



EU-TYPE EXAMINATION CERTIFICATE

[2] **Equipment or Protective System intended for use in potentially explosive atmospheres - Directive 2014/34/EU**

[3] EU-type Examination Certificate number:

IMQ 14 ATEX 012 X

[4] PRODUCT: METAL CABLE GLANDS FOR CIRCULAR AND FOR FLAT CABLES
TYPE/SERIES: **CG.NA.*****; CG.NA.*****(AXB);
CG.EM.*****; CG.EM.*****(AXB);
CG.CO.*****; CG.CO.*****(AXB)**
(as specified in §15.1)

[5] MANUFACTURER: **PEPPERL+FUCHS GMBH**

[6] ADDRESS: LILIENTHALSTRASSE 200 – 68307 MANNHEIM (GERMANY)

APPLICANT: **PEPPERL+FUCHS GMBH**
LILIENTHALSTRASSE 200 – 68307 MANNHEIM (GERMANY)

[7] This equipment and any acceptable variation there to are specified in the annex to this certificate and the documents therein referred to.

[8] IMQ, notified body N° 0051, in accordance with Article 17 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 equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report No.:

AT16-0003657

[9] Compliance with Essential Health and Safety Requirements, except in respect of those listed at item 18 of the annex, has been assured by compliance with:

EN 60079-0:2012 + A11:2013; EN 60079-1:2014; EN 60079-7:2015; EN 60079-31:2014

[10] If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

[11] This EU - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. 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 equipment or protective system shall include the following:

II 2G Ex db IIC Gb; Ex eb IIC Gb and
 II 2D Ex tb IIIC Db

THIS DOCUMENT IS COMPOSED OF 7 PAGES INCLUDING 1 ANNEX.

IMQ

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SGQ N° 005 A EMAS N° 003 P
SGA N° 006 D PRD N° 005 B
SGE N° 006 M PRS N° 080 C
SCR N° 005 F ISP N° 063 E
SSI N° 003 G LAB N° 0121
FSM N° 007 I LAT N° 021

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ANNEX

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[14] EU-type Examination Certificate: **IMQ 14 ATEX 012 X**

[15] **DESCRIPTION OF PRODUCT:**

The cable glands series CG.NA.*****, CG.EM.*****, CG.CO.***** are suitable for inserting circular cables into Ex d enclosures having threaded entries and Ex e or Ex tb enclosures having either threaded or plane entries. Suitability of each model for Ex d, Ex e and Ex tb execution is shown in following tables.

The cable glands series CG.NA.*****(axb); CG.EM.*****(axb); CG.CO.*****(axb) are suitable for inserting flat cables into Ex e or Ex tb enclosures having either threaded or plane entries.

Cable glands are suitable for not-armoured cables, and are made of metal body (aluminium; stainless steel; brass; galvanized steel; nickel plated brass).

Sealing rings are made of silicon or neoprene (chloroprene) for all types of cable glands for circular cables.

Cable glands for flat cables have sealing rings made of silicone only.

O-ring made of: neoprene, silicone or EPDM rubber.

Flat washer made of: chloroprene (neoprene), silicone, EPDM rubber, fiber KLINGERSIL® C-4400, PA washer (-60÷65 °C).

To guarantee the IP 66/68 degree of protection the cable glands with cylindrical threads have a sealing edge machined for fitting an elastomeric gasket, while for all other threads the IP66/68 degree of protection is achieved with sealant put at least on two complete threads engaged of the threaded coupling.

Cable glands are suitable for cable type where sealing and retention is required by gripping the outer sheath (including armoured/screened/braided cables when the armour/screen/braid is clamped inside the terminating equipment).

Cable glands should be also used for intrinsically safe circuits Ex i.

Cable glands for circular cables can be supplied with tap, commercial called "dome plug", polyamide made, as accessory (BP.NA.*.PA), suitable to guarantee IP degree when installed according to manufacturer's instructions.

