1 **UNITED KINGDOM CONFORMITY ASSESSMENT**

UK TYPE EXAMINATION CERTIFICATE

2 **Product Intended for use in Potentially Explosive Atmospheres**
UKSI 2016:1107 (as amended by UKSI 2019:696) – Schedule 3A, Part 1

3 Type Examination Certificate Number: **ExVeritas 21 UKEX 0939X** Issue: **0**

4 Product: **LFX & LHX series Luminaires**

5 Manufacturer: **Wolf Safety Lamp Company Ltd**.

6 Address: **Saxon Road Works, Sheffield, South Yorkshire, S8 0YA, United Kingdom**

7 This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 ExVeritas Limited Approved Body number 2585, 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 by UKSI 2019:696), certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Schedule 1 of the Regulations.

9 Compliance with the applicable Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0: 2018 **EN 60079-18:2015+A1:2018** **EN IEC 60079-7:2015+AMD1:2017**

EN 60079-31:2014

Except in respect of those requirements listed at section 16 of the schedule to this certificate.

10 If the sign “X” is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

11 This TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Regulations apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of the equipment shall include the following:

II 2 G Ex eb mb IIC T4 Gb
II 2 D Ex tb IIIC T110°C Db
***T*$_a$ -50°C to +45°C to+65°C** (*dependent on model type*)

UKAS PRODUCT CERTIFICATION
No. 8613

On behalf of ExVeritas

S Clarke CEng MSc FIET
Managing Director

Schedule

13 Description of Equipment or Protective System

The LFX and LHX Luminaires are LED floodlight luminaires for Group IIC gas and Group IIIC dust hazardous atmospheres. The equipment comprises an aluminium enclosure with gland apertures at one end. The cover incorporates a sealed glass window, and the entire cover is removed to provide access to the user wiring terminals. The enclosures are IP66/67 rated.

Internally, the luminaire contains LED drivers, one or two LED light engines, and terminal blocks for user connections. Cable entry into the equipment is via suitably certified cable glands (not considered as part of this equipment). Feed through terminals are provided for ease of connection of multiple units.

The equipment is available in two sizes, each with two LED light engine options and each with two LED current options. The product range is detailed in the tables below:

	LFX1S-12-65-230 LHX1S-12-65-230	LFX1S-12-55-230 LHX1S-12-55-230	LFX1S-16-55-230 LHX1S-16-55-230	LFX1S-16-45-230 LHX1S-16-45-230
Input Voltage Range	180 - 277 VAC			
Input Power	50 W	70 W	62.5 W	95 W
Max. Input Current	0.3 A	0.45 A	0.4 A	0.6 A
Frequency	50 - 60 Hz			
Power Factor	> 0.95			
Enclosure Size	Small			
Lumen Output	4,500	6,700	6,000	8,900
LEDs	12 LED	12 LED	16 LED	16 LED
Beam Angles	23 °, 32 °, 71 °, 91 °			
Gas Temperature Class	T4			
Dust Surface Temperature	T110 °C			
Lower Temperature Limit	-50 °C			
Upper Temperature Limit	65 °C	55 °C	55 °C	45 °C

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	LFX2S-24-60-230 LHX2S-24-60-230	LFX2S-24-50-230 LHX2S-24-50-230	LFX2S-32-55-230 LHX2S-32-55-230	LFX2S-32-50-230 LHX2S-32-50-230
Input Voltage Range	180 - 277 VAC			
Input Power	92.5 W	140 W	122.5 W	185 W
Max. Input Current	0.6 A	0.9 A	0.8 A	1.2 A
Frequency	50 - 60 Hz			
Power Factor	> 0.95			
Enclosure Size	Large			
Lumen Output	9,000	13,400	12,000	17,900
LEDs	24 LED	24 LED	32 LED	32 LED
Beam Angles	23 °, 32 °, 71 °, 91 °			
Gas Temperature Class	T4			
Dust Surface Temperature	T110 °C			
Lower Temperature Limit	-50 °C			
Upper Temperature Limit	60 °C	50 °C	55 °C	50 °C

	LFX1S-12-65-110 LHX1S-12-65-110	LFX1S-16-55-110 LHX1S-16-55-110	LFX2S-24-60-110 LHX2S-24-60-110	LFX2S-32-55-110 LHX2S-32-55-110
Input Voltage Range	88 - 140 VAC			
Input Power	66 W	88 W	132 W	176 W
Max. Input Current	0.6 A	0.8 A	1.2 A	1.6 A
Frequency	50 - 60 Hz			
Power Factor	> 0.95			
Enclosure Size	Small		Large	
Lumen Output	9,000	13,400	12,000	17,900
LEDs	12 LED	16 LED	24 LED	32 LED
Beam Angles	23 °, 32 °, 71 °, 91 °			
Gas Temperature Class	T4			
Dust Surface Temperature	T110 °C			
Lower Temperature Limit	-50 °C			
Upper Temperature Limit	65 °C	55 °C	60 °C	55 °C

