



1 **EU-TYPE EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

3 Certificate Number: **Sira 07ATEX3027X** Issue: **3**

4 Equipment: **Wolf Worklite Type WL-\*\***

5 Applicant: **Wolf Safety Lamp Company**

6 Address: **Saxon Road Works  
Sheffield S8 0YA  
England**

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

8 Sira Certification Service, notified body number 0518 in accordance with Articles 17 and 21 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 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule to this certificate, has been assured by compliance with the following documents:

IEC 60079-0:2017 Ed. 7	IEC 60079-7:2015/AMD1:2017 Ed. 5.1	EN 60079-11:2012
EN 60079-18:2015	EN 60079-28:2015	EN 60079-31:2014

The above list of documents may detail standards that do not appear on the UKAS Scope of Accreditation, but have been added through Sira's flexible scope of accreditation, which is available on request.

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to Specific Conditions of Use identified in the schedule to this certificate.

11 This EU-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:



II 2 G D  
Ex eb ib mb op is IIC T4 Gb  
Ex tb op is IIIC T135°C Db  
(Tamb = -20°C to +40°C)

Project Number 70171708

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Deputy Certification Manager

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#### 13 DESCRIPTION OF EQUIPMENT

Wolf Worklite Type WL-\*\* is a portable battery powered luminaire for use in the hazardous area. It comprises a 12 V, sealed lead acid battery and encapsulated electronics, these are housed inside a stainless steel enclosure that is intended to provide an ingress protection to at least IP64/66/67. The enclosure comprises a welded frame, which secures a lamp head containing an array of LEDs that provide the light. The lamp housing can be swivelled to point the light in the desired direction. Also attached to the welded frame above the lamp housing is a carry handle made from stainless steel.

There are four version of the Worklite:

- The WL-85 Worklite with an 18 LED lamp head powered from a 12 V, 35 Ah.
- The WL-80 Worklite with an 18 LED lamp head powered from a 12 V, 18 Ah.
- The WL-75 Worklite with a 12 LED lamp head powered from a 12 V, 35 Ah.
- The WL-70 Worklite with a 12 LED lamp head powered from a 12 V, 18 Ah.

The battery and the encapsulated electronic block, inside the steel housing, are held in place using plastic packing material. The battery is fitted with vents to allow gases generated by the cells to escape outside the battery housing.

The lamp comprises a panel of high output LEDs (either an array of 12 or 18) and a terminal block, both mounted behind a 5.8mm toughened glass window and inside an extruded aluminium heat sink, which forms part of the lamp housing. Connections between the lamp and the encapsulated electronics are made via a braided, multi-core cable through Ex e approved glands at each end.

The encapsulated control electronics ensure a constant current supply to the lamp LEDs giving maximum light output. Fitted to the battery enclosure lid is an intrinsically safe push-button, this controls the output in high power or low power mode, offering extended battery life on the low power setting. Also fitted to the lid is an intrinsically safe indication LED, this indicates the state of charge for the battery. The control circuit uses a microcontroller to monitor the battery voltage and cut off the connection to the battery to prevent deep discharge. The battery is recharged in the safe area and the charging socket is fitted with a blanking cover.

**Variation 1** - This variation introduced the following changes:

- i. The value of resistor R37 was changed to 33 K $\Omega$  and zener diode ZD1, connected in series, was added.
- ii. The modification of the existing stock of print circuit boards by retrofitting ZD1.
- iii. The pcb track layout was altered to incorporate ZD1.
- iv. An alternative internal wiring scheme using a 6-way terminal block in place of the existing 8-way terminal block was recognised.
- v. Minor modifications to the screw fixing and production notes were introduced.

**Variation 2** - This variation introduced the following changes:

- i. The printed circuit board layout was modified to incorporate the following changes:
  - The addition of resistor R23 (100K) and a change of package for C15 in the Switcher Circuit.
  - The addition of diode D9 in series with resistor R39 (1K5) in the Power Circuit.
  - The addition of transistor T10, resistors R9 (10K) and R40 (10K) in the Control Circuit, additionally the pushbutton is connected directly to +VBAT and the return connection is connected via resistor R10 (10K).



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**Variation 3** - This variation introduced the following changes:

- i. Following appropriate assessment to demonstrate compliance with the latest technical knowledge, EN 60079-0:2004, EN 60079-7:2003, EN 60079-18:2004, EN 50020:2002, EN 64241-0:2004, and EN 61241-1:2004 were replaced by IEC 60079-0:2017 Ed. 7, IEC 60079-7:2015/AMD1:2017 Ed. 5, EN 60079-11:2012, EN 60079-18:2015, , and EN 60079-31:2014. In addition, the products have now been recognised to provide protection of equipment and transmission systems that use optical radiation and EN 60079-28:2015 has been added to the list of supporting standards. The markings have been updated in accordance with all the latest standards.
- ii. The replacement of all gaskets and O-rings.
- iii. The introduction of a new Large encapsulated LED panel to replace the previous Large increased safety LED panel.
- iv. The introduction of a new Small encapsulated LED panel to replace the previous Small increased safety LED Panel.
- v. The inclusion of a pre-certified intrinsically safe switch to replace the previous push button model.
- vi. The removal of plastic handle option.
- vii. The inclusion of adhesive label options.
- viii. The inclusion of a specific condition of use and conditions of manufacture as a result of the technical changes relating to the variation. As a consequence, an 'X' suffix was added to the certificate number.

