



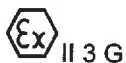
Type Examination Certificate CML 21ATEX4607X Issue 3

- 1 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU
- 2 Equipment **Increased safety luminaires series FlowEx-MN**
- 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, 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 of Directive 2014/34/EU.
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 Type Examination certificate relates only to the design and construction of the specified equipment or component. Further requirements of Directive 2014/34/EU Annex VIII 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 IEC 60079-15:2019

- 10 The equipment shall be marked with the following:



Ex nR IIC T... Gc

IP66

Ta = -** °C to +** °C

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

11 Description

The FLOWEX-MN are LED lighting fixtures that are configured for use in Gas environments.

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-MN, protected by the types of protection "Ex nR", contains a constant current LED driver, a LED Printed Circuit Board (PCB) and 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 by restricted breathing "nR" (for EPL Gc), fixed directly onto the body of the luminaire. This enclosure contains:

- An emergency module type INVERTER/LED/.../C
- A battery pack with a capacity ranging from 1.8Ah to 4Ah.
- An indicator light covered by a separate Ex Component certificate to show the battery charge status.

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

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	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		
CORTEM S.p.A.	TBEx	IECEX FIDI 23.0003U	320 Vac	-60°C and +110 °C
		FIDI 23 ATEX 0053U		
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		
		TPS 23 ATEX 117594 0012 U		
CORTEM S.p.A.	LED indicator	TPS 24 ATEX 117594 0045 U	12-240 Vac/dc	-40°C to +80°C
		IECEX CES 11.0030U		
		CESI 00 ATEX 060U		
		IECEX CML 21.0130U		

Temperature Class

For standard operation models (non-emergency models):

			Temperature Class (EPL Gc)			
Ambient Temperature			40 °C	50 °C	55 °C	60 °C
Light Fixture						
Type	Size	Power (W)				
FLOWEX-...	060	030 to 060	T6	T5	T5	T5
	080	070 to 100	T5	T4	T4	T4
	100	120 to 160	T6	T5	T5	T5
		180 to 220	T5	T5	T4	T4

For emergency models:

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

Component approved parts

Component	Manufacturer	Type	Certificate number	Markings
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
LED Indicator	CORTEM S.p.A.	M-0612 and M-0487	IECEX FIDI 23.0003U	II 2 G
			FIDI 23 ATEX 0053U	Ex eb IIC Gb
			IECEX CES 11.0030U	II 2 G D
			CESI 00 ATEX 060U	Ex db IIC Gb Ex db eb IIC Gb Ex tb IIIC Db

Nomenclature

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

Where

(1) = FlowEX Light Fixture

(2) = Version of Lamp

MN = Cat 3, Zone 2 : Ex nR

(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 introduce emergency models FlowEX-M*-*****-E (Non-Maintained emergency luminaire) and FlowEX-M*-*****-N (Maintained emergency luminaire).
- To introduce alternative LED Drivers.
- To introduce a new terminal block type TBEx...V.
- To update to the latest version of the standard EN IEC 60079-31:2024.

Variation 3

This variation introduces the following changes:

- To introduce an alternative emergency housing to the existing EWAE type for the size 100.

This certificate shall only be copied
in its entirety and without change

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	17 Jun 2025	R18273A/00	Introduction of Variation 2
3	24 Jul 2026	R19452A/00	Introduction of Variation 3

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. 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
- vi. For models FlowEX-MN-**marked with Ex nR (EPL Gc):
Each unit shall be subjected to a routine dielectric strength test in accordance with the requirements of EN 60079-15:2017, Clause 6.2. The test shall be conducted at a voltage of at least 1560 V for at least 1 min. There shall be no breakdown or flashover observed as a result of the test.
- vii. For luminaires marked with Ex nR (EPL Gc):
The routine test according to clause 12.2.2.1.1 of EN 60079-15:2017 shall be conducted as indicated in below together with alternative methods:
 - Under constant temperature conditions, internal pressure of 0.3kPa or (3 mbar) below atmospheric pressure shall not change to half the initial value in 90 seconds.
 Alternative methods:
 - a. Internal pressure of 3kPa or (30 mbar) below atmospheric pressure, shall not change to at most 2.7 kPa or (2.7 mbar) in 14 seconds.
 - b. Internal pressure of 0.3kPa or (3 mbar) below atmospheric pressure, shall not change to at most 0.27 kPa or (0.27 mbar) in 14 seconds.

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

Certificate Annex

Certificate Number CML ATEX4607X
Equipment Increased safety luminaires series FlowEx-MN
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 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 3

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