[15.1] **MODELS/SERIES IDENTIFICATION:**

KEY CODE:

CG.NA.	(1)	(2)	(3)	(4)	(5)		(1) thread type: <i>filettatura</i>	"NPT" – NPT ANSI ASME B1.20.1 "M" – Metric ISO pitch 1,5 (ISO 965/1 and ISO 965/3) "P" – PG DIN 40430 (Ex e only / <i>solo Ex e</i>) "C" – GAS UNI ISO 228/1 "S" – N.P.S.M. "G" – GAS UNI ISO 7/1 "K" – GAS Gk UNI 6125 (Ex e only / <i>solo Ex e</i>)
CG.EM	(1)	(2)	(3)	(4)	(5)		(2) size: <i>dimensioni</i>	according to related table <i>in accordo alle relative tabelle</i>
CG.CO	(1)	(2)	(3)	(4)	(5)		(3) body material: <i>materiale corpo</i>	"B" – brass / <i>ottone</i> "BN" – nickel plated brass / <i>ottone nichelato</i> "SS" – stainless steel / <i>acciaio inox</i> "A" – aluminium / <i>alluminio</i> "Z" – galvanized steel / <i>acciaio galvanizzato</i>
CG.NA.	(1)	(2)	(3)	(4)	(5)	(axb)	(4) sealing ring: <i>tipo gommino</i>	"C" – neoprene (chloroprene) made / <i>neoprene</i> "S" – silicone made / <i>silicone</i>
CG.EM	(1)	(2)	(3)	(4)	(5)	(axb)	(5) min thread length (mm) / <i>minima lunghezza della filettatura (mm)</i>	
CG.CO	(1)	(2)	(3)	(4)	(5)	(axb)		



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In following tables (3.1, 3.2, 3.3, 4.1, 4.2, 4.3) only metric threads and NPT threads cable glands sizes are shown.

Models with other threads, as detailed in Key code, are available: they are derived from models with metric threads and NPT threads, according to cross reference table PCA4-THEQ rev. 0, and named according to key code, with reference to type of threads used.

Table 3.1:

