

# CESI

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# CERTIFICATE



## [1] SUPPLEMENTARY EU-TYPE EXAMINATION CERTIFICATE

[2] **Equipment or Protective System intended for use  
in potentially explosive atmospheres  
Directive 2014/34/EU**

[3] Supplementary EU-Type Examination Certificate number:

**CESI 03 ATEX 094 X/02**

[4] Product: Vibrations transducer, type T-NC/8-API

[5] Manufacturer: **CEMB S.p.A**

[6] Address: Via Risorgimento, 9 I-23826 Mandello del Lario (LC) - Italy

[7] This supplementary certificate extends EC-Type Examination Certificate CESI 03 ATEX 094 to apply to products designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to..

[8] CESI, notified body n. 0722 in accordance with Article 17 of the Directive 2014/34/EU of the Parliament and Council of 26 February 2014, 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 report n. EX-B9016073.

[9] In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016

[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 EU-TYPE EXAMINATION CERTIFICATE relates only to the design, examination and tests of the specified equipment or protective system in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

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

II 1G Ex ia IIC T6 or T5 Ga

This certificate may only be reproduced in its entirety and without any change, schedule included.

Date 05.08.2019 - Translation issued the 5<sup>th</sup> 08.2019  
(Revision 1 of the Extension 02/19 issued 9<sup>th</sup> April 2019)

Prepared  
Guido Prazzoli

Verified  
Mirko Balaz

Approved  
Roberto Piccin

*Guido Prazzoli* *Mirko Balaz*

Page 1/4

ACCREDIA  
ENTE ITALIANO DI ACCREDITAMENTO

PRD N. 018B  
Membro degli Accordi di Mutuo  
Riconoscimento EA, IAF e ILAC  
Signatory of EA, IAF and ILAC  
Mutual Recognition Agreements

**CESI** S.p.A.  
Testing & Certification Division  
Business Area Certification  
Il Responsabile

*Roberto Piccin*

*Roberto Piccin*

Schema di certificazione

# CESI-ATEX

ATEX B6003477-2-EN

[13]

## Schedule

[14] SUPPLEMENTARY EU-TYPE EXAMINATION CERTIFICATE n. CESI 03 ATEX 094 X/02

[15] **Description of the variation to the product**

*Variation 2.1:* Added complementary components (*cable and sensor*).

*Variation 2.2:* Updating of electrical characteristics.

*Variation 2.3:* Minimum ambient temperature extended from -20 °C up to -30 °C.

*Variation 2.4:* Standards update.

*Variation 2.5:* Updating to Directive 2014/34/UE.

*Variation 2.6:* Update special conditions for safe use; symbol "X" added to certificate reference.

### Description of equipment

The **T-NC/8-API** converter, together with **ST-NC/8** sensor and **CPT-NC/8** cable, measures the relative vibrations or axial displacement of a shaft with respect to a support. The output is a negative voltage value proportional to the target distance.

The operating principle of the equipment is based on the generation of eddy current, in the target machinery to be monitored, by means of a coil powered at high frequency.

The Sensor and Cable have the following characteristics:

- Sensor **ST-NC/8**, consisting of one coil: L = 80 µH max; R = 4 Ω min

- Cable **CPT-NC/8** and extension cable (*FEP RG180 coaxial*): C = 1 nF; L = negligible; length max 12m

The **T-NC/8-API** product is designed for installation in Zone 0 (*enclosed in a suitable stainless steel housing*), Zone 1 and Zone 2.

The equipment has been, previously, assessed and marked in compliance with the following standards:

EN 60079-0:2009, EN 60079-11:2007, EN60079-26:2007.

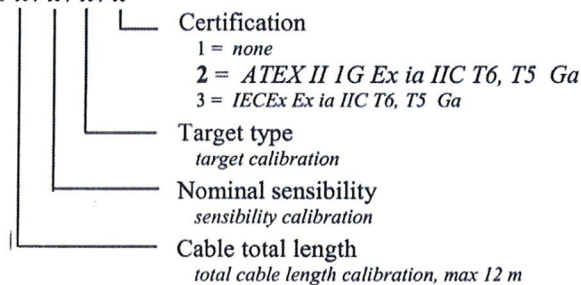
With this Supplement the Vibrations Transducer **T-NC/8-API** is re-assessed and marked on the basis of the standards: EN 60079-0:2012+A11:2013 and EN 60079-11:2012

### Identification of the equipment T-NC/8-API

The detail of the code is indicated in the Descriptive documents of the product.

