



# RIBCO

## EXPLOSION PROOF EQUIPMENT

Via dei Mille, 12 - 20061 - ITALY Carugate (MI)  
www.ribco.it - info@ribco.it

### SAFETY NOTE

Cable glands

Series P

IS-CG-03

Rev. 3 - 19/11/2020

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#### DESCRIPTION

These safety notes are relevant for the installation, use and maintenance of cables glands series P... suitable for classified area Zone 1 & 2 and Zone 21 & 22. The conformity is obtained by the observance of the following International and European standards:

IEC 60079-0	: 2017	EN IEC 60079-0	: 2018
IEC 60079-1	: 2014	EN 60079-1	: 2014
IEC 60079-7	: 2017	EN IEC 60079-7	: 2015/A1:2018
IEC 60079-31	: 2013	EN 60079-31	: 2014

#### TECHNICAL DATA

Notified body for surveillance : **0722**

ATEX Ex Type Examination Certificate : **INERIS 10 ATEX 0029X**

IECEx Certificate of Conformity : **IECEx INE 14.0003X**

Gas Group : **IIC**

Dust Group : **IIIC**

Category : **2GD**

Protection mode against gas : **Ex db IIC Gb Ex eb IIC Gb**

Protection mode against dust : **Ex tb IIIC Db IP65 or IP66**

#### PROTECTION DEGREE

Cable glands have degree of protection IP65 or IP66 (see more detail on marking).

#### SERVICE TEMPERATURE

- from -40°C ÷ +100°C with EPDM SEALING RUBBER
- from -60°C ÷ +180°C with SILICON SEALING RUBBER

In order to comply with the standard 60079-14, if a barrier cable glands (series P...X) is needed then the resin used must have a thermal endurance profile suitable with the temperature class of the electrical equipment on which the cable gland will be installed.

Below a list of resin we suggest to use:

Cable gland series	Service Temperature	Seal material	Resin type
P...X	-40°C to +100°C	EPDM	ELANTAS MC62/W363
P...X	-55°C to +155°C	Silicone	ELANTAS MC62/W363
P...X	-40°C to +80°C	EPDM	ARALDITE 2012
P...X	-60°C to +80°C	Silicone	ARALDITE 2012
P...X	-40°C to +100°C	EPDM	CW1302 / HY 1300
P...X	-60°C to +180°C	Silicone	CW1302 / HY 1300

#### THREADS

Cable glands are available with following thread standard:

- ISO METRIC ISO 262 - ISO 965 - 1,2,3. from size M16X1.5 up to M90X1.5
- NPT ANSI B.1.20.1 1983 from size 3/8" up to 3"

#### MATERIALS

Materials used with cable glands:

- Nickel plated brass (CW614N)
- Stainless steel AISI 316L
- EPDM sealing rubber for operating temperature -40°C ÷ +100°C
- Silicon sealing rubber for operating temperature -60°C ÷ +180°C



