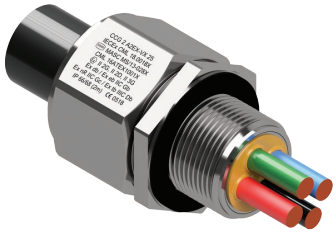
CCG CABLE TERMINATIONS

VORTEx INSPECTABLE INJECTION RESIN BARRIER GLAND

A2EX VX®



VORTEx BARRIER COMPRESSION GLAND for Unarmoured Tray Cable

Features and Benefits

- Gland for use in Ordinary and Hazardous Locations.
- For unfilled hygroscopic multicore cables. Refer to IECIEC 60079-14; 9.3.2 and 10.6.2a, IEC 61892-7, 10.6 and 10.7.
- Instantly mixed and injected Resin forms a 100% barrier seal around the individual cores of the cable.
- Prevents explosive gases and/or liquids transmitting down cable.
- Precision manufactured from high-quality brass (Marine Grade Electroless Nickel Plated™) available in aluminium or stainless steel 316/316L on request. Complete with thread sealing gasket.

NEMA 4X | 30 BAR SEAL

Technical Data

Type:	A2EX-VX (VORTEx®)
Gland Material:	Brass (Marine Grade Electroless Nickel Plated™), Aluminium, Stainless Steel 316/316L
Seal Material:	Standard Thermoset Elastomer or Extreme Temperature Seals, Quick setting Barrier Resin
Sealing Gasket Material:	HDPE, Nylon 66 or PTFE
Cable Type:	Unarmoured Tray Cable
Sealing Area:	Outer Sheath and VORTEx® Resin around Cable Conductors
Optional Accessories:	Adaptor, Reducer, Earth Tag, Locknut, Serrated Washer and Shroud
Note:	The installer should ensure that the materials are suitable for the installation environment.

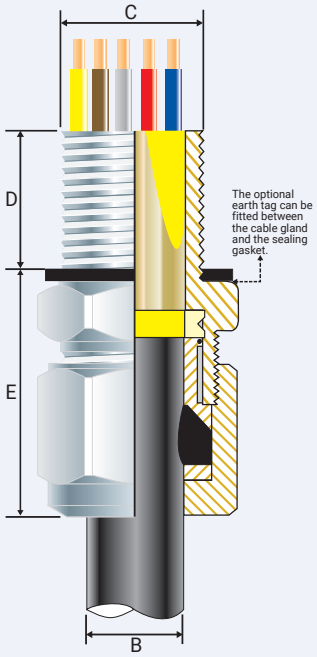
Temperature Range

When fitted with sealing gaskets the temperature range for the gland will be:-

All types:	-50°C to +95°C

Standards and Certifications

Equipment Protection Levels:	NEC / CEC: Class I Div. 2 Gr ABCD, Class II Div. 2 Gr FG, Class III Division 2 Ex db IIC Gb, Class I Zone 1 AEx eb IIC Gb / Ex eb IIC Gb Zone 21 AEx ta IIIC Da / Ex ta IIIC Da, Class I Zone 2 AEx nR IIC Gc / Ex nR IIC Gc, IP66/67/68, IP65, Type 4X IECEx: Ex db IIC Gb, Ex eb IIC Gb, Ex nR IIC Gc, Ex ta IIIC Da	
Conformance:	Standard:	Certificate:
CEC	CSA C22.2 No. 18.3-12, 174:2018 & 213:2017 CSA C22.2 No. 60079 - 0, 1, 7, 15, 31	E115594
NEC	UL514B, UL121201 UL 60079 - 0, 7, 15, 31	
IECEx	IEC 60079 - 0, 1, 7, 15, 31	IECEx CML 18.0018X
IP66/68 100m - Parallel	IEC 60529	CML 15Y728
IP68 – Tapered and approved grease	IEC 60529	IECEx CML 18.0018X
Nema Type 4X	NEMA 250	E115594
Deluge Protection	DTS-01	CML 14CA370-2
Corrosion Protection	ASTM B117-11, BS EN ISO 3231	EXOVA N968667
Marine ABS	IEC 60079 - 0, 1, 7, 15, 31 and IEC 60529	ABS 20-SG1952706-PDA
DNV-GL	IEC 60079 - 0, 1, 7 and IEC 60529	DNV-GL TAE0000010



PATENTED

Conditions for Safe Use - X

- The cable glands sizes under M20 / ¾" NPT and under shall only be used on fixed installations where the cable is clamped, or stress applied to the cable in the gland is prevented.
- These cable glands are not suitable for use with Acetic Acid or Methanol
- These cable glands shall only be used where the temperature, at the point of entry, is between -50°C and +95°C.
- These cable glands may only be used on fixed installations where the cable is clamped or stress applied to the cable in the gland is prevented - IECEx only.
- Only Resin supplied by CCG may be used in the glands.