Mod		Min-max cable Ø mm	Torque value [Nm]			Suitable for	
CG.NA.M***	CG.NA.NPT***		S1+S2+S3 triple sealing ring	S1+S2 double sealing ring	S1 single sealing ring	Ex db	Ex eb Ex tb
CG.NA.M8**	X	2-4	-	-	4	no	yes
CG.NA.M12**	CG.NA.NPT1/4**	4-8	20	18	-	no	yes
CG.NA.M16S**	CG.NA.NPT3/8S**	3-9	-	25	18	yes	yes
CG.NA.M16**	CG.NA.NPT3/8**	4-	20	18	16	yes	yes
CG.NA.M20XS**	CG.NA.NPT1/2XS**	3-9	-	25	18	yes	yes
CG.NA.M20S**	CG.NA.NPT1/2S**	4-	20	18	16	yes	yes
CG.NA.M20**	CG.NA.NPT1/2**	10-16	25	22	18	yes	yes
CG.NA.M25XS**	CG.NA.NPT3/4XS**	4-	20	18	16	yes	yes
CG.NA.M25S**	CG.NA.NPT3/4S**	10-18	25	22	18	yes	yes
CG.NA.M25**	CG.NA.NPT3/4**	14-20	28	23	-	yes	yes
CG.NA.M32XS**	CG.NA.NPT1XS**	10-18	25	22	18	yes	yes
CG.NA.M32S**	CG.NA.NPT1S**	14-24	28	23	20	yes	yes
CG.NA.M32**	X	22-28	56	50	35	yes	yes
X	CG.NA.NPT1**	22-28	56	50	-	yes	yes
CG.NA.M40XS**	CG.NA.NPT1-1/4XS**	14-24	28	23	20	yes	yes
CG.NA.M40S**	CG.NA.NPT1-1/4S**	22-32	56	50	45	yes	yes
CG.NA.M40**	CG.NA.NPT1-1/4**	26-34	57	55	52	yes	yes
CG.NA.M50XS**	CG.NA.NPT1-1/2XS**	22-32	56	50	45	yes	yes
CG.NA.M50S**	CG.NA.NPT1-1/2S**	26-35	57	55	52	yes	yes
CG.NA.M50**	X	35-44	190	155	140	yes	yes
X	CG.NA.NPT1-1/2**	35-44	190	155	-	yes	yes
CG.NA.M63XS**	CG.NA.NPT2XS**	26-35	57	55	52	yes	yes
CG.NA.M63S**	CG.NA.NPT2S**	35-45	190	155	140	yes	yes
CG.NA.M63**	X	46-56	160	145	135	yes	yes
X	CG.NA.NPT2**	46-56	160	145	-	yes	yes
CG.NA.M75XS**	CG.NA.NPT2-1/2XS**	35-45	190	155	140	yes	yes
CG.NA.M75S**	CG.NA.NPT2-1/2S**	46-62	185	175	150	yes	yes
CG.NA.M75**	X	60-69	123	118	-	yes	yes
X	CG.NA.NPT2-1/2**	60-64	123	-	-	yes	yes
CG.NA.M90XS**	CG.NA.NPT3XS**	46-62	185	175	150	yes	yes
CG.NA.M90S**	CG.NA.NPT3S**	60-75	123	118	110	yes	yes
CG.NA.M90**	X	75-82	135	130	125	yes	yes
X	CG.NA.NPT3**	75-82	135	130	-	yes	yes
CG.NA.M100XS**	CG.NA.NPT4XS**	60-75	123	118	110	yes	yes
CG.NA.M100S**	CG.NA.NPT4S**	75-85	135	130	125	yes	yes
CG.NA.M110**	CG.NA.NPT4**	85-95	180	175	170	yes	yes
CG.NA.M115S**	X	75-85	135	130	125	yes	yes
CG.NA.M115**	X	85-95	180	175	170	yes	yes
CG.NA.M115L**	X	95-105	450	450	450	yes	yes
X	CG.NA.NPT4L**	95-101	450	450	-	yes	yes
CG.NA.M130**	X	105-115	526	500	535	yes	yes
X	CG.NA.NPT5**	95-105	450	450	450	yes	yes
X	CG.NA.NPT5L**	105-115	526	500	535	yes	yes

Table 3.3: CG.EM.***

Model		Min-max cable Ø mm	Torque value [Nm]			Suitable for	
CG.EM.M***	CG.EM.NPT***		S1+S2+S3 triple sealing ring	S1+S2 double sealing ring	S1 single sealing ring	Ex d	Ex e Ex tb
CG.EM.M16S**	CG.EM.NPT3/8S**	4-8	-	25	18	yes	yes
CG.EM.M16**	CG.EM.NPT3/8**	4-8	-	25	18	yes	yes
CG.EM.M20**	CG.EM.NPT1/2**	4-12	20	18	16	yes	yes
CG.EM.M25**	CG.EM.NPT3/4**	10-18	25	22	18	yes	yes
CG.EM.M32**	CG.EM.NPT1**	14-24	28	20	18	yes	yes
CG.EM.M40**	CG.EM.NPT1-1/4**	22-32	56	50	45	yes	yes
CG.EM.M50**	CG.EM.NPT1-1/2**	26-35	57	55	52	yes	yes
CG.EM.M63**	CG.EM.NPT2**	35-45	190	155	140	yes	yes
CG.EM.M75**	CG.EM.NPT2-1/2**	42-62	185	175	150	yes	yes
CG.EM.M90**	CG.EM.NPT3**	60-75	123	118	110	yes	yes
CG.EM.M100**	CG.EM.NPT4**	75-85	135	130	125	yes	yes
CG.EM.M110**	CG.EM.NPT4L**	85-95	180	175	170	yes	yes

