Ex d IIC traffic lights are suitable for regulating traffic in chemically aggressive industrial environments or potentially explosive areas classified as Zone 1 - 2 - 21 or 22.
It is made of low copper content aluminium and features tempered glass, coloured polycarbonate lenses and painted steel sun shades. The benefits offered by the new CCA- 02E/S...LD system are as follows: lower maintenance costs, better visibility in critical conditions thanks to the LED lamps, better reliability thanks to the guaranteed continuous light even if one LED fails and, lastly, the lack of any "phantom" effect.

Application sectors:

CERTIFICATION DATA

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone22 (Dust)		
Marking:	CE 0722 Ex II 2GD Ex d IIC T6 Gb - Ex tb IIIC T85°C Db IP66			
Certification:	ATEX CESI 01 ATEX 036X			
	TR CU AVAILABLE	All TR CU certification data can be downloaded at www.cortemgroup.com		
Standards:	CENELEC EN 60079-0: 2006, EN 60079-1: 2007, EN 61241-0: 2006, EN 61241-1: 2004 and EUROPEAN DIRECTIVE 2014/34/UE			
Class temperature:	85°C (T6)			
Ambient temperature:	Standard -20°C +55°C	Special -40°C +55°C		
Degree of protection:	IP66			

CCA-02E/S...LD LED traffic lights

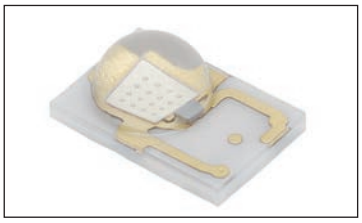
ORIGINAL PRODUCT

MECHANICAL FEATURES

Body and internal ring:	Low copper content aluminium alloy
Internal frame and bracket:	Aluminium
Sun shades:	Galvanised steel
Gasket:	Acid, hydrocarbon and high temperature resistant silicone
Glass face:	Shock and high temperature resistant tempered glass
Fresnel lens:	Polycarbonate
Coloured lens:	Red, yellow and green in polycarbonate
Bolts and screws:	Stainless steel
Mounting:	See "CCA-02E/S...LD series dimensional drawings"
Entries:	1 x 3/4" NPT
Coating:	Epoxy coating Ral 1003 (Signal yellow)
Corrosion Resistance:	The STANDARD of the aluminium alloy used by Cortem has passed the tests required by standards EN60068-2-30 (hot/humid cycles) and EN60068-2-11 (salt mist tests)

ELECTRICAL FEATURES

LED:



- 4 LEDs installed on plate
  if one or more of the LEDs fails, the lamp keeps on working)
- High resistance to vibration (longer lifespan if installed in severe operating conditions)
- Estimated lifespan 50,000 hours
- Maintenance costs estimated to be about one tenth compared with systems currently in use

Power supply:	High efficiency electronic system. Protection against short circuit, overloading and restore system
Rated voltage:	230Vac ±10%
Rated frequency:	50/60 Hz
Connection:	Direct entries for cables to terminal board L, N, Pe. Max section 4mm^2
Power factor:	0.96
Wiring:	Silicone rubber cables with glass braid protection against high temperatures

ACCESSORIES AVAILABLE / SPECIAL REQUESTS

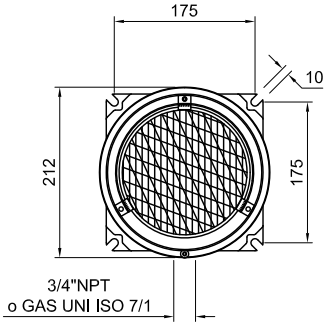
Cable gland: FGAB2NBK for armoured cable or FB2NBK for non-armoured cable
Rated voltage 24 Vac/dc (code CCA-02E/S2LD**24**)
Rated voltage 110-240 Vac (code CCA-02E/S2LD**S**)
LED traffic light units with Wi-Fi system

CCA-02E/S...LD series selection chart

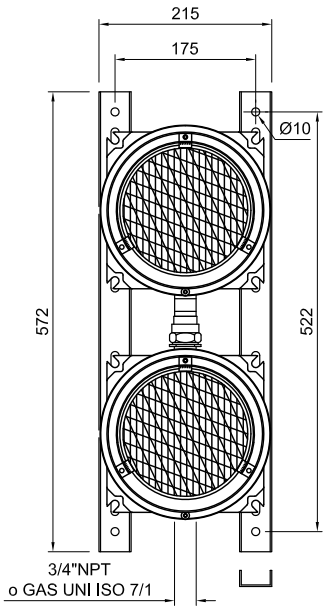
Code	LED colour	Number of signallers	Watt	Weight kg	mm
CCA-02E/S1-1LD	GREEN	1	6W	8	90x190x320
CCA-02E/S1-2LD	YELLOW	1	6W	8	90x190x320
CCA-02E/S1-3LD	RED	1	6W	8	90x190x320
CCA-02E/S2-4LD	GREEN + RED	2	6W	16	230x580x320
CCA-02E/S2-5LD	GREEN + YELLOW	2	6W	16	230x580x320
CCA-02E/S2-6LD	RED + YELLOW	2	6W	16	230x580x320
CCA-02E/S3-7LD	RED + GREEN + YELLOW	3	6W	24	230x870x320

