

# A2EX-VS VX

Ex db IIC, Ex eb IIC, Ex ta IIIC, Ex nR IIC

**VORTEX® BARRIER GLAND for Single or Multi-Core Unfilled Unarmoured Copper Tape, Braided or Lead Sheathed Cable**

## Features and Benefits

- For indoors, outdoors Group II and III, Zones 1, 2, 20, 21, and 22 are hazardous areas
- For unfilled and multicore cables in Ex d applications. See IEC 60079-14 and IEC 61892-7.
- Instantly mixed and injected resin forms a 100% barrier seal around the individual cores of the cable.
- Prevents explosive gases and/or liquids from transmitting down the cable.
- The inner seal seals on the cable sheath. A harder outer seal grips the cable, giving superior cable retention and an IP rating.
- Provides 360° earthing to copper tape or lead sheath.
- Precision manufactured from high-quality brass (Marine Grade Electroless Nickel Plated™) available in aluminium or stainless steel 316/316L on request.
- Supplied with a thread-sealing gasket (parallel threads only).

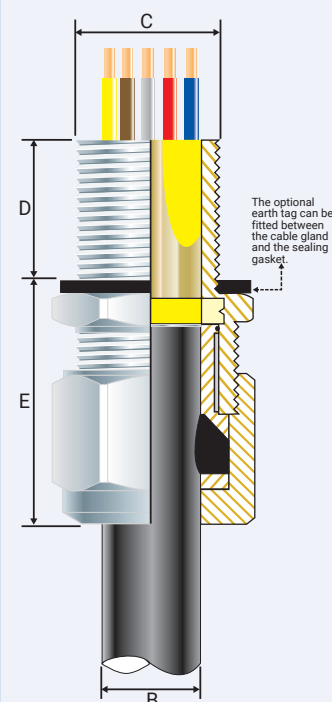


## Technical Data

|                          |   |
|--------------------------|---|
| Type:                    | A2EX-VS VX (VORTEX®)  |
| Gland Material:          | Brass (Marine Grade Electroless Nickel Plated™), Aluminium, Stainless Steel 316/316L                          |
| Seal Material:           | Standard Thermoset Elastomer, Quick Setting Injection Barrier Resin   |
| Sealing Gasket Material: | HDPE, Nylon 66 or PTFE  |
| Cable Type:              | Single or Multi-Core Unarmoured Copper Tape, Braided or Lead Sheathed   |
| Sealing Area:            | Taper Seal on the Outer Sheath. Compression seal on inner copper sheath VORTEX® Resin around Cable Conductors |
| Optional Accessories:    | Adaptor, Reducer, Earth Tag, Locknut and Serrated Washer  |
| Note:                    | The installer should ensure that the materials are suitable for the installation environment.                 |

## Standards and Certifications

|                                    |   |                                       |
|------------------------------------|---|---------------------------------------|
| Equipment Protection Levels:       | IECEx/INMETRO: Ex db IIC Gb, Ex eb IIC Gb, Ex nR IIC Gc, Ex ta IIIC Da<br>ATEX/UKEX: Ex II 2/3G 1D, Ex db IIC Gb, Ex eb IIC Gb, Ex nR IIC Gc, Ex ta IIIC Da<br>TR CU: Ex I Ex d IIC Gb X / 1Ex e IIC Gb X / 2Ex nR IIC Gc X / Ex ta IIIC Da X<br>CCC: Ex db IIC Gb, Ex eb IIC Gb, Ex ta IIIC Da |                                       |
| Continuous Operating Temp:         | -60°C to +100°C   |                                       |
| Conformance:                       | Standard:   | Certificate:                          |
| IEC/BS EN                          | IEC/BS EN 62444, 6121   | CML 14CA364                           |
| IECEX                              | IEC 60079 Part 0, 1, 7, 15, 31  | IECEX CML 20.0011                     |
| ATEX                               | EN 60079 Part 0, 1, 7, 31   | CML 20ATEX1026                        |
|                                    | EN 60079 Part 0, 15   | CML 22ATEX4116                        |
| UKEX                               | BS EN 60079 Part 0, 1, 7, 31  | CML 21UKEX1013                        |
|                                    | BS EN 60079 Part 0, 15  | CML 22UKEX4117                        |
| INMETRO (Brazil)                   | ABNT NBR IEC 60079 Part 0, 1, 7, 15, 31   | TÜV 24.0267                           |
| TR CU (Russia)                     | ГОСТ 31610-0, 15, ГОСТ IEC 60079-1  | EA3C RU C-ZA.HA91.B.00245/21          |
|                                    | ГОСТ P MЭК 60079-7, 31  |                                       |
| CCC/CNEx (Chinese)                 | GB/T3836.1, 2, 3, 31-2021   | CNEx 21.3386X<br>CCC 2021312313000395 |
| SANS                               | SANS/IEC 60079 Part 0, 1, 7, 15, 31   | MASC S/20-9022                        |
| IP66/68 100m - Parallel            | IEC 60529   | CML 15Y728                            |
| IP65/66 - Tapered                  | IEC 60529   |                                       |
| IP68 - Tapered and approved grease | IEC 60529   | IECEX CML 20.0011                     |
| Deluge Protection                  | DTS-01  | CML 14CA370-2                         |
| Corrosion Protection               | ASTM B117-11, BS EN ISO 3231  | EXOVA N968667                         |
| Marine ABS                         | IEC 60079 Part 0, 1, 7, 15, 31, IEC 60529   | 25-0164964-PDA                        |
| DNV                                | IEC 60079 Part 0, 1, 7, 15, 31, IEC 60529   | TAE0000010                            |
| EMC Compatible                     | EN 55011, + A1, EN 55022  | SGS EMC305079/1                       |



