



EC-Type Examination Certificate

- (1)
(2) **Equipment or Protective Systems Intended for use
in Potentially Explosive Atmospheres
Directive 94/9/EC**

(3) EC-Type Examination Certificate Number:

FTZÚ 07 ATEX 0019 U

(4) Component: **Explosion proof bushings type D...x. or M... x .**

(5) Manufacturer: **GENERI, s.r.o.**

(6) Address: **Uničovská 50, 787 01 Šumperk, ČR**

- (7) This Component and any of acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- (8) The Physical Technical Testing Institute, notified body number 1026 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system 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 confidential Report N°

07/0019 dated 11 February 2008

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

**EN 60079-0:2006; EN 60079-1:2004; EN 60079-7:2007;
EN 61241-0:2006; EN 61241-1:2004**

- (10) The sign „U” placed after the certificate number indicates that this certificate must not be mistaken for a certificate intended for an equipment or protective system. This partial certification may be used as a basis for certification of an equipment or protective system.
- (11) This EC-TYPE EXAMINATION CERTIFICATE relates only to design, examination and testing of the specified component in accordance to the directive 94/9/EC. If applicable, further requirements of the Directive apply to the manufacture and supply of this component.
- (12) The marking of the component shall include following:



IM2 / II 2GD Ex de tD I/IC

(valid only for type **M.S.x.**)



IM2 / II 2GD Ex d tD I/IC

(valid for all other types)

This EC-Type Examination Certificate is valid till: **28 February 2013**

Responsible person:

Dipl. Ing. Šindler Jaroslav
Head of certification body



Date of issue: 18 February 2008

Page: 1/3
Annex: 1 (3 pages)

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Physical Technical Testing Institute
Ostrava-Radvanice

(13)

Schedule

(14) **EC-Type Examination Certificate N° FTZÚ 07 ATEX 0019 U**

(15) Description of Component:

Explosion proof bushings are made as Ex component and are intended for installation into flameproof enclosure "d". Bushings represent partial flameproof enclosures Ex d tD I/IIC or Ex de tD I/IIC (only bolt bushings) with cylindrical or screw brass case. Cases can be nickel-coated and together with enclosure wall form appropriate flameproof joint. Bushings are used for connection of electrical or optical circuits in two separated parts of explosion proof apparatus, generally between instrumental part of flameproof enclosure "d" and increased safety "e" terminal part, eventually between two flameproof enclosures "d". Bushings installation has to be in accordance with User's instruction N740067. Operating temperature range $-60^{\circ}\text{C} \leq T_{\text{serv}} \leq +115^{\circ}\text{C}$ is a maximum, the actual range depends on used wires and cables – see Annex No 1.

BUSHING SPECIFICATION:

D . . x .
M . . x .

explosion proof bushing cylindrical
explosion proof bushing screw

Impedance of coaxial cable: **50, 75 or 95 Ω** (only for type K)

Optical fibre: **9/125; 50/125; 62,5/125; 100/125 or 200/300 μm** (type O)

Flat cable conductors AWG cross-section: **28, 26, 24, 20 or 18** (type P)

Bolt screw: **M6, M8, M10 or M12** (type S)

Cond. cross-sections: **0,35; 0,5; 0,75; 1; 1,5; 2,5; 4; 6; 10; 16; 25 or 35 mm^2** (type V)

Number of conductors, coaxial or optical cables: **1 to 25** (types K, O and V)

Number of cores of flat cable: **4 to 48** (type P)

Number of bolts: **1** (type S)

Type of bushing: **K** – with coaxial cables
O – with optical cables
P – with flat cables
S – with screw-bolt
V – with stranded conductors

Bushing dimension: **D24** – cylindrical case $\phi 24$ f8
D36 – cylindrical case $\phi 36$ f8
D41 – cylindrical case $\phi 41$ f8
M24 – screw case M24x1,5-6g
M25 – screw case M25x1,5-6g
M32 – screw case M32x1,5-6g
M33 – screw case M33x1,5-6g
M36 – screw case M36x1,5-6g
M42 – screw case M42x1,5-6g

Responsible person:

Dipl. Ing. Šindler Jaroslav
Head of certification body



Date of issue: 18 February 2008

Page: 2/3
Annex: 1 (3 pages)

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**Physical Technical Testing Institute
Ostrava-Radvanice**

(13)

Schedule

(14) **EC-Type Examination Certificate N° FTZÚ 07 ATEX 0019 U**

(16) Report No. : 07/0019

dated 11.02.2008

(17) Schedule of Limitations: --


(18) Essential Health and Safety Requirements:

Covered by standards mentioned in (9) of this certificate.

