



# IECEX Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.: **IECEX CES 11.0019X** issue No.:0

Certificate history:

Status: **Current**

Date of Issue: **2011-06-01** Page 1 of 3

Applicant: **ATOS S.p.A.**  
via alla Piana, 57  
I - 21018 Sesto Calende (VA)  
**Italy**

Electrical Apparatus: **Explosion proof solenoid valves with integral digital electronic driver, series OZAI**  
*Optional accessory:*

Type of Protection: **Flameproof enclosures 'd'**

Marking: **Ex d IIC T6 or T5 Gb**

*Approved for issue on behalf of the IECEx  
Certification Body:*

Mirko Balaz

*Position:*

Head of IECEx CB

*Signature:  
(for printed version)*

*Date:*

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

**CESI**  
**Centro Elettrotecnico**  
**Sperimentale Italiano S.p.A.**  
**Via Rubattino 54**  
**20134 Milano**  
**Italy**



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Manufacturer: **ATOS S.p.A.**  
via alla Piana, 57  
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Additional Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

#### STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

**IEC 60079-0 : 2007-10** Explosive atmospheres - Part 0: Equipment - General requirements  
Edition: 5

**IEC 60079-1 : 2007-04** Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"  
Edition: 6

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

#### TEST & ASSESSMENT REPORTS:

*A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in*

Test Report:

[IT/CES/ExTR11.0006/00](#)

Quality Assessment Report:

[IT/CES/QAR10.0003/01](#)



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## Schedule

### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

Proportional solenoids with digital integrated electronic are used for directional, flow or pressure control valves, operating in hazardous areas with explosive or flammable environment.

Explosion proof solenoid valves with integral digital electronic driver type OZAI-AES-\*; OZAI-AERS-\*; OZAI-TERS-\*; OZAI-TES-\*; OZAI-LES-\* e OZAI-PES-\*

### Electrical characteristics:

Rated voltage: 24 V dc  $\pm$  10% or 21  $\div$  33 Vac rms ,

Rated power: 35 W[\*] ,

Ambient temperature range: -20°C to + 45°C (T6), and from - 20°C to +60°C (T5).

[\*] The power limitation is obtained by means of the integrated electronic regulator inside the equipment..

For further information see Annex.

### CONDITIONS OF CERTIFICATION: YES as shown below:

The flamepaths are specified in the manufacturer drawings. For information regarding the dimensions of the flameproof joints the manufacturer shall be contacted



## IECEx Certificate of Conformity

# CESI

Prot: B1021794

**Annex to certificate:** IECEx CES 11.0019X Issue No.0 of 2011-06-01  
**Applicant:** ATOS S.p.A.  
via alla Piana, 57; I - 21018 Sesto Calende (VA), Italy  
**Electrical Apparatus:** Explosion proof solenoid valves with integral digital electronic driver, series OZAI

### Description of equipment

Explosion proof solenoid valves with integral digital electronic driver type OZAI-AES-\*; OZAI-AERS-\*; OZAI-TERS-\*; OZAI-TES-\*; OZAI-LES-\* e OZAI-PES-\*.

Proportional solenoids with digital integrated electronic are used for directional, flow or pressure control valves, operating in hazardous areas with explosive or flammable environment. They are available in these versions:

#### Solenoids type OZAI-(1)-(2)-(3)/(4)/(5)

- (1) **AES**-\* for open loop valves, without transducers  
**AERS**-\* for close loop valves, predisposed for external pressure transducers, mounted in the system.  
**TERS**-\* for close loop valves, predisposed for pressure transducers mounted on the valves.  
**TES**-\* for close loop valves with internal position transducer .  
**LES**-\* for two stage close loop valves with internal position transducer plus predisposition for a second external position transducer.  
**PES**-\* for close loop control pumps with internal position transducer plus predisposition for a second external pressure transducer.
- (2) **-PS** with serial RS232 communication interface  
**-BC** with CAN-Bus communication interface - not available for **OZAI-PES** type  
**-BP** with PROFIBUS-DP communication interface - not available for **OZAI-PES** type
- (3) **-01** for single solenoid valves  
**-05** for double solenoid valves - not available for **AERS**, **TERS**, **LES** and **PES** types
- (4) only for **TES**, **LES** and **PES** types  
**/1** internal transducer characteristic, resolution 3,3 V/mm  
**/2** internal transducer characteristic, resolution 2,5 V/mm  
**/4** internal transducer characteristic, resolution 1,25 V/mm  
**/8** internal transducer characteristic, resolution 0,6 V/mm
- (5) - standard cable entrance M20 x 1,5 UNI 4535  
**/C5** predisposed for cable length 5 mt  
**/C10** predisposed for cable length 10 mt  
**/NPT** cable entrance 1/2" NPT ANSI B2.1 (ANSI/ASME B1.20.1)  
**/GK** cable entrance GK-1/2" UNI 6125  
**/M18** cable entrance M18 x 0,75 ISO 261

The solenoid housings are steel made, instead the electronic housings are alloy made:

- Solenoid housing: material type 11 S Mn Pb 30 UNI EN 10087
- Electronic housing: material type P-Al Si 1 Mg Mn UNI-9006/4 Ta 16

### Cable entries

The cable entry devices used on the enclosure shall be suitably certified according to the applicable standards.

### Electrical characteristics

Rated voltage: 24 Vdc  $\pm$  10% or 21÷33 Vac RMS

Rated power: 35 W[\*]

Ambient temperature: -20 ÷ +45 °C and -20 ÷ +60 °C

[\*] The power limitation is obtained by means of the integrated electronic regulator inside the equipment..

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Electrical characteristics (follows)

**Tab. I: max ambient temperature, temperature class**

Solenoid type	T amb. Ambient temperature max (°C)	Temperature class
OZAI-AES-** OZAI-AERS-** OZAI-TERS-** OZAI-TES-** OZAI-LES-** OZAI-PES-**	45	T6
OZAI-AES-** OZAI-AERS-** OZAI-TERS-** OZAI-TES-** OZAI-LES-** OZAI-PES-**	60	T5

**Tab. II: Supply voltages and Power consumption**

Solenoid Type	Power supply	Coil characteristics			Power (W)	Note
		R at 20 °C (Ω)	N° turns	Ø wire (mm)		
OZAI-AES-** OZAI-AERS-** OZAI-TERS-** OZAI-TES-** OZAI-LES-** OZAI-PES-**	24DC	3,2	620	0,60	35	Note 1

Coil insulation class, **class H**

**Note 1:** The power limitation is obtained by feeding the solenoid with current of 2500 mA, controlled by the electronic integrated driver.

Regulator characteristics:

- Power supply: stabilized 24 VDC +/- 10%  
Filtered and rectified 21 / 33 VRMS (2Vpp ripple max)
- Current supplied: I max = 2,5 A PWM square wave type
- Output protection: against short circuits

### Warning label

- "Warning – do not open when energized"
- For temperature class T5 (Tamb 60°C) - "Use cable s suitable for temperature > 90 °C".