1 EU-TYPE EXAMINATION CERTIFICATE

2 Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

3 EU-Type Examination Certificate Number **LOM 21ATEX1013X**

4 Product: Load cells
Types BBR, BBF, SBR, and DDR

5 Manufacturer: Pavone Sistemi SRL

6 Address: Via Tiberio Bianchi, 11/13/15
20863 Concorezzo MB
ITALY

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

8 Laboratorio Oficial J.M. Madariaga (LOM), Notified Body number 0163, 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 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 Annex II to the Directive.
The examination and test results are recorded in confidential Report No **LOM 20.001T**

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

- Standards **EN IEC 60079-0:2018** **EN 60079-11:2012** **EN 60079-31:2014**

except in respect of those requirements listed at item 18 of the schedule.

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

11 This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of the product shall include the following:

II 1G Ex ia IIC T4…T6 Ga
II 1D Ex ia IIIC T85 °C Da
II 1D Ex ta IIIC T85 °C Da

Getafe,
Digitally signed by:
GARCIA TORRENT FRANCISCO JAVIER - 05356542A
2021.06.11 17:02:24 +02'00'

Certification committee

RCPCER 25.7/5

ENAC CERTIFICACIÓN Nº 159/C-PR360
UNIVERSIDAD POLITÉCNICA DE MADRID
(Real Decreto 334/1992 de 3 de Abril - BOE 1992-04-29)
Eric Kandel, 1 – 28906 GETAFE (MADRID) • (34) 910 679 825 • lom@lom.upm.es

13 SCHEDULE

14 EU-Type Examination Certificate number: **LOM 21ATEX1013X**

15 Description of product

Strain gauges load cells incorporating a factory-installed connecting cable.

These load cells can be used either with intrinsically safe type of protection in atmospheres of flammable gases or dusts, or with protection by enclosure type of protection in flammable dust environments. They have a degree of protection IP68.

Variants and characteristics:

Type	Working mode	Nominal load	Input impedance Ω	Output impedance Ω	Supply voltage V_{DC} or V_{AC}
BBR	Flexion	5… 500kg	400±20… 1150±60	350±3… 1000±9	2…22
BBF	Flexion	15… 1500kg	400±20… 1150±60	350±3… 1000±9	2…22
SBR	Shear	300… 10000kg	400±20… 1150±60	350±3… 1000±9	2…22
DDR	Shear	5… 100t	800±100	700±10	2…22

Specific parameters of the type of protection “Ex i”:

		Pi			
		BBR	BBF	SBR	DDR
Ta ≤ 40ºC	Ex ia IIC T4 Ex ia IIIC T85ºC	2.5 W	2.5 W	1.3 W	1.3 W
	Ex ia IIC T5	1.7 W	1.7 W	0.8 W	0.6 W
	Ex ia IIC T6	0.56 W	0.56 W	0.53 W	0.4 W
Ta ≤ 60ºC	Ex ia IIC T4 Ex ia IIIC T85ºC	2.1 W	2.1 W	1.2 W	1.2 W

The permanent cables mounted in factory of 4 or 6 wires have a capacitance between conductors up to 144 pF/m, and inductance up to 0.8 uH/m. These values are taken into account as distributed parameters for the computation of admissible values in the installation of intrinsic safety circuits.

Specific parameters of the type of protection “Ex ta”: Umax: 15 V, Imax: 0.1 A
For the “Ex ta” type of protection the surface temperature as a function of the ambient temperature is:
T85ºC for Ta ≤ 40 ºC
T105ºC for Ta ≤ 60 ºC

Ambient temperature: -20ºC ≤ Ta ≤ +60ºC

16 Report number **LOM 20.001T**

17 Specific conditions of use

When the load cells are used with a type of protection "Ex ta" cable and the cells themselves must be protected mechanically. Also the supply to the load cells must be fitted with a protective device with a maximum current of 0.1 A and a breaking capacity of 10 kA.

18 Essential Health and Safety Requirements

Essential Health and Safety Requirements (EHSRs) are covered by the standards listed at item 9.

19 Drawings and documents

Number	Sheets	Issue	Date	Description
MH01-05-19	16	0	2019-05-02	Technical dossier & User manual

LABORATORIO OFICIAL J. M. MADARIAGA

1 TYPE EXAMINATION CERTIFICATE

2 Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 2014/34/UE

3 Type Examination Certificate Number **LOM 21ATEX4014**

4	Product	Load cells Types BBR, BBF, SBR, and DDR
5	Manufacturer	Pavone Sistemi SRL
6	Address	Via Tiberio Bianchi, 11/13/15 20863 Concorezzo MB ITALY

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

8 Laboratorio Oficial J.M. Madariaga (LOM) 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 Annex II to the Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014
The examination and test results are recorded in confidential Report No. **LOM 20.001T**

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

- Standards **EN IEC 60079-0:2018** **EN 60079-15:2010** **EN 60079-31:2014**

except in respect of those requirements listed at item 18 of the schedule.

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

11 This Type Examination Certificate refers only to the design of the specified equipment and not to specific items of equipment subsequently manufactured.

12 The marking of the product shall include the following:

II 3G Ex nA IIC T6 Gc
II 3D Ex tc IIIC T85 ºC Dc

Getafe
Digitally signed by:

Certification committee

RCPCER 25.16/5

UNIVERSIDAD POLITÉCNICA DE MADRID
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13 SCHEDULE

14 Type Examination Certificate number: **LOM 21ATEX4014**

15 Description of product

Strain gauges load cells incorporating a factory-installed connecting cable.

These load cells can be used either with non-sparking "nA" type of protection in atmospheres of flammable gases, or with protection by enclosure type of protection in flammable dust environments. They have a degree of protection IP68

Variants and characteristics

Type	Working mode	Nominal load	Input impedance Ω	Output impedance Ω	Supply voltage V_{CC} o V_{CA}
BBR	Flexion	5…500 kg	400±20…1150±60	350±3…1000±9	2…22
BBF	Flexion	15…1500 kg	400±20…1150±60	350±3…1000±9	2…22
SBR	Shear	300…10000 kg	400±20…1150±60	350±3…1000±9	2…22
DDR	Shear	5…100 t	800±100	700±10	2…22

Specific parameters of the types of protection: Maximum supply voltage: 22 V

Ambient temperature -20ºC ≤ Ta ≤ +60ºC

16 Report number **LOM 20.001T**

Individual tests.
Each manufactured unit must be submitted the dielectric strength tests indicated in section 23.2.1 of EN 60079-15:2010 at an RMS voltage of 500V, or alternative test at 840V during at least 100 ms.

17 Specific conditions of use

None

18 Essential Health and Safety Requirements

Essential Health and Safety Requirements (EHSRs) are covered by the standards listed at item 9

19 Drawings and documents

Number	Sheets	Issue	Date	Description
MH01-05-19	16	0	2019-05-02	Technical dossier & User manual