



UNITED KINGDOM CONFORMITY ASSESSMENT

1 **UK TYPE EXAMINATION CERTIFICATE**

2 Equipment Intended for use in Potentially Explosive Atmospheres
UKSI 2016:1107 (as amended) – Schedule 3A, Part 1

3 Certificate Number: **CSAE 21UKEX1205X** Issue: **1**
4 Product: **LE Series Explosion-Proof Linear Valve Actuators, models LE-250--,
LE-500-- , LE-1000-- , LE-2000--.**
5 Manufacturer: **Sun Yeh Electrical Ind. Co., Ltd.**
6 Address: **No. 68 Lane 854, Sec. 1, Shatian Road,
Dadu District,
Taichung City, 432403
Taiwan**

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

8 CSA Group Testing UK Limited, Approved Body number 0518, 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 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. 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 has been assured by compliance with:


EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-31:2014

Except in respect of those requirements listed at Section 16 of the schedule to this certificate. The above standards may not appear on the UKAS Scope of Accreditation, but have been added through flexible scope of accreditation, which is available on request.

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

11 This UK 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 this product shall be in accordance with Regulation 41 and include the following:

 II 2GD
Ex db IIB T4 Gb
Ex tb IIIC T130°C Db
Ta = -30°C to +70°C

IP68 (72h, 7m)

Name: Michelle Halliwell
Title: Director of Operations



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13 DESCRIPTION OF PRODUCT

The LE Series Explosion-Proof Linear Valve Actuator comprises a cylindrical aluminium flameproof enclosure, containing a motor and associated electronics which drive a stainless steel linear actuator via a mechanical transmitting unit. A rotating handle may be used to manually drive the mechanical transmitting unit, when the equipment is unpowered, which can be removed from the mechanical circuit to prevent movement of the handle when the motor is driven.

The internal motor winding contains a bimetallic strip for thermal protection, which is set to operate at 125°C. The motor is provided with class F insulation.

The equipment is rated as IP68 (7 metres for 72 hours), which is maintained by O-ring seals in each joint and oil seals in the interface between the main housing and actuator/drive handle shafts.

The flameproof housing features two threaded cable entries, which may be NPT3/4", NPT1/2", M20x1.5 or M25x1.5. Each cable entry is supplied by the manufacturer with a proprietary stainless-steel blanking plug which may be replaced by the end user with suitably certified and rated flameproof cable entry devices.

Model nomenclature:

LE-X1-X2-X3

L – Linear Valve Actuator

E – Explosion Proof

X1 – Thrust (kg): 250 / 500 / 1000 / 2000

X2 – Voltage:

- D24 – 24 VDC
- 24 – 24 VAC
- 100 – 100 VAC
- 120 – 110-120 VAC
- 200 – 200 VAC
- 220 – 220-240 VAC

X3 – Control Method:

- M – Modulating
- F – Floating

Incorporated amendments:

The product description includes the following applicable amendments as detailed in the supporting documents as referenced in section 1.10 of this report. Only amendments directly applicable to UKCA certification have been included in this list. The amendments are numbered to include a reference to the variation at which these were introduced.

2. The introduction of a 'D' Shaped drive to the output shaft.
3. To permit all model series linear valve actuators to be fitted with an alternative worm gear shaft. The external face of the shaft is recessed with a female square keyway, enabling the valve actuators to be connected to end user type specific output couplings.

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Rationalisation of scheduled drawings to remove those that have been replaced, and/or are no longer used to support manufacturing compliance. In addition to the removal of the IP68 rating from being part of the concept of protection coding text string on the product nameplate.

- 4. The reinforcement of the Top Cover.
The introduction of transparent paint on labels.
The amendment of NPT threaded Blanking Elements.
- 5. Change the type key and related ratings as follows:

Previous	New
110 stands for 110VAC 120 stands for 120VAC	120 stands for 110-120VAC
220 stands for 220VAC 240 stands for 240VAC	220 stands for 220-240VAC

Variation 1 - This variation introduced the following changes:

- i. Postal code change from 43244 to 432403.
- ii. Warning plate change YIELD STRESS value from "≥ 700MPa" to "≥ 450Mpa".
- iii. For the middle plate, adjust dimension from $\varnothing 140(-0.05 \text{ to } +0)$ into $\varnothing 140(-0.1 \text{ to } +0)$
For the middle plate, adjust the accuracy of the bearing hole from $\varnothing 25.4(+0.01 \text{ to } +0.03)$ to $\varnothing 25(+0.01 \text{ to } +0.03)$
- iv. Adjust the accuracy for the worm gear from JIS Level 4 to JIS Level 6
- v. Cancel the accuracy of the drive shaft.
- vi. Material change for the Handwheel from Plastic (N6) to ADC10.
- vii. Based on Prime ExTR assessed complied result, add IP68 together with markings

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Reports and Certificate History

Issue	Date	Report number	Comment
0	09 August 2021	R80081220A	The release of the prime certificate.
1	02 April 2024	R80190143A	The introduction of Variation 1.

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

- 15.1 The flamepaths in this equipment are different to the standard dimensions given in EN 60079-1. If specific Flamepath dimensions are required then the manufacturer (OEM) must be contacted.
- 15.2 Caution - Use fasteners with yield stress $\geq 450\text{MPa}$.

