



## (1) EC-TYPE-EXAMINATION CERTIFICATE (Translation)

(2) Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres - **Directive 94/9/EC**



(3) EC-type-examination Certificate Number:

**PTB 10 ATEX 1037 X**

(4) Equipment: Electric explosion-proof linear actuator ExPlus -..... - .. - - - ..

(5) Manufacturer: Schischek GmbH

(6) Address: Mühlsteig 45, 90579 Langenzenn, Germany

(7) This equipment and any acceptable variation thereto are 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 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the confidential assessment and test report PTB Ex 10-10170.

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

**EN 60079-0:2006**

**EN 60079-1:2004**

**EN 60079-11:2007**

**EN 61241-0:2006**

**EN 61241-1:2004**

**EN 61241-11:2006**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-type-examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

(12) The marking of the equipment shall include the following:

**II 2 (1) G Ex d [ia] IIC T6, T5 and T4**

**II 2 (1) D Ex tD [iaD] A21 IP66 T80 °C, T95 °C bzw. T130 °C**

Zertifizierungssektor Explosionsschutz

On behalf of PTB

Braunschweig, June 28, 2010

Dr.-Ing. U. Klausmeyer  
Direktor und Professor



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EC-type-examination Certificates without signature and official stamp shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by the Physikalisch-Technische Bundesanstalt. In case of dispute, the German text shall prevail.



(13)

## SCHEDULE

(14)

### EC-TYPE-EXAMINATION CERTIFICATE PTB 10 ATEX 1037 X

(15) Description of equipment

The electric explosion-proof linear actuator ExPlus -..... - .. - .. - .. consists of a motor with gear mechanism and electronics, which transform operating and regulating signals into positioning functions. Motor and electronics are installed in an enclosure ("Ex-box") of the type of protection "Flameproof enclosures". It consists of two half-shells, which are screwed together and sealed all around by means of casting compound in a special groove. The electrical connections are directed to a circuit board inside the Ex-box, which is located completely in casting compound. Thus the connection is realized via a direct entry (flying leads) into the flameproof enclosure. Flameproof joints at the enclosure are comprised of an opening for the motor shaft and another one for an optional potentiometer for the detection of the position of the drive. The internal elements are temperature controlled.

The flameproof enclosure itself is installed inside an outer protective housing, in which all non-electrical components such as gear unit and fastening elements are located. The gear units and mechanical positioning elements, installed in the protective housing, are not part of this certification.

Optionally an intrinsically safe electrical supply circuit is provided by the electronics assembly of the device, e.g. for external switching contacts.

#### Electrical data

Nominal voltage $U_0/U$ .....	up to	300/500 V
Rated voltage .....	max.	250 V
Conductor size .....	max.	2.5 mm <sup>2</sup>

Rated values are maximum values, the actual electrical values are determined by mounted electrical apparatus. Within these limiting values complying with the appropriate standards the manufacturer specifies the final limiting values dependent on power supply specifications, operating mode, utilisation category, etc. Any additional technical features are specified in the test documents and the operating manual.

Ambient temperature	T6	-40 °C to 40 °C
	T5	-40 °C to 50 °C
	T4	-40 °C to 60 °C
Voltage supply .....	U	= 24 ... 230 V AC/DC, 50...60 Hz
	U <sub>m</sub>	= 253 V



### Intrinsically safe circuits

Sensor circuit.....type of protection: Intrinsic Safety Ex ia IIC

Maximum values:

$$U_o = 10.6 \text{ V}$$

$$I_o = 11 \text{ mA}$$

$$P_o = 30 \text{ mW}$$

Linear characteristic

$L_i$  negligibly low

$C_i$  negligibly low

The outer reactance accepted as a maximum is shown in the table below:

	EEx ia		
	IIC	IIB	IIA
$L_o$	2 mH	5 mH	10 mH
$C_o$	830 nF	3.6 $\mu$ F	4.5 $\mu$ F

(16) Assessment and test report PTB Ex 10-10170

(17) Special conditions for safe use

Repair of the flameproof joints must be made in compliance with the structural specifications provided by the manufacturer. Repair in compliance with the values in tables 1 and 2 of EN 60079-1 is not accepted.

#### Additional notes for safe operation:

Any components attached or installed (e.g. terminal compartments, bushings, 'Ex' cable glands, connectors) must be of a technical standard that complies with the specifications on the cover sheet. They must be suited for the operating conditions, and be covered by a separate examination certificate. The operating conditions set forth in the relevant component certificates must by all means be complied with.

The connecting lead of the linear actuator ExPlus has to be installed inside an enclosure, that complies with the requirements of an accepted type of protection acc. to EN 60079-0, section 1, when connection is made within the hazardous area.

The connecting cable must be of a quality that meets the thermal and mechanical requirements under field service conditions. The connecting lead must be installed to provide for permanent wiring and adequate protection against damage.

For in zone 20 or 21 applications, sensors connected to the intrinsically safe sensor circuit must meet the requirements of categories D 1 and D 2, respectively.

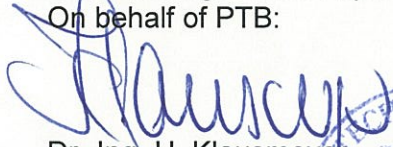
(18) Essential health and safety requirements

Met by compliance with the afore-mentioned standards.

Zertifizierungssektor Explosionsschutz

On behalf of PTB:

Braunschweig, June 28, 2010



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