(19) **LIST OF DOCUMENTATION**

- Drawings for certification G-2-902826/3, G-2-902826/4 a G-2-902826/5 dated 8.11.2007
- Description to drawings G-2-902826/. dated 1.10.2007
- User's instruction N740060 dated 1.12.2007

Responsible person:


Dipl. Ing. Šindler Jaroslav
Head of certification body



Date of issue: 18 February 2008

Page: 3/3
Annex: 1 (3 pages)

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Ostrava-Radvanice

Annex N° 1

to EC-Type Examination Certificate N° FTZÚ 07 ATEX 0019 U

TECHNICAL PARAMETERS:

Coaxial bushing of type D.K.x. or M.K.x.

Nominal impedance: **50 Ω , 75 Ω or 95 Ω** (according to cable type)

Operating temperature range

Type index

-20°C \leq T_{serv} \leq +65°C

K1

-20°C \leq T_{serv} \leq +70°C

K2

-30°C \leq T_{serv} \leq +100°C

K3

-40°C \leq T_{serv} \leq +115°C

K4

-55°C \leq T_{serv} \leq +115°C

K4

Optical bushing od type D.O.x. or M.O.x.

Design of optical fibre:

9/125; 50/125; 62,5/125; 100/140 or 200/300 \square m

Max. power transmission:

35 mW or 15mW (limitation according to EN 60079-28)

Maximal optical intensity:

5 mW/mm² (limitation according to EN 60079-28)

Service temperature range

Type index

-10°C \leq T_{serv} \leq +60°C

O1

-20°C \leq T_{serv} \leq +70°C

O2

-45°C \leq T_{serv} \leq +70°C

O3

-40°C \leq T_{serv} \leq +85°C

O4

Flat cable bushing of type D.P.x. or M.P.x.

Number of cores:

4 to 48

Cross-section of each core:

**28 AWG (0,08 mm²), 26 AWG (0,14 mm²), 24 AWG (0,25 mm²)
20 AWG (0,5 mm²) or 18 AWG (0,75 mm²)**

Max. continuous current:

**0,65 A (28 AWG); 1,0 A (26 AWG); 2,6 A (24 AWG);
6,0 A (20 AWG); 8,0 A (18 AWG) – valid for temperature rise 75K**

Nominal voltage:

300 V

Operating temperature range

Type index

-40°C \leq T_{serv} \leq +105°C

P1

-40°C \leq T_{serv} \leq +105°C

P2

-40°C \leq T_{serv} \leq +105°C

P3

-20°C \leq T_{serv} \leq +80°C

P4

-20°C \leq T_{serv} \leq +80°C

P5





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Annex N° 1
to EC-Type Examination Certificate N° FTZÚ 07 ATEX 0019 U

Bolt bushing of type D.S.x. or M.S.x.

Bolt case screw specification: **M24x1,5-6g or M25x1,5-6g**
Nominal voltage: **1250 V**
Operating temperature range: **-60°C ≤ T_{serv} ≤ +115°C**

Bolt thread size:	M6	M8	M10	M12
Max. continuous current: *	82 A	114 A	170 A	227 A
Nut bolt tightening torque:	4 Nm	8 Nm	13 Nm	20 Nm
Connectable cross-section: • with compression or clamping type of lug ** • with V-terminal clamp **	6 – 25 mm ² 6 – 35 mm ²	10 – 50 mm ² 10 – 70 mm ²	16 – 95 mm ² 16 – 120 mm ²	25 – 150 mm ² 16 – 185 mm ²

* Valid for temperature rise 40K

** Acceptable connection of conductors to bolts:

- Compression type straight lug with spring washer and nut
- Compression type angle lug (90°) with spring washer and nut
- Clamping type lug with spring washer and nut
- V-terminal clamp with spring element and clamping plate

Wire bushing of type D.V.x. or M.V.x.

Nominal current: acc. to **table of technical parameters** (see bellow)
Nominal voltage: **400V, 690V or 1000V** (acc. to type and cross-section of used wires)

Operating temperature range	Type index	Nominal voltage**
-20°C ≤ T _{serv} ≤ +70°C	V1	400 / 690 V
-40°C ≤ T _{serv} ≤ +90°C	V2	400 / 690 V
-30°C ≤ T _{serv} ≤ +110°C	V3	400 / 690 V
-30°C ≤ T _{serv} ≤ +115°C	V4	400 / 690 V
-40°C ≤ T _{serv} ≤ +115°C	V5	690 / 1000 V
-55°C ≤ T _{serv} ≤ +115°C	V6	690 / 1000 V
-60°C ≤ T _{serv} ≤ +115°C	V7	690 / 1000 V
-60°C ≤ T _{serv} ≤ +115°C	V8	690 / 1000 V

** Lower value means nominal voltage of bushing with wires cross-sections up to 1 mm² incl.,
higher value means nominal voltage of bushing with wires cross-sections above 1 mm².