16 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS (REGULATIONS SCHEDULE 1)

In addition to the Essential Health and Safety Requirements covered by the standards listed in Section 9, all other requirements are demonstrated in the relevant reports.



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17 PRODUCTION CONTROL

- 17.1 Holders of this certificate are required to comply with production control requirements defined in Schedule 3A, as applicable, and CSA Group Testing UK Regulations for Certificate Holders.
- 17.2 IEC 60079-1:2014, Cl.16.1.1 Routine overpressure test – first method and acceptance criteria applied to all Models.

Test conditions as below:

Applied Model Series	Batch testing routine test value (MPa)	Duration (seconds)
LE-250, LE-500	≥ 1.0	≥ 10
LE-1000, LE-2000	≥ 1.1	≥ 10

Note: Equivalent unit and value may be applied as long as actual value meet above criteria.





Certificate Annexe

Certificate Number: CSAE 21UKEX1205X
 Product: LE Series Explosion-Proof Linear Valve Actuators, models LE-250--, LE-500--, LE-1000--, LE-2000--.
 Manufacturer: Sun Yeh Electrical Ind. Co., Ltd.

Issue 0

Drawing	Sheets	Rev.	Date (Stamp)	Title
Ex 10030	1 to 3	3	25 May 20	Explosion proof linear actuator
Ex 10031	1 to 3	3	25 May 20	Explosion proof linear actuator
Ex 20207-1	1 of 1	1	16 Jan 15	Main housing (NPT ¾")
Ex 20207-2	1 of 1	1	16 Jan 15	Main housing (NPT ½")
Ex 20207-3	1 of 1	1	16 Jan 15	Main housing (M25)
Ex 20207-4	1 of 1	1	16 Jan 15	Main housing (M20)
Ex 20207-3	1 of 1	1	16 Jan 15	Main housing (M25)
Ex 20208	1 of 1	2	05 Mar 19	Top cover
Ex 20209-1	1 of 1	1	16 Jan 15	Main housing NPT3/4"
Ex 20209-2	1 of 1	1	16 Jan 15	Main housing (NPT ½")
Ex 20209-3	1 of 1	1	16 Jan 15	Main housing (M25)
Ex 20209-4	1 of 1	1	16 Jan 15	Main housing (M20)
Ex 30502	1 of 1	1	16 Jan 15	Casting end cap
Ex 30503	1 of 1	1	16 Jan 15	Drive shaft
Ex 30504	1 of 1	1	16 Jan 15	Casting end cap
Ex 30505	1 of 1	1	16 Jan 15	Plate
Ex 30506-1	1 of 1	1	13 Oct 17	Explosion proof linear actuator
Ex 30507	1 of 1	1	16 Jan 15	Drive shaft
Ex 30508	1 of 1	1	16 Jan 15	Casting end cap
Ex 30509-1	1 of 1	1	13 Oct 17	Explosion proof linear actuator
Ex 30510	1 of 1	1	16 Jan 15	Plate
Ex 30511	1 of 1	1	16 Jan 15	Top cover
Ex 31528	1 of 1	1	11 Aug 16	Drive Shaft
Ex 31530	1 of 1	1	11 Aug 16	Drive Shaft
Ex 40780	1 of 1	1	16 Jan 15	Casting end cap
Ex 40804-1	1 of 1	4	05 Mar 19	Ex plug (NPT ¾")
Ex 40804-2	1 of 1	4	05 Mar 19	Ex plug (NPT 1/2")
Ex 40804-3	1 of 1	3	13 Oct 17	Ex plug (M20)
Ex 40804-4	1 of 1	3	13 Oct 17	Ex plug (M25)
Ex 42381	1 of 1	6	27 Jul 21	Nameplate

Issue 1

Drawing	Sheets	Rev.	Date (Stamp)	Title
Ex10030	1 to 3	4	19 Mar 24	LE-250-X1-X2 and LE-500-X1-X2 Explosion-proof Linear Valve Actuator Assembly Drawing
Ex10031	1 to 3	4	19 Mar 24	LE-1000-X1-X2 and LE-2000-X1-X2 Explosion-proof Linear Valve Actuator Assembly Drawing
Ex30506	1 of 1	2	19 Mar 24	LE-1000-X1-X2 and LE-2000-X1-X2 Worm Gear





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Manufacturer: Sun Yeh Electrical Ind. Co., Ltd.

Drawing	Sheets	Rev.	Date (Stamp)	Title
Ex30509	1 of 1	2	19 Mar 24	LE-250-X1-X2 and LE-500-X1-X2 Worm Gear
Ex30510	1 of 1	2	19 Mar 24	LE-250-X1-X2 and LE-500-X1-X2 Plate
Ex31528	1 of 1	2	19 Mar 24	LE-250-X1-X2 and LE-500-X1-X2 Drive shaft
Ex31530	1 of 1	2	19 Mar 24	LE-1000-X1-X2 and LE-2000-X1-X2 Drive shaft
Ex42381	1 of 1	7	21 Mar 24	Nameplate for LE series

