



# IECEX Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.:  issue No.:

Status:

Date of Issue: **2006-10-27** Page 1 of 3

Applicant: **BARTEC GmbH**  
Max-Eyth-Straße 16  
97980 Bad Mergentheim  
**Germany**

Electrical Apparatus: **Line bushing type 07-91...-.../....**  
*Optional accessory:*

Type of Protection: **flameproof enclosure "d"**

Marking: **Ex d II**  
**Ex d I**

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

Dr. Ing. Uwe Klausmeyer

*Position:*

Head of Section "Flameproof Enclosurea"

*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 the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

**Physikalisch-Technische Bundesanstalt (PTB)**  
Bundesallee 100  
38116 Braunschweig  
Germany





# IECEx Certificate of Conformity

Certificate No.: IECEx PTB 06.0093U

Date of Issue: 2006-10-27

Issue No.: 0

Page 2 of 3

Manufacturer: **BARTEC GmbH**  
Max-Eyth-Straße 16  
97980 Bad Mergentheim  
Germany

Manufacturing location(s):

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 prod 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 electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identity documents, was found to comply with the following standards:

**IEC 60079-0 : 2004** Electrical apparatus for explosive gas atmospheres - Part 0: General requirements  
Edition: 4.0

**IEC 60079-1 : 2001** Electrical apparatus for explosive gas atmospheres - Part 1: Flameproof enclosures 'd'  
Edition: 4

*This Certificate **does not** indicate compliance with electrical 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:

[DE/PTB/ExTR07.0009/00](#)

Quality Assessment Report:

[DE/TUN/QAR06.0017/00](#)



# IECEx Certificate of Conformity

Certificate No.: IECEx PTB 06.0093U

Date of Issue: 2006-10-27

Issue No.: 0

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## Schedule

### EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

#### Description of equipment

The line bushing, type 07-91\*\*\_\*\*\*\*/\*\*\*\* serves as electrical connection between flameproof enclosures or between flameproof enclosures and a terminal compartment with another type of protection.

The line bushing, type 07-91\*\*\_\*\*\*\*/\*\*\*\* is approved by EC type examination certificate PTB 00 ATEX 1047 U and the first, second, third and fourth supplement thereto. The examination and the test results are recorded in the confidential reports PTB Ex 97-17067, PTB Ex-98-18164, PTB Ex 03-13353, PTB Ex 04-14211 and PTB Ex 07-16329.

#### Nomenclature

Line bushing		Type	07-91**_****/****
Code number		1 2 3 4 5-6789 /10	
1	program	common code number	
2	product sector	code number for component	
3	type	line bushing	
4	design	0 = screw thread – metric 1 = screw thread – NPT 2 = screw thread – pipe threads (Whitworth) 3 = screw thread – special types 4 = screw thread – Pg-thread 5 = cylindrical sleeve, joint $12,5 \leq L < 25$ mm 6 = cylindrical sleeve, joint $25 \leq L < 40$ mm 7 = cylindrical sleeve, joint $L \geq 40$ mm 8 = cylindrical sleeve, special types 9 = cylindrical sleeve, connecting flange A = double sleeve, screw thread and/or cylindrical sleeve	
5	rated voltage	0 = without 1 = 690 V 2 = 250 V 3 = 1000 V 4 = 3000 V 5 = 6000 V 8 = AC > 50 V / DC > 75 V 9 = AC $\leq$ 50 V / DC $\leq$ 75 V	
6	conductor cross-section	0 = without A = special cross-section (0,08 ... 185 mm <sup>2</sup> , e.g. AWG) B = 0,14-0,2 mm <sup>2</sup> C = 0,25-0,3 mm <sup>2</sup> D = 0,34/0,35 mm <sup>2</sup> E = 0,5 mm <sup>2</sup> F = 0,75 mm <sup>2</sup> G = 1 mm <sup>2</sup> H = 1,5 mm <sup>2</sup> J = 2,5 mm <sup>2</sup> K = 4 mm <sup>2</sup> L = 6 mm <sup>2</sup> M = 10 mm <sup>2</sup> N = 16 mm <sup>2</sup> P = 25 mm <sup>2</sup> Q = 35 mm <sup>2</sup> R = 50 mm <sup>2</sup> S = 70 mm <sup>2</sup> T = 95 mm <sup>2</sup> U = 120 mm <sup>2</sup> V = 150 mm <sup>2</sup>	

