



[1] EU-TYPE EXAMINATION CERTIFICATE

[2] Equipment or Protective System intended for use in potentially explosive atmospheres - Directive 2014/34/EU Annex III - MODULE B: EU-TYPE EXAMINATION

[3] EU-type Examination Certificate number: **IMQ 19 ATEX 019 X**

[4] PRODUCT: **Barrier cable glands for armoured and not armoured cables**
TYPE/SERIES: **NAVB..., NEVB...**

[5] MANUFACTURER: **Cortem S.p.A.**

[6] ADDRESS: **Via Aquileia 10 - 34070 Villesse (GO) - Italy**

[7] This equipment and any acceptable variation thereto 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 Report No.: **AT18-0030053-01**

[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 + EN 60079-0:2012/A11:2013;

EN 60079-1:2014; EN 60079-7:2015 + EN IEC 60079-7:2015/A1:2018; 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, or
II 2GD Ex db IIC Gb, Ex eb IIC Gb and Ex tb IIIC Db

This document is composed of 9 pages including 1 annex

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PREVIOUS ISSUE: ---

B.U. PRODUCT CONFORMITY ASSESSMENT
CERTIFICATION SECTOR - MANAGER

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PRD N° 005 B

Membro degli Accordi di Mutuo Riconoscimento EA, IAF e ILAC Signatory of EA, IAF and ILAC Mutual Recognition Agreements

[13] **Annex**

[14] EU-type Examination Certificate number: **IMQ 19 ATEX 019 X**

Description of product:

The barrier cable glands series NAVB ***, NEVB***, are designed for flameproof enclosures in execution "db" (threaded entries) and for enclosures with type of protection "eb" and "tb" provided with either threaded or plane cable entries.

Cable glands are also suitable for intrinsically safe equipment ("i" type of protection): in this case, the cable gland has a light blue painted part.

The cable glands series NAVB *** (and its configurations NAVBN ***, NAVBF ***, NAVGB *** described in the following) are suitable for not armoured cables, with circular section.

The cable glands series NEVB*** are suitable for armoured cables, with circular section.

Cable glands consist of metal housing generally made of nickel-plated brass (galvanized steel and stainless steel can be used as alternative materials). Individual cores of cable pass through a resin bushing coupled with cable gland body and filled with bi-component resin.

Where the cable glands are provided with an IP compression gasket, this component is made of silicone compound.

The standard cable gland for non-armoured cables (NAVB series) includes a body to be coupled with a resin bushing (flameproof joint), a metallic/not-metallic made compression ring, and a nut.

In addition to standard series, following configurations are available:

-NAVBN: cable gland for non-armoured cables equipped with male threaded nut.

-NAVBF: cable gland for non-armoured cables equipped with female threaded nut.

-NAVBG: cable gland for non-armoured cables equipped with an intermediate body, which houses a compression gasket acting on cable sheath. Assembling requires the use of a spacer between intermediate body and main body.

[15] The cable gland for armoured cables (NEVB series) includes a main body to be coupled with a resin bushing (flameproof joint), armour clamping rings, an intermediate body, an IP compression gasket made of silicone compound and a nut.

In case of cylindrical threads, the installation of a silicone O-ring between cable gland body and enclosure wall is required to ensure the degree of protection IP66/IP67.

In case of tapered threads the use of a suitable sealant (according to Manufacturer's instructions), to be applied on the threads (at least two full threads) is required before fitting cable gland body to the entry of enclosure in order to guarantee the specified degree of protection.

Additional details on compression ring, IP gasket, O-ring, spacers are detailed in Table 2.

Cable glands are provided, on the side attached to enclosure, with the following main mounting threads type:

- NPT ANSI ASME B1.20.1

- Cylindrical threads according to ISO 965-1 and ISO 965-2, pitch 1.5.

Other threads type are permitted, according to details listed in key code.

Cable glands are suitable for high mechanical risk (7J).

Brand name: CORTEM; ELFIT; CORTEM GROUP.

[13] **Annex**

[14] EU-type Examination Certificate number: **IMQ 19 ATEX 019 X**

Models/Series Identification:

NAV	*	*	*	*																			
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[15.1]

¹ In special execution, body of cable gland differs from standard body for a major AC hexagon.

[13] **Annex**

[14] EU-type Examination Certificate number: **IMQ 19 ATEX 019 X**

Table 1: Rated ambient temperature range (°C) and cables		
Serie:	Rated ambient temperature	Cable type
NAVB *** NAVBN *** NAVBF *** NAVGB ***	-60 ÷ 100 °C	Circular, not-armoured
NEVB ***	-60 ÷ 100 °C	Circular, armoured