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Model		Min-max cable Ø mm	Torque value [Nm]			Suitable for	
CG.CO.M****	CG.CO.NPT****		S1+S2+S3 triple sealing ring	S1+S2 double sealing ring	S1 single sealing ring	Ex d	Ex e Ex tb
CG.CO.M12**	CG.CO.NPT1/4**	4-8	20	18	-	no	yes
CG.CO.M16S**	CG.CO.NPT3/8S**	3-9	-	25	18	yes	yes
CG.CO.M16**	CG.CO.NPT3/8**	4-12	20	18	16	yes	yes
CG.CO.M20S**	CG.CO.NPT1/2S**	3-9	-	25	18	yes	yes
CG.CO.M20**	CG.CO.NPT1/2**	4-12	20	18	16	yes	yes
CG.CO.M20L**	CG.CO.NPT1/2L**	10-16	25	22	18	yes	yes
CG.CO.M25**	CG.CO.NPT3/4**	10-18	25	22	18	yes	yes
CG.CO.M25L**	CG.CO.NPT3/4L**	14-20	28	23	-	yes	yes
CG.CO.M32**	CG.CO.NPT1**	14-24	28	23	20	yes	yes
CG.CO.M32L**	CG.CO.NPT1L**	22-28	56	50	35	yes	yes
CG.CO.M40**	CG.CO.NPT1-1/4**	22-32	56	50	45	yes	yes
CG.CO.M40L**	CG.CO.NPT1-1/4L**	26-34	57	55	52	yes	yes
CG.CO.M50**	CG.CO.NPT1-1/2**	26-35	57	55	52	yes	yes
CG.CO.M50L**	CG.CO.NPT1-1/2L**	35-44	190	155	140	yes	yes
CG.CO.M63**	CG.CO.NPT2**	35-45	190	155	140	yes	yes
CG.CO.M75**	CG.CO.NPT2-1/2**	46-59	185	175	150	yes	yes

Model		Sealing ring type (refer to table 6)	Torque value [Nm]	Suitable for	
CG.NA.M20S** (axb)	CG.NA.NPT1/2S** (axb)			Ex d	Ex e Ex tb
CG.NA.M20** (axb)	CG.NA.NPT1/2** (axb)	FxA1; FxB1; FxC1; FxD1; FxE1; FxG1	16	no	yes
CG.NA.M20L** (axb)	CG.NA.NPT1/2L** (axb)		16	no	yes
CG.NA.M25S** (axb)	CG.NA.NPT3/4S** (axb)		18	no	yes
CG.NA.M25** (axb)	CG.NA.NPT3/4** (axb)	FxA2; FxB2; FxC2; FxD2; FxE2; FxF2; FxG2; FxH2	18	no	yes

Model		Sealing ring type (refer to table 6)	Torque value [Nm]	Suitable for	
CG.CO.M20S** (axb)	CG.CO.NPT1/2S** (axb)			Ex d	Ex e Ex tb
CG.CO.M20** (axb)	CG.CO.NPT1/2** (axb)	FxA1; FxB1; FxC1; FxD1; FxE1; FxG1	16	no	yes
CG.CO.M20L** (axb)	CG.CO.NPT1/2L** (axb)		16	no	yes
CG.CO.M25S** (axb)	CG.CO.NPT3/4S** (axb)		18	no	yes
CG.CO.M25** (axb)	CG.CO.NPT3/4** (axb)	FxA2; FxB2; FxC2; FxD2; FxE2; FxF2; FxG2; FxH2	18	no	yes

Model		Sealing ring type (refer to table 6)	Torque value [Nm]	Suitable for	
CG.EM.M20** (axb)	CG.EM.NPT1/2** (axb)			Ex d	Ex e Ex tb
CG.EM.M20** (axb)	CG.EM.NPT1/2** (axb)	FxA1; FxB1; FxC1; FxD1; FxE1; FxG1	16	no	yes
CG.EM.M25** (axb)	CG.EM.NPT3/4** (axb)	FxA2; FxB2; FxC2; FxD2; FxE2; FxF2; FxG2; FxH2	18	no	yes

