



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEx IMQ 19.0003X** Page 1 of 3 [Certificate history:](#)

Status: **Current** Issue No: 0

Date of Issue: 2019-06-03

Applicant: **CORTEM S.p.A.**
Via Aquileia, 10 – I-34070 Villesse (GO)
Italy

Equipment: **Barrier cable glands for armoured and not armoured cables**

Optional accessory: Series NAVB ***, NEVB ***

Type of Protection: **"Flameproof enclosures" Ex db; "Increased safety" Ex eb; "Dust ignition protection" Ex tb; "Restricted breathing" Ex nR**

Marking: Ex db IIC Gb; Ex eb IIC Gb
Ex tb IIC Db
Ex nR IIC Gc

Approved for issue on behalf of the IECEx
Certification Body:

Mr. Mauro CASARI

Position:

IMQ ExCB Manager

Signature:
(for printed version)

Date:

2021-03-25

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20138 Milano
Italy





IECEx Certificate of Conformity

Certificate No.: **IECEx IMQ 19.0003X**

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Date of issue: 2019-06-03

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Manufacturer: **CORTEM S.p.A.**
Via Aquileia, 10 – I-34070 Villesse (GO)
Italy

Additional manufacturing locations: **ELFIT S.p.a**
via Aquileia 12
34070 Villesse (GO)
Italy

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2011 Explosive atmospheres - Part 0: General requirements
Edition:6.0

IEC 60079-1:2014-06 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

IEC 60079-15:2010 Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
Edition:4

IEC 60079-31:2013 Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
Edition:2

IEC 60079-7:2015 Explosive atmospheres – Part 7: Equipment protection by increased safety "e"
Edition:5.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

[IT/IMQ/ExTR19.0007/00](#)

Quality Assessment Report:

[IT/CES/QAR06.0002/12](#)



IECEx Certificate of Conformity

Certificate No.: **IECEx IMQ 19.0003X**

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Date of issue: 2019-06-03

Issue No: 0

EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The **barrier** cable glands series NAVB *** for non armoured cables and NEVB*** for armoured cables 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.

These cable glands are designed also suitable for restricted-breathing enclosure (type of protection "nR").

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 non 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, 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.

-NAVGB: cable gland for non-armoured cables; this configuration includes a compression gasket, acting on cable sheath, which is housed by an intermediate body. Assembling requires the use of a spacer between intermediate body and main body.

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.

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.

Protection degree IP66/67 is guaranteed by usage of suitable sealant put at least on two complete threads engaged of the threaded coupling, according to manufacturer's instructions.

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

Brand name: CORTEM; ELFIT; CORTEM GROUP

Further details in Annex.

SPECIFIC CONDITIONS OF USE: YES as shown below:

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 $(-60^{\circ}\text{C} \div +100^{\circ}\text{C})$.

Annex:

[IECEx IMQ 19.0003X issue No. 0 Annex.pdf](#)

General description

The barrier cable glands series NAVB *** for non armoured cables and NEVB*** for armoured cables 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.

These cable glands are designed also suitable for restricted-breathing enclosure (type of protection “nR”).

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 non 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, 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; this configuration includes a compression gasket, acting on cable sheath, which is housed by an intermediate body. Assembling requires the use of a spacer between intermediate body and main body.

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.

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.

Protection degree IP66/67 is guaranteed by usage of suitable sealant put at least on two complete threads engaged of the threaded coupling, according to manufacturer’s instructions.

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

Annex to: IECEx IMQ 19.0003X issue No.0
 Applicant: CORTEM S.p.A.
 Apparatus: Barrier cable glands for non armoured and armoured cables
 Series: NAVB ***, NEVB***



