	Scope : <b>USER MANUAL</b> <b>For Cable glands type TB-P and TB-B</b> <b>Zones 1, 2 &amp; 21 and 22</b>				Date : <b>20-04-2016</b>
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## 1. Marking (by pressure, by stamp or by laser):

**Name of the manufacturer:** TechNed Benelux BV (TB)

**Type:** TB-PAM..., PAP..., PTE..., PTT..., PSE... and TB-BAM...,BAP...,BTE...,BTT..., BSE... as barrier gland with an internal sealing bushing.

**CE 0344**

**Category:**  II 2 GD  I M2

**Protection:** Ex d IIC Gb / Ex e IIC Gb, Ex d I Mb, Ex tb IIIC Db IP66

**Year of construction:** .....

Laboratory/certificate nr.: **IECEX INE 150035X and INERIS 15ATEX0028X**



### For small cable glands:

TB-nl

TB-P... or TB-B...

Ex d/Ex e/Ex tb IP66

**IECEX INE 150035X**

**INERIS 15ATEX0028X**



Codification:

After the letter P./B., there will be a number 1-8 indicating the size.

Below the tables for Unarmoured and Armoured cables with gasket sizes

Unarmoured cable gland type TB-PAM/TB-PTE/TB-PTT/TB-PSE, single seal

[ ] = BAM or PAM or PTE or PTT or PSE

size	description	inner gasket A1*	inner gasket A2*	inner gasket A3*	inner gasket A4*	inner gasket A5*	metric	NPT
1	TB-[ ]-1 ....*	4 - 7 mm	7-9,5 mm	9-12 mm			M 20	1/2"
2	TB-[ ]-2 ....*	9 - 12 mm	12-14,5 mm	14-17 mm			M 25	3/4"
3	TB-[ ]-3 ....*	14 - 17 mm	17-20 mm	20-23 mm			M 32	1"
4	TB-[ ]-4 ....*	20-23 mm	23-26 mm	26-29 mm			M 40	1 1/4"
5	TB-[ ]-5 ....*	20-23 mm	23-26 mm	26-29 mm	29-32 mm	32-35,5 mm	M 50	1 1/2"
6	TB-[ ]-6 ....*	32-35,5 mm	36-39 mm	39-43 mm	43-46 mm		M 63	2"
7	TB-[ ]-7 ....*	44-47 mm	48-52 mm	52-55 mm			M 75	2 1/2"
8	TB-[ ]-8 ....*	52-57 mm	57-61 mm				M 85	3"
8A	TB-[ ]-8A ....*	61-65 mm	65-68 mm				M 85	3"

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Armoured cable gland type TB-PAP or TB-BAP, double seal

[] = PAP or BAP

size	description	inner gasket A1*	inner gasket A2*	inner gasket A3*	inner gasket A4*	inner gasket A5*	outer gasket B1**	outer gasket B2**	outer gasket B3**	metric	NPT
1	TB-[]-1 ....**	4 - 7 mm	7-9,5 mm	9-12 mm			8-13 mm	12-18 mm		M 20	1/2"
2	TB-[]-2 ....**	9 - 12 mm	12-14,5 mm	14-17 mm			14-19 mm	18-23 mm		M 25	3/4"
3	TB-[]-3 ....**	14 - 17 mm	17-20 mm	20-23 mm			18-23 mm	21-26 mm	24-29 mm	M 32	1"
4	TB-[]-4 ....**	20-23 mm	23-26 mm	26-29 mm			24-30 mm	29-35 mm		M 40	1 1/4"
5	TB-[]-5 ....**	20-23 mm	23-26 mm	26-29 mm	29-32 mm	32-35,5 mm	29-35 mm	36-41 mm		M 50	1 1/2"
6	TB-[]-6 ....**	32-35,5 mm	36-39 mm	39-43 mm	43-46 mm		42-47 mm	46-50 mm	50-55 mm	M 63	2"
7	TB-[]-7 ....**	44-47 mm	48-52 mm	52-55 mm			55-59 mm			M 75	2 1/2"
8	TB-[]-8 ....**	52-57 mm	57-61 mm				60-65 mm	65-70 mm		M 85	3"
8A	TB-[]-8A ....**	61-65 mm	65-68 mm				70-78 mm			M 85	3"