NPT Entry Thread

Gland Size Ref	Product Code	NPT Entry Thread		Alternative Thread Product Code	NPT Entry Thread		Cable Detail		Max Length 'E'	Maximum Dia. Over Cores	Maximum No. of Cores	Hexagonal Detail	
		'C'	Min 'D'		'C'	Min 'D'	Min 'B'	Max 'B'				Max 'Flats'	Max 'Crns'
00-20ss	056400VX-012NPT-MNA	½	0.590	056400VX-034NPT-MNA	¾	0.590	0.118	0.335	0.984	0.429	6	0.945	1.063
0-20s	0564-0VX-012NPT-MNA	½	0.590	0564-0VX-034NPT-MNA	¾	0.590	0.275	0.472	0.984	0.429	6	0.945	1.063
1-20	056401VX-012NPT-MNA	½	0.590	056401VX-034NPT-MNA	¾	0.590	0.433	0.590	1.181	0.492	13	1.063	1.181
2s-25s	056422VX-034NPT-MNA	¾	0.590	056422VX-001NPT-MNA	1	0.748	0.453	0.689	1.181	0.610	20	1.377	1.535
2-25	056402VX-034NPT-MNA	¾	0.590	056402VX-001NPT-MNA	1	0.748	0.590	0.787	1.181	0.610	20	1.377	1.535
3s-32s	056433VX-001NPT-MNA	1	0.748	056433VX-114NPT-MNA	1¼	0.748	0.630	0.866	1.181	0.854	40	1.653	1.850
3-32	056403VX-001NPT-MNA	1	0.748	056403VX-114NPT-MNA	1¼	0.748	0.787	1.043	1.181	0.854	40	1.653	1.850
4s-40s	056444VX-114NPT-MNA	1¼	0.748	056444VX-112NPT-MNA	1½	0.826	0.866	1.240	1.495	1.181	60	2.046	2.322
4-40	056404VX-114NPT-MNA	1¼	0.748	056404VX-112NPT-MNA	1½	0.826	1.023	1.338	1.495	1.181	60	2.046	2.322
5s-50s	056455VX-112NPT-MNA	1½	0.826	056455VX-002NPT-MNA	2	0.826	1.141	1.495	1.810	1.429	80	2.558	2.873
5-50	056405VX-112NPT-MNA	1½	0.826	056405VX-002NPT-MNA	2	0.826	1.338	1.751	1.810	1.429	80	2.558	2.873
6s-63s	056466VX-002NPT-MNA	2	0.826	056466VX-212NPT-MNA	2½	1.181	1.495	1.968	2.046	1.886	100	3.148	3.542
6-63	056406VX-002NPT-MNA	2	0.826	056406VX-212NPT-MNA	2½	1.181	1.751	2.224	2.046	1.886	100	3.148	3.542
7s-75s	056477VX-212NPT-MNA	2½	1.181	056477VX-003NPT-MNA	3	1.259	1.968	2.440	2.125	2.291	120	3.778	4.250
7-75	056407VX-212NPT-MNA	2½	1.181	056407VX-003NPT-MNA	3	1.259	2.204	2.656	2.125	2.291	120	3.778	4.250
8-80	056408VX-003NPT-MNA	3	1.259	-	-		2.125	2.715	2.676	2.421	140	3.778	4.250
9s-90s	056499VX-003NPT-MNA	3	1.259	056499VX-312NPT-MNA	3½	1.299	2.361	2.952	2.755	2.776	160	4.368	4.919
9-90	056409VX-003NPT-MNA	3	1.259	056409VX-312NPT-MNA	3½	1.299	2.873	3.207	2.755	2.776	160	4.368	4.919
10-10	056410VX-312NPT-MNA	3½	1.299	056410VX-004NPT-MNA	4	1.338	3.188	3.621	2.755	3.110	180	4.919	5.549
11-110	056411VX-004NPT-MNA	4	1.338	-	-		3.581	3.975	2.755	-	-	5.313	5.982

All dimensions are in inches. NPT threads should be tightened 'wrench tight'.

