



EU Type Examination Certificate CML 21ATEX3606X Issue 4

- 1 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU
- 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 CML B.V., Chamber of Commerce No 67386717, Koopvaardijweg 32, 4906CV Oosterhout, The Netherlands, Notified Body Number 2776, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, 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 Annex II to the Directive.

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 conditions of safe use (affecting correct installation or safe use). These are specified in Section 14.
- 8 This EU Type Examination certificate relates only to the design and construction of the specified equipment or component. Further requirements of Directive 2014/34/EU Article 13 apply to the manufacture of the equipment or component and are separately certified.
- 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 IEC 60079-31:2024*

* Although this standard does not appear on the harmonised list, the content has been reviewed, and as it is the latest technical knowledge and addresses all the same requirements as the previous edition, it is accepted as meeting the same EHSRs of the Directive as the previous harmonised edition.

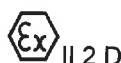
- 10 The equipment shall be marked with the following:



Ex db eb mb IIC T... Gb

IP66

Ta = -** °C to +** °C



Ex tb IIIC T... °C Db

IP66

Ta = -** °C to +** °C

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



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S. Trafford
Certification Officer

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. There are 2 versions:

Version		Gas	Dust
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.

The version FlowEX-ME, , protected by the types of protection "Ex db eb mb/Ex tb", 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 lighting fixture could be provided with an additional housing including a battery pack to work as emergency lighting fixtures : lighting fixture version FlowEX-M*-*****-E is intended to work only in emergency mode (without LED drivers) while the lighting fixture version FlowEX-M*-*****-N could work both in normal and emergency mode.

The standard emergency enclosure consists of a housing protected in "Ex eb" or "Ex tb" (for EPL Gb or Db) fixed directly onto the body of the luminaire. This enclosure contains:

- An encapsulated emergency module "Ex mb" type EIM-30C
- A battery pack with a capacity ranging from 1.8Ah to 4Ah.
- When required, an encapsulated rectifier diode module "Ex mb"
- An indicator light covered by a separate Ex Component certificate to show the battery charge status.

As alternative to the standard emergency enclosure, the previously mentioned electronic components can be integrated into a enclosure type EWAE protected in "Ex db". In this configuration, the enclosure will be fixed to the body of the luminaire via a pole mounting accessory and a bushing type H-0128. The wiring for the luminaire's power supply will be made at the "Ex eb" mounting accessory housing located on top of the enclosure, which includes "Ex eb" certified terminals.

As alternative to the standard emergency enclosure, the previously mentioned electronic components can be integrated into an enclosure type EWAE protected in "Ex db" / "Ex tb" for the models FLOWEX of Size 100 (from 120W to 220W). In this configuration, the enclosure will be fixed to the body of the luminaire via a pole mounting accessory and a bushing type H-0128. The wiring for the luminaire's power supply will be made at the "Ex eb" / "Ex tb" mounting accessory housing located on top of the enclosure, which includes "Ex eb" certified terminals.

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

Ratings

Type	Nominal Wattage	Nominal Voltage(*)			Frequency	
		Driver series EBM (**)	Driver series MU.../DALI	Driver series LExD		
060030	30 W	100-277Vac, 142-431Vdc	100-277Vac	120-277 Vac 150-420 Vdc	0-50-60 Hz	
060040	40 W		125-300 Vdc			
060050	50 W		/			
060060	60 W					
080070	70 W	100-277Vac, 142-431Vdc	100-277Vac 125-300 Vdc	120-277 Vac 150-420 Vdc		
080080	80 W					
080090	90 W					
080100	100 W					
100120	120 W	100-277Vac, 142-431Vdc	100-277Vac 125-300 Vdc	120-277 Vac 150-420 Vdc		
100140	140 W					
100160	160 W		/			
100180	180 W					
100200	200 W					
100220	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:						
(**) : or for industrial LED drivers (applicable only for models FlowEX-MN)						