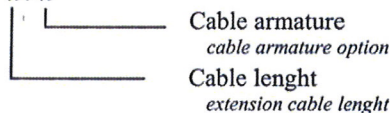
#### Converter

**T-NC/8-API/x/x/x/x**



#### Extension cable

**CPT-NC/8/x/x**



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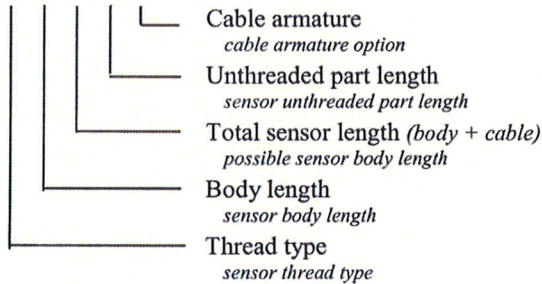
[13]

## Schedule

[14] SUPPLEMENTARY EU-TYPE EXAMINATION CERTIFICATE n. CESI 03 ATEX 094 X/02

Sensor

*ST-NC/8/x/x/x/x/x*



**Electrical characteristics**

Intrinsically safe circuits

		Terminals	Electric parameters	
		<i>Max value terminals 1-2-3</i>		
Power supply	1-2	U <sub>i</sub> = 28 V		U <sub>i</sub> = 26.6 V
		I <sub>i</sub> = 120 mA		I <sub>i</sub> = 135 mA
Output	2-3	P <sub>i</sub> = 840 mW		P <sub>i</sub> = 900 mW
		C <sub>i</sub> = 30 nF		
		L <sub>i</sub> = 200 μH		
Sensor coaxial connector	4	Sensor ST-NC/8	U <sub>o</sub> = 28 V	
			I <sub>o</sub> = 120 mA	
		P <sub>o</sub> = 840 mW		
		Cable CPT-NC/8	C <sub>o</sub> = 2 nF	
			L <sub>o</sub> = 90 μH	
L <sub>o</sub> /R <sub>o</sub> = 40 μH/Ω				

The equipment shall be powered by associated apparatus, certified in accordance with EN 60079-0 and EN 60079-11 with the limits of the above electrical characteristics.

**Ambient temperature of use**

The T-NC/8-API shall be installed in environments with an ambient temperature range between:

- 30 up to +60 °C for temperature Class T6
- 30 up to +80 °C for temperature Class T5

Sensor ST-NC/8 and cable CPT/NC/8 have operating temperature from -55 °C up to +175 °C.

The temperature Class depends of the target machinery temperature on which the product is fitted:

- T6 up to +60°C; T5 up to +80°C; T4 up to +110°C; T3 up to 175°C.

**Warning label**

*If installed in Zone 0 insert into appropriate stainless steel container*

*Electrostatic charging hazard Clean only with wet cloths or antistatic products*

[16] Report n. EX-B9016073

[13]

## Schedule

[14] **SUPPLEMENTARY EU-TYPE EXAMINATION CERTIFICATE n. CESI 03 ATEX 094 X/02**

**Routine tests**

The Manufacturer shall carry out the routine tests provided to clause 27 on the of EN 60079-0 standard

[17] **Special conditions for safe use (X)**

*With the updating to the new standards the following special condition for safe use is added; moreover the "X" symbol is added to the certificate reference number and beginning from this Supplement it becomes CESI 03 ATEX 094 X.*

The T-NC/8-API, shall be mounted within a suitable enclosure to prevent that moisture or dust accumulates on connection terminals and protects the equipment against damage and unauthorized operations. The enclosure shall have ingress protection IP20 or greater.

When the equipment is installed in Zone 0, it needs to be enclosed in a stainless steel enclosure or in other way, according to the regulations for use in Zone 0.

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

Compliance with the Essential Health and Safety Requirements is not affected by these variations and are assured by compliance to the following standards:

- EN 60079-0:2012/A11:2013 – Explosive atmospheres – Part 0: Equipment – General requirements.
- EN 60079-11:2012 - Explosive atmospheres – Part 11: Equipment protection by intrinsic safety "i".

