



LED Lighting Solutions

2023

Explosion-protected electrical equipment



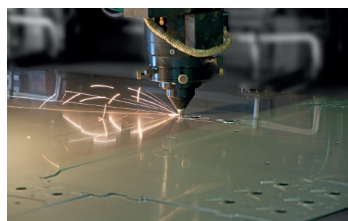
CORTEM
GROUP



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 sparking, 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.

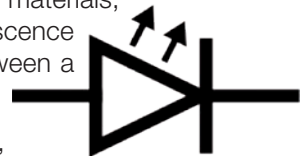
Ensuring an adequate level of illumination of the plants is one of the main problems observed, in order to guarantee the safety in the workplace. In particular, the lighting fixtures addressed to electrical system installed in areas with danger of explosion are designed with even greater attention to 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%.

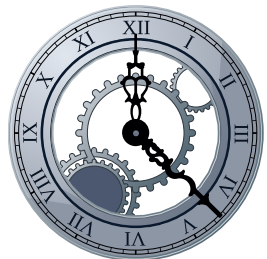


- **Increased duration**

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.



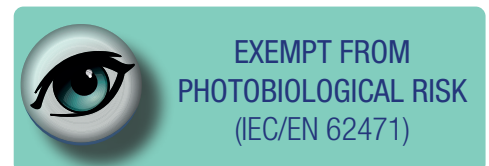
- **Low light pollution**

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, SLED, EVNL, EVL, LIFEX, EXEL-L 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 these lighting fixtures, 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 enclosed 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 or **lm**.

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)**. 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: $R_a \geq 90\%$
- 1B: $80\% \leq R_a < 90\%$
- 2: $60\% \leq R_a < 80\%$
- 3: $40\% \leq R_a < 60\%$
- 4: $20\% \leq R_a < 40\%$



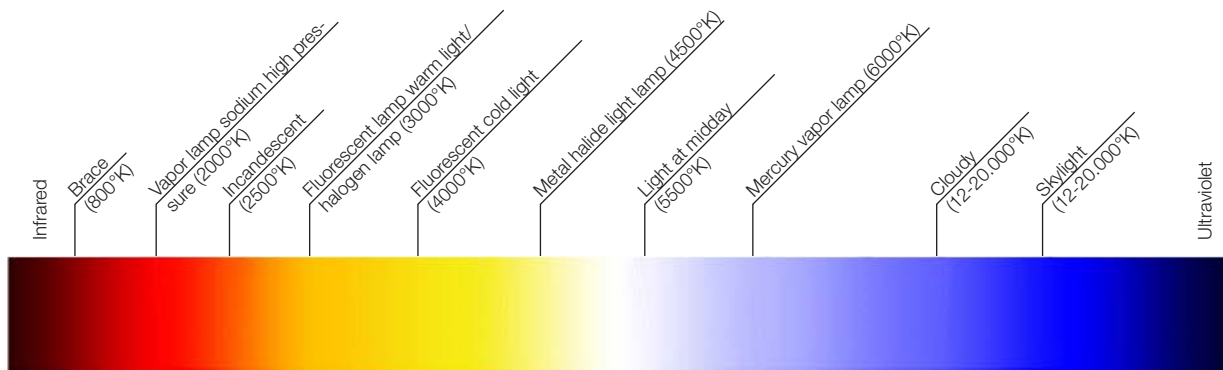
The luminous efficiency: it's the relation between the flux emitted by a light source and the electric power consumption expressed in Watts. It's denoted by Φ/P and measured in **Lm/W**.

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.

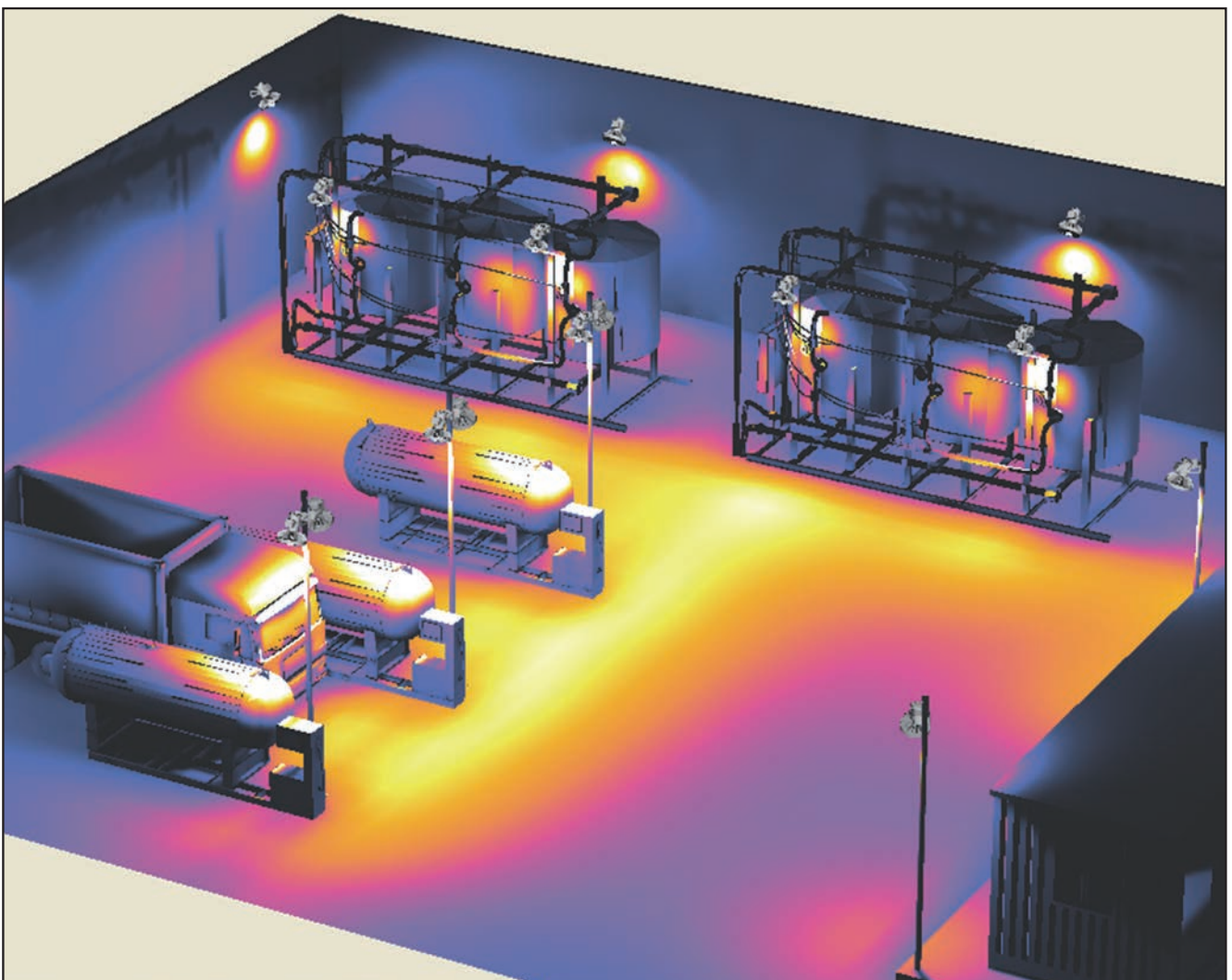


- **Comparison between traditional light sources and lighting fixtures with LED technology**

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.

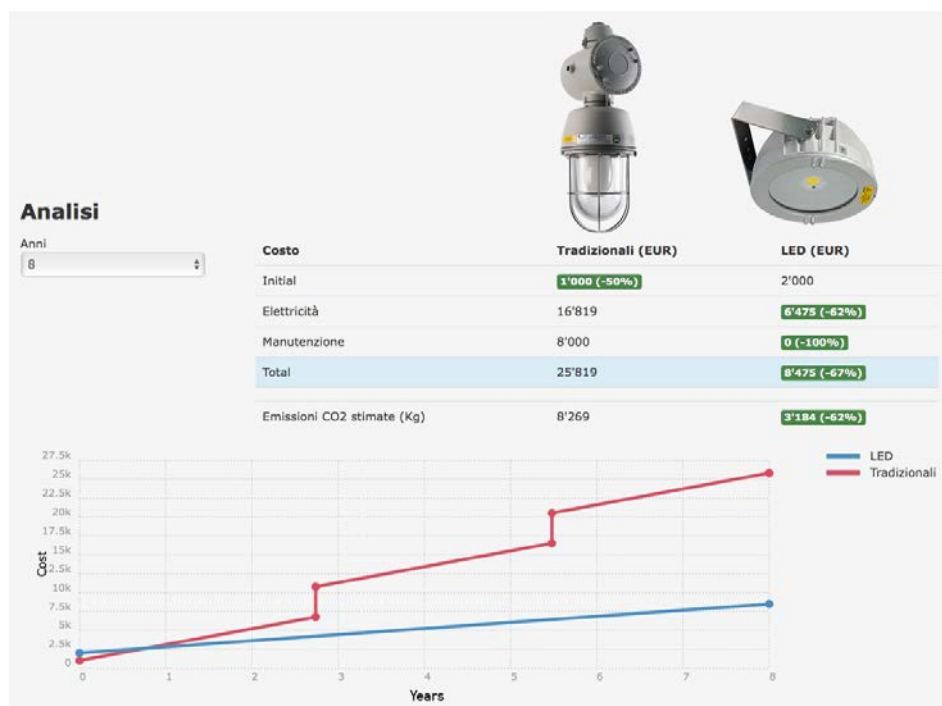


Calculation of ROI (Return On Investment)

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 L₉₀, L₇₀ and L₅₀. 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 Wattage	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

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					Pendant	Ceiling	Pole	Wall	Structure	Indoor	Outdoor	Signalling	Inspection	Emergency	
	Lighting fixtures with LED Tube series EXENC-L	7383	52	142	•	•	•	•	•	•	•				109
	Torçe 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*



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

TR CU AVAILABLE

All IEC Ex and TR CU certification data can be downloaded at www.cortemgroup.com

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 2004/108 Electromagnetic compatibility
European Directive 2012/19/UE, 2002/96/CE, 2003/108/CE WEEE
European Directive 2011/65/UE RoHS

Class temperature:



80°C (T6)

Ambient temperature:



EV..5060L1
-20°C +40°C



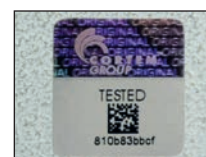
EV..5050L EV..5060L
-20°C +50°C



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.

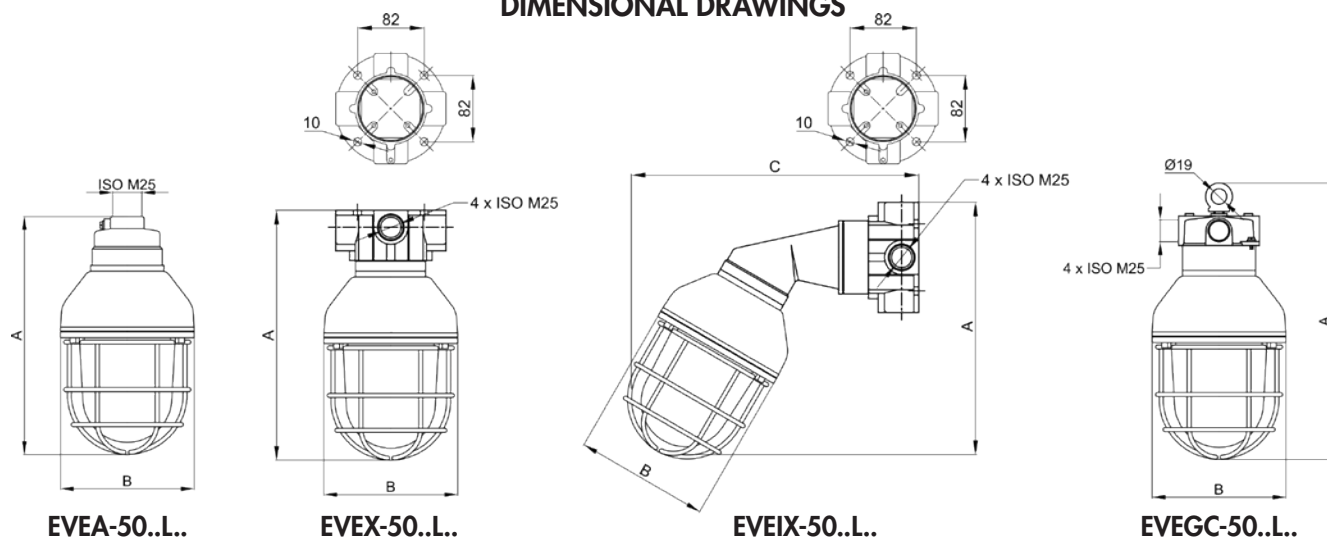
Special request  2GD Ex d IIC T6 Gb Ex tb IIIC T85°C IP66 . Code example: EVA-5050L

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

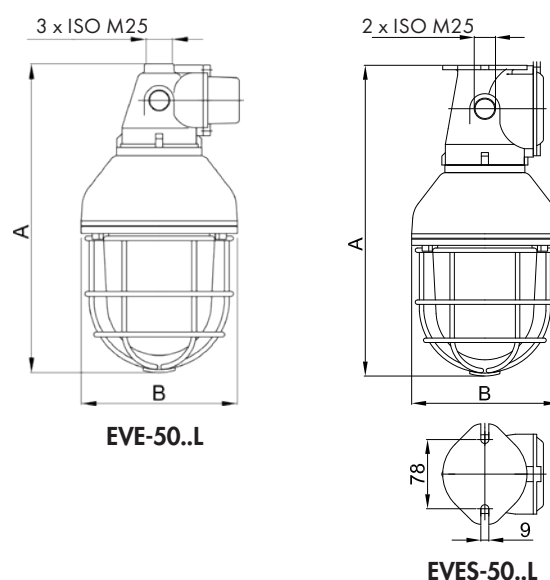
DIMENSIONAL DRAWINGS



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



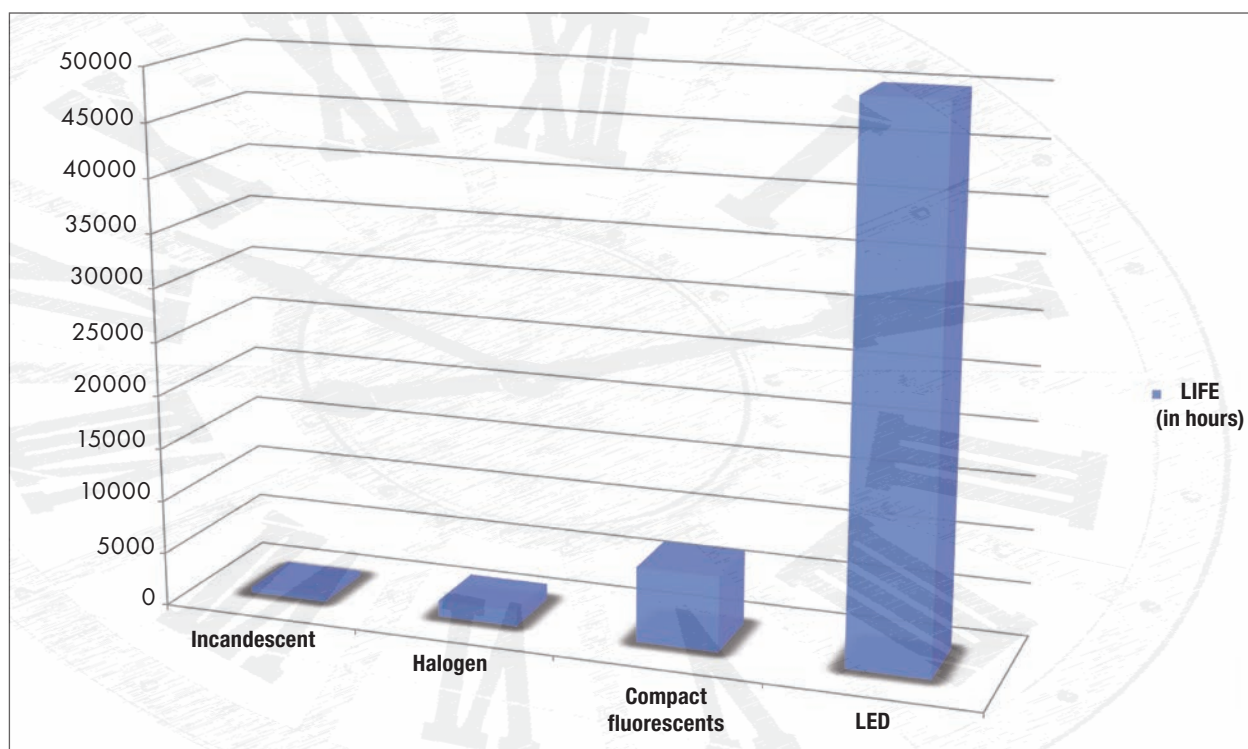
EVE...L series Accessories and spare parts available on request

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	
		EVE-5060L EVE-5060L1	n. 7 power LEDs. Diffuser in polycarbonate. Aluminium dissipator and frame	G-0572/1	
	Power supply electronic	EVE-5050L	90 - 264 Vac 50/60 Hz	RT-6LED	
		EVE-5060L	220 - 240 Vac 50/60 Hz	RV-16LED	
		EVE-5060L1	220 - 240 Vac 50/60 Hz	RV-17LED	
	Protective guard	EVE-5050L	Material: electro-polished stainless steel	G50-0417	
		EVE-5060L		G60-0417	
	OR gasket	Globo 50	Materiale: NBR	OR-4512SH70	
		Globo 60		K15-131	
	Ex e pendant mounting EVE		3 x ISO M25	G-0444	
	Ex e pendant mounting EVES		2 x ISO M25	G-0439	
	Globe with shade ring	EVE-5050L	Borosilicate glass globe Threaded aluminium shade ring	G50-0440CM	
		EVE-5060L		G60-0440CM	
	Pendant eyebolt		Material: galvanised steel	G0F-8	

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 instal- lation and mounting methods)		Material: galvanised steel	G-0543	 
	Warning signs on the frame	On request	Materials: translucent film on plexi- glass and aluminium frame	G-0513	 

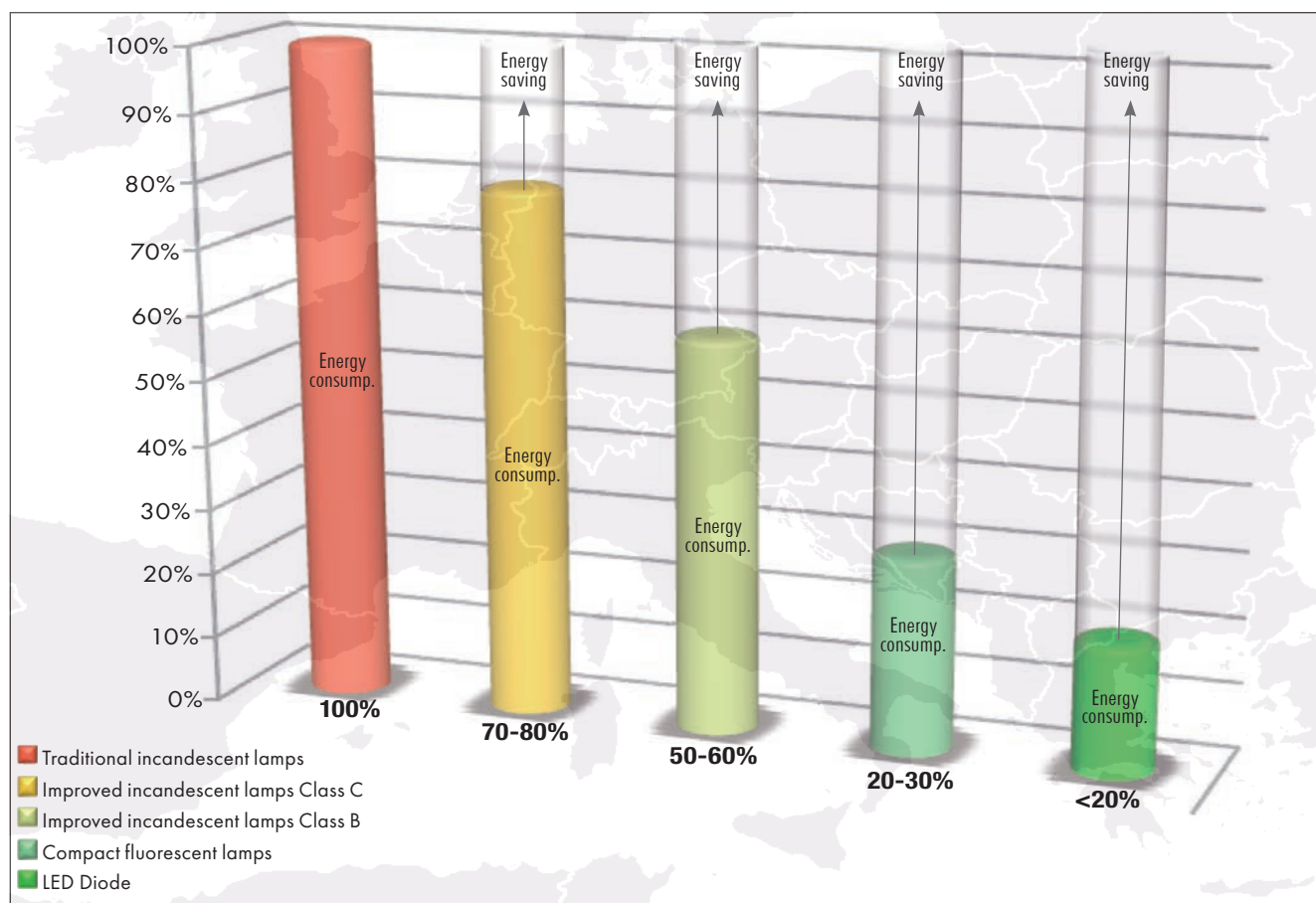
Estimate of average life period between several types of lamps



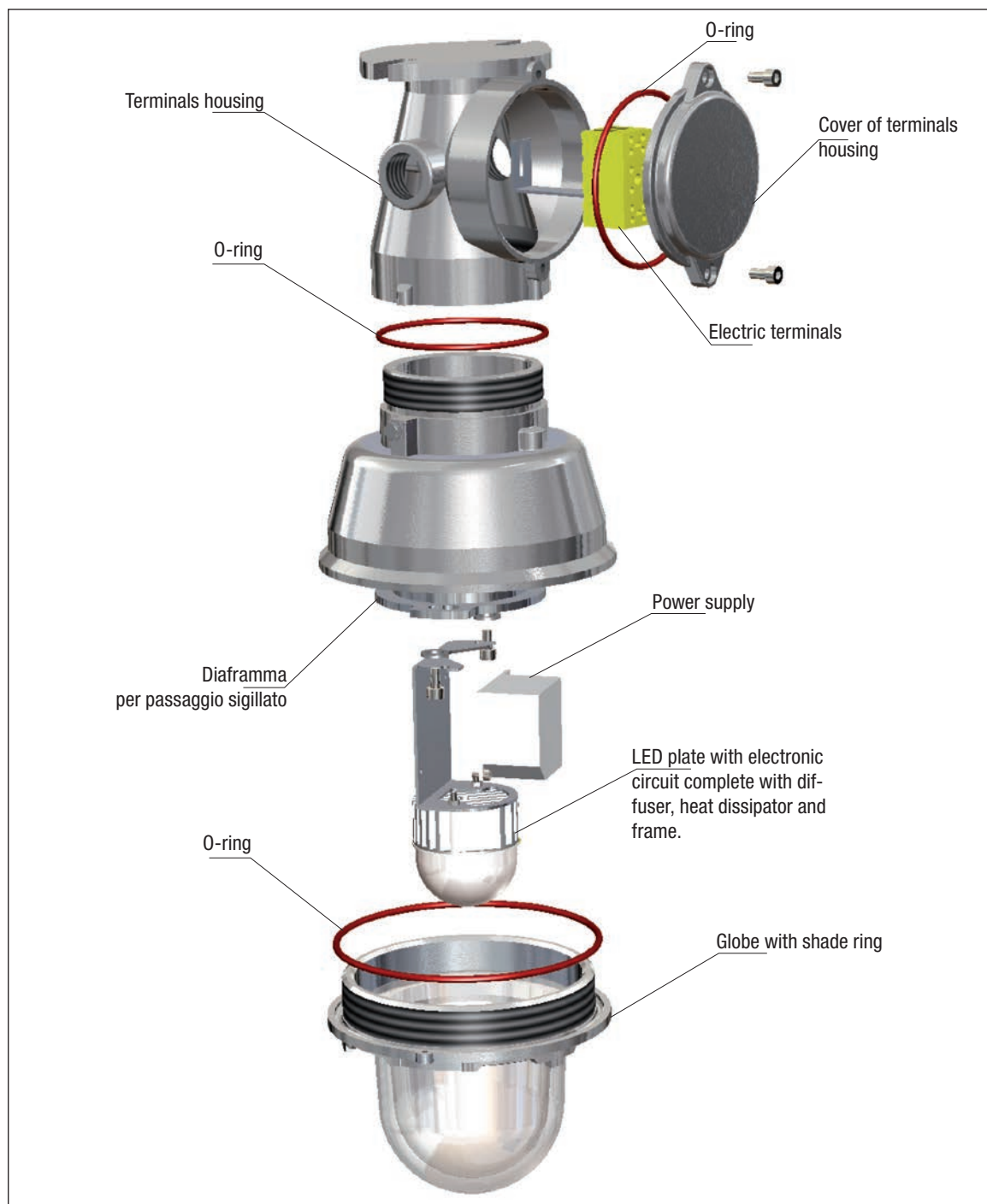
The respect of two basic conditions, the internal temperature and the intensity of current, guarantees a life of LEDs equal to 100,000 hours.

Comparison of consumption between different types of lamps

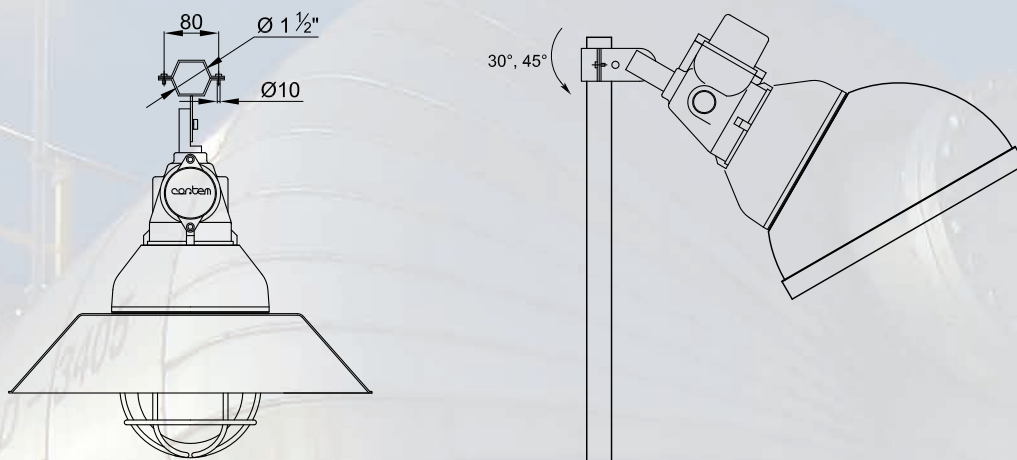
The return investment is 18 to 24 months without considering the savings in maintenance costs.



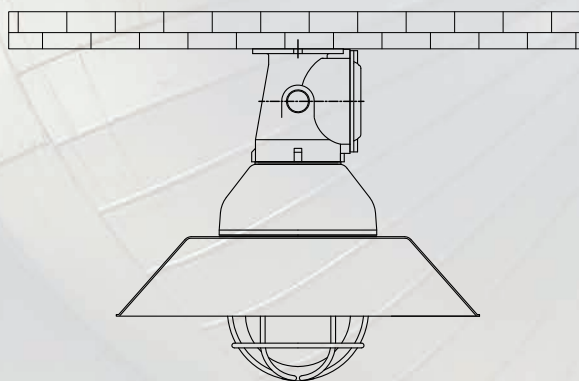
EXPLODED DIAGRAM OF EVE-5050L LIGHTING FIXTURES



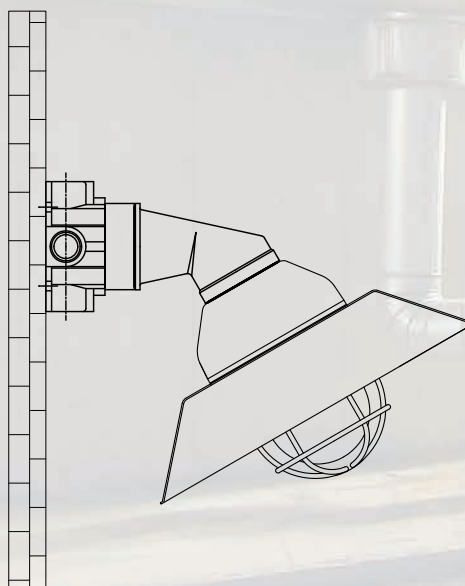
Example of mounting with articulated bracket



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

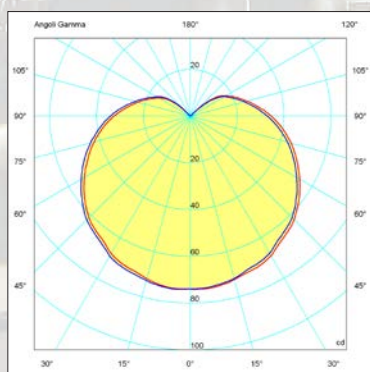
			
EVE-5050L (8W) LED	EVA (15W) Fluorescent	EVA (50W) Halogen	EVA (75W) Incandescent

EVE-5060L, PEACK CD EQUIVALENTS

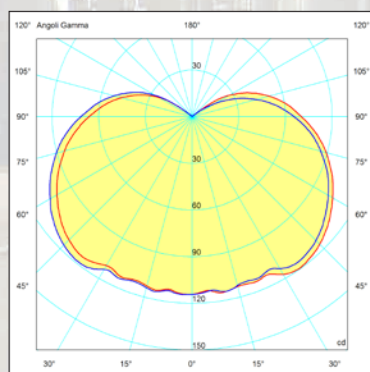
			
EVE-5060L (13W) LED	EVA (30W) Fluorescent	EVA (110W) Halogen	EVA (150W) Incandescent

EVE-5060L1, PEACK CD EQUIVALENTS

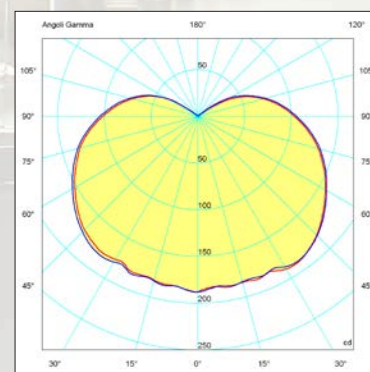
			
EVE-5060L1 (17W) LED	EVA (40W) Fluorescent	EVA (150W) Halogen	EVA (200W) Incandescent



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

*Painted aluminium
body*

Supporting bracket

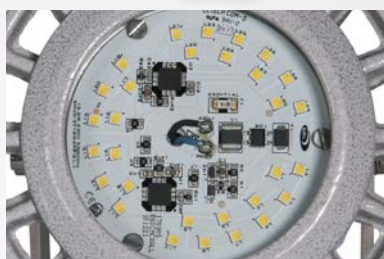
Cooling fins

Tempered glass

*LED resin-bonded electronic
board*

Orientable bracket detail

*Lighting fixture with round
windows detail*



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:



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

TR CU DISPONIBLE

All IEC Ex and TR CU certification data can be downloaded at www.cortemgroup.com

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 2004/108 Electromagnetic compatibility
European Directive 2012/19/UE, 2002/96/CE, 2003/108/CE WEEE
European Directive 2011/65/UE 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

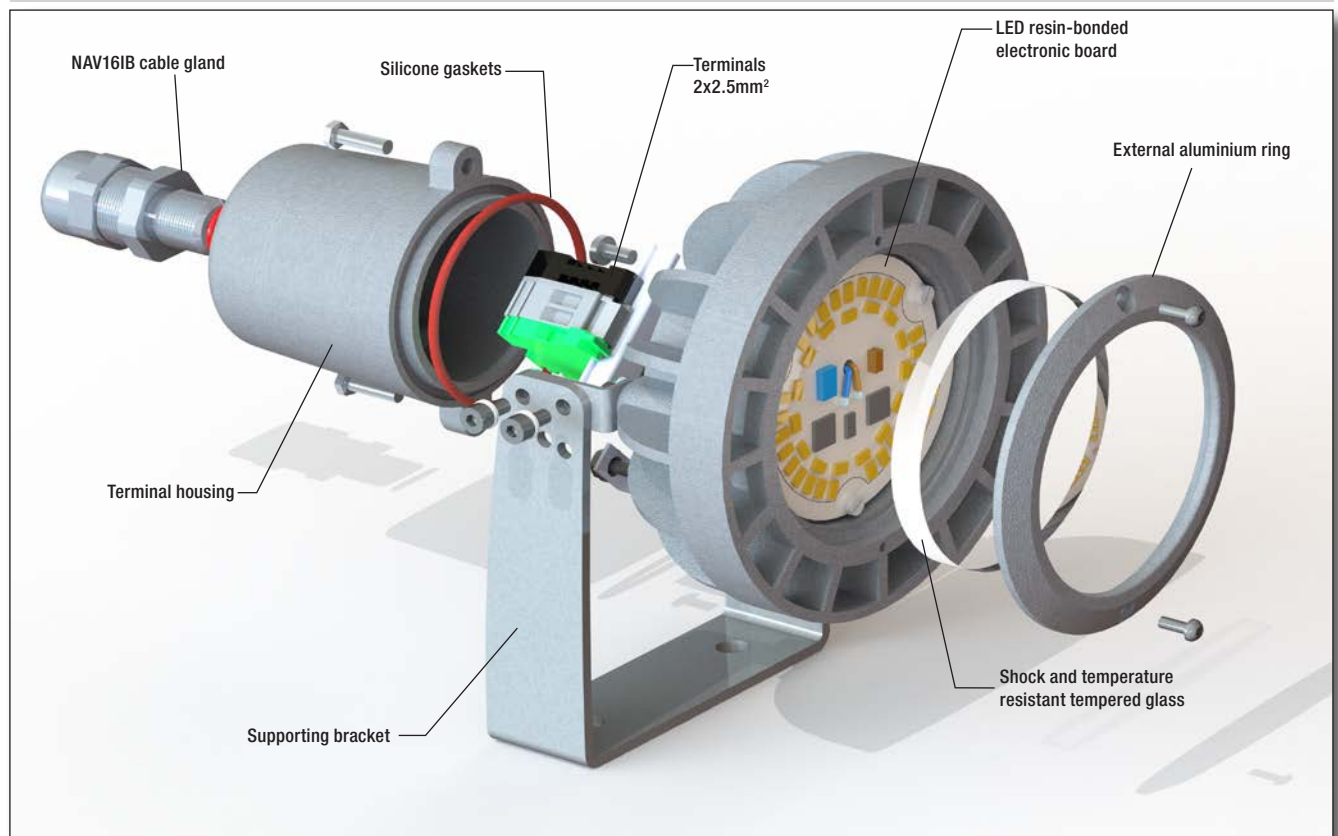


ORIGINAL PRODUCT

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 Low Bay LED 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/dc
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






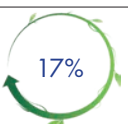
ACCESSORIES AVAILABLE / SPECIAL REQUESTS

U bolt for pole mounting

Different colour temperature (code EVML-50/**3000K**)

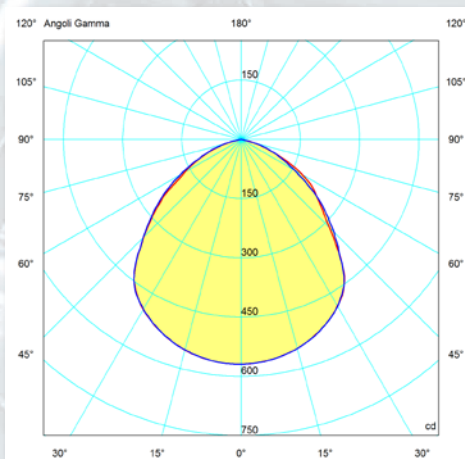
EVML Low Bay LED lighting fixture

EVML..., equivalenze

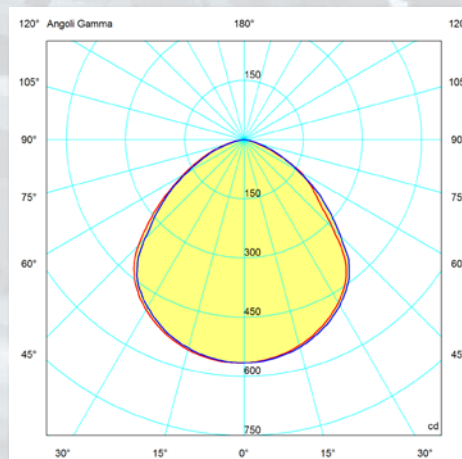
			
EVML-50 (17W) LED	(100W) Incandescent	(70W) Halogen	(23W) Electronic
Typical energy savings			
	81%	73%	17%



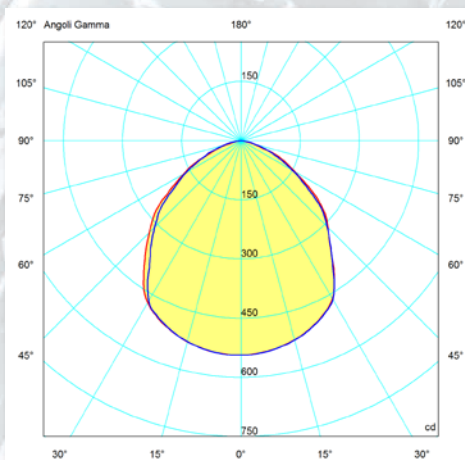
Example of lighting design made with EVML-50 LED Low Bay lighting fixtures



EVML-50/48D Luminous flux: 1361 lm

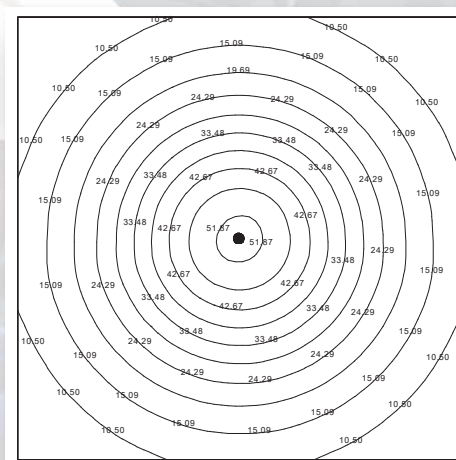


EVML-50/48D Luminous flux: 1361 lm



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

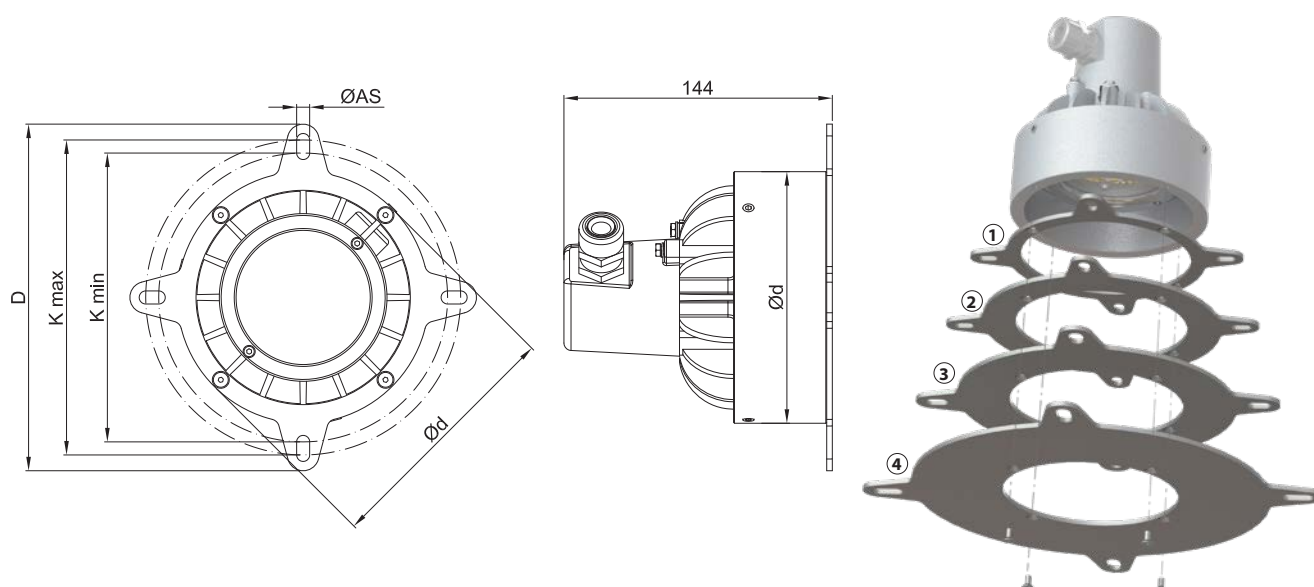
Code		Kmax	Kmin	ØAS	D	Ød	Round window acc. DIN28120
EVML-50/.../O10	①	169	155	7	186	135	100
EVML-50/.../O12	②	194	180	7	211	160	125
EVML-50/.../O15	③	222	208	9	243	185	150
EVML-50/.../O20	④	282	258	9	303	235	200

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

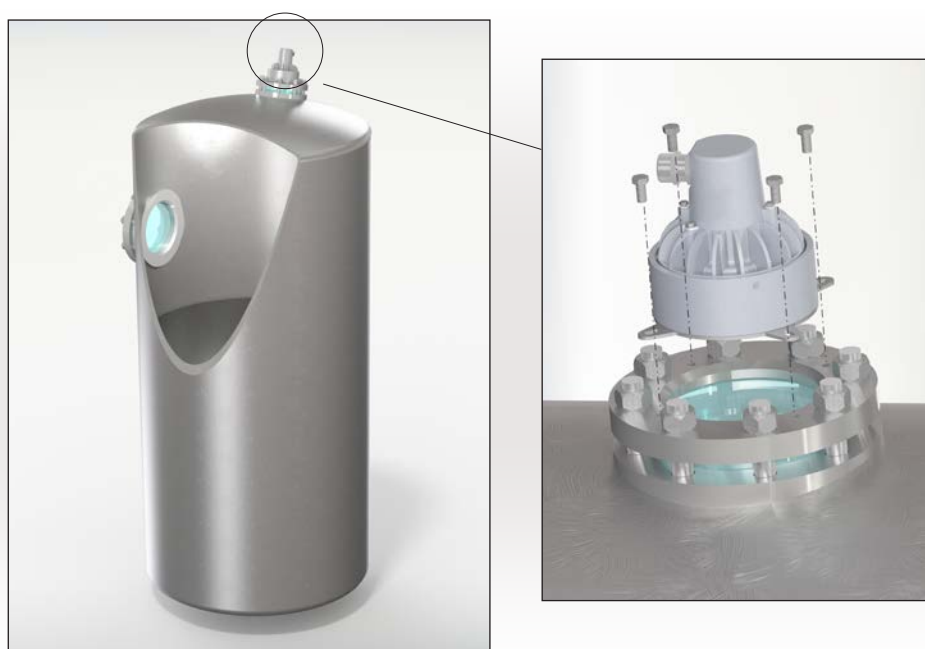
24A For 24 Vac
 48D For 48 Vdc
 48A For 48 Vac



DIMENSIONAL DRAWING



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



EVML LED Obstruction lighting fixture

Obstruction lighting EVML-50/G...