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14 Descriptive Documents

14.1 Associated Report and Certificate History:

Report Number	Cert Issue Date	Issue	Comment
R3000/A/1	2021-09-08	0	Initial issue of the Prime Certificate

14.2 Compliance Drawings:

Issue 0

Title:	Drawing No.:	Rev. Level:	Date:
LD0203 - Encapsulated Light Engine Construction	LD-0203	03	10/03/2021
LD0204 - Small Floodlight Enclosure Construction (2 pages)	LD-0204	04	23/12/2020
LD0205 - Large Floodlight Enclosure Construction (2 pages)	LD-0205	04	15/03/2021
LD0206 – LFX12 LHX12 General Assembly	LD-0206	04	19/07/2021
LFX16 LHX16 General Assembly	LD-0207	04	28/02/2021
LD0208 – LFX24 LHX24 General Assembly	LD-0208	04	28/02/2021
LFX32 LHX32 General Assembly	LD-0209	04	28/02/2021
LE0006 PCB Layout	LD0210	2	12/03/2021
LE0007 PCB Layout	LD0211	2	12/03/2021
LD0212 Floodlight Lids General Assemblies (2 pages)	LD-0212	04	23/12/2020
Small Enclosure Floodlight Wiring Diagrams	LD-0213	04	20/01/2021
Large Enclosure Floodlight Wiring Diagrams	LD-0214	04	20/01/2021
LE0006 PCB Schematic	LD0218	2	12/03/2021
LE0007 PCB Schematic	LD0219	2	12/03/2021
LFX LHX Cert Label Drawings (2 pages)	LD-0220	05	02/08/2021
LFX Floodlight & LHX High Bay Technical Manual (16 pages)	LD-0242	04	06/09/2021

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15 Conditions of Certification

15.1 Special Conditions for Safe Use

- Cable entries into the equipment shall utilise suitably certified cable glands and shall provide a minimum degree of protection of IP66 or IP67 (dependent on the installation environment).

- Unused cable entry apertures shall be closed with suitably certified blanking plugs which provide a minimum degree of protection of IP66 or IP67 (dependent on the installation environment).

- When used in potentially hazardous dust atmospheres, the equipment shall be installed so as to minimize the risk from electrostatic discharge. In particular, the equipment shall not be installed where there is a likelihood of there being a static generating mechanism, such as steam generation or fast moving particles over the surface of the equipment.

- The equipment shall only be used with a power source having a prospective short circuit current which does not exceed 1500 A.

- The equipment shall only be installed with the window of the luminaire facing horizontally (‘wall’ mounted) or vertically downwards (‘ceiling’ mounted) or at any angle in between. When mounted with window facing horizontally (‘wall mounted’), the equipment shall be installed with the cable entry at the bottom.

15.2 Routine tests

- 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.

- Each encapsulated LED assembly shall be subjected to a visual inspection. No damage shall be evident, such as cracks in the compound, exposure of the encapsulated parts, flaking, inadmissible shrinkage, swelling, decomposition, failure of adhesion (separation of any adhered parts) or softening.

- Each encapsulated LED assembly shall be subjected to an electric strength test in accordance with EN 60079-18, Clause 9.2, using a test voltage of:

  500 Vac applied between the LED connection leads and the rear aluminium surface, for a period of 1 second.

  Alternatively, a test voltage of 20% higher may be applied for 0.1 seconds.

  A DC test voltage is allowed as an alternative to the AC test voltage and shall be 140% of the specified AC r.m.s. test voltage.

  No flashover or breakdown shall occur.

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- The equipment shall be subjected to an electric strength test in accordance with EN 60079-7, Clause 6.1, using a test voltage of 1554 Vac applied between supply connections and frame, for a period of 60 secs. Alternatively, a test voltage of 20% higher may be applied for 0.1 seconds.

  A DC test voltage is allowed as an alternative to the AC test voltage and shall be 140% of the specified AC r.m.s. test voltage.

  No flashover or breakdown shall occur.

16 Essential Health and Safety Requirements (Regulations Schedule 1)

Essential Health and Safety Requirements are addressed by the standards listed in section 9 and where required the report listed in section 14.1

The manufacturer shall inform ExVeritas of any modifications to the design of the product described by this schedule.