## 14 DESCRIPTIVE DOCUMENTS

### 14.1 Drawings

Refer to Certificate Annexe.

### 14.2 Associated Sira Reports and Certificate History

Issue	Date	Report no.	Comment
0	8 May 2007	R52A14837A	The release of prime certificate.
1	22 June 2007	R52A16775A	The introduction of Variation 1.
2	2 November 2007	R59A16885A	The introduction of Variation 2.
3	16 August 2018	R70171708A	This Issue covers the following changes: <ul style="list-style-type: none"><li>• EC Type-Examination Certificate in accordance with 94/9/EC updated to EU Type-Examination Certificate in accordance with Directive 2014/34/EU. (In accordance with Article 41 of Directive 2014/34/EU, EC Type-Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Variations to such EC Type-Examination Certificates may continue to bear the original certificate number issued prior to 20 April 2016.)</li><li>• The introduction of Variation 3.</li></ul>

## 15 SPECIFIC CONDITIONS OF USE (denoted by X after the certificate number)

- 15.1 The equipment is approved with a range of accessories that are designed to protect the product. Only authorised spare parts shall be used, refer to the manufacturer's instructions regarding the replacement frequency of the approved accessories.

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Sira Certification Service

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#### 16 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II (EHSRs)

The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in the reports listed in Section 14.2.

#### 17 CONDITIONS OF MANUFACTURE

- 17.1 The use of this certificate is subject to the Regulations Applicable to Holders of Sira Certificates.
- 17.2 Holders of EU-Type Examination Certificates are required to comply with the conformity to type requirements defined in Article 13 of Directive 2014/34/EU.
- 17.3 Each encapsulated LED Array and Driver shall be subject to a routine visual inspection to ensure no damage of the encapsulant is evident, such as cracks in the compound, exposure of the encapsulated parts, flaking, inadmissible shrinkage, swelling, decomposition, failure of adhesion, or softening.
- 17.4 Each encapsulated LED Array shall be subject to a routine dielectric strength test of 700 Vdc, for a period of 60 seconds, without breakdown between the positive solder pad of the folded PCB and the surface of the potting compound directly above the positive solder pad. Alternatively a test at 1.2 times the test voltage may be applied for at least 100 ms.
- 17.5 Each encapsulated Driver shall be subject to a routine dielectric strength test of 700 Vdc, for a period of 60 seconds, without breakdown between the charge input crowbar PCB connection lead and the surface of the potting compound directly above the charge input crowbar PCB, alternatively a test at 1.2 times the test voltage may be applied for at least 100 ms. These test locations shall be chosen irrespective of the internal or external fitting of crowbar circuit.
- 17.6 Each set of component certified terminals fitted into the Battery Housing or LED Housing shall be subject to a routine dielectric strength test of 700 Vdc, for a period of 60 seconds, without breakdown between the un-insulated live parts and the enclosure. Alternatively a test at 1.2 times the test voltage may be applied for at least 100 ms.
- 17.7 Each battery used within the equipment shall be subject to a routine insulation resistance test of 100 V between the battery terminal and the battery enclosure, producing a resistance reading of not less than 1 MΩ.
- 17.8 Each luminaire shall be subject to a routine dielectric strength test of 700 Vdc, for a period of 60 seconds, without breakdown between the positive charging socket pin and the carry handle. Alternatively a test at 1.2 times the test voltage may be applied for at least 100 ms.
- 17.9 The manufacturer shall fit suitably certified cable entry devices that are certified to the same edition of EN 60079-0, EN 60079-7, and EN 60079-31 to which the equipment is certified. The cable entry devices shall maintain the degree of ingress protection IP64/66/67 considering the interface sealing arrangement and limiting temperatures of the equipment. The cable entry devices shall be suitable for the final application.
- 17.10 The products covered by this certificate incorporate components that are used as part of other certified equipment; it is therefore the responsibility of the manufacturer to continually monitor the status of these devices, and they shall inform Sira of any modifications of these devices that may impinge upon the explosion safety design of their products.

