



# IECEx Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.:	IECEx CES 11.0021	issue No.:3	Certificate history: Issue No. 3 (2015-7-30) Issue No. 2 (2014-11-25) Issue No. 1 (2013-10-10) Issue No. 0 (2011-9-30)
Status:	Current		
Date of Issue:	2015-07-30	Page 1 of 4	
Applicant:	CORTEM S.p.A. Via Aquileia 10 I - 34070 Villesse (GO) Italy		

Electrical Apparatus: **Lighting fixtures, series FLF- .. and FLFE- ..**  
*Optional accessory:*

Type of Protection: **Flameproof enclosures 'd'; increased safety "e"; Dust ignition protection "t"**

Marking: **Ex d IIC T6 Gb or  
Ex de IIC T6 Gb  
Ex tb IIIC T71°C + T80°C Db  
IP66**

Approved for issue on behalf of the IECEx  
Certification Body:

Mirko Balaz

Position:

Head of IECEx CB

Signature:  
(for printed version)

Date:

30-7-2015

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

**CESI**  
Centro Elettrotecnico  
Sperimentale Italiano S.p.A.  
Via Rubattino 54  
20134 Milano  
Italy

**CESI**

**CESI** s.p.A.

Testing & Certification Division  
Business Area Certification

Il Responsabile

(Roberto Piccin)



# IECEx Certificate of Conformity

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Manufacturer: **CORTEM S.p.A.**  
Via Aquileia 10  
I - 34070 Villesse (GO)  
Italy

Additional Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

#### STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

<b>IEC 60079-0 : 2011</b> Edition: 6.0	Explosive atmospheres - Part 0: General requirements
<b>IEC 60079-1 : 2014-06</b> Edition: 7.0	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
<b>IEC 60079-31 : 2013</b> Edition: 2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
<b>IEC 60079-7 : 2006-07</b> Edition: 4	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

#### TEST & ASSESSMENT REPORTS:

*A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in*

#### Test Report:

IT/CES/ExTR11.0024/00  
IT/CES/ExTR11.0024/03

IT/CES/ExTR11.0024/01

IT/CES/ExTR11.0024/02

#### Quality Assessment Report:

IT/CES/QAR06.0002/09



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## Schedule

### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

Lighting fixtures series FLF..., FLFE... are suitable for one or two fluorescent tubes.  
The fluorescent lighting fittings, series FLF and FLFE are made of aluminium alloy with sealed high quality borosilicate glass tube.  
Explosion protected luminaries series FLF... consists of the one Flameproof "d" enclosure containing the source of light, lamp holder, ballast, other electrical apparatus, and the terminals.  
Explosion protected luminaries series FLFE... consists of the two chambers: one Flameproof "d" enclosure containing the source of light, lamp holder, ballast, other electrical apparatus, and second enclosure (terminal compartment) with the type of protection Increased safety "e". The two chambers are connected through multi-core bushing.  
The fluorescent lighting fixtures are used for normal and emergency working. The batteries are assembled only with a Cortem electronic inverter, used with emergency working.  
Lighting fixtures with LED tubes installed inside of the small size (LED tubes up to 11W) and inside of the middle size (LED tubes up to 23W), can be used also for emergency working by using battery group and charger.

See annex for further description.

**CONDITIONS OF CERTIFICATION: NO**



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## DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

### Variation 3

#### Variation 3.1

The lighting fixture series FLF-\*\*\*\*\* and FLFE-\*\*\*\*\*, have been reassessed on the basis of standards IEC 60079-1:2014 and IEC 60079-31:2013 Standards.

#### Variation 3.2

The lighting fixtures equipped with 11W or 23W LED tubes, can be used also for emergency working by using battery group and charger.



# IECEX Certificate of Conformity



Prot: B5026978

**Annex to certificate:** IECEX CES 11.0021 Issue No.:3 of 2015-07-30

**Applicant:** CORTEM S.p.A.,  
Via Aquileia 10, I - 34070 Villesse (GO), Italy

**Electrical Apparatus:** Lighting fixtures, series FLF- .. and FLFE- ..

### Description of the equipment:

The Explosion protected luminaries' series FLF... consists of the one flameproof "d" enclosure containing the source of light, lamp holder, ballast, other electrical apparatus, and the terminals. The Explosion protected luminaries' series FLFE... consists of the two chambers: one flameproof "d" enclosure containing the source of light, lamp holder, ballast, other electrical apparatus, and second enclosure (terminal compartment) in the type of protection increased safety "e". The two chambers are connected through special multi-core bushing.

Lighting fixtures series FLF... and FLFE... are manufactured using:

- for Ex d execution with one enclosures made in Aluminium Alloy, for electrical parts and fluorescent or LED tubes;
- for Ex de execution with two enclosures made in Aluminium Alloy, one for connecting terminals and one for other electrical parts and fluorescent or LED tubes (separated by a sealing bushing).

The equipment are assembled by means of threaded joints. The lighting fixture is composed with a protection borosilicate glass tube sealed on two aluminium end fittings using a silicon resin (Dow Corning type 816).