		W = 185 mm <sup>2</sup> Z = mixed
7,8	number of conductors	00 = no conductors 01 = 1 conductor 11 = 11 conductors to 47 = 47 conductors 02 = 2 conductors etc.
9	Size of bushing	0 = M10 x 1 Ø ≥ 10 mm 1 = M16 x 1 Ø ≥ 15 mm 2 = M24 x 1,5 Ø ≥ 22 mm 3 = M33 x 1,5 Ø ≥ 32 mm 4 = M36 x 1,5 Ø ≥ 34 mm 5 = M38 x 1,5 Ø ≥ 36 mm 6 = M42 x 1,5 Ø ≥ 40 mm 7 = M48 x 1,5 Ø ≥ 46 mm 1 1/2" 8 = M56 x 1,5 Ø ≥ 54 mm C = M12 x 1,5 1/4" D = M16 x 1,5 Ø ≥ 14 mm 3/8" E = M20 x 1,5 Ø ≥ 18 mm 1/2" F = M25 x 1,5 3/4" G = M32 x 1,5 Ø ≥ 30 mm 1" L = M40 x 1,5 Ø ≥ 38 mm 1 1/4" R = M64 x 1,5 Ø ≥ 62 mm S = M72 x 1,5 Ø ≥ 70 mm 9 = special sizes between 0 and 8, C and S
10		variants without influence on explosion protection  *D** = -0,9 to 80 bar *U** = -0,5 to 6 bar

**Electrical data**

Rated insulation voltage	up to 6000 V
Rated cross section *)	0,08 mm <sup>2</sup> up to 185 mm <sup>2</sup>
Thread type and size *)	M10 x 1 to M72 x 1,5 or Ø 10 mm to Ø 70 mm
Length of sleeve joint	12.5 25 40
Sleeve tolerance	-30 -30 -30 -100 -100 -100

Temperature range at the place of installation of the bushing -55 °C to 110 °C at rating of the electrical equipment

For determination the max. current carrying capacity of the bushing conductor and wires, the self-heating and the temperature rise of the enclosure at the place of installation at the maximum permissible ambient temperature should be assumed.

\*) according to the type and design of the bushing and connection head.

**Additional instructions for manufacture and operation**

Threaded holes, in which bushings with internal threads are screwed in, have to meet the minimum requirements of IEC 60079-1, section 5.3 (table 3). These bushings are suitable for installation into electrical equipment with type of protection flameproof enclosure "d" of groups I, IIA, IIB or IIC.

Cylindrical holes receiving bushing with cylindrical joint shall meet minimum requirement of IEC 60079-1, tables 1 or 2 (cylindrical joints). The joint surface has to be such that its centre-line average does not exceed R<sub>a</sub> 6,3 µm.

Flameproof joints, in which bushings are fixed, have to meet the requirements of IEC 60079-1, Clause 5 and 5.2 with the gaps defined in Table 1 or 2.

The bushing should be involved to the type test to IEC 60079-1, section 15.1.3 (Overpressure test) according to the group subdivision of the respective electrical apparatus (Group I, IIA, IIB or IIC) if the reference pressure exceeds 20 bar.

The line bushing with cylindrical joint have to be included in the type test performed in compliance with EN 60079-1, section 15, as required for I, IIA, IIB or IIC classification of the corresponding item of equipment. The bushings must be fixed to the electrical equipment in such a way that they are secured against rotation and self-loosening.