The cable glands are made in accordance with the ATEX Directive 94/9/CE and with the following standards:

- IEC 60079-0: 2001                      EN 60079-0        : 2012/A11:2013
- IEC 60079-1: 2007                      EN 60079-1        : 2007
- IEC 60079-7: 2006                      EN 60079-7        : 2007
- IEC 60079-31: 2013                      EN 60079-31        : 2014

## 2. Installation:

The installation must be realized in accordance with IEC/EN 60079-14 and/or in accordance with national requirements. This equipment must be installed and used only by qualified persons, having knowledge concerning electrical equipment for use in potential explosive areas containing gas and/or dust. Qualified persons must have knowledge regarding the types of explosion protection.

Maintenance is to be in accordance with IEC/EN 60079-17

This equipment is intended for use in category II, zone 1, 2 group IIC and group I and zones 21 & 22 IIIC. Check if the equipment is to be installed in accordance with the atmosphere.

Operating temperature for EPDM :  
- 40°C till + 100°C

### Installation notes:


The TB. Cable glands can be used for:

1. Armoured cable with metal braid, wire and/or flat band
2. Unarmoured cable

They can be fitted on equipment with type protection "Ex d", "Ex e" "Ex i", "Ex m", "Ex p", and "Ex n". When the cable glands is fitted on equipment with type protection "Ex i" the top part of the cable gland and /or the shroud will be blue color.

The TB.... cable glands are made of:

1. Brass OT 58 nickel plated
2. Stainless steel 316

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The gaskets are made of

1. EPDM rubber 60-65 shore

Tightening couple for the compression of the sealing ring per size of cable gland:

- Size 1: 50 Nm
- Size 2: 50 Nm
- Size 3: 50 Nm
- Size 3R: 50 Nm
- Size 5: 80 Nm
- Size 6: 85 Nm
- Size 7: 90 Nm
- Size 8: 95 Nm
- Size 8A : 95 Nm


### Installation Instructions for double seal cable glands for armoured cable

Armoured cable, gland type TB-PAP with earth continuity

Gland parts:

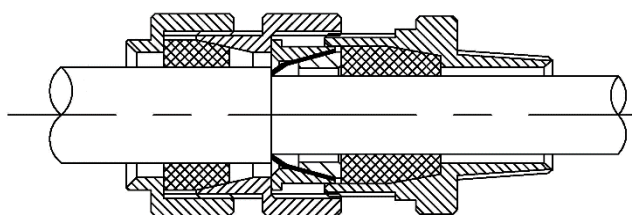
1. Body
2. Ex inner gasket
3. Armour ring and compression ring
4. Armour cone and compression ring
5. Middle body
6. External sealing gasket
7. Cap



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Assembly:

- a. Screw the body (1) in the gland entry of the enclosure. Make sure that correct threading is used. Use grease to facilitate the mounting.
- b. Control if the size of the gasket(s) meet the real diameter of the cable. If not, the gasket can be replaced by another gasket form the same size of cable gland. Ask TechNed Benelux bv for advise.  
When the enclosure has other than Ex d type protection, with passing through entry, use a lock nut .  
For IP rating, use sealing ring between the cable gland and the enclosure..  
Secure the body in the housing using a key for couple see above table  
Pass over the cable:  
  1. The cap (7)
  2. The external sealing gasket (6)
  3. The middle body (5)
- c. Remove the outer sheet of the cable for the correct length
- d. Cut the armour for a length of 10 mm from the cut of the outer sheet.
- e. Pass over the cable the armour cone (4) and under the armour of the cable, the armour ring (3)
- f. Pass over the inner sheet of the cable the Ex inner gasket.
- g. Pass the cable with the Ex inner gasket in the installed body of the gland together with the armor ring and armour cone and install the middle body (5).
- h. Fasten the middle body by a key at approx. For couple, see above table.
- i. Place the external sealing gasket on the middle body and fasten the cap (7) on the middle body.
- j. Fasten the cap by key, for couple see above table.