DIMENSIONAL DRAWING

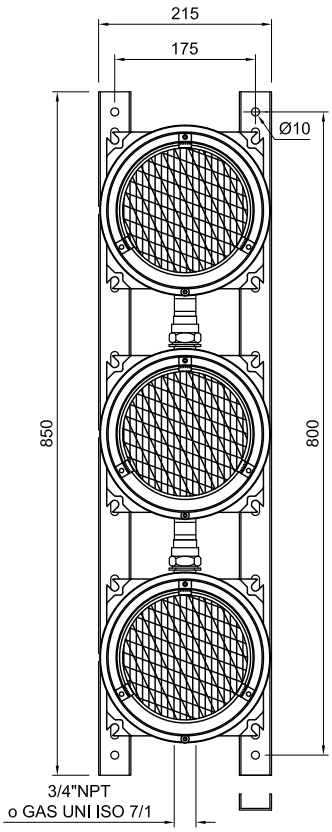
Configuration with one signaller

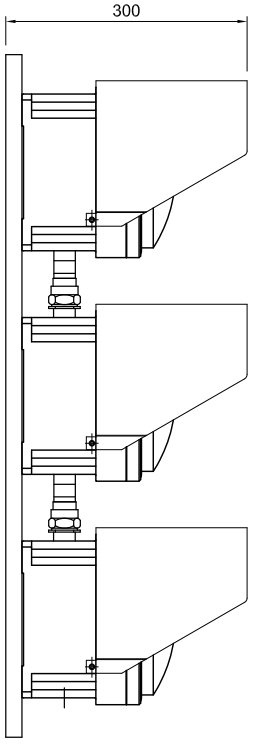


Configuration with two signaller

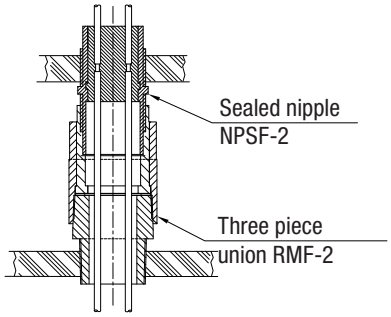


Configuration with three signaller



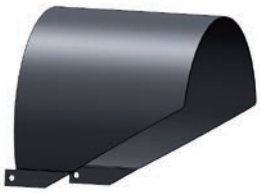


CLOSE UP OF TRAFFIC LIGHT WIRING COUPLING WITH 2 OR 3 SIGNALLERS

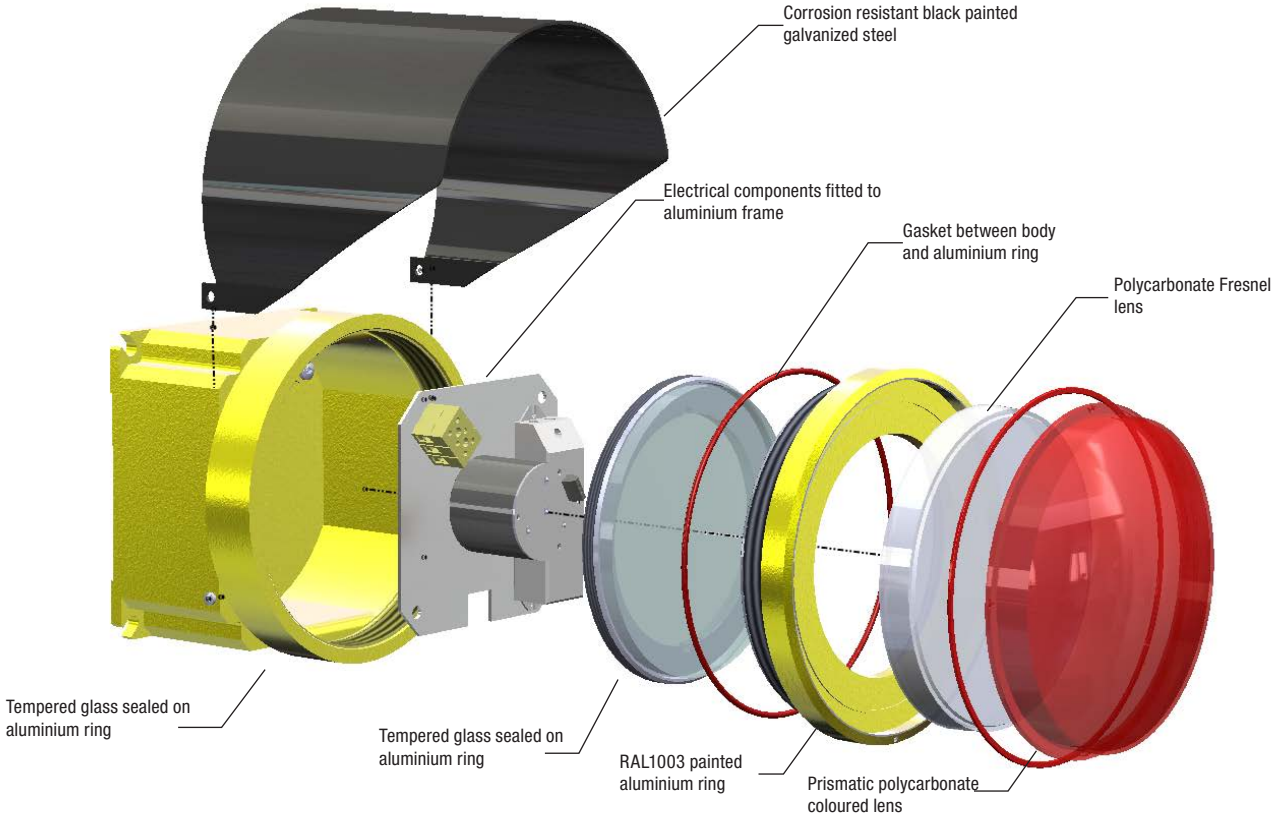


Dimensions in mm

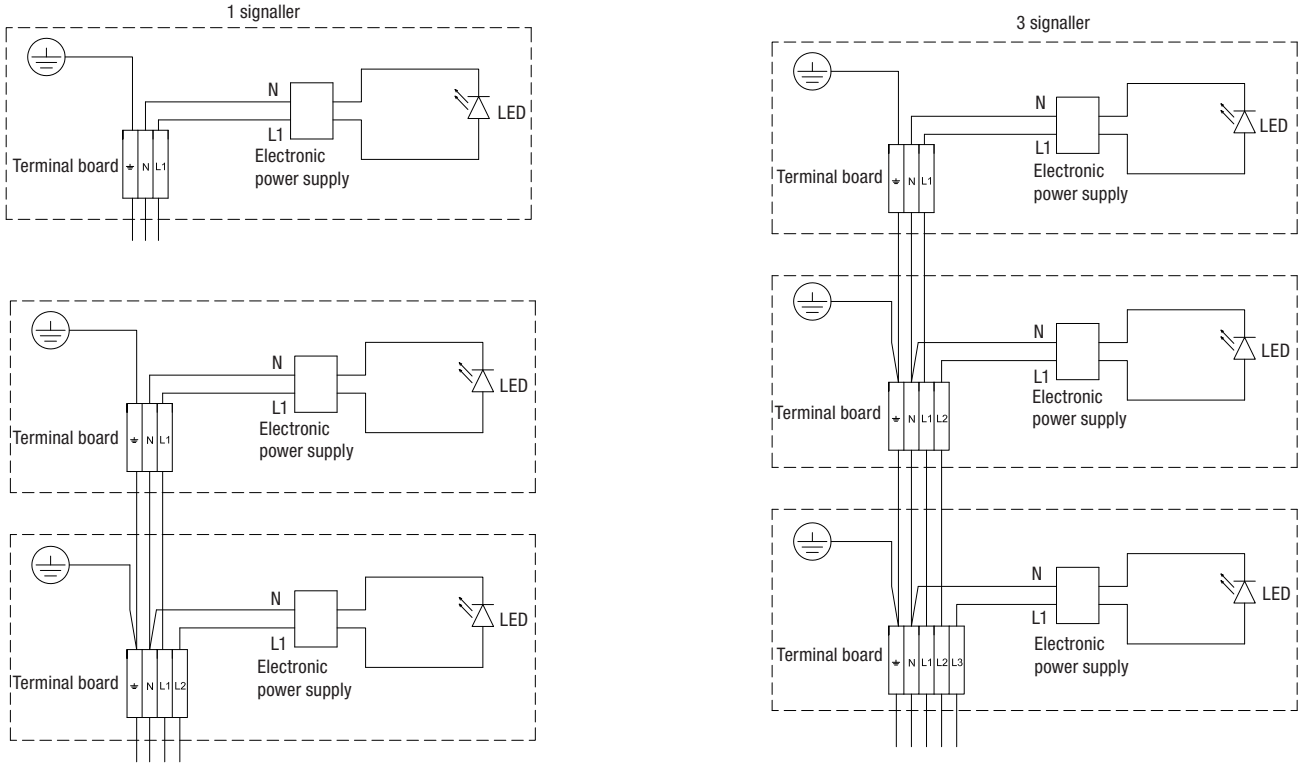
Accessories and spare parts available on request for CCA-02E/S...LD

ILLUSTRATION	DESCRIPTION	FEATURES	CODE	KEY
	Coloured prismatic polycarbonate lens	Red lens	G-572R	SPARE PART
		Yellow lens	G-572G	
		Green lens	G-572V	
	Fresnel lens	Material: polycarbonate	G-573	SPARE PART
	Protective hood	Material: black painted steel	K-320	SPARE PART
	Electronic power supply	240V ±10%	RV-11LED	SPARE PART
	Gasket	Material: NBR	K20-131	SPARE PART
	LED plate	Red LED board	G-614R	SPARE PART
		Yellow LED board	G-614G	
		Green LED board	G-614V	
	Cable gland	For models and codes, visit www.cortemgroup.com	FB2NBK FGAB2NBK	ACCESSORY SPARE PART

EXPLODED DIAGRAM OF CCA-02E/S1-3LD TRAFFIC LIGHT



WIRING DIAGRAM



LED traffic light units with Wi-Fi system

The Wi-Fi traffic light arose from the need to control dangerous roadway junctions, harnessing the technology of RF (radio frequency) communication.
It is common knowledge that individual units must communicate with one another for the purpose of coordinating the correct light colour to display to flowing traffic. The use of RF technology eliminates the need to dig up the road surface in order to "bury" the cables and / or sensors required in the systems used today.
In addition, Wi-Fi technology facilitates the use of a traffic light system in situations where a short-term solution, rather than a permanent installation, is required.

The units are available in two different combinations:

Model	Cortem custom products	Unit specifications
TL2LDWI	EJB-1A + CCA-02E/S2-4LD	Dual aspect R-G operation
TL3LDWI	EJB-1A + CCA-02E/S3-7LD	Three aspect R-Y-G operation

Both combinations are powered by mains electricity (100-240Vac, 50-60Hz).
The covers of the EJB-1A housings act as the control panel.
These are characterised by the following elements:
- Two indicator lights (red and green)
- A potentiometer for adjustment over time
- A five-position selector to set the operating mode

The EJB-1A housing contains:
- The TLCU circuit board
- The transformer
- Galvanic isolator for the installation of the antenna in hazardous areas

External antenna:
- Frequency range: 2400-2500MHz
- RF connector: N female
- Omnidirectional

Communication between the traffic lights (with $2 \leq n \leq 4$) which make up the "Traffic Light System" is performed by means of Master-Slave technology. For this reason, the traffic light system will always have a single Master device and at least one Slave device. To this end, the five position selector makes it possible for each traffic light to select from the following operating modes:

Selector position	Operating mode
OFF	System powered OFF
Master	Device on which it is possible to adjust and set the duration of time the aspects of the entire traffic light system are ON
Slave-1	Slave-1
Slave-2	Slave-2
Slave-3	Slave-3

Communication between Master and Slave-n is twoway. Therefore, the Slave-n transmits its status to the Master device and, at the same time, receives commands to switch the aspect ON. This information exchange occurs by means of RF serial communication via the UART peripheral of the TLCU microcontroller.
This peripheral interfaces with an XBee module which provides a RF transmission equivalent to communication via serial cable. Lastly, communication complies with the IEEE 802.15.4 protocol.

Principles of operation

Sequence for powering ON the traffic light system

The sequence for power ON the traffic lights is defined, unambiguous and must be performed in the following order:

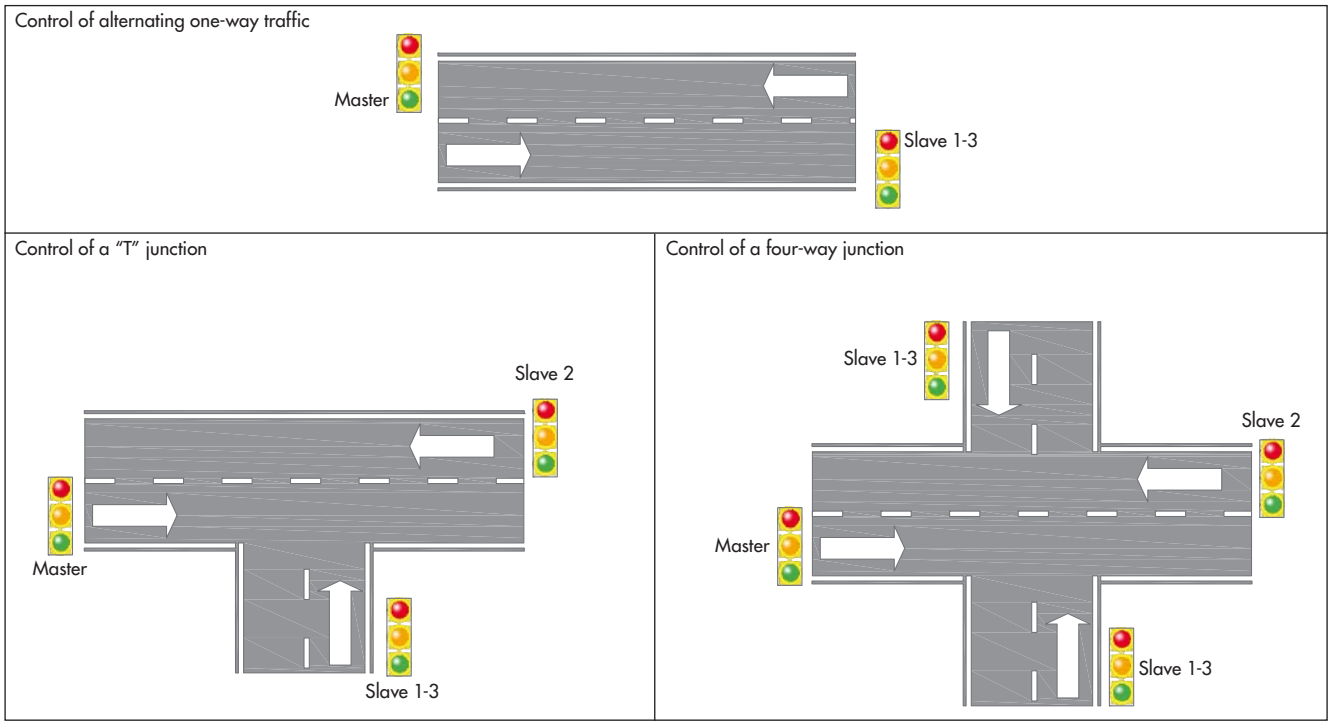
1. Slave-n devices are configured/powered ON
2. The Master device is configured/powered ON