**EQUIPMENT IDENTIFICATION**

**A + B + C**

**A** - Type of cable gland (see table)

**B** - Dimension of cable entry

**C** - Material

**(A)**

CODE	DESCRIPTION	CODE	DESCRIPTION
<b>PM</b> <b>(PF)</b>	Cable gland for unarmored cable with male (or female) thread.	<b>PAX</b> <b>(PAFX)</b>	Single compression barrier cable gland for armoured cable with male (or female) thread.
<b>PMX</b> <b>(PFX)</b>	Barrier cable gland for unarmored cable with male (or female) thread.	<b>PMFA</b> <b>(PFFA)</b>	Cable gland for armored cable with male (or female) thread and turning female sleeve to be coupled to a rigid or flexible conduit.
<b>PMF</b> <b>(PFF)</b>	Cable gland for unarmored cable with male (or female) thread and turning female sleeve to be coupled to a rigid or flexible conduit.	<b>PMFAX</b> <b>(PFFAX)</b>	Barrier cable gland for armored cable with male (or female) thread and turning female sleeve to be coupled to a rigid or flexible conduit.
<b>PMFX</b> <b>(PFFX)</b>	Barrier cable gland for unarmored cable with male (or female) thread and turning female sleeve to be coupled to a rigid or flexible conduit.	<b>PMMA</b> <b>(PFMA)</b>	Cable gland for armored cable with male (or female) thread and turning male sleeve to be coupled to a rigid or flexible conduit.
<b>PMM</b> <b>(PFM)</b>	Cable gland for unarmored cable with male (or female) thread and turning male sleeve to be coupled to a rigid or flexible conduit.	<b>PMMA</b> <b>(PFMA)</b>	Barrier cable gland for armored cable with male (or female) thread and turning male sleeve to be coupled to a rigid or flexible conduit.
<b>PMMX</b> <b>(PFMX)</b>	Barrier cable gland for unarmored cable with male (or female) thread and turning male sleeve to be coupled to a rigid or flexible conduit.	<b>PMSA</b> <b>(PFSA)</b>	Cable gland for armored cable with male (or female) thread with fast clamping for flexible conduit.
<b>PMS</b> <b>(PFS)</b>	Cable gland for unarmored cable with male (or female) thread with fast clamping. flexible conduit.	<b>PMSAX</b> <b>(PFSAX)</b>	Cable gland for armored cable with male (or female) thread with fast clamping for flexible conduit .conduit.
<b>PMSX</b> <b>(PFSX)</b>	Cable gland for unarmored cable with male (or female) thread with fast clamping for flexible conduit.	<b>PMA</b> <b>(PFA)</b>	Double compression cable gland for armoured cable with male (or female) thread.
<b>PA</b> <b>(PAF)</b>	Single compression cable gland for armoured cable with male (or female) thread.	<b>PMA</b> <b>(PFA)</b>	Barrier double compression cable gland for armoured cable with male (or female) thread.

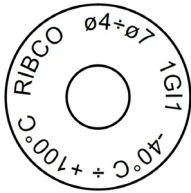
**(B)**

NPT thread				ISO 262 thread			
CODE	SIZE	CODE	SIZE	CODE	SIZE	CODE	SIZE
<b>38</b>	3/8" NPT	<b>5</b>	1.1/2" NPT	<b>16</b>	M16x1.5	<b>50</b>	M50x1.5
<b>1</b>	1/2" NPT	<b>6</b>	2" NPT	<b>20</b>	M20x1.5	<b>63</b>	M63x1.5
<b>1E</b>	1/2" NPT	<b>7</b>	2.1/2" NPT	<b>20E</b>	M20x1.5	<b>75</b>	M75x1.5
<b>2</b>	3/4" NPT	<b>8</b>	3" NPT	<b>25</b>	M25x1.5	<b>85</b>	M85x1.5
<b>3</b>	1" NPT	<b>9</b>	3" NPT	<b>32</b>	M32x1.5	<b>90</b>	M90x1.5
<b>4</b>	1.1/4" NPT			<b>40</b>	M40x1.5		

**(C)**


CODE	MATERIAL
<b>B</b>	Nickel Plated Brass CW614N
<b>S</b>	Stainless Steel AISI 316L

**ELASTOMETRIC RING IDENTIFICATION SEALING (GI) AND DOUBLE COMPRESSIONE (GE) TYPE**




RIBCO + minimum diameter cable ÷ MAX diameter cable + TYPE +  
minimum temperature ÷ MAX temperature

**MARKING for cable gland from dimension 16 (or 38) up to 75 (or 7)**


RIBCO s.r.l.  
I - 20061 Carugate (MI)  
Code Article  
INERIS 10ATEX0029X  
IECEX INE 14.0003X  
(Year of construction)  
**CE** 0722  II 2 GD  
Ex db IIC Gb  
Ex eb IIC Gb  
Ex tb IIIC Db IP66

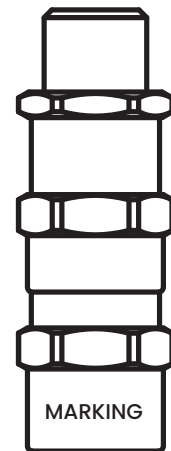
**MARKING for cable gland from dimension 85 (or 8) and 90 (or 9)**

When installed on Ex db Equipment

RIBCO s.r.l.  
I - 20061 Carugate (MI)  
Code Article  
INERIS 10ATEX0029X  
IECEX INE 14.0003X  
(Year of construction)  
**CE** 0722  II 2 GD  
Ex db IIC Gb  
Ex tb IIIC Db IP66

When installed on Ex eb Equipment

RIBCO s.r.l.  
I - 20061 Carugate (MI)  
Code Article  
INERIS 10ATEX0029X  
IECEX INE 14.0003X  
(Year of construction)  
**CE** 0722  II 2 GD  
Ex eb IIC Gb  
Ex tb IIIC Db IP65





## INSTALLATION

The units series RX & RS must be installed, in conformity of the International and European standards IEC 60079-14 & EN60079-14, by qualified and authorized personal.