*TB-PAP... series*

**Installation instructions for single seal cable glands for unarmoured cable**

Non armoured cable, gland type TB-PAM

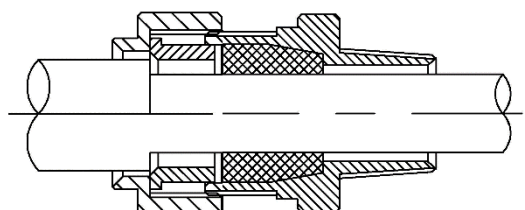
Gland parts:

1. Body
2. Ex sealing gasket
3. Compression ring
4. Cap




Assembly:

- a. Screw the body (1) in the gland entry of the enclosure. Make sure that correct threading is used. Use grease to facilitate the mounting.
- b. Control if the size of the gasket meet the real diameter of the cable. If not, the gasket can be replaced by another gasket form the same size of cable gland. Ask TechNed Benelux bv for advise.  
When the enclosure has other than Ex d type protection, with passing through entry, use a lock nut .  
For IP rating, use sealing ring between cable gland and enclosure  
Secure the body in the housing using a key. For couple see above table  
Pass over the cable the cap (4) and the compression ring (3) as shown in the drawing
- c. Pass the cable through the Ex sealing gasket (2) and the body in to the enclosure with the correct length and tighten the cap with a key. For couple see above table.



*TB-PAM... series*

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### Installation instruction for cable glands with barrier by internal sealing bushing construction.

Armoured cable, gland type TB-BAP with earth continuity and barrier

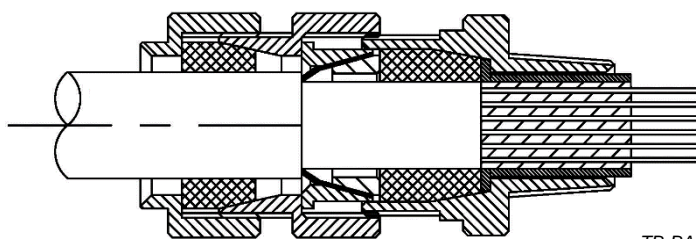
Gland parts:

1. Body
2. Barrier nipple
3. Ex inner gasket
4. Armour ring and compression ring
5. Armour cone and compression ring
6. Middle body
7. External sealing gasket
8. Cap



#### Assembly:

- a. Screw the body (1) in the gland entry of the Ex d enclosure. Make sure that correct threading is used. Use grease to facilitate the mounting.
- b. Control if the size of the gasket(s) meet the real diameter of the cable. If not, the gasket can be replaced by another gasket form the same size of cable gland. Ask TechNed Benelux bv for advise.  
For IP rating, use sealing ring between cable gland and enclosure  
Secure the body in the housing using a key. For couple, see above table.  
Pass over the cable:
  4. The cap (8)
  5. The external sealing gasket (7)
  6. The middle body (6)
- c. Remove the outer sheet of the cable for the correct length
- d. Cut the armour for a length of 10 mm from the cut of the outer sheet.
- e. Pass over the cable the armour cone (5) and under the armour of the cable, the armour ring (4)
- f. Pass over the inner sheet of the cable the Ex inner gasket and the barrier nipple (3).
- g. Pass the cable with the Ex inner gasket and the barrier nipple in the installed body of the gland together with the armor ring and armour cone and install the middle body (6).
- h. Fasten the middle body by a key. For couple, see above table.
- i. Place the external sealing gasket on the middle body and fasten the cap (7) on the middle body.
- j. Fasten the cap by key. For couple, see above table.
- k. Fill the barrier nipple with the supplied resin added with the cable gland.




*TB-BAP... series*

### INSTALLATION AND MAINTENANCE

The equipment is to be cleaned periodically to avoid the accumulation of dust (maximum thickness **less than 5mm**) over it and provide a period control of the clamping cable status. For dusty areas a shroud can be used to protect the cable gland.

All damaged part, must be changed or repaired by manufacturer original parts to guarantee protection mode and safety

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#### **Requirement for type protection Ex d.**

For cylindrical threaded holes on the enclosure, the length of threading must be >8mm to guarantee the right number of engaged threads (at least five). For taper threaded holes (NPT) the length of threading must be > 9 mm

Flameproof cable glands having parallel threads may be fitted with a sealing washer between the entry device and the flameproof enclosure providing that after the washer has been fitted, the applicable thread engagement is still achieved (at least five full threads).

Suitable grease may be used provided it's not setting, not metallic, not combustible and earthing is maintained.

