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SAFETY, MAINTENANCE AND MOUNTING INSTRUCTIONS

CESI 17 ATEX 007X IECEx CES 17.0029X

GLANDS TYPES

KBCTA

Barrier Glands For Armoured Cables

KBCTN

Barrier Glands For Non-Armoured Cables

Rev. 03

CONTENTS

1 MARKINGS

KBCTA	GROUP I	I M2 Ex db I Mb Ex eb I Mb IP66/68 Ta -60°C to +100°C CESI 17 ATEX 007X IECEx CES 17.0029X
	GROUP II	II 2GD Ex db IIC Gb Ex eb IIC Gb Ex tb IIIC Db Ta-60°C +100°C IP66/68 CESI 17 ATEX 007X IECEx CES 17.0029X
KBCTN	GROUP I	I M2 Ex db I Mb Ex eb I Mb IP66/68 Ta -60°C to +100°C CESI 17 ATEX 007X IECEx CES 17.0029X
	GROUP II	II 2GD Ex db IIC Gb Ex eb IIC Gb Ex tb IIIC Db Ta-60°C +100°C IP66/68 CESI 17 ATEX 007X IECEx CES 17.0029X

APPLICABLE STANDARDS

DIRECTIVE 2014/34/EU	EN/IEC 60079-7
EN/IEC 60079-0	EN/IEC 60079-31
EN/IEC 60079-1	EN/IEC 60529

OPERATING & INSTALLATION TEMPERATURES

The service and ambient temperature range of use is from -60°C up to +100°C for Barrier glands KBCTA and KBCTN.

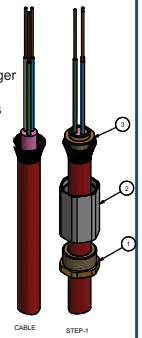
2 EPOXY COMPOUND PREPARATION

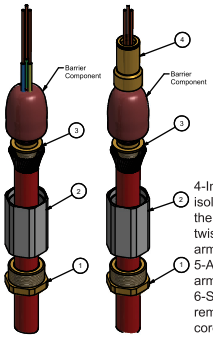
When handling this material, the gloves supplied must be worn. The epoxy compound is supplied in the form of a two part package. These should be mixed into the ratio of 1:1 until both colours have blended into one, without any streaks. Rolling and folding is the most satisfactory method of obtaining an even blend. Once mixed, the compound must be used within 15 minutes. After this time it will begin to stiffen. The compound should be kept at an ambient temperature of no less than 20°C prior to using. At lower temperatures it becomes difficult to mix. Should any compound come into contact with the skin it should be cleaned off with skin cleaner and not allowed to dry on the skin. Only compound for immediate terminations should be mixed. The mixing and installation of the compound at an ambient temperature below 4°C is not recommended due to extended curing periods.

3 MOUNTING INSTRUCTION KBCTA

STEP 1

1-Cut cable cores in a length that it will be minimum the length of lower body of the gland plus the assembly point of the gland through the enclosure.
2-The stripped part of the armours (bare armours) must not be longer than the distance between the lower surface of the sealing gasket and the upper surface of the grounding cone when gland is assembled.
3-Then put through the cable first the cap, upper body and swivel braid ring. If a SWB cable is to be used put armour reduction through as well.





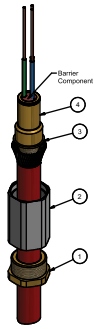
STEP 2

4-In one hand hold the cable with the cores and the isolation surrounding the cores, with the other hand hold the otherend point of the cable and bend 45° degrees and twist the cable from the armour point. With this step, the armours will open like an umbrella.
5-Assemble barrier grounding cone, under the opened armour.
6-Starting from the common isolation point, seperate the remaining cable cores from one another and roll every core with the barrier epoxy compound with an amount that could fill the pot.
7-Bring all the epoxy compound rolled cable cores together, remold them to a diameter which could fit inside the pot.