In addition, the following EHSRs (*ref. ANNEX II of the Directive*) are considered relevant for this product:

Clause	Subject	Compliance
1.2.7.	Protection against other hazards	Manufacturer responsibility
1.2.8	Overloading of equipment	User/Installer responsibility
1.4.	Hazards arising from external effects	User/Installer responsibility

[19] **Descriptive documents (prot. EX-B9007082)**

- n. I56PRD Rev. 3, pg. 11	dated 12.03.2019
- n. I57PRD Rev. 3, pg.7	dated 18.02.2019
- n. I58PRD Rev. 3, pg 10	dated 18.02.2019
- n. I59PRD Rev. 3, pg. 18	dated 12.03.2019
- n. I007UHWS Rev. 0, pg. 4	dated 18.02.2019
- FAC-SIMILE EU Declaration of Conformity, pg. 2	

One copy of all documents is kept in CESI files.

**Certificate history**

Issue N°	Issue Date	Summary description of variation
02 - Revision 1	05/08/2019	Editorial review: correcting some unit of measurement of electrical characteristics
02	09/04/2019	Extension of the certificate to complementary components; updating of electrical characteristics; minimum ambient temperature extended up to -30 °C; standard update; updating to the Directive 2014/34/UE; added "X" symbol for special conditions for safe use.
01	30/03/2011	Construction modifications; standard updating; new electrical characteristics; new temperature Class T6.
00	10/05/2003	First Issue of the Certificate



## EXTENSION n. 01/11



to EC-Type Examination Certificate CESI 03 ATEX 094

Equipment: Vibrations transducer, type T-NC/8-API  
Manufacturer: CEMB S.p.A  
Address: Via Risorgimento, 9 – 23826 Mandello del Lario (LC) - Italy


### Admitted variation

- Conformity to new edition of harmonized European standards;
- Constructional modifications;
- New electrical characteristics
- New temperature class T6

### Conformity to new edition of the harmonized European standards and type of protection

The equipment subject of the certificate CESI 03 ATEX 094 and annexed extension are conform to the standards:  
EN 60079-0: 2009, EN 60079-11: 2007, EN 60079-26: 2007

the equipment shall be marked as follows:

 II 1G Ex ia IIC T6 or T5 Ga

This extension and annexed descriptive documents must be annexed to the EC-Type Examination Certificate CESI 03 ATEX 094.

This document may only be reproduced in its entirety and without any change.

date 30<sup>th</sup> March 2011 - translation issued the 30<sup>th</sup> March 2011

prepared Guido Prazzoli

verified Mirko Balaz

approved Fiorenzo Bregani

  
**CESI** S.p.A.  
Testing & Certification Division

# CESI

## EXTENSION n. 01/11

to EC-Type Examination Certificate CESI 03 ATEX 094

### Identification and description of the equipment

The vibrations transducer type T-NC/8-API consists of a demodulator that detects and measures continuously the vibration of rotating machinery through a sensor connected to the device

### Admitted constructional modifications

The vibrations transducer type T-NC/8-API 1 has been updated and implemented with new electronic components. is realized with new types of electronic components.

The constructional characteristics are detailed in the descriptive documents annexed to this extension.

Temperature class has been extended from T6

### Electrical characteristics

#### Intrinsically safe circuits

	Terminals	U	I	P
Supply	1 - 2	U <sub>i</sub> 28V	I <sub>i</sub> 100mA	P <sub>i</sub> 0,7W
Signal	2 - 3	U <sub>o</sub> 28V	I <sub>o</sub> 100mA	P <sub>o</sub> 0,7W

C<sub>i</sub> = 30nF    L<sub>i</sub> = 200μH

#### Intrinsically safe circuit to the sensor (RF connector)

U<sub>o</sub> = 28V

Co = 2nF

I<sub>o</sub> = 100mA

Lo = 60μH

Lo/Ro = 0.50 μH/Ω

C<sub>i</sub> = 80nF

Li = 110 μH

- Ambient temperature: -20 ÷ +60 °C    for temperature class T6

- Ambient temperature: -20 ÷ +80 °C    for temperature class T5

Report n. EX- B1010509.

### Routine tests

The manufacturer shall carry out the routine tests prescribed at clause 27 of EN 60079-0 and at clause 11 of EN 60079-11 standards.

### Descriptive documents (prot. EX- B1010576)

- Technical Note n. I59PRD02, rev.2 (pg. 19)	dated	23.03.2011
- Record 95265 n. I57PRD02, rev.2 (pg. 5)	dated	23.03.2011
- Record 87361 n. I58PRD02, rev.2 (pg. 8)	dated	23.03.2011
- Safety Instructions n. I56PRD02, rev. 2 (pg. 6)	dated	23.03.2011
- CE Declaration of Conformity (pg. 1)	dated	23.03.2011

One copy of all documents is kept in CESI files.