CCG reserves the right to make alterations to the technical data, dimensions, designs and products available without notice. The illustrations cannot be considered binding. Please contact CCG for assistance.

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FITTING INSTRUCTIONS

CCG CABLE TERMINATIONS

Metric Entry Thread

Gland Size Ref	Product Code	Metric Entry Thread		Cable Detail		Max Length 'E'	Max Dia. Over Cores	Max No. of Cores	Hexagonal Detail		Tightening Torque Nm/lb ft
		'C'	Min 'D'	Min 'B'	Max 'B'				Max 'Flats'	Max 'Crns'	
00-20ss	056400VX-MNA	M20x1.5	0.591	0.118	0.335	0.984	0.429	0.236	0.945	1.063	33/24
0-20s	0564-0VX-MNA	M20x1.5	0.591	0.276	0.472	0.984	0.429	0.236	0.945	1.063	33/24
1-20	056401VX-MNA	M20x1.5	0.591	0.433	0.591	1.181	0.492	0.512	1.063	1.181	33/24
2s-25s	056422VX-MNA	M25x1.5	0.591	0.453	0.689	1.181	0.610	0.787	1.378	1.535	48/35
2-25	056402VX-MNA	M25x1.5	0.591	0.591	0.787	1.181	0.610	0.787	1.378	1.535	48/35
3s-32s	056433VX-MNA	M32x1.5	0.591	0.630	0.866	1.181	0.854	1.575	1.654	1.850	55/41
3-32	056403VX-MNA	M32x1.5	0.591	0.787	1.043	1.181	0.854	1.575	1.654	1.850	55/41
4s-40s	056444VX-MNA	M40x1.5	0.591	0.866	1.240	1.496	1.181	2.362	2.047	2.323	65/48
4-40	056404VX-MNA	M40x1.5	0.591	1.024	1.339	1.496	1.181	2.362	2.047	2.323	65/48
5s-50s	056455VX-MNA	M50x1.5	0.591	1.142	1.496	1.811	1.429	3.150	2.559	2.874	83/61
5-50	056405VX-MNA	M50x1.5	0.591	1.339	1.752	1.811	1.429	3.150	2.559	2.874	83/61
6s-63s	056466VX-MNA	M63x1.5	0.591	1.496	1.969	2.047	1.886	3.937	3.150	3.543	98/72
6-63	056406VX-MNA	M63x1.5	0.591	1.752	2.224	2.047	1.886	3.937	3.150	3.543	98/72
7s-75s	056477VX-MNA	M75x1.5	0.591	1.969	2.441	2.126	2.291	4.724	3.780	4.252	116/85
7-75	056407VX-MNA	M75x1.5	0.591	2.205	2.657	2.126	2.291	4.724	3.780	4.252	116/85
8-80	056408VX-MNA	M80x2.0	0.787	2.126	2.717	2.677	2.421	5.512	3.780	4.252	120/89
9s-90s	056499VX-MNA	M90x2.0	0.787	2.362	2.953	2.756	2.776	6.299	4.370	4.921	120/89
9-90	056409VX-MNA	M90x2.0	0.787	2.874	3.209	2.756	2.776	6.299	4.370	4.921	120/89
10-10	056410VX-MNA	M100x2.0	0.787	3.189	3.622	2.756	3.110	7.087	4.921	5.551	120/89
11-110	056411VX-MNA	M110x2.0	0.787	3.583	3.976	2.756	-	-	5.315	5.984	175/129
12-120	056412VX-MNA	M120x2.0	0.787	3.976	4.291	2.756	-	-	5.512	6.220	175/129
13-10	056413VX-MNA	M130x2.0	0.787	4.291	4.567	2.756	-	-	5.748	6.457	175/129

All dimensions are in inches.

FITTING INSTRUCTION

ENCLOSURES AND EQUIPMENT TO WHICH CABLE GLANDS ARE FITTED:-

- Must be made from materials which are compatible with the cable gland materials.
- Have a sealing area around the cable gland entry point with a surface roughness < Ra 6.3 µm.
- Have entries that are perpendicular to the enclosure face in the area where the cable gland will seal to within 2.5°.
- Are sealed using the supplied sealing gasket (parallel threads) or by fully tightening into a threaded entry (tapered threads). Note that for tapered threads the IP rating can be improved to IP68 with the use of a suitable thread sealant.