From size to size	Material	Mechanical risk
M12/PG7/PF 1/4"/ NPT1/4"	M32/PG21/PF 1" NPT 1"	polyamide	High (7J)
M32/PG21/PF 1" NPT 1"	M63/PG48/PF 2" NPT 2"		High (7J) at T≥-40°C Low (4J) at T<-40°C

Sealing ring type	Sealing ring dimensions [mm x mm]	Cable min [mm x mm]	Cable max [mm x mm]	Sealing ring type	Sealing ring dimensions [mm x mm]	Cable min [mm x mm]	Cable max [mm x mm]
FxA1	5 x 12,2	5 x 10	5,75 x 12,2	FxA2	5 x 12,8	5 x 10,4	5,5 x 14
FxB1	6 x 8,5	5,75 x 8,5	6 x 10	FxB2	6 x 8,5	5,75 x 8,5	6 x 10
FxC1	5,5 x 11,7	5,3 x 11,3	5,5 x 11,7	FxC2	5,5 x 11,7	5,3 x 11,3	5,5 x 11,7
FxD1	6 x 12,2	5,3 x 11,3	6,5 x 14,5	FxD2	6 x 14	5,5 x 12	6,5 x 14,5
FxE1	6,3 x 10,8	5,3 x 11,3	6,3 x 10,8	FxE2	9,1 x 12,3	7 x 10	9,1 x 12,3
FxG1	6,7 x 12,7	6,5 x 10	6,8 x 12,7	FxF2	7,35 x 13,4	5,6 x 10	9 x 14
-	-	-	-	FxG2	6,8 x 15,3	6,5 x 14,8	6,8 x 15,3
-	-	-	-	FxH2	5,5 x 10,7	5,2 x 10	7 x 12



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[15.2] **RATINGS:**

For minimal and maximal diameters of permitted cables and torque values, see drawings CG.NA.*****; CG.EM.*****; CG.CO.*****; CG.NA.***** (axb); CG.EM.***** (axb); CG.CO.***** (axb), in revision status and date as listed in document DL-AT16-0003657.

[15.3] **SAFETY RATINGS:**

None

[15.4] **AMBIENT TEMPERATURE AND TEMPERATURE CLASSES:**

See table below.

Serie:	Ex e – Ex tb	Ex d
CG.NA.***** CG.CO.***** CG.EM.*****	neoprene sealing ring / gommini in neoprene: -40°C ÷ +80°C silicone sealing ring / gommini in silicone: -60°C ÷ +140°C	neoprene sealing ring / gommini in neoprene: -40°C ÷ +80°C silicone sealing ring / gommini in silicone: -60°C ÷ +80°C
CG.NA.***** (axb) CG.CO.***** (axb) CG.EM.***** (axb)	silicone sealing ring / gommini in silicone: -60°C ÷ +140°C	Not possible

[15.5] **DEGREE OF PROTECTION (IP CODE):**

IP66/68

[15.6] **WARNINGS:**

- None

[16] **REPORT:** AT16-0003657

[16.1] **ROUTINE (FACTORY) TESTS:**

The manufacturer shall carry out the routine test prescribed at clause 27 of the EN 60079-0.

[16.2] **CONFORMITY WITH THE DOCUMENTATION:**

The manufacturer shall carry out the verifications or tests necessary to ensure that the product complies with the documentation.

Marking the equipment in accordance with Clause 29 of EN 60079-0, the manufacturer attests on his own responsibility that:

- the equipment has been constructed in accordance with the applicable requirements of the relevant standards in safety matters;
- the routine verifications and routine tests in 28.1 of EN 60079-0 have been successfully completed with positive results.

[16.3] **INSTALLATION CONDITIONS:**

- Above referred equipment is foreseen to be installed in locations where there are environmental conditions, as clearly specified at clause 1, par. 2 of EN 60079-0.
- Installation and use in atmospheric and environmental conditions that are out of above mentioned intervals request special considerations and additional measures by the side of installer or user. These should be specified to the manufacturer by the user; it is not a required by applicable standard listed in [9] that the certification body confirm suitability for the adverse conditions.



