



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEX CML 21.0070X** Page 1 of 3 [Certificate history:](#)

Status: **Current** Issue No: 0

Date of Issue: 2022-03-04

Applicant: **CORTEM S.p.A**
Via Aquileia 10
34070 Villesse
Gorizia
Italy

Equipment: **Increased safety luminaires series FlowEx-ME & FlowEx-MN**

Optional accessory:

Type of Protection: **Increased safety "eb", Encapsulated "mb", Dust Enclosure "tb", Restricted Breathing "nR"**

Marking: **FLOWEX-ME** **FLOWEX-MN**

Ex eb mb IIC T.. Gb	Ex nR IIC T... Gc
Ex tb IIIC T...°C Db	Ex tb IIIC T...°C Db
IP66	IP66
Ta = -** °C to +60 °C	Ta = -** °C to +60 °C

Refer to Certificate Annex for Ambient Temperature, Temperature Class and Maximum Surface Temperatures.

Approved for issue on behalf of the IECEx
Certification Body:

S. Roubedakis

Position:

Technical Manager

Signature:
(for printed version)

Date:
(for printed version)

2022-03-04

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2. This certificate is not transferable and remains the property of the issuing body.
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Certificate issued by:

Eurofins E&E CML Limited
Unit 1, Newport Business Park
New Port Road
Ellesmere Port, CH65 4LZ
United Kingdom





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Date of issue: 2022-03-04

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Manufacturer: **CORTEM S.p.A**
Via Aquileia 10
34070 Villesse
Gorizia
Italy

Manufacturing
locations:

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 equipment 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

[IEC 60079-0:2017](#) Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

[IEC 60079-15:2017](#) Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
Edition:5.0

[IEC 60079-18:2017](#) Explosive atmospheres - Part 18: Protection by encapsulation "m"
Edition:4.1

[IEC 60079-31:2013](#) Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
Edition:2

[IEC 60079-7:2017](#) Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
Edition:5.1

This Certificate **does not** indicate compliance with 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:

[GB/CML/ExTR21.0112/00](#)

Quality Assessment Report:

[IT/CES/QAR06.0002/15](#)



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Certificate No.: **IECEX CML 21.0070X**

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Date of issue: 2022-03-04

Issue No: 0

EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The FLOWEX are LED lighting fixtures that are configured for use in both Gas and Dust environments, dependant on the method of explosion protection. There are 2 versions:

<u>Version</u>	<u>Gas</u>	<u>Dust</u>
FlowEX-ME	Gb and Gc	Db and Dc
FlowEX-MN	Gc	Db and Dc

The lighting fixture is available in 3 sizes (060, 080 and 100) depending on the nominal input power. The enclosure is constructed using either an aluminium alloy or stainless-steel body and cover that includes a tempered glass window. It contains a certified constant current LED driver, an encapsulated LED Printed Circuit Board (PCB) and certified terminals that provide connection facilities for the electrical input and feedthrough power connections.

The enclosure has an environmental ingress protection level of IP 66.

Refer to Certificate Annex for full Product Description and Conditions of Manufacture.

SPECIFIC CONDITIONS OF USE: YES as shown below:

Refer to Certificate Annex.

Annex:

[Certificate Annex IECEX CML 21.0070X Issue 0 \(FLOWEX-E and -N\).pdf](#)

Annexe to: IECEx CML 21.0070X Issue 0
Applicant: Cortem S.p.A
Apparatus: Increased safety luminaires series FlowEx-ME & FlowEx-MN

Description

The FlowEX are LED lighting fixtures that are configured for use in both Gas and Dust environments, dependant on the method of explosion protection. There are 2 versions:

Version		Gas	Dust
FlowEX-	ME	Gb and Gc	Db and Dc
	MN	Gc	Db and Dc

The lighting fixture is available in 3 sizes (060, 080 and 100) depending on the nominal input power. The enclosure is constructed using either an aluminium alloy or stainless-steel body and cover that includes a tempered glass window. It contains a certified constant current LED driver, an encapsulated LED Printed Circuit Board (PCB) and certified terminals that provide connection facilities for the electrical input and feedthrough power connections.

The enclosure has an environmental ingress protection level of IP 66.