All values of nominal voltage are valid for fixed installation of bushing wires!





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Ostrava-Radvanice

Annex N° 1

to EC-Type Examination Certificate N° FTZÚ 07 ATEX 0019 U

TECHNICAL PARAMETERS

Cross-section [mm ²]	Number of conductors	Bushing dimension	Nominal voltage [V]	Allowable current loading [A] in relation to temperature rising of bushing:			
				30K	45K	60K	75K
0,35	2	D24, M24, M25	400	8	9	10	10,5
	3	D24, M24, M25		7	8	9	9,5
	4	D24, M24, M25		6	7	8	8,5
	7	D36, M32, M33, M36		5	5,5	6	6,5
	12	D36, M32, M33, M36		4	4,5	5	5,5
	19	D41, M42		3,5	4	4,5	5
	21	D41, M42		3,5	4	4,5	5
0,5	25	D41, M42		3	3,5	4	4,5
	2	D24, M24, M25	400	10	11	12	12,5
	3	D24, M24, M25		9	10	11	11,5
	4	D24, M24, M25		7,5	8,5	9,5	10
	7	D36, M32, M33, M36		6	7	8	8,5
	12	D36, M32, M33, M36		5	5,5	6	6,5
	19	D41, M42		4,5	5	5,5	6
0,75	21	D41, M42		4,5	5	5,5	6
	25	D41, M42		4	4,5	5	5,5
	2	D24, M24, M25	400 690*	12,5	14	15,5	16
	3	D24, M24, M25		11	12	13	13,5
	4	D24, M24, M25		9,5	10,5	11,5	12
	7	D36, M32, M33, M36		7,5	8,5	9,5	10
	12	D36, M32, M33, M36		6,5	7	7,5	8
	19	D41, M42		5,5	6	6,5	7
1	21	D41, M42		5,5	6	6,5	7
	25	D41, M42		5	5,5	6	6,5
	2	D24, M24, M25	400 690*	15	17	18,5	19,5
	3	D24, M24, M25		13	14,5	16	16,5
	4	D24, M24, M25		12	13,5	15	15,5
	7	D36, M32, M33, M36		9,5	10,5	11,5	12
	12	D36, M32, M33, M36		7,5	8,5	9,5	10
	19	D41, M42		6,5	7,5	8	8,5
1,5	21	D41, M42		6,5	7,5	8	8,5
	25	D41, M42		6	7	7,5	8
	2	D24, M24, M25	690 1000*	20	22	24	25
	3	D24, M24, M25		16,5	18,5	20,5	21
	4	D24, M24, M25		15,5	17	18,5	19,5
	7	D36, M32, M33, M36		11,5	13	14,5	15
	12	D36, M32, M33, M36		9,5	10,5	11,5	12
	19	D41, M42		8	9	10	10,5
2,5	21	D41, M42		8	9	10	10,5
	25	D41, M42		7,5	8,5	9,5	10
	4	D36, M32, M33, M36	690 1000*	21	23,5	26	27
	7	D36, M32, M33, M36		16	18	20	21
4	12	D41, M42		13	14,5	16	17
	3	D36, M32, M33, M36		30,5	34	37	39
	4	D36, M32, M33, M36	690 1000*	27,5	30,5	33,5	35
	7	D36, M32, M33, M36		21	23,5	26	27
6	12	D41, M42		17	19	21	22
	1	D24, M24, M25	690 1000*	54	60	66	69
	3	D36, M32, M33, M36		39	43	47	49
	4	D36, M32, M33, M36		35	39	43	45
10	7	D41, M42		27	30	33	34
	1	D24, M24, M25	690 1000*	73	82	90	94
	3	D36, M32, M33, M36		54	60	66	69
	4	D41, M42		48	53	58	61
16	1	D24, M24, M25	690 1000*	98	109	120	125
	3	D36, M32, M33, M36		72	80	88	92
	4	D41, M42		64	71	78	82
	1	D36, M32, M33, M36		135	170	200	225
25	3	D41, M42	690 1000*	110	132	154	174
	1	D36, M32, M33, M36		175	217	255	287
35	3	D41, M42	690 1000*	140	169	198	224
	1	D36, M32, M33, M36		175	217	255	287

*) Higher voltage is valid only for wires with index type V5 to V8.