### Essential Health and Safety Requirements

The Essential Health and Safety Requirements are assured by compliance to the following standards:

- EN 60079-0: 2009 - Explosive atmospheres – Part 0: Equipment – General requirements.
- EN 60079-11: 2007 - Explosive atmospheres – Part 11: Equipment protection by intrinsic safety “i”.
- EN 60079-26: 2007 – Explosive atmospheres – Part 26: Equipment with equipment protection level (EPL) Ga.

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# CESI

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iscrizione CCIAA 00793580150

Registro Imprese di Milano  
Sezione Ordinaria  
N. R.E.A. 429222  
P.I. IT00793580150

Schema di certificazione

# CESI-ATEX

Il CESI è stato autorizzato dal governo italiano ad operare quale organismo di certificazione di apparecchi e sistemi destinati a essere utilizzati in atmosfera potenzialmente esplosiva con D.M. 1/3/1983, D.M. 19/6/1990, D.M. 20/7/1998 e D.M. 27/9/2000

ATEX 95/02

# CERTIFICATE



## [1] 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:

**CESI 03 ATEX 094**

[4] Equipment: **Vibration transducer T-NC/8-API**

[5] Manufacturer: **CEMB S.p.A.**

[6] Address: **Via Risorgimento 9, 23826 - Mandello del Lario (LC) - Italy**

[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] CESI, notified body n. 0722 in accordance with Article 9 of the 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 report n. EX-A3/016148.

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

**EN 50014: 1997 + A1..A2      EN 50020: 2002      EN 50284: 1999**

[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, examination and tests of the specified equipment or protective system in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

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

**⊕ II 1G      EEx ia IIC T5**

This certificate may only be reproduced in its entirety and without any change, schedule included.

Date May 10, 2003 - Translation issued the May 10, 2003

Prepared  
Francesco Esposito

Verified  
Damiano Damiano

Approved  
Ulisse Colombo

**CESI**

CENTRO ELETTROTECNICO SPERIMENTALE ITALIANO  
Business Unit Certificazione

Responsabile

[13]

## Schedule

[14] EC-TYPE EXAMINATION CERTIFICATE n. CESI 03 ATEX 094

[15] Description of equipment

The vibration transducer type T-NC/8-API is formed by a demodulator, that collect and measure continuously the vibrations of rotating machines, by an external sensor to connect to the device.

### Electrical characteristics

#### Parameters of the intrinsically circuits

	Terminals	Ui [V]	Ii [mA]	Pi [W]
Suppli	1-2	-26	90	0,59
Signal	2-3	20	60	0,30

Ci = 11 nF; Li = 90 μH

#### Parameters of the Ex-i output circuit to the sensor (connector RF)

Uo	:	-26V	Co	:	1080 pF
Io	:	90mA	Lo	:	20 μH
			Lo/Ro	:	2 μH / Ω

Ci : 11 nF  
Li : 200 μH

Ambient temperature : -20 ÷ 80°C

The intrinsically safe circuits, must be supplied by associated apparatus that respect the limits of the electrical characteristics above mentioned. The intrinsically safe circuits supplied by this device must respect the outputs limits above mentioned.

### Warning label

"Attention to the electrostatic charges: clean with wet clothes or antistatic product"

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[13]

## Schedule

[14] **EC-TYPE EXAMINATION CERTIFICATE n. CESI 03 ATEX 094**

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[16] **Report n.**

CESI EX-A3/016148.

### Routine tests

The manufacturer must carry out the routine tests prescribed at clause 24 of the EN 50014 standard.

### Descriptive documents (prot. EX-A3/016150)

- n. Technical Specification I59PRD01 Rev. 1	Dated	05.05.2003
- n. Safety Instructions I56PRD01 Rev. 1	Dated	05.05.2003
- n. Lateral Nameplate 62571-C Rev. 0	Dated	05.05.2003
- n. Top label 62570-C Rev. 0	Dated	05.05.2003
- n. Label 63577-C	Dated	05.05.2003
- n. Mechanical drawing 445003001	Dated	05.05.2003
- n. Mechanical drawing 140517270	Dated	05.05.2003
- n. Mechanical drawing 140515320	Dated	05.05.2003
- n. Production plan I57PRD01 Rev. 1	Dated	05.05.2003
- n. Production plan I58PRD01 Rev. 1	Dated	05.05.2003
- n. EC Declaration of Conformity	Dated	05.05.2003

One copy of all documents is kept in CESI files.

[17] **Special conditions for safe use**

None.

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

Assured by the conformity to the standards.