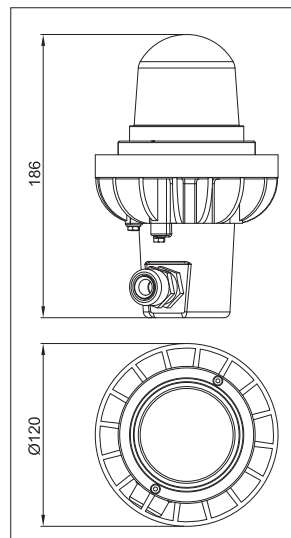
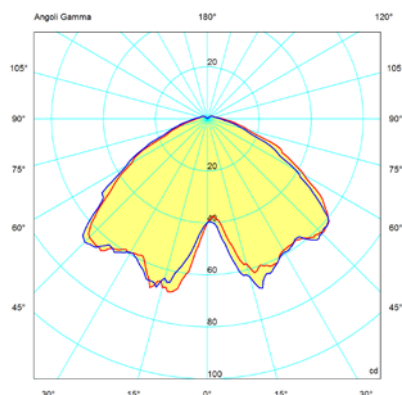
EVML-50/G are the new lighting fixtures which feature a LED plate and a globe of different colours: blue, red, green, amber or clear. They can be installed in locations where obstacles, dangers are needed to be signalled and for any visual communication. They replace acoustic signals in places where 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

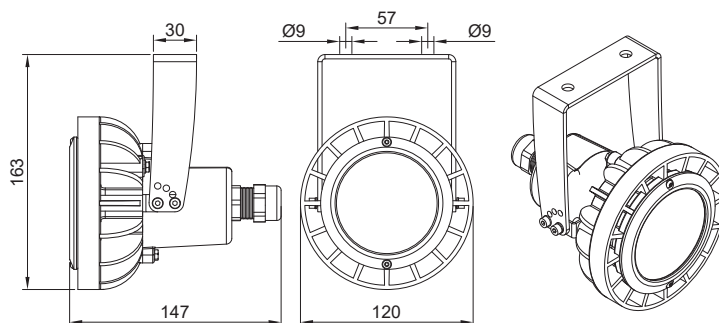


/...: No number	For 220 Vac	24A For 24 Vac/dc
110	For 110 Vac/dc	48D For 48 Vdc
12	For 12 Vac/dc	48A For 48 Vac
24D	For 24 Vdc	

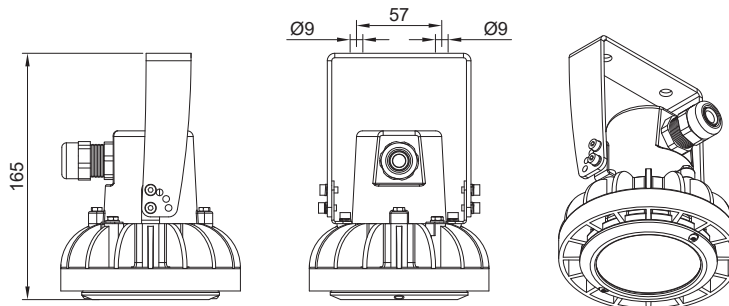


DIMENSIONAL DRAWINGS

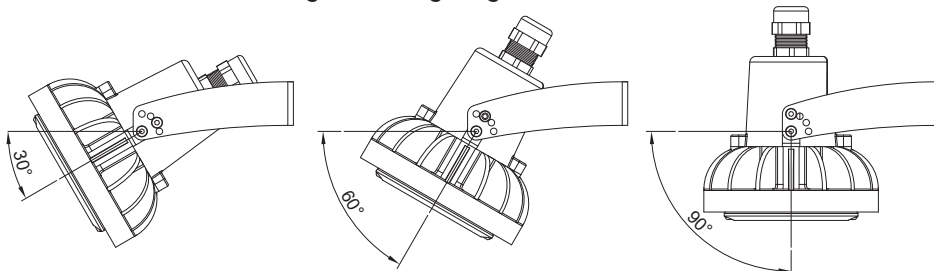
EVML-50 (rear cable entry)



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
Installazione: 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
	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 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	

For all IEC Ex and TR CU certification data, download the certificate from www.cortemgroup.com

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 NAV201B, cable range 6.5 ÷ 14.

ACCESSORIES AVAILABLE / SPECIAL REQUESTS


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

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

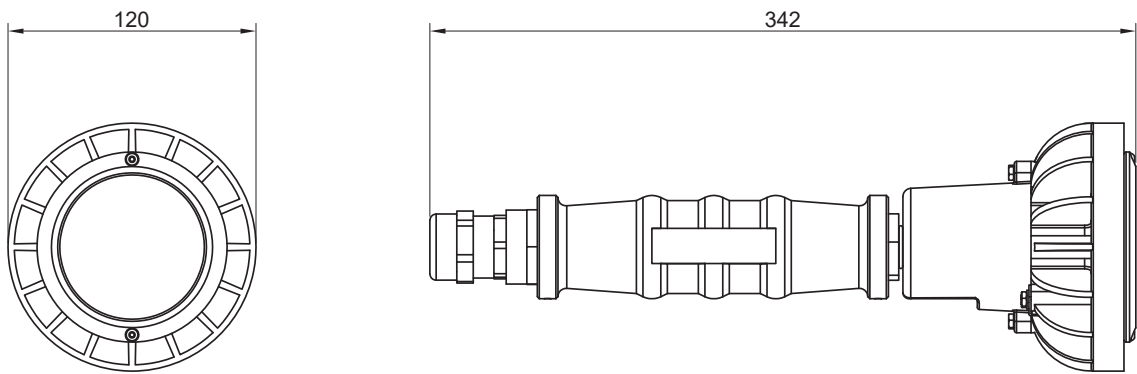


EVML-50P hand-held lighting fixture

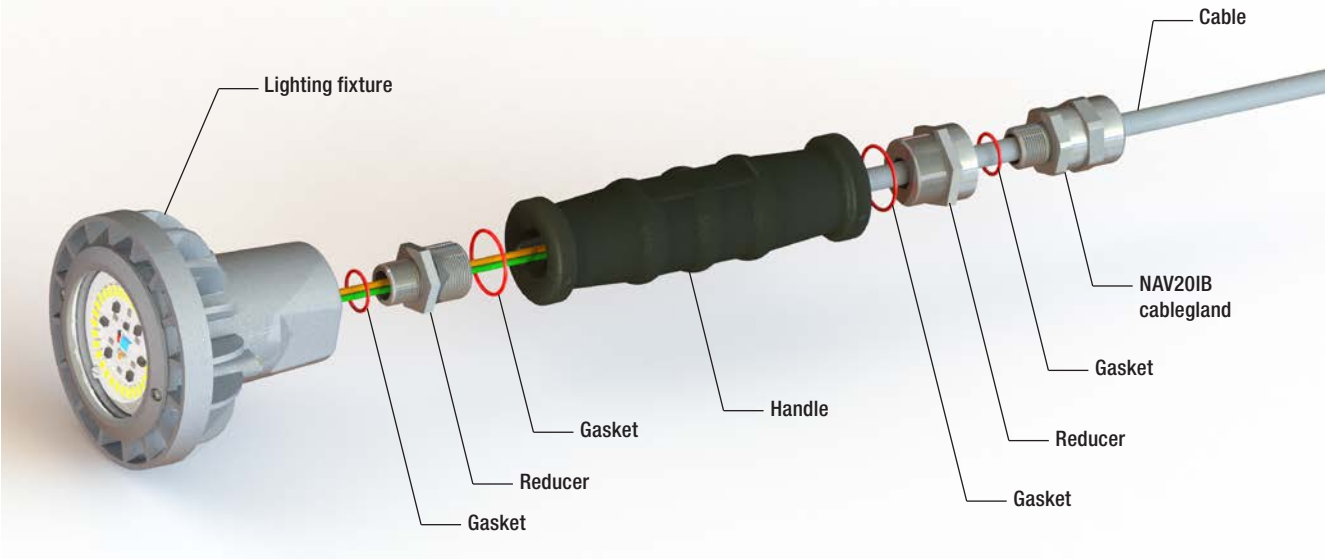
EVML-50P lighting fixture selection chart

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

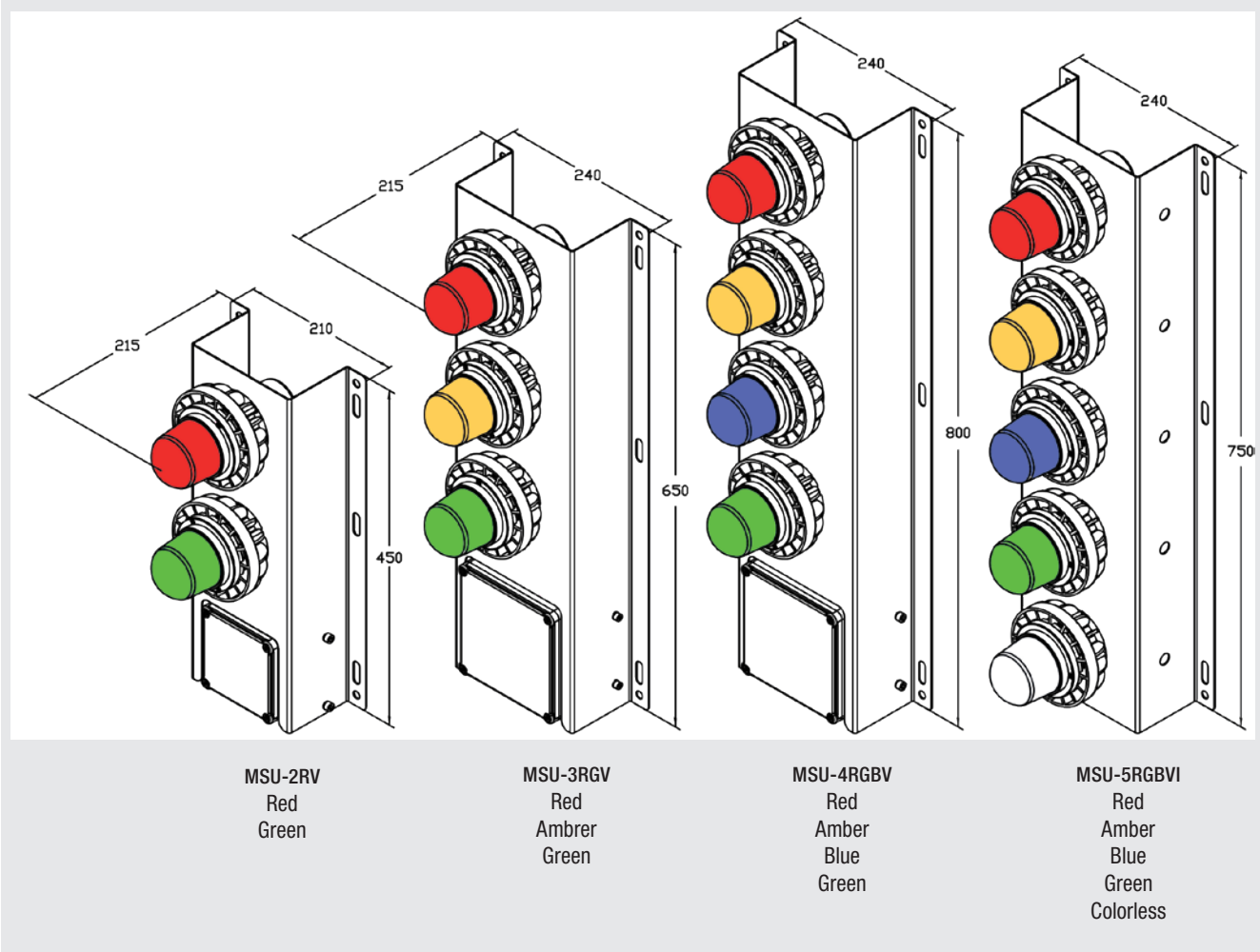
- Pre-wired ready to use multi-signalling unit
- Corrosion resistant
- Coating RAL7035
- Suitable for offshore / onshore & harsh environments
- 'Ex e' termination area
- Quick and easy to terminate
- Cablegland NAV25IB, range cable 11 ÷ 20
- High ingress protection IP66
- Extreme temperature range -40°C...+60°C
- 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

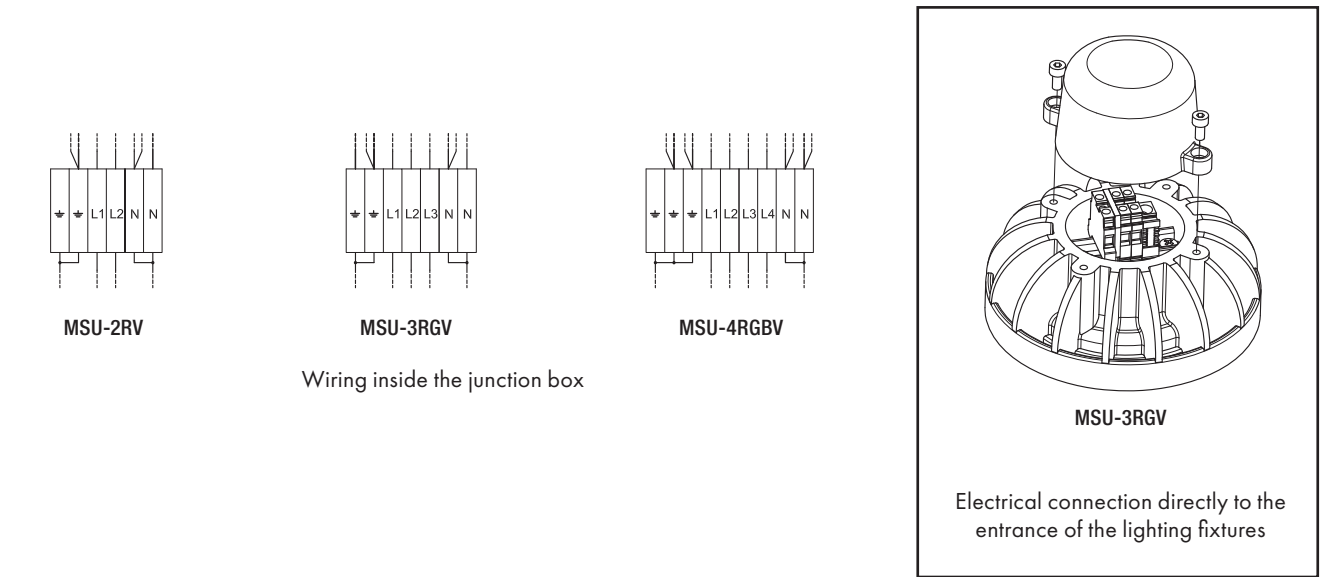
- Different rated voltages
- Different combination upon requests

Code	Type Lamp	Device	Watt	Class (Ta = +40°C)	Max surface temperature °C (Ta= +40°C)
MSU-2RV	LED	2-way	19 W	T5	85
MSU-3RGV	LED	3-way	19 W	T5	85
MSU-4RGBV	LED	4 -way	19 W	T5	85
MSU-5RGBVI	LED	5-way	19 W	T5	85

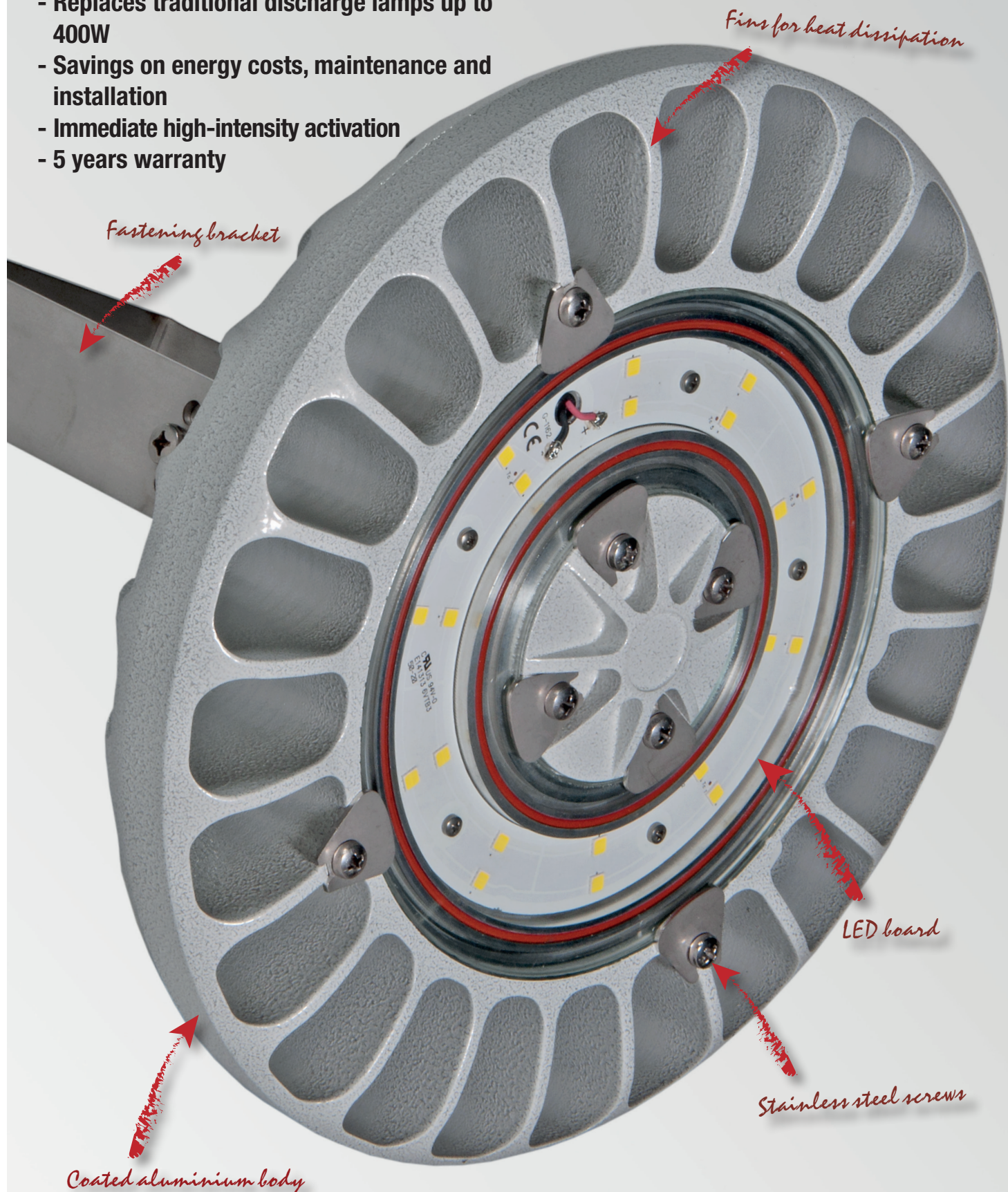
DIMENSIONAL DRAWINGS



ELECTRICAL CONNECTION



- Zone 1, 2, 21, 22
- Replaces traditional discharge lamps up to 400W
- Savings on energy costs, maintenance and installation
- Immediate high-intensity activation
- 5 years warranty



FLOWEX series High Bay LED lighting fixtures

FlowEx series lighting fixtures represent the most recent evolution of low-bay and high-bay LED lighting for environments with potentially explosive atmospheres.

The FlowEx series is made up of three lamp body sizes and is the LED alternative for all those areas where it was customary for low and medium power discharge lighting fixtures up to 400W to be installed.

The design of the finned body, made of aluminium alloy, acts as an excellent heat sink for the LED board, allowing fast and effective dissipation of the heat generated during normal operation of the LEDs themselves. Furthermore, the geometric structure of the cooling fins is designed to minimise the deposits of combustible dust and allow air or water present in the surrounding area to self-clean the lighting fixture.

Based on the principles of Lean manufacturing, the design resulted in a lighting fixture that is light and easy to install, yet robust and durable at the same time.

They feature a high-quality die-cast aluminium body and a glass diffuser which is resistant to impact and high temperatures.



Available in different sizes and with a wide range of voltage and power features, the FlowEx series is optimally designed and certified for the area of installation.

The use of LED dual-die technology and high-power LED boards provides a lumen output from 4.800 lm to 28.000 lm, making the range highly efficient and long lasting in terms of its electronics and lighting technology.

Sectors of application:



CERTIFICATE DATA

Classification:	Group II	Category 2GD/3G	
Installation: EN 60079.14	zone 1, 2, 21, 22 FLOWEX-ME	zone 2, 21, 22 FLOWEX-MN	
Marking:	CE 0722 Ex II 2GD - Ex db eb mb IIC T.. Gb - Ex tb IIIC T..°C Db - IP66		FLOWEX-ME
	CE Ex II 3G - Ex nR IIC T.. Gc CE 0722 Ex II 2D - Ex tb IIIC T..°C Db - IP66		FLOWEX-MN
Certificate:	ATEX CML 21 ATEX 3606X	FLOWEX-ME	
	ATEX CML 21 ATEX 4607X ATEX CML 21 ATEX 3610X	FLOWEX-MN	
	IEC Ex CML 21.0070X	For all IEC Ex, UKEX certification data, download the certificate from www.cortemgroup.com	
	UKEX AVAILABLE		
Standards:	CENELEC EN60079-0: 2018, EN60079-1:2014, EN60079-7: 2015+A1:2018, EN60079-15: 2015/2019, EN60079-18: 2015+A1:2017, EN60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/EU. IEC60079-0: 2017, IEC60079-7: 2017, IEC60079-15: 2017, IEC 60079-18: 2017, IEC60079-31: 2013		
Temperature class:	For all permitted ambient temperature classes, please see the "Selection tables"		
Ambient temperature:	 -60°C +60°C 	For all permitted ambient temperature ranges, please see the "Selection tables"	
Degree of protection:	IP66		

FLOWEX series High Bay LED lighting fixtures

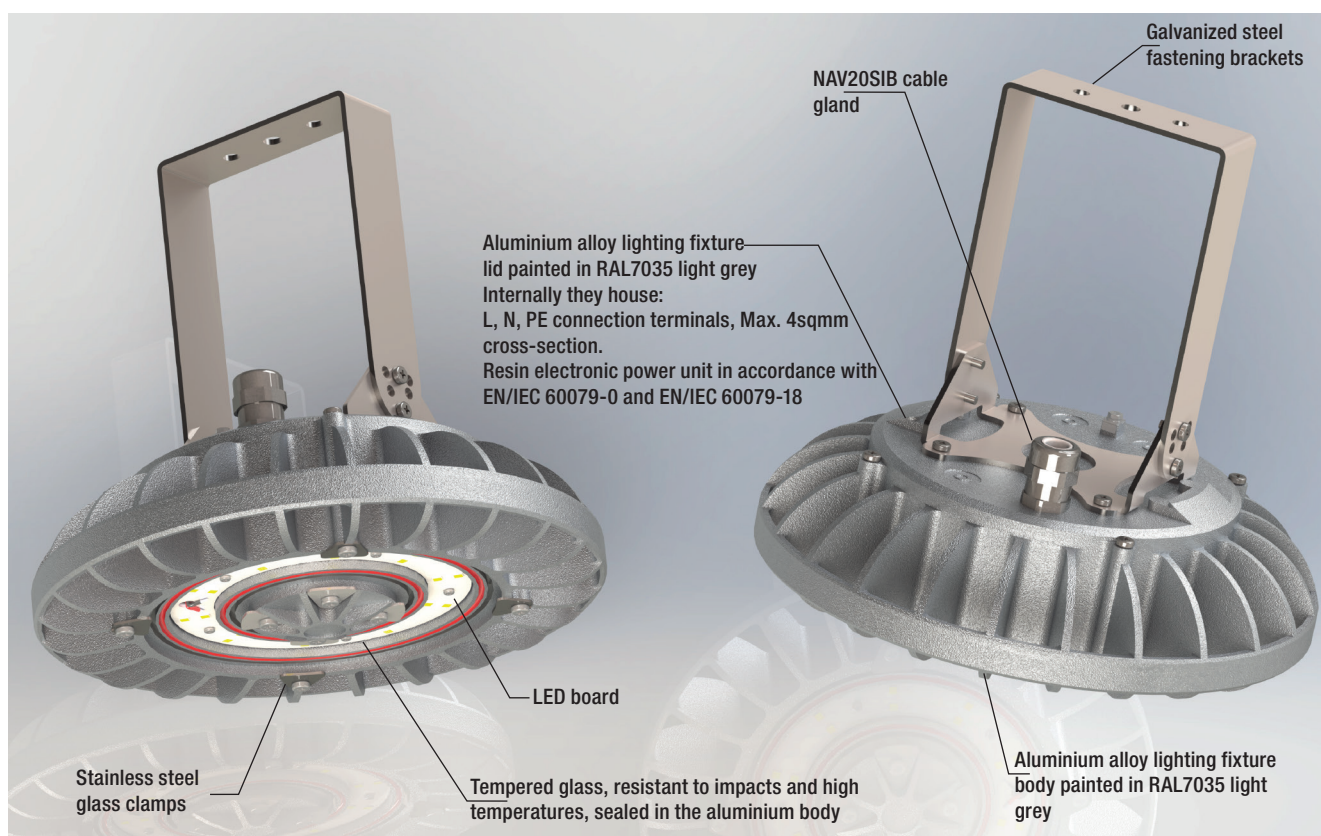


ORIGINAL PRODUCT

MECHANICAL FEATURES


Body:	Aluminium alloy with low copper content. With cooling fins for high levels of heat dissipation
Front glass:	Tempered glass, resistant to high temperatures and knocks
Seals:	Silicone resistant to acids, hydrocarbons and high temperatures
Fastening bracket:	Galvanized steel
Screws:	Stainless steel
Entry points:	1xØ20 entry point. Fixture complete with a NAV20SIB 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)

FLOWEX-080 LIGHTING FIXTURE IN DETAIL

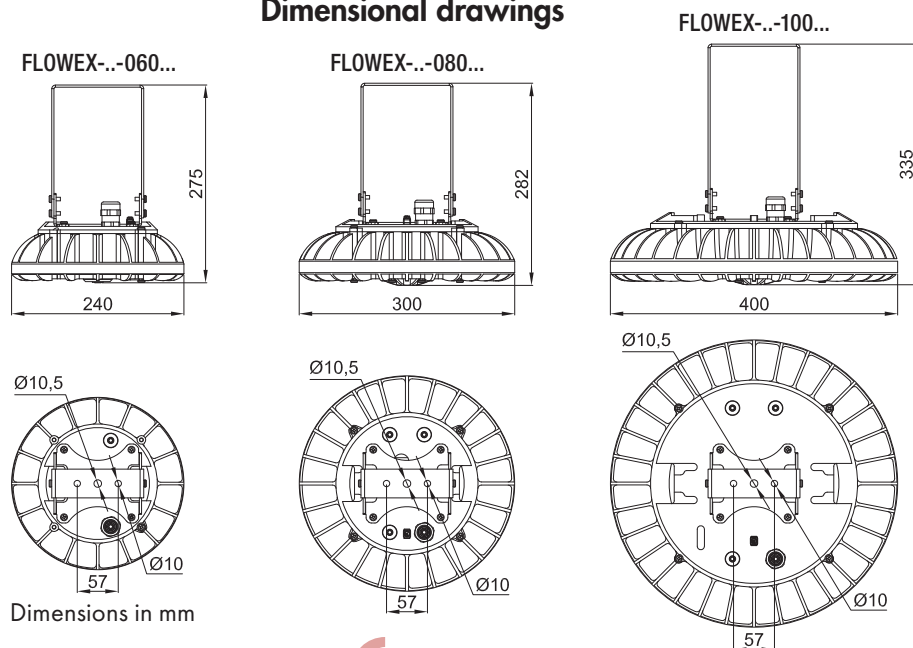


FLOWEX series High Bay LED lighting fixtures

FLOWEX series selection table

Code	Real power Watt	Rated power Watt	Temperature class / Maximum surface temperature				Lumen lm	Light intensity cd	Overall efficiency Lm/W	Weight kg	 mm	
			TA=+40°C	TA=+50°C	TA=+55°C	TA=+60°C						
Zone 1, 2, 21, 22	FLOWEX-ME-060030	32,8	30	T6 / 73°C	T5 / 83°C	T5 / 88°C	T5 / 93°C	4785	1700	146	3,2	285x245x135
	FLOWEX-ME-060040	38,8	40	T6 / 73°C	T5 / 83°C	T5 / 88°C	T5 / 93°C	5531	1966	143	3,2	285x245x135
	FLOWEX-ME-060050	46,7	50	T6 / 73°C	T5 / 83°C	T5 / 88°C	T5 / 93°C	6389	2273	137	3,2	285x245x135
	FLOWEX-ME-060060	55,6	60	T6 / 73°C	T5 / 83°C	T5 / 88°C	T5 / 93°C	7285	2592	131	3,2	285x245x135
	FLOWEX-ME-080070	69,1	70	T5 / 86°C	T4 / 96°C	T4 / 101°C	T4 / 106°C	9547	3438	138	4,2	305x305x140
	FLOWEX-ME-080080	79,4	80	T5 / 86°C	T4 / 96°C	T4 / 101°C	T4 / 106°C	10646	3834	134	4,2	305x305x140
	FLOWEX-ME-080090	89,2	90	T5 / 86°C	T4 / 96°C	T4 / 101°C	T4 / 106°C	11641	4197	129	4,2	305x305x140
	FLOWEX-ME-080100	101,7	100	T5 / 86°C	T4 / 96°C	T4 / 101°C	T4 / 106°C	12708	4582	125	4,2	305x305x140
	FLOWEX-ME-100120	117,0	120	T6 / 74°C	T5 / 84°C	T5 / 89°C	T5 / 94°C	17687	6221	151	7,8	405x405x145
	FLOWEX-ME-100140	136,5	140	T6 / 74°C	T5 / 84°C	T5 / 89°C	T5 / 94°C	20154	7086	148	7,8	405x405x145
	FLOWEX-ME-100160	156,6	160	T6 / 74°C	T5 / 84°C	T5 / 89°C	T5 / 94°C	22422	7882	143	7,8	405x405x145
	FLOWEX-ME-100180	173,6	180	T5 / 85°C	T5 / 95°C	T4 / 100°C	T4 / 105°C	24218	8513	140	7,8	405x405x145
	FLOWEX-ME-100200	190,1	200	T5 / 85°C	T5 / 95°C	T4 / 100°C	T4 / 105°C	25709	9040	135	7,8	405x405x145
	FLOWEX-ME-100220	214,2	220	T5 / 85°C	T5 / 95°C	T4 / 100°C	T4 / 105°C	27961	9837	131	7,8	405x405x145
Zone 2, 21, 22	FLOWEX-MN-060030	32,8	30	T6 / 73°C	T5 / 83°C	T5 / 88°C	T5 / 93°C	4784	1700	146	3,2	285x245x135
	FLOWEX-MN-060040	38,8	40	T6 / 73°C	T5 / 83°C	T5 / 88°C	T5 / 93°C	5531	1966	143	3,2	285x245x135
	FLOWEX-MN-060050	46,7	50	T6 / 73°C	T5 / 83°C	T5 / 88°C	T5 / 93°C	6389	2273	137	3,2	285x245x135
	FLOWEX-MN-060060	55,6	60	T6 / 73°C	T5 / 83°C	T5 / 88°C	T5 / 93°C	7285	2592	131	3,2	285x245x135
	FLOWEX-MN-080070	69,1	70	T5 / 86°C	T4 / 96°C	T4 / 101°C	T4 / 106°C	9547	3438	138	4,2	305x305x140
	FLOWEX-MN-080080	79,4	80	T5 / 86°C	T4 / 96°C	T4 / 101°C	T4 / 106°C	10646	3834	134	4,2	305x305x140
	FLOWEX-MN-080090	89,2	90	T5 / 86°C	T4 / 96°C	T4 / 101°C	T4 / 106°C	11641	4197	129	4,2	305x305x140
	FLOWEX-MN-080100	101,7	100	T5 / 86°C	T4 / 96°C	T4 / 101°C	T4 / 106°C	12708	4582	125	4,2	305x305x140
	FLOWEX-MN-100120	117,0	120	T6 / 74°C	T5 / 84°C	T5 / 89°C	T5 / 94°C	17687	6221	151	7,8	405x405x145
	FLOWEX-MN-100140	136,5	140	T6 / 74°C	T5 / 84°C	T5 / 89°C	T5 / 94°C	20154	7086	148	7,8	405x405x145
	FLOWEX-MN-100160	156,6	160	T6 / 74°C	T5 / 84°C	T5 / 89°C	T5 / 94°C	22422	7882	143	7,8	405x405x145
	FLOWEX-MN-100180	173,6	180	T5 / 85°C	T5 / 95°C	T4 / 100°C	T4 / 105°C	24218	8513	140	7,8	405x405x145
	FLOWEX-MN-100200	190,1	200	T5 / 85°C	T5 / 95°C	T4 / 100°C	T4 / 105°C	25709	9040	135	7,8	405x405x145
	FLOWEX-MN-100220	214,2	220	T5 / 85°C	T5 / 95°C	T4 / 100°C	T4 / 105°C	27961	9837	131	7,8	405x405x145

Dimensional drawings



FLOWEX series High Bay LED lighting fixtures

Electrical features	FLOWEX-..060..	FLOWEX-..080..	FLOWEX-..100..
Supply voltage:	100-277 Vac	100-277 Vac	100-277 Vac
Rated frequency:	50-60 Hz ±5%	50-60 Hz ±5%	50-60 Hz ±5%
Rated power consumption* :	..030 30 W	..070 70 W	..120 120 W
	..040 40 W	..080 80 W	..140 140 W
	..050 50 W	..090 90 W	..160 160 W
	..060 60 W	..100 100 W	..180 180 W
	-	-	..200 200 W
	-	-	..220 220 W
Connection:	Cable entry directly to the terminal board L, N, PE. Max. 4 sq mm cross-section		
Power factor:	>0.95	>0.95	>0.95
Rated current:	..030 150 mA	..070 310 mA	..120 540 mA
	..040 180 mA	..080 360 mA	..140 620 mA
	..050 210 mA	..090 400 mA	..160 700 mA
	..060 250 mA	..100 450 mA	..180 770 mA
	-	-	..200 840 mA
	-	-	..220 950 mA
EMC (Electromagnetic Compatibility):	EN 55015, EN 61547, IEC 61000-3-2, IEC 61000-3-3		
THD (Total Harmonic Distortion):	<10%		
Over-voltage protection:	4 kV	4 kV	4 kV
Driver performance levels:	Over-Voltage Protection, Over-Current Protection, Short-Circuit Protection		
Dimming (on request only in the ..- MN version):	(0-10 V) or PWM or resistor	(0-10 V) or PWM or resistor	(0-10 V) or PWM or resistor
Photometric features			
Multichip LED:	High power LED	High power LED	High power LED
Viewing angle:	120°	120°	120°
Colour temperature:	5000 K	5000 K	5000 K
CRI:	>70	>70	>70
Instant Restrike:	YES	YES	YES
L90:	> 60000 h	> 60000 h	> 60000 h

* Test performed at 230 Vac

ACCESSORIES UPON REQUEST / SPECIAL REQUESTS

Different rated voltages

Dimming only in the ..- MN version (code example FLOWEX-MN-100180-**D**)

Lighting fixture with dimming and different holes for cable entry:

- FLOWEX-MN-080080-**DB** N°2 entries Ø20
- FLOWEX-MN-080080-**DC** N°1 entry Ø25
- FLOWEX-MN-080080-**DF** N°2 entries Ø25

Additional U-bolts for assembly to a pole

Eye bolt

Special lid for direct installation on pole (code example FLOWEX-ME-080080-**T**)

Threaded pole attachment with fixed 25° orientation

Fastening brackets in stainless steel AISI 304 or AISI 3016L

Unpainted lighting fixtures for shorter lead times (code example FLOWEX-MN-080080-DB-**NP**, FLOWEX-MN-080080-T-**NP**)

FLOWEX series High Bay LED lighting fixtures

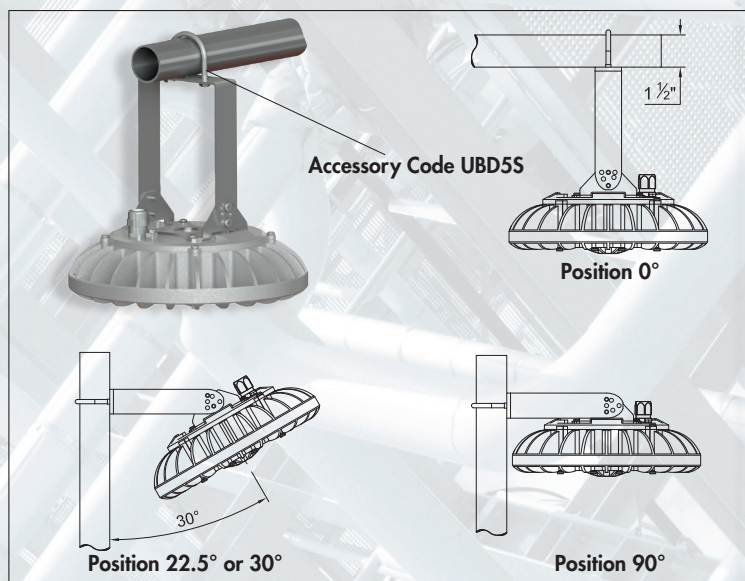
ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	KEY
	Electronic power unit	FLOWEX-ME-060030	100-277 Vac	EBM-50C/850	
		FLOWEX-ME-060040		EBM-50C/1000	
		FLOWEX-ME-060050		EBM-50C/1200	
		FLOWEX-ME-060060		EBM-50C/1400	
		FLOWEX-ME-080070		EBM-100C/560	
		FLOWEX-ME-080080		EBM-100C/640	
		FLOWEX-ME-080090		EBM-100C/700	
		FLOWEX-ME-080100		EBM-100C/800	
		FLOWEX-ME-100120		EBM-240C/790	
		FLOWEX-ME-100140		EBM-240C/920	
		FLOWEX-ME-100160		EBM-240C/1050	
		FLOWEX-ME-100180		EBM-240C/1150	
		FLOWEX-ME-100200		EBM-240C/1250	
		FLOWEX-ME-100220		EBM-240C/1400	
	Electronic power unit	FLOWEX-MN-060030	100-277 Vac	LEDDEVL060/2/1	
		FLOWEX-MN-060040		LEDDEVL060/2	
		FLOWEX-MN-060050		LEDDEVL060/2/3	
		FLOWEX-MN-060060		LEDDEVL060/2/4	
		FLOWEX-MN-080070		LEDDEVL080/4/5	
		FLOWEX-MN-080080		LEDDEVL080/4/6	
		FLOWEX-MN-080090		LEDDEVL080/4	
		FLOWEX-MN-080100		LEDDEVL080/4/7	
		FLOWEX-MN-100120		LEDDEVL100/1/6	
		FLOWEX-MN-100140		LEDDEVL100/1/7	
		FLOWEX-MN-100160		LEDDEVL100/1/8	
		FLOWEX-MN-100180		LEDDEVL100/1/9	
		FLOWEX-MN-100200		LEDDEVL100/1/1	
		FLOWEX-MN-100220		LEDDEVL100/1	
	U-bolt for assembly on a pole	for poles Ø1 1/2"	Material: stainless steel AISI 316L	UBD5S	
	Adjustable pole fixing bracket for Ø1 1/2" poles	FLOWEX-...060..	Galvanized steel	G-0705	
		FLOWEX-...080..		G-0706	
		FLOWEX-...060..	Stainless steel AISI 304	G-0705IN	
		FLOWEX-...080..		G-0706IN	
		FLOWEX-...100..	Stainless steel AISI 316L	G-0705A4	
		FLOWEX-...100..		G-0706A4	
	Fastening bracket	FLOWEX-...060..	Stainless steel AISI 304	G-1262IN	
			Stainless steel AISI 316L	G-1262A4	
		FLOWEX-...100..	Stainless steel AISI 304	G-1263IN	
			Stainless steel AISI 316L	G-1263A4	

FLOWEX series High Bay LED lighting fixtures

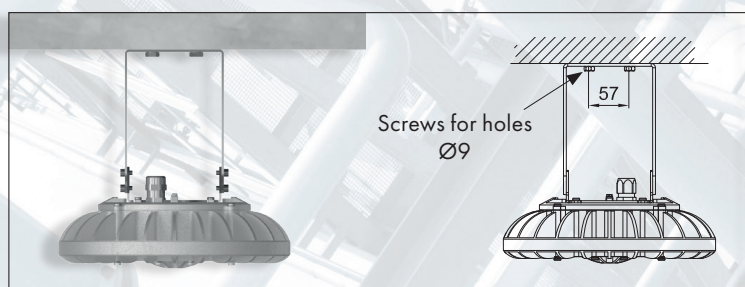
Typical assemblies with installation accessories



Pole mount mechanism with adjustable bracket



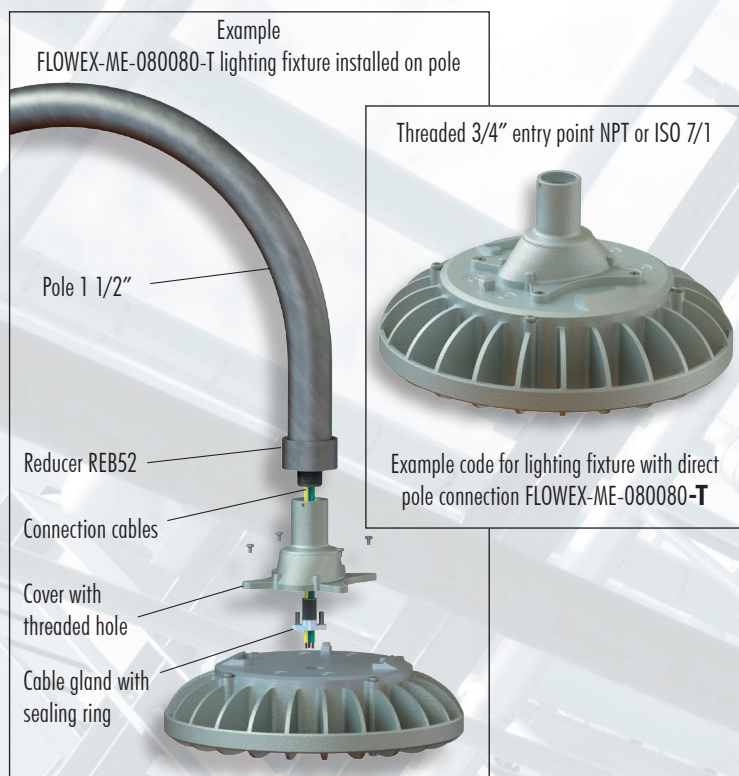
Assembly on 1 1/2" conduit pipe with UBD



Ceiling mount, tall model TYPE "U"

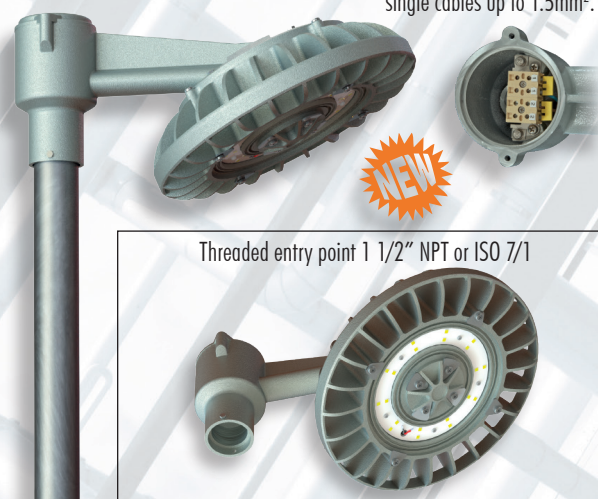
DIRECT POLE ATTACHMENT SYSTEM

Lighting fixture prearranged for direct installation on pole



STANCHION MOUNTING WITH FIXED ORIENTATION AT 25°

Direct connection to terminal board L, N, Pe. Possible section 1.5mm² for loop-in/loop-out. Input of 3 single cables up to 4mm², input-output with 6 single cables up to 1.5mm².