Nomenclature

FlowEX - - - -
 (1) (2) (3) (4) (5) (6)

Where

- (1) = FlowEX Light Fixture
- (2) = Version of Lamp
 - ME = Cat 2, Zone 1 21 22 : Ex-eb mb / Ex tb
 - MN = Cat 3, Zone 2: Ex-nR
 - = Zone 21 22. Ex-tb
- (3) = Size
 - 060 = Ø 240 mm x 89 mm (30 W to 60 W)
 - 080 = Ø 300 mm x 92 mm (70 W to 100 W)
 - 100 = Ø 400 mm x 100 mm (120 W to 220 W)
- (4) = Power
 - xxx = e.g. 030 = 30 W (Range 030 W to 220 W)
- (5) Ambient Temperature Range
 - = Ta = -40 °C to +60 °C
 - /C = Ta = -60 °C to +60 °C
- (6) = Other (no effect on certification)





Ratings

Type	Size	Nominal Wattage	Nominal Voltage(*)	Frequency
FLOWEX-...	060	30 W to 60 W	100-277Vac, 142-431Vdc	0-50-60 Hz
	080	70 W to 100 W		
	100	120 W to 220 W		

(*)The maximum voltage and ambient temperature ranges is limited dependant on the type of Ex Components fitted by the manufacturer in accordance with the following table:

Manufacturer	Type	Certification	Rated Voltage	Service Temperature
Cabur SRL	BLP4	IECEX CES 11.0008U	320 Vac	-40°C and +110 °C
Cabur SRL	TPL4	IECEX CES 11.0008U	400 Vac	-40°C and +110 °C
Phoenix Contact	UT2,5	IECEX KEM 06.0027U	690 V	-60°C and +110 °C
	G5/3	IECEX PTB 06.0043U	352 V	-50 °C to +105 °C
Cortem	EBM-50C EMB-100C EBM-240C	IECEX CML 21.0130U	100-277 Vac / 142-431 Vdc	: -60 °C to 85 °C; or, /A: -50 °C to 85 °C; or, /B: -60 °C to 85 °C; or, /C: -40 °C to 85 °C.

Temperature Class and Maximum Surface Temperature

			Temperature Class (EPL Gb and Gc)			Maximum Surface Temperature °C (EPL Db)		
Ambient Temperature			40 °C	55 °C	60 °C	40 °C	55 °C	60 °C
Light Fixture								
Type	Size	Power (W)						
FLOWEX-...	060	030 to 060	T4	T4	T4	T107°C	T122°C	T127°C
	080	070 to 100	T4	T3	T3	T123°C	T138 °C	T143°C
	100	120 to 160	T5	T4	T4	T100°C	T115 °C	T120°C
		180 to 220	T4	T4	T3	T118°C	T133°C	T138°C

Component approved parts

Component	Manufacturer	Type	Certificate number	Markings
LED Driver	Cortem	EBM	IECEX CML 21.0130U	II 2 G Ex mb IIC Gb
Terminals	Cabur SRL	BLP4	IECEX CES 11.0008U	II 2 G Ex eb IIC Gb
	Cabur SRL	TPL4	IECEX CES 11.0008U	II 2 G Ex eb IIC Gb
	PHOENIX	UT2,5	IECEX KEM 06.0027U	II 2 G Ex eb IIC Gb
		UT4	IECEX KEM 06.0027U	
	PHOENIX	G5/3	IECEX PTB 06.0043U	II 2 G Ex e II

Conditions of Manufacture

The following are conditions of manufacture:

- i. Where the product incorporates certified parts or safety critical components the manufacturer shall ensure that any changes to those parts or components do not affect the compliance of the certified product that is the subject of this certificate.

For Ex eb mb only:

- ii. The manufacturer shall ensure that all Ex-Components are installed in accordance with their Schedule of Limitations and manufacturer's instructions, including but not limited to, the creepage and clearance requirements of IEC 60079-7 and wiring size and termination method and that the equipment markings are within the service temperature range and ratings of all the Ex-Components fitted:

Mfr.	Type	Certification	Rated Voltage	Service Temperature	
Cabur SRL	BLP4	IECEX CES 11.0008U	320 Vac	-40°C to +110 °C	
Cabur SRL	TPL4	IECEX CES 11.0008U	400 Vac	-40°C to +110 °C	
Phoenix Contact	UT2,5	IECEX KEM 06.0027U	690 V	-60°C to +110 °C	
	G5/3	IECEX PTB 06.0043U	352 V	-50 °C to +105 °C	
Cortem	EBM-50C EMB-100C EBM-240C	IECEX CML 21.0130U	100-277 Vac / 142-431 Vdc	:	-60 °C to 85 °C;
				/A:	-50 °C to 85 °C;
				/B:	-60 °C to 85 °C;
				/C:	-40 °C to 85 °C

- iii. The Manufacturer shall provide copies of certificates and instructions for all certified components installed in the FlowEx Series.
- iv. The manufacturer shall ensure that the LED Driver maximum output current is restricted to the limits specified in the manufacturer's documentation for the nominal power and fixture type.
- v. The routine dielectric strength test on the Increased safety (eb mb) luminaires series FlowEx with applied voltage shall be performed at $2U + 1,000V$ with a minimum value of 1,560V ($U =$ maximum rated voltage of the lamp), between each circuit and earthed metal parts.

