



[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 **IBExU15ATEX1091 X** | Issue 1

[4] Product: **Incremental encoder**
Type: 8.7020..., 8.7034..., 8.7073..., 8.7078..., 8.7083..., 8.7088...

[5] Manufacturer: Fritz Kübler GmbH

[6] Address: Schubertstraße 47
78054 Villingen-Schwenningen
GERMANY

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

[8] IBExU Institut für Sicherheitstechnik GmbH, notified body number 0637 in accordance with Article 17 of 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 IB-16-3-153/2.

[9] Compliance with the essential health and safety requirements has been assured by compliance with: EN 60079-0:2012 + A11:2013, EN 60079-1:2014, EN 60079-31:2014
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 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. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

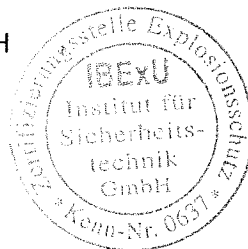
[12] The marking of the product shall include the following:

- ⊕ II 2 G Ex db IIC T4 Gb or
- ⊕ II 2 G Ex db IIC 120 °C (T4) Gb or
- ⊕ II 2 G Ex db IIC T6 Gb or
- ⊕ II 2 D Ex tb IIIC T 135 °C - T 85 °C Db

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By order

Dipl.-Ing. [FH] Henker



- Seal -
(notified body number 0637)

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Certificates without signature and seal are not valid. Certificates may only be duplicated completely and unchanged. In case of dispute, the German text shall prevail.

Freiberg, 2016-12-01

[13] **Schedule**

[14] **Certificate number IBExU15ATEX1091 X | Issue 1**

[15] **Description of product**

The encoders mentioned under [4] used for the conversion of a rotary motion into equivalent electric or digital pulses. They are designed for use in for use in industry hazardous areas of Zone 1 and Zone 21. The plane cylindrical enclosure and the shaft are made of aluminum or optionally stainless steel. The shaft rotates in rolling bearings. Together with the flange and the cap, the shaft forms a flameproof shaft joint on one side. Electrical connection is realized by an integrated connecting cable (open ended line) which is brought-out by means of a separately certified cable gland.

The encoders of series 8.7020..., 8.7034..., 8.7073..., 8.7078..., 8.7083..., 8.7088... are available in the 3 following variants, which differ in terms of speed, temperature class and the required IP protection, based on the results of the test reports IB-16-3-153/2 and IB-16-8-059.

Type of protection	Speed in min ⁻¹	Explosion protection marking	
IP67	max. 3000	⊕ Ex II 2 G Ex db IIC T4 Gb	II 2 D Ex tb IIIC T135 °C Db
	max. 2000	⊕ Ex II 2 G Ex db IIC 120 °C (T4) Gb	or II 2 D Ex tb IIIC T120 °C Db
IP65	max. 6000	⊕ Ex II 2 G Ex db IIC T6 Gb	or II 2 D Ex tb IIIC T85 °C Db

Parameter

Geometry		Diameter	Length
		70 mm	125 mm
Mechanical Parameter			
• Max. rotation speed (continuous operation)		6000 min ⁻¹	
• Weigth		ca. 1.3 kg	
• Material	Drive shaft	Aluminum / optionally Stainless steel	
	Enclosure	Aluminum / optionally Stainless steel	
• Starting torque		< 0.05 Nm	
• Screws flange cover	Thread	M4 x 0.7	
	Cohesiveness	A2-70	
	Locked torque	1.5 Nm	
Electrical Parameter			
• Max. rated voltage		30 V DC	
• Max. rated current		130 mA	
• Max. power dissipation		4 W	
• Max. rated conductor cross-section		12 x 0.50 mm ²	
Temperatures			
• Ambient temperature (T _{amb})		-40 °C to +60 °C	

Amendments to issue 0 of this certificate

- Adapt the temperature classes to current temperature values
- Update of the marking

[16] **Test report**

The test results are recorded in the confidential test reports IB-16-3-153/2 of 2016-12-01 and IB-16-8-059 of 2016-11-11.

The test documents are part of the test report and they are listed there.

Summary of the test results

The encoders of the type series 8.7020..., 8.7034..., 8.7073..., 8.7078..., 8.7083..., 8.7088... [4] to comply the requirements of explosion protection for equipment of Group I and Category M2, type of protection Flameproof enclosure for explosive atmospheres of explosion group I and the gas group IIC as well as the type of protection of the equipment dust ignition protection by enclosure "t".

[17] **Specific conditions of use**

- The gap widths and lengths remained below / exceeded those specified in EN 60079 1:2007, table 2. They are documented in the instruction manual.
Repairs on the flameproof joints may only be made in accordance with the manufacturer's structural specifications. Repair on the basis of the values in tables 1 and 2 of EN 60079-1 is not permitted.
- The equipotential bonding respectively the grounding shall be ensured by the cultivation of the encoder to the overall system.

[18] **Essential health and safety requirements**

Confirmed by compliance with standards (see [9]).

[19] **Drawings and Documents**

The documents are listed in the test report.

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Freiberg, 2016-12-01