This requirement derives from the fact that the Master, when powered ON, checks for the presence of other traffic light units. It then acquires the unique address (8+8 bit MAC address) of each unit which it will then use to control them. Therefore, if a Slave fails/powers OFF and has to be replaced, the Master must be restarted. In any event, in view of the internal reaction times, the correct activation Master and Slave-n is ensured, even if they are powered ON simultaneously.

Sequence for powering ON the aspects, and timings management

For the Master device, the powering ON sequence of the aspects is the reverse of the sequence used for the Slave-n device (with n = 1, 3). Conversely, the Master device has the same powering ON sequence as that of the Slave-2 aspects. For this reason it is recommended to select:

- Master + Slave-1/3 for streets with alternating one-way traffic
- Master + Slave-2 + Slave-1/3 three-way junctions
- Master + Slave-1 + Slave-2 + Slave-3 for four-way junctions providing traffic lights on a case by case basis as shown in the figure below::



Errors and fault signals

Each traffic light unit (two or three aspect units configured as Master or Slave-n) has specific operating statuses which, in the event of an error/fault, are reported by the two indicator lights located on the control panel.

Device status	Green indicator light	Red indicator light	Aspect status
Normal operation/Correct coordination	ON	OFF	According to sequence
Searching for Master/ Slave	Flashing	OFF	Flashing yellow if 3 aspects Flashing red if 2 aspects

Specifically, each device recognises the following errors:

- General power supply fault or no power (error Pwr_err)
- RF communication fault (module, antenna, interference...) (error RF_err)
- Aspect transformer fault (error 18V_err)

LFEE

- Zone 1, 2, 21, 22
- Group IIC
- LED lighting
- Stainless steel casing

'Ex op is'
safe optical radiation

LFEE emergency lighting fixture

The increased safety LFEE series emergency lighting fixtures are designed for lighting and identifying emergency exits or escape routes in the event of danger. The LFEE series consists of AISI 316L stainless steel casing, a tempered glass or UV-resistant poly-carbonate window printed with a pictogram and a resin LED strip light positioned at the distance required to guarantee 'Ex op is' protection. The emergency versions are fitted with a high-brightness LED indicator light that monitors battery operation and notifies the user in the event of a fault. It switches on automatically if there is a power failure and runs for up to 6 hours.
The red LED switches off to indicate that the batteries need replacing either because of a fault in the emergency circuit or because they are flat.

Sectors of application:

Petroleum refineries | Chemical and petrochemical facilities | Tanker loading/unloading areas | Tanker loading/unloading areas | Passageways | Emergency exits | Stair handrails | Perimeter zone lighting

CERTIFICATE DATA

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II 2GD Ex db eb mb op is IIC T... Gb - Ex tb op is IIIC T...°C Db IP 66			
Certificate:	ATEX CML 18 ATEX 3150X IEC Ex IECEx CML 18.0079X	For all IEC Ex and ATEX certificate data, download the certificate from www.cortemgroup.com		
Standards:	CENELEC EN 60079-0: 2012+A11: 2013, EN 60079-18: 2015, EN 60079-1: 2014, EN 60079-28: 2015, EN 60079-7: 2015, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/EU IEC 60079-0: 2017, IEC 60079-1: 2014-06, IEC 60079-7: 2015, IEC 60079-18: 2014, IEC 60079-28: 2015, IEC 60079-31: 2013 European Directive 2006/95 Low voltage European Directive 2004/108 Electromagnetic compatibility European Directive 2003/108 WEEE European Directive 2011/64 RoHS			
Temperature class:	60° (T6)	70° (T5)		
Ambient temperature:	Normal -30°C +45/55°C	With emergency -20°C +45/55°C		
Degree of protection:	IP66			

LFEE emergency lighting fixture

ORIGINAL PRODUCT

MECHANICAL FEATURES

Body and lid:	Stainless steel AISI 316L
Window:	Tempered glass or polycarbonate
Glass:	Tempered, resistant to high temperatures and shocks
Polycarbonate:	Highly transparent, resistant to UV rays and shocks
Gaskets:	Resistant to acid, hydrocarbon and high temperatures, positioned between the body and the lid.
Screws, bolts and nuts:	Stainless steel
Assembly:	4 fastening brackets in stainless steel AISI 316L
Entry points:	2 entry points diameter 20.5. Fixture complete with a PLG1IB plug and NAV20SIB cable gland

ELECTRICAL FEATURES

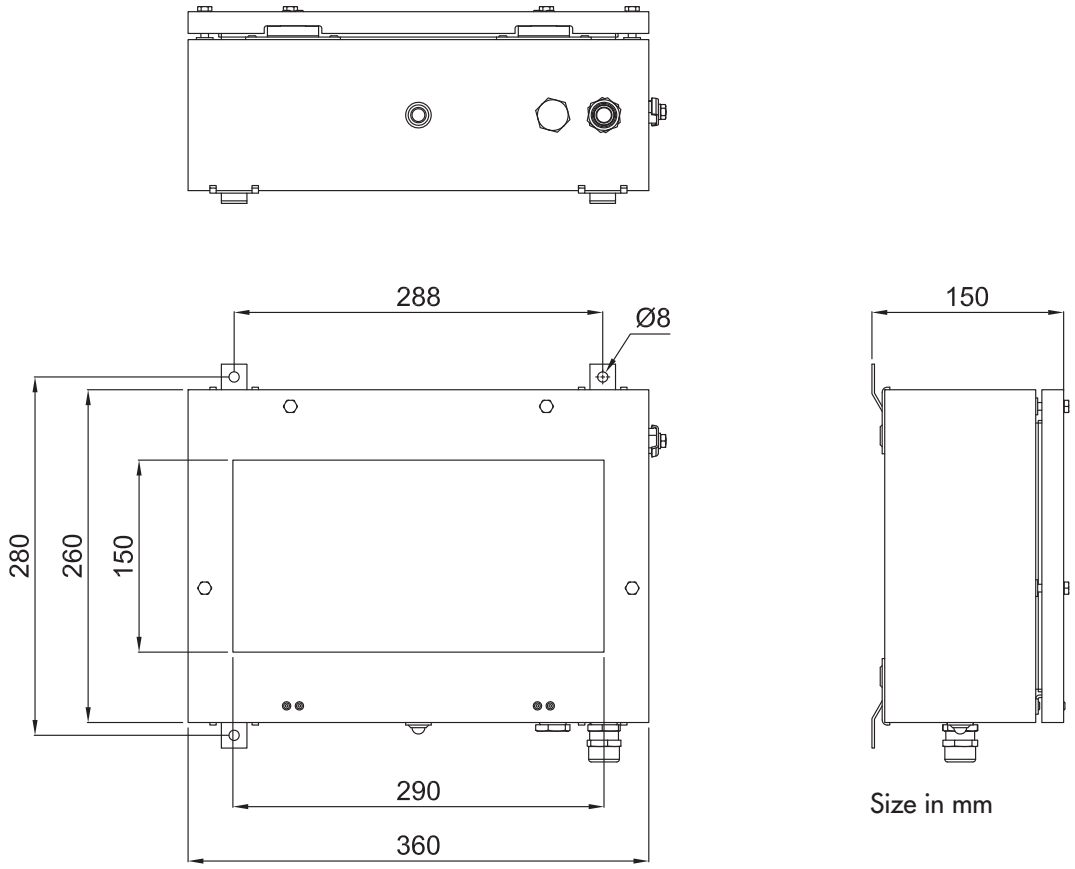
Autonomy in emergency mode:	6 hours
Rated voltage:	Normal operation only: 110-240 Vac / 127-240 Vdc Emergency operation only: 110-240 Vac / 110-240 Vdc Normal + emergency operation: 110-240 Vac / 127-240 Vdc
Rated frequency:	50/60 Hz
Connection:	Directly to the terminal board L, N, Pe cross sec. 4 mm^2, jumpered terminal board suitable for in-out
Emergency unit:	Electronic inverter 110/240 Vac 50/60 Hz, 110-270 Vdc. Batteries Ni/Cd, 4 Ah
Cabling:	Silicone rubber cables with braided fibreglass protection for high temperatures
Charge level:	High-brightness LED indicator light, consumption 20 mA, showing the battery charge level for emergency versions.

