



## EU Type Examination Certificate CML 19ATEX1188X Issue 3

- 1 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU
- 2 Equipment **Range of Control Valve Actuators (CVA)**
- 3 Manufacturer **Rotork Controls Ltd.** **Rotork Controls, Inc.**
- 4 Address **Brassmill Lane,  
Bath, BA1 3JQ,  
United Kingdom** **675 Mile Crossing Blvd,  
Rochester, NY 14624,  
USA**
- 5 The equipment is specified in the description of this certificate and the documents to which it refers.
- 6 CML B.V., Chamber of Commerce No 6738671, Hoogoorddreef 15, Amsterdam, 1101 BA, 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.

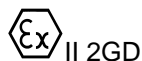
The examination and test results are recorded in the confidential reports listed in Section 12.

- 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 60079-11:2012	EN 60079-31:2014	EN ISO 80079-36:2016

- 10 The equipment shall be marked with the following:

Without intrinsically safe interface



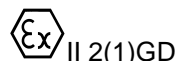
II 2GD

Ex db<sup>Ⓢ</sup> h IIB T4 Gb

Ex h tb IIIC T120°C Db

(Ta = -<sup>Ⓢ</sup>°C to +60°C)

With intrinsically safe interface



II 2(1)GD

Ex db<sup>Ⓢ</sup> h [ia IIC Ga] IIB T4 Gb

Ex h [ia IIIC Da] tb IIIC T120°C Db

(Ta = -<sup>Ⓢ</sup>°C to +60°C)

<sup>Ⓢ</sup>'eb' included if the terminal enclosure utilises increased safety.

<sup>Ⓢ</sup>-20°C or -40°C as appropriate.



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## 11 Description

The Range of Control Valve Actuators (CVA) comprise two enclosures, the electrical enclosure and the terminal enclosure. The enclosures are cast in aluminium alloy LM25TF (or equivalent). The electrical enclosure is separated from the terminal enclosure by the terminal bung.

The terminal bung is manufactured in CRAFTIN® ST830FRUV NC010, manufactured by Dupont De Nemours & Co. Inc. Electrical terminations pass through the terminal bung. The arrangement is sealed with ROBNOR® PX700K/BK, manufactured by Robnorganic Systems Ltd. The terminal bung is secured in position by means of a circlip. A nitrile O-ring is provided between the terminal bung and the terminal enclosure lid and the enclosure. The joint between the terminal bung and the metallic casing forms a cylindrical flamepath.

The terminal enclosure provides all electrical field-wiring terminations at the terminal bung. Cable entry facilities are provided in the form of four threaded, 3/4" NPT (or M25 x 1.5p) entry points. The terminal enclosure is closed by means of a lid, the joint between the lid and the enclosure forming a tapered spigot joint. The terminal enclosure lid is secured by four, retained, M10, stainless steel, grade A4-80 socket cap-head screws. A nitrile O-ring is provided between the terminal enclosure lid and the enclosure.

The electrical enclosure is formed from an enclosure base and lid. The interface between the lid and the enclosure base forms a cylindrical flamepath with a spigot. The lid is secured by six, M10, stainless steel, grade A4-80 socket cap-head screws. The electrical enclosure lid includes a viewing window, manufactured from MAKROLON® 6717, manufactured by Bayer Material Science Ltd. The window screws into the enclosure lid from the inside, the joint between the window and enclosure lid forming a threaded flamepath. The window is prevented from becoming loose by an internal locking arrangement. The actuator output can either be rotary 1/4 turn, or linear depending upon the internal equipment specified. The output shaft in each case exits the electrical enclosure via a brass bushing, secured into the enclosure by means of an interference fit. Cylindrical flamepaths are formed between the output shaft bushing and the electrical enclosure as well as between the output shaft and the output shaft bushing. The optional manual operation of the actuator is provided by way of a shaft that can be rotated externally. Access to the shaft is via a removable threaded cover. The manual override shaft is supported in a brass bushing that is secured into the electrical enclosure wall by means of an interference fit. Cylindrical flamepaths are formed between the manual override shaft bushing and the electrical enclosure as well as between the manual override shaft and the manual override shaft bushing. Alternatively, the flamepath between the manual shaft and the enclosure etc. is omitted, in which case the threaded joint between the enclosure and the removable threaded cover forms a flamepath. Nitrile seals are provided as necessary.

Thermal protective devices are installed within the equipment located on the outside of the motor casing. These devices are rated up to 132°C.