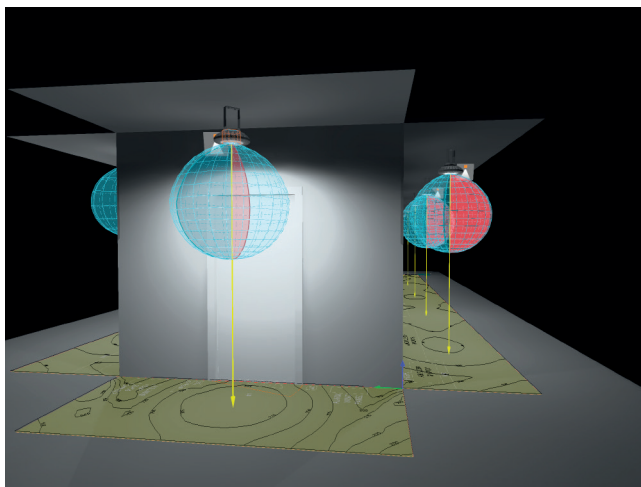
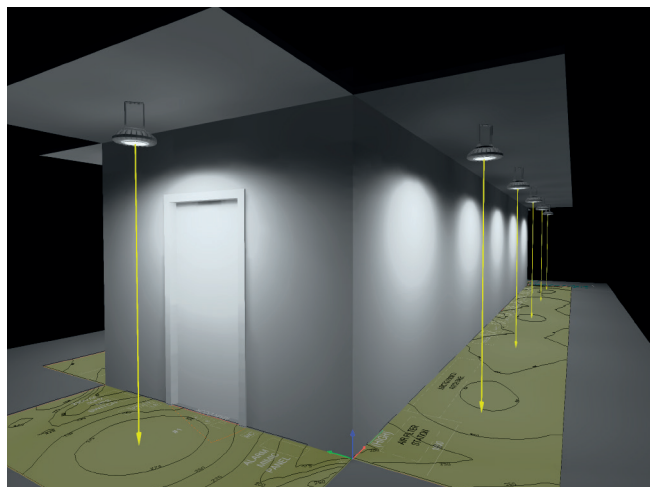


Code	X	Y	Weight kg	mm
FLOWEX-060...-IX	372	215	4,5	372x170x215
FLOWEX-080...-IX	419	242	8,2	351x351x242
FLOWEX-100...-IX	478	280	12,0	412x412x280

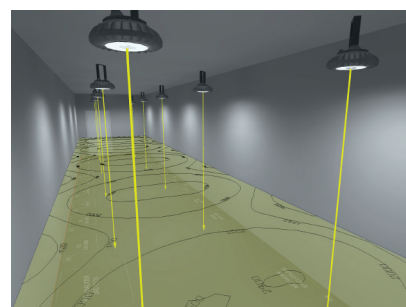
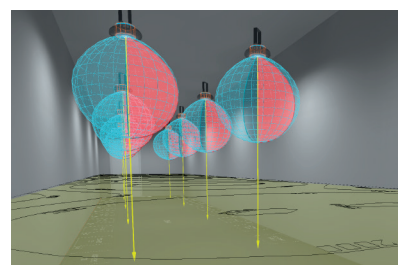
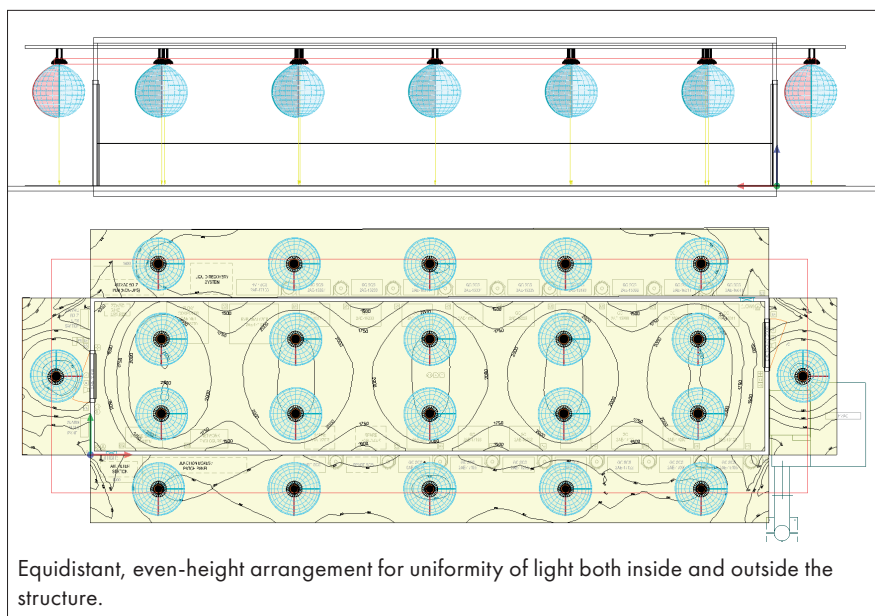
FLOWEX series High Bay LED lighting fixtures

Photometric study example

FLOWEX series ceiling-mounted lighting fixtures



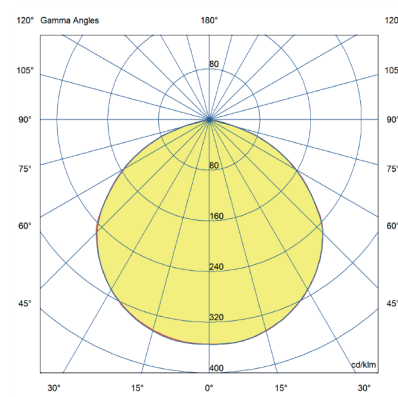
Representation of an outdoor installation - perimeter lighting on 13m and 3m lengths



Representation of an indoor installation - room height 2.7m, worktop height 0.8m

List of lighting fixture power used

Φ_{total} 114222 lm	P_{total} 793.6 W	Efficiency 143.9 lm/W			
Pc.	Item	P	Φ	Efficiency	
Internal area	10	FLOWEX...060030	32.8 W	4785 lm	145.9 lm/W
External area	12	FLOWEX...060040	38.8 W	5531 lm	142.5 lm/W



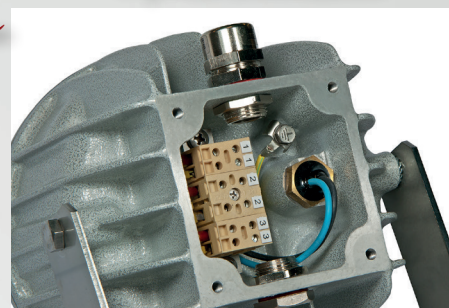
The lighting solution files for the design, planning and simulation of lighting levels in 2D-3D, rendering and ray-tracing are available from www.cortemgroup.com.

— = level 90270
— = level 0180

EVL-...-40

NEW TECHNOLOGY

- Zone 1, 2, 21, 22
- Replaces traditional discharge lamps more than 400W
- Saves in energy, maintenance and installation costs
- Suitable for GAS category IIC
- IK11



EVL-...-40 series LED floodlights

The LED EVL-...-40 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-...-40 series consists of four sizes that can replace traditional floodlights with discharge lamps of low and medium power.

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-...-40 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.

Application sectors:



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	For all IEC Ex and TR CU certification data, download the certificate from www.cortemgroup.com	
	TR CU	AVAILABLE		
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 European Directive 2004/108 Electromagnetic compatibility European Directive 2012/19/UE, 2002/96/CE, 2003/108/CE WEEE European Directive 2011/65/UE RoHS			
 Ambient temperature:	-40°C(-60°C)* +60°C**			
Degree of protection:	IP66			

* For temperatures to -60°C contact our Sales Office.

** For maximum surface temperature see "EVL series selection chart"

EVL-...-40 series LED floodlights



EXEMPT FROM
PHOTOBIOLOGICAL RISK
(STANDARD IEC / EN 62471)

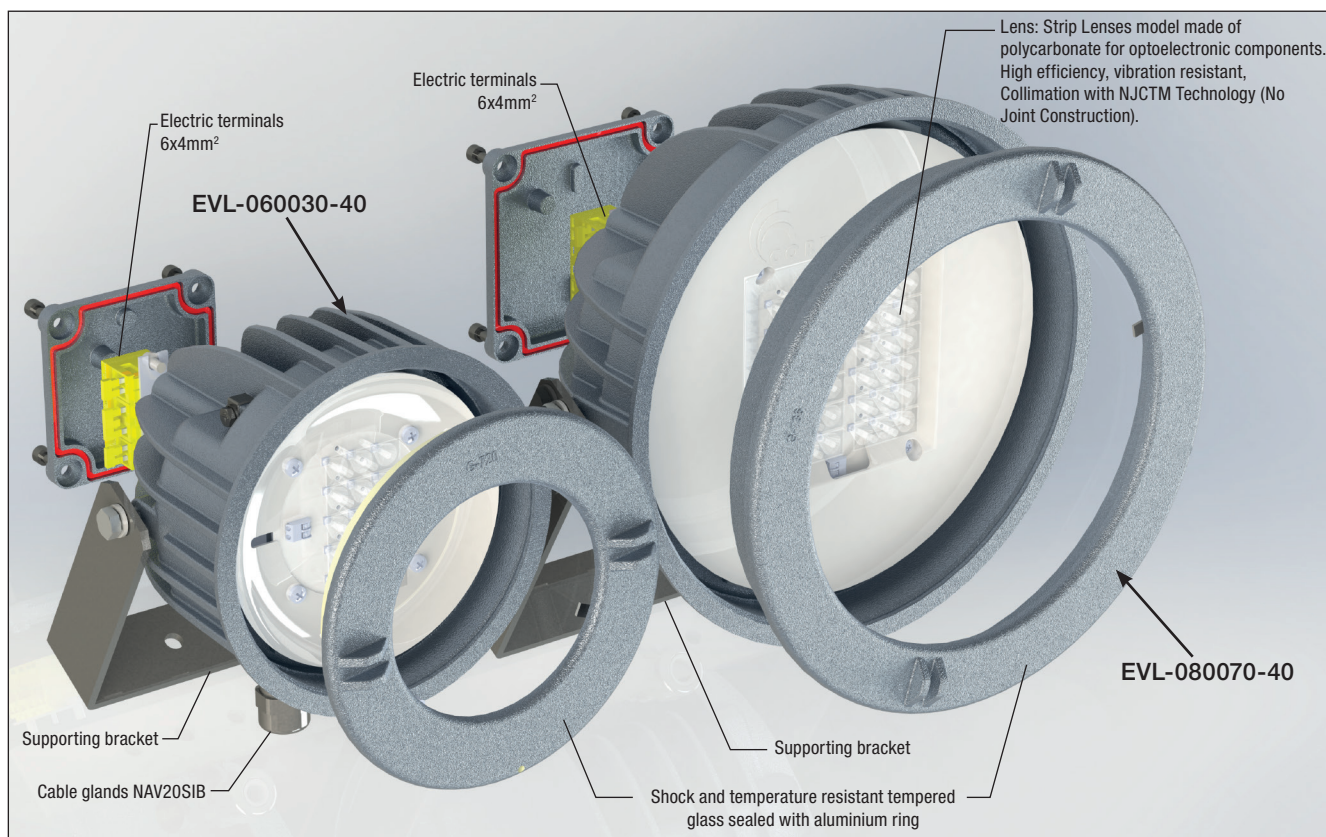


ORIGINAL PRODUCT

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
Bolts and screws:	Stainless steel
Entries:	2 x ISO M20 entries. Fixture kit with PLG11B 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)

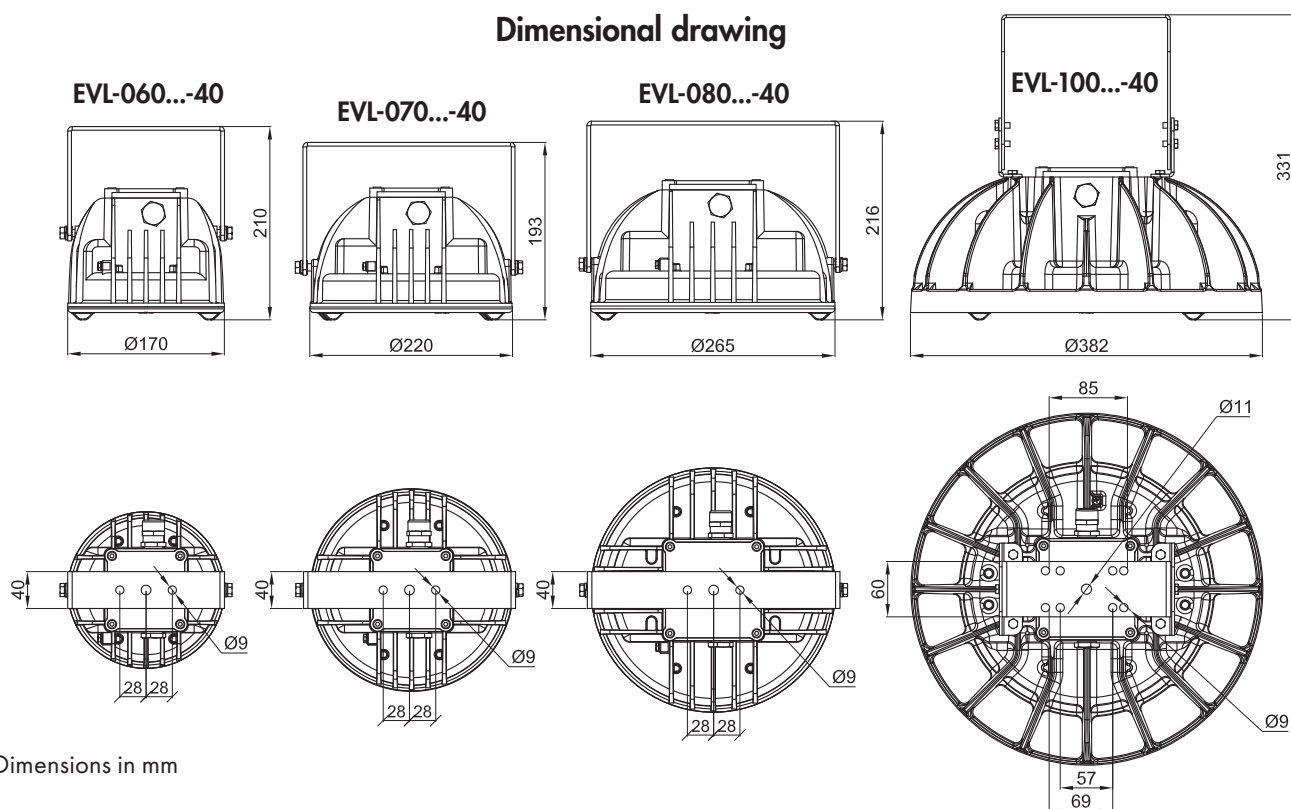
EXPLODED DIAGRAM OF EVL-...-40 FLOODLIGHTS



EVL-...-40 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-060040-40	40 W	T6 / 85°C	T5 / 100°C	T5 / 100°C	3851 lm	7972 cd	94 lm/W	3,5	215x205x170
EVL-060050-40	50 W	T5 / 100°C	N/A	N/A	4479 lm	9272 cd	89 lm/W	3,5	215x205x170
EVL-070050-40	50 W	T5 / 100°C	T5 / 100°C	T4 / 135°C	6109 lm	12645 cd	116 lm/W	5,2	250x235x165
EVL-070060-40	60 W	T5 / 100°C	T5 / 100°C	T4 / 135°C	6997 lm	14484 cd	115 lm/W	5,2	250x235x165
EVL-070070-40	70 W	T5 / 100°C	N/A	N/A	7572 lm	15674 cd	106 lm/W	5,2	250x235x165
EVL-070080-40	80 W	T5 / 100°C	N/A	N/A	7946 lm	16449 cd	100 lm/W	5,2	250x235x165
EVL-080080-40	80 W	T5 / 100°C	T5 / 100°C	T4 / 135°C	10246 lm	21210 cd	126 lm/W	7,2	290x290x170
EVL-080090-40	90 W	T4 / 135°C	T4 / 135°C	T4 / 135°C	11346 lm	23487 cd	123 lm/W	7,2	290x290x170
EVL-080100-40	100 W	T4 / 135°C	N/A	N/A	12199 lm	25253 cd	118 lm/W	7,2	290x290x170
EVL-080120-40	120 W	T4 / 135°C	N/A	N/A	13428 lm	27798 cd	108 lm/W	7,2	290x290x170
EVL-100140-40	140 W	T4 / 135°C	T4 / 135°C	T4 / 135°C	15299 lm	31669 cd	107 lm/W	11,2	385x385x250
EVL-100160-40	160 W	T4 / 135°C	T4 / 135°C	T4 / 135°C	19628 lm	40632 cd	119 lm/W	11,2	385x385x250
EVL-100180-40	180 W	T4 / 135°C	T4 / 135°C	T4 / 135°C	20688 lm	42825 cd	114 lm/W	11,2	385x385x250
EVL-100200-40	200 W	T4 / 135°C	N/A	N/A	22656 lm	46900 cd	111 lm/W	11,2	385x385x250
EVL-100220-40	220 W	T4 / 135°C	N/A	N/A	23646 lm	48950 cd	107 lm/W	11,2	385x385x250

Dimensional drawing



EVL-...-40 series LED floodlights

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 $\pm 5\%$	50-60 Hz $\pm 5\%$	50-60 Hz $\pm 5\%$	50-60 Hz $\pm 5\%$
Power consumption*:	..040 40 W	..050 50 W	..080 80 W	..140 140 W
	..050 50 W	..060 60 W	..090 90 W	..160 160 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 4mm ² , 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):	<10%			
Over-voltage protection:	4 kV	4 kV	4 kV	4 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:	40°	40°	40°	40°
Colour temperature:	5700 K	5700 K	5700 K	5700 K
CRI:	>70	>70	>70	>70
Instant Restrike:	YES	YES	YES	YES
L90:	> 145000 h	> 145000 h	> 145000 h	> 145000 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°
 Additional NAV20SIB cable gland for unarmoured cable
 Version with stainless steel guard for additional glass protection

EVL-...-40 series LED floodlights

ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	KEY
	Pendant eyebolt	Ø interno 20	Material: galvanised steel	G0F-8	 
	U bolt for pole mounting	Poste Ø1 1/2"	Material: stainless steel AISI 316L	UBD5S	 
	Cover with direct connection for pole	EVL-060...-40 EVL-070...-40	Material: aluminium alloy with threaded hole 3/4" NPT (Different threads on request)	B-498	
		EVL-080...-40 EVL-100...-40		B-499	
	Supporting bracket	EVL-060...-40	Material: stainless steel AISI 316L	G-764	
		EVL-070...-40		G-765	
		EVL-080...-40		G-766	
		EVL-100...-40		G-827	
	Power supply	EVL-060030-40	120-277 Vac	LEDDEVL060/2	
		EVL-060040-40		LEDDEVL060/2/1	
		EVL-060050-40		LEDDEVL060/2	
		EVL-070050-40	120-277 Vac	LEDDEVL070/1	
		EVL-070060-40		LEDDEVL070/1/2	
		EVL-070070-40		LEDDEVL070/1/3	
		EVL-070080-40		LEDDEVL080/4/1	
		EVL-080080-40	120-277 Vac	LEDDEVL080/4/2	
		EVL-080090-40		LEDDEVL080/4/3	
		EVL-080100-40		LEDDEVL080/4/4	
		EVL-080120-40		LEDDEVL080/5/2	
		EVL-100140-40	120-277 Vac	LEDDEVL100/1/1	
		EVL-100160-40		LEDDEVL100/1/5	
		EVL-100180-40		LEDDEVL100/1/2	
		EVL-100200-40		LEDDEVL100/1/3	
		EVL-100220-40		LEDDEVL100/1/4	
	Cable gland	ISO M20	std. range cable 6,3÷11,6	NAV20SIB	
	Front ring with glass	EVL-060...-40	Aluminium ring Borosilicate glass face	G60-0623	
		EVL-070...-40		G70-0623	
		EVL-080...-40		G80-0623	
		EVL-100...-40		G80-0623	

EVNL-...-40

- Zone 2, 21, 22
- Replaces traditional discharge lamps exceeding 400W
- Savings on energy costs, maintenance and installation
- Immediate high-intensity activation
- IK10
- 5 years warranty

*Shock-resistant
tempered glass*

**NEW
TECHNOLOGY**

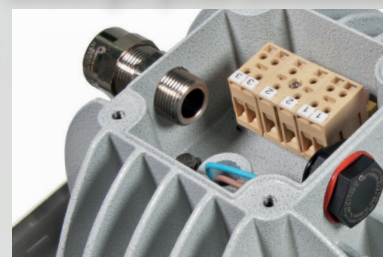
LED plate with lens

Cooling fins

*Painted aluminium
body*

Supporting bracket

*Ex casing and terminal
holder for quick connection*



EVNL series LED floodlights for zone 2, 21, 22



EVNL-...-40 series LED floodlights are suitable for plants in zone 2 and zone 21,22. The advantage of the EVNL-...-40 floodlights is the implementation of the "Ex nR" method of protection 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 floodlight.

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 plate. 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 floodlights, 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:



CERTIFICATION DATA

Classification:	Group II	Group 2D/3G		
Installation: EN 60079.14	zone 2 (Gas)	zone 21, 22 (Dust)		
Execution:	CE 0722 Ex II 2D Ex tb IIIC T... °C Db IP 66			zone 21,22
Certificate:	CE Ex II 3G Ex nR IIC T... °C Gc			zone 2
	ATEX	EPTI 20 ATEX 0389X	zone 21,22	
	ATEX	EPT 20 ATEX 4087X	zone 2	
	IEC Ex	IECEX EUT 20.0025X	For all IEC Ex certification data, download the certificate from www.cortemgroup.com	
	TR CU	DISPONIBLE		
Standard:	CENELEC EN 60079-0: 2018, EN 60079-15: 2010, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2017, IEC 60079-15: 2010, IEC 60079-31: 2013 European Directive 2004/108 Electromagnetic compatibility European Directive 2012/19/UE, 2002/96/CE, 2003/108/CE WEEE European Directive 2011/65/UE RoHS			
Temperature class:	<div><div> -60°C* +60°C </div></div>			
Protection rating:	IP66			

EVNL series LED floodlights for zone 2, 21, 22



EXEMPT FROM
PHOTOBIOLOGICAL RISK
(STANDARD IEC / EN 62471)

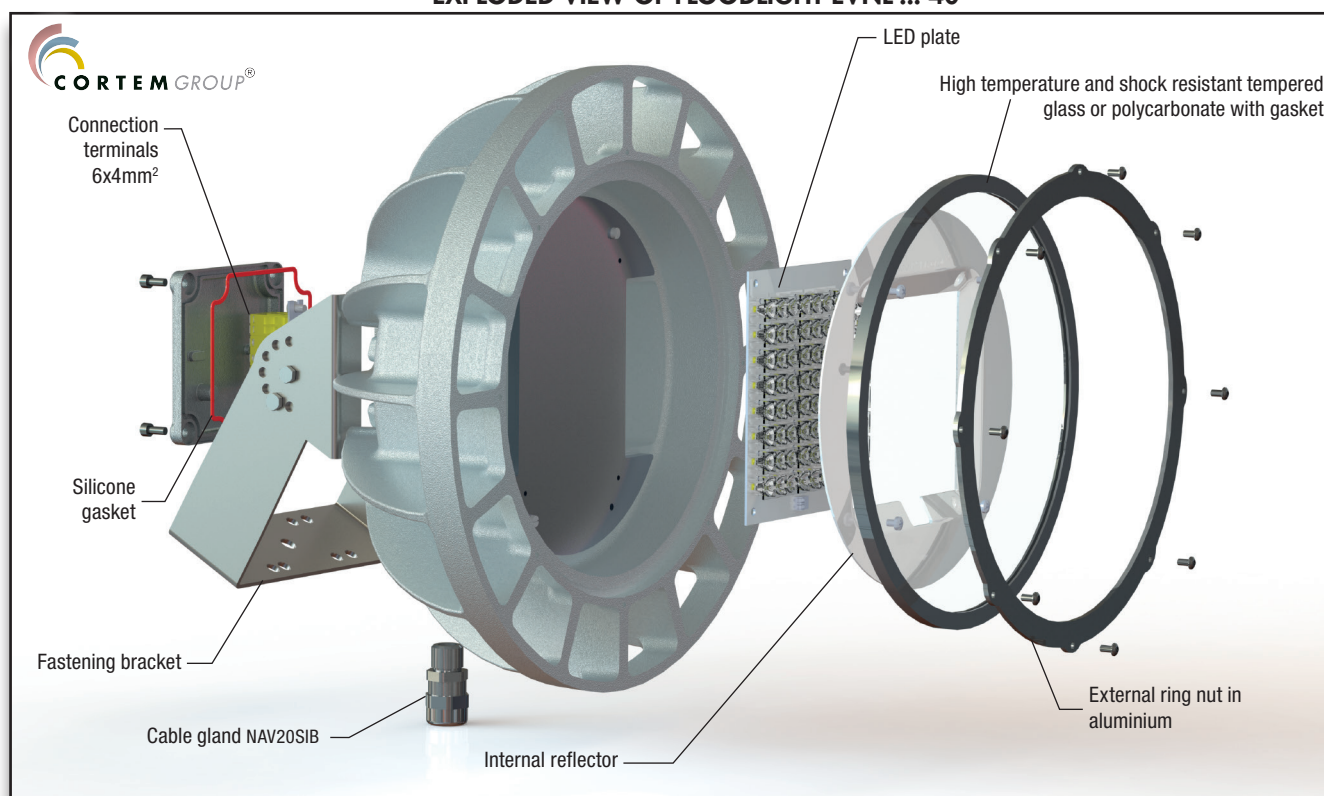


ORIGINAL PRODUCT

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 or polycarbonate
Gasket:	Acid, hydrocarbon and high temperature resistant
Fastening bracket:	Stainless steel
Screws:	Stainless steel
Entry points:	2 ISO M20 entry points fixture complete with a PLG11LXE7 plug and NAV20SIB 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 FLOODLIGHT EVNL-...-40



EVNL series LED floodlights for zone 2, 21, 22

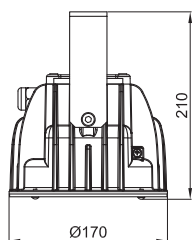
EVNL-.../40 series selection chart

Code	Rated 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					
EVNL-060040-40	40 W	T6 / 85°C	T5 / 100°C	T4 / 135°C	4598 lm	9518 cd	112 lm/W	2,5	215x205x170
EVNL-060050-40	50 W	T5 / 100°C	N/A	N/A	4986 lm	10321 cd	106 lm/W	2,5	215x205x170
EVNL-070050-40	50 W	T4 / 135°C	T4 / 135°C	T4 / 135°C	6489 lm	13432 cd	122 lm/W	3,3	250x235x165
EVNL-070060-40	60 W	T4 / 135°C	T4 / 135°C	T4 / 135°C	7594 lm	15720 cd	120 lm/W	3,3	250x235x165
EVNL-070070-40	70 W	T4 / 135°C	N/A	N/A	8102 lm	16771 cd	113 lm/W	3,3	250x235x165
EVNL-070080-40	80 W	T4 / 135°C	N/A	N/A	9081 lm	18799 cd	114 lm/W	3,3	250x235x165
EVNL-080080-40	80 W	T5 / 100°C	T4 / 135°C	T4 / 135°C	10923 lm	22612 cd	130 lm/W	4,3	290x290x170
EVNL-080090-40	90 W	T4 / 135°C	T4 / 135°C	T4 / 135°C	11775 lm	24374 cd	126 lm/W	4,3	290x290x170
EVNL-080100-40	100 W	T4 / 135°C	N/A	N/A	12509 lm	25896 cd	117 lm/W	4,3	290x290x170
EVNL-080120-40	120 W	T4 / 135°C	N/A	N/A	13719 lm	28400 cd	111 lm/W	4,3	290x290x170
EVNL-100140-40	140 W	T4 / 135°C	T4 / 135°C	T4 / 135°C	15532 lm	32153 cd	108 lm/W	9,2	385x385x250
EVNL-100160-40	160 W	T4 / 135°C	T4 / 135°C	T4 / 135°C	20466 lm	42367 cd	122 lm/W	9,2	385x385x250
EVNL-100180-40	180 W	T4 / 135°C	T4 / 135°C	T4 / 135°C	21378 lm	44255 cd	118 lm/W	9,2	385x385x250
EVNL-100200-40	200 W	T4 / 135°C	N/A	N/A	23828 lm	49327 cd	116 lm/W	9,2	385x385x250
EVNL-100220-40	220 W	T4 / 135°C	N/A	N/A	24542 lm	50803 cd	113 lm/W	9,2	385x385x250

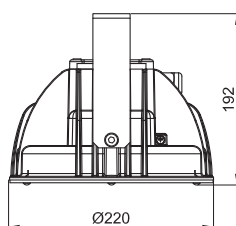
Dimensional drawing

EVNL-100...-40

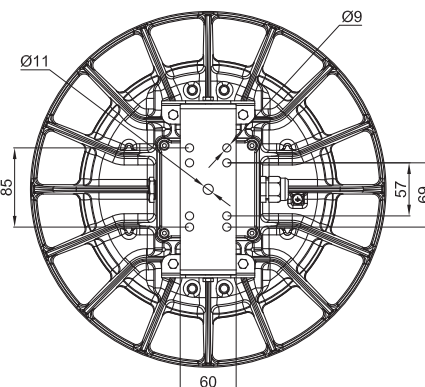
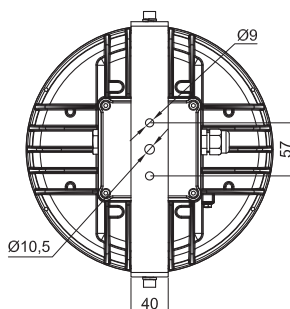
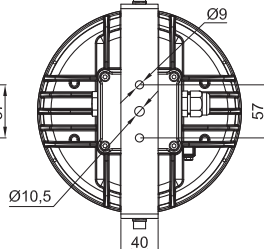
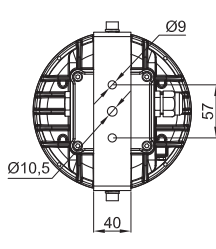
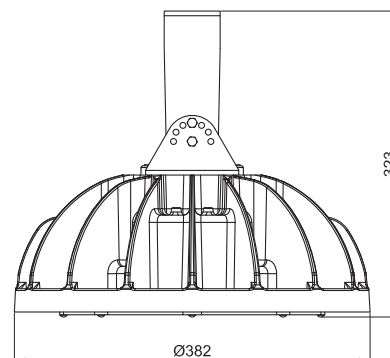
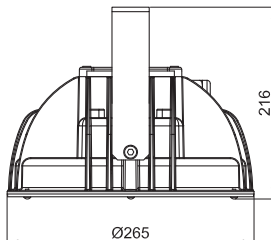
EVNL-060...-40



EVNL-070...-40



EVNL-080...-40



Dimensions in mm

EVNL series LED floodlights for zone 2, 21, 22







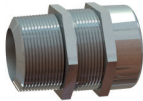

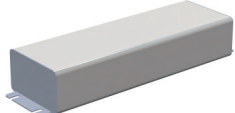



Electrical features	EVNL-060..	EVNL-070..	EVNL-080..	EVNL-100..
Power supply:	120-277 Vac	120-277 Vac	120-277 Vac	120-277 Vac
Rated frequency:	50-60 Hz $\pm 5\%$	50-60 Hz $\pm 5\%$	50-60 Hz $\pm 5\%$	50-60 Hz $\pm 5\%$
Power consumption*:	..040 40 W	..050 50 W	..080 80 W	..140 140 W
	..050 50 W	..060 60 W	..090 90 W	..160 160 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 4mm ² , 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	..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):	<10%			
Over-voltage protection:	4 kV	4 kV	4 kV	4 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:	40°	40°	40°	40°
Colour temperature:	5700 K	5700 K	5700 K	5700 K
CRI:	>70	>70	>70	>70
Instant Restrike:	YES	YES	YES	YES
L90:	> 145000 h	> 145000 h	> 145000 h	> 145000 h

* Test at 230Vac

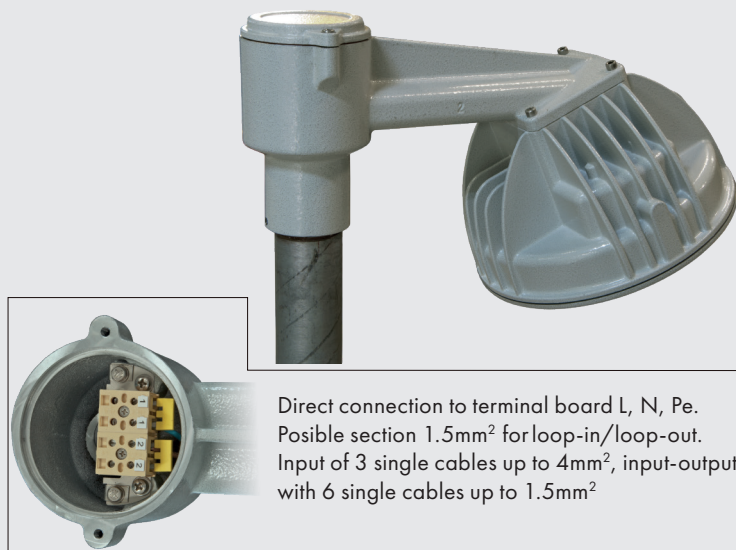
ACCESSORIES AVAILABLE / SPECIAL REQUESTS


CRI values higher
 Dimmer
 Different colour temperature
 U bolt for pole mounting
 Eyebolt
 Cover with direct connection for pole
 Additional NAV20SIB cable gland for unarmoured cable

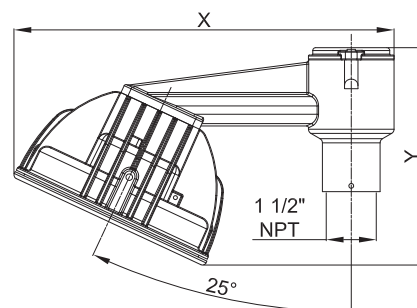
EVNL series LED floodlights for zone 2, 21, 22

ILLUSTRATION	DESCRIPTION	MODEL	CHARACTERISTICS	CODE	KEY
	Suspended eye bolt	Ø interno 20	Material: galvanized steel	G0F-8	 
	U-bolt for pole assembly	per pali Ø1 1/2"	Material: stainless steel AISI 316L	UBD5S	 
	Fastening bracket	EVNL-060...-40	Material: stainless steel AISI 316L	G-764IN	
		EVNL-070...-40		G-765IN	
		EVNL-080...-40		G-766IN	
		EVNL-100...-40		G-827	
	Cable gland	ISO M20	std. range cable 6,3÷11,6	NAV20SIB	
	Electronic power unit	EVNL-060030-40	120-277 Vac	LEDDEVL060/2	
		EVNL-060040-40		LEDDEVL060/2/1	
		EVNL-060050-40		LEDDEVL060/2	
		EVNL-070050-40	120-277 Vac	LEDDEVL070/1	
		EVNL-070060-40		LEDDEVL070/1/2	
		EVNL-070070-40		LEDDEVL070/1/3	
		EVNL-070080-40		LEDDEVL080/4/1	
		EVNL-080080-40	120-277 Vac	LEDDEVL080/4/2	
		EVNL-080090-40		LEDDEVL080/4/3	
		EVNL-080100-40		LEDDEVL080/4/4	
		EVNL-080120-40		LEDDEVL080/5/2	
		EVNL-100140-40	120-277 Vac	LEDDEVL100/1/1	
		EVNL-100160-40		LEDDEVL100/1/5	
		EVNL-100180-40		LEDDEVL100/1/2	
		EVNL-100200-40		LEDDEVL100/1/3	
		EVNL-100220-40		LEDDEVL100/1/4	
	Glass + gasket	EVNL-060...-40	Tempered front glass and black gasket	G-831 + G-944	
		EVNL-070...-40		G-830 + G70-955	
		EVNL-080...-40		G-829 + G80-955	
		EVNL-100...-40		G-852 + G100-955	

Stanchion mounting with fixed orientation at 25°



Code	X	Y	Peso kg	 mm
EVNL-060...-40-IX	372	215	3,5	372x170x215
EVNL-070...-40-IX	395	226	4,1	372x327x226
EVNL-080...-40-IX	419	242	5,2	351x351x242
EVNL-100...-40-IX	478	280	9,9	412x412x280



SLED

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

'Ex op is'
safe optical radiation

Tempered glass

*Painted aluminium
body and cover*

*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:



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 IIB+H ₂ T... Gb - Ex ob is tb IIIC T...°C Db IP66			
Certification:	ATEX	CML 19 ATEX 1312		
	IECEX	IECEX CML 17.0004		
	INMETRO DNV 19.0034 X For SLED-250, SLED-400, SLED-600, SLED-1000		All IEC Ex and INMETRO certification data can be downloaded at www.cortemgroup.com	
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 2004/108 Electromagnetic compatibility European Directive 2012/19/UE, 2002/96/CE, 2003/108/CE WEEE European Directive 2011/65/UE 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 T ₆ /85°C	-20°C + 60°C T ₅ /100°C	-40°C + 40°C T ₆ /85°C	-40°C + 60°C T ₅ /100°C
SLED-400	-20°C + 40°C T ₆ /85°C	-20°C + 60°C T ₅ /100°C	-40°C + 40°C T ₆ /85°C	-40°C + 60°C T ₅ /100°C
SLED-600	-20°C + 40°C T ₆ /85°C	-20°C + 60°C T ₅ /100°C	-40°C + 40°C T ₆ /85°C	-40°C + 60°C T ₅ /100°C
SLED-401	-20°C + 40°C T ₅ /98°C	-	-40°C + 40°C T ₅ /99°C	-
SLED-601	-20°C + 40°C T ₅ /90°C	-20°C + 50°C T ₅ /100°C	-40°C + 40°C T ₅ /90°C	-40°C + 50°C T ₅ /100°C
SLED-1000	-20°C + 40°C T ₅ /93°C	-20°C + 50°C T ₄ /103°C	-40°C + 40°C T ₅ /93°C	-40°C + 50°C T ₄ /103°C
SLED-1001	-20°C + 40°C T ₆ /85°C	-20°C + 55°C T ₅ /100°C	-40°C + 40°C T ₆ /85°C	-40°C + 55°C T ₅ /100°C

SLED series LED floodlights

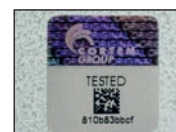
SLED-250



SLED-400



SLED-600



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-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)

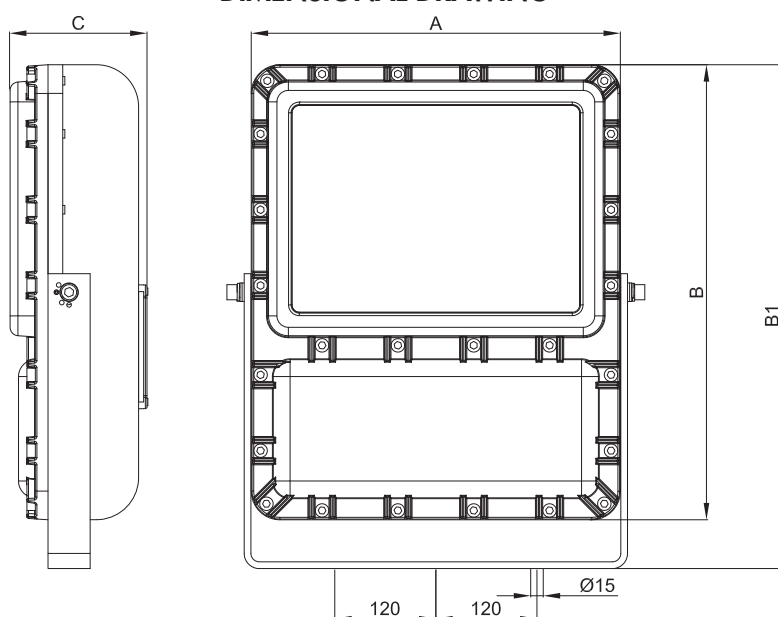
ACCESSORIES AVAILABLE / SPECIAL REQUESTS

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

SLED series LED floodlights

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

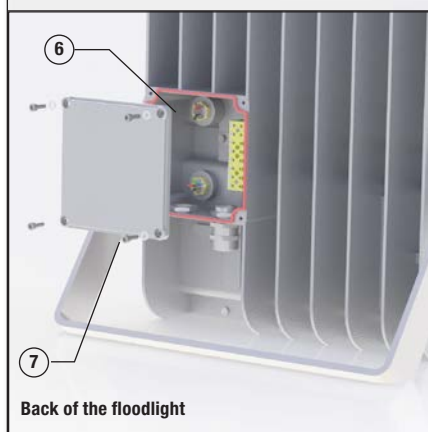


Dimensions in mm

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



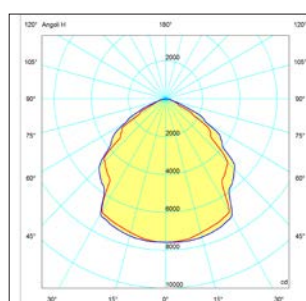
Back of the floodlight

SLED series LED floodlights "square shaped beam"

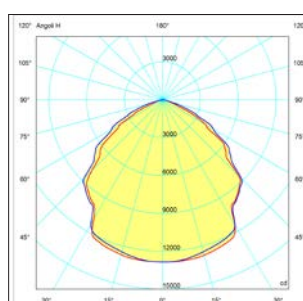
Electrical features	SLED-250	SLED-400	SLED-600
Power supply:	100-277 Vac $\pm 10\%$	120-277 Vac $\pm 10\%$	120-277 Vac $\pm 10\%$
Rated frequency:	50-60 Hz $\pm 5\%$	50-60 Hz $\pm 5\%$	50-60 Hz $\pm 5\%$
Power consumption*:	122 W	194 W	290 W
Connection:	Direct connection to terminal board L, N, Pe. Section 4mm ² , 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

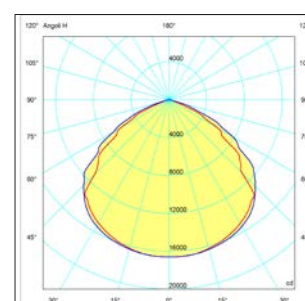
** Different CRI on request



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.

