



DET NORSKE VERITAS

EC-TYPE EXAMINATION CERTIFICATE

[2] EQUIPMENT OR PROTECTIVE SYSTEM INTENDED FOR USE IN POTENTIALLY EXPLOSIVE ATMOSPHERES DIRECTIVE 94/9/EC

[3] EC-Type Examination Certificate Number: **DNV 13 ATEX 2434X** Rev. 2

[4] Equipment or Protective System: **Model 430/430-X Low Voltage Swivel (LVS)**

[5] Applicant – Manufacturer or Authorized representative: **Moog Components Group, Focal Technologies**

[6] Address: **77 Frazee Avenue, Dartmouth
Nova Scotia, Canada
B3B 1Z4**

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

[8] DNV, notified body number 0575 in accordance with Article 9 of Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.


The examination and test results are recorded in confidential reports listed in section 14.

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 60079-0: 2012, EN 60079-1: 2007, EN 60079-7:2007 and EN 60079-11: 2007

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

[11] This EC-TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protected system. If applicable, further requirements of this Directive apply to the manufacturer and supply of this equipment or protective system.

[12] The marking of the equipment or protective system shall include the following:

 **II 2 G** **Ex de IIB T5/T4**
Ex de [ib] IIB T5/T4

Høvik, 2015-08-05
for Det Norske Veritas AS

Asle Kaastad
Certification Manager



Notice: This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.

The digitally signed and electronically distributed document is the original and valid certificate. Ref.: www.dnv.com/digitalsignatures

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 300.000. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



[13]

Schedule

[14] **EC-TYPE EXAMINATION CERTIFICATE No.:** DNV 13 ATEX 2434X

Rev. 2

Certificate History

Revision	Description	Report no.	Issue date
-	Original certificate	2013-3057 Rev. 1	2013-04-16
1	Extend electrical ratings from 600V/60A to 600V/200A. Minor drawing changes not impacting safety.	2013-3057 Rev. 2	2013-08-21
2	Extend electrical ratings from 600V/60A to 1000V/200A. Model number modified to include Model 430, Low Voltage Electrical Optical Slip Ring (LVEOSR) designation changed to Low Voltage Swivel (LVS)	2013-3057 Rev. 3	2015-08-05

[15] Description of Equipment or Protective System

The Model 430/430-X is a Low Voltage Swivel (LVS) manufactured by Focal Technologies Corporation (FTC) for use in offshore environments. The purpose of an LVS is to maintain continuous electrical and optical connection between cables fixed to a stationary structure and cables fixed to a rotating structure. The LVS is to be installed within a swivel stack assembly that will be installed offshore.

The enclosure is flameproof (Ex d) and is fitted with increased safety (Ex e) junction boxes on the ship side (rotary side). Field connections are made via Ex e certified terminals. All blanking elements and cable glands are Ex certified.

Some units will be provided with pass through capability for intrinsic safety connections. These units will include [ib] in the marking string and will include Ui, Ii, Ci, and Li parameters on the marking plate.

The ambient limits for the Model 430-X are -20°C to +60°C. Depending on end user requirements, any ambient range within these limits may appear on the product marking plate.

Type Identification

Model 430-X

Marking Details

Ex de IIB T5 Gb (without heater, without I.S. circuits)

Ex de [ib] IIB T5 Gb (without heater, with I.S. circuits)

Ex de IIB T4 Gb (with heater, without I.S. circuits)

Ex de [ib] IIB T4 Gb (with heater, with I.S. circuits)

Electrical Data

1000V, 200A maximum

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[16] **Project No.:** PRJC-385488-2012-PRC-USA

Descriptive Documents

Number	Title	Rev.	Date
430-0183-00	Intrinsically Safe Compliance Drawing	3	2015-06
430-5901-00	Shaft, Schedule	5	2015-06
430-5902-00	Lower Sleeve, Schedule	6	2015-06
430-5903-00	Upper Sleeve, Schedule	2	2015-06
430-5904-00	Label, Schedule	3	2015-06
430-5905-00	Flamepath Drawing	4	2015-06
430-7006-00	Flameproof Low Voltage Electrical Optical Slip Ring Installation	6	2015-06
704-0002-06	Hazloc Matric	2	2015-06

Routine Tests

- 1) A routine overpressure pressure test of at least 9 bar shall be applied to each enclosure in accordance with the requirements of EN 60079-1:2007 Clause 15.1.3. There shall be no rupture or deformation at the conclusion of this test.
- 2) A routine dielectric test shall be performed on each unit for a duration of at least 60s. For intrinsically safe circuits, the test voltage shall be 500V. For all other circuits, the test voltage shall be 1500V or $2U + 1000V$, whichever is greater. There shall be no dielectric breakdown during this test.
- 3) For units with intrinsically safe passes (marked with [ib]), the internal capacitance (Ci) and internal inductance (Li) of each unit shall be determined. The values measured shall appear on the label.

[17] **Special Conditions for Safe Use**

- 1) Repairs of the flameproof joints on the Model 430/430-X must be made in accordance with structural specifications provided by the manufacturer. Repairs must not be made on the basis of the values provided in Table 1 or 2 of EN 60079-1.
- 2) The location and size of the threaded entries are specified on the installation drawing that is referenced on the equipment label.
- 3) Threaded entries shall be fitted with suitable ATEX certified Ex d cable glands or blanking plugs. Where thread adapters are used, they shall be ATEX certified Ex d and shall not be used in conjunction with blanking elements.
- 4) Property class of cover bolts must be at least A*-70 according to Annex F of EN 60079-1: 2007.
- 5) For units marked with [ib], the LVS may only transfer intrinsically safe circuits corresponding to the I.S. electrical parameters that are shown on the equipment label.

[18] **Essential Health and Safety Requirements**

See part 9 of this certificate

END OF CERTIFICATE

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 300.000. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.