

FLFE..L

FLF..L

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

'Ex op is'
safe optical radiation

*4 Joule shock resistant
borosilicate glass*

*White painted
reflector/frame*

Simplified maintenance



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

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

Application sectors:



Oil refineries



Chemical and petro-chemical plants



Oil and combustible liquid depots



Offshore plants



Onshore plants



Stair handrails



Farm produce applications



100% Cortem product

CERTIFICATION DATA

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

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



MECHANICAL FEATURES

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)



ORIGINAL PRODUCT

ELECTRICAL FEATURES

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

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

ACCESSORIES AVAILABLE / SPECIAL REQUESTS

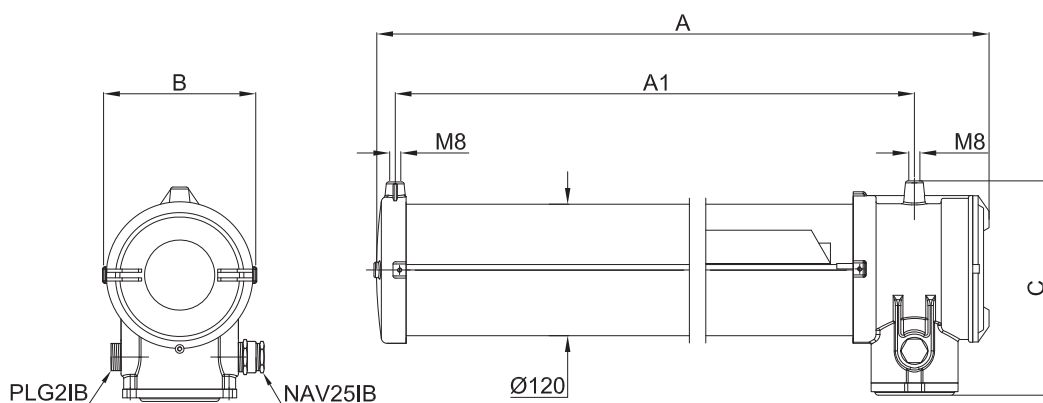
Different rated voltages
 Installation mounting brackets
 Stainless steel or galvanized steel guard with external aluminium protection
 External aluminium protection recommended for outdoor installations
 Cable gland: FGAB2NBK for armoured cable or FB2NBK for non-armoured cable (only for FLF...L)
 Lighting fixture with separate emergency battery pack for temperatures of -20°C +55°C only for FLFE...L (code FLFE-101LEF7E)
 Rated voltage: 110/230 Vac/dc (FLFE-.../S)
 110/277 Vac/dc (FLF-.../277)
 Cable entry: 2 x ISO M20 holes. Lighting fixture with 1 model PLG1IB plugs and 1 model NAV20SIB cable glands for non-armoured cable (code FLFE-101LEF4/20)

