



IECEX Certificate of Conformity

410122

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 4 Certificate history:
Status: **Current** Issue No: 2 Issue 1 (2022-11-29)
Date of Issue: **2023-07-05** Issue 0 (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: **Flameproof "db", Increased safety "eb", Encapsulated "mb", Dust Enclosure "tb", Restricted Breathing "nR"**
Marking: **FLOWEX-ME** **FLOWEX-MN**
Ex db eb mb IIC T.. Gb Ex nR IIC T... Gc
Ex tb IIC T... °C Db Ex tb IIC 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:

Ben Trafford

Position:

Certification Officer

Signature:
(for printed version)

Date:
(for printed version)

2023-07-05

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 www.iecex.com or use of this QR Code.



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

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Date of issue: 2023-07-05

Issue No: 2

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 60079-1:2014-06](#) Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
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 Reports:

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

[GB/CML/ExTR22.0262/00](#)

[GB/CML/ExTR23.0166/00](#)

Quality Assessment Report:

[IT/CES/QAR06.0002/17](#)



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Date of issue: 2023-07-05

Issue No: 2

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>
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FlowEX-ME	Gb and Gc	Db and Dc
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FlowEX-MN	Gc	Db and Dc
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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.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

1. To assess flameproof Ex-components
2. To update equipment marking
3. To update product description

Annex:

[Certificate Annex IECEX CML 21.0070X Issue 2 \(1\).pdf](#)

Annexe to: IECEx CML 21.0070X, Issue 2
Applicant: Cortem S.p.A.
Apparatus: Increased safety luminaires series FlowEx

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:

Version		Gas	Dust
FlowEX-	ME	Gb and 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 : Ex db eb mb / 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)



Certificate Annex IECEx
 Version: 9.0 Approval: Approved

Eurofins E&E CML Limited
 Newport Business Park
 New Port Road
 Ellesmere Port
 CH65 4LZ

T +44 (0) 151 559 1160
 E info@cmllex.com

www.cmllex.com

Company Reg No. 8554022 VAT No. GB163023642



Ratings

Type	Size	Nominal Wattage	Nominal Voltage(*)	Frequency
FLOWEX-...	060	30 W to 60 W	100-277Vac,	0-50-60 Hz
	080	70 W to 100 W	142-431Vdc	
	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	BPL4	CESI 03 ATEX 164U	320 Vac	-40°C and +110 °C
		IECEX CES 11.0008U		
Cabur SRL	TPL4	CESI 03 ATEX 164U	400 Vac	-40°C and +110 °C
		IECEX CES 11.0008U		
Phoenix Contact	UT2,5	KEMA 04 ATEX 2048U	690 V	-60°C and +110 °C
		IECEX KEM 06.0027U		
	G5/3	PTB 06 ATEX 1034U	352 V	-50 °C to +105 °C
		IECEX PTB 06.0043U		
Cortem	EBM-50C	CML 21ATEX51156U	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.
	EMB-100C	IECEX CML 21.0130U		
	EBM-240C			

Temperature Class and Maximum Surface Temperature

			Temperature Class (EPL Gb and Gc)				Maximum Surface Temperature °C (EPL Db)			
Ambient Temperature			40 °C	50 °C	55 °C	60 °C	40 °C	50 °C	55 °C	60 °C
Light Fixture										
Type	Size	Power (W)								
FLOWEX-...	060	030 to 060	T6	T5	T5	T5	73 °C	83°C	88 °C	93 °C
	080	070 to 100	T5	T4	T4	T4	86 °C	96 °C	101 °C	106 °C
	100	120 to 160	T6	T5	T5	T5	74 °C	84 °C	89 °C	94 °C
		180 to 220	T5	T5	T4	T4	85 °C	95 °C	100 °C	105 °C



Component approved parts

Component	Manufacturer	Type	Certificate number	Markings
LED Driver	Cortem	EBM	CML 21ATEX51156U	II 2 G
			IECEX CML 21.0130U	Ex mb IIC Gb
Terminals	Cabur SRL	BPL4	CESI 03 ATEX 164U	II 2 G
			IECEX CES 11.0008U	Ex eb IIC Gb
	Cabur SRL	TPL4	CESI 03 ATEX 164U	II 2 G
			IECEX CES 11.0008U	Ex eb IIC Gb
	PHOENIX	UT2,5	KEMA 04 ATEX 2048U	II 2 G
			IECEX KEM 06.0027U	Ex eb IIC Gb
		UT4	KEMA 04 ATEX 2048U	
			IECEX KEM 06.0027U	
PHOENIX	G5/3	PTB 06 ATEX 1034U	II 2 G Ex e II	
Proximity Switch	CORTEM S.p.A.	M-0530 and M-0531	CESI 09 ATEX 016U	II 2 G
			IECEX CES 11.0031U	Ex d e IIC Gb
	CROUZET	Type: 831391	LCIE 02 ATEX0034U IECEX LCIE 13.0035U	II 2 G Ex db IIC Gb
	Helon Explosion-proof Electric Co., LTD	HL0101-..., HL0101-A... and HL0102-..	CNEX 17 ATEX 0007 U IECEX CNEX 17.0015U	II 2 G Ex db eb IIC Gb

Conditions of Manufacture

- i. Where the product incorporates certified parts or safety critical components, the manufacturer of the product defined on this certificate shall continually monitor these parts/components for any modifications introduced by the manufacturer(s) of these constituent parts. If the manufacturer of any constituent part introduces any changes which affect the compliance of the certified product that is the subject of this certificate, the manufacturer is required to have this certificate updated.
- 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.



- 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 $2U + 1000V$ 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 EN/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 minimum dielectric layer thickness of at least 0.1 mm.
- ix. A visual inspection of the surface of the enclosure is required, where the ECD-* Breather/Drain plugs shall be installed, to ensure that it is in good condition. When the ECD-* Breather/Drain Plugs are intended for use as a drain, they must be installed at the bottom of the enclosure

Specific Conditions of Use

- 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:

The temperature at the entry point may reach up to $95\text{ }^{\circ}\text{C}$. Suitably rated cable and cable glands must be used as per Safety, maintenance, and mounting instructions.
- iii. The equipment shall be installed in a location that satisfies the requirement for a Low Risk of Mechanical Danger.
- iv. For inspection and replacement of seals and gaskets – consult the manufacturer.
- v. The optional proximity switch HL0101-..., HL0101-A... and HL0102-.. modules are not intended to be repaired in any way.



Components covered by Ex Certificates issued to older editions of Standards

Certificate number	Standards (incl Ed)	Assessment result
IECEX CES 11.0031U	IEC 60079-0 Ed 5 IEC 60079-1 Ed 6 IEC 60079-7 Ed 4	No applicable technical differences