# IECEx Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION
## IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

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|---|---|---|---|
| Certificate No.: | **IECEx CES 19.0021X** | Page 1 of 4 | Certificate history: |
| Status: | **Current** | Issue No: 0 | |
| Date of Issue: | 2019-11-29 | | |
| Applicant: | **Piusi S.p.A.**<br>Via Antonio Pacinotti, 16A<br>I-46029 Suzzara (MN)<br>**Italy** | | |
| Equipment: | **Electronic pulse flowmeter, series MK325 and MK325 Flammable liquid** | | |
| Optional accessory: | | | |
| Type of Protection: | **Flameproof enclosures 'd', constructional safety 'c'** | | |
| Marking: | **Ex db h IIB T6 Gb** | | |

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

Position: **Head of ExCB**

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 www.iecex.com or use of this QR Code.

Certificate issued by:

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

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Certificate No.: **IECEx CES 19.0021X**

Date of issue: 2019-11-29

Issue No: 0

Manufacturer: **Piusi S.p.A.**
Via Antonio Pacinotti, 16A
I-46029 Suzzara (MN)
**Italy**

Additional manufacturing locations:

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 equipment 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 60079-0:2017** Edition:7.0 | Explosive atmospheres - Part 0: Equipment - General requirements |
| **IEC 60079-1:2014-06** Edition:7.0 | Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d" |
| **ISO 80079-36:2016** Edition:1.0 | Explosive atmospheres - Part 36: Non-electrical equipment for explosive atmospheres - Basic methods and requirements |
| **ISO 80079-37:2016** Edition:1.0 | Explosive atmospheres - Part 37: Non-electrical equipment for explosive atmospheres - Non electrical type of protection constructional safety "c", control of ignition source "b", liquid immersion "k" |

This Certificate **does not** indicate compliance with 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/ExTR19.0020/00

Quality Assessment Report:

DE/TPS/QAR18.0005/01

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**EQUIPMENT:**
Equipment and systems covered by this Certificate are as follows:

Electronic pulse meters series MK325 are electro-mechanical apparatuses for flow rate measure of liquids. Two versions are foreseen for non-flammable fluids and one version for flammable fluids.
The equipment is made of a hydraulic part which adopt the type of protection “c” (constructive safety) and an electrical part, separated through a non-magnetic stainless-steel flat septum, which adopt the type of protection “d” (flameproof).
The hydraulic part consists of two coupled elliptical gears, provided with permanent magnets placed in a decentralized position with respect to the rotation axis. The fluid, when crosses the instrument, makes these gears to spin and is divided by them into small volumes of predefined size.
The electrical part consists of a flameproof enclosure holding two reed switches, one for each gear; they are driven by the magnets. The opening/closing of the switches create two 45° phase-shifted square waves; their counting allows to go back to the speed of rotation of the gears and hence to the fluid flow rate. The remote reading unit is not part of the apparatus.
The version for flammable fluids differs from that one for non-flammable fluids because of the clear separation between the Ex d enclosure and the enclosure of hydraulics. Such separation puts the boundaries of hydraulics in straight connection with the outside and avoids, in case of a fluid leakage, its possible entry in the electrical enclosure.
The three versions are identified by the following codes:
1) MK325 2-15
2) MK325 5-35
3) MK325 Flammable liquid
The first two versions are for non-flammable liquids with flow rate 2÷15 l/min (version 1) and flow rate 5÷35 l/min (version 2); The latter is for flammable liquids and flow rate 5÷35 l/min.

**SPECIFIC CONDITIONS OF USE: YES as shown below:**
• The equipment is not provided with an external earthing screw. The earthing shall be carried out using its connection to the inlet/outlet pipework. The effectiveness of the earthing connection shall be assessed before using the product.
• It is forbidden the opening of the equipment and the re-working of the flameproof joints by the user.
• The supply and transmission cable, inextricably connected to the counter, shall not be reduced in length below 3 meters.

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**Equipment (continued):**

**Electrical characteristics**

- Supply Voltage 3.3 ÷ 28 Vdc
- Maximum supply current 0.6 mA
- Fluid temperature range -10°C ÷ +40°C
- Inlet fluid pressure 10 ÷ 2000 kPa (0.1 ÷ 20 bar)
- Fluid viscosity 1 ÷ 2.2 mPa.s
- Ambient temperature -10°C ÷ +40°C
- Protection marking Ex db h IIB T6 Gb

**Electrical connection**

The equipment is furnished with the supply and signal transmission cable already connected, through a suitable gland. The connection of the free end of the cable, inextricably connected to the counter, shall be carried out in safe zone or suitably protected, using one of the types of protection foreseen by the standard IEC 60079-0.