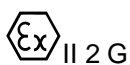


UK Type Examination Certificate CML 21 UKEX 3608X Issue 2**United Kingdom Conformity Assessment**

- 1 Product or Protective System Intended for use in Potentially Explosive Atmospheres UKSI 2016:1107 (as amended) – Schedule 3A, Part 1
- 2 Equipment **Increased safety luminaires series FlowEx-ME**
- 3 Manufacturer **Cortem S.p.A**
- 4 Address **Via Aquileia 10,
34070 Villesse,
Gorizia, Italy**
- 5 The equipment is specified in the description of this certificate and the documents to which it refers.
- 6 Eurofins E&E CML Limited, Newport Business Park, New Port Road, Ellesmere Port, CH65 4LZ, United Kingdom, Approved Body Number 2503, in accordance with Regulation 42 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Schedule 1 of the Regulations.
The examination and test results are recorded in the confidential reports listed in Section 12.
- 7 If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to specific conditions of use (affecting correct installation or safe use). These are specified in Section 14.
- 8 This UK Type Examination certificate relates only to the design and construction of the specified equipment. Further requirements of the Regulations apply to the manufacturing process and supply of the product. These are not covered by this certificate.
- 9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the confidential report, has been demonstrated through compliance with the following documents:
EN IEC 60079-0:2018 EN 60079-1:2014 EN IEC 60079-7:2015+A1:2018
EN IEC 60079-18:2015+A1:2017 EN 60079-31:2014

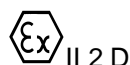
- 1 The equipment shall be marked with the following:
0



Ex db eb mb IIC T.. Gb

IP66

Ta = -** °C to +60 °C



Ex tb IIIC T***°C Db

IP66

Ta = -** °C to +60 °C

Refer to the equipment Description for Temperature Class, Maximum Surface Temperature and Ambient Temperature range.





11 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)

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:



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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	



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Contact blocks	CORTEM S.p.A.	M-0530 and M-0531	CESI 09 ATEX 016U IECEX CES 11.0031U	II 2 G Ex d e IIC Gb
Proximity Switch	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

Variation 1

This variation introduces the following changes:

- i. Introduction of an alternative PCB material

Variation 2

This variation introduces the following changes:

- i. To assess flameproof Ex-components
- ii. To update equipment marking
- iii. To update product description

12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	04 Mar 2022	R14199A/00	Issue of prime certificate
1	29 Nov 2022	R15713A/00	Introduction of Variation 1
2	05 Jul 2023	R16634A/00	Introduction of Variation 2

Note: Drawings that describe the equipment or component are listed in the Annex.

13 Conditions of Manufacture

The following conditions are required of the manufacturing process for compliance with the certification.

- 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



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Issue 2**

- 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

14 Specific Conditions of Use (Special Conditions)

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

- 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 °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.

Certificate Annex

Certificate Number CML 21UKEX3608X
Equipment Increased safety luminaires series FlowEx-ME
Manufacturer Cortem S.p.A



The following documents describe the equipment defined in this certificate:

Issue 0

Drawing No	Sheets	Rev	Approved date	Title
A3-7641	1 of 4	0	04 Mar 2022	Lighting Fixture Series FLOWEX Assembly and External Dimensions
A3-7641	2 of 4	0	04 Mar 2022	Lighting Fixture Series FLOWEX Gaskets and encapsulation details
A3-7641	3 of 4	0	04 Mar 2022	Lighting Fixture Series FLOWEX Enhanced safety details
A3-7641	4 of 4	0	04 Mar 2022	Lighting Fixture Series FLOWEX Detail of mounting/ typical circuit diagram
A4-7642	1 to 6	0	04 Mar 2022	Technical note

Issue 1

Drawing No	Sheets	Rev	Approved date	Title
A4-8145	1 to 3	0	29 Nov 2022	Technical Note

Issue 2

Drawing No	Sheets	Rev	Approved date	Title
A4-7642	1 to 10	1	05 Jul 2023	Technical Note