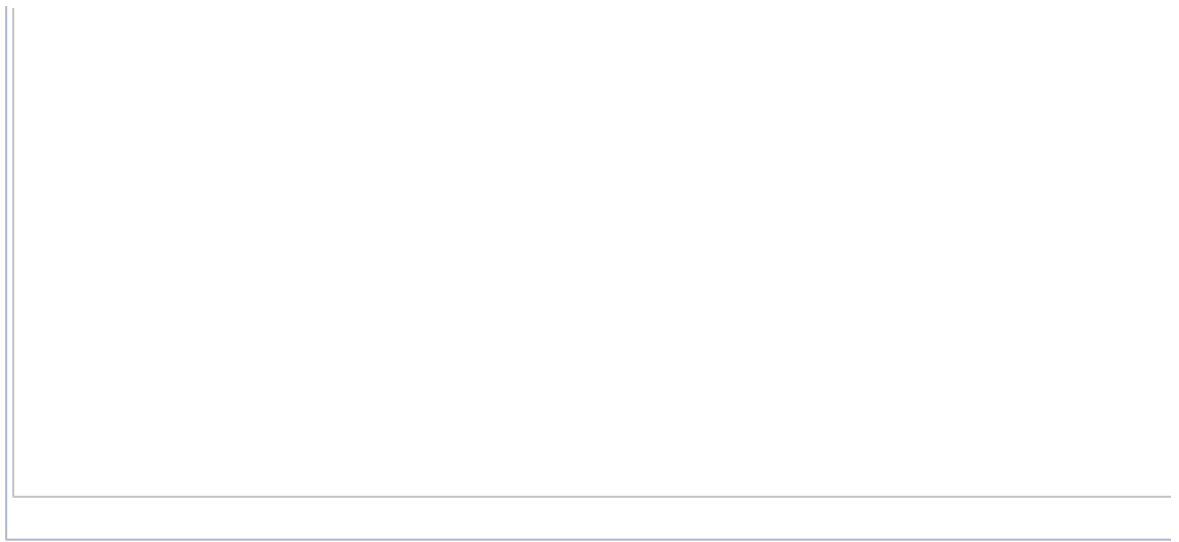
Connection at the terminals studs, of the non-sheathed cables or the flexible sheathed cables of bushing shall proceed in enclosure that comply with a standardised type of protection in accordance with IEC 60079-0, section 2.2.

The connection of the wires of the bushing must be made in enclosures meeting a type of protection to IEC 60079-0, section 1.

The classification of the temperatures to the temperature class of the bushing is to be determined in the type test of the respective electrical equipment.

If the bushing used in connection with intrinsically safe circuits, the conditions of operation (safety-separated circuit) as specified in IEC 60079-11 shall be observed.

**CONDITIONS OF CERTIFICATION: NO**





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Certificate No.: IECEx PTB 06.0093U issue No.:1  
Status: **Current** Certificate history:  
Issue No. 1 (2009-9-10)  
Issue No. 0 (2006-10-27)  
Date of Issue: **2009-09-10** Page 1 of 4

Applicant: **BARTEC GmbH**  
Max-Eyth-Straße 16  
97980 Bad Mergentheim  
Germany

Electrical Apparatus: **Line bushing type 07-91...-.../....**  
Optional accessory:

Type of Protection: **flameproof enclosure "d"**

Marking: **Ex d II**  
**Ex d I**

Approved for issue on behalf of the IECEx  
Certification Body:

Dr. Ing. Martin Thedens

Position:

Head of Section "Flameproof Enclosures"

Signature:  
(for printed version)

Date:

2009-09-10

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# IECEx Certificate of Conformity

Certificate No.: IECEx PTB 06.0093U

Date of Issue: 2009-09-10

Issue No.: 1

Page 2 of 4

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Max-Eyth-Straße 16  
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#### STANDARDS:

The electrical apparatus 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 : 2004** Electrical apparatus for explosive gas atmospheres - Part 0: General requirements  
Edition: 4.0

**IEC 60079-1 : 2007-04** Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"  
Edition: 6

*This Certificate does not indicate compliance with electrical 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:

DE/PTB/ExTR07.0009/00  
DE/PTB/ExTR07.0009/01

Quality Assessment Report:  
DE/TUN/QAR06.0017/02



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## Schedule

### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

#### Description of equipment

Please refer for details to attached document.

#### Additional instructions for manufacture and operation

The notes for manufacture and operation from IECEx PTB 06.0093/00 continue to be valid.

CONDITIONS OF CERTIFICATION: NO





# IECEx Certificate of Conformity

Certificate No.: IECEx PTB 06.0093U

Date of Issue: 2009-09-10

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## DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

Supplement of Certificate IECExPTB06.0093U contains:1. New standard 60079-1:2007 (Ed.6)2. Variation type 07-91\*\*\_\*\*\*\*/S\*\* of type 07-91\*\*\_\*\*\*\*/\*\*\*\* serves as mechanical unprotected electrical connection for intrinsically safety circuits with or without plug and/or adapter with max. arm of 100mm. Intrinsically safety circuits leads into mechanical unprotected areas. They are supplied by coax cables. Sleeve, cast resin, mounting, etc. are still approved in IECExPTB06.0093U.3. Amendment Type Nomenclature including new type variation

**Annexe:** CoC\_Content IECEx PTB 060093-01.pdf