NOTE: the technical and electrical data may change without prior warning owing to continuous developments in LED technology.

ACCESSORIES UPON REQUEST / SPECIAL REQUESTS

Additional cable gland for in-out connection.
Pictogram with various words/lettering on request.

DIMENSIONAL DRAWING



Size in mm

CODES

LFEE - 112 [ ] [ ] [ ]

1 strip - 12 W

Operation
empty = normal
E = emergency only
N = normal + emergency

Transparent material
empty = glass
P = polycarbonate

Pictogram
empty = EXIT (EXIT)
/S = (exit left)
/D = (exit right)
/G = (exit straight ahead)
/T = (transparent)

Sample order code

LFEE-112EP/D
Lighting fixture, emergency version only, with exit right pictogram.

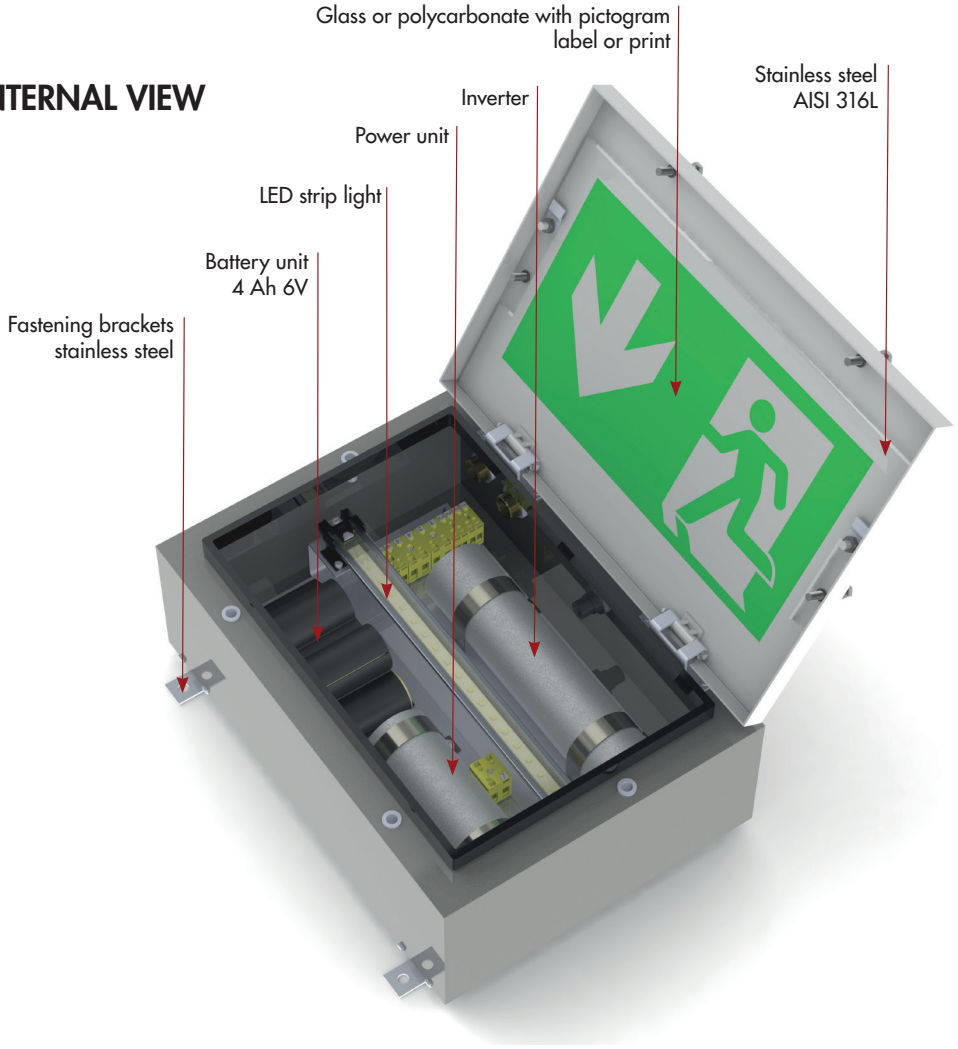
DO NOT FORGET TO ORDER THE ACCESSORIES

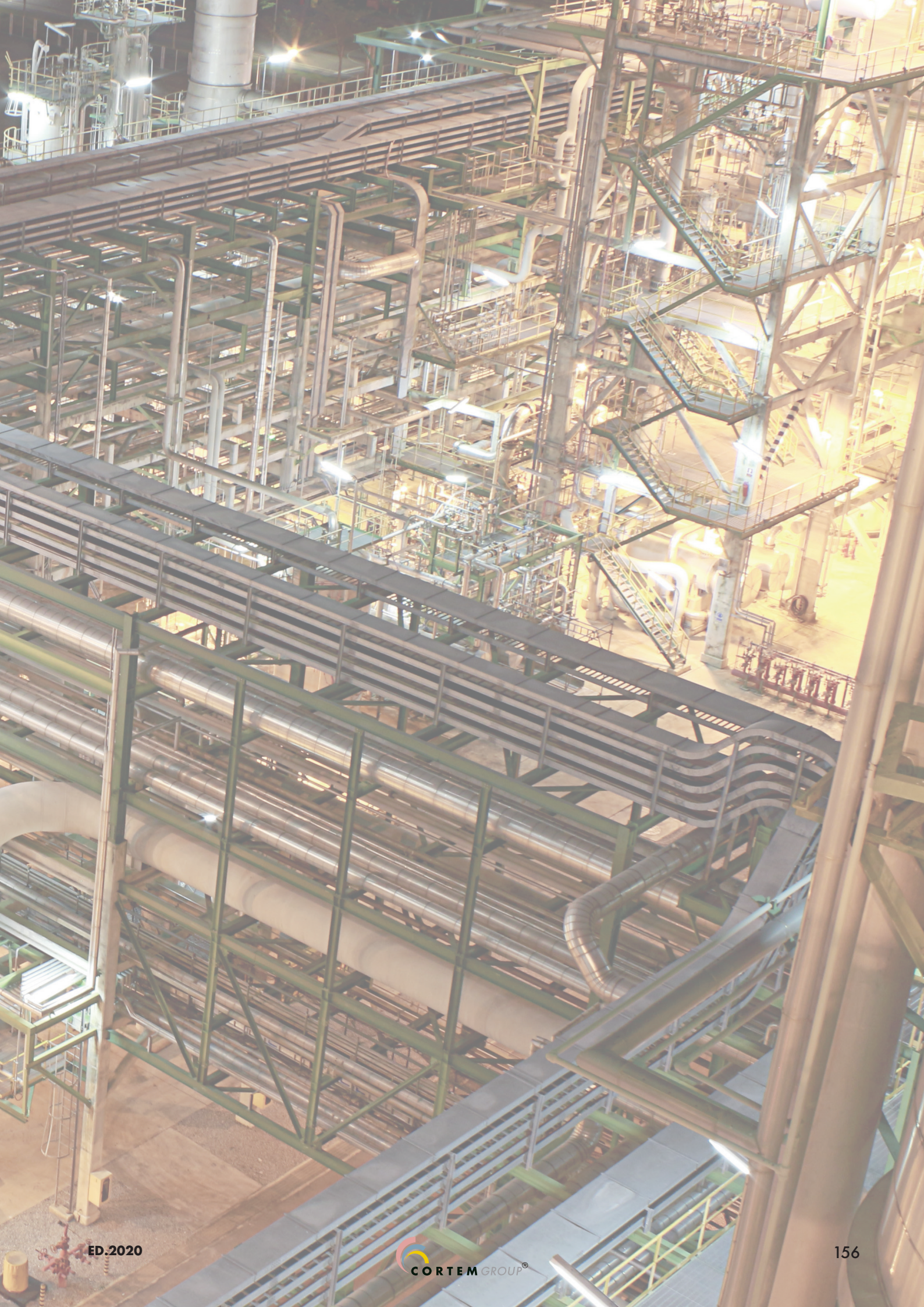
Example: Type of fixture LFEE- 112N/G + Cable gland (additional) NAV20SIB + Other (see legend)

LFEE emergency lighting fixture

ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	LEGEND
	LED strip light		Resin LED module	LTT8350E	
	Single LED		Colour: red	M-0487/330	
	Battery unit		4 Ah 6V NiCd	G-0309B	
	Inverter		110/240Vac 50/60 Hz, 110-270 Vdc	EI-30L/2	
	Power unit		110-240 Vac	EB208L	
	Additional cable gland	ISO M20	std. cable range: 6.3-14	NAV20SIB	

INTERNAL VIEW





LFED

- Zone 1, 2, 21, 22
- Group IIB+H_2
- LED lighting
- Aluminium casing
- Tempered front glass

'Ex op is'
safe optical radiation

LFED emergency lighting fixture

The explosion-proof LFED series emergency lighting fixtures are designed for lighting and identifying emergency exits or escape routes in the event of danger. The LFED series consists of low copper content aluminium alloy casing, a tempered glass window printed with a pictogram and a resin LED strip light positioned at the distance required to guarantee 'Ex op is' protection. The emergency versions are fitted with a high-brightness LED indicator light that monitors battery operation and notifies the user in the event of a fault. It switches on automatically if there is a power failure, and lasts between 3 and 5 hours depending on the capacity of the chosen batteries.
The red LED switches off to indicate that the batteries need replacing either because of a fault in the emergency circuit or because they are flat.

