(1) # EU-TYPE EXAMINATION CERTIFICATE

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

(3) EU-Type Examination Certificate Number:

SIQ 22 ATEX 275 U **Issue: 1**

(4) Component: Flameproof bushing, type: TOS*.**A.***V

(5) Manufacturer: Bartec Varnost, d.o.o.

(6) Address: Cesta 9. avgusta 59, 1410 Zagorje ob Savi, Slovenia

(7) This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

(8) SIQ Ljubljana, Notified body number 1304 in accordance with Article 17 and Article 21 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. Certification body is not accredited for notification purposes.

The examination and test results are recorded in the confidential test report TEx298/23.

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

EN IEC 60079-0:2018 + AC:2020-02 **EN 60079-1:2014 + AC:2018-09**

EN IEC 60079-7:2015 + A1:2018

Where additional criteria beyond those given here have been used, they are listed at item (18) in the schedule to this certificate.

(10) 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 systems. This partial certification may be used as a basis for certification of an equipment or protective systems.

(11) This EU-Type Examination Certificate relates only to the design and construction of the specified product in accordance with the Directive 2014/34/EU. 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 eb IIC Gb

I M 2 Ex db eb I Mb

Certification body Ljubljana, 13 November 2023

Bojan Pečavar

SIQ Ljubljana, Mašera-Spasićeva ulica 10, SI-1000 Ljubljana, +386 1 4778 221, ex@siq.si

(13) # SCHEDULE

(14) **EU-Type Examination Certificate Number SIQ 22 ATEX 275 U, Issue: 1**

(15) Description of Product

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.

Technical data

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 C F, FL, RF	2.5–10 2.5–25 2.5–25
TOS5.25A.1000V	M18×1.5	M5	25	1000	A C F, FL, RF	2.5–10 2.5–25 2.5–25
TOS5.25A.1600V	M18×1.5	M5	25	1600	A C F, FL, RF	2.5–10 2.5–25 2.5–25
TOS6.63A.690V	M20×1.5	M6	63	690	A C F, FL, RF	2.5–16 2.5–25 2.5–25
TOS6.63A.1000V	M20×1.5	M6	63	1000	A C F, FL, RF	2.5–16 2.5–25 2.5–25
TOS6.63A.1600V	M20×1.5	M6	63	1600	A C F, FL, RF	2.5–16 2.5–25 2.5–25
TOS8.100A.690V	M24×1.5 M26×1.5	M8	100	690	C F, FL, RF	4–35 6–50

Type	Sleeve size	Thread of the stem	Rated current [A]	Rated voltage [V]	Type of terminal	Connection wiring [mm^2]
TOS8.100A.1000V	M24×1.5 M26×1.5	M8	100	1000	C F, FL, RF	4–35 6–50
TOS8.100A.1600V	M24×1.5 M26×1.5	M8	100	1600	C F, FL, RF	4–35 6–50
TOS10.160A.690V	M27×1.5 M30×1.5	M10	160	690	F, FL, RF R	10–95 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 M30×1.5	M10	160	1600	F, FL, RF R	10–95 10–95
TOS12.250A.690V	M33×1.5 M36×1.5	M12	250	690	F, FL, RF R	16–185 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 M36×1.5	M12	250	1600	F, FL, RF R	16–185 16–150
TOS16.400A.690V	M36×1.5 M42×1.5	M16	400	690	F, FL, RF R	25–300 16–150 or 16–300
TOS16.400A.1000V	M36×1.5 M42×1.5	M16	400	1000	F, FL, RF R	25–300 16–300
TOS16.400A.1600V	M36×1.5 M42×1.5	M16	400	1600	F, FL, RF R	25–300 16–300
TOS20.630A.690V	M42×1.5 M48×1.5	M20	630	690	F, FL, RF R	25–300 16–300
TOS20.630A.1000V	M42×1.5 M48×1.5	M20	630	1000	F, FL, RF R	25–300 16–300
TOS20.630A.1600V	M42×1.5 M48×1.5	M20	630	1600	F, FL, RF R	25–300 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 dm^3

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

(16) Test Report

TEx298/23 dated 13 November 2023.

(17) 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 dm^3, the bushing shall be included into the type test according to EN 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 EN IEC 60079-7:2015, 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.

(18) Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements has been assured by compliance with the requirements of the standards listed under item (9).