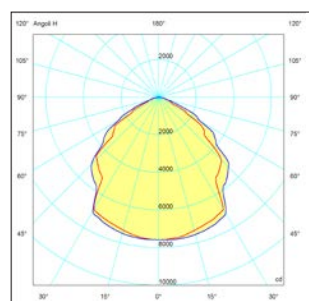
— = plane 90270
— = plane 0180

SLED series LED floodlights

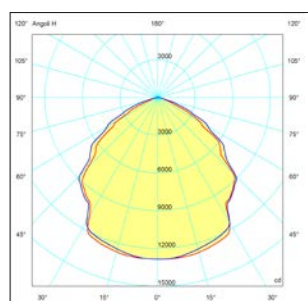
Electrical features	SLED-401	SLED-601	SLED-1000	SLED-1001
Power supply:	120-277 Vac $\pm 10\%$	120-277 Vac $\pm 10\%$	120-277 Vac $\pm 10\%$	100-240 Vac $\pm 10\%$
Rated frequency:	50-60 Hz $\pm 5\%$	50-60 Hz $\pm 5\%$	50-60 Hz $\pm 5\%$	50-60 Hz $\pm 5\%$
Power consumption*:	180 W	290 W	400 W	500 W
Connection:	Direct connection to terminal board L, N, Pe. Section 4mm ² , 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

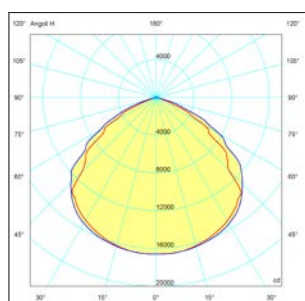
** Different CRI on request



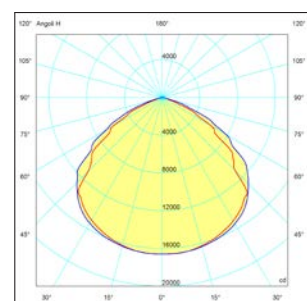
SLED-401 Luminous flux:
18490 lm



SLED-601 Luminous flux:
32092 lm



SLED-1000 Luminous flux:
46145 lm



SLED-1001 Luminous flux:
58045 lm

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

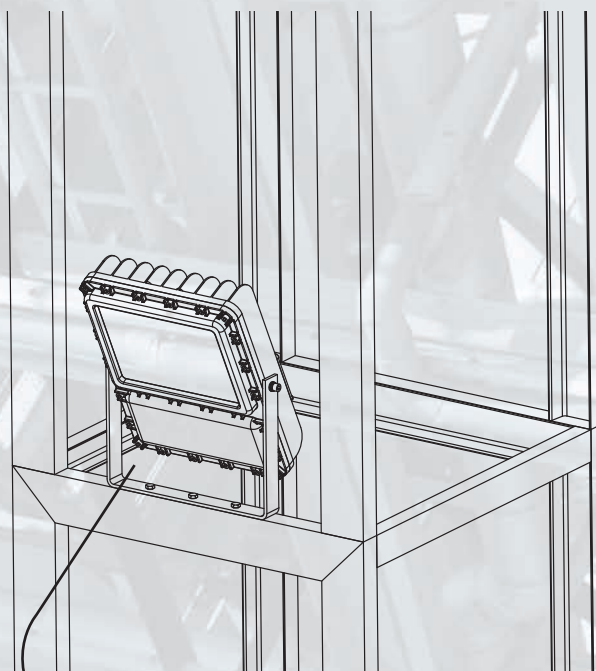
SLED series Accessories and spare parts available on request

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	 
	Frame for pole mounting	Per tutti i modelli	Material: galvanised steel	G-0534	 
	Swivel base for 360° adjustment	SLED-400 SLED-601 SLED-600 SLED-1000 SLED-1001	Material: aluminum RAL 7035 painted	G-326 + G-327	 
	Cable gland for nonarmored cables	SLED-250 SLED-401	std. range cable 6,3÷11,6	NAV20SiB	 
		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	
		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	
		SLED-400 SLED-601		G-896	
		SLED-600 SLED-1000 SLED-1001		G-558	
	Optics	SLED-250 SLED-400 SLED-600	Material: polycarbonate	PIXEL12	
	Power supply	SLED-250	100-277 Vac	LEDDEV100	
		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	LEDDEV100 (x2)	
		SLED-1001	100-277 Vac	LEDDSLED1001	

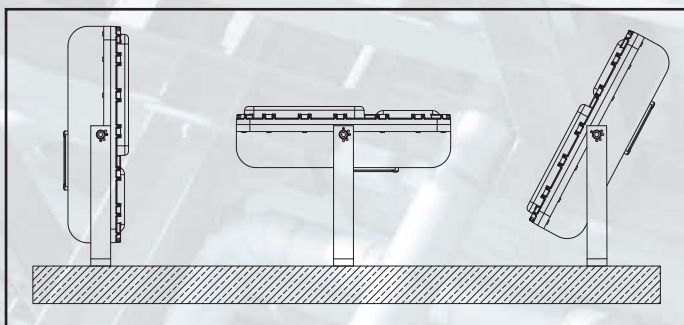
Example of pole mounting



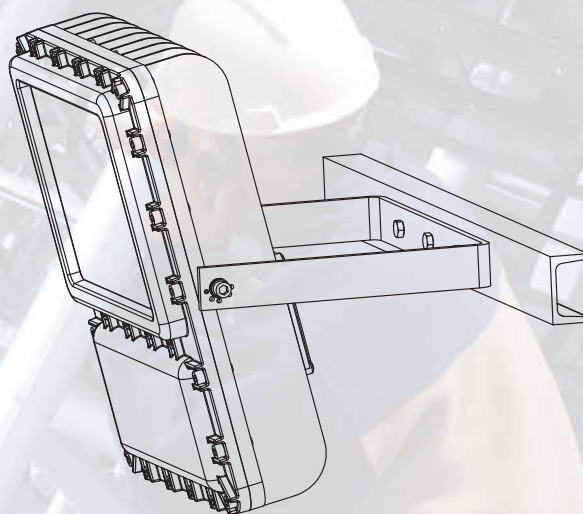
Example of vertical mounting on structure



Angle of rotation of 360 °



Example of horizontal mounting on structure



Life^x-M

- Complete with high efficiency LED strip lights
- Low consumption
- Compact size
- Easy to install
- Zone 1, 2, 21, 22
- 5 years warranty
- IK09 (IK10 with protective cage)



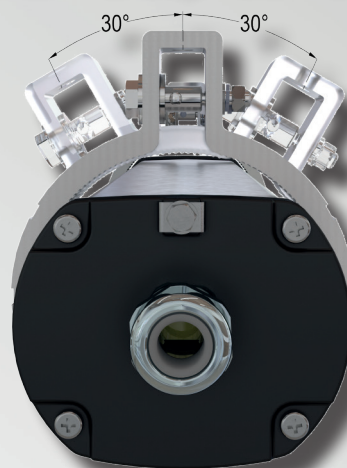
Patent Pending

Fastening brackets adjustable

Aluminium alloy extrusion



Fastening brackets with 2 holes
M8, adjustable 0° to ±30°
"Cortem Group Technology"



Metal cable glands

LifEx-M series Linear LED lighting fixture in aluminum

LifEx-M lighting fixtures are the first LED native linear fixtures, featuring an innovative design by Cortem Group, created in response to customer requirements.

The product architecture has been carefully designed. The aim is to manage the full product lifecycle optimally as part of a circular economy, and maximise the product's useful life. The result is a compact, lightweight lighting fixture that is easy to install, while also being robust and long lasting.

They feature a high-quality anodised aluminium body and a glass diffuser which is resistant to impact and high temperatures. They have an innovative bracket mechanism, with no fixed interaxis spacing limitations, which makes them easy to install or retrofit and means the lighting fixture can be rotated to $-30^{\circ}/0^{\circ}/+30^{\circ}$. The LifEx range comes in different lengths with a wide array of voltage and power specifications. The range has been optimally designed and certified according to the installation zone and, in addition to passing all tests required by the regulations, it has passed additional mechanical and electrical tests such as vibration testing, IP66, soft start, surge testing and more.

The use of high-power LED strip lights provides a lumen output from 1,000 lm to 15,500 lm, making the range highly efficient and long lasting in terms of its electronics and light engineering.

Sectors of application:



Offshore facilities



Agribusiness facilities



Onshore facilities



Low temp. environments



Chemical and petrochemical facilities



Waste water treatment plants





Naval installations



100% produced by Cortem

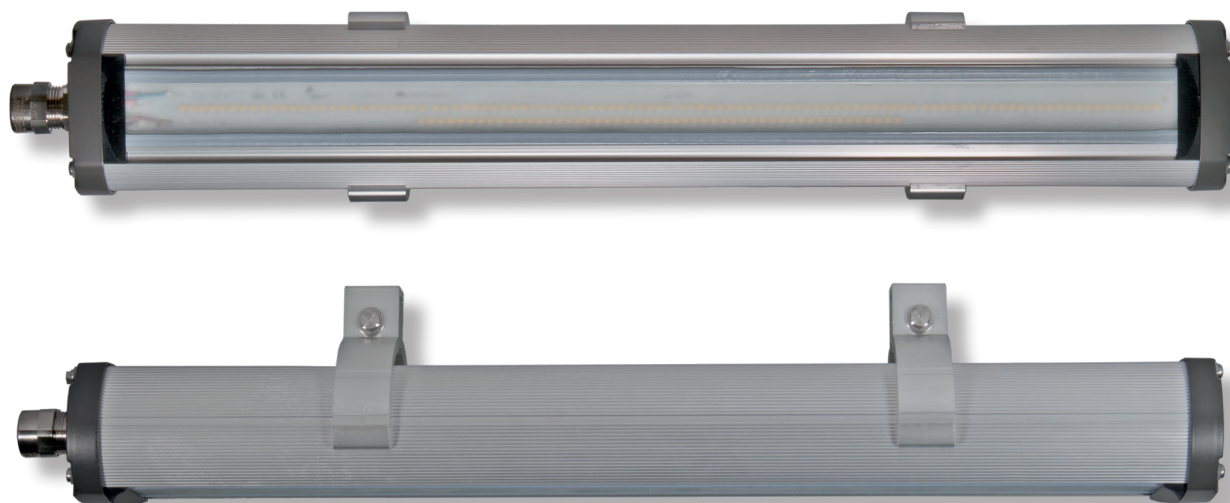
CERTIFICATE DATA

Classification:	Group II	Category 2GD/3G	
Installation: EN 60079.14	zone 1, 2, 21, 22 LifEx-ME	zone 2, 21, 22 LifEx-MN	
Marking:	CE 0722 Ex II 2GD - Ex db eb mb IIC T.. Gb - Ex tb IIIC T..°C Db - IP66		LifEx-ME
	CE Ex II 3G - Ex ec IIC T.. Gc CE 0722 Ex II 2D - Ex tb IIIC T..°C Db - IP66		LifEx-MN
Certificate:	ATEX CML 20 ATEX 3018X	LifEx-ME	
	ATEX CML 20 ATEX 3019X ATEX CML 20 ATEX 3018X	LifEx-MN	
	IEC Ex CML 20.0008X	For all IEC Ex, TR CU, UKEX and INMETRO certificate data download the certificate from www.cortemgroup.com	
	UKEX AVAILABLE		
	INMETRO DNV 21.0090X		
Standards:	CENELEC EN60079-0: 2018, EN60079-1: 2014, EN60079-7: 2015, EN60079-18: 2015, EN60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/EU IEC60079-0: 2017, IEC60079-1: 2014, IEC60079-18: 2014, IEC60079- 31: 2013, IEC60079-7: 2015 European Directive 2004/108 Electromagnetic compatibility European Directive 2012/19/UE, 2002/96/CE, 2003/108/CE WEEE European Directive 2011/65/UE RoHS		
 Temperature class:	For all permitted ambient temperature classes, please see the "Selection tables"		
 Ambient temperature:	-60°C for models without a battery -20°C or -60°C* for versions with a battery		For all permitted ambient temperature ranges, please see the "Selection tables"
Degree of protection:	IP66		



* Emergency lighting fixture with special battery for -60°C

LifEx-M series Linear LED lighting fixture in aluminum



NO PHOTOBIOLOGICAL
RISK
(IEC / EN 62471 STANDARD)



ORIGINAL PRODUCT

MECHANICAL FEATURES

Body:	Aluminium alloy extrusion and end caps, resistant to atmospheric and marine corrosion
Clear part:	Glass resistant to shocks, impact and UV rays
Gaskets:	Acid and hydrocarbon resistant silicone
Internal frame:	Aluminium extrusion
Screws:	Stainless steel
Entry points:	Max. 4 entries Ø25.5. Standard version with 2 holes Ø20.5 side (1) complete with 1 NAV20IB and 1 PLG11B. For the other versions, plugs and cable glands are on request
Assembly:	Fastening brackets for M8 holes, adjustable 0° to ±30°

ELECTRICAL FEATURES

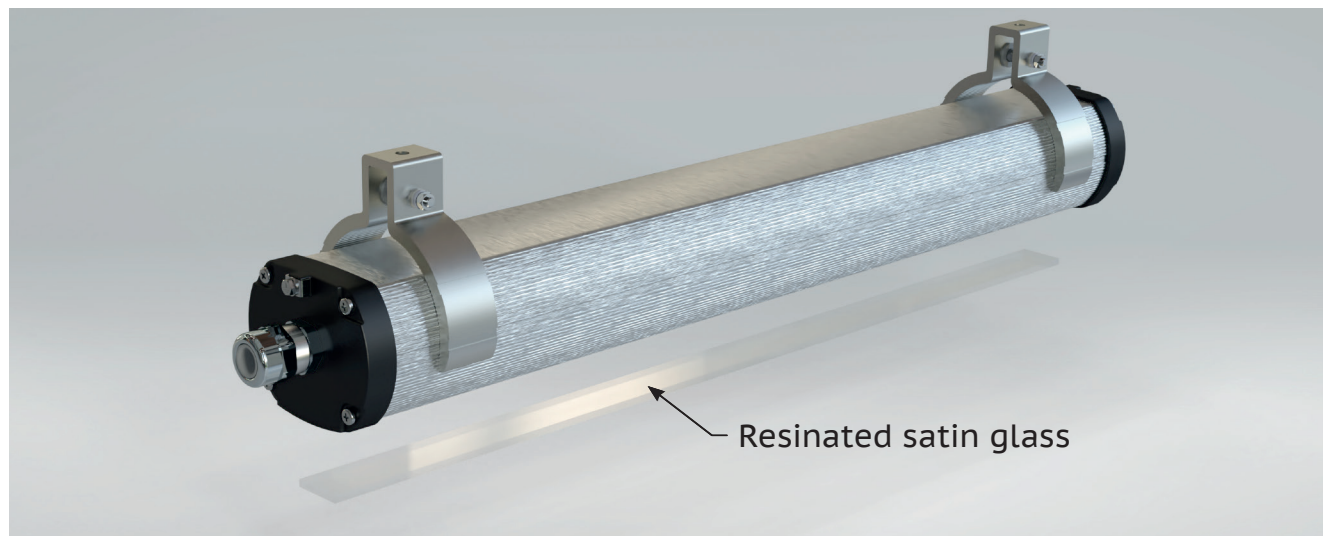
Power unit:	Electronic
Rated voltage:	110-277 Vac (for more information, see the Selection tables)
Rated frequency:	50/60 Hz
Connection:	Directly to the terminal board L, N, Pe cross sec. max. 4 mm ² jumpered terminal board suitable for in-out from a single side
Emergency unit:	Electronic inverter 110/277 Vac 50/60 Hz, 110/270 Vdc. Batteries Ni/Mh, 1.8 Ah or 3 Ah, 6V Battery charging monitored by high luminosity green LED
Cabling:	Rigid cables for high temperatures

ACCESSORIES UPON REQUEST / SPECIAL REQUESTS

Pole fastening mechanism
Cage
Coloured LED strip lights
Emergency lighting fixture with battery box to facilitate battery maintenance/replacement operations (example code: LifEx-ME-1230N-AE)
Emergency lighting fixture with battery heater (internal component) for ambient temperatures of -60°C, supplied voltage 230Vac. (example code: LifEx-ME-1230NH)
Connection through wiring (code example: LifEx-ME-1230-AAT)
Driver multirange
Cable gland
Plugs
Electrical connectors

LifEx-M series Linear LED lighting fixture in aluminum

The LifEx is a range of tubular LED lighting fixtures that are available in two different configurations for different applications, designated as the **LifEx-ME** and **LifEx-MN**.



LifEx-ME

The "ME" versions are designed to be used in ATEX areas classified as "Zone 1-2" and "Zone 21-22", that is where the equipment installed must guarantee a high level of protection both in the presence of mixtures of gases, vapours and mists (Zone 1) and in the presence of combustible dusts and particles (Zone 21). LifEx-ME has an EPL (Equipment Protection Level) Gb, Db.

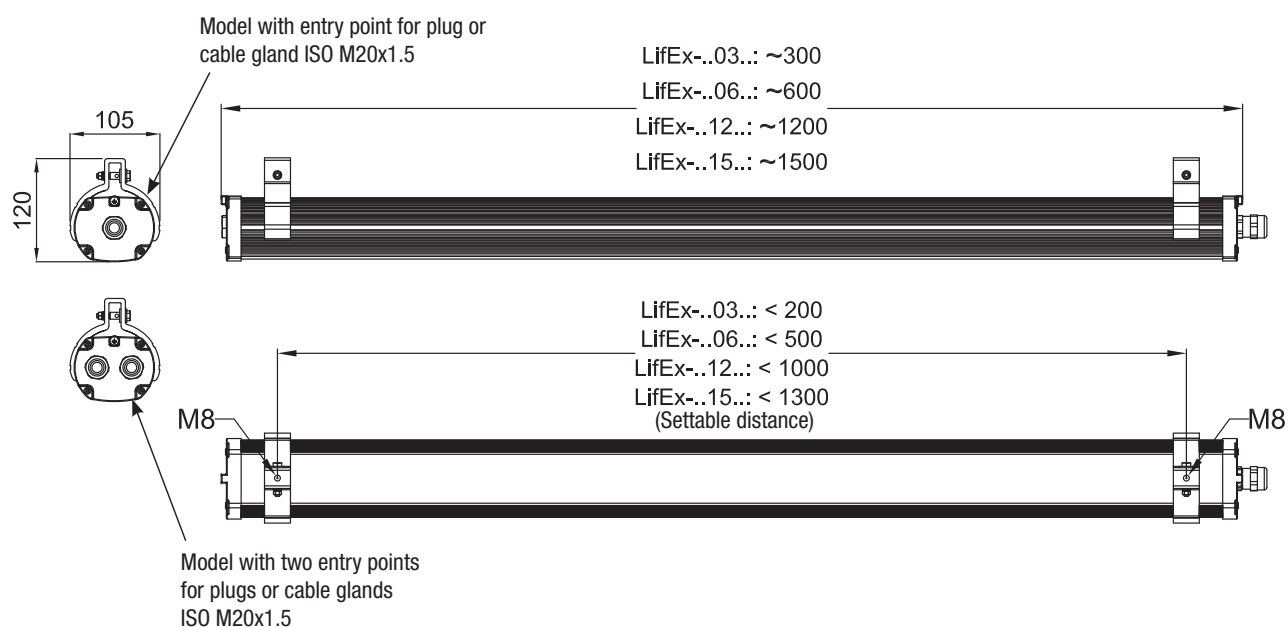
This safety is guaranteed by a combination of protection methods 'Ex db eb mb' for gas and 'Ex tb' for dust.

LifEx-MN

The "MN" versions are designed to be used in ATEX areas classified as "Zone 2" and "Zone 21-22", that is where the equipment installed must guarantee a normal level of protection in the presence of mixtures of gases, vapours and mists (Zone 2), and a high level of protection against dusts and combustible particles (Zone 21). LifEx-MN has an EPL (Equipment Protection Level) Gc, Db.

This safety is guaranteed by the 'Ex ec' protection methods for gases and 'Ex tb' for dusts.


DIMENSIONAL DRAWING





LifEx-M series Linear LED lighting fixture in aluminum

Selection table.

Temperature classes and maximum surface temperatures.

Normal operation											
Code	Real power Watt	Rated power Watt	Supply voltage Volt	Temperature class / Maximum surface temperature			Lumen lm	Light intensity cd	Overall efficiency Lm/W	Weight kg	 mm
				+40°C	+50°C	+60°C					
LifEx-ME-0315	13,9	15,0	220-240 Vac	T62°C/T6	T67°C/T6	T77°C/T5	1865	738	134	1,5	541x103x132
LifEx-ME-0330	26,6	30,0	220-240 Vac	T58°C/T6	T73°C/T5	T78°C/T4	3697	1345	140	1,5	541x103x132
LifEx-ME-0615	15,0	15,0	220-240 Vac	T62°C/T6	T67°C/T6	T77°C/T5	2008	777	134	2,5	840x103x132
LifEx-ME-0630	26,2	30,0	110-277 Vac	T85°C/T6	T90°C/T5	T100°C/T4	3677	1345	140	2,5	840x103x132
LifEx-ME-0645	43,5	45,0	220-240 Vac	T88°C/T6	T93°C/T5	-	6200	2248	143	2,5	840x103x132
LifEx-ME-0660	54,5	60,0	220-240 Vac	T100°C/T6	-	-	8011	2924	147	2,5	840x103x132
LifEx-ME-1230	29,0	30,0	110-277 Vac	T65°C/T6	T70°C/T6	T80°C/T5	4112	1451	142	3,5	1398x103x132
LifEx-ME-1260	55,7	60,0	220-240 Vac	T85°C/T6	T90°C/T5	T100°C/T4	8316	2930	149	3,5	1398x103x132
LifEx-ME-1290	79,3	90,0	220-240 Vac	T94°C/T6	T99°C/T4	T109°C/T4	12228	4323	154	3,5	1398x103x132
LifEx-ME-12120	102,6	120,0	220-277 Vac	T96°C/T5	T101°C/T4	-	16029	5662	156	3,4	1398x103x132
LifEx-ME-1590	78,6	90,0	220-240 Vac	T94°C/T6	T99°C/T4	T109°C/T4	11926	4204	152	4,0	1738x103x132

Normal operation + emergency										
Code	Real power Watt	Rated power Watt	Supply voltage Volt	Temperature class / Maximum surface temperature			Lumen lm **	Discharge time in minutes	Weight kg	 mm
				+40°C	+50°C	+60°C				
LifEx-ME-0615N	15,0	15,0	220-240 Vac	T62°C/T6	T67°C/T6	T77°C/T5	980	90	3,0	840x103x132
LifEx-ME-0630N	26,2	30,0	220-240 Vac	T85°C/T6	T90°C/T5	T100°C/T4	980	90	3,0	840x103x132
LifEx-ME-1230N*	29,0	30,0	110-277 Vac	T65°C/T6	T70°C/T6	T80°C/T6	994	180	4,5	1398x103x132
LifEx-ME-1260N*	55,7	60,0	220-240 Vac	T85°C/T6	T90°C/T5	T100°C/T4	994	180	4,5	1398x103x132
LifEx-ME-1590N*	78,6	90,0	220-240 Vac	T94°C/T6	T99°C/T4	T109°C/T4	932	180	5,0	1738x103x132

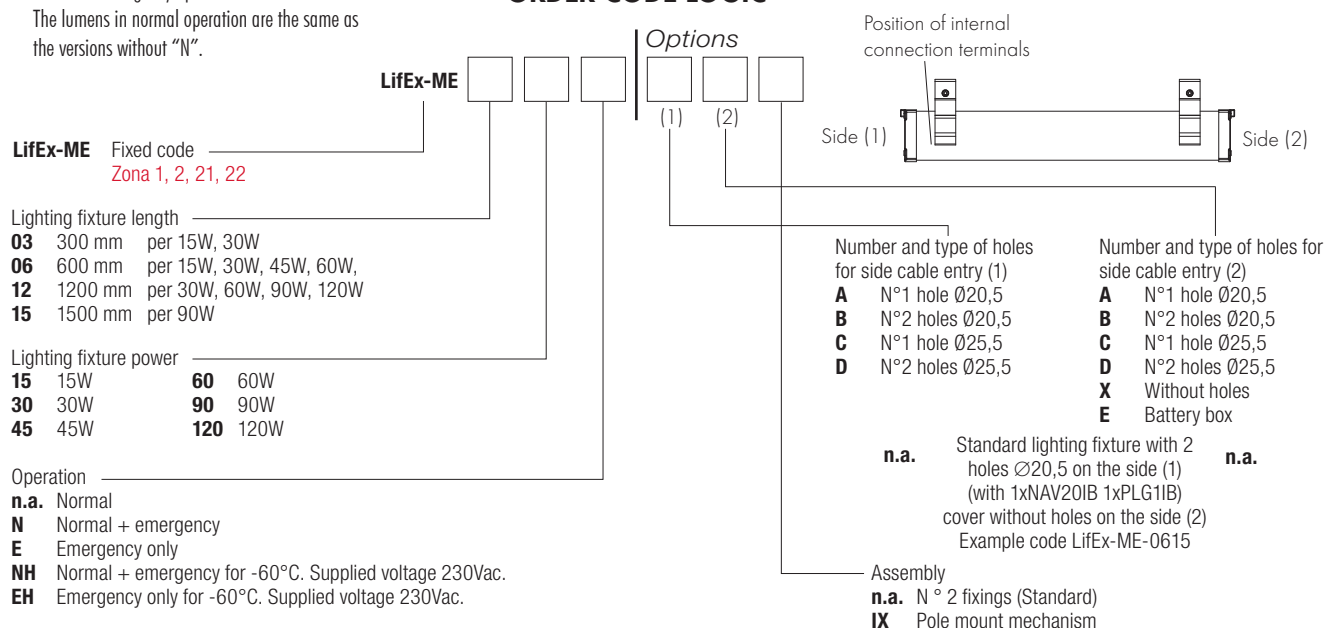
Emergency operation only								
Code	Supply voltage Volt	Temperature class / Maximum surface temperature			Lumen lm	Discharge time in minutes	Weight kg	 mm
		+40°C	+50°C	+60°C				
LifEx-ME-0615E*	110-277 Vac	T62°C/T6	T67°C/T6	T77°C/T5	1167	90	2,5	840x103x132
LifEx-ME-1230E*	110-277 Vac	T65°C/T6	T70°C/T6	T80°C/T5	1151	90	3,5	1398x103x132

* Models with emergency feature available -60°C

** Lumen in emergency operation.

The lumens in normal operation are the same as the versions without "N".


ORDER CODE LOGIC




LifEx-M series Linear LED lighting fixture in aluminum

Selection table.

Temperature classes and maximum surface temperatures.

Normal operation											
Code	Real power Watt	Rated power Watt	Supply voltage Volt	Maximum surface temperature			Lumen lm	Light intensity cd	Overall efficiency Lm/W	Weight kg	 mm
				+40°C	+50°C	+60°C					
LifEx-MN-0615	15,0	15,0	220-240 Vac	T62°C/T6	T67°C/T6	T77°C/T5	2008	777	134	2,0	840x103x132
LifEx-MN-0630	26,2	30,0	220-240 Vac	T85°C/T6	T90°C/T5	T100°C/T4	3677	1345	140	2,0	840x103x132
LifEx-MN-0645	43,5	45,0	220-240 Vac	T88°C/T6	T93°C/T5	-	6200	2248	143	2,0	840x103x132
LifEx-MN-0660	54,5	60,0	220-240 Vac	T100°C/T6	-	-	8011	2924	147	2,0	840x103x132
LifEx-MN-1230	29,0	30,0	220-240 Vac	T65°C/T6	T70°C/T6	T80°C/T5	4112	1451	142	3,0	1398x103x132
LifEx-MN-1260	55,7	60,0	220-240 Vac	T85°C/T6	T90°C/T5	T100°C/T4	8316	2930	149	3,0	1398x103x132
LifEx-MN-1290	79,3	90,0	220-240 Vac	T94°C/T6	T99°C/T4	T109°C/T4	12228	4323	154	3,0	1398x103x132
LifEx-MN-1590	78.6	90,0	220-240 Vac	T94°C/T6	T99°C/T4	T109°C/T4	11926	4204	152	3.5	1738x103x132

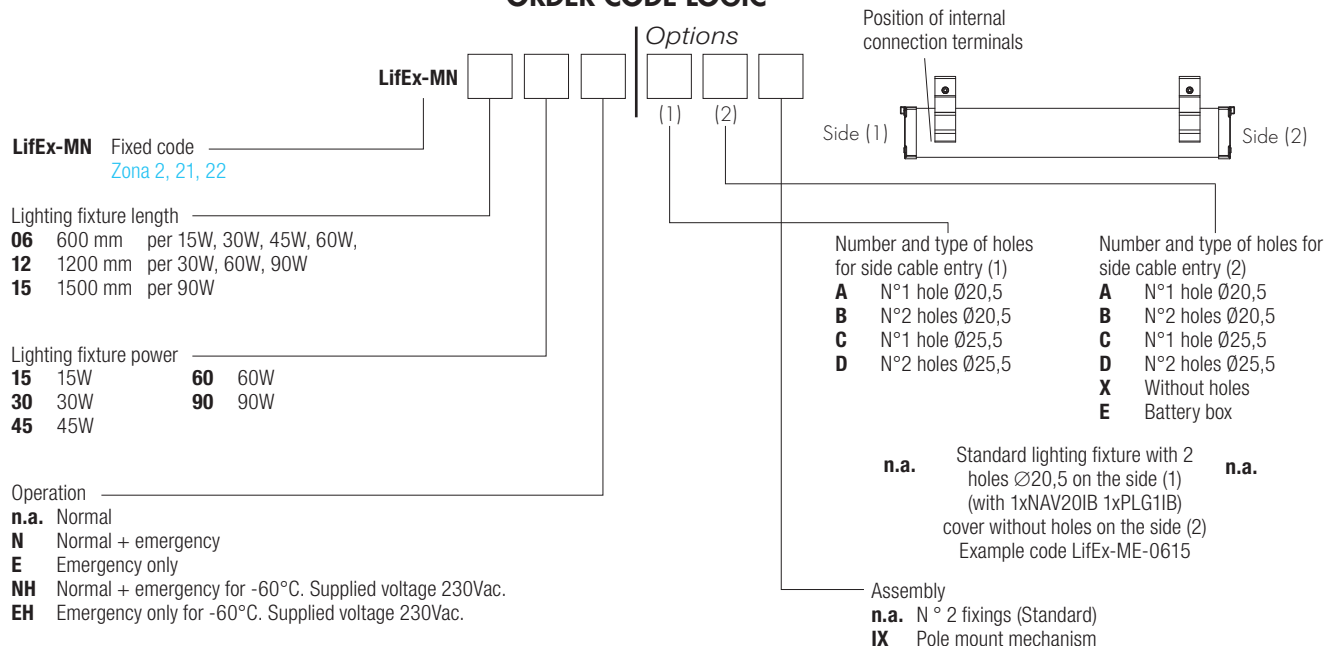
Normal operation + emergency										
Code	Real power Watt	Rated power Watt	Supply voltage Volt	Maximum surface temperature			Lumen lm	Discharge time in minutes	Weight kg	mm
				+40°C	+50°C	+60°C				
LifEx-MN-0615N	15,0	15,0	220-240 Vac	T62°C/T6	T67°C/T6	T77°C/T5	980	90	3,0	840x103x132
LifEx-MN-0630N	26,2	30,0	220-240 Vac	T85°C/T6	T90°C/T5	T100°C/T4	980	90	3,0	840x103x132
LifEx-MN-1230N*	29,0	30,0	220-240 Vac	T65°C/T6	T70°C/T6	T80°C/T5	994	180	4,5	1398x103x132
LifEx-MN-1260N*	55,7	60,0	220-240 Vac	T85°C/T6	T90°C/T5	T100°C/T4	994	180	4,5	1398x103x132
LifEx-MN-1590N*	78,6	90,0	220-240 Vac	T94°C/T6	T99°C/T4	T109°C/T4	932	180	5,0	1738x103x132

Emergency operation only								
Code	Supply voltage Volt	Maximum surface temperature			Lumen lm	Discharge time in minutes	Weight kg	 mm
		+40°C	+50°C	+60°C				
LifEx-MN-0615E*	110-277 Vac	T62°C/T6	T67°C/T6	T77°C/T5	1167	90	2,0	840x103x132
LifEx-MN-1230E*	110-277 Vac	T65°C/T6	T70°C/T6	T80°C/T5	1151	90	3,0	1398x103x132

* Models with emergency feature available -60°C

** The lumens in normal operation are the same as the versions without "N".

ORDER CODE LOGIC









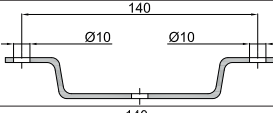


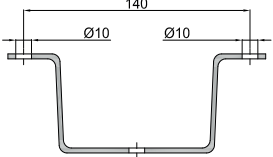


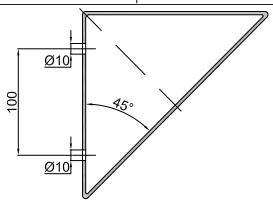


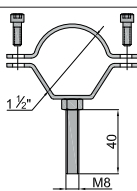





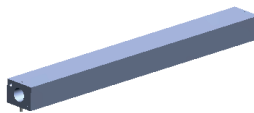

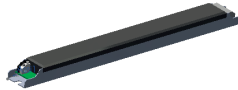

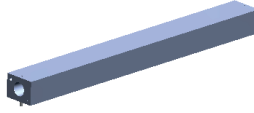

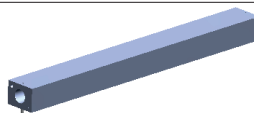

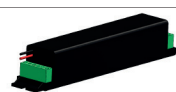



LifEx-M series Linear LED lighting fixture in aluminum

Electrical features	LifEx-ME-03..	LifEx-ME-06..	LifEx-ME-12..	LifEx-ME-15..
Supply voltage:	..15 220-240 Vac	..15 220-240 Vac	..30 110-277 Vac	..90 120-277 Vac
	-	..30 110-277 Vac	..60 110-277 Vac	-
	-	..45 110-277 Vac	..90 120-277 Vac	-
	-	..60 110-277 Vac	..120 220-277 Vac	-
	-	-	-	-
Rated frequency:	50-60 Hz ±5%	50-60 Hz ±5%	50-60 Hz ±5%	50-60 Hz ±5%
Lamp real power consumption:	..15 13,9 W	..15 15,0 W	..30 29,0 W	..90 78,6 W
	..30 26,6 W	..30 26,2 W	..60 55,7 W	-
	-	..45 43,5 W	..90 79,3 W	-
	-	..60 54,5 W	..120 102,6 W	-
	-	-	-	-
Connection:	Direct connection to terminal board L, N, Pe. Section 4mm², suitable for loop-in/loop-out			
Power factor:	..15 0,96	..15 0,97	..30 0,93	..90 0,98
	..30	..30 0,93	..60 0,96	-
	-	..45 0,93	..90 0,98	-
	-	..60 0,96	..120 0,98	-
	-	-	-	-
Rated current:	..15 70 mA	..15 70 mA	..30 150 mA	..90 350 mA
	..30 150 mA	..30 150 mA	..60 250 mA	-
	-	..45 200 mA	..90 350 mA	-
	-	..60 250 mA	..120 500 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:	1 kV	1 kV	..30 1 kV	4 kV
			..60 1 kV	
			..90 4 kV	
			..120 4 kV	
Driver performance levels:	Over-Voltage Protection, Over-Current Protection, Short-Circuit Protection			
Dimmer (on request):	0-10V PWM			
Photometric features				
Multichip LED:	Mid power			
Viewing angle:	120°			
Colour temperature:	5000 K			
CRI:	>80			
Instant Restrike:	YES			
L90:	> 54000 hours			




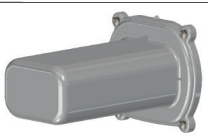










LifEx-M series Linear LED lighting fixture in aluminum

Electrical features	LifEx-MN-06..	LifEx-MN-12..	LifEx-MN-15..
Supply voltage:	..15 220-240 Vac	..30 220-240 Vac	..90 220-240 Vac
	..30 220-240 Vac	..60 220-240 Vac	-
	..45 220-240 Vac	..90 220-240 Vac	-
	..60 220-240 Vac	-	-
	-	-	-
Rated frequency:	50-60 Hz ±5%	50-60 Hz ±5%	50-60 Hz ±5%
Lamp real power consumption:	..15 15,0 W	..30 30,2 W	..90 80,3 W
	..30 31,5 W	..60 56,9 W	-
	..45 45,1 W	..90 80,4 W	-
	..60 58,1 W	-	-
	-	-	-
Connection:	Direct connection to terminal board L, N, Pe. Section 4mm², suitable for loop-in/loop-out		
Power factor:	..15 0,97	..30 0,93	..90 0,98
	..30 0,93	..60 0,96	-
	..45 0,93	..90 0,98	-
	..60 0,96	-	-
	-	-	-
Rated current:	..15 70 mA	..30 150 mA	..90 350 mA
	..30 150 mA	..60 250 mA	-
	..45 200 mA	..90 350 mA	-
	..60 250 mA	-	-
	-	-	-
EMC (Electromagnetic Compatibility):	EN 55015, EN 61547, IEC 61000-3-2, IEC 61000-3-3		
THD (Total Harmonic Distortion):	<8% 230 Vac, 50 Hz		
Over-voltage protection:	1kV		
Driver performance levels:	Over-Voltage Protection, Over-Current Protection, Short-Circuit Protection		
Photometric features			
Multichip LED:	Mid power		
Viewing angle:	120°		
Colour temperature:	5000 K		
CRI:	>80		
Instant Restrike:	YES		
L90:	> 54000 hours		