When conic thread are used, the connection shall be wrench tight.

Where the threaded entry or the hole size is different to that of the cable gland, a flameproof adapter complying with IEC/EN60079-1 shall be fitted which complies with thread engagement requirements.

#### **Requirement other type protection "Ex e" "Ex i", "Ex m", "Ex p", and "Ex n".**

For not threaded holes, the diameter of the holes of the enclosure do not exceed more than 0.2 mm of the diameter of the cable gland and the cable gland must be blocked with an internal nut.

Conic thread holes in plastic enclosures are not recommended because of the high stressed create during sealing those threads may fracture the enclosure wall.

## **4. Maintenance:**

The maintenance must be realised in accordance with IEC/EN 60079-17 and/or in accordance with the national requirements. This equipment must be installed and used only by qualified personnel, having knowledge concerning electrical equipment for use in potentially explosive areas containing gas and/or dust. Qualified personnel must have knowledge regarding the types of explosion protection.

For Ex d or Ex tb compartment when re-installing the covers, make sure the threads are clean, not damaged, and well lubricated. If the O-Ring is damaged it is necessary to change with the same type of silicone O-Ring, please contact TechNed Benelux BV for replacement parts.

The lubricant must not harden over time, must not contain solvents that evaporate and should not cause corrosion of the joints. (e.g. Copper Slib)

#### **Do not forget the locking screw when opening/closing the cover.**

For Ex e or Ex tb junction box when re-installing the cover, it is necessary to verify the gasket. If it is damaged it will be necessary to replace the cover, please contact TechNed Benelux BV for replacement parts.

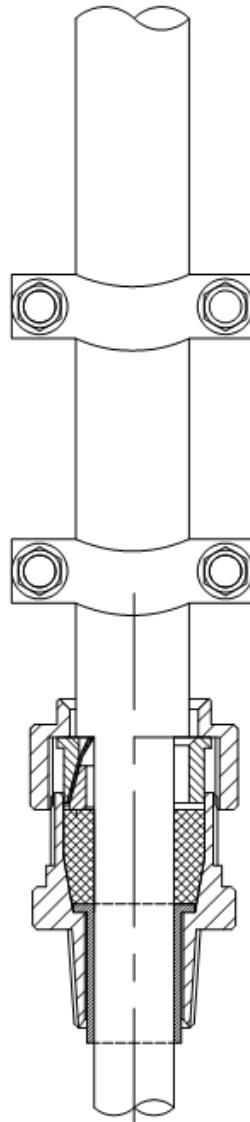
## **5. Special conditions for safe use**

The temperature of the enclosure at the connection point of the cable gland must not exceed: +100°C with sealing ring EPDM with or without sealed bushing.

The minimum temperature for use are:


-40°C with sealing ring EPDM with or without sealed bushing.

For the cable glands size 6, 7, 8 and 8A the cable must be clamped nearby the enclosure in which the cable gland is installed (see example next page) .




Cable glands size 8A shall provide supplementary clamping of the cable in order to prevent pulling or twisting applied to it from being transmitted to the connectors, as per A.2.3.1 of 60079.0.  
 For this the cable gland shall be used for fixed installations because the user shall ensure adequate external clamping of the cable.

	Name: Cable gland		Roundness	General tolerance
			<input checked="" type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>

	Drawing Nr.	CG1209	A 3
<b>Built for safety &amp; durability</b>	Copyright: Techned Benelux BV	Order nr.	
	File:	Customer:	

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## EU- Declaration of Conformity:



Equipment: **Cable glands type TB - P or TB - B**  
 Manufacturer: **TechNed Benelux bv**  
 Address: **Veersteeg 15, 4212 LR Spijk, Netherlands.**

TechNed Benelux bv declares that the equipment is in compliance with the applicable requirements in the following European Directive:  
 ATEX Directive 2014/34/EU

EC-Type Examination Certificate **INERIS 15ATEX0028X** issued by:  
**Ineris (0080)**  
 Parc Technologique Alata BP2  
 F060550 Verneuil-en-Halatte (France)

The following standards have been applied for certification:  
**EN 60079-0:2012, EN 60079-1:2007 EN 60079-7:2007, EN 60079-31:2014**

Spijk, 20-04-2016

  
 QA Manager