4 MOUNTING INSTRUCTION KBCTA

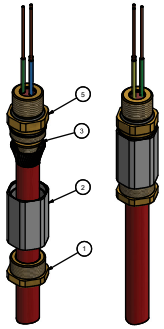
STEP 3

8-Assemble the pot on top of the prepared cable harness.
9-Push from both sides so that the overflown mixture will fill in the gaps inside the pot.
10-Fit the barrier grounding cone on the pot. If the barrier epoxy compound still overflows, then clean the overflown material.
11-Fit lower body on the pot and start assembling the gland.
12-Assemble barrier groundingcone on the lower body. Distribute the armours equally on the lateral surface of the cone in order not to let them overlap.



STEP 4

13-When shielded cables are used; fit the armour reduction ring on the barrier grounding cone.When armour cables are used; armour reduction is not used.
14-Tighten lower body, upper body and cap with a sufficient torque value.
15-Disassemble all the parts of the gland.
16-Clean carefully all the barrier epoxy compound smudged around pot and barrier grounding cone, inside upper and lower body.
17-When the barrier epoxy compound is hardened, the pot and the grounding cone will not be seperated from each other, but all the other parts will be assembled/disassembled.

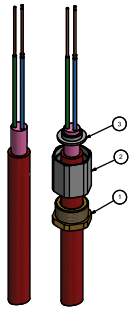


Attention
Do not move the cable cores minimum for 4 hours. Assemble the barrier gland afterwards.

5 MOUNTING INSTRUCTION KBCTN

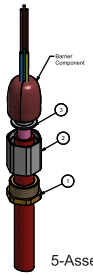
STEP 1

1-Cut cable cores in a length that it will be minimum the length of lower body of the gland plus the assembly point of the gland through the enclosure.
2-Fit the cap, upper body and pressurizing bushing on the cable outer sheath.



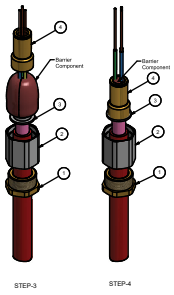
STEP 2

3-Starting from the common isolation point, seperate the remaining cable cores from one another and roll every core with the barrier epoxy compound with an amount that could fill the pot.
4-Bring all the epoxy compound rolled cable cores together, remold them to a diameter which could fit inside the pot.



STEP 3 AND STEP 4

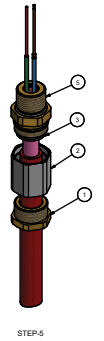
5-Assemble the pot on top of the prepared cable harness.
6-Push from both sides so that the overflown mixture will fill in the gaps inside the pot.
7-Fit the pressurizing bushing on the pot. If the barrier epoxy compound still overflows, then clean the overflown material.



6 MOUNTING INSTRUCTION KBCTN

STEP 5

8-Fit lower body on the pot and start assembling the gland.
9-Tighten lower body, upper body and cap with a sufficient torque value.
10-Disassemble all the parts of the gland.
11-Clean carefully all the barrier epoxy compound smudged around pot and pressurizing bushing, inside upper and lower body.



12-When the barrier epoxy compound is hardened, the pot and the pressurizing bushing will not be seperated from each other, but all the other parts will be assembled/ disassembled.

Attention
Do not move the cable cores minimum for 4 hours. Assemble the barrier gland afterwards.

7 IP PROTECTION for NON-THREADED HOLES

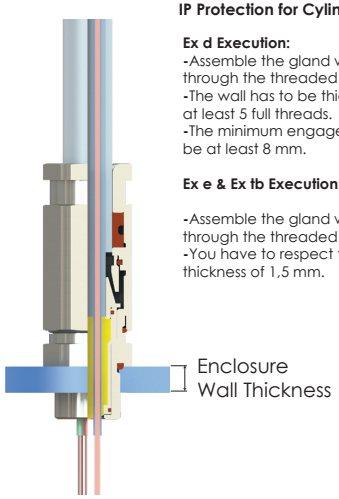
Recommended Hole Diameters For Non Threaded enclosure applications in relation with the used thread types are shown below.

- For non-threaded enclosure applications, min. 3 threads should be engaged with the lock nut.
- For non-threaded enclosures it is recommended to use O-Ring or flat washer between the gland body and enclosure. During the assembly it is recommended to rotate the locknut. The assembly is shown below.
- For flat washers silicon rubber is recommended.