### Requirement for protection mode Ex-db.

For ISO 262 threaded entries the number of engaged threads must be  $> 5$  with a minimum length of 8mm and class of tolerance must be 6H/6g. For NPT threaded entries the number of engaged threads must be  $> 5$ . In order to guarantee the IP degree of protection, a grease type Arexons System GC300 or a thread locker type Arexons System 52A72 must be used as indicated in the picture below.

When taper thread are used, the connection shall be wrench tight. Additional holes shall not be made into flameproof enclosures. Where the threaded entry or the hole size is different to that of the cable gland, a flameproof adapter complying with 60079-1 shall be fitted which complies with thread engagement requirements.

Material of the enclosure can be aluminium, steel, stainless steel, brass or cast iron, with a wall rugosity of maximum 1.6Ra value. Cable gland can be monted on enclosure which have a maximum draft angle of  $10^\circ$ .

### Requirement for protection mode Ex-eb or Ex tb.

When installed on thread entry, In order to guarantee the IP degree of protection, a grease type Arexons System GC300 or a thread locker type Arexons System 52A72 must be used as indicated in the picture below. Iso threaded adapters complying with 60079-0 may be fitted into the cable entry holes to allow the connection of the cable gland.

Material of the enclosure can be aluminium, steel, stainless steel or plastic but taper thread holes in plastic enclosures are not recommended because of the high stressed create during sealing those threads may fracture the enclosure wall. The mamimum wall rugosity of the enclosure should be 0.8 Ra and cable gland can be monted on enclosure which have a maximum draft angle of  $10^\circ$ .

For not threaded holes, the diameter shall allow a clearance as indicted in the table below. In order to guarantee the IP degree of protection a teflon washer and a locknut must be used as indicated in the picture below. For dimension M85, M90 or 3" NPT an addition oring will be necessary also.

Material of the enclosure can be aluminium, steel, stainless steel or plastic with a wall rugosity of maximum 0.8Ra value. Cable gland can be monted on enclosure which have a maximum wall thickness of 8mm.

**TOLLERANCE FOR CLEARANCE HOLE ON EX eb ENCLOSURE**

$\varnothing A$	$\varnothing B$ [mm]	$\varnothing A$	$\varnothing B$ [mm]
3/8" NPT	17 ÷ 17,5	M16x1.5	16 ÷ 16,5
1/2" NPT	21 ÷ 21,5	M20x1.5	20 ÷ 20,5
3/4" NPT	26,5 ÷ 27	M25x1.5	25 ÷ 25,5
1" NPT	33 ÷ 33,5	M32x1.5	32 ÷ 32,5
1.1/4" NPT	42 ÷ 42,5	M40x1.5	40 ÷ 40,5
1.1/2" NPT	48 ÷ 48,5	M50x1.5	50 ÷ 50,5
2" NPT	60 ÷ 60,5	M63x1.5	63 ÷ 63,5
2.1/2" NPT	72,5 ÷ 73	M75x1.5	75 ÷ 75,5
3" NPT	88,5 ÷ 89	M85x1.5	85 ÷ 85,5
		M90x1.5	90 ÷ 90,5



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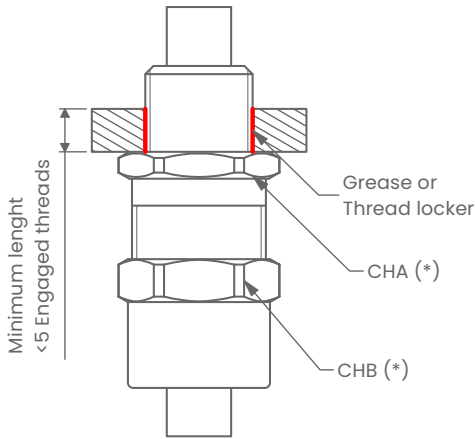
Cable glands  
Series P

