CESI

CESI S.p.A.
Via Rubattino 54
I-20134 Milano - Italy
Tel +39 02 21251
Fax +39 02 21255440
e-mail: info@cesi.it
www.cesi.it

CERTIFICATE

[1] **EU-TYPE EXAMINATION CERTIFICATE**

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

[3] EU-Type Examination Certificate number:

CESI 19 ATEX 054 X

[4] Product: **Electronic pulse flowmeter series MK325**

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

[6] Address: **Via Pacinotti, 16/A**
46029 Suzzara - MN
Italy

[7] This product 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 17 of the Directive 2014/34/EU of the European Parliament and Council of 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 Product 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-B9021260.

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

EN IEC 60079-0:2018 **EN 60079-1:2014**
EN ISO 80079-36: 2016 **EN ISO 80079-37: 2016**

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 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 Product in accordance to the Directive 2014/34/EU. 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:

Ex II 2G Ex db h IIB T6 Gb

Date 2019/11/11 - Translation issued the 2019/11/11

Prepared	**Verified**	**Approved**
Tiziano COLA	Mirko BALAŽ	Roberto PICCIN

CESI S.p.A.
Testing & Certification Division
Business Area Certification
Il Responsabile
(Roberto Piccin)

CESI-ATEX

Schema di certificazione

ACCREDIA L'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

[13] # Schedule

[14] **EU-TYPE EXAMINATION CERTIFICATE n. CESI 19 ATEX 054 X**

[15] **Description of Product**

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.

Electrical and hydraulic characteristics

- Supply voltage	3.3 ÷ 28 Vdc
- Maximum supply current	0.6 mA
- Fluid temperature	-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
- ATEX marking	II 2G
- 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 EN 60079-0.

[16] **Report n. EX-B9021260**

Routine tests

The manufacturer is exempted from carrying out the routine overpressure test on the Ex d enclosures because the type test has been overcome at 1.88 MPa (18.8 bar) equal to 4 times the reference pressure of 0.47 MPa (4.7 bar).

[13] # Schedule

[14] **EU-TYPE EXAMINATION CERTIFICATE n. CESI 19 ATEX 054 X**

---

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

- 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.

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

Assured by conformity with the harmonized standards, by the manufacturer's risk assessment and by the fulfilment of the safety instructions.

[19] **Descriptive documents** (prot. EX-B9021259)

- Technical file of the equipment rev. 0 (207 pages)	dated	2019/09
- Installing use and maintenance instructions (20 pages)	dated	2019/11
- Technical drawing EX033 rev. 0 (2 pages)	dated	2019/08/29
- Technical drawing EX034 rev. 0	dated	2019/10/04
- Technical drawing EX035 rev. 0 (2 pages)	dated	2019/10/04
- Technical drawing EX036 rev. 0	dated	2019/11/11
- Technical drawing EX072 rev. 0 (2 pages)	dated	2019/10/03
- Technical drawing EX073 rev. 0	dated	2019/10/03
- Datasheets of cable gland, cable and marking labels (24 pages)		

One copy of all documents is kept in CESI files.