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Intrinsically safe entity parameters:

**Terminals 1, 2, and 3**      **Terminals 6, 7, and 8**

Ui: 30 V	Ui: 30 V
Ii: 250 mA	Ii: 250 mA
Pi: 700 mW	Pi: 700 mW
Ci: 0.12 $\mu$ F	Ci: 0.12 $\mu$ F
Li: 0	Li: 0
Uo: 0	Uo: 0
Io: 0	Io: 0
Po: 0	Po: 0

Note: terminals 3 and 6 are intended for the connection of cable screens only.

**Model Codes**

Size 2	Size 3	Size 4
CVL500	CVL1000	CVL5000
CVQ1200	CVL1500	
	CVQ2400	

**Design Options**

- i. The omission of the bushing associated with the manual override shaft.
- ii. Alternative materials of construction for the terminal lid and gear case electrical enclosure top covers.
  - Alternative gear case electrical enclosure top cover material (CVL500, CVQ1200, CVL1000, CVL1500 and CVQ2400 models only), cast aluminium alloy to BS EN 1706, Grade: AC42100 T6 or equivalent (low pressure die cast);
  - Alternative terminal enclosure cover material, cast aluminium alloy to, ASTM B85, Grade: A360 or equivalent (high pressure die cast), to all models.
- iii. 12.9 grade top cover screws added as an alternative to A4-80 top cover screws.
- iv. Alternative CVL500 Gearcase casting P/N 16640. The material remains as aluminium alloy, LM25TF, however, it is gravity fed rather than low pressure fed.

**Variation 1**

This variation introduced the following changes:

- i. The introduction of an alternative enclosure part no. to document PLAD1304.

**Variation 2**

This variation introduced the following changes:

- i. To allow the optional use of the CVL1000 & CVL1500 UPS Module in the CVQ2400.



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### Variation 3

This variation introduced the following changes:

- i. Correction of typographical errors in the schedule drawings.

#### Notes:

- Sira 08ATEX1140X is superseded by this certificate.
- The product covered by Issue 0 of this certificate remains identical to that previously covered by Sira 08ATEX1140X.
- Where Sira 08ATEX1140X is specified in other product certification, or other technical specifications, this certificate reference for the product shall be used in its place; updating of the other product certificate or technical specification is not required.

### 12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	29 Jul 2019	R12481A/00	Issue of Prime Certificate
1	03 Sep 2019	R12753A/00	Introduction of Variation 1
2	06 Nov 2019	R12845A/00	Introduction of Variation 2
3	02 Apr 2020	R13111A/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 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.
- ii. Each Control Valve Actuator shall be subjected to a routine overpressure test in accordance with EN 60079-1 clause 16 at the following values.

#### Tamb below -20°C

Equipment	Test Pressure (bar)
Terminal Bung (CVQ1200) - 1/4 Turn	16.04
Terminal Bung (CVL500) (Linear)	17.40
Gear Case Electrical Enclosure & Top Cover (CVL5000)	13.62

- iii. When the terminal enclosure utilises increased safety explosion protection, the following electrical strength tests shall be applied to the termination facilities for at least 60 s in accordance with EN 60079-7 clause 6.1 at the following values.



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Test Voltage Applied Between	Test Voltage
Terminals with voltages of 90 V peak or greater and the case and lower voltage terminals	1,000 + 2U Vrms <sup>+5%</sup> or 1,500 Vrms <sup>+5%</sup> whichever is greater, where U is the working voltage
Terminals with voltages not exceeding 90 V peak and the case	500 Vrms <sup>+5%</sup>

Alternatively, a test shall be carried out at 1.2 times the test voltage, but maintained for at least 100 ms.

- iv. When the termination facility utilises intrinsic safety explosion protection, the apparatus shall be subjected to a routine test voltage of 500 Vrms between the case and terminals 1, 2, 7 & 8 as required by EN 60079-11 clauses 6.3.12 and 10.3.

#### 14 Specific Conditions of Use (Special Conditions)

The following conditions relate to safe installation and/or use of the equipment.

- i. In accordance with EN 60079-1 clause 5.1, the critical dimensions of the flamepaths are as follows.