Metric Threads	
Outer Thread Size	**Hole Diameter Ø min – max mm**
M20 x 1,5	20,0 - 20,2
M25 x 1,5	25,0 - 25,2
M32 x 1,5	32,0 - 32,3
M40 x 1,5	40,0 - 40,3
M50 x 1,5	50,0 - 50,3
M63 x 1,5	63,0 - 63,3
M75 x 1,5	75,0 - 75,3

8 IP PROTECTION for THREADED HOLES

Ingress Protection: In order to guarantee the specified IP66/68 rating, sealant agent shall be applied on at least two full threads before fitting the gland to the box. In any case you must pay attention to guarantee the metallic continuity.



IP Protection for Cylindrical Threaded Joints

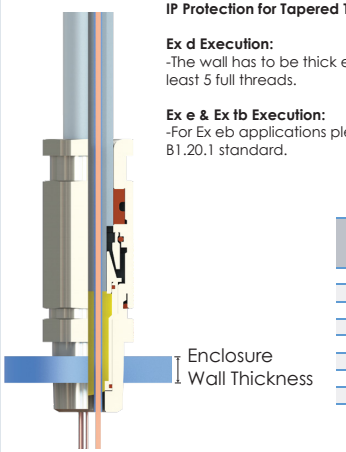
Ex d Execution:
-Assemble the gland with o-ring or flat washer through the threaded hole.
-The wall has to be thick enough to engage at least 5 full threads.
-The minimum engaged thread depth must be at least 8 mm.

Ex e & Ex tb Execution:

-Assemble the gland with o-ring or flat washer through the threaded hole.
-You have to respect the minimum wall thickness of 1,5 mm.

9 IP PROTECTION for THREADED HOLES

Ingress Protection: In order to guarantee the specified IP66/68 rating, sealant agent shall be applied on at least two full threads before fitting the gland to the box. In any case you must pay attention to guarantee the metallic continuity.



IP Protection for Tapered Threaded Joints

Ex d Execution:
-The wall has to be thick enough to engage at least 5 full threads.

Ex e & Ex tb Execution:
-For Ex eb applications please refer to NPT ANSI B1.20.1 standard.

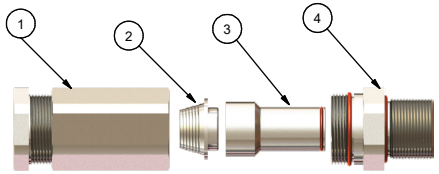
NPT"	Minimum Engaged Thread Depth	
	mm	inch
1/2	9,070	0,357
3/4	9,070	0,357
1	11,045	0,434
1 1/4	11,045	0,434
1 1/2	11,045	0,434
2	11,045	0,434
2 1/2	15,875	0,625
3	15,875	0,625

10 SAFETY INSTRUCTION

-Qualified personnel in compliance with the national laws shall carry out the maintenance in accordance with EN/IEC 60079-17 and installation in accordance with EN/IEC 60079-14.
-Changes to products are not allowed.
-Only Bimed spare parts must be used.
-The maintenance operations must be carried out only after the engine has been cut off from mains or from the related electrical appliance.
-The following instructions must be strictly followed in order to get a correct installation.
-The national safety rules and accident prevention regulations, must be strictly respected.
-The clamping of the cables must be realised outside of enclosure by appropriate torque values to guarantee the mechanical characteristics.
-The cable glands can be used with Ex i circuits.
-The cable glands are only suitable for fixed installations. Cables shall be effectively clamped to prevent pulling or twisting.
-The cable gland installation shall be done according to safety manufacturer instructions to maintain degree of protection.
-Cable gland installation shall be done taking into account the temperature range declared for cable glands in relation to protection mode execution, versus the ambient temperature proper of installation.
-The certificate does not indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed in the first page of the manual.
-The certificate does not cover hazards coming from environmental conditions different from those clearly and precisely indicated in clause 1 of EN 60079-0.
-Service temperature of the gland is related to the material of the sealing ring but can additionally be limited by the material of the flat washer/o-ring/accessories.