- vi. A routine visual inspection of the encapsulated parts is required, as per Clause 9.1 of IEC 60079-18. There shall be no visible damage or deformation to the encapsulant.
- vii. The manufacturer shall ensure that when an EBM-xxC type LED Driver is fitted:
 - Thermal fuses fitted as part of the Driver's encapsulated circuit that are required by the certification must be placed in accordance with Technical Note A4-7653 to satisfy the requirements of the completed equipment T-class.
 - the permanently attached output cables are provided with suitable safeguards to ensure that they are suitably protected against cable pull during installation and maintenance.
- viii. The manufacturer shall ensure that each LED PCB has a CTI of at least 600, a minimum dielectric layer thickness of at least 0.1 mm and circuit separation to any earthed metal of at least 3.0 mm. All conductive tracks shall be at least 2 mm wide. The distance between the tracks of each pair of parallel connected LEDs shall have a creepage distance at least 3.2 mm.

For nR only:

- ix. The manufacturer shall ensure that all Ex-Components are installed in accordance with their Schedule of Limitations and manufacturer's instructions, including but not limited to, the creepage and clearance requirements of IEC 60079-7 and wiring size and termination method and that the equipment markings are within the service temperature range and ratings of all the Ex-Components fitted:

Mfr.	Type	Certification	Rated Voltage	Service Temperature
Cabur SRL	BLP4	IECEX CES 11.0008U	320 Vac	-40°C to +110 °C
Cabur SRL	TPL4	IECEX CES 11.0008U	400 Vac	-40°C to +110 °C
Phoenix Contact	UT2,5	IECEX KEM 06.0027U,	690 V	-60°C to +110 °C
	G5/3	and IECEX PTB 06.0043U	352 V	-50 °C to +105 °C

- x. The Manufacturer shall provide copies of certificates and instructions for all certified components installed in the FlowEx Series
- xi. A routine restricted breathing test as per Clause 12.2.2 of IEC 60079-15. Equipment with a test port where the volume of the enclosure will be unchanged due to pressure.

For tb only:

- xii. The manufacturer shall ensure that all Ex-Components are installed in accordance with their Schedule of Limitations and manufacturer's instructions, including but not limited to, the creepage and clearance requirements of IEC 60079-7 and wiring size and termination method and that the equipment markings are within the service temperature range and ratings of all the Ex-Components fitted:

Mfr.	Type	Certification	Rated Voltage	Service Temperature
Cabur SRL	BLP4	IECEX CES 11.0008U	320 Vac	-40°C to +110 °C
Cabur SRL	TPL4	IECEX CES 11.0008U	400 Vac	-40°C to +110 °C
Phoenix Contact	UT2,5	IECEX KEM 06.0027U	690 V	-60°C to +110 °C
	G5/3	IECEX PTB 06.0043U	352 V	-50 °C to +105 °C

- xiii. The Manufacturer shall provide copies of certificates and instructions for all certified components installed in the FlowEx Series.

Specific Conditions of Use

The following relate to the installation and/or safe use of the equipment:

For all concepts:

- i. The equipment uses an external part that is constructed from non-metallic materials, and as such care is to be taken to prevent an electro-static charging hazard. See instruction manual for details.
- ii. Use suitably certified cable glands with an IP Protection of IP 66 and an applicable method explosion protection applicable with the equipment markings:
- iii. The temperature at the entry point may reach up to 95 °C. Suitably rated cable and cable glands must be used as per Safety, maintenance, and mounting instructions.
- iv. The equipment shall be installed in a location that satisfies the requirement for a Low Risk of Mechanical Danger.
- v. For inspection and replacement of seals and gaskets – consult the manufacturer.

For nR only

- vi. For details of restrictive breathing enclosure (nR) routine tests – see manufacturer's instructions.

Components covered by Ex Certificates issued to older editions of Standards

Manufacturer	Component / Type	Certificate number	Markings	Assessment result
Cabur SRL	Terminals BLP4	IECEX CES 11.0008U	II 2 G Ex eb IIC Gb	Where applicable, technical differences were evaluated and found satisfactory. For details see ExTR
Cabur SRL	Terminals TPL4	IECEX CES 11.0008U	II 2 G Ex eb IIC Gb	
PHOENIX	Terminals UT2,5	IECEX KEM 06.0027U	II 2 G Ex eb IIC Gb	
	Terminals UT4	IECEX KEM 06.0027U		
PHOENIX	Terminals G5/3	IECEX PTB 06.0043U	II 2 G Ex e II	
Cortem	LED Driver, EBM	IECEX CML 21.0130U	II 2 G Ex mb IIC Gb	