Physical Technical Testing Institute
Ostrava-Radvanice



Supplement No. 1 to EC-Type Examination Certificate

Equipment or Protective Systems Intended for use
in Potentially Explosive Atmospheres
Directive 94/9/EC

(3) EC-Type Examination Certificate Number:

FTZÚ 07 ATEX 0019U

(4) Component: **Explosion proof bushings type D...x. or M... x .**

(5) Manufacturer: **GENERI, s.r.o.**

(6) Address: **Uničovská 50, 787 01 Šumperk, Czech Republic**

(7) This supplement of certificate is valid for: - new model (variant) – extension of series

(8) Modification of certified component and any of its approved variants are specified in documentation, a list of which is mentioned in the schedule of this certificate.

(9) This supplement to type examination relates only to design, examination and testing of the specified component in accordance to the directive 94/9/EC. If applicable, further requirements of the Directive apply to the manufacture and supply of this component.

(10) Safety requirements of modified parts were fulfilled by satisfying of following standards:

EN 60079-0:2006, EN 60079-1:2004, EN 61241-0:2006, EN 61241-1:2004

(11) Marking of component shall contain symbols:

 **I M2 / II 2GD Ex d tD I/IC**

(12) This type examination certificate is valid till: **28.02.2013**

Responsible person:

Dipl. Ing. Šindler Jaroslav
Head of certification body



Date of issue: 02.09.2009

Number of pages: 2
Page: 1/2

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**Physical Technical Testing Institute
Ostrava-Radvanice**

(13)

Schedule

(14)

**Supplement No. 1 to
EC-Type Examination Certificate N° FTZÚ 07 ATEX 0019U**

(15) Description of Component:

Modification of model serie M ...x. of new type M 10K.x. (screw case M10x1-6g).

(16) Report No. : 07/0019-1

(17) Schedule of limitations:

Wires of the bushing shall be prevented from the loading by the tension force.

(18) Essential Health and Safety Requirements:

Covered by standards mentioned in (10) of this supplement.

(19) LIST OF DOCUMENTATION

- | | |
|--|------------------|
| • Drawings for certification G-2-902826/7 | dated 11.06.2009 |
| • Description to drawings G-2-902826/., rev. 2 | dated 1.9.2009 |
| • User's instruction N740060, 2. edition | dated 1.12.2007 |

Responsible person:

Dipl. Ing. Šindler Jaroslav

Head of certification body



Date of issue: 02.09.2009

Number of pages: 2

Page: 2/2

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**Supplement No. 2 to
EC-Type Examination Certificate**

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

EC-Type Examination Certificate Number:

FTZÚ 07 ATEX 0019U

Component: **Explosion proof bushings type D...x. or M... x .**

Manufacturer: **GENERI, s.r.o.**

Address: **Uničovská 50, 787 01 Šumperk, Czech Republic**

This supplement of certificate is valid for: - modification of certified component
- prolongation of certificate validity

Modification of certified component and any of its approved variants are specified in documentation, a list of which is mentioned in schedule of this certificate.

This supplement to type examination relates only to design, examination and testing of the specified component in accordance to the directive 94/9/EC. If applicable, further requirements of the Directive apply to the manufacture and supply of this component.

Safety requirements of modified parts were fulfilled by satisfying of the following standards:

EN 60079-0:2012; EN 60079-1:2007; EN 60079-7:2007

Marking of component shall contain symbols:

 **I M2 Ex de I Mb**

(valid only for type **M.S.x.**)

 **I M2 Ex d I Mb**

(valid for all other types)

 **II 2G Ex de IIC Gb**

(valid only for type **M.S.x.**)

 **II 2G Ex d IIC Gb**

(valid for all other types)

This type examination certificate is valid till: **30.04.2018**

Responsible person:


Dipl. Ing. Lukáš Martinák
Head of Certification Body



Date of issue: 09.04.2013

Page: 1/2

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**Physical Technical Testing Institute
Ostrava – Radvanice**

(13)

Schedule

(14)

**Supplement No. 2 to
EC-Type Examination Certificate N° FTZÚ 07 ATEX 0019U**

(15) Description of Component:

The bushing type D...x. or M...x. is recertified according standards EN 60079-0:2012, EN 60079-1:2007 and EN 60079-7:2007.

