



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Ex COMPONENT CERTIFICATE

Certificate No.:	IECEX SIQ 13.0001U	Page 1 of 6	<u>Certificate history:</u>
Status:	Current	Issue No: 2	Issue 1 (2023-09-04) Issue 0 (2013-01-14)
Date of Issue:	2023-11-13		
Applicant:	Bartec Varnost d.o.o. Cesta 9. avgusta 59 SI-1410 Zagorje ob Savi Slovenia		
Ex Component:	Cable bushing, type TOS**A.**V		

This component is NOT intended to be used alone and requires additional consideration when incorporated into other equipment or systems for use in explosive atmospheres (refer to IEC 60079-0).

Type of Protection:	Flameproof enclosure, Increased safety
Marking:	Ex db eb IIC Gb Ex db eb I Mb

Approved for issue on behalf of the IECEx
Certification Body:

Bojan Pečavar

Position:

Director of Certification

Signature:
(for printed version)

Date:
(for printed version)

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.
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Certificate issued by:

Slovenian Institute of Quality and Metrology (SIQ)
Masera-Spasicева ulica 10
SI-1000 Ljubljana
Slovenia





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Manufacturer: **Bartec Varnost d.o.o.**
Cesta 9. avgusta 59
SI-1410 Zagorje ob Savi
Slovenia

Manufacturing
locations: **Bartec Varnost d.o.o.**
Cesta 9. avgusta 59
SI-1410 Zagorje ob Savi
Slovenia

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 products 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 component 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 60079-0:2017](#) Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

[IEC 60079-1:2014](#) Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

[IEC 60079-7:2017](#) Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
Edition:5.1

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the component listed has successfully met the examination and test requirements as recorded in:

Test Report:

[SI/SIQ/ExTR13.0001/02](#)

Quality Assessment Report:

[SI/SIQ/QAR11.0003/08](#)



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Ex Component(s) covered by this certificate is described below:

Flameproof bushing, type: TOS*. **A. ***V (see technical data for type key and possible types), is intended for electrical connection between flameproof enclosures or between flameproof enclosure and enclosure in type of protection increased safety.

Installation of the bushing is by means of the threaded sleeve mounted in a suitable thread according to technical description No. 028924 listed in Technical Documentation section. Bushing consists of the threaded sleeve, insulating body, tube and stem. Wiring connection on the flameproof side shall be performed by brazing or welding, wiring connection on the increased safety side shall be performed by A, C, F, FL, R or RF terminal.

Type key: TOS*. **A. ***V

* Thread of the stem: M4, M5, M6, M8, M10, M12, M16 or M20

** Rated current [A]: 16, 25, 63, 100, 160, 250, 315, 400 or 630

*** Rated voltage [V]: 690, 1000 or 1600

Type	Sleeve size	Thread of the stem	Rated current [A]	Rated voltage [V]	Type of terminal	Connection wiring [mm ²]
TOS4.16A.690V	M16×1.5	M4	16	690	A	1.5–6
TOS4.16A.1000V	M16×1.5	M4	16	1000	A	1.5–6
TOS4.16A.1600V	M16×1.5	M4	16	1600	A	1.5–6
TOS5.25A.690V	M18×1.5	M5	25	690	A	2.5–10
					C	2.5–25
					F, FL, RF	2.5–25
TOS5.25A.1000V	M18×1.5	M5	25	1000	A	2.5–10
					C	2.5–25
					F, FL, RF	2.5–25
TOS5.25A.1600V	M18×1.5	M5	25	1600	A	2.5–10
					C	2.5–25
					F, FL, RF	2.5–25
TOS6.63A.690V	M20×1.5	M6	63	690	A	2.5–16
					C	2.5–25
					F, FL, RF	2.5–25
TOS6.63A.1000V	M20×1.5	M6	63	1000	A	2.5–16
					C	2.5–25
					F, FL, RF	2.5–25
TOS6.63A.1600V	M20×1.5	M6	63	1600	A	2.5–16
					C	2.5–25
					F, FL, RF	2.5–25
TOS8.100A.690V	M24×1.5	M8	100	690	C	4–35
	M26×1.5				F, FL, RF	6–50
TOS8.100A.1000V	M24×1.5	M8	100	1000	C	4–35
	M26×1.5				F, FL, RF	6–50
TOS8.100A.1600V	M24×1.5	M8	100	1600	C	4–35
	M26×1.5				F, FL, RF	6–50



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TOS10.160A.690V	M27×1.5	M10	160	690	F, FL, RF	10–95
	M30×1.5				R	6–70 or 10–95
TOS10.160A.1000V	M27×1.5	M10	160	1000	F, FL, RF	10–95
TOS10.200A.1000V	M30×1.5		200		R	10–95
TOS10.160A.1600V	M27×1.5	M10	160	1600	F, FL, RF	10–95
	M30×1.5				R	10–95
TOS12.250A.690V	M33×1.5	M12	250	690	F, FL, RF	16–185
	M36×1.5				R	10–95 or 16–150
TOS12.250A.1000V	M33×1.5	M12	250	1000	F, FL, RF	16–185
TOS12.315A.1000V	M36×1.5		315		R	16–150
TOS12.250A.1600V	M33×1.5	M12	250	1600	F, FL, RF	16–185
	M36×1.5				R	16–150
TOS16.400A.690V	M36×1.5	M16	400	690	F, FL, RF	25–300
	M42×1.5				R	16–150 or 16–300
TOS16.400A.1000V	M36×1.5	M16	400	1000	F, FL, RF	25–300
	M42×1.5				R	16–300
TOS16.400A.1600V	M36×1.5	M16	400	1600	F, FL, RF	25–300
	M42×1.5				R	16–300
TOS20.630A.690V	M42×1.5	M20	630	690	F, FL, RF	25–300
	M48×1.5				R	16–300
TOS20.630A.1000V	M42×1.5	M20	630	1000	F, FL, RF	25–300
	M48×1.5				R	16–300
TOS20.630A.1600V	M42×1.5	M20	630	1600	F, FL, RF	25–300
	M48×1.5				R	16–300

Diameter of the stem [mm]	Connection tightening torque [Nm]
4	1.2
5	2
6	3
8	6
10	10
12	15.5
16	30
20	52

Service temperature range: -55°C to +130°C

Maximum free volume of the flameproof enclosure, where bushing is fitted: 90 dm³



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Material of the tube: brass or stainless steel (stainless steel for TOS 10, TOS12, TOS16 and TOS20 only)

SCHEDULE OF LIMITATIONS:

- If the reference pressure exceeds 32 bar or the free volume of the flameproof enclosure in which the bushing is installed is more than 90 dm³, the bushing shall be included into the type test according to IEC 60079-1:2014, section 15.2.3 (overpressure test) as required by the classification of the electrical apparatus which will include this bushing (grouping I, IIA, IIB, IIC).
- Creepage distances and clearances between the bushing's wiring and the enclosure parts in type of protection increased safety must be kept according to IEC 60079-7:2017, Table 2.
- Flameproof joints of the bushing do not comply with the values specified in the IEC 60079-1:2014 (minimum length of joint is greater than the relevant minimum and maximum gap is less than the relevant maximum). Repair on flameproof joints may only be performed in accordance with the manufacturer's design specifications.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Beside existing type TOS12 also types TOS4, TOS5, TOS6, TOS8, TOS10, TOS16 and TOS20 were assessed and included.