Sectors of application:

Petroleum refineries | Chemical and petrochemical facilities | Tanker loading/unloading areas | Tanker loading/unloading areas | Passageways | Emergency exits | Stair handrails | Perimeter zone lighting

CERTIFICATE DATA

Classification:	Group II	Category 2GD			
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)			
Marking:	CE 0722 Ex II 2GD Ex db op is IIB+H_2 T6 Gb - Ex tb op is IIIC T72°C Db IP 66				
Certificate:	ATEX EPT 18 ATEX 2969 X IEC Ex SEV 18.0018X TR CU AVAILABLE	For all IEC Ex and TR CU certificate data, download the certificate from www.cortemgroup.com			
Standards:	CENELEC EN 60079-0: 2012+A11: 2013, EN 60079-1: 2014, EN 60079-28: 2015, EN 60079-31: 2014, and EUROPEAN DIRECTIVE 2014/34/EU IEC 60079-0: 2017, IEC 60079-1: 2014, IEC 60079-28: 2015, IEC 60079-31: 2013 European Directive 2006/95 Low voltage European Directive 2004/108 Electromagnetic compatibility European Directive 2003/108 WEEE European Directive 2011/64 RoHS				
Temperature class:	72°C (T6)				
Ambient temperature:	Normal -60°C +60°C	With emergency -40°C +60°C			
Degree of protection:	IP66				

LFED emergency lighting fixture

ORIGINAL PRODUCT

MECHANICAL FEATURES

Body and lid:	Low copper content aluminium alloy
Front glass:	Tempered, resistant to high temperatures and shocks
Gasket:	Silicone resistant to acids, hydrocarbons and high temperatures
Screws, bolts and nuts:	Stainless steel
Fastening brackets:	Electrogalvanized steel
Entry points:	2 entry points ISO 20. Fixture complete with a PLG1IB plug and NAV20SIB cable gland
Coating:	Polyester RAL 7035 (Light grey)
Resistenza alla corrosione :	The STANDARD of the aluminium alloy used by Cortem has passed the tests required by standards EN60068-2-30 (hot-humid cycles) and EN60068-2-11 (salt fog test).

ELECTRICAL FEATURES

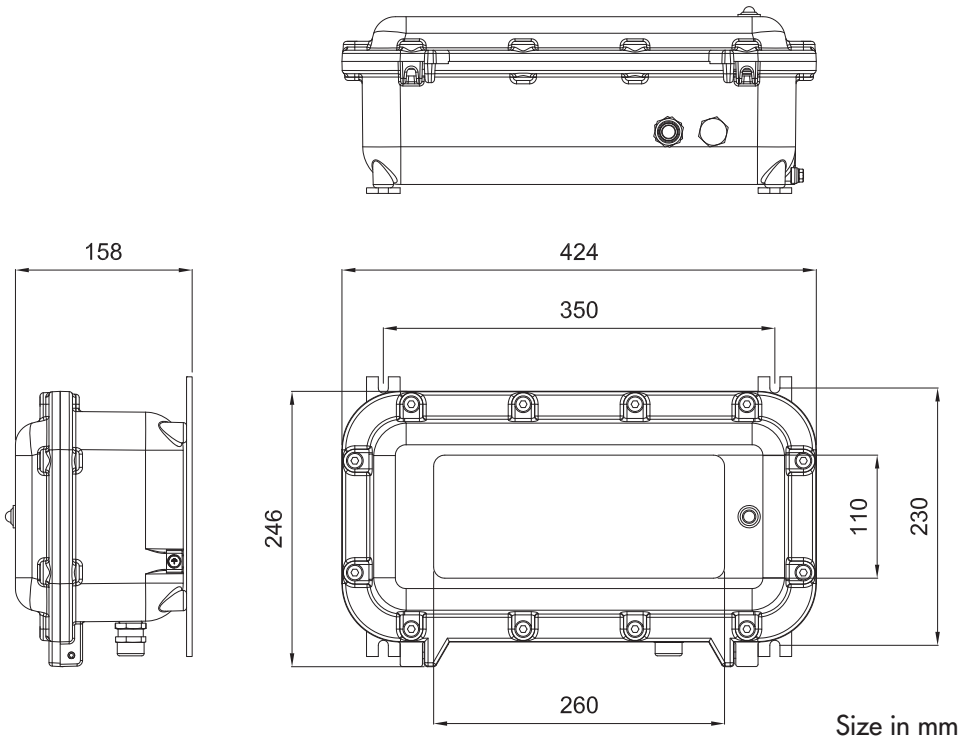
Autonomy in emergency mode:	2 Ah: 3 hours 2.5 Ah: 4 hours 3.1 Ah: 5 hours
Rated voltage:	Normal operation only: 110-277 Vac / 156-277 Vdc Emergency operation only: 110-240 Vac / 110-240 Vdc Normal + emergency operation: 110-240 Vac /156-240 Vdc
Rated frequency:	50/60 Hz
Connection:	Directly to the terminal board L, N, Pe cross sec. 4 mm^2, jumpered terminal board suitable for in-out
Emergency unit:	Electronic inverter 110/240 Vac 50/60 Hz, 110-270 Vdc. Batteries Ni/Cd or Ni/Mh
Cabling:	Silicone rubber cables with braided fibreglass protection for high temperatures
Charge level:	High-brightness LED indicator light, consumption 20 mA, showing the battery charge level for emergency versions.

NOTE: the technical and electrical data may change without prior warning owing to continuous developments in LED technology.

ACCESSORIES UPON REQUEST / SPECIAL REQUESTS

Additional cable gland for in-out connection.
Pictogram on request.
External polyester coating in a different colour or internal anti-condensation coating.

DIMENSIONAL DRAWING



Size in mm

CODES

LFED - 112 [ ] [ ] [ ]

1 strip - 12 W

Operation
empty = normal
E = emergency only
N = normal + emergency

Pictogram
empty = EXIT (EXIT)
/S = (exit left)
/D = (exit right)
/G = (exit straight ahead)
/T = (transparent)

Battery capacity
empty = 2.5 Ah
2 = 2 Ah
31 = 3.1 Ah

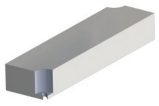
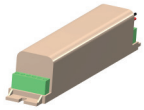
Sample order code

LFED-112N/G31
Normal + emergency version lighting fixture, with exit straight ahead pictogram, with 3.1 Ah batteries.

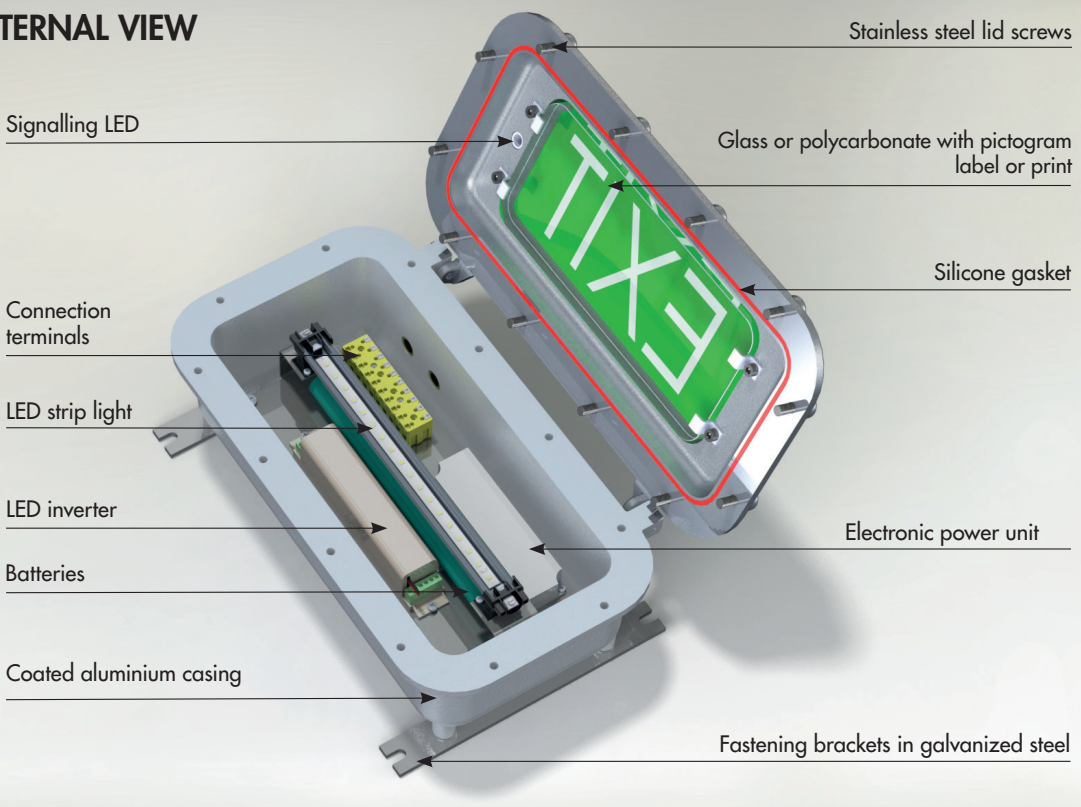
DO NOT FORGET TO ORDER THE ACCESSORIES

Example: Type of fixture LFED- 112N/S31 + Cable gland (additional) NAV20SIB + Other (see legend) ACCESSORY

LFED emergency lighting fixture

ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	LEGEND
	LED strip light		LED module (not resined)	LTT8350	SPARE PART
	Battery		Nickel-cadmium 2 Ah	BATT2AH/NC/BA	SPARE PART
			Nickel-cadmium 2.5 Ah	BATT2.5AH/NC/BA	
			Nickel-metal hydride 3.1 Ah	BATT3.1AH/NM/BA	
	Electronic power unit		110-295 Vac 156-277 Vdc	LEDDLFED-112	SPARE PART
	LED inverter		110/240 Vac 50/60 Hz 110/270 Vdc	INVERTER/LED/1	SPARE PART
	Single LED		Colour: red	M-0487/920	SPARE PART
	Fastening bracket		Material: galvanized steel	K2-237	SPARE PART
	O-ring between body and lid		Material: red silicone	K2-131/1S	SPARE PART
	Cable gland	ISO M20	std. cable range: 6,3÷11,6	NAV20SIB	ACCESSORY SPARE PART