##### **CVL5000**

Flamepath	Max. Gap (mm)	Min. L (mm)
Gearcase Electrical Enclosure/Top Cover	0.20	40.0
Gearcase Electrical Enclosure/Terminal Bung	0.15	25.0
Gearcase Electrical Enclosure/Terminal Cover	0.15	26.0
Gearcase Electrical Enclosure/Manual Override Shaft	0.15	26.0
Output Shaft/Output Shaft Bush (Linear)	0.15	26.0
Output Shaft Bush/Gearcase Electrical Enclosure (Linear)	-0.018	25.5

##### **All other models**

Flamepath	Max. Gap (mm)	Min. L (mm)
Gearcase Electrical Enclosure/Top Cover	0.15	25.0
Gearcase Electrical Enclosure/Terminal Bung	0.15	25.0
Gearcase Electrical Enclosure/Terminal Cover	0.15	26.0
Gearcase Electrical Enclosure/Manual Override Bush ( <i>if fitted</i> )	-0.005	28.0
Manual Override Shaft/Gearcase Electrical Enclosure ( <i>or bush if fitted</i> )	0.15	25.0
Output Shaft/Output Shaft Bush (Linear)	0.15	25.0
Output Shaft Bush/Gearcase Electrical Enclosure CVL500	-0.005	25.0
Output Shaft Bush/Gearcase Electrical Enclosure CVL1000, CVL1500	0.15	30.0
Output Shaft/Output Shaft Bush - 1/4 Turn	0.15	25.0
Output Shaft Bush/Gearcase Electrical Enclosure - 1/4 Turn	-0.005	25.0

- ii. **WARNING** – There is a potential electrical charging hazard associated with the operating knob, manual hand wheel assembly and outer case depending on the model and coating applied; see user instructions.



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- iii. When the optional intrinsically safe interface is fitted, terminal 3 and 6 are intended for the connection of cable screens only. These connection points are not isolated from the assembly enclosure and do not comply with the dielectric strength requirements of EN 60079-11:2007 clause 6.3.12. This should be taken in to account regarding the applicable code of practice, e.g. EN 60079-14.

## Certificate Annex

**Certificate Number** CML 19ATEX1188X  
**Equipment** Range of Control Valve Actuators (CVA)  
**Manufacturer** Rotork Controls Ltd  
Rotork Controls, Inc.



The following documents describe the equipment or component defined in this certificate:

### Issue 0

Drawing No	Sheets	Rev	Approved date	Title
AD1304	1 to 4	8	26 Jul 2019	CVL500 & CVQ1200 Actuators ATEX & IECEx approval, IIB & IIC
AD1310	1 to 4	7	26 Jul 2019	CVL1000, CVL1500 & CVQ2400 Actuators, ATEX & IECEx approval, IIB & IIC
AD1334	1 to 4	3	26 Jul 2019	IS Interface, CVA Range, ATEX & IECEx Approvals, Groups IIB & IIC
AD1345	1 of 3	5	26 Jul 2019	CVL5000 Actuator, ATEX & IECEx Approval, IIB & IIC
AD1454	1 to 2	1	26 Jul 2019	CVA UPS – 3 Capacitor Variant
AD1497-1	1 to 2	1	26 Jul 2019	Terminal Bung & Main Labels CVA Range – ATEX & IECEx IIB & IIC
ED08581	1 of 1	2	26 Jul 2019	CVA Crowbar
PLAD1304	1 of 4	6	26 Jul 2019	Parts list for CVL500 & CVQ1200 Actuators ATEX & IECEx Certification Group IIB & IIC
PLAD1310	1 of 4	5	26 Jul 2019	Parts list for CVL1000, CVL1500 & CVQ2400 Actuators ATEX & IECEx Certification Group IIB & IIC
PLAD 1345	1 of 4	4	26 Jul 2019	Parts list for CVL5000 Actuator ATEX & IECEx Certification Group IIB & IIC

### Issue 1

Drawing No	Sheets	Rev	Approved date	Title
PLAD1304	1 of 4	7	03 Sep 2019	Parts list for CVL500 & CVQ1200 Actuators ATEX & IECEx Certification Group IIB & IIC

## Certificate Annex

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### Issue 2

Drawing No	Sheets	Rev	Approved date	Title
AD1310	1 to 5	7	06 Nov 2019	CVL1000, CVL1500 & CVQ2400 Actuators, ATEX & IECEx approval, IIB & IIC
AD1454	1 to 2	2	06 Nov 2019	CVA UPS – 3 Capacitor Variant

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Drawing No	Sheets	Rev	Approved date	Title
AD1304	1 to 4	9	02 Apr 2020	CVL500 & CVQ1200 Actuators, ATEX & IECEx Approval IIB & IIC
AD1310	1 to 4	9	02 Apr 2020	CVL1000, CVL1500 & CVQ2400 Actuators, ATEX & IECEx Approval, IIB & IIC
PLAD1304	1 to 4	08	02 Apr 2020	Parts List for CV500 & CVQ1200 Actuators ATEX & IECEx Certification Group IIB & IIC
PLAD1310	1 to 4	07	02 Apr 2020	Parts List for CVL1000, CVL1500 & CVQ2400 Actuators ATEX & IECEx Certification Group IIB & IIC