Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin
Nationales Metrologieinstitut

(1) # EU-TYPE EXAMINATION CERTIFICATE

(Translation)

(2) Equipment or Protective Systems Intended for Use in Potentially Explosive Atmospheres - **Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number:

PTB 05 ATEX 2026 X **Issue: 1**

(4) Product: Variable area flow meters, type series VA40/./../K.

(5) Manufacturer: KROHNE Messtechnik GmbH

(6) Address: Ludwig-Krohne-Straße 5, 47058 Duisburg, Germany

(7) This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 17 of the 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 the confidential Test Report PTB Ex 20-20043.

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

EN IEC 60079-0:2018 **EN 60079-11:2012**

(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 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:

II 2 G Ex ia IIC T6...T1 Gb

Konformitätsbewertungsstelle, Sektor Explosionsschutz
On behalf of PTB:

Dr.-Ing. F. Lienesch
Direktor und Professor

Braunschweig, July 1, 2020

PHYSIKALISCH-TECHNISCHE BUNDESANSTALT 24

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(13) # SCHEDULE

(14) **EU-Type Examination Certificate Number PTB 05 ATEX 2026 X, Issue: 1**

(15) Description of Product

The variable area flow meters, type series VA40/../../K. are used to measure the volume flow rate of flammable and non-flammable gases and liquids. The flow meters may be equipped with up to two separately certified, adjustable limit-value transmitters which are operated with separate intrinsically safe circuits.

For permissible ambient/medium temperatures reference is made to the following table 1:

limit-value transmitter, type	**maximum permissible ambient / medium temperatures in °C**								
	supply								
	type 1			type 2			type 3		
	temperature class								
	T6	T5	T4...T1	T6	T5	T4...T1	T6	T5	T4...T1
TG21	70	85	95	60	75	95	35	50	70
	temperature class								
	T6								
MS14/.	85								

Table 1: Maximum permissible ambient/medium temperature in °C

The indicated values apply provided that:

- The variable area flow meters are operated in their intended mounting position.
- The variable area flow meters are not exposed to heat radiation.

The limit-value transmitter type MS14/. is designed as a simple apparatus according to EN 60079-11, thus an Ex-marking is not necessary.

The limit switch, type TG21 is used to contactlessly detect the position of magnetic floats in non-ferromagnetic pipings. It consists of a separately certified slot-type initiator and an additional EMC-filter. The limit switch may be operated alternatively as break or make contact element with intrinsically safe circuits. It is connected by means of a connection box.

SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 05 ATEX 2026 X, Issue: 1

Electrical data:

Supply circuits:
(terminals + and -)

type of protection Intrinsic Safety Ex ia IIC
only for connection to certified intrinsically safe circuits with the maximum values according to the following table 2:

		maximum values per circuit				
limit-value transmitter type	supply	U_i [V]	I_i [mA]	P_i [mW]	L_i [µH]	C_i [nF]
TG21	type 1	16	25	34	150	165
	type 2	16	25	64	150	165
	type 3	16	52	169	150	165
MS14/.		30	100	1000	≈ 0	≈ 0

Table 2: Maximum values per circuit

Changes with respect to previous editions

- Adaption to the current state of standards
- Revision of the safety description and the supplementary Ex-manual
- Integration of the limit-value transmitter TG21 in this EU-Type Examination Certificate (previously PTB 05 ATEX 2028 U)
- Adaption of the special conditions regarding electrostatic charge

(16) Test Report PTB Ex 20-20043

(17) Specific conditions of use

1. When flammable media are used, the variable area flow meters, type series VA40/../../K. shall be included in the recurring pressure test of the process piping.

2. For permissible ambient/medium temperatures reference is made to table 1 (see also operating instructions).

3. To avoid electrostatic charge, the flow meters and the metallic cap of the limit switch TG21 shall be connected to the local equipotential bonding system as specified in the operating instructions. The connection box shall be provided with a warning label which points to the danger of a possible electrostatic charge.

4. When measuring liquids or dust-free gases respectively, the flow rate shall not exceed fivefold the nominal flow rate. The max. permissible operating pressure PS printed on the type plate shall be observed. The conductivity of liquids shall be at least 1000 pS/m. Gases containing solid particles or liquid droplets are not permitted.

SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 05 ATEX 2026 X, Issue: 1

5. The operation with flammable media outside of the atmospheric conditions (-20 °C ≤ T ≤ +60 °C and 0.8 bar ≤ P ≤ 1.1 bar) is permissible provided that these media do not form explosive medium/air-mixtures. The operating company is responsible for the safe operation of the measuring system as regards temperatures and pressures of the media used.

(18) Essential health and safety requirements

Met by compliance with the aforementioned standards.

According to Article 41 of Directive 2014/34/EU, EC-type examination certificates which have been issued according to Directive 94/9/EC prior to the date of coming into force of Directive 2014/34/EU (April 20, 2016) may be considered as if they were issued already in compliance with Directive 2014/34/EU. By permission of the European Commission supplements to such EC-type examination certificates and new issues of such certificates may continue to hold the original certificate number issued before April 20, 2016.

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On behalf of PTB:

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Braunschweig, July 1, 2020