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- The coupling of the cable glands to the enclosure and torque values of cap clamping shall be made as indicated by the manufacturer in the documents annexed to this certificate in order to respect the type of protection of the electrical apparatus on which cable glands are mounted.
- The cable gland installation shall be done according to safety manufacturer instructions to maintain degree of protection.
- The cable gland installation shall be done in such a way that the temperature at the mounting point will remain within the service temperature ranges declared in this certificate.

[17] **SPECIAL CONDITION OF USE (X):**

- The cable glands are only suitable for fixed installations. Cables shall be effectively clamped to prevent pulling or twisting.
- When cable glands are installed with polyamide insert BP.NA.*.PA, mechanical risk have to be taken into account, depending on cable gland and insert tap. The upper operating temperature is limited to 70 °C. When insert tap is removed in order to install the proper cable, the integrity of sealing rings have to be checked, in order to guarantee the correct tightness. If necessary, sealing rings have to be replaced with new ones (original spare parts only). Precautions shall be taken in order to guarantee protection against risk of mechanical damage is provided, when insert taps are suitable for low mechanical risk (4J) only.
- Cable glands for non circular cables shall be fitted with proper cables, suitable for sealing ring, according to manufacturer's instruction.

[18] **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS:**

This Certificate does not indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed in [9].

This Certificate does not cover hazards coming from environmental conditions different from those clearly and precisely indicated in clause 1 of EN 60079-0.

ESHR 1.2.7: According Annex VIII of the Directive

ESHR 1.4: Not verified.

ESHR 1.5: Not applied.

ESHR 3: Not applied.

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at [9], the following are considered relevant to this product, and conformity is demonstrated in the report:

N/A: additional Requirements for the products have not been considered

[19] **DESCRIPTIVE DOCUMENTS:**

DL- AT16-0003657, rev. 0, dated 2017-05-12, 46 pages.

[20] **CERTIFICATION VALIDITY CONDITIONS:**

- The use of this Certificate is subject to the Certification Scheme and to the Regulation applicable to holders of IMQ Certificates.
- The validity of this certificate is subject to the condition that the manufacturer complies with the results of the document review and of the pertinent requirement if any included, recorded in the relevant copy of documentation as per [19]. One copy of the mentioned documentation is kept in IMQ file.

[21] In accordance with Article 41 of Directive 2014/34/EU, Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. New issues of such certificates may continue to bear the original certificate number issued prior to 20 April 2016.



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[22] **VARIATIONS:**

- [22.2] **2017, JUNE:**
- Standard updating to EN 60079-7:2015,
 - New sizes M115 and M130 were added to CG.NA type cable glands.
 - New sizes M100 and M110 were added to CG.EM type cable glands.
 - Viton O-Ring was added for Ex db, Ex eb, Ex tb execution.
 - Templates and headings were changed in technical tables.
 - To CG.NA type cable glands additional sizes derived from previous ones: same body but threads of next bigger size.
 - Green dome plug option is added.
- [22.1] **2016, APRIL:**
- Standard updating to IEC 60079-1:2014, 7th Edition and IEC 60079-31:2013, 2nd edition
 - Extended serie CG.EM.***** to M90 size.
 - New series CG.NA.***** (axb); CG.EM.***** (axb); CG.CO.***** (axb) for non circular (flat cables) for M20 and M25 threads, silicone sealing ring only (-60÷140°C), Ex e Ex tb execution only
 - For Ex e Ex tb execution only: upgrade upper temperature for silicone sealing rings from 100 °C to 140 °C.
 - Dome plug in polyamide (RTI: 90 °C), black colour, for sizes M12 ... M63.
They can be used when S1+S2+S3 are in place only.
 - Insert PA gasket (RTI/TI: 85°C) and metal (carbon steel or stainless steel) serrated washer
 - Change in code: threads length added