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

Ex de lighting fixtures

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

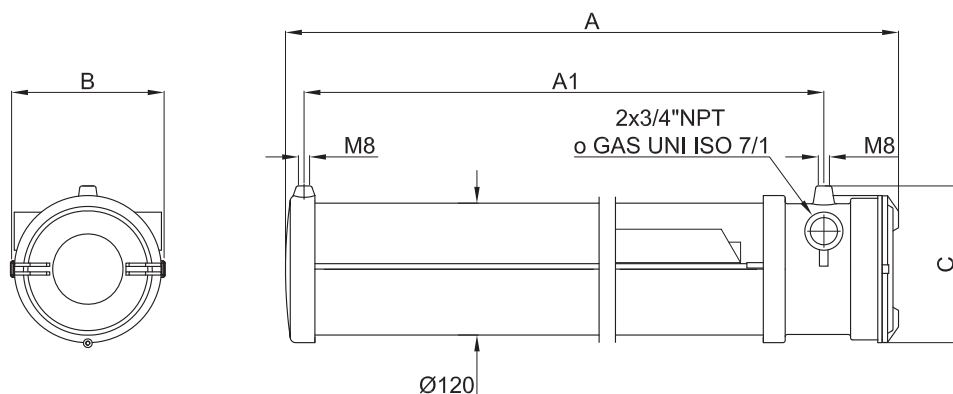
DIMENSIONAL DRAWING



Ex d lighting fixtures

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

DIMENSIONAL DRAWING

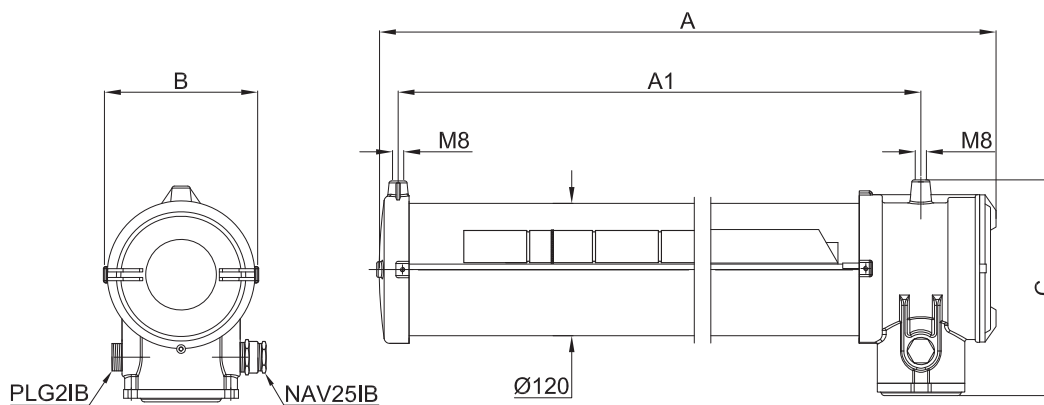


FLFE...L, FLF...L series Lighting fixtures with LED strips

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

DIMENSIONAL DRAWINGS

Dimensions in mm

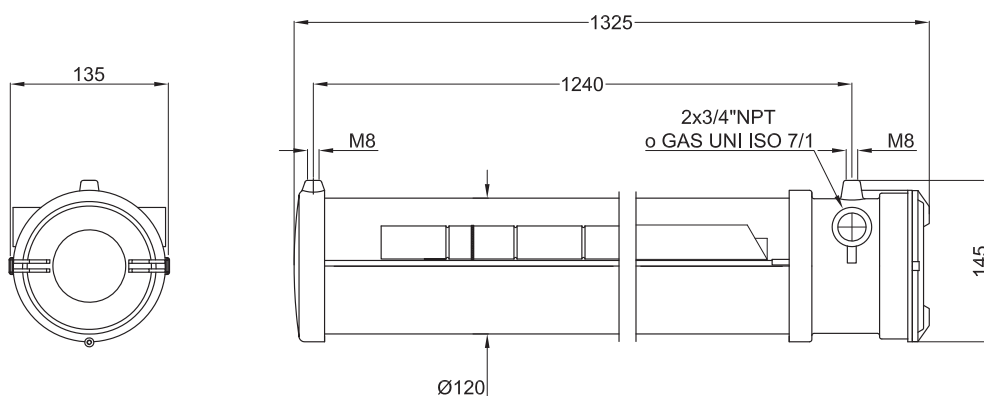


FLFE...L, FLF...L series Lighting fixtures with LED strips

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

DIMENSIONAL DRAWINGS

Dimensions in mm



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

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

* Test at 230Vac

DON'T FORGET TO ORDER THE ACCESSORIES

Example: Type of lighting fixture
FLF-201L

+

Type P bracket
G-0480

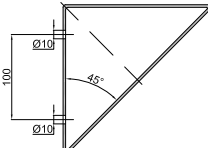
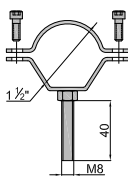
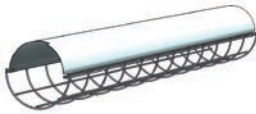
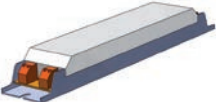
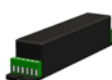
+

other ...see key

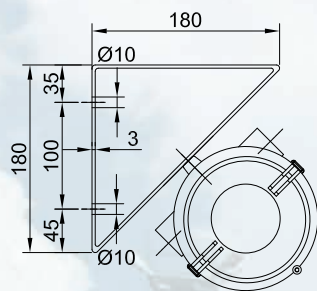


ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	KEY
	Tige	Longitud: 250 mm	Material: stainless steel	BRF8MIN/250	
	Type O eyebolt		Material: galvanised steel	GOF-8	
	Type U bracket complete with screws		Material: bracket: galvanised steel screws: stainless steel	G-0609	
	Type V bracket complete with screws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

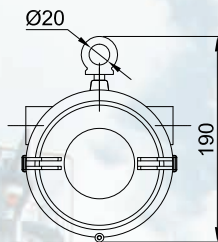
FLFE...L, FLF...L series Lighting fixtures with LED strips

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

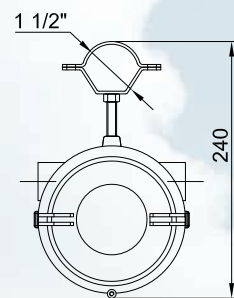
Installation and mounting methods and photometric diagrams



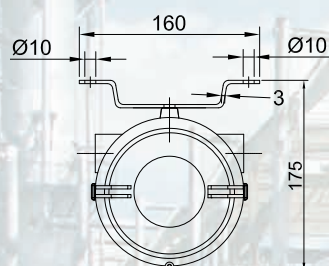
**45° angle mounting
TYPE "D"**



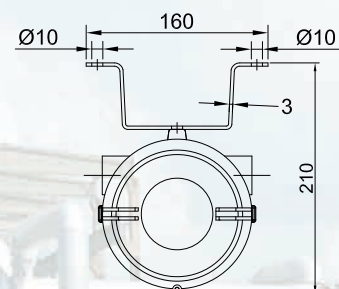
**Pendant mounting with
eyebolt TYPE "O"**