(19) Drawings and Documents

Title:	Drawing No.:	Rev. Level:	Date:
*Technical description for Bushing type TOS, Bartec Varnost, d.o.o.	028924	B	18. 9. 2023
*Technical drawing, Bushing TOS4.16A, Bartec Varnost, d.o.o.	029178	/	23. 11. 2022
*Technical drawing, Bushing TOS5.25A, Bartec Varnost, d.o.o.	029180	/	23. 11. 2022
*Technical drawing, Bushing TOS6.63A, Bartec Varnost, d.o.o.	029181	/	23. 11. 2022
*Technical drawing, Bushing TOS8.100A, Bartec Varnost, d.o.o.	029182	/	23. 11. 2022
*Technical drawing, Bushing TOS10.160A, Bartec Varnost, d.o.o.	029183	/	23. 11. 2022
Technical drawing, Bushing TOS12.250A, Bartec Varnost, d.o.o.	028978	A	19. 1. 2023
*Technical drawing, Bushing TOS16.400A, Bartec Varnost, d.o.o.	029184	/	23. 11. 2022
*Technical drawing, Bushing TOS20.630A, Bartec Varnost, d.o.o.	029185	/	23. 11. 2022
*Technical drawing, Sestavljeno izolacijsko telo, Bartec Varnost, d.o.o.	028977	A	10. 1. 2023

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Title:	Drawing No.:	Rev. Level:	Date:
*Technical drawing, Cev TOS4-0 tesnilo-Medenina, Bartec Varnost, d.o.o.	029052	/	15. 3. 2022
*Technical drawing, Cev TOS5-0 tesnilo-Medenina, Bartec Varnost, d.o.o.	029054	/	16. 3. 2022
*Technical drawing, Cev TOS6-0 tesnilo-Medenina, Bartec Varnost, d.o.o.	029056	/	18. 3. 2022
*Technical drawing, Cev TOS8-0 tesnilo-Medenina, Bartec Varnost, d.o.o.	029058	/	21. 3. 2022
*Technical drawing, Cev TOS10-0 tesnilo-inox, Bartec Varnost, d.o.o.	029059	/	27. 1. 2022
*Technical drawing, Cev TOS10-0 tesnilo-Medenina, Bartec Varnost, d.o.o.	029060	/	27. 1. 2022
Technical drawing, Cev TOS12-0 tesnilo-inox, Bartec Varnost, d.o.o.	028974	/	5. 1. 2022
Technical drawing, Cev TOS12-0 tesnilo-Medenina, Bartec Varnost, d.o.o.	028979	/	5. 1. 2022
*Technical drawing, Cev TOS16-0 tesnilo-inox, Bartec Varnost, d.o.o.	029061	/	13. 4. 2022
*Technical drawing, Cev TOS16-0 tesnilo-Medenina, Bartec Varnost, d.o.o.	029062	/	13. 4. 2022
*Technical drawing, Cev TOS20-0 tesnilo-inox, Bartec Varnost, d.o.o.	029063	/	15. 4. 2022
*Technical drawing, Cev TOS20-0 tesnilo-Medenina, Bartec Varnost, d.o.o.	029064	/	15. 4. 2022
*Technical drawing, Keramična obloga TOS4-0 tesnilo, Bartec Varnost, d.o.o.	029065	/	15. 3. 2022
*Technical drawing, Keramična obloga TOS5-0 tesnilo, Bartec Varnost, d.o.o.	029066	/	16. 3. 2022
*Technical drawing, Keramična obloga TOS6-0 tesnilo, Bartec Varnost, d.o.o.	029067	/	18. 3. 2022
*Technical drawing, Keramična obloga TOS8-M24-0 tesnilo, Bartec Varnost, d.o.o.	029068	/	21. 3. 2022
*Technical drawing, Keramična obloga TOS8-M26-0 tesnilo, Bartec Varnost, d.o.o.	029069	/	22. 3. 2022
*Technical drawing, Keramična obloga TOS10-M27-0 tesnilo, Bartec Varnost, d.o.o.	029070	/	27. 1. 2022
*Technical drawing, Keramična obloga TOS10-M30-0 tesnilo, Bartec Varnost, d.o.o.	029071	/	27. 1. 2022