INTERNAL VIEW



CCA-03EX

- Easy installation
- Low energy consumption
- New COB LED technology
- Zone 1, 2, 21, 22

CCA-03EX Lighting fixtures for safety warnings

The LED lighting fixtures for safety warnings CCA-03EX series is designed for installation in areas with risk of explosion where lighting may be stopped due to abnormal, unusual or accidental situations.
The CCA-03EX lighting fixture can be installed in indoor and outdoor environments and it can operate both in normal and emergency service, with a maximum duration of about 2 hours. In case of interruption of the supply voltage, electronics automatically turn on the lighting fixture. The optimal placement of the terminal strip allows a simple wiring, with the possibility of installing more equipment thanks to two threaded hubs studied for the through-wiring. CCA-03EX lighting fixture has a compact size and features two directional LED spotlights. The use of LED COB (Chip on Board) as light source, housed in a junction box with IP66 protection, allows high performance in terms of lumens, low maintanance costs and long life. The presence of reflectors specifically designed for this type of source allows to increase the lighting performance and to direct the light in a well-precise areas thanks to the directionality of the system. Battery replacement after a fault in the emergency circuit or due to battery exhaustion, is indicated by the red LED turning off. In case of emergency, the red LED turns off by activating the LED COB power supply through the battery.

Application sectors:

Oil refineries | Gas Chemical and petrochemical plants | Offshore plants | Fuel tanker loading/ unloading areas | Transit areas | Emergency exits | Stair handrails | Perimeter lighting

CERTIFICATION DATA

Classification:	Group II	Category 2GD			
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)			
Marking:	CE 0722 Ex II 2GD Ex d IIC T6 Gb - Ex tb IIIC T85°C Db IP66				
Certification:	ATEX CML 15 ATEX 1007				
	IEC Ex CML 15.0002	All IEC Ex, TR CU and INMETRO certification data can be downloaded at www.cortemgroup.com			
	TR CU AVAILABLE				
	INMETRO DNV 16.0173 X				
Standards:	CENELEC EN 60079-0: 2012, EN 60079-1: 2007, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2011, IEC 60079-1: 2014-06, IEC 60079-31: 2013				
Class temperature:	85°C (T6)				
Ambient temperature:	Standard -20°C +55°C				
Degree of protection:	IP66				

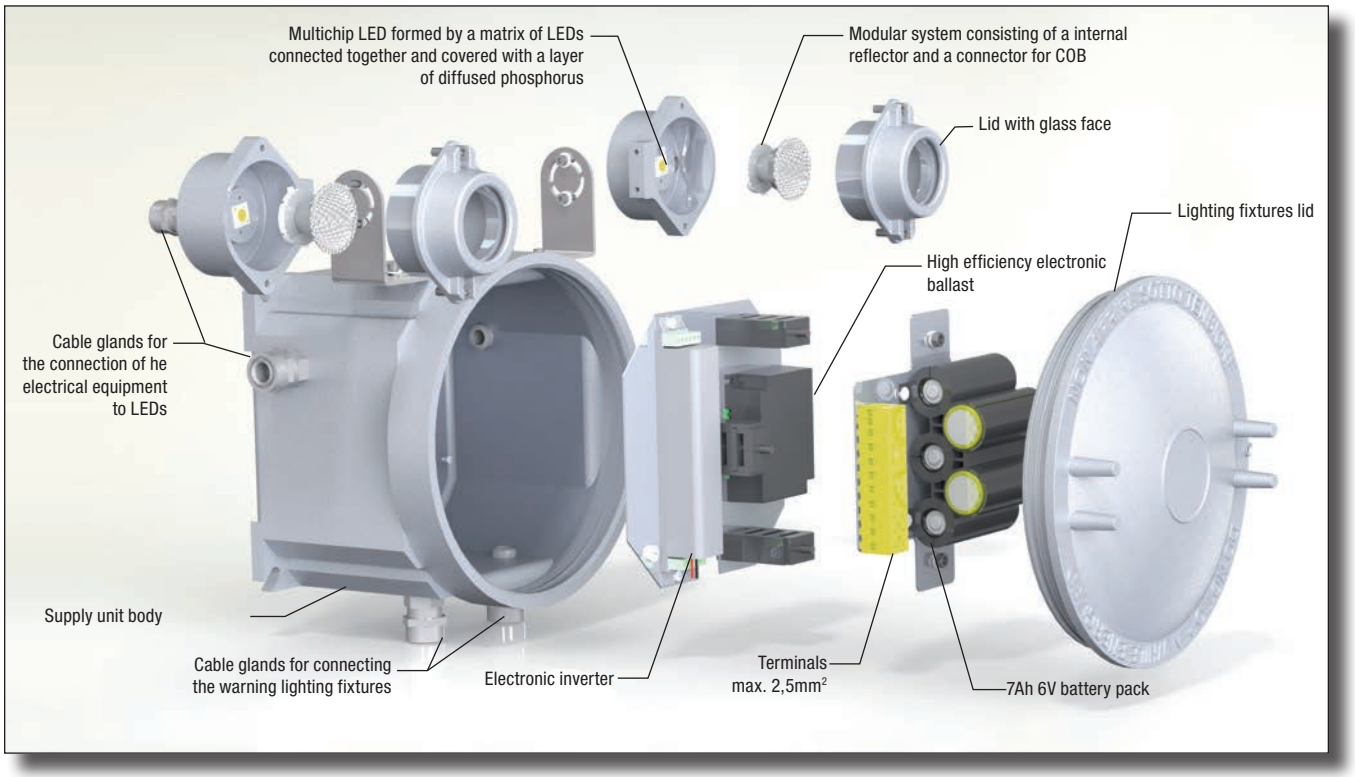
CCA-03EX Lighting fixtures for safety warnings

ORIGINAL PRODUCT

MECHANICAL FEATURES

Body and lid:	Low copper content aluminium alloy
Internal frames:	Stainless steel
External adjustable brackets:	Stainless steel
Glass face:	Shock and temperature resistant tempered glass
Gaskets:	Acid and hydrocarbon resistant silicone
Bolts and screws:	Stainless steel
Assembly:	See "Dimensional drawing CCA-03EX"
Entries:	2 x 1/2" NPT entries. Fixture kit with n.1 PLG1NB plug and n.2 FB1NBK cable gland
Coating:	Polyester coating Ral 7035 (Light grey)
Corrosion Resistance:	The STANDARD of the aluminium alloy used by Cortem has passed the tests required by standards EN60068-2-30 (hot/humid cycles) and EN60068-2-11 (salt mist tests)

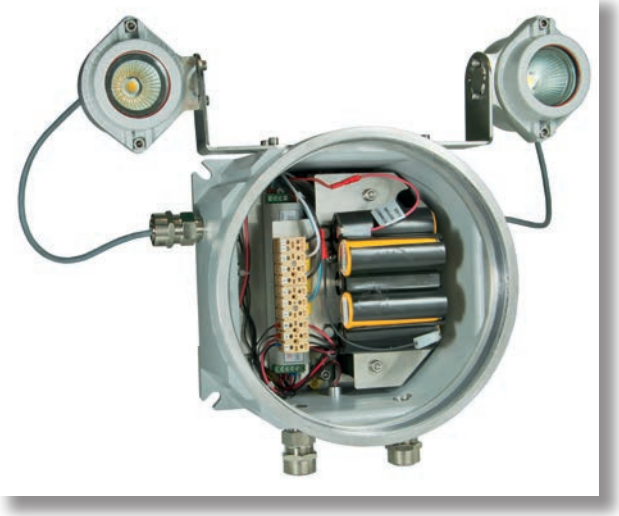
EXPLODED DIAGRAM OF CCA-03EX LIGHTING FIXTURES FOR SAFETY WARNINGS



CCA-03EX Lighting fixtures for safety warnings

Electrical features	CCA-03EX
Power supply:	110-240 Vac ±10%
Rated frequency:	50-60 Hz ±5%
Power consumption:	20 W
Connection:	Direct connection to terminal board L, N, PE. Section 2,5 mm2, suitable for loop-in/loop-out
Power factor:	>0,90
Rated current:	100 mA
EMC (electromagnetic compatibility):	EN 55015, EN 61000-3-2, EN 61000-4-..., EN 61547
THD (total harmonic distortion):	<20% 100-277 Vac
Over-voltage protection:	2 kV
Driver performances:	Over-Voltage protection, Over-Current protection, Short-Circuit protection
Battery:	7 Ah, 6 V. Discharge time 2 hours
Photometric features	
LED Multichip:	Cree CXA
Viewing angle:	30°
Colour temperature:	3500 K
CRI:	80
Instant Restrike:	YES
Lumen:	**595 lm (x2)**
Maximum light intensity:	**1968 cd (x2)**
Overall efficiency:	**59,5 lm/W**

DETAIL OF LED SPOTLIGHTS
LED spotlights adjustable both horizontally and vertically to allow the directionality of light.