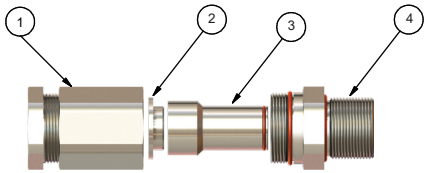
11 PRODUCTS PARTS

KBCTA



1- Cap, seal and upper body, swivel braid ring and o-ring
2- Grounding cone
3- Pot and o-ring
4- Lower body and o-ring

KBCTN



1- Cap, seal and upper body
2- Barrier pressure ring
3- Pot and o-ring
4- Lower body and o-ring

12 KBCTA SIZE TABLES

Thread Type **METRIC acc. to ISO 965-3**

Outer Thread Size (Male)	Clamping Range Ø min-max mm	Part Number	Upper Body Tightening Torque [Nm]	Cap Tightening Torque [Nm]	Needed Barrier Compound Mixture Per Pcs. (gr)
M20x1,5	3,0 - 8,5	**KBCTA1XSM**	60	30	7
	6,0 - 13,0	**KBCTA1SM**	60	25	7
	8,0 - 15,0	**KBCTA1M**	60	25	7
	13,5 - 21,0	**KBCTA1LM**	60	35	9
M25x1,5	8,0 - 15,0	**KBCTA2SM**	60	25	7
	13,5 - 21,0	**KBCTA2M**	65	35	9
	18,0 - 27,0	**KBCTA2LM**	65	30	20
M32x1,5	18,0 - 27,0	**KBCTA3M**	70	30	20
	23,0 - 33,0	**KBCTA3LM**	70	55	31
M40x1,5	23,0 - 33,0	**KBCTA4SM**	80	65	31
	29,0 - 40,0	**KBCTA4M**	80	65	60
M50x1,5	29,0 - 40,0	**KBCTA5SM**	90	75	60
	35,0 - 48,0	**KBCTA5M**	90	75	90
M63x1,5	35,0 - 48,0	**KBCTA6SM**	110	85	90
	42,0 - 56,0	**KBCTA6M**	110	85	193
M75x1,5	42,0 - 56,0	**KBCTA7SM**	120	150	193
	54,0 - 70,0	**KBCTA7M**	120	150	337
M90x1,5	54,0 - 70,0	**KBCTA8M**	120	150	337

Thread Type **NPT acc. to ANSI ASME B1.20.1**

Outer Thread Size (Male)	Clamping Range Ø min-max mm	Part Number	Upper Body Tightening Torque [Nm]	Cap Tightening Torque [Nm]	Needed Barrier Compound Mixture Per Pcs. (gr)
NPT 1/2"	3,0 – 8,5	**KBCTA1XSN**	60	30	7
	6,0 - 13,0	**KBCTA1SN**	60	25	7
	8,0 - 15,0	**KBCTA1N**	60	25	7
	13,5 - 21,0	**KBCTA1LN**	60	35	9
NPT 3/4"	8,0 - 15,0	**KBCTA2SN**	60	25	7
	13,5 - 21,0	**KBCTA2N**	65	35	9
	18,0 - 27,0	**KBCTA2LN**	65	30	20
NPT 1"	18,0 - 27,0	**KBCTA3N**	70	30	20
	23,0 - 33,0	**KBCTA3LN**	70	55	31
NPT 1 1/4"	23,0 - 33,0	**KBCTA4SN**	70	55	31
	29,0 - 40,0	**KBCTA4N**	80	65	60
NPT 1 1/2"	29,0 - 40,0	**KBCTA5N**	80	65	60
NPT 2"	35,0 - 48,0	**KBCTA6N**	90	75	90
NPT 2 1/2"	42,0 - 56,0	**KBCTA7N**	110	85	193
NPT 3"	54,0 - 70,0	**KBCTA8N**	120	150	337

Note: These torque values are recommended according to the tests performed in Bimed laboratory.