MUST HAVE THREADED ENTRIES

- The same thread size as the cable gland. (Thread adapters should be used to correct any mismatch).
- With a thread tolerance of metric class '6H' or equivalent.
- Where the thread length is a minimum of 10mm for Ex d applications or 3mm for all other applications

OR CLEARANCE HOLES (not Ex d)

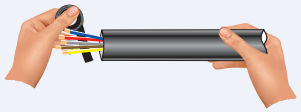
- Where the hole size is the thread nominal size with a tolerance of +0.1 to +0.7mm. (e.g. the clearance hole for an M20 thread will have a diameter between 20.1mm and 20.7mm).
- Through material that is between 1mm and 12mm thick. (Thicker materials can be accommodated using glands with extended entry threads.)

1. Strip back the outer sheath to expose the inner cable cores. Using a clean cloth, clean the cable cores insulation.

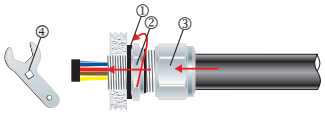
   If the cable cores have screens these should be cut away or twisted together into a single core. This single core should be insulated with heat shrink tubing or coated with insulating varnish. Any drain wires should also be insulated with heat shrink tubing or coated with insulating varnish.

2. Using insulation tape, bundle the cores together at the end.

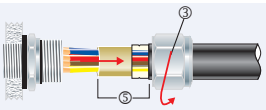
   If the gland has NPT entry threads fitted to a threaded entry, then IP68 (2m) can be achieved by applying one of the following tested and approved grease types to the thread: - Renolit Lubrene CA700 or LX220 EP2, Renolit LC-WP2 or Moly LX2, or Dow Corning 4 Electrical Compound.



3. To maintain IP66/68, ensure the gasket ① is in place. Screw the gland unit into the apparatus. Tighten the inner ② using a CCG Spanner ④. Pass the cable end through the outer nut ③ and push the bundled cable cores through the inner ② diaphragm and seal.



4. Unscrew the outer nut ③. Withdraw the cable and barrier pot sub-assembly ⑤. Remove the insulation tape.

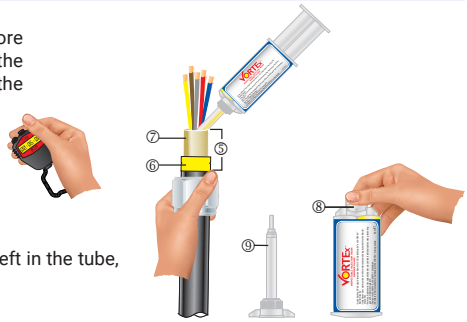


5. Remove the cap ⑧ from resin applicator and attach the mixing nozzle ⑨ (use extension nozzle for small multicore cables). Whilst holding the barrier pot sub-assembly ⑤ upright and holding the diaphragm seal firmly against the cable sheath, inject the resin into the resin chamber*. Ensure the resin fills the inspectible resin seal pot ⑥ all the way to the top of the protective resin pot ⑦ and wipe any excess resin away.

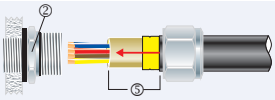
   Wait for the resin to set from a liquid to a gel, this should take:
   - 15 minutes at 10°C
   - 7 minutes at 20°C
   - 6 minutes at 30°C
   - 5 minutes at 40°C

   For installations in less than 5°C Ambient, warm the Resin tube in warm water at ± 50°C. If there is still Resin left in the tube, discard the mixing nozzle ⑨ and replace the cap ⑧ for use with the next gland.

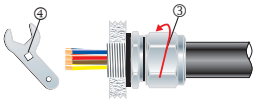
   * The installation is acceptable of the cable sheath is pushed 2mm or 3mm into the resin seal.



6. Re-insert the barrier pot sub-assembly ⑤ back into the inner ②.



7. Tighten the outer nut ③ to the installation torque using a CCG Spanner ④ to produce a seal and grip on the cable.



YouTube Instruction Video: http://www.youtube.com/watch?v=TeoCqRgCk3k

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