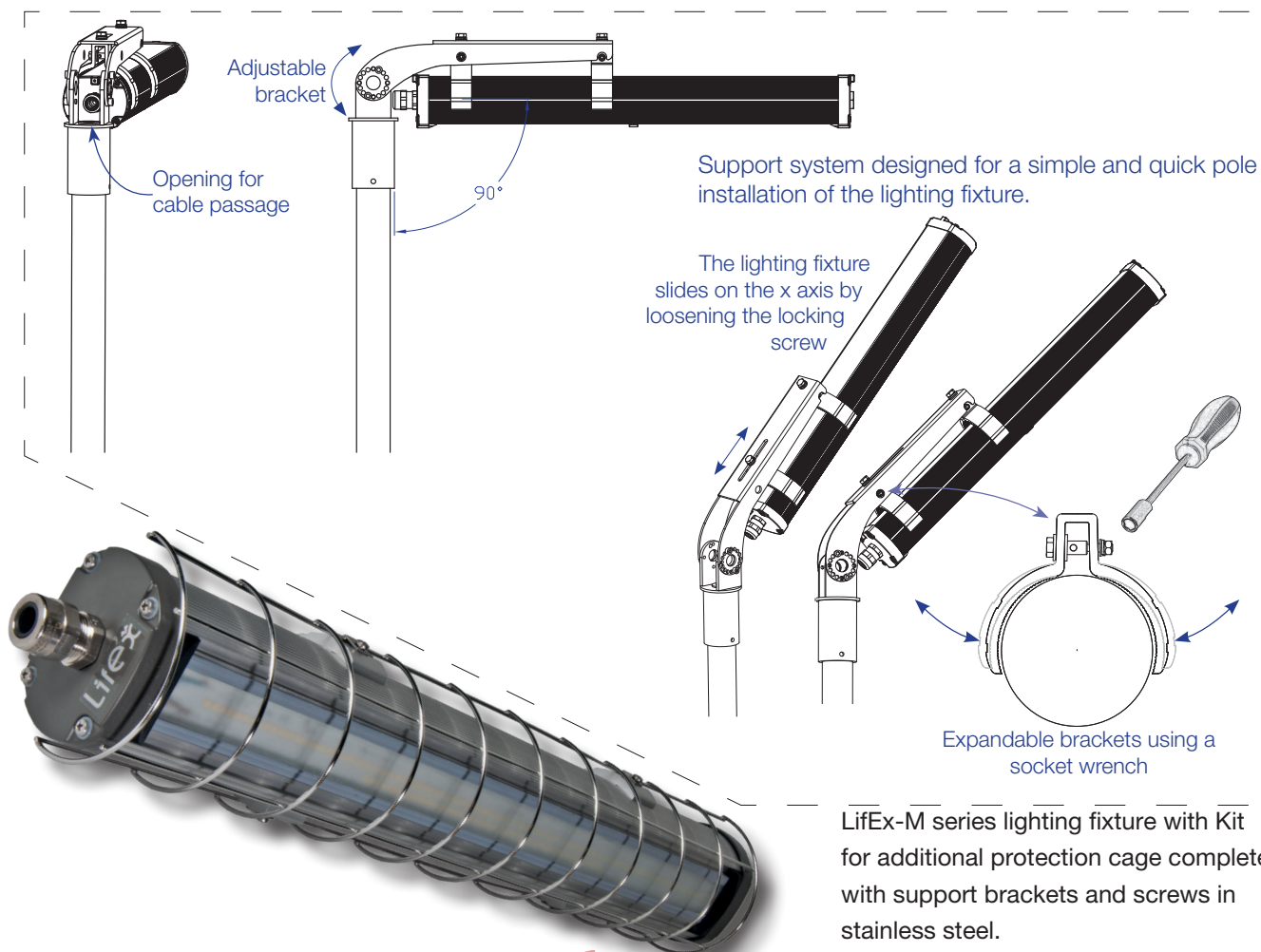
LifEx-M series Linear LED lighting fixture in aluminum

ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	KEY
	Rod	Length: 250 mm	Material: stainless steel	BRF8MIN/250	 
	O-type eye bolt		Material: galvanized steel	G0F-8	 
	Bracket type U complete with screws		Material bracket: galvanized steel screws: stainless steel	G-0609	 
	Bracket type V complete with screws		Material bracket: galvanized steel screws: stainless steel	G-0610	 
	Bracket type D complete with screws		Material bracket: galvanized steel screws: stainless steel	G-0611	 
	Bracket type P		Material: galvanized steel	G-0480	 
	Cable gland		For cable gland models and codes, please see www.cortemgroup.com	NAV20IB	 
	Resinated electronic power unit	LifEx-ME-0315 LifEx-ME-0330		EBL3040-1-10/1	
		LifEx-ME-0615		EBL3040-1-15	
		LifEx-ME-0630 LifEx-ME-0645 LifEx-ME-1230 LifEx-ME-1230N		EBL3040-1-30	
		LifEx-ME-0660 LifEx-ME-1260 LifEx-ME-1260N		EBL3040-1-60	
		LifEx-ME-1290 LifEx-ME-12120 LifEx-ME-1590 LifEx-ME-1590N		EBL3040-1-90	
	Electronic power unit	LifEx-MN-..		LEDDLIFEXN	
	Electronic power unit and inverter	LifEx-ME-0615N		EBL4040-2-15N	
		LifEx-ME-0630N		EBL4040-2-30N	
	Resinated inverter	LifEx-ME-..E LifEx-ME-12..N LifEx-ME-15..N		EIL4040-1	
	Inverter	LifEx-MN-..E LifEx-MN-..N		INVERTER/LED/NM	
	Battery for -60°C	Duration 180 minutes	3 Ah	G-0698	

LifEx-M series Linear LED lighting fixture in aluminum

ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	KEY
	Battery unit	LifEx-M...-...E LifEx-ME-06-...N	NiMH, 1.8Ah	G-1096/B	
		LifEx-MN-06...N LifEx-M...-12...N LifEx-M...-15...N	NiMH, 3Ah	G-1097/F	
		Duration 180 minutes	3 Ah	G-0707/3AH	
	Battery box	Duration 90 minutes	1.8 Ah	G-0707/1.8AH	
	Pole bracket Ø1 1/2"	LifEx-M....	Material: galvanized steel	G-0686	 
	Protective cage kit	LifEx-M...-03...	Material: Stainless steel AISI 316L with electropolishing treatment	G01-0675	 
		LifEx-M...-06...		G1-0675	
		LifEx-M...-12...		G2-0675	
		LifEx-M...-15...		G3-0675	
	Electrical connectors	LifEx-M....	For models and codes, visit www.cortemgroup.com	FASTEX...	 

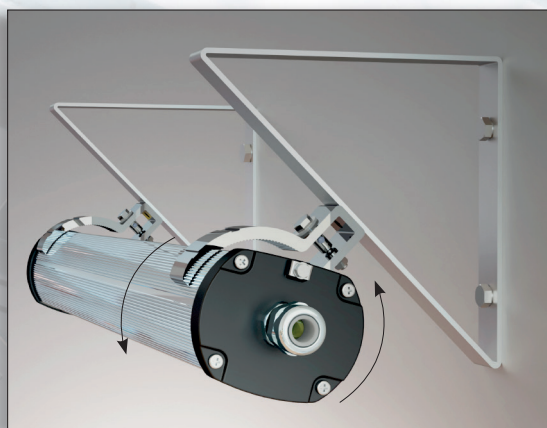
Pole mount mechanism, code G-0686



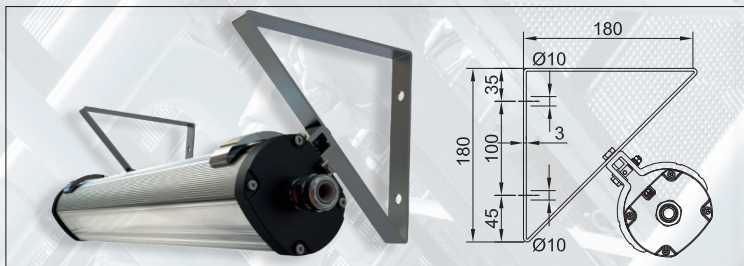
Typical assemblies with installation accessories



Pole mount mechanism with adjustable bracket



Adjustable 0° to ±30°



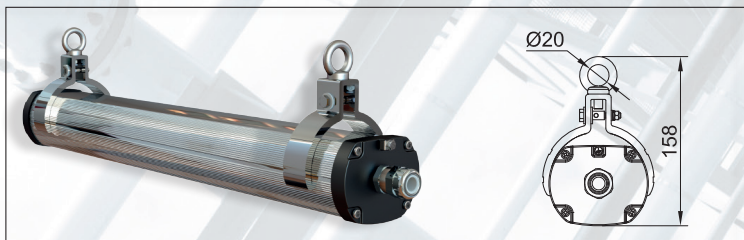
45° corner mount TYPE "D"



Ceiling mount, tall model TYPE "U"



Ceiling mount, tall model TYPE "V"



Suspended mount with eye bolt TYPE "O"



Ceiling mount with 250 mm rod

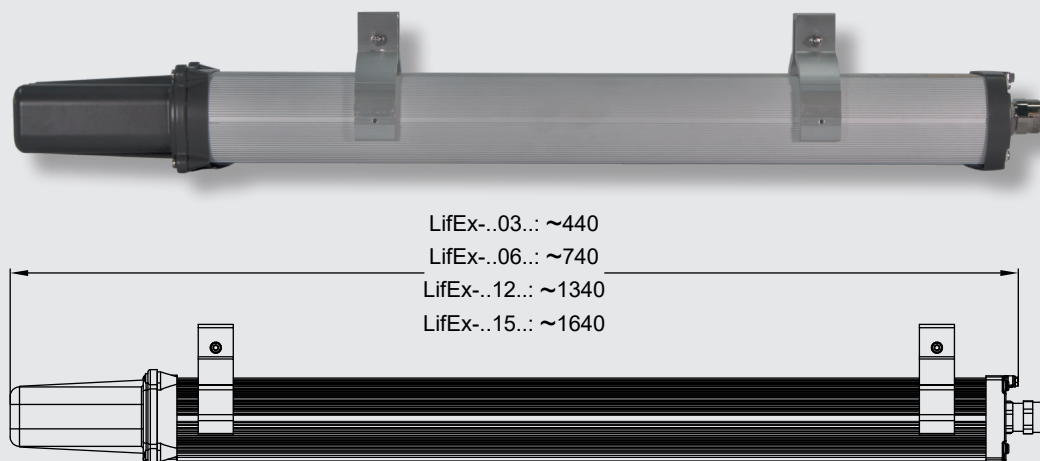


Mount with metal clamps 1 1/2" TYPE "P"

LifEx-M series Linear LED lighting fixture in aluminum

Emergency lighting fixture with battery box

Version to facilitate battery maintenance/replacement operations.



LifEx-...03... ~440

LifEx-...06... ~740

LifEx-...12... ~1340

LifEx-...15... ~1640

Versions available with cable entry in SIDE 1 only

Possible codes:

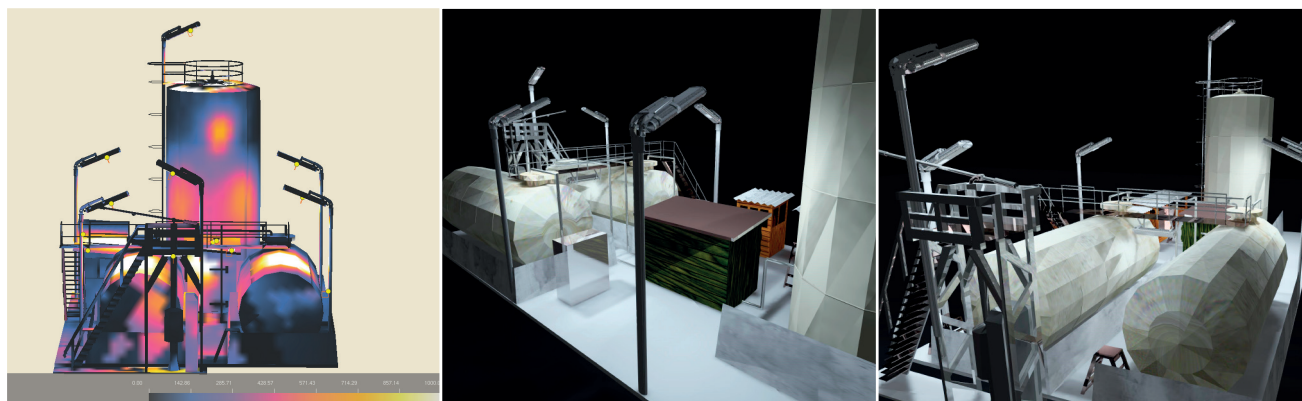
LifEx-M...-AE

LifEx-M...-BE

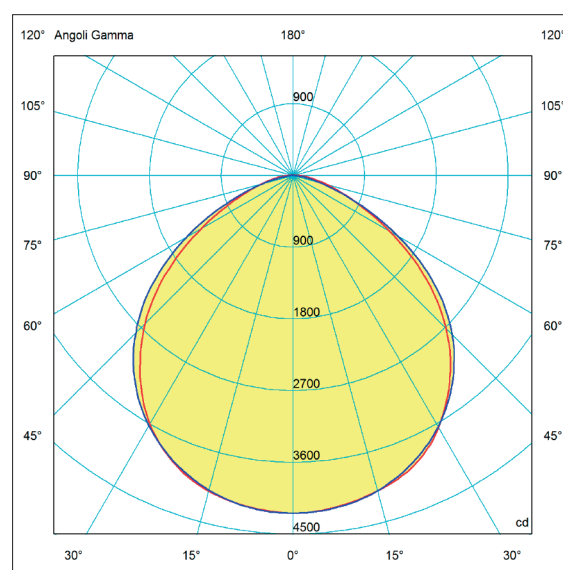
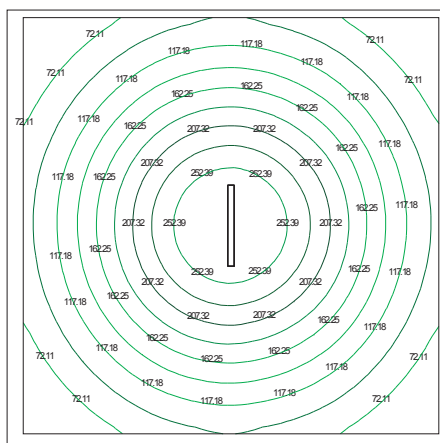
LifEx-M...-CE

LifEx-M...-DE

Example of light engineering study performed with LifEx lighting fixtures.



Floor lighting relating to
LifEx-ME-1590 expressed in lux in a
room 6 m x 6 m with fixture at the
centre at a height of **3.5 cm**.



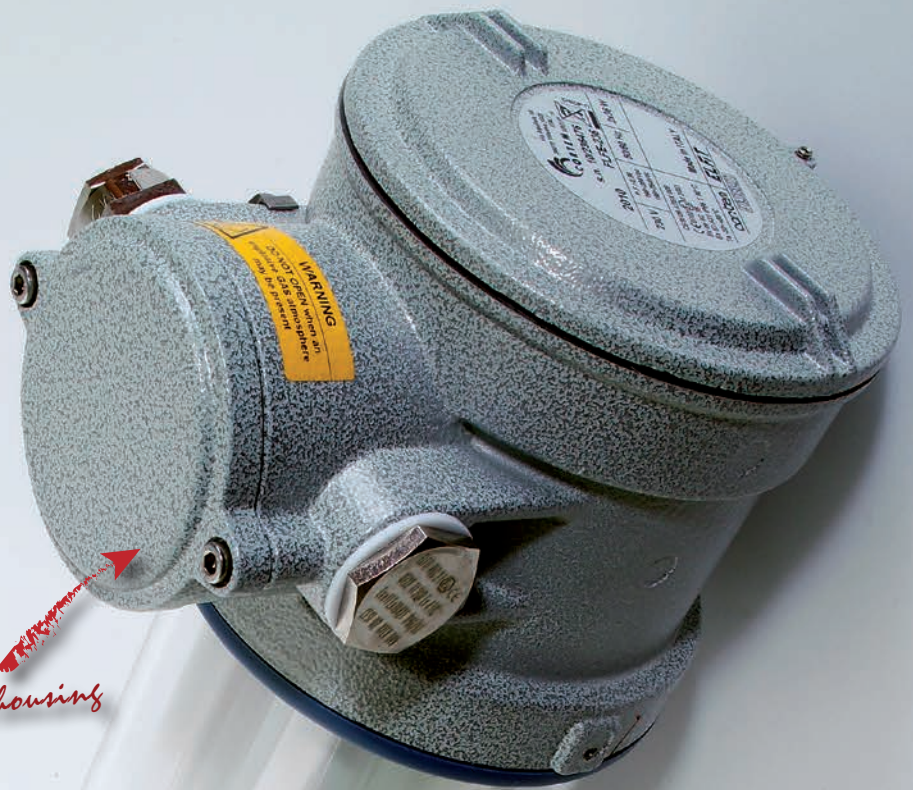
The lighting solution files for the design, planning and simulation of lighting levels in 2D-3D, rendering and ray-tracing are available from www.cortemgroup.com.

— = level 90270
— = level 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 petrochemical 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

INMETRO DNV 12.0159

All IEC Ex, INMETRO certification data can be downloaded at www.cortemgroup.com

Standards:

CENELEC EN 60079-0: 2018, EN 60079-1: 2014, EN 60079-7: 2015/A1: 2018, 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 2004/108 Electromagnetic compatibility

European Directive 2012/19/UE, 2002/96/CE, 2003/108/CE WEEE

European Directive 2011/65/UE RoHS

Class temperature:



85°C (T6)

85°C (T6)

Ambient temperature:



Standard
-20°C +55°C



With emergency
-20°C +50°C

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 220V/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: NEVB2NB for armoured cable or NAVB2NB 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-222EF7E)
 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)

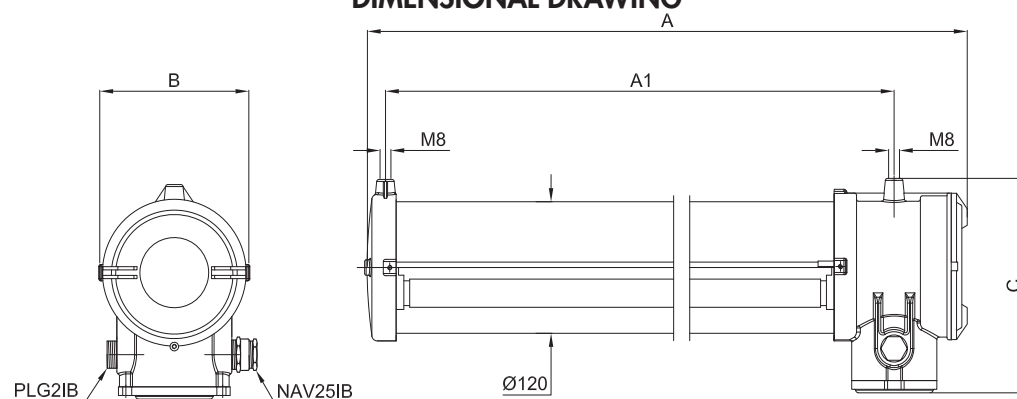
FLFE...L, FLF...L series Lighting fixtures with LED tubes

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

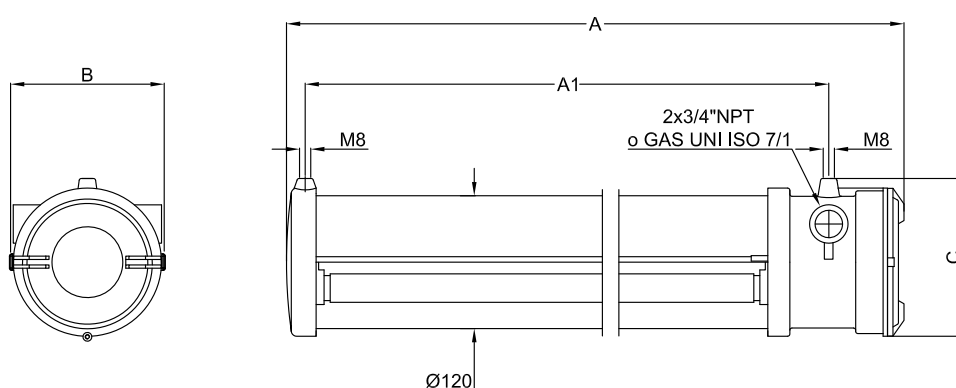


Ex d lighting fixtures

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



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

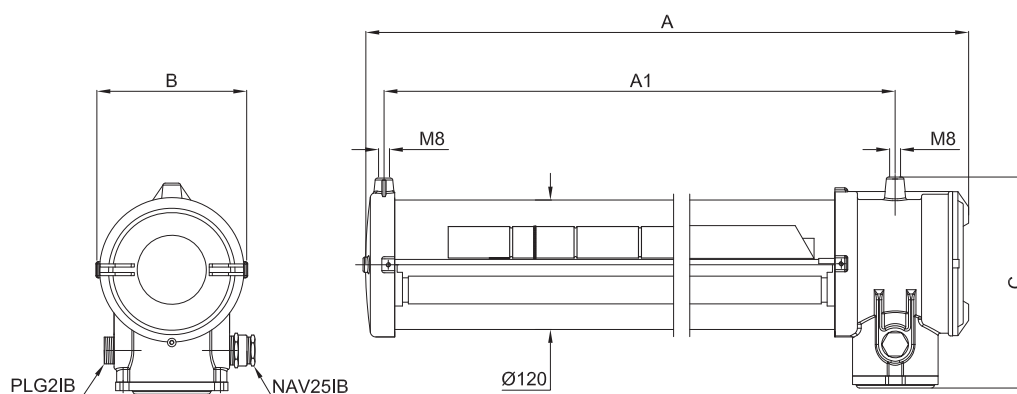
Lighting fixtures Ex de with emergency unit

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	220/240 Vac	946	11	90	5,0	240x230x800
FLFE-211LEF4	725	640	142	197	normal+emergency	2	220/240 Vac	946	11	90	5,0	240x230x800
FLFE-122LEF4	1325	1240	142	197	normal+emergency	1	220/240 Vac	1731	22	40	7,8	240x230x1410
FLFE-222LEF4	1325	1240	142	197	normal+emergency	2	220/240 Vac	1731	22	40	7,8	240x230x1410
FLFE-111LEE4	725	640	142	197	only emergency	1	220/240 Vac	946	11	90	5,0	240x230x800
FLFE-122LEE4	1325	1240	142	197	only emergency	1	220/240 Vac	1731	22	40	7,8	240x230x1410
FLFE-111LEF7	725	640	142	197	normal+emergency	1	220/240 Vac	960	11	120	5,0	240x230x800
FLFE-211LEF7	725	640	142	197	normal+emergency	2	220/240 Vac	960	11	120	5,0	240x230x800
FLFE-122LEF7	1325	1240	142	197	normal+emergency	1	220/240 Vac	1757	22	60	7,8	240x230x1410
FLFE-222LEF7	1325	1240	142	197	normal+emergency	2	220/240 Vac	1757	22	60	7,8	240x230x1410
FLFE-111LEE7	725	640	142	197	only emergency	1	220/240 Vac	960	11	120	5,0	240x230x800
FLFE-122LEE7	1325	1240	142	197	only emergency	1	220/240 Vac	1757	22	60	7,8	240x230x1410

* Indicative information depending on the installed tube


DIMENSIONAL DRAWINGS

Dimensions in mm



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

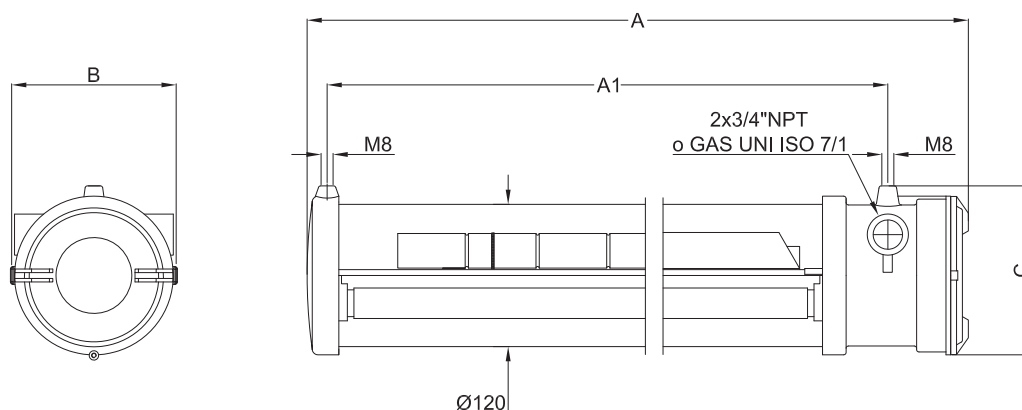
Lighting fixtures Ex d with emergency unit

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	220/240 Vac	946	11	90	5,0	240x230x800
FLF-211LEF4	725	640	142	145	normal+emergency	2	220/240 Vac	946	11	90	5,0	240x230x800
FLF-122LEF4	1325	1240	142	145	normal+emergency	1	220/240 Vac	1731	22	40	7,8	240x230x1410
FLF-222LEF4	1325	1240	142	145	normal+emergency	2	220/240 Vac	1731	22	40	7,8	240x230x1410
FLF-111LEE4	725	640	142	145	only emergency	1	220/240 Vac	946	11	90	5,0	240x230x800
FLF-122LEE4	1325	1240	142	145	only emergency	1	220/240 Vac	1731	22	40	7,8	240x230x1410
FLF-111LEF7	725	640	142	145	normal+emergency	1	220/240 Vac	960	11	120	5,0	240x230x800
FLF-211LEF7	725	640	142	145	normal+emergency	2	220/240 Vac	960	11	120	5,0	240x230x800
FLF-122LEF7	1325	1240	142	145	normal+emergency	1	220/240 Vac	1757	22	60	7,8	240x230x1410
FLF-222LEF7	1325	1240	142	145	normal+emergency	2	220/240 Vac	1757	22	60	7,8	240x230x1410
FLF-111LEE7	725	640	142	145	only emergency	1	220/240 Vac	960	11	120	5,0	240x230x800
FLF-122LEE7	1325	1240	142	145	only emergency	1	220/240 Vac	1757	22	60	7,8	240x230x1410







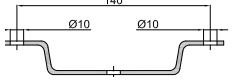


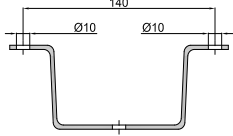


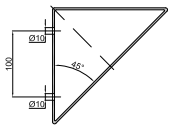
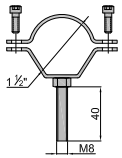


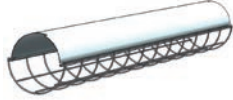













* Indicative information depending on the installed tube

DIMENSIONAL DRAWINGS

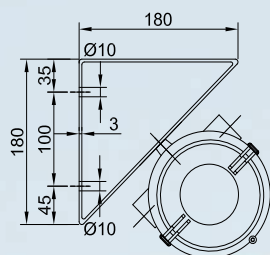
Dimensions in mm



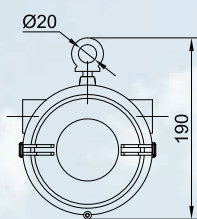
FLFE...L, FLF...L series Accessories and spare parts available

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	NAVB2NB NEVB2NB	 
	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	 

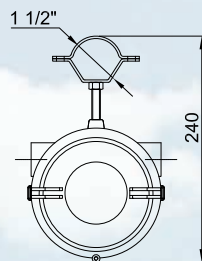
Installation and mounting methods and photometric diagrams



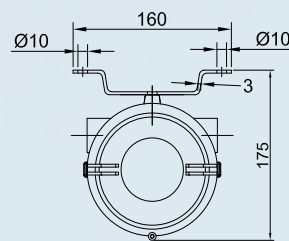
45° angle mounting
TYPE "D"



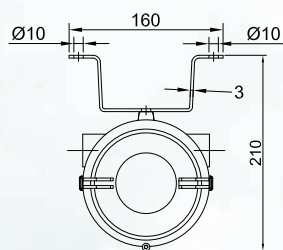
Pendant mounting with
eyebolt TYPE "O"



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



Low ceiling mounting with
clamp TYPE "U"

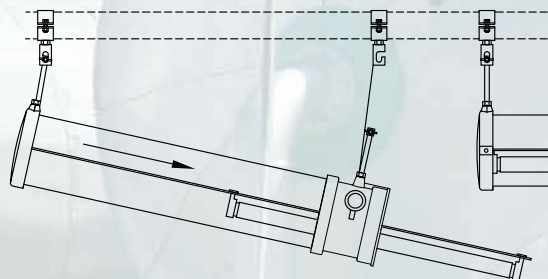
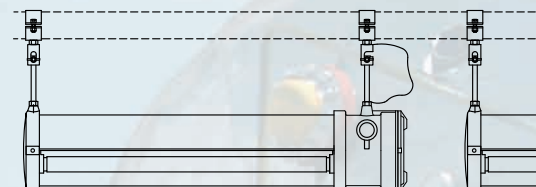


High ceiling mounting with
clamp TYPE "V"

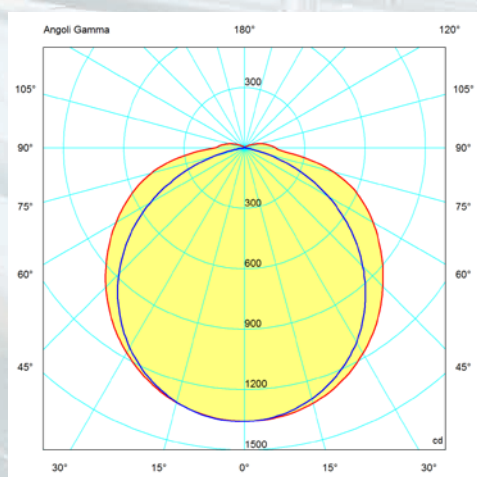
Type P clamp

Tube ø1 1/2"

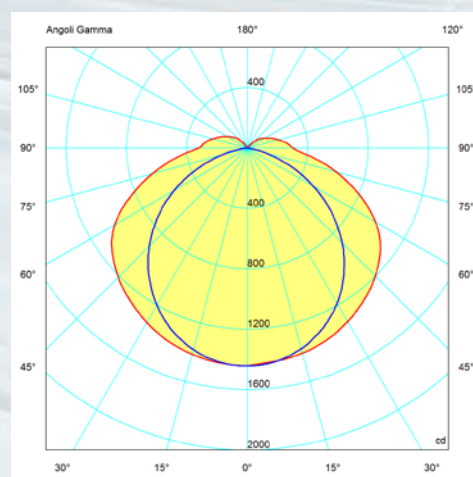
Pole mounting for FLF...L
with barrier cable gland



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

Life \bar{x} -P

- Complete with high efficiency LED strip lights
- Low consumption
- Compact size
- Easy to install
- Zone 1, 2, 21, 22
- 5 years warranty
- IK09



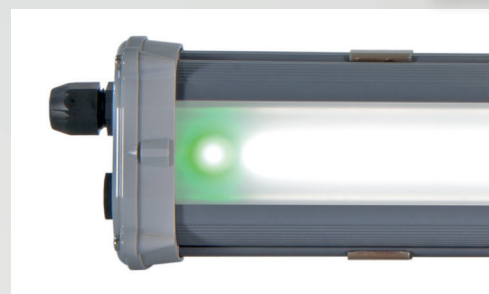
Patent Pending

*Screws, bolts and nuts:
Stainless steel*

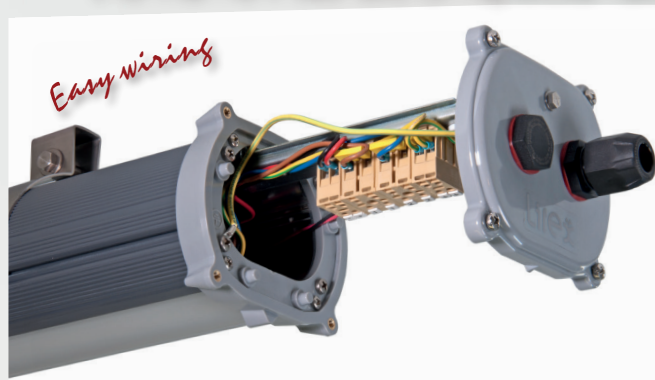
Fastening brackets

*Low installation
costs*

Battery charge level
LED



Electrical part removable thanks to
the frame inserted on special rails



Easy wiring

*Polyamide
cable gland*

LifEx-P series Linear LED lighting fixtures - plastic material

The LifEx-P series lighting fixtures are characterised by an impact (IK09) and UV-resistant polycarbonate and GRP body with a transparent part for light transmission.

Thanks to a carefully designed architecture which aims to manage the full product lifecycle optimally as part of a circular economy, and maximize the service life, LifEx-P is a small, lightweight, easy-to-install yet robust and highly corrosion-resistant lighting fixture.

An innovative bracket mechanism, with no fixed interaxis spacing limitations, makes them easy to install or retrofit. Available in different lengths and with a wide range of voltage and power features, the LifEx-P series is optimally designed and certified for the area of installation.

Versions with emergency operation can be accessorized with battery boxes to facilitate maintenance and/or battery replacement, or with special batteries for applications with ambient temperatures down to -60° C.

The use of high-power LED strips provides lumen output ranging from 1,500 lm to 12,500 lm with high efficiency and guaranteed durability.

Sectors of application:



Offshore facilities



Agribusiness facilities



Onshore facilities



Low temp. environments



Distillation industries



Stair handrails



Perimeter zone lighting



100% produced by Cortem

CERTIFICATE DATA

Classification:

Group II

Category 2GD/3G

Installation: EN 60079.14

zone 1, 2, 21, 22

LifEx-PE

zone 2, 21, 22

LifEx-PN

Marking:

CE 0722 Ex II 2GD - Ex db eb mb IIC T.. Gb - Ex tb IIIC T..°C Db - IP66

LifEx-PE

CE Ex II 3G - Ex ec IIC T.. Gc

CE 0722 Ex II 2D - Ex tb IIIC T..°C Db - IP66

LifEx-PN

Certificate:

ATEX CML 21 ATEX 31405X

LifEx-PE

ATEX CML 21 ATEX 31406X

ATEX CML 21 ATEX 31405X

LifEx-PN

IEC Ex IECEX CML 21.0168X

UKEX AVAILABLE

For all IEC Ex and UKEX certificate data, download the certificate from www.cortemgroup.com

Standards:

CENELEC EN60079-0: 2018, EN60079-1: 2014, EN60079-7: 2015/2018, EN60079-18: 2015/2017, EN60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/EU
IEC60079-0: 2017, IEC60079-1: 2014, IEC60079-18: 2014/2017, IEC60079-31: 2013, IEC60079-7: 2015
European Directive 2004/108 Electromagnetic compatibility
European Directive 2012/19/UE, 2002/96/CE, 2003/108/CE RAEE
European Directive 2011/65/UE RoHS



Temperature class:

For all permitted ambient temperature classes, please see the "Selection tables"



Temp. Temperature:

-60°C for models without a battery
-20°C or -60°C* for versions with a internal battery

For all permitted ambient temperature ranges, please see the "Selection tables"

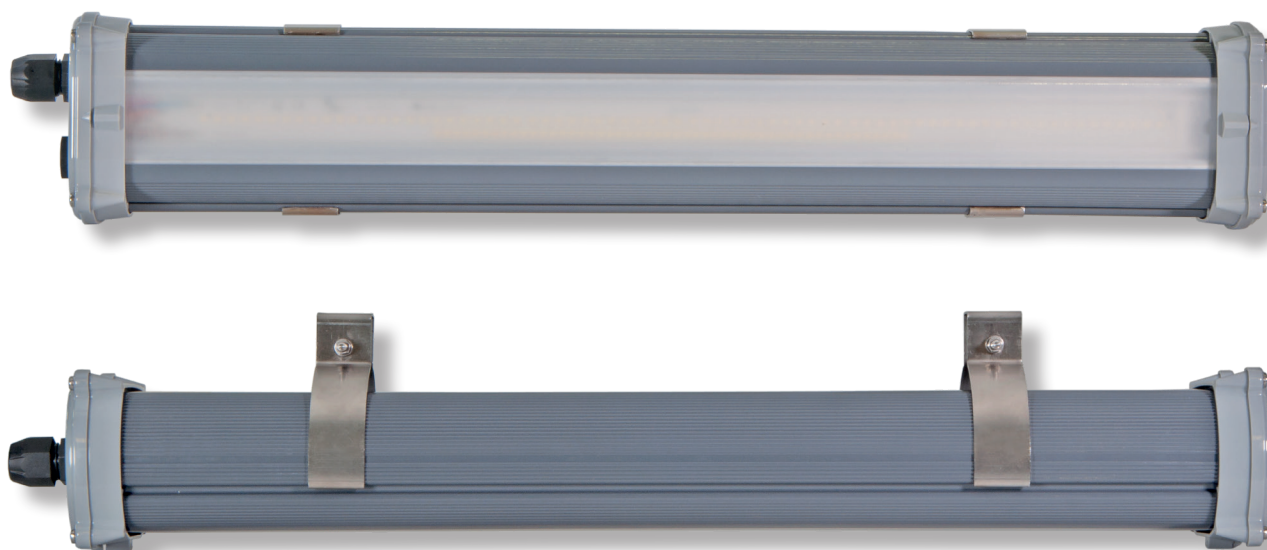
Degree of protection:

IP66



* Emergency lighting fixture with special battery for -60°C

LifEx-P series Linear LED lighting fixtures - plastic material



NO PHOTOBIOLOGICAL
RISK
(IEC / EN 62471
STANDARD)



ORIGINAL PRODUCT

MECHANICAL FEATURES

Body:	Gray shock and UV resistant fibreglass reinforced anti-static polyester resin and polycarbonate, impact resistant IK09. Gray colors RAL 7015 and 7045
Transparent part:	Transparent polycarbonate UV and impact resistant IK09
Gaskets:	Acid and hydrocarbon resistant silicone, IPX9
Internal frame:	Aluminium extrusion
Screws:	Stainless steel
Entry points:	Max. 4 entry points Ø25.5. Standard version with 2 holes Ø20.5 side (1) complete with 1 NAVP20IXE and 1 PLG11LXE7. For other versions the plugs and cable glands are available upon request
Assembly:	Fastening brackets for M8 holes

ELECTRICAL FEATURES

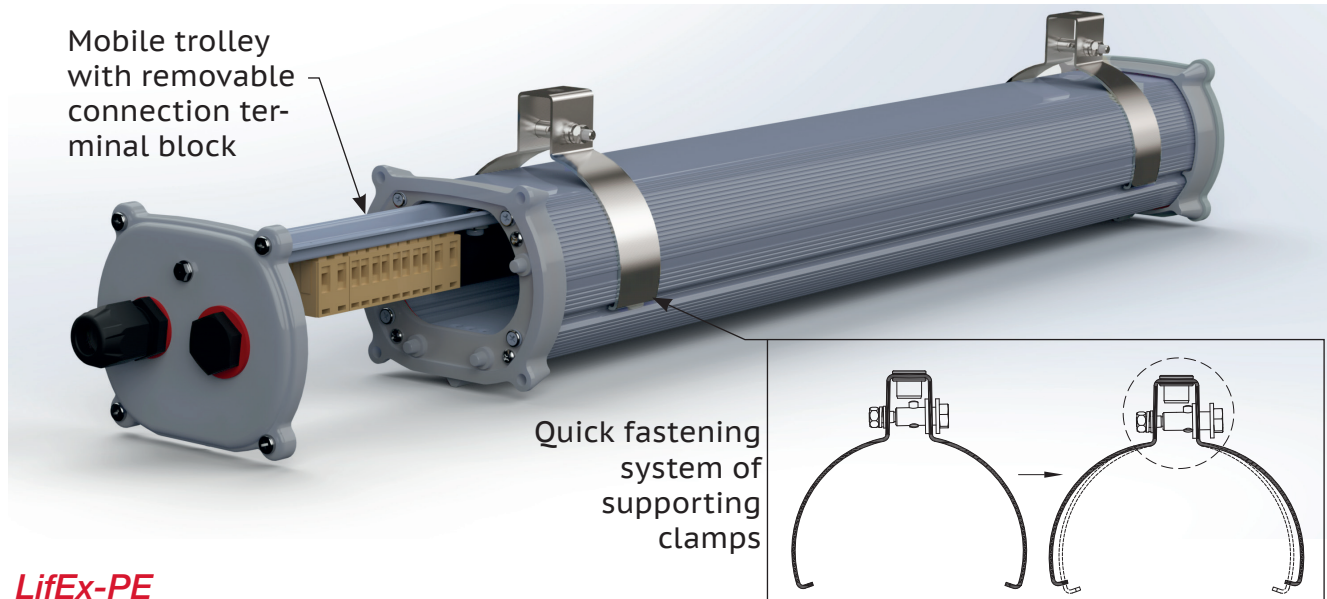
Power unit:	Electronic
Rated voltage:	110-277 V AC (for details, see the Selection table)
Rated frequency:	50/60 Hz
Connection:	Directly to the terminal board L, N, Pe cross sec. max. 4 mm ² jumpered terminal board suitable for in-out, from a single side
Emergency unit:	Electronic inverter 110/277 V AC 50/60 Hz, 110/270 Vdc. Batteries Ni/Mh, 1.8 Ah or 3 Ah, 6V Battery charge indicated by the green LED
Cabling:	Rigid cables for high temperatures

ACCESSORIES UPON REQUEST / SPECIAL REQUESTS

Coloured LED strip lights
Emergency lighting fixture with battery box to facilitate battery maintenance/replacement operations (example code: LifEx-PE-1230N-AE)
Emergency lighting fixture with battery heater (internal component) for ambient temperatures of -60°C, supplied voltage 230Vac. (example code: LifEx-PE-1230NH)
Wiring connection (example code: LifEx-PE-1230-AAT)
Driver multirange
Cable gland
Plugs
Earthing continuity plates for metal cable glands (In the case of one cable glands, the earthing ring is required, code: A1311IB for cablegland M20, A2312IB for cablegland M25)

LifEx-P series Linear LED lighting fixtures - plastic material

LifEx-P series lighting fixtures are available in two different configurations for different applications, **LifEx-PE** and **LifEx-PN**



LifEx-PE

The "PE" versions are designed for use in ATEX zones classified as "Zone 1-2" and "Zone 21-22", i.e. where the installed equipment must provide a high level of protection both in the presence of gas, vapour and mist mixtures (Zone 1) and in the presence of combustible dust and particles (Zone 21). LifEx-PE has Equipment Protection Level Gb, Db

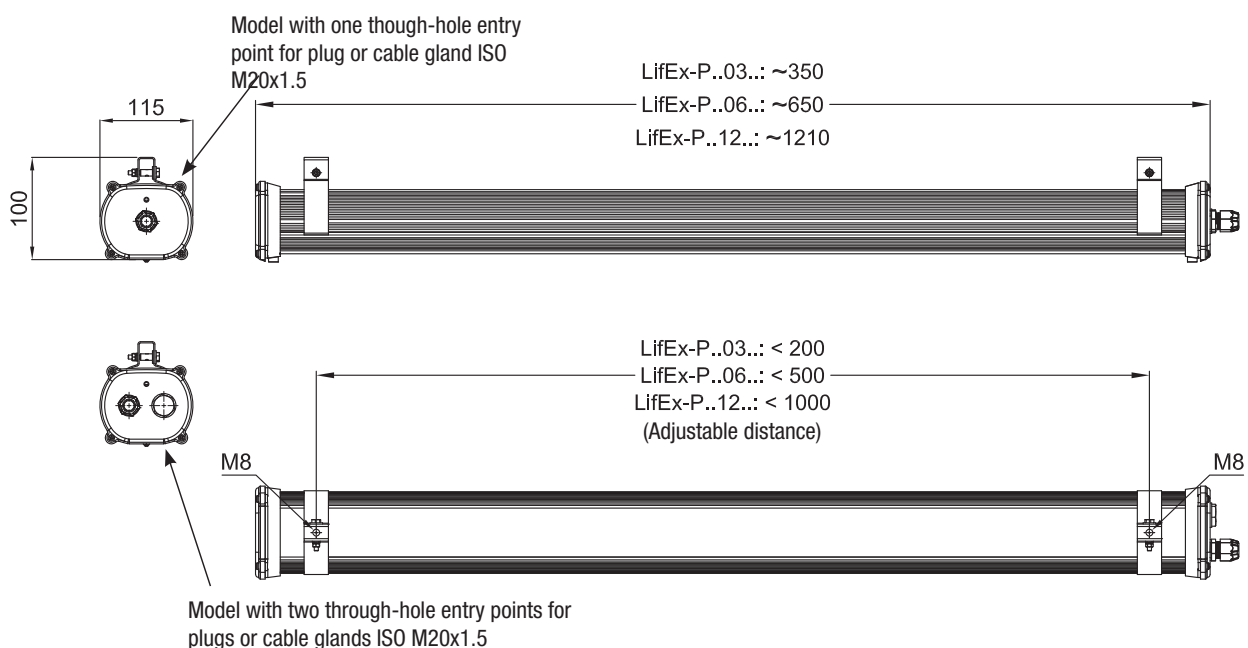
This safety feature is ensured by a combination of Ex db eb mb protection modes for gases and Ex tb for dust.

