



## EU-TYPE EXAMINATION CERTIFICATE

- 1 Equipment or Protective System Intended for use in Potentially Explosive Atmospheres  
Directive 2014/34/EU
- 2 EU-Type Examination Certificate Number **LOM 17ATEX1003X** issue **0**
- 3 Product Load cells  
Types 190i, 300, 340, 350, 420, 450, 460, 650, 740, 750
- 4 Manufacturer Técnicas de Electrónica y Automatismos S.A.
- 5 Address Espronceda, 180-176  
080018 Barcelona  
SPAIN
- 6 This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- 7 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 16.704M
- 8 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
- 9 Standards **EN 60079-0:2012/A11:2013** **EN 60079-11:2012**  
**EN 60079-26:2015** **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,

FERNANDEZ RAMON,  
CARLOS (FIRMA)  
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Head of certification committee

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UNIVERSIDAD POLITÉCNICA DE MADRID  
ENSAYOS E INVESTIGACIONES DE MATERIALES Y EQUIPOS PARA ATMÓSFERAS EXPLOSIVAS Y MINERÍA  
( Real Decreto 334/1992 de 3 de Abril - BOE 1992-04-29)







# LABORATORIO OFICIAL J. M. MADARIAGA

## 13 SCHEDULE

14 EU-Type Examination Certificate number: **LOM 17ATEX1003X**

### 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 $\Omega$	Output impedance $\Omega$	Supply voltage $V_{CC}$ o $V_{CA}$
190i	flexion	15...400 kg	400±20...1150±60	350±3...1000±9	2...22
300	flexion	5...500 kg	400±20...1150±60	350±3...1000±9	2...22
340	flexion	15...1500 kg	400±20...1150±60	350±3...1000±9	2...22
350	Shear	300...10000 kg	400±20...1150±60	350±3...1000±9	2...22
420	flexion	1...100 t	800±100	700±10	2...22
450	shear	2...20 t	800±100	700±10	2...22
460	shear	5...100 t	800±100	700±10	2...22
650	shear	250...7500 kg	400±20...1150±60	350±3...1000±9	2...22
740	compression	10...1000 t	800±100	700±10	2...22
750	shear	7.5...30 t	800±100	700±10	2...22

Specific parameters of the type of protection "Ex i"

$P_i$	190i	300	340	350	420	450	460	650	740	750
Ex ia IIC T4 / Ex ia IIIC	2.6 W	2.5 W	2.5 W	1.3 W	1.3 W	1.3 W	1.3 W	1.3 W	1.3 W	1.3 W
Ex ia IIC T5	1.7 W	2.5 W	2.5 W	0.8 W	0.5 W	0.6 W	0.6 W	0.8 W	0.6 W	0.6 W
Ex ia IIC T6	0.56 W	1.69 W	1.69 W	0.53 W	0.2 W	0.4 W	0.4 W	0.53 W	0.2 W	0.4 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": Maximum supply voltage: 25 V

### 16 Report number 16.704M

### 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 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
-	41	1	2017-02-15	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/EU

3 Type Examination Certificate Number **LOM 17ATEX4004**

issue **0**

4 Product Load cells  
Types 190i, 300, 340, 350, 420, 450, 460, 650, 740, 750

5 Manufacturer Técnicas de Electrónica y Automatismos S.A.

6 Address Espronceda, 180-176  
080018 Barcelona  
SPAIN

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. 17.704M

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

- Standards **EN 60079-0:2012/A11:2013** **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 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 3G Ex nA IIC T6 Gc  
II 3D Ex tc IIIC T85 °C Dc

Getafe

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CARLOS (FIRMA)  
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Head of certification committee

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(Real Decreto 334/1992 de 3 de Abril - BOE 1992-04-29)



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# LABORATORIO OFICIAL J. M. MADARIAGA

## 13 SCHEDULE

14 Type Examination Certificate number: **LOM 17ATEX4004**

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 $\Omega$	Output impedance $\Omega$	Supply voltage $V_{CC}$ o $V_{CA}$
190i	flexion	15...400 kg	400±20...1150±60	350±3...1000±9	2...22
300	flexion	5...500 kg	400±20...1150±60	350±3...1000±9	2...22
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740	compression	10...1000 t	800±100	700±10	2...22
750	shear	7.5...30 t	800±100	700±10	2...22

Specific parameters of the types of protection “: Maximum supply voltage: 25 V

16 Report number **17.704M**

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

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