Lighting fixtures are equipped with the following:

- internal/external earth screws
- metallic reflector
- metallic stay bolt for assembly fixture

The fluorescent lighting fixtures are used for normal and emergency working. The batteries are assembled only with a Cortem electronic inverter, used with emergency working.

Lighting fixtures with LED tubes installed inside of the small size (LED tubes up to 11W) and inside of the middle size (LED tubes up to 23W), can be used also for emergency working by using battery group and charger. Lighting fixture with two lamps in emergency operating only is composed of two emergency units and two battery packs.

On request on lighting fixture can be externally added accessories like reflector and guard without compromise Ex characteristics

### Electrical characteristics:

Nominal wattage:	18W, 36W, 58W (fluorescent tubes)	
	11W , 23W, 31W (max wattage for LED tubes)	
	36W (4 pin compact fluorescent lamps)	
Number of lamps:	1 or 2	
Nominal voltage:	24Vdc, 230Vac/dc, 110+230Vac/dc, 100+240Vac, 277Vac/dc	
Nominal voltage for LED tubes:	100+240VAC	
Frequency:	50/60Hz	
NiCd battery voltage:	6V	
NiCd battery capacity:	4Ah or 7Ah	
Voltage range:	110+230V	100+264Vac, 110+254 Vdc
	230V	198+264Vac, 198+254 Vdc
	277V	200+300Vac, 200+300Vdc
	24V	22+26Vdc
	100+240V	90+264Vac; 100+121 Vdc

Degree of protection: IP 66 (IEC 60529)

Ambient temperature: From -20°C to +50°C (version with battery pack inside),  
From -20°C to +55°C.

Lamp type and Temp. class /Max surface temp. are indicated in **table 1**

PAD B5026978 (2172828) - USO RISERVATO



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Applicant:

CORTEM S.p.A.,  
Via Aquileia 10, I - 34070 Villesse (GO), Italy

Electrical Apparatus:

Lighting fixtures, series FLF- .. and FLFE- ..

Model Identification:

FLF-  
FLFE-

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						Code of the series
						Number of lamps: 1 for one lamp 2 for two lamps mounting
						Lamp power (W): 18,36,58 (for fluorescent tube) 11L,22L, 31L (for LED tube) 36C for 4 pin compact fluorescent lamp)
						Type of service: Blank for normal working EF for normal+emergency working EE for emergency working only
						Battery capacity (Ah): 4, 7 4E or 7E for battery on external box (valid for FLFE 18/36 W only)
						Rated voltage: Blank 230Vac/dc(220+240V) or 100+240Vac for LED tubes S 110+230Vac/dc /277 277Vac/dc(200+300V) /24 24Vdc (for normal service only)

Other suffix can be added on the code for particular configurations (not affecting the type of protection).

### Installation condition

The condition of the installation of the lighting fixtures is included within the safety instructions.

The accessories used for cable entries and for closing unused openings shall be suitably certified according to IEC 60079-0, IEC 60079-1, IEC 60079-7 and IEC 60079-31 standards. A minimum degree of protection IP66 shall be guaranteed according to IEC 60529 standard.

If cylindrical threads are used, the coupling between the cable entry and the enclosure shall be provided with block to prevent loosening.



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**Electrical Apparatus:** Lighting fixtures, series FLF- .. and FLFE- ..

**Table 1 (list of types):**

Model		Service	Tamb +50°C Temp. class / Max surface temp.	Tamb +55°C Temp. class/ Max surface temp.
Ex d version	Ex de version			
FLF-...18... FLF-...36... FLF-...58	FLFE-...18... FLFE-...36... FLFE-...58...	Normal (Fluorescent)	T6/T75°C	T6/T80°C
FLF-...18E... FLF-...36E... FLF-...58E...	FLFE-...18E... FLFE-...36E... FLFE-...58E...	Emergency, Normal+Emergen cy (Fluorescent)	T6/T75°C	n.a.
n.a.	FLFE-...18E...E... FLFE-...36E...E...	Emergency, Normal+Emergen cy (Fluorescent)	n.a.	T6/T80°C (*)
FLF-...11L FLF-...22L FLF-...31L	FLFE-...11L FLFE-...22L FLFE-...31L	Normal (LED)	T6/T71°C	T6/T71°C
FLF-...11LE... FLF-...22LE	FLF-...11LE... FLF-...22LE...	Emergency, Normal+Emergen cy (LED)	T6/T75°C	n.a.
FLF- ...11LE...E... FLF- ...22LE...E...	FLF-...11LE...E... FLF-...22LE...E...	Emergency, Normal+Emergen cy (LED)	n.a.	T6/T80°C (*)
FLF-...36C	FLFE-...36C	Normal (Fluorescent compact)	T6/T77°C	T6/T77°C

(\*) = Lighting fixture for emergency working with fluorescent tubes 18W or 36W, for ambient temperature up to +55°C, have batteries installed on separate box. A suffix "E" shall be added on the code to identify this configuration (for example FLFE-236EF4E).

### Warning label

"Do not open when energized. Wait 10 minutes before opening"

*For lighting with emergency unit only:*

"Do not open when an explosive gas atmosphere may be present"