Brand name: CORTEM; ELFIT; CORTEM GROUP

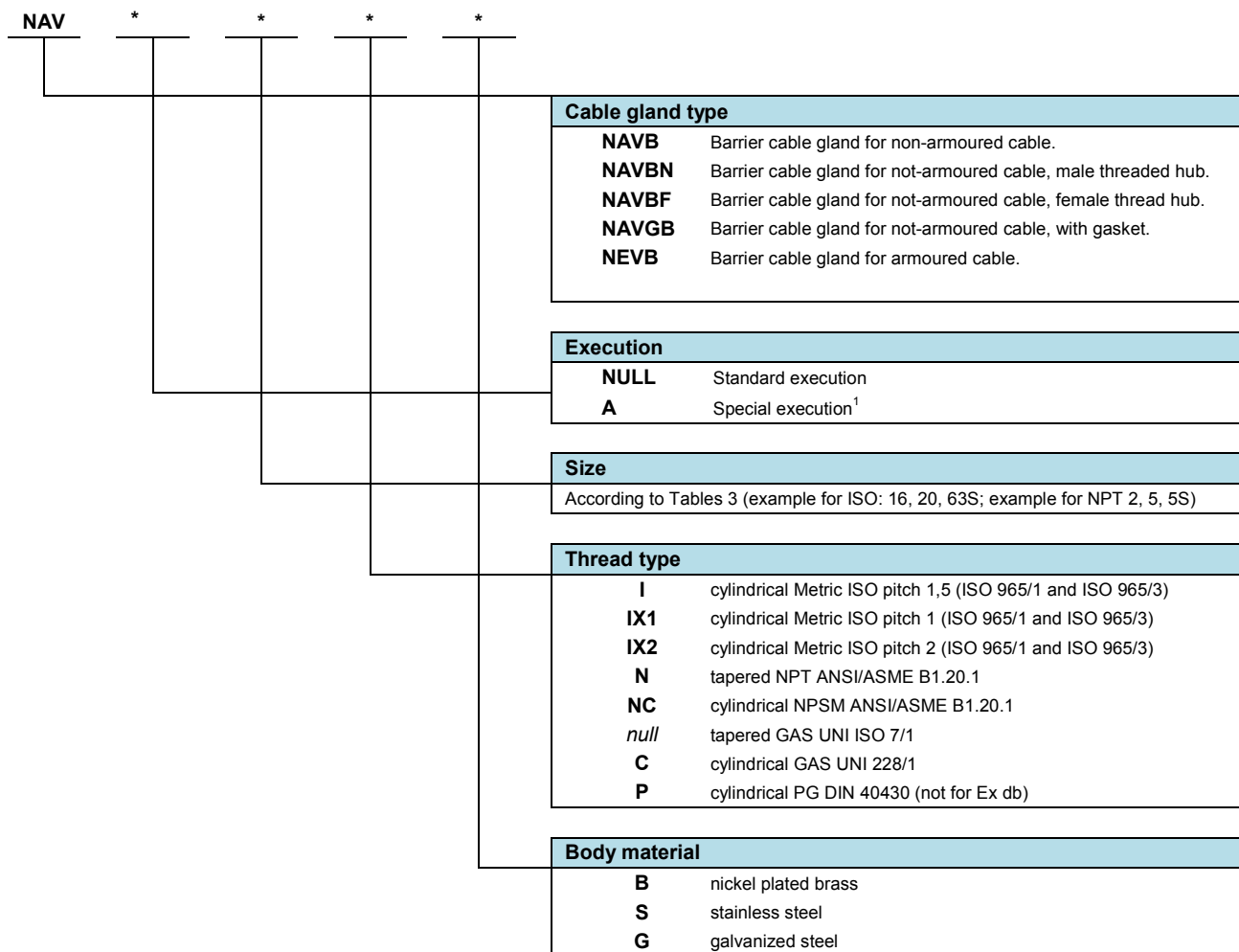


Marking of cable glands according to IEC 60079-0 is detailed below:

Ex db IIC Gb
 Ex eb IIC Gb
 Ex tb IIIC Db
 Ex nR IIC Gc

Design options

Key code:



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

Annex to: IECEx IMQ 19.0003X issue No.0

Applicant: CORTEM S.p.A.

Apparatus: Barrier cable glands for non armoured and armoured cables

Series: NAVB ***, NEVB***



Table 1: Rated ambient temperature range (°C) and cables		
Series:	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							

Specific conditions of use

The use of cable glands is allowed in the ambient temperature range -60°C ÷ +100°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°C ÷ +100°C).

Annex to: IECEx IMQ 19.0003X issue No.0

Applicant: CORTEM S.p.A.

Apparatus: Barrier cable glands for non armoured and armoured cables

Series: NAVB ***; NEVB***



Cable gland sizes:

Table 3.1 ³ : Cable glands for <u>circular, not-armoured</u> 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

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

Annex to: IECEx IMQ 19.0003X issue No.0

Applicant: CORTEM S.p.A.

Apparatus: Barrier cable glands for non armoured and armoured cables

Series: NAVB ***, NEVB***



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

Annex to: IECEx IMQ 19.0003X issue No.0
 Applicant: CORTEM S.p.A.
 Apparatus: Barrier cable glands for non armoured and armoured cables
 Series: NAVB ***, NEVB***



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.

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Applicant: CORTEM S.p.A.

Apparatus: Barrier cable glands for non armoured and armoured cables

Series: NAVB ***, NEVB***



Table 3.4 ⁷ : Cable glands for <u>circular, armoured</u> cables - Series: NEVB ***								
Model (Metric)	Metric thread pitch 1.5	Model (NPT)	NPT thread	Ø d max cable diameter over cores [mm]	Closing Torque Intermediate body (AC2) [Nm]	Ø D cable diameter range [mm]	Closing Torque nut (AC3) [Nm]	Clamping limitation (X)
NEVB 16 I *	M16x1.5	NEVB 01 N *	3/8"	7	12	6-13.2	Nut to be tightened until the cable gland gasket touches the outer cable sheath, then tighten one more turn of the nut	No
NEVB 20S I *	M20x1.5	NEVB 1S N *	1/2"	10	13	9.5-16		No
NEVB 20 I *	M20x1.5	NEVB 1 N *	1/2"	12.5	30	12.5-21		No
NEVB 25 I *	M25x1.5	NEVB 2 N *	3/4"	18.5	35	20-27.5		No
NEVB 32 I *	M32x1.5	NEVB 3 N *	1"	25.5	40	23.5-34		No
NEVB 40 I *	M40x1.5	NEVB 4 N *	1" ¼	30.5	45	26-40		No
NEVB 50S I *	M50x1.5	NEVB 5S N *	1" ½	36.5	50	35-46.5		No
NEVB 50 I *	M50x1.5	NEVB 5 N *	1" ½	42.5	60	38-53		No
NEVB 63S I *	M63x1.5	NEVB 6S N *	2"	48.5	65	45.5-59.5		No
NEVB 63 I *	M63x1.5	NEVB 6 N *	2"	54.5	65	54.5-66		No
NEVB 75S I *	M75x1.5	NEVB 7S N *	2" ½	60.5	70	57-72		No
NEVB 75 I *	M75x1.5	NEVB 7 N *	2" ½	66.5	70	66.5-78.5		No
NEVB 90 I *	M90x1.5	NEVB 8 N *	3"	77.5	80	76.5-90		No
NEVB 100 I *	M100x1.5	NEVB 9 N *	3" ½	88.5	85	86-101		No
NEVB 115 I *	M115x1.5	NEVB 10 N *	4"	95.5	90	100-110		No

⁷ 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.

Manufacturer's documentation

Safety, maintenance and mounting instructions, mod. F-461, rev. 0 dated 2019.02.04