LifEx-PN

The "PN" versions are designed for use in ATEX zones classified as "Zone 2" and "Zone 21-22", i.e. where installed equipment must provide a normal level of protection in the presence of gas, vapour and mist mixtures (Zone 2), and a high level of protection against combustible dust and particles (Zone 21). LifEx-PN has Equipment Protection Level Gc, Db

This safety feature is ensured by Ex ec protection modes for gases and Ex tb for dust.

DIMENSIONAL DRAWING





LifEx-P series Linear LED lighting fixtures - plastic material

Selection table.

Temperature classes and maximum surface temperatures.

Normal operation												
Code	Real power Watt	Rated power Watt	Supply voltage Volt	Temperature class / Maximum surface temperature				Lumen lm	Light intensity cd	Overall efficiency Lm/W	Weight kg	mm
				+40°C	+50°C	+55°C	+60°C					
LifEx-PE-0315	13,4	15	220-240 Vac	T53°C/T5	T63°C/T5	T68°C/T4	T73°C/T4	1586	642	119	2,2	550x115x165
LifEx-PE-0330	26,5	30	220-240 Vac	T53°C/T5	T63°C/T5	T68°C/T4	T73°C/T4	2957	1196	111	2,2	550x115x165
LifEx-PE-0615	13,3	15	220-240 Vac	T57°C/T6	T67°C/T5	T72°C/T5	T77°C/T4	1637	659	123	2,5	860x115x165
LifEx-PE-0630	29,3	30	110-277 Vac	T57°C/T6	T67°C/T5	T72°C/T5	T77°C/T4	3220	1297	110	2,8	860x115x165
LifEx-PE-0645	42,9	45	220-240 Vac	T57°C/T6	T67°C/T5	-	-	5037	2022	118	2,8	860x115x165
LifEx-PE-0660	54,1	60	220-240 Vac	T57°C/T6	T67°C/T5	-	-	6548	2625	121	2,8	860x115x165
LifEx-PE-1230	27,8	30	110-277 Vac	T55°C/T6	T65°C/T5	T70°C/T5	T75°C/T5	3091	1247	111	4,3	1415x115x165
LifEx-PE-1260	54,8	60	220-240 Vac	T55°C/T6	T65°C/T5	T70°C/T5	T75°C/T5	6390	2584	117	4,3	1415x115x165
LifEx-PE-1290	78,4	90	120-277 Vac	T55°C/T6	T65°C/T5	-	-	9503	3818	121	4,3	1415x115x165
LifEx-PE-12120	101,4	120	220-277 Vac	T55°C/T6	T65°C/T5	-	-	12449	4994	123	4,3	1415x115x165

Normal operation + emergency										
Code	Real power Watt	Rated power Watt	Supply voltage Volt	Temperature class / Maximum surface temperature			Lumen lm **	Discharge time in minutes	Weight kg	 mm
				+40°C	+50°C	+60°C				
LifEx-PE-0615N	13,3	15	220-240 Vac	T57°C/T6	T67°C/T5	T77°C/T4	927	90	3,4	860x115x165
LifEx-PE-0630N	29,3	30	220-240 Vac	T57°C/T6	T67°C/T5	T77°C/T4	945	90	3,4	860x115x165
LifEx-PE-1230N*	27,8	30	110-277 Vac	T55°C/T6	T65°C/T5	T75°C/T5	954	180	5,2	1415x115x165
LifEx-PE-1260N*	54,8	60	220-240 Vac	T55°C/T6	T65°C/T5	T75°C/T5	869	180	5,2	1415x115x165

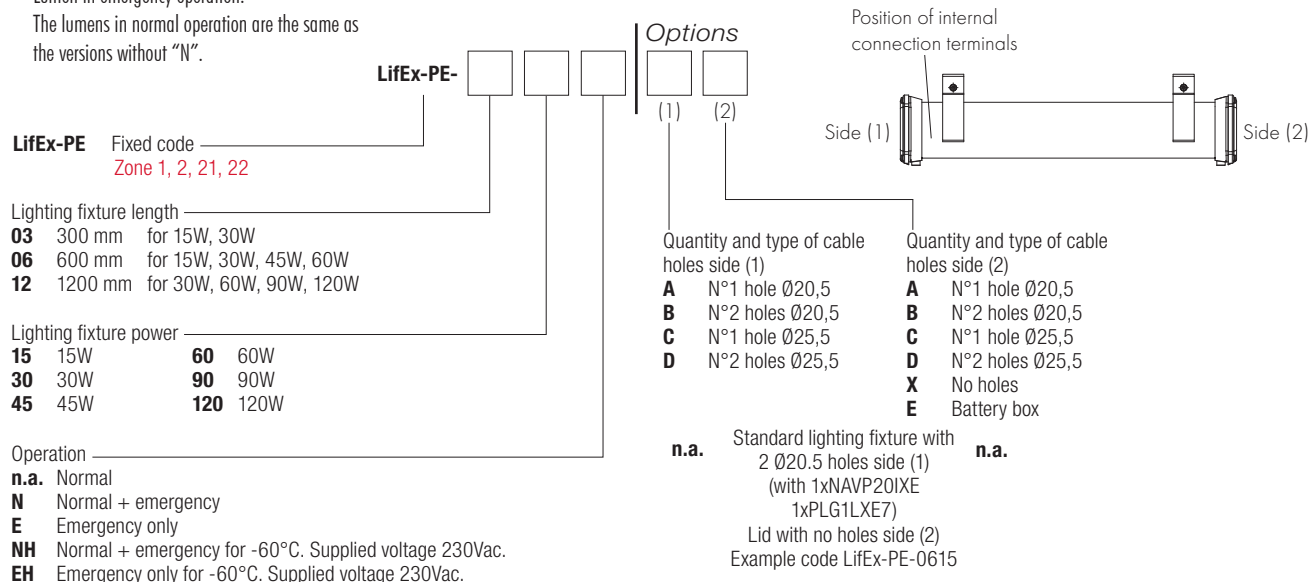
Emergency operation only								
Code	Supply voltage Volt	Temperature class / Maximum surface temperature			Lumen lm	Discharge time in minutes	Weight kg	 mm
		+40°C	+50°C	+60°C				
LifEx-PE-0615E*	110-277 Vac	T57°C/T6	T67°C/T5	T77°C/T4	1027	90	3,0	860x115x165
LifEx-PE-1230E*	110-277 Vac	T55°C/T6	T65°C/T5	T75°C/T5	1013	90	4.4	1415x115x165

* Models with emergency feature available -60°C

** Lumen in emergency operation.

The lumens in normal operation are the same as the versions without "N".

ORDER CODE LOGIC



LifEx-P series Linear LED lighting fixtures - plastic material

Selection table.

Temperature classes and maximum surface temperatures.

Normal operation												
Code	Real power Watt	Rated power Watt	Supply voltage Volt	Maximum surface temperature				Lumen lm	Light intensity cd	Overall efficiency Lm/W	Weight kg	mm
				+40°C	+50°C	+55°C	+60°C					
LifEx-PN-0615	13,3	15	220-240 Vac	T47°C/T6	T57°C/T6	T62°C/T5	T67°C/T5	1790	703	134	2,2	860x115x165
LifEx-PN-0630	29,3	30	220-240 Vac	T47°C/T6	T57°C/T6	T62°C/T5	T67°C/T5	3471	1366	118	2,2	860x115x165
LifEx-PN-0645	43,2	45	220-240 Vac	T47°C/T6	T57°C/T6	T62°C/T5	T67°C/T5	5472	2141	127	2,2	860x115x165
LifEx-PN-0660	54,2	60	220-240 Vac	T54°C/T6	T64°C/T6	T62°C/T5	-	7109	2780	131	2,2	860x115x165
LifEx-PN-1230	28,0	30	220-240 Vac	T47°C/T6	T57°C/T6	T62°C/T5	T67°C/T5	3424	1345	122	3,4	1415x115x165
LifEx-PN-1260	54,8	60	220-240 Vac	T47°C/T6	T57°C/T6	T62°C/T5	T67°C/T5	7083	2775	129	3,4	1415x115x165
LifEx-PN-1290	78,4	90	220-240 Vac	T47°C/T6	T57°C/T6	T62°C/T5	-	10390	4074	133	3,4	1415x115x165

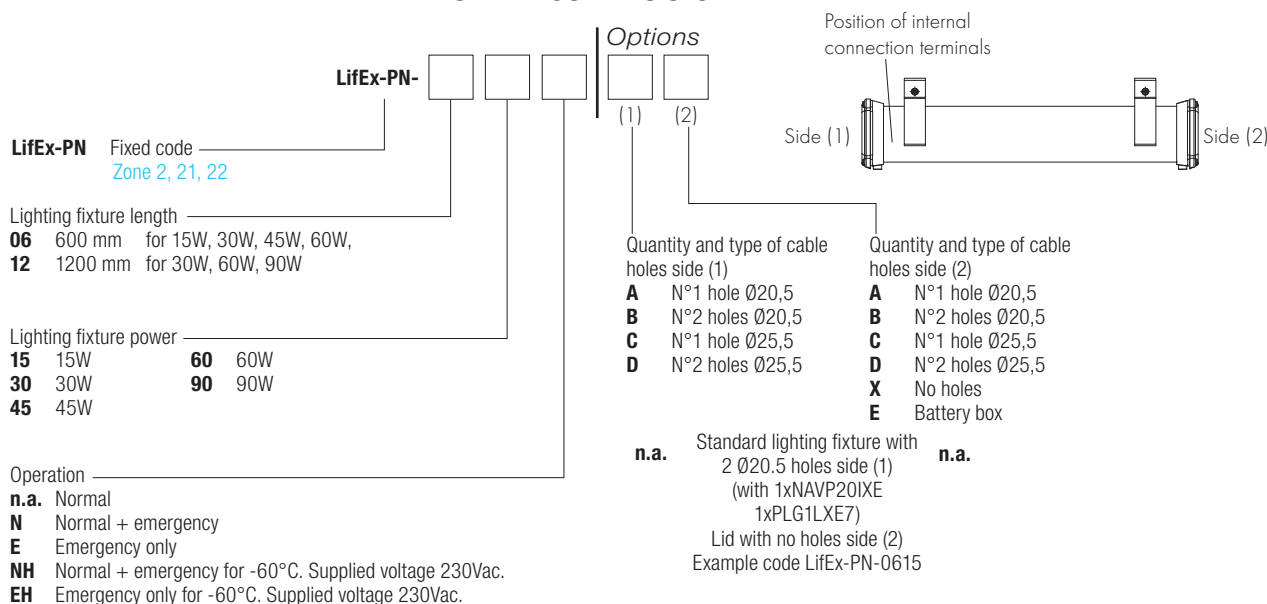
Normal operation + emergency												
Code	Real power Watt	Rated power Watt	Supply voltage Volt	Maximum surface temperature				Lumen lm	Discharge time in minutes	Weight kg	mm	
				+40°C	+50°C	+55°C	+60°C					
LifEx-PN-0615N	13,3	15	220-240 Vac	T47°C/T6	T57°C/T6	T62°C/T5	T67°C/T5	927	90	2,8	860x115x165	
LifEx-PN-0630N	29,3	30	220-240 Vac	T47°C/T6	T57°C/T6	T62°C/T5	T67°C/T5	945	90	2,8	860x115x165	
LifEx-PN-1230N*	28,0	30	220-240 Vac	T47°C/T6	T57°C/T6	T62°C/T5	T67°C/T5	954	180	4,0	1415x115x165	
LifEx-PN-1260N*	54,8	60	220-240 Vac	T47°C/T6	T57°C/T6	T62°C/T5	T67°C/T5	869	180	4,0	1415x115x165	

Emergency operation only												
Code	Supply voltage Volt		Maximum surface temperature				Lumen lm	Discharge time in minutes	Weight kg	mm		
			+40°C	+50°C	+55°C	+60°C						
LifEx-PN-0615E*	110-277 Vac		T47°C/T6	T57°C/T6	T62°C/T5	T67°C/T5	1125	90	2,4	860x115x165		
LifEx-PN-1230E*	110-277 Vac		T47°C/T6	T57°C/T6	T62°C/T5	T67°C/T5	1109	90	3,6	1415x115x165		

* Models with emergency feature available -60°C

** The lumens in normal operation are the same as the versions without "N".

ORDER CODE LOGIC









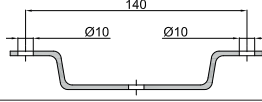


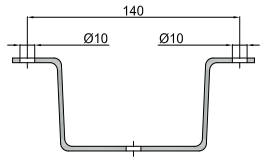


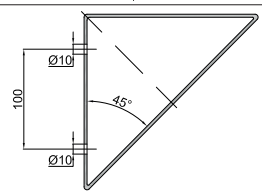


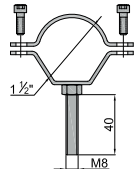
















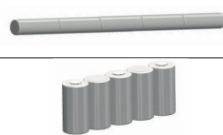

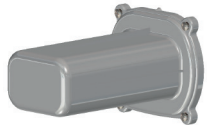



LifEx-P series Linear LED lighting fixtures - plastic material

Electrical features	LifEx-PE-03..	LifEx-PE-06..	LifEx-PE-12..
Supply voltage:	..15 220-240 V AC	..15 220-240 V AC	..30 110-277 V AC
	..30 220-240 V AC	..30 110-277 V AC	..60 110-277 V AC
	-	..45 110-277 V AC	..90 120-277 V AC
	-	..60 110-277 V AC	..120 220-277 V AC
	-	-	-
Rated frequency:	50-60 Hz ±5%	50-60 Hz ±5%	50-60 Hz ±5%
Lamp real power consumption:	..15 13.4 W	..15 13.3 W	..30 27.8 W
	..30 26.5 W	..30 29.3 W	..60 54.8 W
	-	..45 42.9 W	..90 78.4 W
	-	..60 54.1 W	..120 101.4 W
	-	-	-
Connection:	Cable entry directly to the terminal board L, N, PE. Max. 4sq ^{mm} cross-section, suitable for in-out connections		
Power factor:	..15 0.97	..15 0.97	..30 0.95
	..30 0.99	..30 0.95	..60 0.97
	-	..45 0.98	..90 0.99
	-	..60 0.97	..120 0.99
	-	-	-
Rated current:	..15 60 mA	..15 60 mA	..30 127 mA
	..30 117 mA	..30 134 mA	..60 246 mA
	-	..45 190 mA	..90 344 mA
	-	..60 243 mA	..120 445 mA
	-	-	-
EMC (Electromagnetic Compatibility):	EN 55015, EN 61547, IEC 61000-3-2, IEC 61000-3-3		
THD (Total Harmonic Distortion):	<4% 230 V AC, 50 Hz		
Over-voltage protection:	2 kV	..15 2 kV	4 kV
		..30 4 kV	
		..45 4 kV	
		..60 4 kV	
Driver performance levels:	Over-Voltage Protection, Over-Current Protection, Short-Circuit Protection		
Dimmer (on request):	0-10V PWM		
Photometric features			
Multichip LED:	Mid power		
Viewing angle:	120°		
Colour temperature	5000 K		
CRI:	>80		
Instant Restrike:	YES		
L90:	> 54000 hours		

LifEx-P series Linear LED lighting fixtures - plastic material

Electrical features	LifEx-PN-06..	LifEx-PN-12..
Supply voltage:	..15 220-240 V AC	..30 220-240 V AC
	..30 220-240 V AC	..60 220-240 V AC
	..45 220-240 V AC	..90 220-240 V AC
	..60 220-240 V AC	-
	-	-
Rated frequency:	50-60 Hz ±5%	50-60 Hz ±5%
Lamp real power consumption:	..15 13.3 W	..30 28.0 W
	..30 29.3 W	..60 54.8 W
	..45 43.2 W	..90 78.4 W
	..60 54.2 W	-
	-	-
Connection:	Cable entry directly to the terminal board L, N, PE. Max. 4sq ^{mm} cross-section, suitable for in-out connections	
Power factor:	..15 0.97	..30 0.93
	..30 0.93	..60 0.96
	..45 0.93	..90 0.98
	..60 0.96	-
	-	-
Rated current:	..15 60 mA	..30 131 mA
	..30 137 mA	..60 248 mA
	..45 202 mA	..90 348 mA
	..60 245 mA	-
	-	-
EMC (Electromagnetic Compatibility):	EN 55015, EN 61547, IEC 61000-3-2, IEC 61000-3-3	
THD (Total Harmonic Distortion):	<8% 230 V AC, 50 Hz	
Over-voltage protection:	1 kV	
Driver performance levels:	Over-Voltage Protection, Over-Current Protection, Short-Circuit Protection	
Photometric features		
Multichip LED:	Mid power	
Viewing angle:	120°	
Colour temperature	5000 K	
CRI:	>80	
Instant Restrike:	YES	
L90:	> 54000 hours	

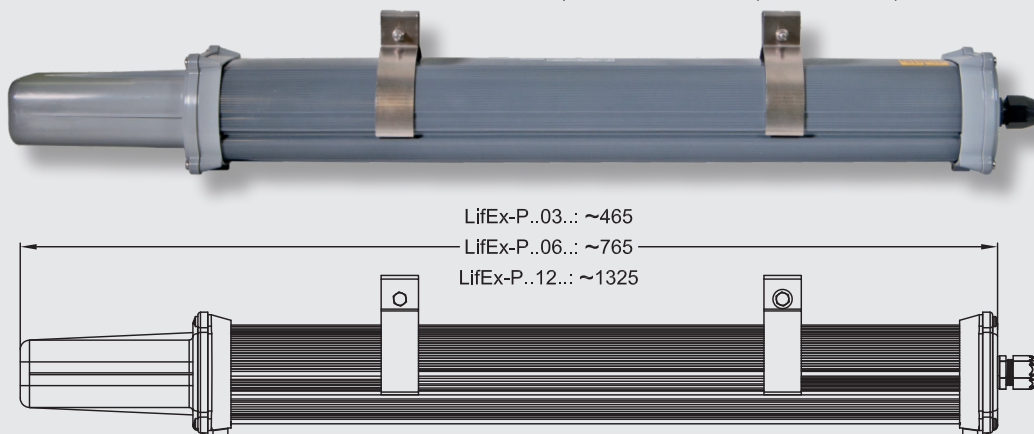
LifEx-P series Linear LED lighting fixtures - plastic material

ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	KEY
	Rod	Length: 250 mm	Material: stainless steel	BRF8MIN/250	 
	O-type eye bolt		Material: galvanized steel	G0F-8	 
	U-bracket complete with screws		Material bracket: galvanized steel screws: stainless steel	G-0609	 
	V-bracket complete with screws		Material bracket: galvanized steel screws: stainless steel	G-0610	 
	D-bracket complete with screws		Material bracket: galvanized steel screws: stainless steel	G-0611	 
	Bracket type P		Material: galvanized steel	G-0480	 
	Cable gland		For cable gland models and codes, please see www.cortemgroup.com	NAV20IXE	 
	Earthing continuity plates for metal cable glands	For cableglands M20x1.5	Material: brass	B-564	 
		For cableglands M25x1.5		B-564/1	
	Resin electronic power unit	LifEx-PE-0315 LifEx-PE-0615	LED driver Ex mb	EBM-30L/350	
		LifEx-PN-0615 LifEx-PE-0615N		EBM-30L/700	
		LifEx-PE-0330 LifEx-PE-0630N		EBM-100L/350	
		LifEx-PE-0630 LifEx-PE-0645 LifEx-PE-0660 LifEx-PE-12...			
	Electronic power unit	LifEx-PN-..	LED driver Ex ec	LEDDLIFEXN	
		LifEx-PN-0630N		LEDDDEXEN202CL	
	Fibreglass inverter	LifEx-PE-...N LifEx-PE-...E	Inverter Ex mb	EIM-30L	
	Inverter	LifEx-PN-..	Inverter LED	INVERTER/LED/ NM	
	Battery unit	LifEx-P-...E LifEx-P-...06...N	NiMH, 1.8Ah	G-1096/B	
		LifEx-P-...12...N LifEx-P-...1590N	NiMH, 3Ah	G-1097/F	
	Battery box	Duration 180 minutes	3 Ah	G-0697/3AH	
		Duration 90 minutes	1.8 Ah	G-0697/1.8AH	
	Battery for -60°C	Duration 180 minutes	3 Ah	G-0698	

LifEx-P series Linear LED lighting fixtures - plastic material

Emergency lighting fixture with battery box

Version to facilitate battery maintenance/replacement operations.



Versions available with cable entry in SIDE 1 only

Possible codes:

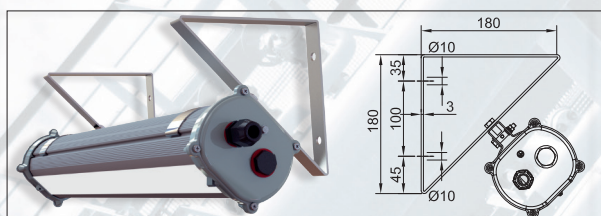
LifEx-P..-AE

LifEx-P..-BE

LifEx-P..-CE

LifEx-P..-DE

Typical assemblies with installation accessories



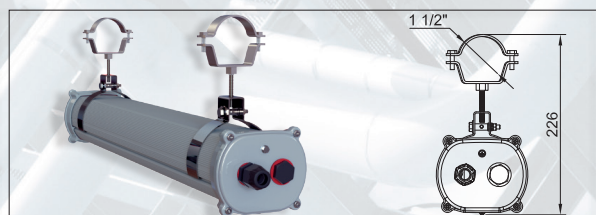
45° corner mount TYPE "D"



Ceiling mount with 250 mm rod



Ceiling mount, tall model TYPE "U"



Mount with metal clamps 1 1/2" TYPE "P"

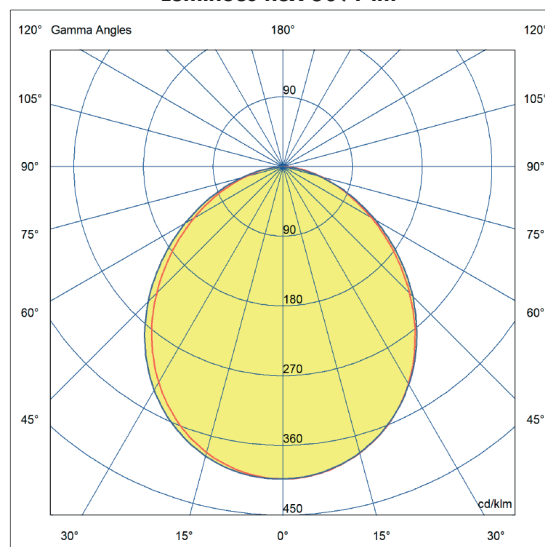


Ceiling mount, tall model TYPE "V"



Suspended mount with eye bolt TYPE "O"

LIFEX-PE-1230 Luminous flux 3091 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.

— = level 90270

— = level 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



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 petrochemical 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  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*



Revolutionary optics



*0° / 45° / 90° rotating
head*



*Rechargeable
batteries*

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

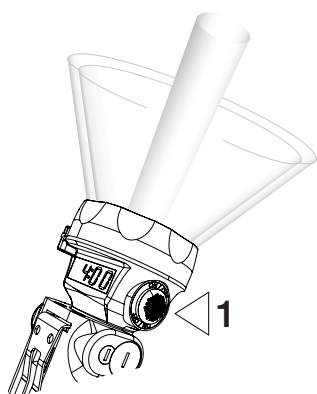
Holster

Battery charger for 1, 3 or 5 torches

L-3000 portable LED torch

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

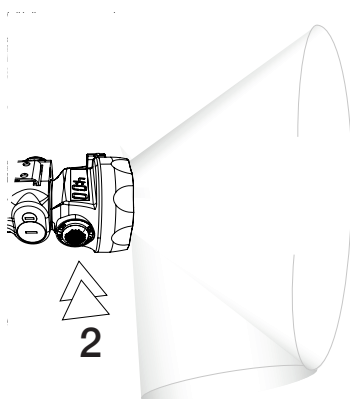
MODES



Switch on

Press button once

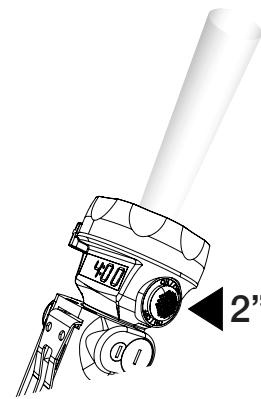
Both LEDs are on, offering diffused light and a focussed beam all at once. At the same time, the display comes on, showing the remaining operating time.



Diffused light

Press button twice

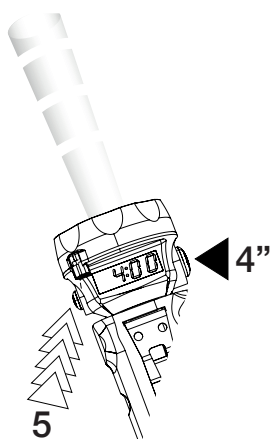
Only the LED located behind the optical diffuser is kept on, giving the light beam a wider angle. The special design of the optics means the LED manages to even light the area underneath, near the user's feet.



Focused beam

Keep button pressed

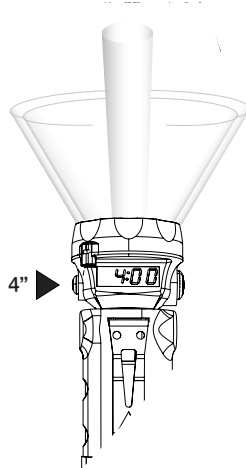
Holding down the button for two seconds switches on the LED located behind the focused spot beam optics, setting the torch to booster mode. Power is concentrated in a single LED and the light beam reaches its maximum distance and penetration. Press the On|Off button again to go back to the previous position.



Strobe light

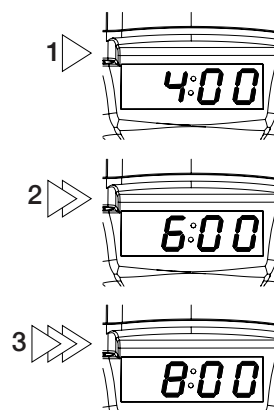
Menu button

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.

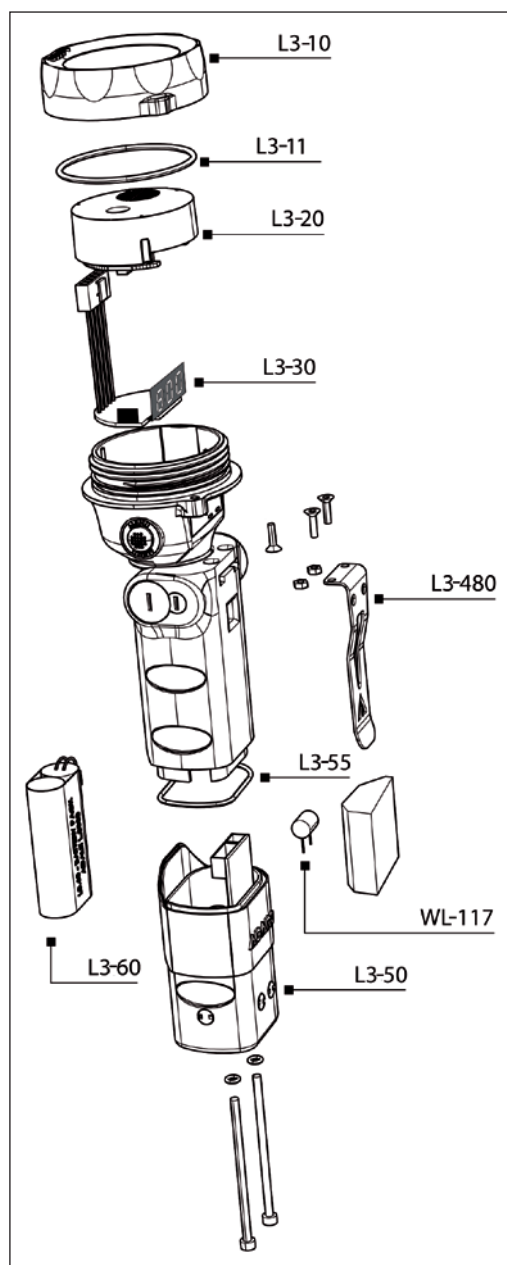



Consumption map

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 petrochemical 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.:

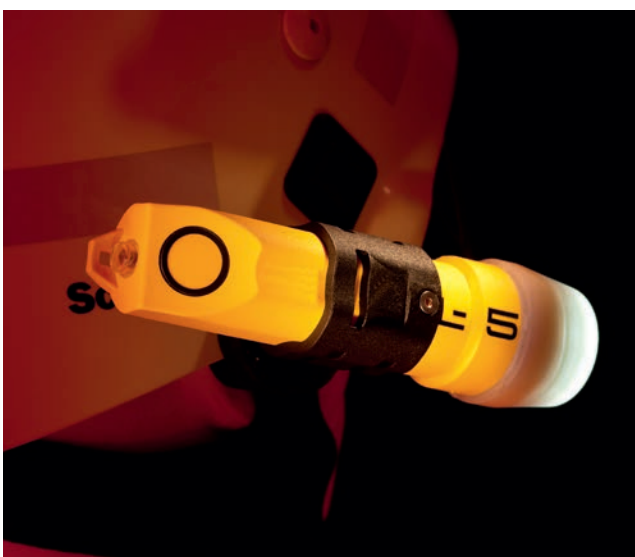


-20°C +40°C



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

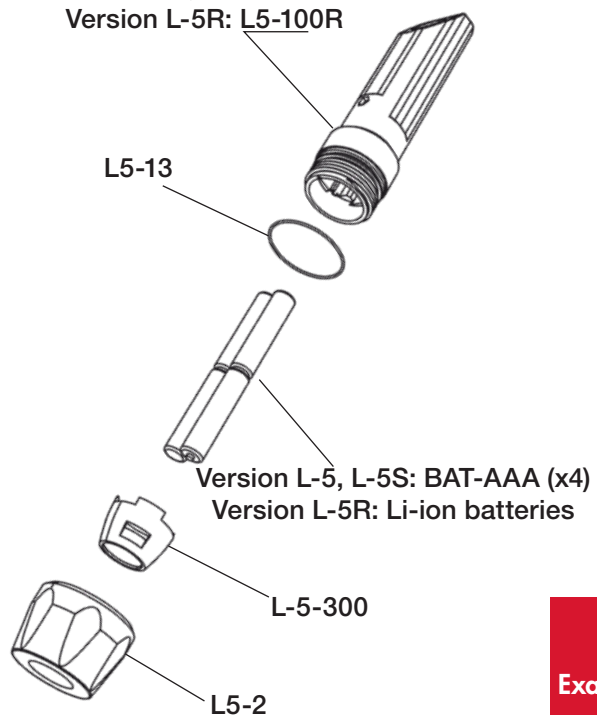
Holster


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

Code	Dimensions mm		Light output	Light intensity	Description	Weight kg
	L	Ø				
L-5	150	44	Max. 135 lm	1.600 cd	Torcia da casco	0,125
L-5S	150	44	Max. 135 lm	1.600 cd	Torcia portatile	0,125
L-5R	150	44	Max. 135 lm	1.600 cd	Torcia ricaricabile	0,125

Version L-5, L-5S: L5-100

Version L-5R: L5-100R


















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)	
	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



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

LHL

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



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:



CERTIFICATION DATA

Classification:

Group II

Category 2GD

Installation: EN 60079.14

zona 1 - 2 (Gas)

zona 21 - 22 (Dust)

Marking:

CE II 2 G Ex e mb IIC T5/T4 (Gb)

CE II 2 D Ex mb IIIC T95°C/T130°C (Db) IP66

Certification:

ATEX CEC 13 ATEX 043

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

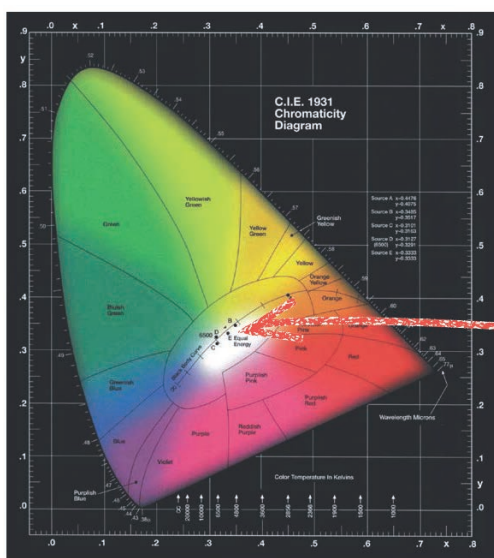
Body:	Transparent tube in polycarbonate, V0 (UL94) resistant to shock and UV rays
Handle:	Non-slip P.V.C. (polyvinyl chloride plasticized with non-toxic plasticizers)
Mounting:	Hand-held lamp with stainless steel hook
Cable gland:	Model UNI01 in polyamide

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



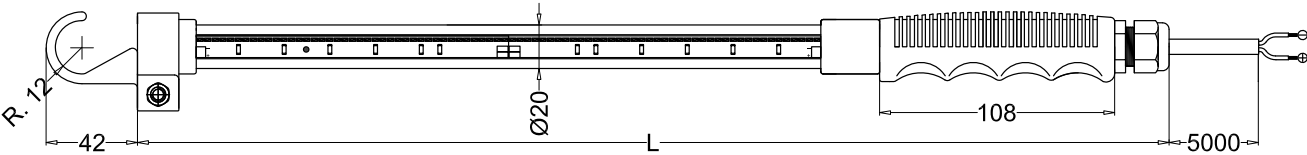
	LHL-10P	LHL-20P
Luminous flux (lm)	790	1580
Colour rendering index (Ra)	80	80
Luminous efficiency (lm/w)	87,78	92,94

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-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*



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 anticorrosional aluminium alloy.