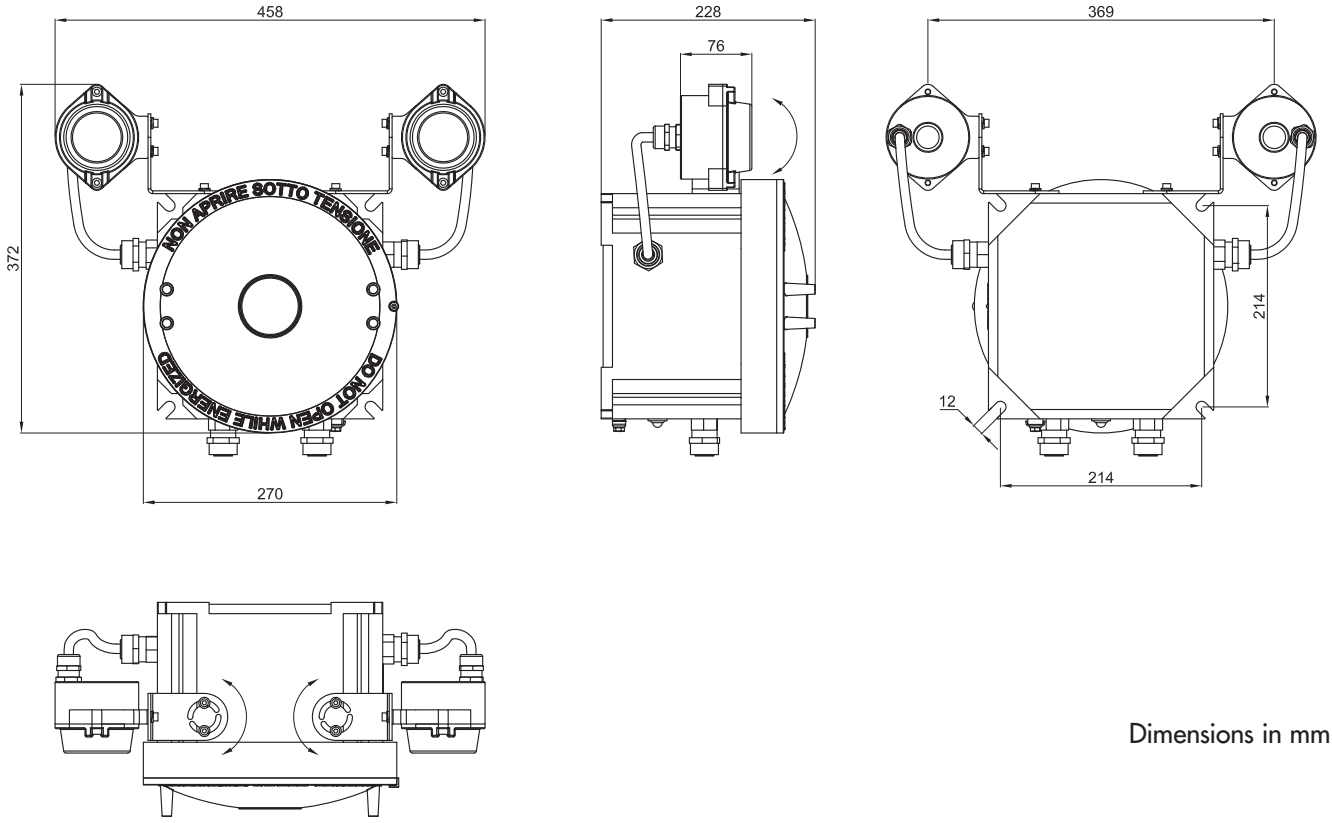


INSIDE VIEW
PInternal electrical part completely wired with silicone rubber cables with protective glass braid for high temperatures.

CCA-03EX Lighting fixtures for safety warnings

Code	Type Lamp	Watt	Class	Max surface temperature °C	Weight kg	mm
CCA-03EX	LED	20 W	T6	85	14	

DIMENSIONAL DRAWING



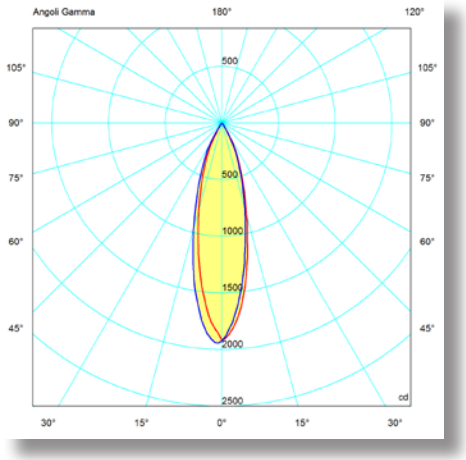
Dimensions in mm

ILLUSTRATION	DESCRIPTION	FEATURES	CODE	KEY
	Driver	110-240 Vac	**LEDDCCA-03EX**	SPARE PART
	Electronic inverter	90/264 V	**INVDCCA-03EX**	SPARE PART
	Battery pack	7 Ah 6V NiCd	**G-0309**	SPARE PART

CCA-03EX Lighting fixtures for safety warnings

ILLUSTRATION	DESCRIPTION	FEATURES	CODE	KEY
	Lid with glass face	Material: aluminium lid tempered glass	M-0390	SPARE PART
	Gasket between body and cover	Material: silicone	K27-131S	SPARE PART

Example of lighting design made using CCA-03EX lighting fixtures for safety warnings



CCA-03EX Luminous flux: 600 lm

On Cortem Group web site you can download .LDT and .IES lighting data files for the design and simulation of lighting levels in 2D and 3D, rendering and ray tracing.

= plane 90270
= plane 0180

EVF-18X

- **Suitable for lighting escape routes and emergency exits**
- **LED battery monitoring**
- **For 8W fluorescent tubes**

LED battery monitoring

Lamp cover for replacing fluorescent tubes

EVF-18...X series Lighting fixtures for safety warnings

EVF-18...X series emergency lamps comply with ATEX Directive 2014/34/UE. They are certified to be installed in Zones 1, 2, 21 and 22. They also fully comply with Directive EN 60598-1 as regards the section on "emergency lamps". These lamps have been specially designed for high performance emergency lighting in areas with little overhead room especially near emergency exits or escape routes. EVF-18...X 8 Watt fluorescent tubes are fitted with electronic ballast. The red/green LED monitors battery function and warns the user in the event of a failure. In the event of a power failure, the system comes on automatically.

Application sectors:

Oil refineries | Chemical and petrochemical plants | Emergency exits | Offshore plants | Transit areas | Stairs Handrails | Farm produce applications | 100% Cortem product

CERTIFICATION DATA

Classification:	Group II	Category 2GD			
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zona 21 - zona 22 (Dust)			
Marking:	CE 0722 Ex II 2GD Ex d IIC T5 - Ex tD A21 IP 66				
Certification:	ATEX CESI 03 ATEX 098				
Standards:	CENELEC EN 60079-0: 2006, EN 60079-1: 2007, EN 61241-0: 2006, EN 61241-1: 2004, EN 60598-1:2008+A11:209, EN 60598-2-1_1989, EN 61547: 2009 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2004, IEC 60079-1: 2007, IEC 61241-0: 2004, IEC 61241-1: 2004 European Directive 2006/95 Low voltage European Directive 2004/108 Electromagnetic compatibility European Directive 2003/108 WEEE Waste electrical and electronic equipment European Directive 2011/64 RoHS				
Class temperature:	100°C (T5)				
Ambient temperature:	-20°C +55°C				
Degree of protection:	IP66				

EVF-18...X series Lighting fixtures for safety warnings

ORIGINAL PRODUCT

MECHANICAL FEATURES

Body:	Low copper content aluminium alloy
External tube:	Shock and high temperature resistant borosilicate glass
Seal:	Silicone resin between the aluminium heads and the glass tubes
Gaskets:	Acid/hydrocarbon resistant NBR
Bolts and screws:	Stainless steel
Mounting:	2 x galvanised steel brackets with Ø9 slots
Entries:	2 x 3/4" threaded NPT. Lighting fixture complete with 1 x PLG2NA aluminium plug
Coating:	Polyester coating Ral 7035 (Light grey)
Corrosion Resistance:	The STANDARD of the aluminium alloy used by Cortem has passed the tests required by standards EN60068-2-30 (hot/humid cycles) and EN60068-2-11 (salt mist tests)

ELECTRICAL FEATURES

Lamp holder:	Bi-pin G5
Ballast:	Electronic
Rated voltage:	230 V AC
Rated frequency:	50/60 Hz
Connection:	Direct to connectors fitted to electronic board L, N, Pe section 0.5 mm^2 terminal board with jumpers for input/output
Emergency unit:	**B**atteries Ni/Cd 2.5 Ah - 6,5 V The LED is used to monitor battery function: the green LED indicates that the lamp is charged and red indicates a faulty battery
Wiring:	Silicone rubber cables with glass braid protection against high temperatures

ACCESSORIES AVAILABLE / SPECIAL REQUESTS

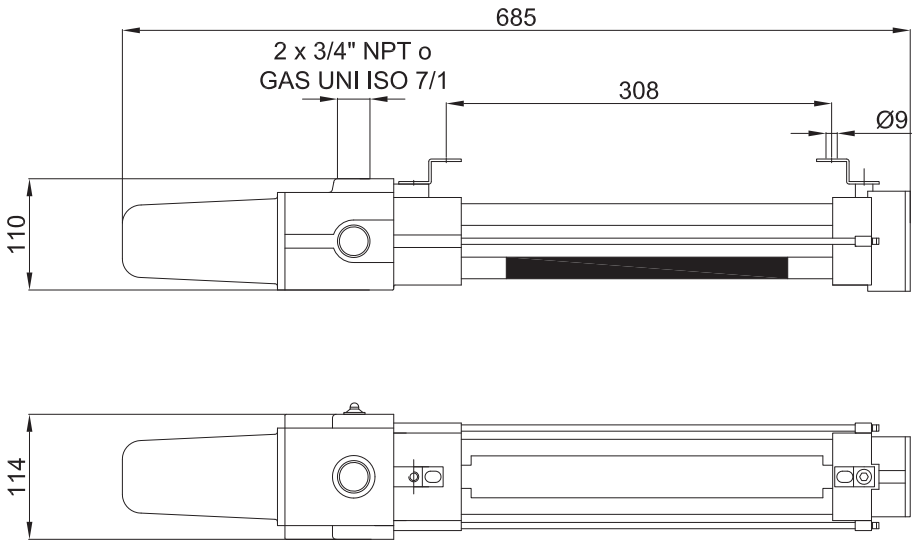
2 pin Ø16 fluorescent tubes model T5
Installation mounting brackets
Cable gland: FGAB2NBK for armoured cable or FB2NBK for non-armoured cable
Warning signs to be requested during ordering
Rated voltage: 120 V (code EVF-18ENX/**120**)
GAS UNI ISO 7/1 thread