Manufacturer	Type	Certification	Rated Voltage	Service Temperature
Cabur SRL	BPL4	CESI 03 ATEX 164U	320 Vac	-40°C and +110 °C
Cabur SRL	TPL4	CESI 03 ATEX 164U	400 Vac	-40°C and +110 °C
CORTEM S.p.A.	TBEx	IECEX FIDI 23.0003U	320 Vac	-60°C and +110 °C
Phoenix Contact	UT2,5	KEMA 04 ATEX 2048U	690 V	-60°C and +110 °C
	G5/3	PTB 06 ATEX 1034U	352 V	-50 °C to +105 °C
MOONS' Electric	LED Driver, MU025 and MU035	TPS 23 ATEX 117594 0012 U	100-277 Vac / 125-300 Vdc	-50°C to +90°C
MOONS' Electric	LED Driver, MU060 and MU100	TPS 23 ATEX 117594 0013 U	100-277 Vac / 125-300 Vdc	-50°C to +90°C
MOONS' Electric	LED Driver, MU...H...AQ_M B/...	TPS 24 ATEX 117594 0045 U	100-277 Vac / 125-300 Vdc	-50°C to +90°C
CORTEM S.p.A.	LED indicator	CESI 00 ATEX 060U	12-240 Vac/dc	-40°C to +80°C

Manufacturer	Type	Certification	Rated Voltage	Service Temperature
CORTEM S.p.A.	EBM-50C EBM-100C EBM-240C	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.
CORTEM S.p.A.	LExD-...	CML 25ATEX5390U	100 or 120-277 Vac / 150-420 Vdc	-60°C to +107°C for the Type LExD-50C -60°C to +108°C for the Type LExD-100C -60°C to +90°C for the Type LExD-150C -60°C to +93°C for the Type LExD-240C

Temperature Class and Maximum Surface Temperature

For standard operation models (non-emergency models):

			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	T(*)	74 °C	84 °C	89 °C	94 °C
		180 to 220	T5	T5	T4	T4	85 °C	95 °C	100 °C	105 °C

(*) T4 when fitted with the driver LExD-150C, T5 when fitted with other type of drivers.

For emergency models:

			Temperature Class (EPL Gb and Gc)					Maximum Surface Temperature °C (EPL Db)			
Ambient Temperature			40 °C	50 °C	52 °C	55 °C	58 °C	40 °C	50 °C	55 °C	58 °C
Light Fixture											
FLOWEX-...080100N			T5	T4	T4	T4	T4	86 °C	96 °C	101 °C	104 °C
FLOWEX-...100220N fitted with standard emergency housing			T5	T5	T4	N/A	N/A	85 °C	95 °C	100 °C	N/A
FLOWEX-...100200N fitted with standard emergency housing			T5	T5	T4	N/A	N/A	85 °C	95 °C	100 °C	N/A
Other emergency models			Temperature Classes, Surface Temperatures and ambient temperatures of non-emergency models shall be applied.								

Component approved parts

Part Type	Manufacturer	Model/Type	Certificate No.	Ex Marking String	Standard(s) and date(s)/edition(s)
LED Driver	CORTEM S.p.A.	EBM	CML 21ATEX51156U	Ex mb IIC Gb	EN IEC 60079-0:2018 EN 60079-18:2015+A1:2017
	CORTEM S.p.A.	LExD-...	CML 25ATEX5390U	Ex mb IIC Gb	EN IEC 60079-0:2018 EN 60079-18:2015+A1:2017
	MOONS' Electric	MU035.../DALI	TPS 23 ATEX 117594 0012 U	Ex mb IIC Gb	EN IEC 60079-0:2018 EN 60079-18:2015+A1:2017
	MOONS' Electric	MU100.../DALI	TPS 23 ATEX 117594 0013 U	Ex mb IIC Gb	EN IEC 60079-0:2018 EN 60079-18:2015+A1:2017
	MOONS' Electric	MU163.../DALI	TPS 24 ATEX 117594 0045 U	Ex mb IIC Gb	EN IEC 60079-0:2018 EN 60079-18:2015+A1:2017
Terminals	Cabur SRL	BPL4, TPL4	CESI 03 ATEX 164U	Ex eb IIC Gb	EN 60079-0 : 2012+A11 :2013 EN 60079-7:2015
	PHOENIX	UT2,5 , UT4	KEMA 04 ATEX 2048U	Ex eb IIC Gb	EN IEC 60079-0:2018 EN 60079-7:2015/A1:2018
	PHOENIX	G5/3	PTB 06 ATEX 1034U	Ex eb IIC Gb	EN IEC 60079-0:2018 EN 60079-7:2015/A1:2018
	CORTEM S.p.A.	TBEx-...V	FIDI 23 ATEX 0053U	Ex eb IIC Gb	EN IEC 60079-0:2018 EN 60079-7:2015/A1:2018
LED Indicator	CORTEM S.p.A	M-0612 and M-0487	CESI 00 ATEX 060U	Ex db IIC Gb Ex db eb IIC Gb Ex tb IIIC Db	EN 60079-0 : 2012+A11 :2013 EN 60079-1:2014 EN 60079-7:2015 EN 60079-31:2014
Proximity Switch	CORTEM S.p.A	M-0530 and M-0531	CESI 09 ATEX 016U	Ex d e IIC Gb	EN 60079-0 : 2008 EN 60079-1:2007 EN 60079-7:2007
	CROUZET	Type: 831391	LCIE 02 ATEX0034U	Ex db IIC Gb	EN IEC 60079-0:2018 EN 60079-1:2014
	Helon Explosion- proof Electric Co., LTD	HL0101-..., HL0101-A... and HL0102-...	CNEX 17 ATEX 0007 U	Ex db eb IIC Gb	EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-7:2015/A1:2018