Application sectors:



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 2004/108 Electromagnetic compatibility European Directive 2012/19/UE, 2002/96/CE, 2003/108/CE WEEE European Directive 2011/65/UE 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 aluminium
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 <ul style="list-style-type: none">• 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 $\pm 10\%$	50/60 Hz
XLFE-LIB-R024F	18-32 Vdc $\pm 10\%$	-


ACCESSORIES AVAILABLE / SPECIAL REQUESTS

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

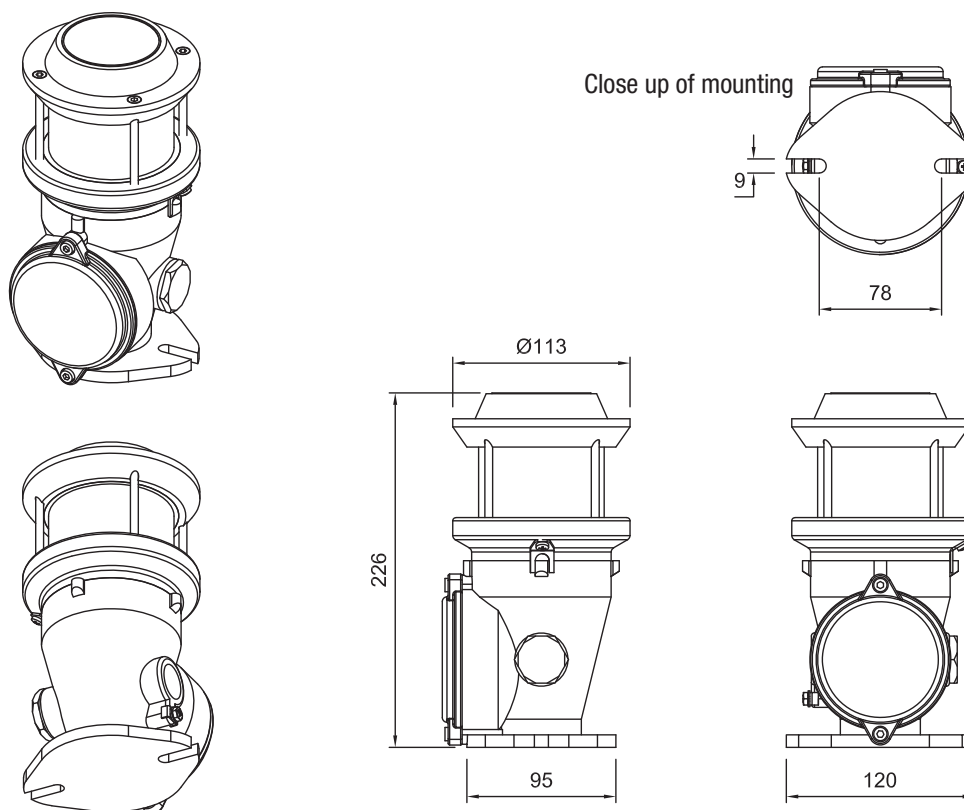


Version with 3 entries ISO M25
complete with 2 plugs PLG2IB
(example code XLFE-LIB-R024L/S)

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 4mm², 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

'Ex op is'
safe optical radiation

Borosilicate
glass globe

RAL7035 coating

Painted
aluminium
body

Cooling
fins

Ex e terminal box
for fast connection

Metallic cable glands



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:



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 T1 10°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 2004/108 Electromagnetic compatibility European Directive 2012/19/UE, 2002/96/CE, 2003/108/CE WEEE European Directive 2011/65/UE 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 high temperatures resistant
Mounting:	See "XLFE-MIB series dimensional drawings"
Bolts and screws:	Stainless steel
Entries:	1 ISO M20 entry complete with NAV20SIB
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

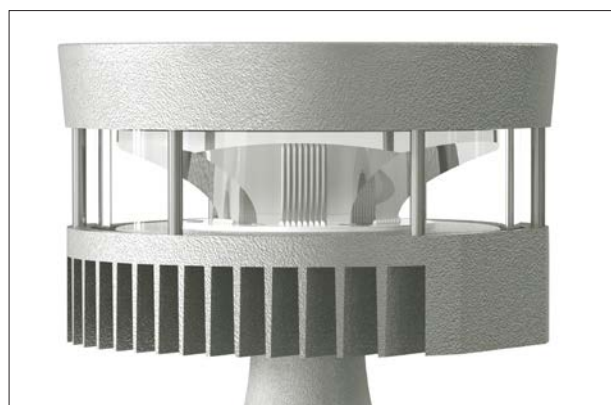
Birds deterrent (G-1010)

COMPLIANCE

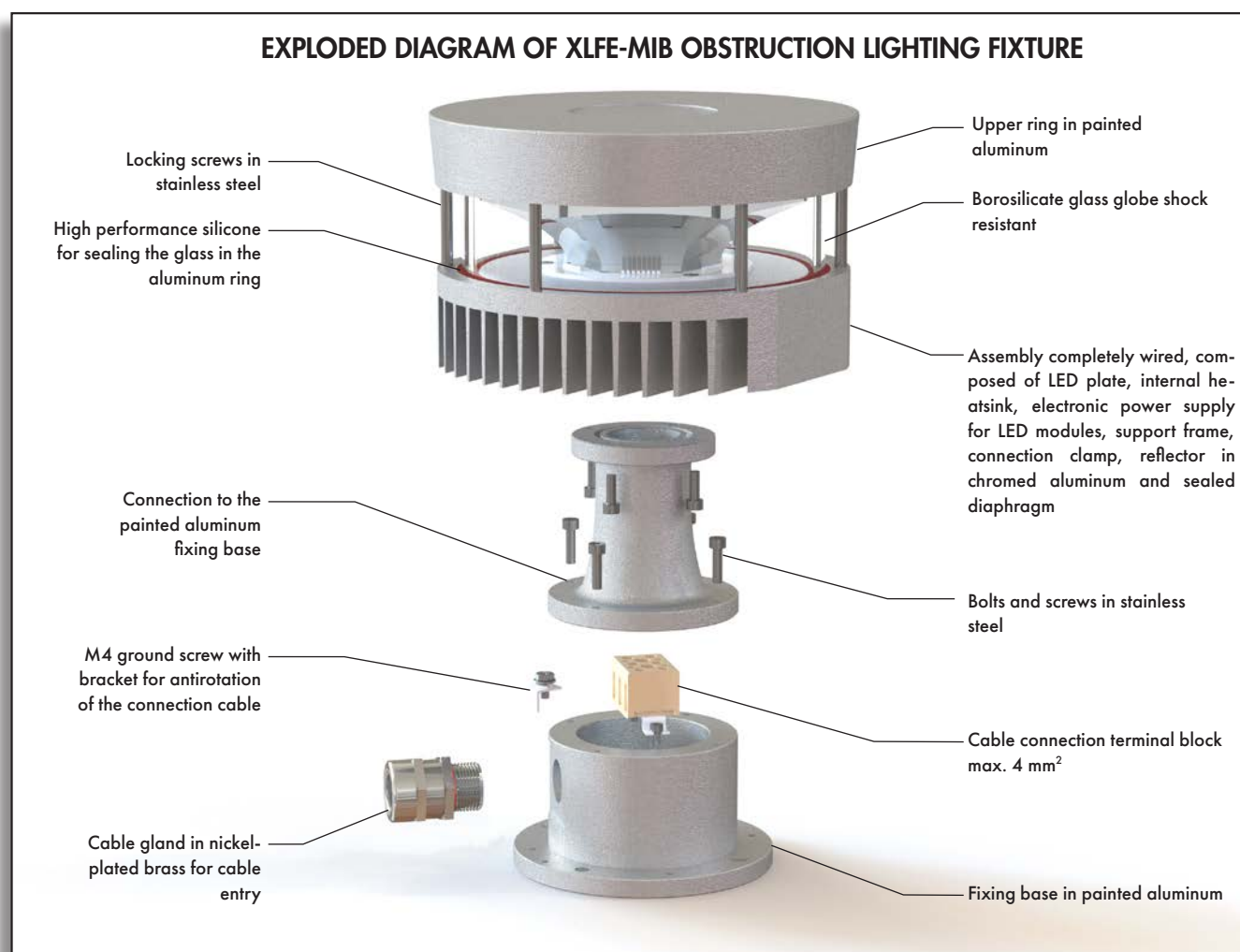
ICAO Regulations, FAA. The red XLFE-MIB series lighting fixtures with luminous intensity of more than 2000 candles complies with the ICAO Annex 14 Aerodromes vol. I, June 2016 (corresponding to the FAA model, L-864 code). In accordance with the provisions of this standard, the luminous flux of the lighting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



Patent Pending




XLFE-MIB Medium intensity LED Obstruction lighting fixtures

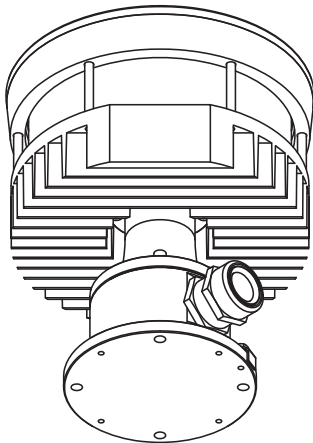
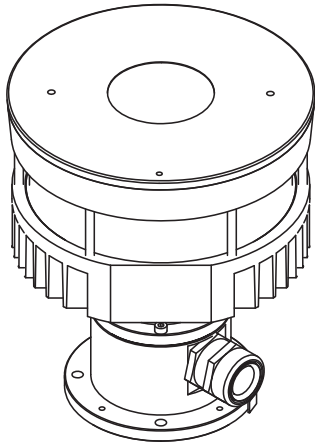


Features	XLFE-MIB
Type of product:	Obstruction lighting fixture Average intensity Type B
Light source:	LED
Color:	Red
Typical use:	Night
Supply voltage:	110-121 Vdc
Power consumption:	30 W
Connection:	Direct connection to terminal board L, N, Pe. Section 4mm ²
Flashing rate:	20 - 40 fpm (flash per minute)
Vertical beam spread:	3°
Minimum light intensity (360°):	2000 cd
Horizontal coverage:	360°

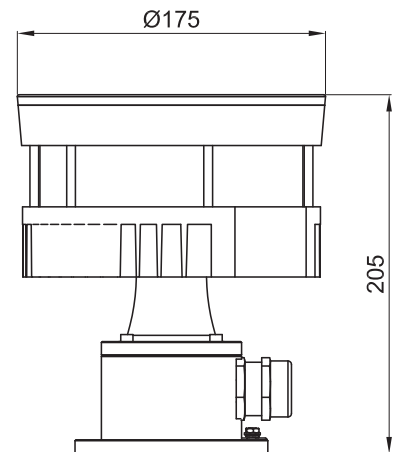
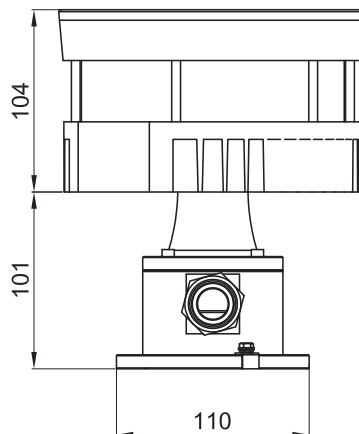
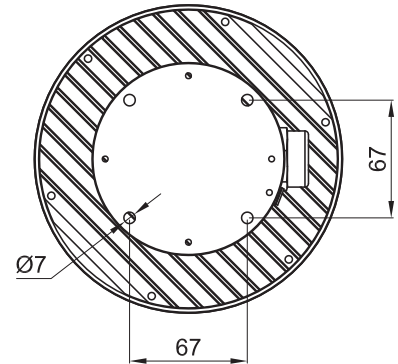
XLFE-MIB Medium intensity LED Obstruction lighting fixtures

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

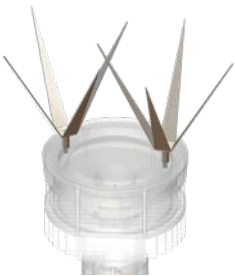

DIMENSIONAL DRAWING



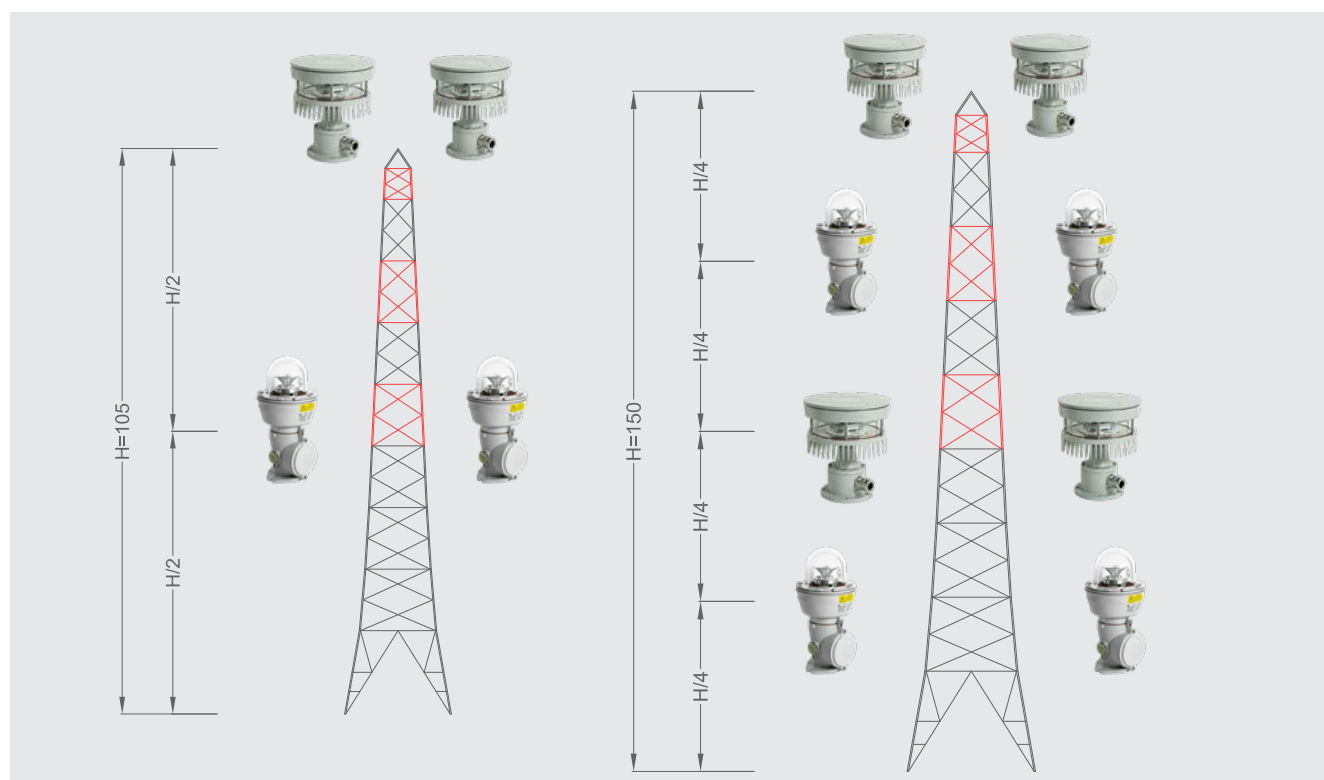
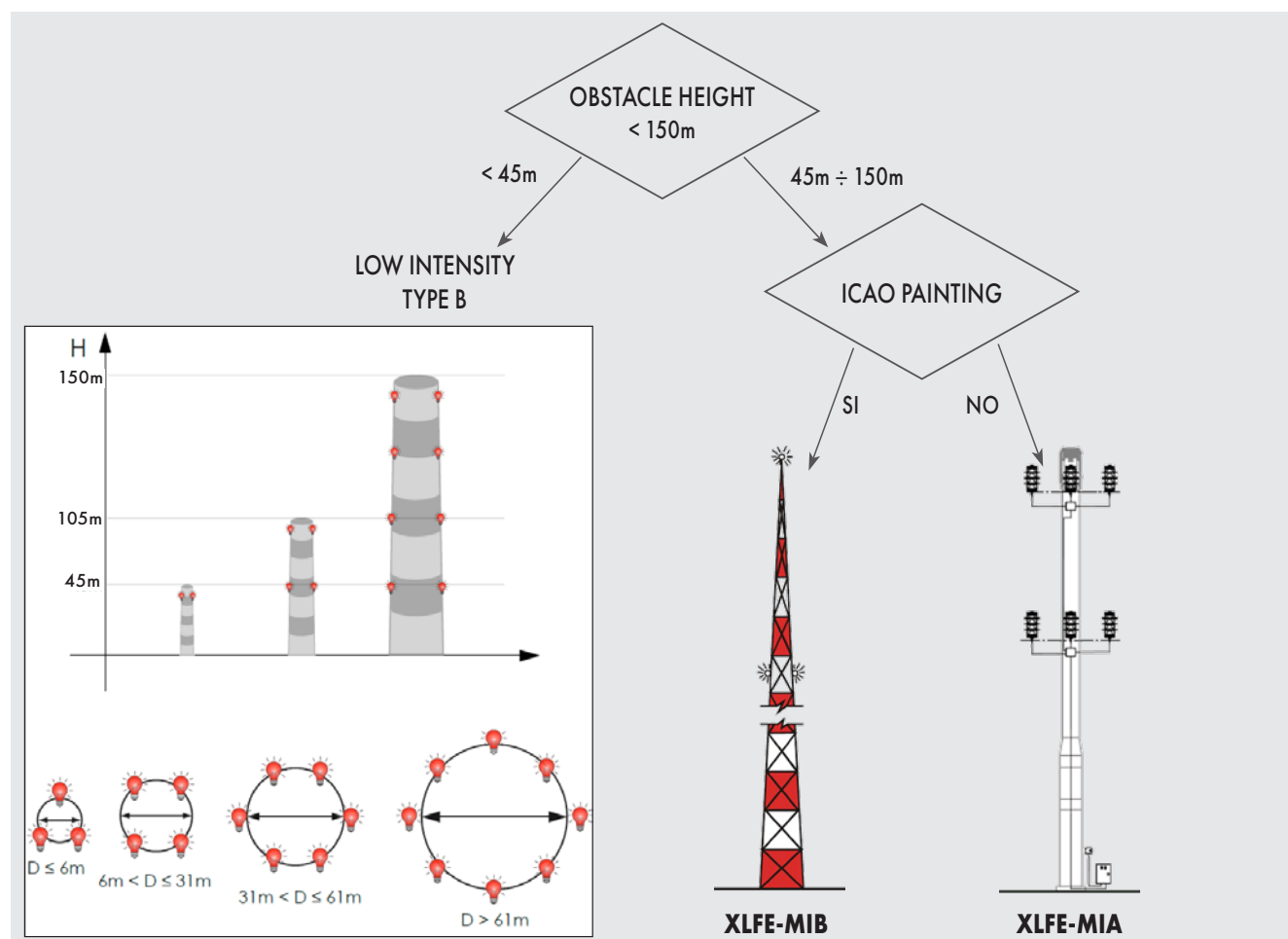
Close up of mounting



Dimensions in mm

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

XLFE-MIB Medium intensity LED Obstruction lighting fixtures



XLFE-MIA



- Zone 1, 2, 21, 22
- Obstruction warnings MEDIUM INTENSITY type A or C
- 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



XLFE-MIA Medium intensity LED Obstruction lighting fixtures

XLFE-MIA and XLFE-MIC 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 flashing white color XLFE-MIA, with an intensity greater than 20,000 candles in daytime operation and greater than 2,000 candles in night-time 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 fixed RED color XLFE-MIC, with an intensity greater than 2,000 candles, complies with ICAO annex 14 for aviation obstruction warning lights of medium-intensity type C (corresponding to the FAA type of initials L-864).

The XLFE-MIA and XLFE-MIC series have 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.

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:



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 IIC T.. Gb; Ex tb IIC T..°C Db IP66

Certification:

ATEX CML 19 ATEX 1333X

IECEX IECEX CML 19.0102X

UKEX AVAILABLE

For all IEC Ex and UKEX certificate data download the certificate from www.cortemgroup.com

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 2004/108 Electromagnetic compatibility
European Directive 2012/19/UE, 2002/96/CE, 2003/108/CE WEEE
European Directive 2011/65/UE 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 high temperatures resistant
Mounting:	See "XLFE-MIA series dimensional drawings"
Bolts and screws:	Stainless steel
Entries:	1 ISO M20 entry

ACCESSORIES AVAILABLE / SPECIAL REQUESTS

The fixed RED color **XLFE-MIC**, with an intensity greater than 2,000 candles, complies with ICAO annex 14 for aviation obstruction warning lights of medium-intensity type C (corresponding to the FAA type of initials L-864).

Ex or watertight protected control panel

Cable gland: NAV201B for non-armoured cable or NEV201B for armoured cable

Heat shield

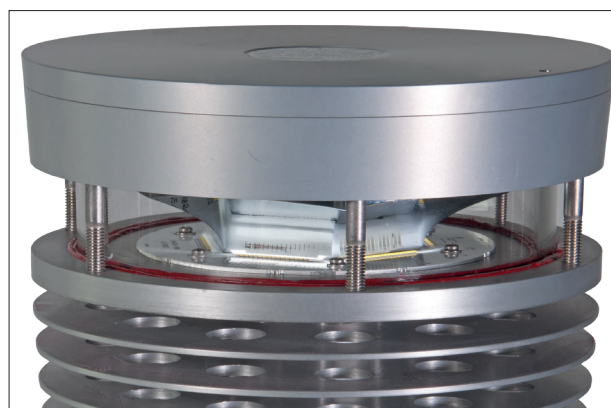
Polyester painting

COMPLIANCE

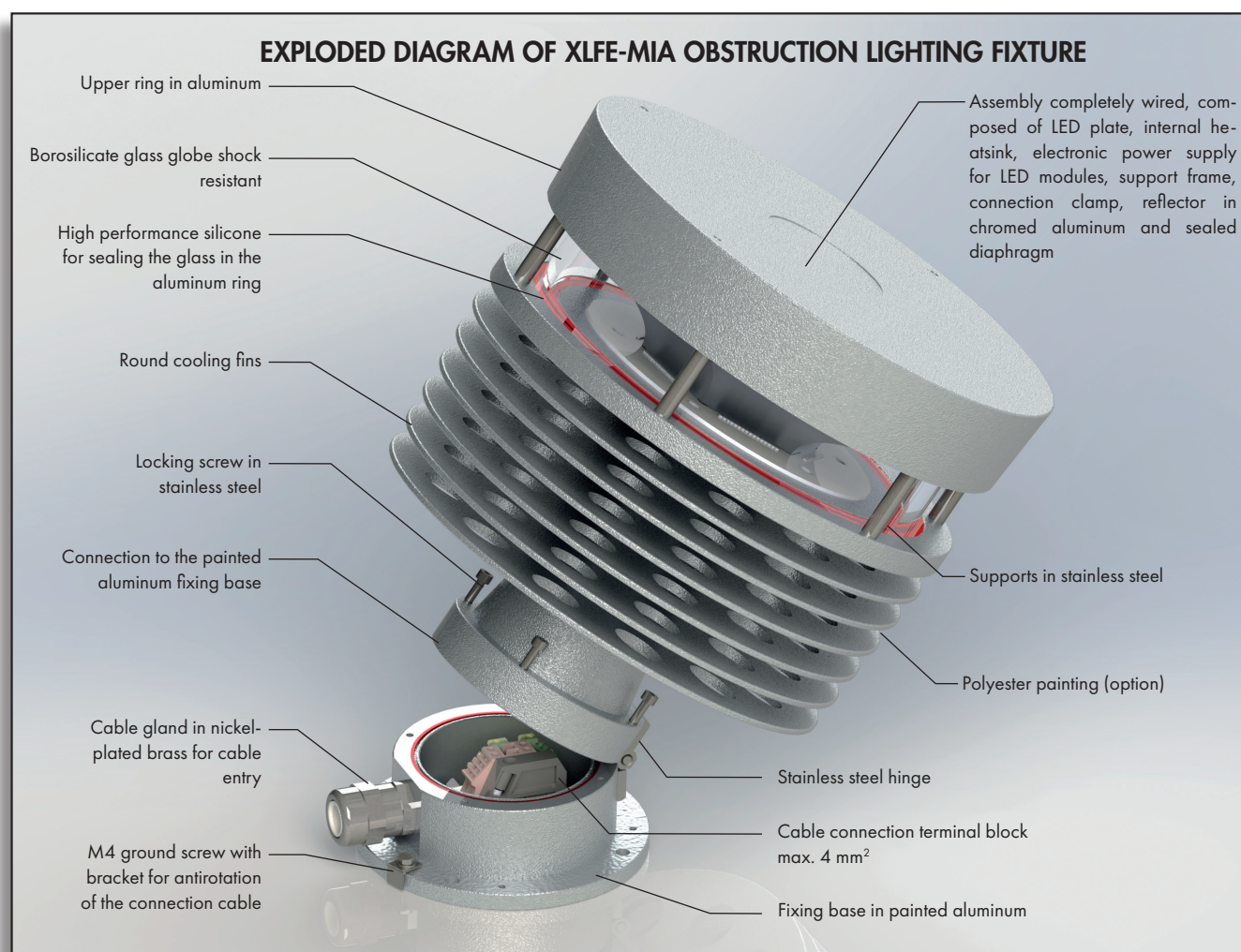
ICAO Regulations, FAA. The white XLFE-MIA series lighting fixtures, with an intensity greater than 20,000 candles in daytime operation and greater than 2,000 candles in nighttime operation, complies with ICAO annex 14 vol I. June 2016 for aviation obstruction warning lights of medium-intensity type A (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°.



Patent Pending




XLFE-MIA Medium intensity LED Obstruction lighting fixtures

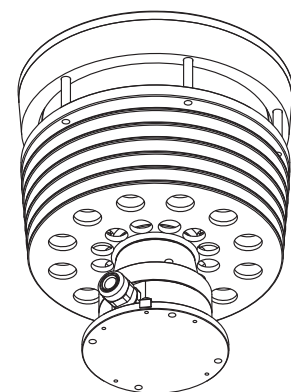
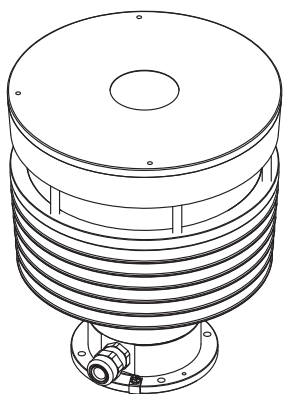


Features	XLFE-MIA
Type of product:	Obstruction lighting fixture Average intensity Type A
Light source:	LED
Color:	White
Typical use:	Day and night hours
Power consumption:	60 W
Connection:	Direct connection to terminal board L, N, Pe. Section 4mm ²
Flashing rate:	20 - 40 fpm (flash for minute)
Vertical beam spread:	3°
Minimum light intensity (360°):	20.000 cd daytime operation 2.000 cd in nighttime
Horizontal coverage:	360°

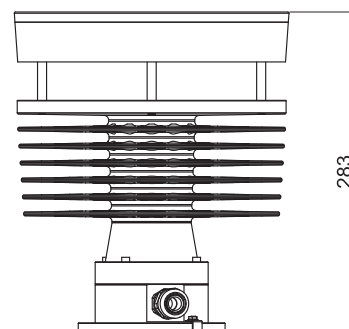
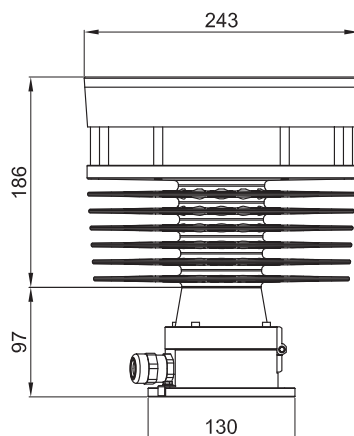
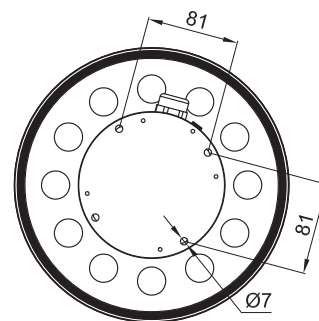
XLFE-MIA Medium intensity LED Obstruction lighting fixtures

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

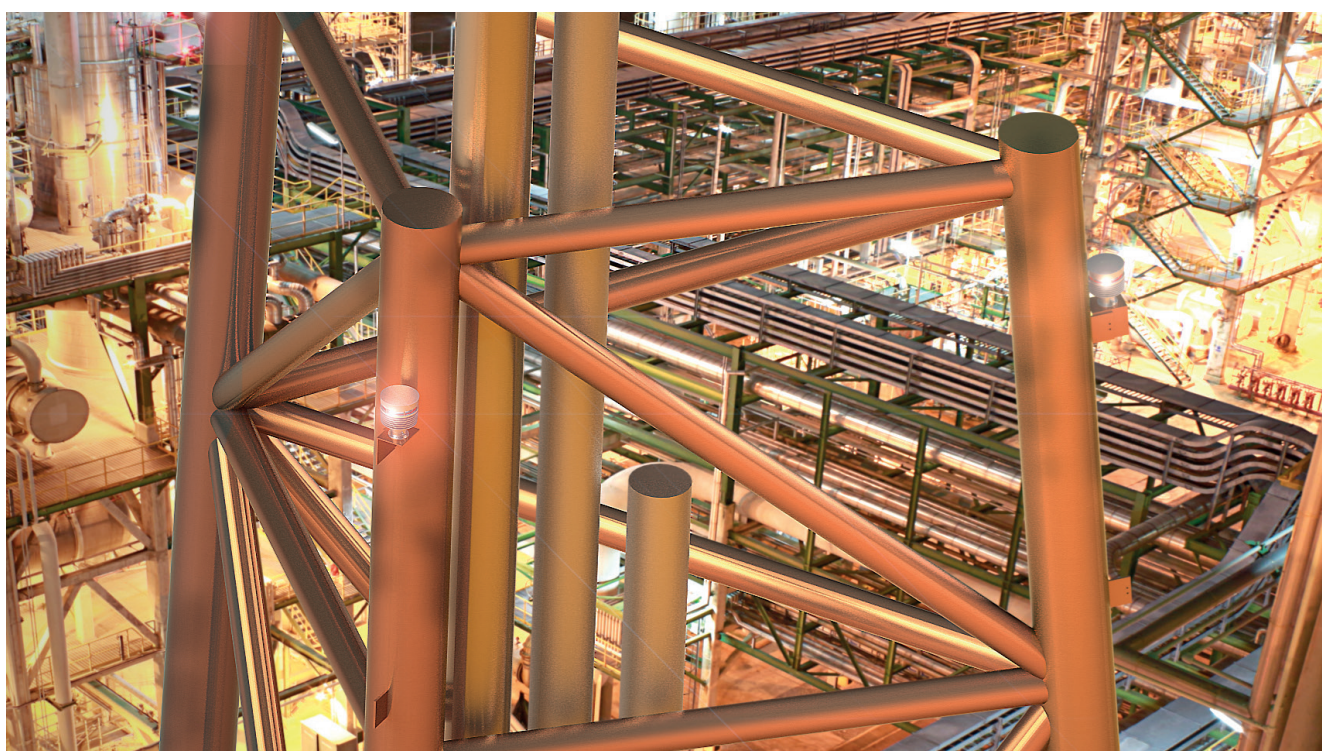
DIMENSIONAL DRAWING



Close up of mounting

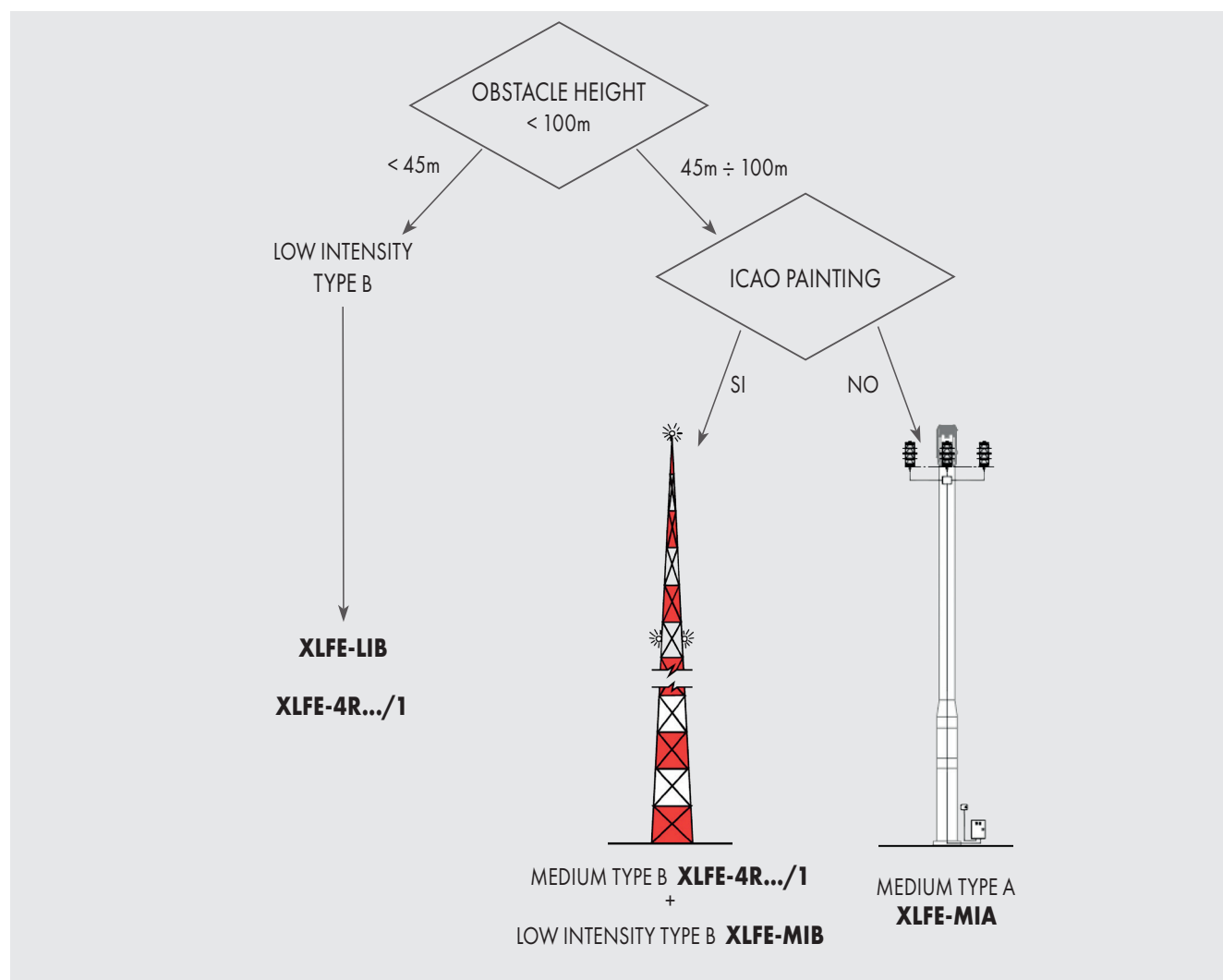


Dimensions in mm

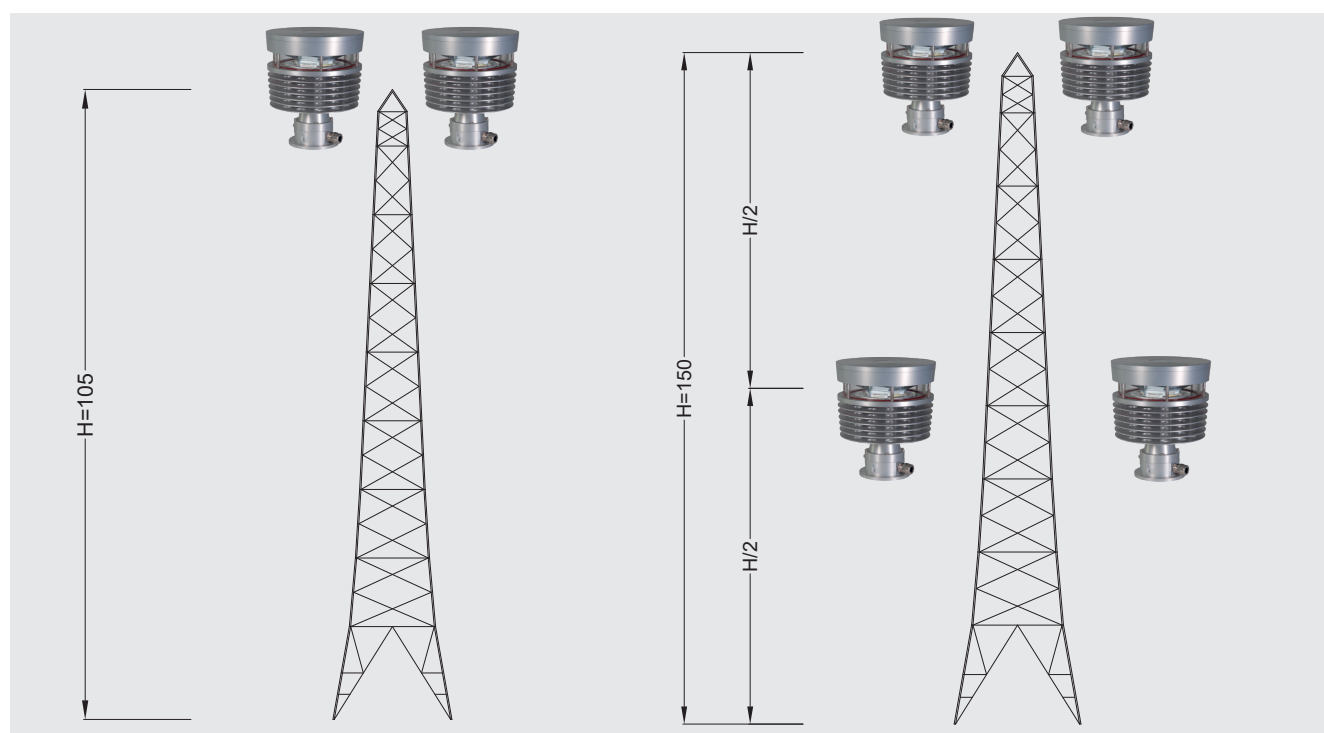


XLFE-MIA Medium intensity LED Obstruction lighting fixtures

Products selection flow-chart



Mounting scheme



CCA-02E/SLD

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

*Tempered glass with
polycarbonate lenses*

*Brackets in
galvanised steel*

*Sun
shades*

Connections



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:



Oil refineries



Chemical and petrochemical plants



Fuel tanker loading/unloading areas



Offshore plants



Emergency exits



Combustible liquid depots



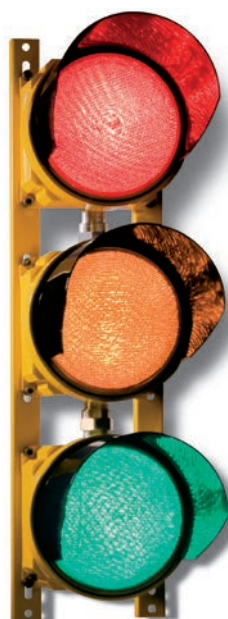
Oil loading/unloading jetties



100% Cortem product

CERTIFICATION DATA

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone22 (Dust)		
Marking:	CE 0722 Ex II 2GD Ex d IIC T6 Gb - Ex tb IIIC T85°C Db IP66			
Certification:	ATEX CESA 01 ATEX 036X			
Standards:	CENELEC EN 60079-0: 2006, EN 60079-1: 2007, EN 61241-0: 2006, EN 61241-1: 2004 and EUROPEAN DIRECTIVE 2014/34/UE European Directive 2004/108 Electromagnetic compatibility European Directive 2012/19/UE, 2002/96/CE, 2003/108/CE WEEE European Directive 2011/65/UE RoHS			
Class temperature:	85°C (T6)			
Ambient temperature:	Standard -20°C +55°C	Special -40°C +55°C		
Degree of protection:	IP66			



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). Fixing brackets in painted galvanised steel upon request
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 $\pm 10\%$
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

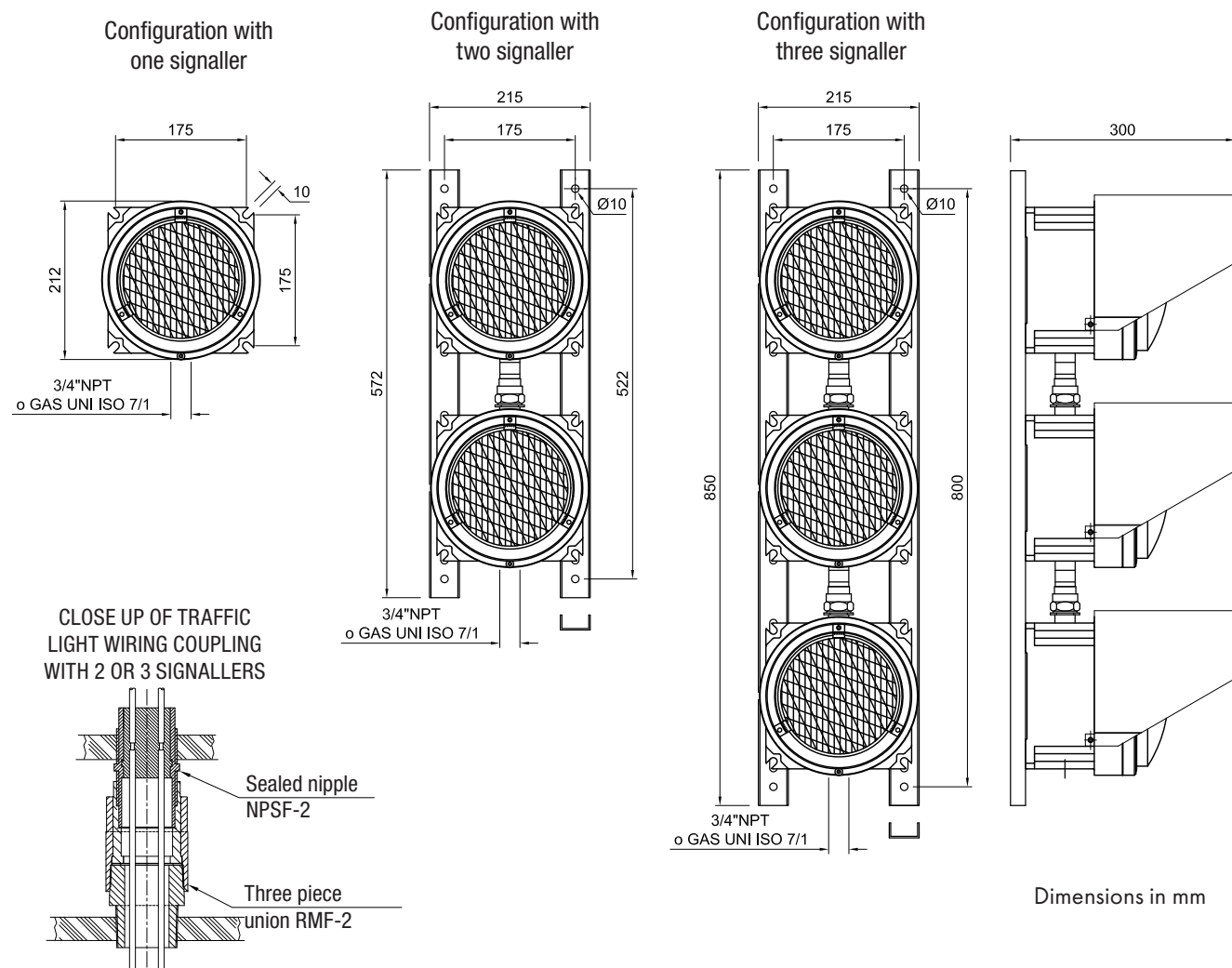
ACCESSORIES AVAILABLE / SPECIAL REQUESTS

Cable gland: NEVB2NB for armoured cable or NAVB2NB 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 signalers	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