EVF-18...X series selection chart

Code	Lamp n°	Operating type	Power supply	Watt	Discharge time of batteries	Weight kg	mm
EVF-18X	1	normal	230V 50/60Hz	8	-	3,15	1175x120x155
EVF-18EX	1	emergency only	230V 50/60Hz	8	150'	3,40	1175x120x155
EVF-18ENX	1	normal + emergency	230V 50/60Hz	8	150'	3,50	1175x120x155

DIMENSIONAL DRAWINGS

Dimensions in mm



DON'T FORGET TO ORDER THE ACCESSORIES

Example: Type of lighting fixture EVF-18EX + Fluorescent tubes LAMP-L18W21 + Installation bracket G-258 + Cable gland FB2NBK + other...see key

Standard pictograms to be applied on glass tube

Reference standard: D. LGS. 81 del 09/04/08 V, Directive 92/58/CEE, UNI EN ISO 7010

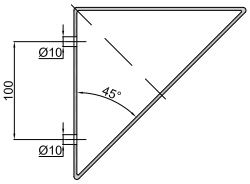
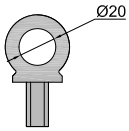
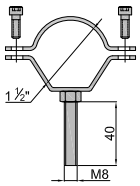
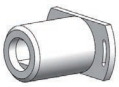
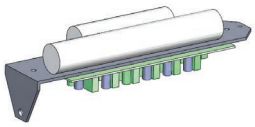
U-420/SX

U-420/S

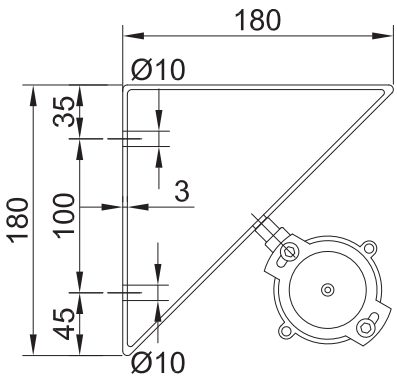
U-420/DX

U-420/G

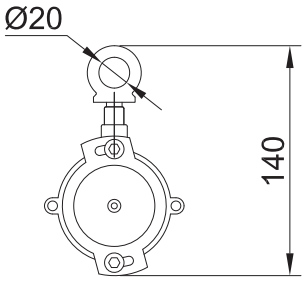
Series EVF-18...X Accessories and spare parts available on request

ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	KEY
	Triphosphor fluorescent tubes G5 fitting	8 W (FD8W)	430 lm	LAMPL8W21	ACCESSORY SPARE PART
	Standard pictograms to be applied on glass tube		Material: Translucent film	Upon request	ACCESSORY SPARE PART
	Tige	Length: 250 mm	Material: stainless steel	BRF8MIN/250	ACCESSORY SPARE PART
	Type D bracket complete with screws		Material: bracket: galvanised steel screws: stainless steel	G-0611	ACCESSORY SPARE PART
	Type O eyebolt		Material: galvanised steel	GOF-8	ACCESSORY SPARE PART
	Type P bracket		Material: galvanised steel	G-0480	ACCESSORY SPARE PART
	Pressacavo		Per modelli e codici dei pressacavi vedi sito www.cortemgroup.com	FB2NBK FGAB2NBK	ACCESSORY SPARE PART
	External frame for warning sign upon request		For models and codes, visit www.cortemgroup.com	G1-0591	ACCESSORY SPARE PART
	Lamp holder	G5 fitting	230V 4A	G-0448	SPARE PART
	Frame with battery pack and electronic board	EVF-18X	230V 50/60Hz normal operation	G-0452	SPARE PART
		EVF-18EX	230V 50/60Hz emergency only	G-0451	
		EVF-18ENX	230V 50/60Hz normal + emergency	G-0451/1	
	Battery pack	EVF-18EX EVF-18ENX	Ni-Cd 2,5 Ah - 6,5 V	BATT2,5AH/NC	SPARE PART

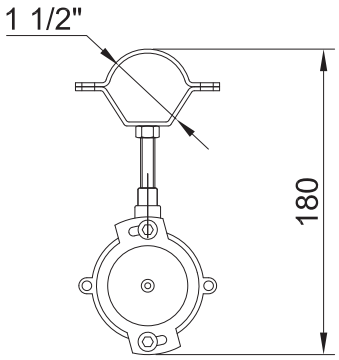
Installation and mounting methods EVF-18...X series



45° angle mounting
TYPE "D"



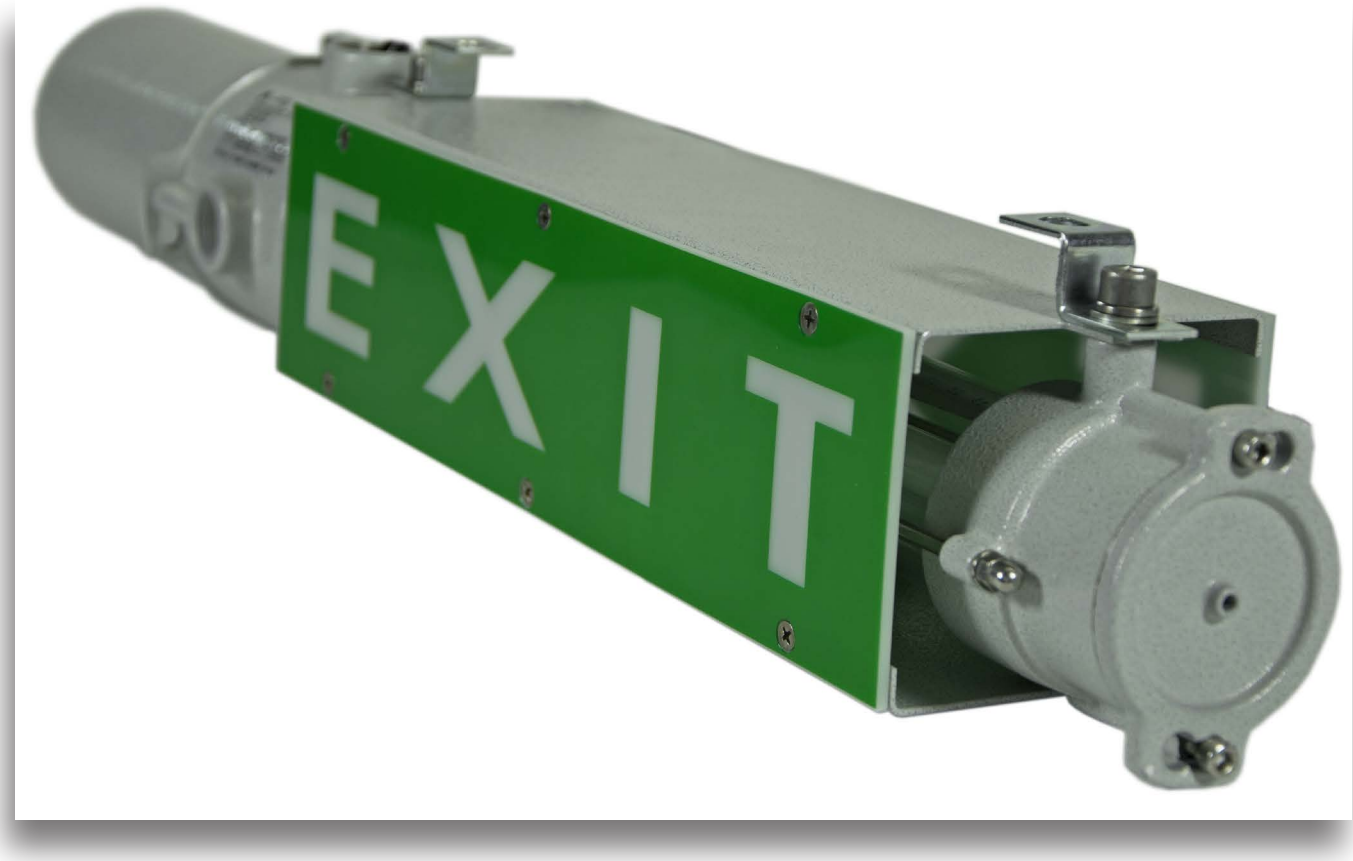
Pendant mounting
with eyebolt TYPE "O"



Mounting with
metal clamps 1.1/2" TYPE "P"

Dimensions in mm

Lighting fixture EVF-18EX with accessory G1-0591



Product modifications and warranty

Cortem Group reserves the right, at its sole discretion, to make any modifications (at any time and without notice) in order to improve the functionality and performance of its products or meet technical and manufacturing requirements. The measurements and drawings of the products and their parts are indicative only and not binding, because they can be modified without notice.

The latest updated information, data and certificates of our products are available on www.cortemgroup.com web site.

All Cortem Group products are covered by warranty for a period of twelve months from the delivery date. For more information, refer to the “General Terms and Conditions of Sale” on www.cortemgroup.com web site.

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