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

= Standard models, for minimum ambient temperature -60°C

/C = Standard models, for minimum ambient temperature -40°C

-N = Models with battery back-up (normal + emergency mode), Tamb min = -20°C

-E = Models with battery back-up (only emergency mode), Tamb min=-20°C

(6) = Other (no effect on certification)

Ex Equipment approved parts

Part Type	Manufacturer	Model/Type	Certificate No.	Ex Marking String
Breather/drain Plugs	Cortem S.p.A	ECDE...	IECEX CML 16.0124X	Ex eb IIC Gb Ex tb IIIC Db
Breather/drain Plugs	Cortem S.p.A	ECDE...	CML 16ATEX1351X	Ex eb IIC Gb Ex tb IIIC Db

Variation 1

This variation introduces the following change:

- Introduction of an alternative PCB material.

Variation 2

This variation introduces the following changes:

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

Variation 3

This variation introduces the following changes:

- To introduce emergency models FlowEX-M*-*****-E (Non-Maintained emergency luminaire) and FlowEX-M*-*****-N (Maintained emergency luminaire).
- To introduce alternative LED Drivers.

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- iii. To introduce a new terminal block type TBEx...V.
- iv. To update to the latest version of the standard EN IEC 60079-31:2024.

Variation 4

This variation introduces the following changes:

- i. To introduce alternative LED Drivers type LExD...C for luminaires.
- ii. To introduce an alternative emergency housing to the existing EWAE type for the size 100.

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
3	17 Jun 2025	R18273A/00	Introduction of Variation 3
4	24 Jul 2026	R19452A/00	Introduction of Variation 4

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 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. In accordance with EN 60079-18 Clause 9.2 and EN 60079-7 Clause 7.1, the routine dielectric strength test on the luminaires series FlowEx with EPL Gb with applied voltage shall be performed at a voltage of at least 1560 V between each circuit and earthed metal parts for at least 1 min. There shall be no breakdown or flashover observed as a result of the test.
- 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.
- x. For the models with emergency housing type EWAE :
Each unit of the emergency housing shall be subjected to a routine overpressure test in accordance with the requirements of EN/IEC 60079-1:2014 clause 16. The test shall be conducted at a pressure of at least 13 bar for at least 60 seconds. There shall be no permanent damage or deformation that would invalidate the type of protection observed as a result of the test.

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.
- vi. Luminaires incorporating MU035xx or MU100xx or MU163xx or LExD-50C or LExD-100C or LExD-240C drivers shall only be connected to an electrical power supply with a maximum prospective short-circuit current of 1500A.

Certificate Annex

Certificate Number CML 21ATEX3606X
Equipment Increased safety luminaires series FlowEx-ME
Manufacturer Cortem S.p.A



The following documents describe the equipment or component 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

Issue 3

Drawing No	Sheets	Rev	Approved date	Title
A4-7642	1 of 12	2	17 Jun 2025	Technical Note
A3-7641	1 of 9	1	17 Jun 2025	Lighting Fixture Series FLOWEX – Drawings
A1-5532	1 of 7	1	17 Jun 2025	Drawings EWAE housing

Issue 4

Drawing No	Sheets	Rev	Approved date	Title
A4-7642	1 of 13	3	24 Jul 2026	Technical Note
A3-7641	1 of 12	2	24 Jul 2026	Lighting Fixture Series FLOWEX – Drawings