13 KBCTN SIZE TABLES

Thread Type **METRIC acc. to ISO 965-3**

Outer Thread Size (Male)	Clamping Range Ø min-max mm	Part Number	Upper Body Tightening Torque [Nm]	Cap Tightening Torque [Nm]	Needed Barrier Compound Mixture Per Pcs. (gr)
M20x1,5	3,0 - 8,5	**KBCTN1XSM**	60	30	7
	6,0 - 13,0	**KBCTN1SM**	60	25	7
	8,0 - 15,0	**KBCTN1M**	60	25	7
	13,5 - 21,0	**KBCTN1LM**	60	35	9
M25x1,5	8,0 - 15,0	**KBCTN2SM**	60	25	7
	13,5 - 21,0	**KBCTN2M**	65	35	9
	18,0 - 27,0	**KBCTN2LM**	65	30	20
M32x1,5	18,0 - 27,0	**KBCTN3M**	70	30	20
	23,0 - 33,0	**KBCTN3LM**	70	55	31
M40x1,5	23,0 - 33,0	**KBCTN4SM**	80	65	31
	29,0 - 40,0	**KBCTN4M**	80	65	60
M50x1,5	29,0 - 40,0	**KBCTN5SM**	90	75	60
	35,0 - 48,0	**KBCTN5M**	90	75	90
M63x1,5	35,0 - 48,0	**KBCTN6SM**	110	85	90
	42,0 - 56,0	**KBCTN6M**	110	85	193
M75x1,5	42,0 - 56,0	**KBCTN7SM**	120	150	193
	54,0 - 70,0	**KBCTN7M**	120	150	337
M90x1,5	54,0 - 70,0	**KBCTN8M**	120	150	337

Thread Type **NPT acc. to ANSI ASME B1.20.1**

Outer Thread Size (Male)	Clamping Range Ø min-max mm	Part Number	Upper Body Tightening Torque [Nm]	Cap Tightening Torque [Nm]	Needed Barrier Compound Mixture Per Pcs. (gr)
NPT 1/2"	3,0 – 8,5	**KBCTN1XSN**	60	30	7
	6,0 - 13,0	**KBCTN1SN**	60	25	7
	8,0 - 15,0	**KBCTN1N**	60	25	7
	13,5 - 21,0	**KBCTN1LN**	60	35	9
NPT 3/4"	8,0 - 15,0	**KBCTN2SN**	60	25	7
	13,5 - 21,0	**KBCTN2N**	65	35	9
	18,0 - 27,0	**KBCTN2LN**	65	30	20
NPT 1"	18,0 - 27,0	**KBCTN3N**	70	30	20
	23,0 - 33,0	**KBCTN3LN**	70	55	31
NPT 1 1/4"	23,0 - 33,0	**KBCTN4SN**	70	55	31
	29,0 - 40,0	**KBCTN4N**	80	65	60
NPT 1 1/2"	29,0 - 40,0	**KBCTN5N**	80	65	60
NPT 2"	35,0 - 48,0	**KBCTN6N**	90	75	90
NPT 2 1/2"	42,0 - 56,0	**KBCTN7N**	110	85	193
NPT 3"	54,0 - 70,0	**KBCTN8N**	120	150	337

Note: These torque values are recommended according to the tests performed in Bimed laborato

14 EU DECLARATION OF CONFORMITY

EU DECLARATION OF CONFORMITY

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declares that the products designed to be placed on the market for use in the explosive atmospheres described below are in conformity with the listed EU Directive and harmonized standards.

Barrier Gland Types;	KBCTA, KBCTN, KBCTNLS
Certificate Number;	CESI 17 ATEX 007X
Protection Type ;	I M2 / II 2 GD; Ex db I Mb; Ex eb I Mb; Ex db IIC Gb; Ex eb IIC Gb ; Ex tb IIIC Db IP66/68
EU Directive;	ATEX 2014/34/EU
The harmonized standards applied;	EN IEC 60079-0:2018 EN 60079-1:2014 EN IEC 60079-7:2015/A1:2018 EN 60079-31:2014

Notified body CESI 0722

Istanbul, 15.04.2021

General Manager
Yakup Gülnihal

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