Table 2: Materials ^{1,2}							
Series	Body materials	Resin bushing	Sealing ring material (IP compression gasket)	O-ring gaskets	Compression ring	Conical armour rings	Spacers/internal rings
NAVB *** NAVBN *** NAVBF ***	Nickel plated brass Galvanized steel Stainless steel	Brass	-	Silicone	Nickel plated brass Galvanized steel Stainless steel Aluminium Polyphenylene sulfide compound (PPS)	-	-
NAVGB ***	Nickel plated brass Galvanized steel Stainless steel	Brass	Silicone compound	Silicone	Nickel plated brass Galvanized steel Stainless steel Aluminium Polyphenylene sulfide compound (PPS)	-	Spacer: Nickel plated brass Galvanized steel Stainless steel Aluminium
NEVB ***	Nickel plated brass Galvanized steel Stainless steel	Brass	Silicone compound	Silicone	-	Nickel plated brass Galvanized steel Stainless steel	Teflon internal ring
¹ Non metallic materials (silicone compound used for sealing rings, O-ring gaskets and Teflon internal ring) are suitable for declared service temperature: -60 ÷ +100 °C ² Silicone material for O-ring gasket (use into main body and on cylindrical thread only) are suitable for declared service temperature: -60°C ÷ +200 °C							

[13] **Annex**

[14] EU-type Examination Certificate number: **IMQ 19 ATEX 019 X**

Ratings:

Table 3.1³: Cable glands for circular, not-armoured cables - Series: NAVB ***

Model (Metric)	Metric thread pitch 1.5	Model (NPT)	NPT thread	Ø d cable range	Ø d diameter over cores max [mm]	Maximum number of cores	Closing Torque nut (AC2) [Nm]	Clamping limitation (X)
NAVB 16 I *	M16x1.5	NAVB 01 N *	3/8"	7.1	5.5	11	12	No
NAVB 20S I *	M20x1.5	NAVB 1S N *	1/2"	11.6	10	11	13	No
NAVB 20 I *	M20x1.5	NAVB 1 N *	1/2"	13.2	11	11	30	No
NAVB 25 I *	M25x1.5	NAVB 2 N *	3/4"	18.6	15	21	35	No
NAVB 32 I *	M32x1.5	NAVB 3 N *	1"	25	21	38	40	No
NAVB 40 I *	M40x1.5	NAVB 4 N *	1" ¼	31.8	27	59	45	No
NAVB 50S I *	M50x1.5	NAVB 5S N *	1" ½	38	33	89	50	No
NAVB 50 I *	M50x1.5	NAVB 5 N *	1" ½	42	35	89	60	No
NAVB 63S I *	M63x1.5	NAVB 6S N *	2"	50	43	115	65	No
NAVB 63 I *	M63x1.5	NAVB 6 N *	2"	54	45	115	65	No
NAVB 75S I *	M75x1.5	NAVB 7S N *	2" ½	62	53	140	70	No
NAVB 75 I *	M75x1.5	NAVB 7 N *	2" ½	65	55	140	70	No
NAVB 90 I *	M90x1.5	NAVB 8 N *	3"	78.1	65	200	80	No
NAVB 100 I *	M100x1.5	NAVB 9 N *	3" ½	86	72	200	85	No
NAVB 115 I *	M115x1.5	NAVB 10 N *	4"	98	85	200	90	No

[15.2]

³ : metric pitch 1.5 and NPT threads cable glands sizes are shown; models with other threads, as detailed in Key Code, are available. Full list in drawings listed to Certificate.

[13] **Annex**

[14] EU-type Examination Certificate number: **IMQ 19 ATEX 019 X**

Table 3.2⁴: Cable glands for circular, not-armoured cables - NAVBN *; NAVBF ***;**

Model (Metric)	Metric thread pitch 1.5	Model (NPT)	NPT thread	Ø d cable range	Ø d diameter over cores max [mm]	Maximum number of cores	Closing Torque nut (AC2) [Nm]	Clamping limitation (X)
NAVBN 16 I * NAVBF 16 I *	M16x1.5	NAVBN 01 N * NAVBF 01 N *	3/8"	8.6	5.5	11	12	No
NAVBN 20S I * NAVBF 20S I *	M20x1.5	NAVBN 1S N * NAVBF 1S N *	1/2"	11.6	10	11	13	No
NAVBN 20 I * NAVBF 20 I *	M20x1.5	NAVBN 1 N * NAVBF 1 N *	1/2"	14	11	11	30	No
NAVBN 25 I * NAVBF 25 I *	M25x1.5	NAVBN 2 N * NAVBF 2 N *	3/4"	20	15	21	35	No
NAVBN 32 I * NAVBF 32 I *	M32x1.5	NAVBN 3 N * NAVBF 3 N *	1"	27	21	38	40	No
NAVBN 40 I * NAVBF 40 I *	M40x1.5	NAVBN 4 N * NAVBF 4 N *	1" ¼	32	27	59	45	No
NAVBN 50S I * NAVBF 50S I *	M50x1.5	NAVBN 5S N * NAVBF 5S N *	1" ½	38	33	89	50	No
NAVBN 50 I * NAVBF 50 I *	M50x1.5	NAVBN 5 N * NAVBF 5 N	1" ½	44	35	89	60	No
NAVBN 63S I * NAVBF 63S I *	M63x1.5	NAVBN 6S N * NAVBF 6S N *	2"	50	43	115	65	No
NAVBN 63 I * NAVBF 63 I *	M63x1.5	NAVBN 6 N * NAVBF 6 N *	2"	56	45	115	65	No
NAVBN 75S I * NAVBF 75S I *	M75x1.5	NAVBN 7S N * NAVBF 7S N *	2" ½	62	53	140	70	No
NAVBN 75 I * NAVBF 75 I *	M75x1.5	NAVBN 7 N * NAVBF 7 N *	2" ½	68	55	140	70	No
NAVBN 90 I * NAVBF 90 I *	M90x1.5	NAVBN 8 N * NAVBF 8 N *	3"	79	65	200	80	No
NAVBN 100 I * NAVBF 100 I *	M100x1.5	NAVBN 9 N * NAVBF 9 N *	3" ½	91	72	200	85	No
NAVBN 115 I * NAVBF 115 I *	M115x1.5	NAVBN 10 N * NAVBF 10 N *	4"	98	85	200	90	No