IS-CG-03

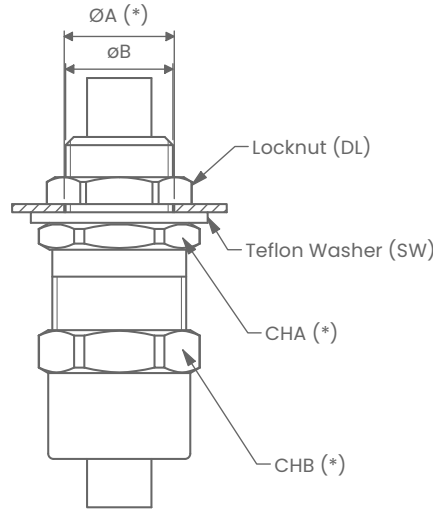
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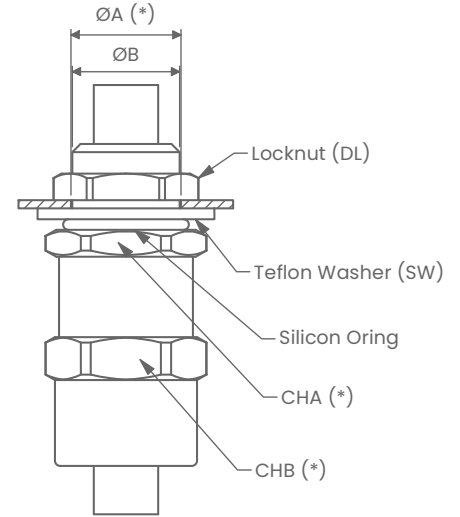
Installation on Ex db or Ex eb  
Equipment with a thread entry



Installation on Ex eb  
Equipment with clearance hole  
up to M75 or 2 1./2" NPT



Installation on Ex eb  
Equipment with clearance hole  
for M85 or M90 or 3" NPT"



(\*) See torque tightening value table

### Torque Tightening [Nm]

ØB	Cable (CHB)	Ex db Enclosure (CHA)	Ex eb Enclosure (CHA)
3/8" NPT or M16x1.5	30	8	8
1/2" NPT or M20x1.5	30	10	10
3/4" NPT or M25x1.5	45	13	13
1" NPT or M32x1.5	50	16	16
1.1/4" NPT or M40x1.5	60	20	20
1.1/2" NPT or M50x1.5	70	25	25
2" NPT or M63x1.5	80	30	30
2.1/2" NPT or M75x1.5	100	35	35
M85x1.5	150	40	40
3" NPT or M90x1.5	200	45	45



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### MAINTENANCE

Only qualified and formed worker can allow the maintenance of cable gland according to the International standard IEC 60079-17 and European standard EN 60079-17.

We suggest to keep always clean the device in order to avoid the accumulation of dust over it and provide a period control of the clamping cable status. For dusty areas we suggest to protect the cable gland using a shroud. Cable tightening control should be make at least one time for year.

All damaged parts for must be changed and no repairing is allowed.

### SPECIAL CONDITION

Due to the tensile test performed at 25% of the load, the clamping of the cables must be realized outside of the enclosure, nearby to the enclosure on which the cable glands are installed.

The temperature of the enclosure, at the connection point of the cable entry must not exceed the following:

Cable gland series	Service Temperature	Seal material	Resin type
P...	-40°C to +100°C	EPDM	None
P...	-40°C to +180°C	Silicone	None
P...X	-40°C to +100°C	EPDM	ELANTAS MC62/W363
P...X	-55°C to +155°C	Silicone	ELANTAS MC62/W363
P...X	-40°C to +80°C	EPDM	ARALDITE 2012
P...X	-60°C to +80°C	Silicone	ARALDITE 2012
P...X	-40°C to +100°C	EPDM	CW1302 / HY 1300
P...X	-60°C to +180°C	Silicone	CW1302 / HY 1300

The user shall use cables with thermal stability in accordance with the rated service temperature of the sealing ring.