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# Certificate Annexe



Certificate Number: Sira 07ATEX3027  
Equipment: Wolf Worklite Type WL-\*\*  
Applicant: Wolf Safety Lamp Company

## Issue 0

Drawing	Sheets	Rev.	Date	Title
W-701	1 of 1	1	22 Jan 07	Worklite - Assembly (x12 led)
W-702	1 of 1	2	15 Feb 07	Worklite – Lamp Housing Assembly (x12 led)
W-703	1 of 1	1	22 Jan 07	Worklite – Battery Box Assembly (x12 led)
W-704	1 of 1	1	05 Jan 07	Worklite – Battery Box Assembly (x12 led)
W-705	1 of 1	1	22 Jan 07	Worklite – Pictorial layout (x12 led)
W-711	1 of 1	1	22 Jan 07	Worklite - Assembly (x6 led)
W-712	1 of 1	2	15 Feb 07	Worklite – Lamp Housing Assembly (x6 led)
W-713	1 of 1	1	22 Jan 07	Worklite – Battery Box Assembly (x6 led)
W-714	1 of 1	1	22 Jan 07	Worklite – Battery Box Assembly (x6 led)
W-715	1 of 1	1	22 Jan 07	Worklite – Pictorial layout (x6 led)
W-801	1 of 1	1	22 Jan 07	Worklite – Switcher Circuit
W-802	1 of 1	1	22 Jan 07	Worklite – Control Circuit
W-803	1 of 1	1	22 Jan 07	Worklite – Power Circuit
W-804	1 of 1	1	22 Jan 07	Worklite – Control Circuit Board
W-805	1 of 1	1	22 Jan 07	Worklite – LED Circuit Boards (x12 led)
W-806	1 of 1	1	22 Jan 07	Worklite – LED Circuit Boards (x6 led)

## Issue 1

Drawing	Sheets	Rev.	Date	Title
W-703	1 of 1	2	05 Jun 07	Battery Box Assembly x12LED
W-705	1 of 1	2	05 Jun 07	Pictorial Layout x12 LED
W-713	1 of 1	2	05 Jun 07	Battery Box Assembly x6 LED
W-715	1 of 1	2	05 Jun 07	Pictorial Layout x6 LED
W-801	1 of 1	3	11 Jun 07	Switcher Circuit
W-802	1 of 1	2	24 May 07	Control Circuit
W-804	1 of 2	3	08 Jun 07	Control Circuit Board (Version 1)
W-804	2 of 2	3	08 Jun 07	Control Circuit Board (Version 2)

## Issue 2

Drawing	Sheets	Rev.	Date	Title
W-702	1 of 1	3	12 Sep 07	Lamp Housing Assembly x12 LED
W-703	1 of 1	3	06 Aug 07	Battery Box Assembly x12 LED
W-704	1 of 1	2	06 Aug 07	Battery Box Assembly x12 LED
W-712	1 of 1	3	12 Sep 07	Lamp Housing Assembly x6 LED
W-713	1 of 1	3	17 Sep 07	Battery Box Assembly x6 LED
W-714	1 of 1	2	17 Sep 07	Battery Box Assembly x6 LED
W-801	1 of 1	4	02 Sep 07	Switcher Circuit
W-802	1 of 1	3	14 Aug 07	Control Circuit
W-803	1 of 1	2	02 Jul 07	Power Circuit
W-804	1 of 1	4	14 Aug 07	Control Circuit Board
W-805	1 of 1	2	09 Oct 07	LED Circuit Board x12 LED
W-806	1 of 1	2	09 Oct 07	LED Circuit Board x6 LED

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# Certificate Annexe



Certificate Number: Sira 07ATEX3027  
Equipment: Wolf Worklite Type WL-\*\*  
Applicant: Wolf Safety Lamp Company

## Issue 3

Drawing	Sheets	Rev.	Date	Title
W-701	1 of 1	2	01 Aug 18	Worklite Assembly and Marking (Large)
W-702	1 of 1	4	01 Aug 18	Worklite – Lamp Housing Assembly (Large)
W-703	1 of 1	4	01 Aug 18	Worklite – Battery Box Assembly with Vent (Large)
W-704	1 of 1	3	01 Aug 18	Worklite – Battery Box Assembly (Large)
W-705	1 of 1	3	01 Aug 18	Worklite – Pictorial Layout (18 LED)
W-711	1 of 1	2	01 Aug 18	Worklite –Assembly and Marking (Small)
W-712	1 of 1	4	01 Aug 18	Worklite – Lamp Housing Assembly (Small)
W-713	1 of 1	4	01 Aug 18	Worklite – Battery Box Assembly (Small Battery)
W-714	1 of 1	3	01 Aug 18	Worklite – Battery Box Assembly (Small Battery)
W-715	1 of 1	3	01 Aug 18	Worklite – Pictorial Layout (12 LED)
W-801	1 of 1	4	24 Oct 07	Switcher Circuit
W-802	1 of 1	3	24 Oct 07	Control Circuit
W-803	1 of 1	3	01 Aug 18	Worklite – Power Circuit
W-804	1 of 1	5	01 Aug 18	Worklite – Control Circuit Board
W-809	1 of 1	1	01 Aug 18	Worklite – Folded PCB LED Array (18 LED)
W-819	1 of 1	1	01 Aug 18	Worklite – Folded PCB LED Array (12 LED)

The table above details all the drawings that are pertinent to the assessments in the report R70171708A; whilst other drawings have been retained to maintain the history of the product, they are not required to build products that conform with the description of equipment in Issue 3.

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