⁴ : metric pitch 1.5 and NPT threads cable glands sizes are shown; models with other threads, as detailed in Key Code, are available. Full list in drawings listed to Certificate.

[13] **Annex**

[14] EU-type Examination Certificate number: **IMQ 19 ATEX 019 X**

Table 3.3⁵: Cable glands for circular, not-armoured cables - Series: NAVGB ***

Model (Metric)	Metric thread pitch 1.5	Model (NPT)	NPT thread	Ø d cable range	Ø d diameter over cores max [mm]	Maximum number of cores	Closing Torque Intermediate body (AC2) ⁶ [Nm]	Clamping limitation (X)
NAVGB 16 I *	M16x1.5	NAVGB 01 N *	3/8"	3.5-8.6	5.5	11	12	No
NAVGB 20S I *	M20x1.5	NAVGB 1S N *	1/2"	6.3-11.6	10	11	13	No
NAVGB 20 I *	M20x1.5	NAVGB 1 N *	1/2"	6.5-14	11	11	30	No
NAVGB 25 I *	M25x1.5	NAVGB 2 N *	3/4"	11-20	15	21	35	No
NAVGB 32 I *	M32x1.5	NAVGB 3 N *	1"	17-27	21	38	40	No
NAVGB 40 I *	M40x1.5	NAVGB 4 N *	1" ¼	22-32	27	59	45	No
NAVGB 50S I *	M50x1.5	NAVGB 5S N *	1" ½	29.5-38	33	89	50	No
NAVGB 50 I *	M50x1.5	NAVGB 5 N *	1" ½	35.5-44	35	89	60	No
NAVGB 63S I *	M63x1.5	NAVGB 6S N *	2"	40-50	43	115	65	No
NAVGB 63 I *	M63x1.5	NAVGB 6 N *	2"	47-56	45	115	65	No
NAVGB 75S I *	M75x1.5	NAVGB 7S N *	2" ½	53-62	53	140	70	No
NAVGB 75 I *	M75x1.5	NAVGB 7 N *	2" ½	59-68	55	140	70	No
NAVGB 90 I *	M90x1.5	NAVGB 8 N *	3"	66-79	65	200	80	No
NAVGB 100 I *	M100x1.5	NAVGB 9 N *	3" ½	76-91	72	200	85	No
NAVGB 115 I *	M115x1.5	NAVGB 10 N *	4"	86-98	85	200	90	No

⁵ : metric pitch 1.5 and NPT threads cable glands sizes are shown; models with other threads, as detailed in Key Code, are available. Full list in drawings listed to Certificate.

⁶ : the nut AC3 must be tightened until the cable gland gasket touches the outer sheath of cable. Then it shall be tightened by applying one more turn.

Safety Ratings:

[15.3] N/A

Ambient temperature and temperature classes:

[15.4] The cable glands are suitable for ambient temperature T_{amb}: -60°C ÷ +100°C.

[13] Annex

[14] EU-type Examination Certificate number: **IMQ 19 ATEX 019 X**

[15.5] **Degree of protection (IP code):** IP66/67

[15.6] **Warnings:** warning marking not present.

[16] **Report:** AT18-0030053-01

[16.1] **Routine (factory) tests:**

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

No routine tests required according to reference harmonised standards - listed in clause 1 of EN 60079-0 - concerning specific type of protections.

[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.

Installation of equipment has to proceed according to EN 60079-14.

[17] **Special Condition of use (X):**

The use of cable glands is allowed in the ambient temperature range $-60^{\circ}\text{C} \div +100^{\circ}\text{C}$.

During assembly cable glands shall be tightened by applying the torque values defined by Manufacturer's instructions in order to ensure clamping of cable as well as to maintain the type of protection of the electrical equipment on which they are mounted.

Where under rated conditions the temperature at entry point is higher than 70°C or 80°C at the branching point of the conductors the installation of cable glands is allowed if temperature at entry point or at the branching point is included in the ambient temperature range $(-60^{\circ}\text{C} \div +100^{\circ}\text{C})$.

[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 and covered 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 verified.

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

[13] **Annex**

[14] EU-type Examination Certificate number: **IMQ 19 ATEX 019 X**

[19] **Descriptive documents:**
DL-AT18-0030053-01 dated 2019-05-02.

[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] **Variations:**
2019, May:
First issue.