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



**Low ceiling mounting with
clamp TYPE "U"**



**High ceiling mounting with
clamp TYPE "V"**

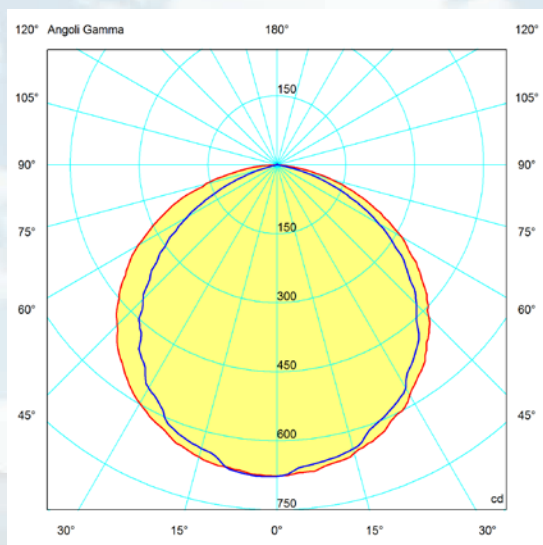


Type P clamp

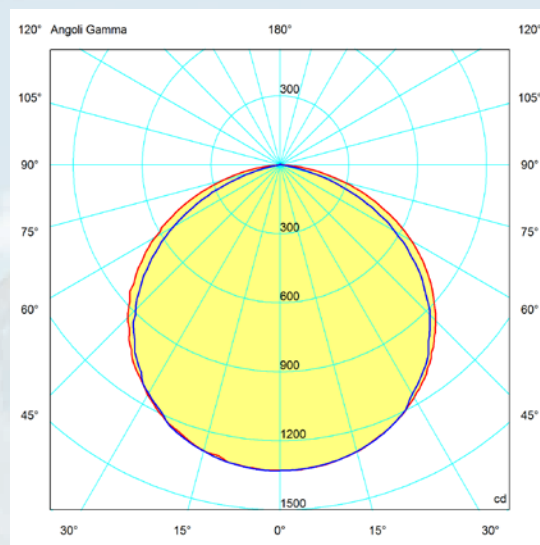
Tube Ø1 1/2"

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

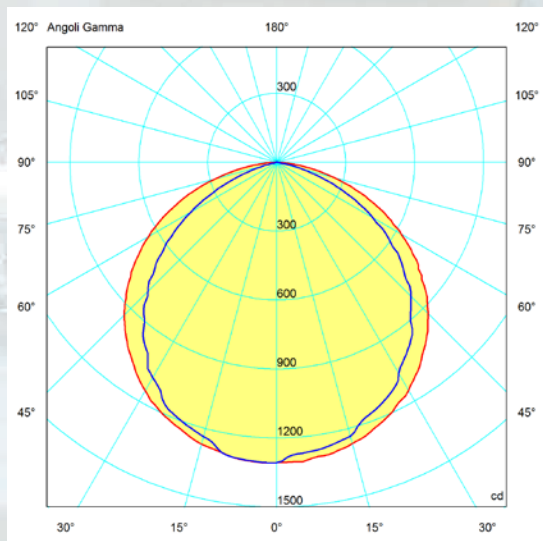
Installation and mounting methods and photometric diagrams



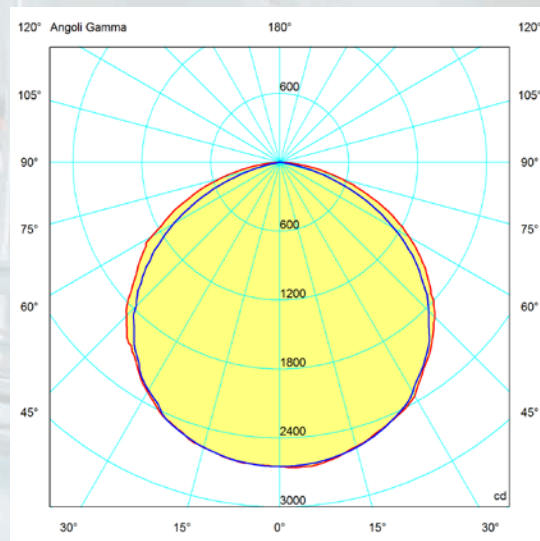
FLF/FLFE...101L



FLF/FLFE...201L



FLF/FLFE...102L



FLF/FLFE...202L

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

— = plane 90270
— = plane 0180