Equipment parameters are without any changes.

(16) Report No.: 07/0019-2

dated 08.04.2013

(17) Schedule of Limitations: none

(18) Essential Health and Safety Requirements:

Covered by standards mentioned in (10) of this certificate.

New editions of standards do not require any additional tests.

(19) List of Documentation:

- User's instruction N740060- rev.4 dated 01.02.2013
- Drawings for certification No. G-2-902826/3 dated 25.02.2013
- G-2-902826/4 dated 25.02.2013
- G-2-902826/5-1 dated 08.02.2010
- G-2-902826/5-1 dated 05.03.2013
- Description to drawings No. G-2-902826/. dated 01.02.2013

Responsible person:


Dipl. Ing. Lukáš Martinák
Head of Certification Body



Date of issue: 09.04.2013

Page: 2/2

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Physical-Technical Testing Institute
Ostrava - Radvanice



(1) **Supplementary EU - Type Examination Certificate No.3**

- (2) **Component Intended for use on/in an Equipment or Protective System
Intended for use in Potentially Explosive Atmospheres
(Directive 2014/34/EU)**

- (3) EU - Type Examination Certificate number:

FTZÚ 07 ATEX 0019U

- (4) Product: **Explosion proof bushings type D...x.**
- (5) Manufacturer: **GENERI, s.r.o.**
- (6) Address: **Uničovská 50, 787 01 Šumperk, Czech Republic**
- (7) This supplementary certificate extends EC - Type Examination Certificate No. FTZÚ 07 ATEX 0019U to apply to products designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.
- (8) The Physical-Technical Testing Institute, Notified Body number 1026, in accordance with Articles 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26.02.2014, certifies that this product, as modified by this supplementary certificate, 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.
- (9) In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20.04.2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20.04.2016.
- (10) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 60079-0:2012+A11:2013, EN 60079-1:2014

The sign „U“ is placed after the certificate number it indicates that this certificate must not be mistaken for a certificate intended for an equipment or protective system. This partial certification may be used as a basis for certification of an equipment or protective system.

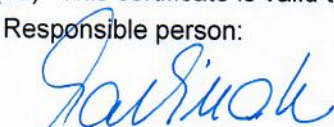
- (11) The marking of the product shall include the following:

 **I M2 Ex db I Mb**

 **II 2G Ex db IIC Gb**

- (12) This certificate is valid till: **31.12.2025**

Responsible person:


Dipl. Ing. Lukáš Martinák
Head of Certification Body



Date of issue: 14.12.2020

Page: 1/2



**Physical-Technical Testing Institute
Ostrava - Radvanice**

(13)

Schedule

(14) **Supplementary EU - Type Examination Certificate No. 3
to FTZÚ 07 ATEX 0019U**

(15) Description of the variation to the Product:

The subject of this supplementary certificate is:

- Evaluation according to the new standard: EN 60079-1:2014.
- Prolongation of certificate validity.
- Modification of certified apparatus:
 - a) the name "cylindrical bushings" is changed to "bushings with cylindrical housing";
 - b) all bushings with screw housing M..x are cancelled;
 - c) types of bushing - coaxial, optical, flat cable and bolt bushings are cancelled;
 - d) operating temperature range adjusted to $-60\text{ °C} \leq T_{\text{serv}} \leq +70\text{ °C}$;
 - e) wire types V2 and V8 retained (others cancelled);
 - f) conductors 0.35 mm^2 are cancelled;
 - g) conductor bushings - the rated voltage and test voltage data have been revised.

(16) Report Number: 07/0019/3

(17) Schedule of Limitations:

1. Service temperature : $-60\text{ °C} \leq T_{\text{serv}} \leq +70\text{ °C}$

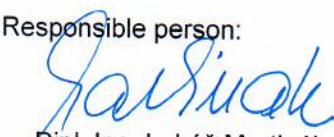
(18) Essential Health and Safety Requirements:

Compliance with the Essential Health and Safety Requirements is covered by standards mentioned in clause (10) of this supplementary certificate.

(19) Drawings and Documents:

Number	Revision	Sheets	Date	Description
N740060	5	3	26.10.2020	User's instruction
G-2-902826/17	-	1	26.10.2020	Drawing
G-2-2902826/16	-	4	26.10.2020	Description to drawing
T730012	4	2	02.05.2012	Potting procedure

Responsible person:


Dipl. Ing. Lukáš Martinák
Head of Certification Body



Date of issue: 14.12.2020

Page: 2/2

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