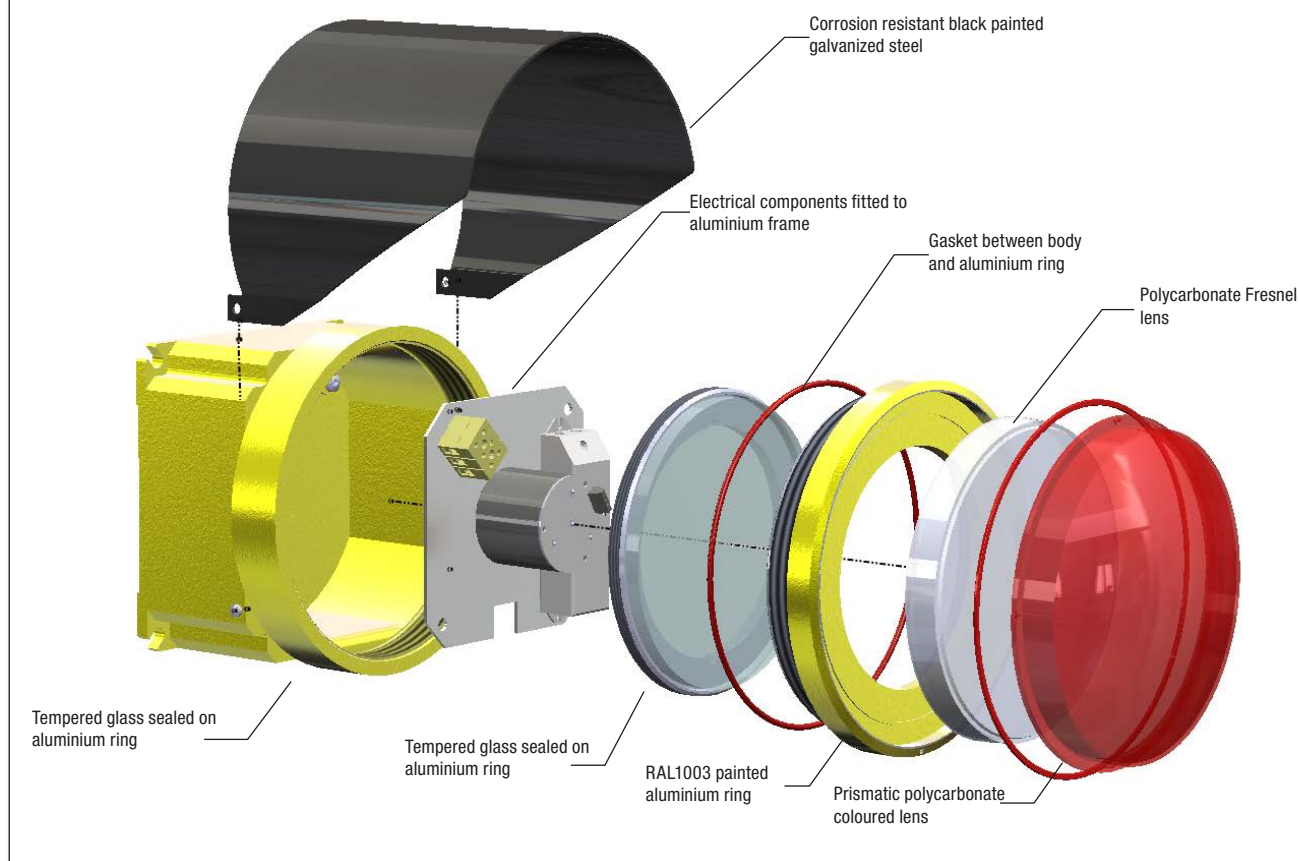
DIMENSIONAL DRAWING



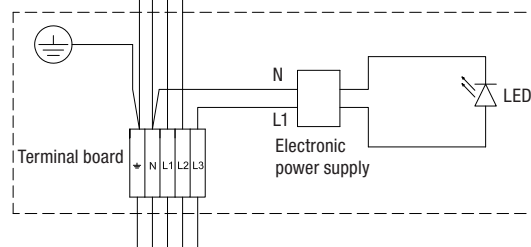
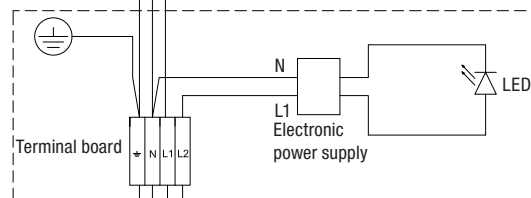
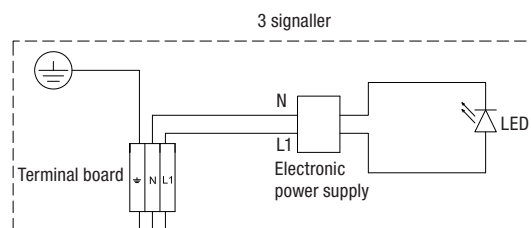
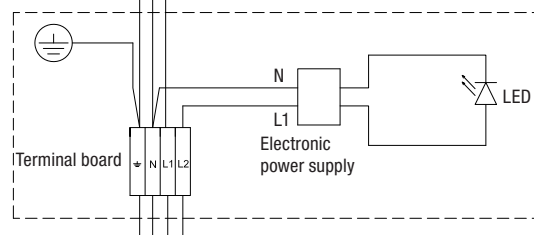
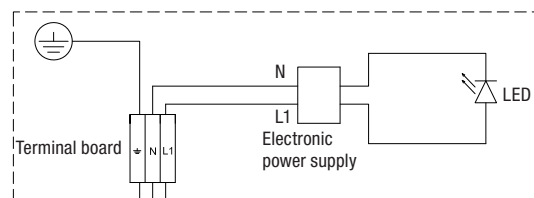
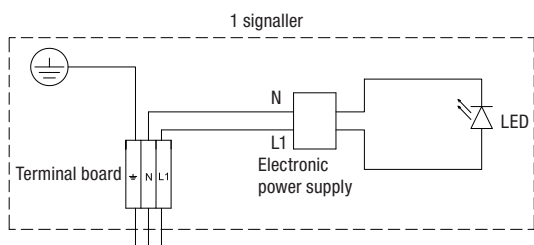
Accessories and spare parts available on request for CCA-02E/S...LD

ILLUSTRATION	DESCRIPTION	FEATURES	CODE	KEY
	Coloured prismatic polycarbonate lens	Red lens	G-572R	
		Yellow lens	G-572G	
		Green lens	G-572V	
	Fresnel lens	Material: polycarbonate	G-573	
	Protective hood	Material: black painted steel	K-320	
	Electronic power supply	240V ±10%	RV-11LED	
	Gasket	Material: NBR	K20-131	
	LED plate	Red LED board	G-614R	
		Yellow LED board	G-614G	
		Green LED board	G-614V	
	Cable gland	For models and codes, visit www.cortemgroup.com	NAVB2NB NEVB2NB	 

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:

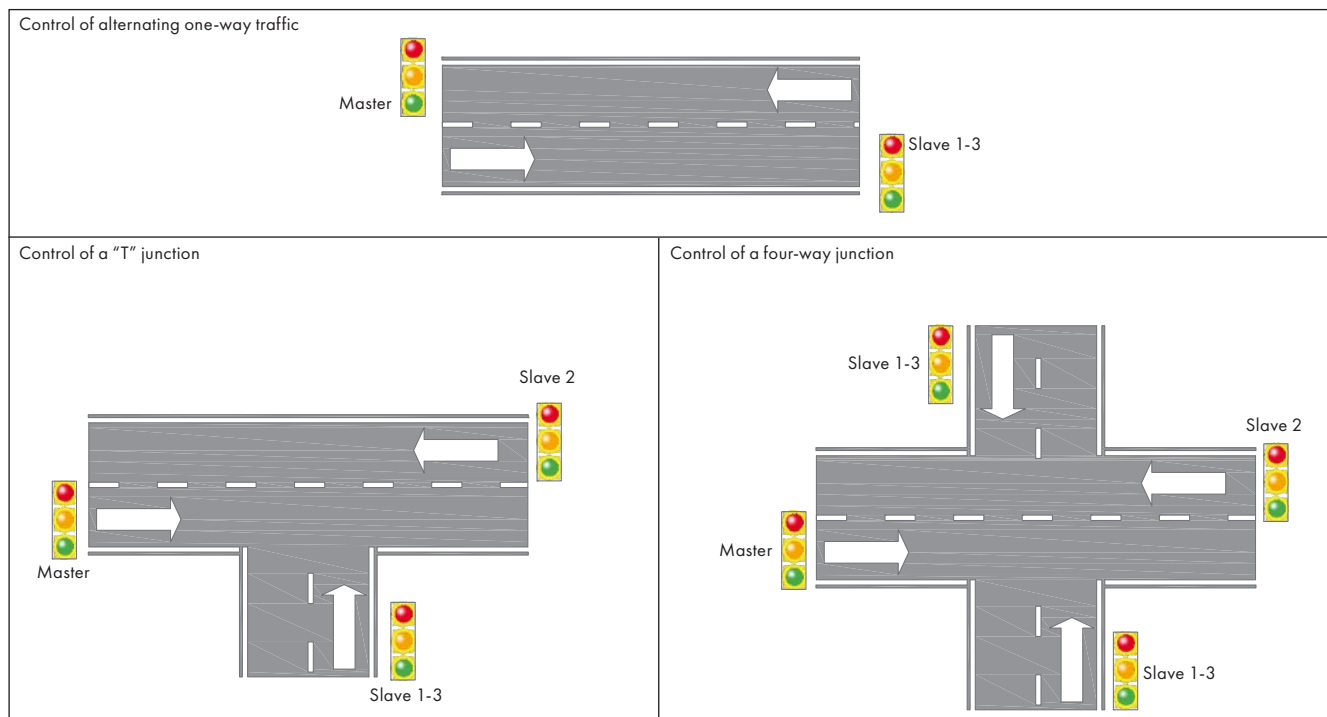
1. Slave-n devices are configured/powered ON
2. The Master device is configured/powered ON

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

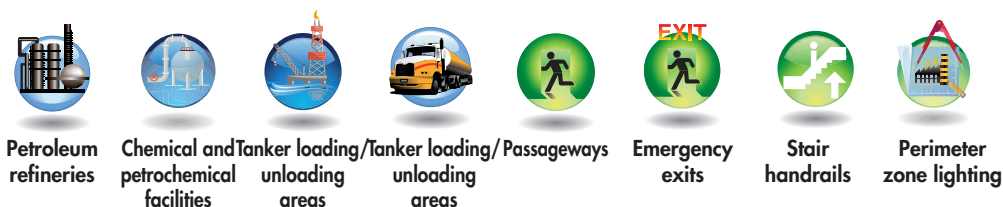


LFEE emergency lighting fixture

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 polycarbonate 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:



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 2004/108 Electromagnetic compatibility
European Directive 2012/19/UE, 2002/96/CE, 2003/108/CE WEEE
European Directive 2011/65/UE 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



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 PLG11B plug and NAV20SIB cable gland

ELECTRICAL FEATURES

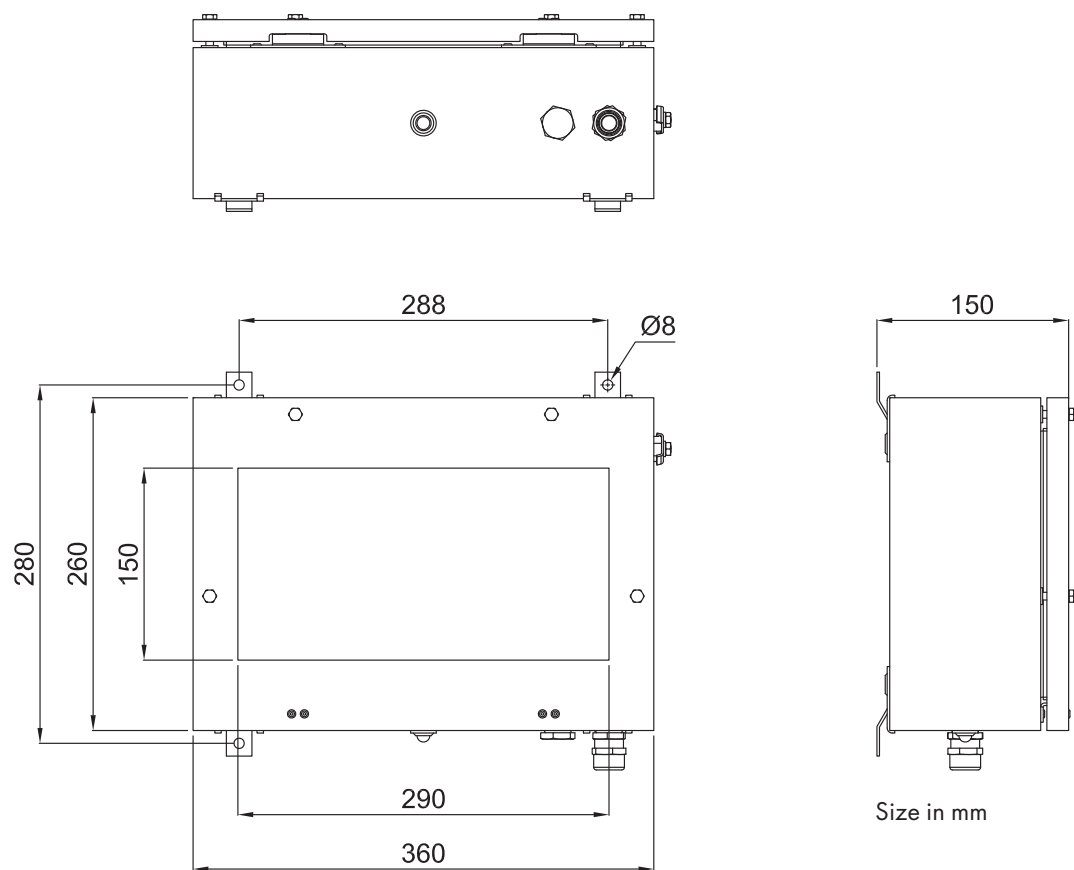
Autonomy in emergency mode:	6 hours
Rated voltage:	Normal operation only: 110-240 Vac / 127-240 Vdc Emergency operation only: 110-240 Vac / 110-240 Vdc Normal + emergency operation: 110-240 Vac / 127-240 Vdc
Rated frequency:	50/60 Hz
Connection:	Directly to the terminal board L, N, Pe cross sec. 4 mm 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








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)
/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.

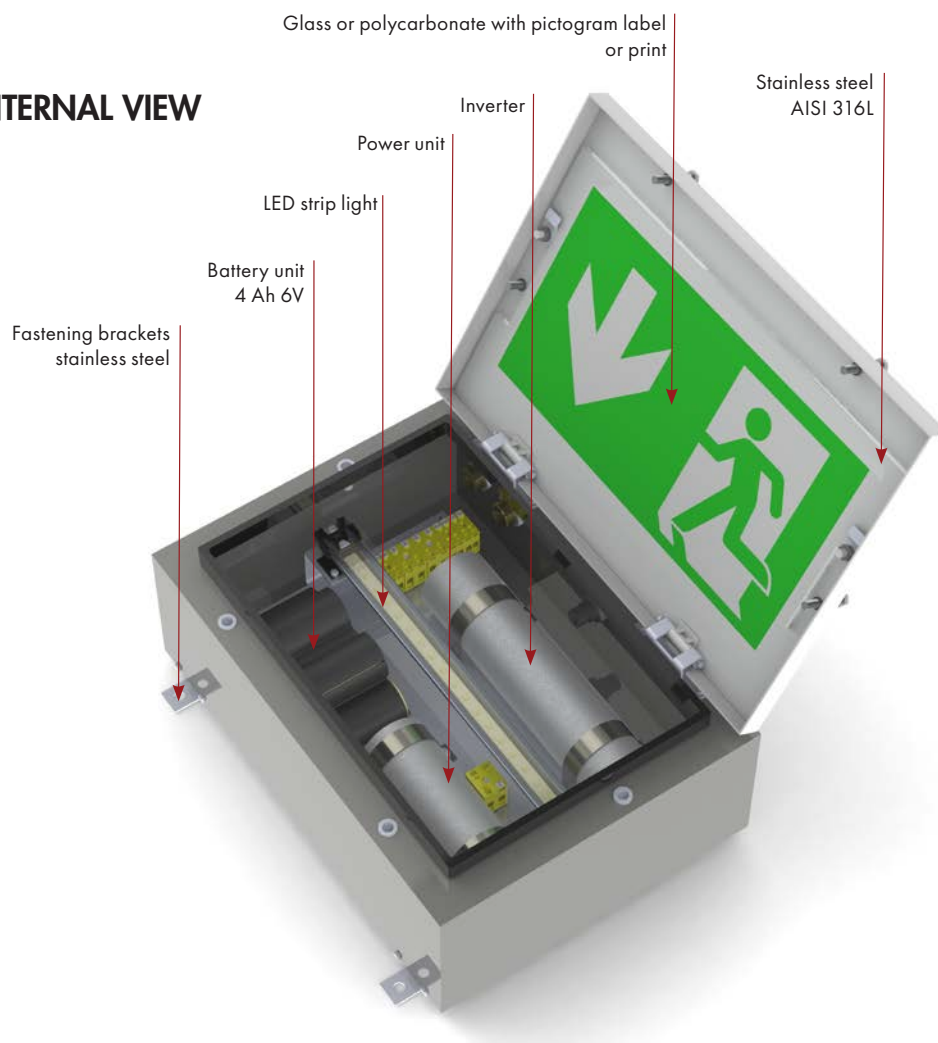
DO NOT FORGET TO ORDER THE ACCESSORIES

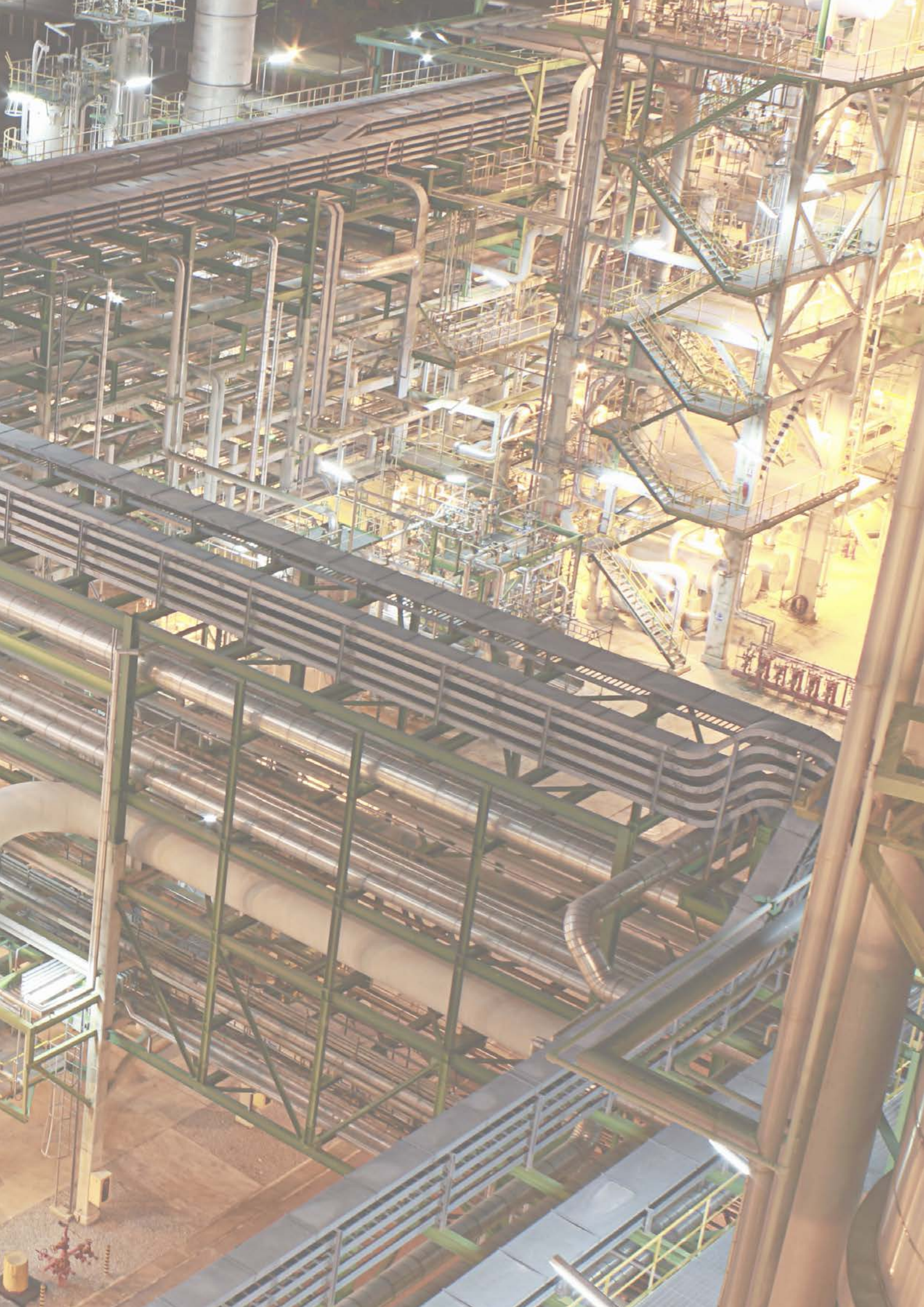
Example: Type of fixture LFEE- 112N/G + Cable gland (additional) NAV20SIB + Other (see legend) 

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+H₂
- 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:



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	For all IEC Ex and TR CU certificate data, download the certificate from www.cortemgroup.com		
	IEC Ex SEV 18.0018X			
	TR CU AVAILABLE			
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 2004/108 Electromagnetic compatibility European Directive 2012/19/UE, 2002/96/CE, 2003/108/CE WEEE European Directive 2011/65/UE RoHS			
Temperature class:	 72°C (T6)			
Ambient temperature:	 Normal -60°C +60°C 	 With emergency -40°C +60°C 		
Degree of protection:	IP66			



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 PLG11B 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

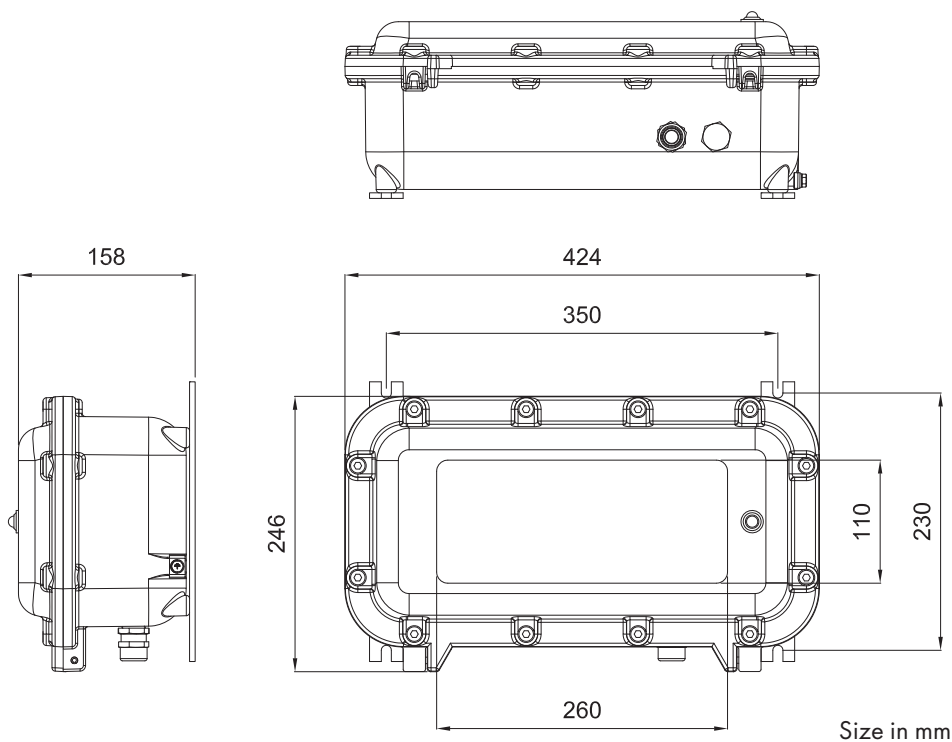
Autonomy in emergency mode:	2 Ah: 3 hours 2.5 Ah: 4 hours 3.1 Ah: 5 hours
Rated voltage:	Normal operation only: 110-277 Vac / 156-277 Vdc Emergency operation only: 110-240 Vac / 110-240 Vdc Normal + emergency operation: 110-240 Vac / 156-240 Vdc
Rated frequency:	50/60 Hz
Connection:	Directly to the terminal 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



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



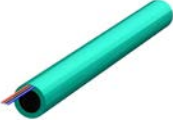














Sample order code

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

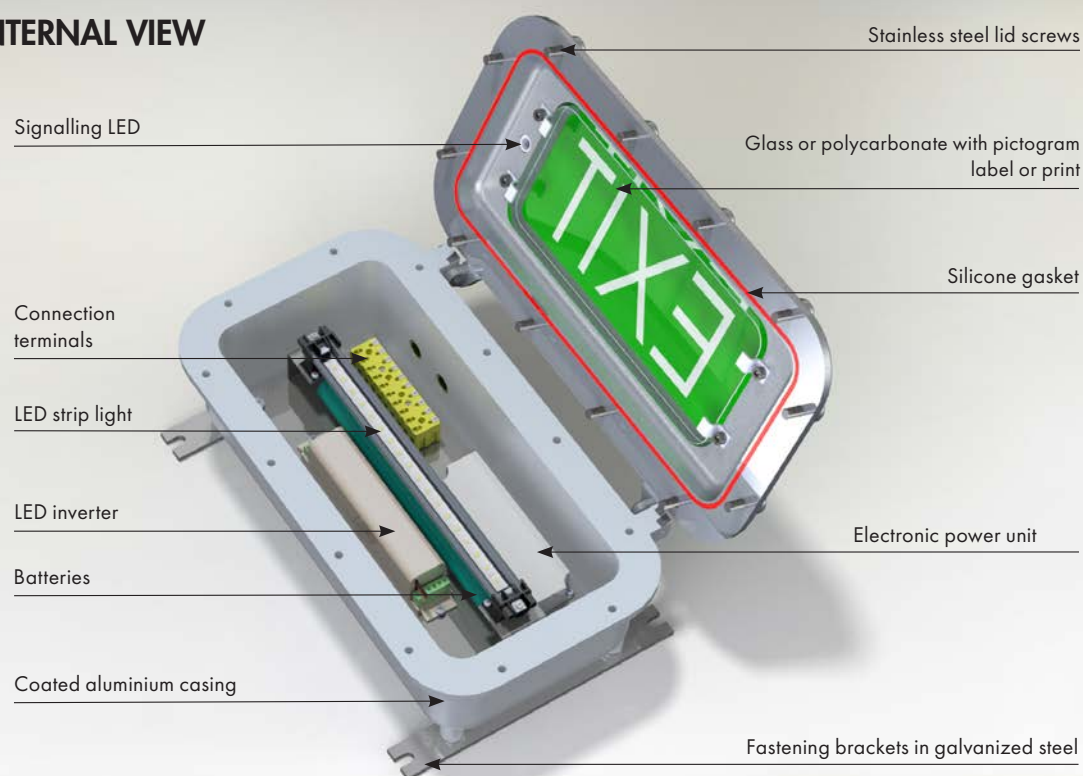
DO NOT FORGET TO ORDER THE ACCESSORIES

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

LFED emergency lighting fixture

ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	LEGEND
	LED strip light		LED module (not resined)	LTT8350	
	Battery		Nickel-cadmium 2 Ah	BATT2AH/NC/BA	
			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	LEDDLFE-112	
	LED inverter		110/240 Vac 50/60 Hz 110/270 Vdc	INVERTER/LED/1	
	Single LED		Colour: red	M-0487/920	
	Fastening bracket		Material: galvanized steel	K2-237	
	O-ring between body and lid		Material: red silicone	K2-131/1S	
	Cable gland	ISO M20	std. cable range: 6,3÷11,6	NAV20SIB	 

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 maintenance 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:



CERTIFICATION DATA

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	C€ 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 and INMETRO certification data can be downloaded at www.cortemgroup.com		
	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 European Directive 2004/108 Electromagnetic compatibility European Directive 2012/19/UE, 2002/96/CE, 2003/108/CE WEEE European Directive 2011/65/UE RoHS			
Class temperature:	 85°C (T6)			
Ambient temperature:	 Standard  -20°C +55°C			
Degree of protection:	IP66			

CCA-03EX Lighting fixtures for safety warnings

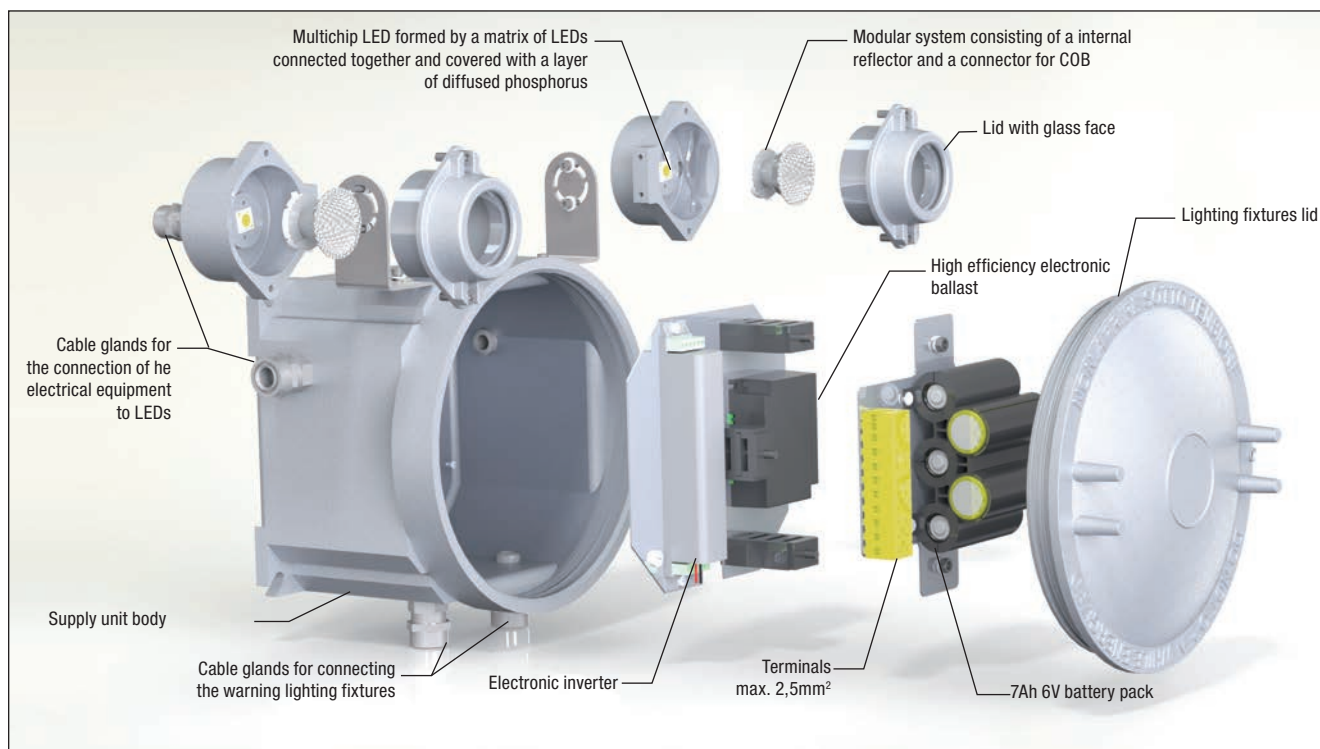


ORIGINAL PRODUCT

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



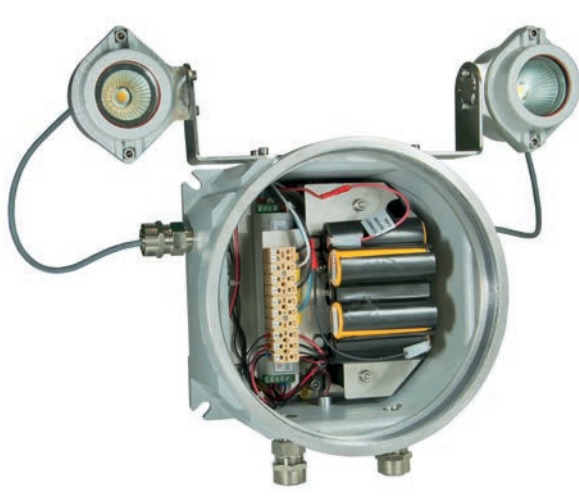
CCA-03EX Lighting fixtures for safety warnings

Electrical features		CCA-03EX
Power supply:		110-240 Vac $\pm 10\%$
Rated frequency:		50-60 Hz $\pm 5\%$
Power consumption:		20 W
Connection:		Direct connection to terminal board L, N, PE. Section 2,5 mm ² , 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

Internal 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

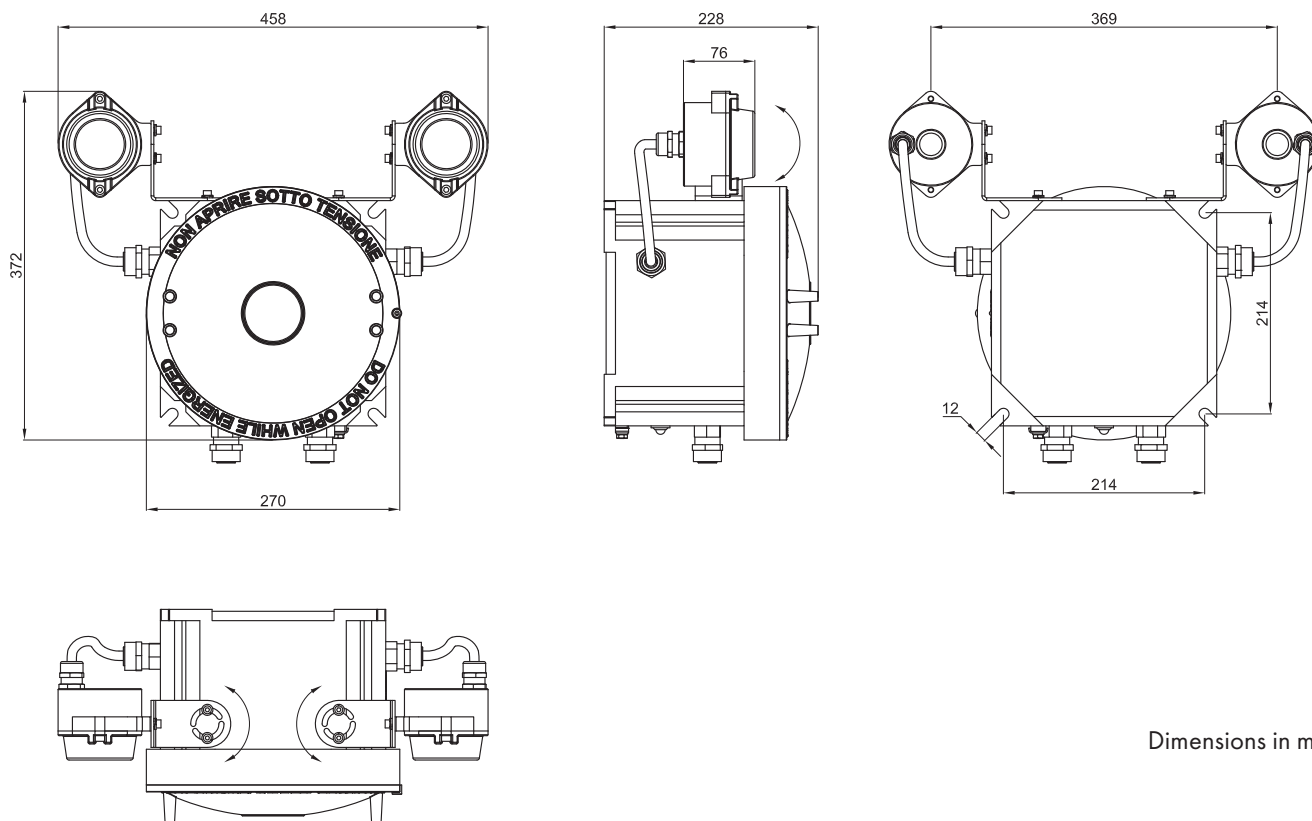
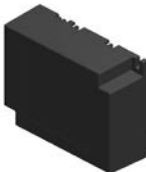











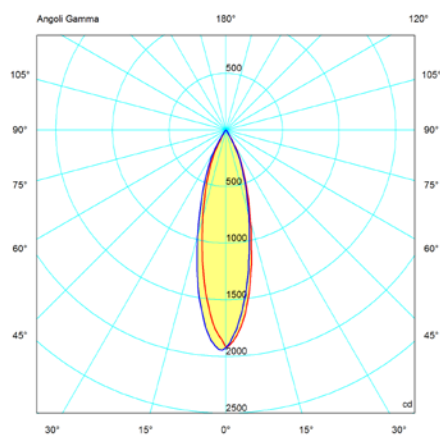
ILLUSTRATION	DESCRIPTION	FEATURES	CODE	KEY
	Driver	110-240 Vac	LEDDCCA-03EX	
	Electronic inverter	90/264 V	INVDCCA-03EX	
	Battery pack	7 Ah 6V NiCd	G-0309	

CCA-03EX Lighting fixtures for safety warnings

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



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

VSE

- Zone 1, 2, 21, 22
- Warning lighting
- LED technology
- Lamp lifespan more than 10 years



VSE LED Warning lighting fixtures

The VSE series warning lighting fixtures with flashing or fixed light are suitable for industrial signalling. The flashing can be adjusted via internal DIP switch with a frequency of 20 to 70 flashes per minute. The VSE lighting fixture, available in different colors, is equipped with LEDs installed on the electronic plate with a single circuit and an internal reflector.

Application sectors:



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 2004/108 Electromagnetic compatibility European Directive 2012/19/UE, 2002/96/CE, 2003/108/CE WEEE European Directive 2011/65/UE 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			

VSE LED Warning 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 aluminium
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

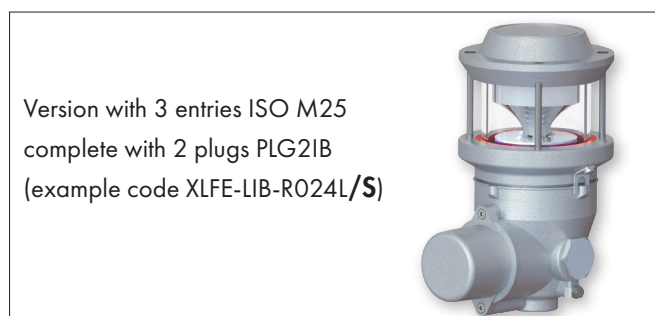
LEDs:	4 x LEDs fitted to electronic plate with single circuit <ul style="list-style-type: none">• High resistance to vibration (longer lifespan if installed in severe operating conditions)• Estimated lifespan 100,000 hours (12 hours per day for 20 years)
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Obstruction lighting fixtures	Rated voltage	Rated frequency
XLFE-LIB-R230F	100-240 Vac $\pm 10\%$	50/60 Hz
XLFE-LIB-R024F	18-32 Vdc $\pm 10\%$	-

ACCESSORIES AVAILABLE / SPECIAL REQUESTS


Cable gland: NAV25IB for armoured cable or NEV25IB for non-armoured cable

Ex or watertight protected control panel



Version with 3 entries ISO M25
complete with 2 plugs PLG2IB
(example code XLFE-LIB-R024L/S)

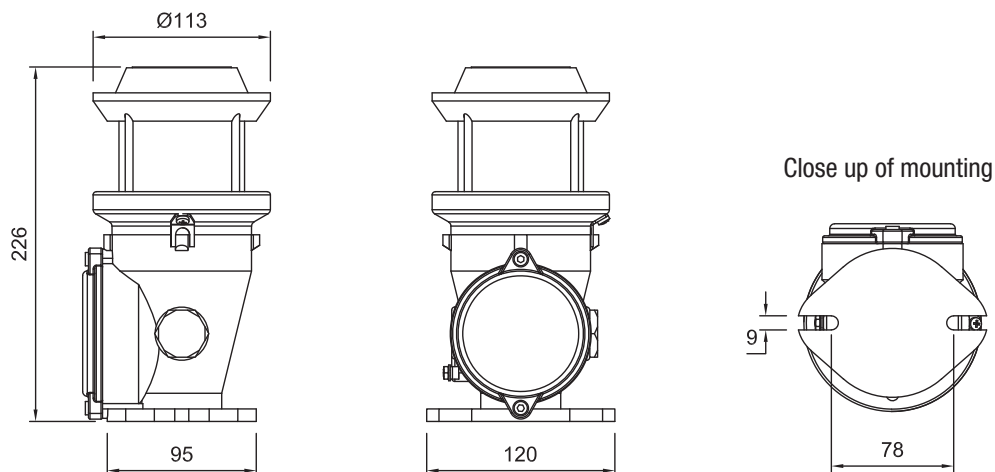
VSE LED Warning lighting fixtures

Code	Colour light	Type of light	Type of circuit	Supply voltage	Power	Weight kg	 mm
VSE-R230L	Rossa	Flashing	Single	100-240 Vac	6 W	2 Kg	232x125x125
VSE-Y230L	Gialla	Flashing	Single	100-240 Vac	6 W	2 Kg	232x125x125
VSE-G230L	Verde	Flashing	Single	100-240 Vac	6 W	2 Kg	232x125x125
VSE-B230L	Blu	Flashing	Single	100-240 Vac	6 W	2 Kg	232x125x125
VSE-R024L	Rossa	Flashing	Single	18-32 Vdc	6 W	2 Kg	232x125x125
VSE-Y024L	Gialla	Flashing	Single	18-32 Vdc	6 W	2 Kg	232x125x125
VSE-G024L	Verde	Flashing	Single	18-32 Vdc	6 W	2 Kg	232x125x125
VSE-B024L	Blu	Flashing	Single	18-32 Vdc	6 W	2 Kg	232x125x125

NOTE:

Code with F suffix for version with fixed light (e.g. code: **VSE-B024F**)

DIMENSIONAL DRAWING



Features

VSE

Type of product:

Warning lighting fixture
Low intensity

Light source:

LED

Light color:

Red, Yellow, Green, Blue

Typical use:

Night hours

Power consumption:

6 W

Connection:

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

Vertical beam spread:

> 10°

Minimum light intensity (360°):

>32 cd in nighttime

Horizontal coverage:

360°

Flashing adjustment via internal DIP switch, see table on the right
(See safety, use and maintenance instructions)

FLASHING MODE

ON	ON	ON	ON	20 FPM
	ON	OFF	ON	30 FPM
	OFF	ON	ON	40 FPM
	OFF	OFF	ON	50 FPM
	OFF	ON	OFF	60 FPM
	OFF	OFF	OFF	70 FPM
	OFF	OFF	OFF	70 FPM

OFF

FIXED MODE

FPM = flash per minute



Product modifications and warranty

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

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