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Title:	Drawing No.:	Rev. Level:	Date:
Technical drawing, Keramična obloga TOS12-M33-0 tesnilo, Bartec Varnost, d.o.o.	028975	A	10. 1. 2023
Technical drawing, Keramična obloga TOS12-M36-0 tesnilo, Bartec Varnost, d.o.o.	028976	A	10. 1. 2023
*Technical drawing, Keramična obloga TOS16-M36-0 tesnilo, Bartec Varnost, d.o.o.	029072	/	13. 4. 2022
*Technical drawing, Keramična obloga TOS16-M42-0 tesnilo, Bartec Varnost, d.o.o.	029073	/	13. 4. 2022
*Technical drawing, Keramična obloga TOS20-M42-0 tesnilo, Bartec Varnost, d.o.o.	029074	/	13. 4. 2022
*Technical drawing, Keramična obloga TOS20-M48-0 tesnilo, Bartec Varnost, d.o.o.	029075	/	13. 4. 2022
*Technical drawing, Kovinska obloga TOS4-0 tesnilo, Bartec Varnost, d.o.o.	028872	/	22. 8. 2018
*Technical drawing, Kovinska obloga TOS5-0 tesnilo, Bartec Varnost, d.o.o.	028867	/	22. 8. 2018
*Technical drawing, Kovinska obloga TOS6-0 tesnilo, Bartec Varnost, d.o.o.	028862	/	22. 8. 2018
*Technical drawing, Kovinska obloga TOS8-M24-0 tesnilo, Bartec Varnost, d.o.o.	028859	/	22. 8. 2018
*Technical drawing, Kovinska obloga TOS8-M26-0 tesnilo, Bartec Varnost, d.o.o.	028854	/	22. 8. 2018
*Technical drawing, Kovinska obloga TOS10-M27-0 tesnilo, Bartec Varnost, d.o.o.	028851	/	22. 8. 2018
*Technical drawing, Kovinska obloga TOS10-M30-0 tesnilo, Bartec Varnost, d.o.o.	028846	/	22. 8. 2018
Technical drawing, Kovinska obloga TOS12-M33-0 tesnilo, Bartec Varnost, d.o.o.	028829	/	5. 11. 2021
Technical drawing, Kovinska obloga TOS12-M36-0 tesnilo, Bartec Varnost, d.o.o.	028739	/	5. 11. 2021
*Technical drawing, Kovinska obloga TOS16-M36-0 tesnilo, Bartec Varnost, d.o.o.	029078	/	27. 6. 2022
*Technical drawing, Kovinska obloga TOS16-M42-0 tesnilo, Bartec Varnost, d.o.o.	028836	/	5. 11. 2021
*Technical drawing, Kovinska obloga TOS20-M42-0 tesnilo, Bartec Varnost, d.o.o.	029079	/	5. 11. 2021
*Technical drawing, Kovinska obloga TOS20-M48-0 tesnilo, Bartec Varnost, d.o.o.	028842	/	5. 11. 2021

Title:	Drawing No.:	Rev. Level:	Date:
*Technical drawing, Steblo TOS 4, Bartec Varnost, d.o.o.	029186	/	30. 11. 2022
*Technical drawing, Steblo TOS 5, Bartec Varnost, d.o.o.	029187	/	30. 11. 2022
*Technical drawing, Steblo TOS 6, Bartec Varnost, d.o.o.	029188	/	30. 11. 2022
*Technical drawing, Steblo TOS 8, Bartec Varnost, d.o.o.	029189	/	30. 11. 2022
*Technical drawing, Steblo TOS 10, Bartec Varnost, d.o.o.	029194	/	30. 11. 2022
Technical drawing, Steblo TOS 12, Bartec Varnost, d.o.o.	028947	/	22. 2. 2022
*Technical drawing, Steblo TOS 16, Bartec Varnost, d.o.o.	029190	/	30. 11. 2022
*Technical drawing, Steblo TOS 20, Bartec Varnost, d.o.o.	029191	/	30. 11. 2022
*Technical drawing, Matica stebelna, Bartec Varnost, d.o.o.	029215	/	10. 1. 2023
*Technical drawing, Podložka stebelna 1, Bartec Varnost, d.o.o.	029216	/	10. 1. 2023
*Technical drawing, Podložka stebelna 2, Bartec Varnost, d.o.o.	029217	/	10. 1. 2023
*Technical drawing, Sestavljeno steblo, Bartec Varnost, d.o.o.	028991	/	8. 3. 2022
*Table of Ex gaps, Bartec Varnost, d.o.o.	028950	A	17. 1. 2023
Navodila za lepljenje – TOS, Bartec Varnost, d.o.o.	029048	0	9. 6. 2022
Sestavljalni postopek, Tokovni skoznjik TOS, Bartec Varnost, d.o.o.	390010/0021	1	18. 10. 2004

*Note: An * is included before the title of documents that are new or revised.*

(20) Consolidated Certificates

This certificate is a consolidated certificate and reflects the latest status of the certification, including the following:

- Original EU-Type-Examination Certificate No. SIQ 22 ATEX 275 U, Issue 0.
- Issue 1: Beside existing type TOS12 also types TOS4, TOS5, TOS6, TOS8, TOS10, TOS16 and TOS20 were assessed and included.

SIQ Ljubljana, Mašera-Spasićeva ulica 10, SI-1000 Ljubljana, +386 1 4778 221, ex@siq.si