PATENTED



## Conditions for Safe Use - X

None.

| Product Code | Gland Size Ref | Metric Entry Thread |         | NPT Entry Thread |         | Cable Detail |         | Maximum Length 'E' | Max Dia. Over Cores | Max No. of Cores | Hexagonal Detail |            | Install. Torque Value Nm |
|--------------|----------------|---------------------|---------|------------------|---------|--------------|---------|--------------------|---------------------|------------------|------------------|------------|--------------------------|
|              |                | 'C'                 | Min 'D' | 'C'              | Min 'D' | Min 'B'      | Max 'B' |                    |                     |                  | Max 'Flats'      | Max 'Crns' |                          |
| 056300-16-VX | 00-16ss        | M16x1.5             | 15      | -                | -       | 3.0          | 8.5     | 25.0               | 8.0                 | 6                | 24.0             | 27.0       | 32.5                     |
| 056300-VX    | 00-20ss        | M20x1.5             | 15      | 1/2/3/4          | 15      | 3.0          | 8.5     | 25.0               | 10.7                | 10               | 24.0             | 27.0       | 32.5                     |
| 05630-VX     | 0-20s          | M20x1.5             | 15      | 1/2/3/4          | 15      | 7.0          | 12.0    | 25.0               | 10.9                | 10               | 24.0             | 27.0       | 32.5                     |
| 056301-VX    | 1-20           | M20x1.5             | 15      | 1/2/3/4          | 15      | 11.0         | 15.0    | 30.0               | 12.5                | 25               | 27.0             | 30.0       | 32.5                     |
| 056322-VX    | 2s-25s         | M25x1.5             | 15      | 3/4/1            | 15/19   | 11.5         | 17.5    | 30.0               | 16.5                | 48               | 35.0             | 39.0       | 47.5                     |
| 056302-VX    | 2-25           | M25x1.5             | 15      | 3/4/1            | 15/19   | 15.0         | 20.0    | 30.0               | 16.5                | 48               | 35.0             | 39.0       | 47.5                     |
| 056333-VX    | 3s-32s         | M32x1.5             | 15      | 1/1 1/4          | 19      | 16.0         | 22.0    | 30.0               | 24.0                | 76               | 42.0             | 47.0       | 55.0                     |
| 056303-VX    | 3-32           | M32x1.5             | 15      | 1/1 1/4          | 19      | 20.0         | 26.5    | 30.0               | 24.0                | 76               | 42.0             | 47.0       | 55.0                     |
| 056344-VX    | 4s-40s         | M40x1.5             | 15      | 1 1/4/1 1/2      | 19/21   | 22.0         | 31.5    | 38.0               | 32.0                | 96               | 52.0             | 59.0       | 65.0                     |
| 056304-VX    | 4-40           | M40x1.5             | 15      | 1 1/4/1 1/2      | 19/21   | 26.0         | 34.0    | 38.0               | 32.0                | 96               | 52.0             | 59.0       | 65.0                     |
| 056355-VX    | 5s-50s         | M50x1.5             | 15      | 1 1/2/2          | 21      | 29.0         | 38.0    | 46.0               | 36.3                | 96               | 65.0             | 73.0       | 82.5                     |
| 056305-VX    | 5-50           | M50x1.5             | 15      | 1 1/2/2          | 21      | 34.0         | 44.5    | 46.0               | 36.3                | 96               | 65.0             | 73.0       | 82.5                     |
| 056366-VX    | 6s-63s         | M63x1.5             | 15      | 2/2 1/2          | 21/30   | 38.0         | 50.0    | 52.0               | 47.9                | 100              | 80.0             | 90.0       | 97.5                     |
| 056306-VX    | 6-63           | M63x1.5             | 15      | 2/2 1/2          | 21/30   | 44.5         | 56.5    | 52.0               | 47.9                | 100              | 80.0             | 90.0       | 97.5                     |
| 056377-VX    | 7s-75s         | M75x1.5             | 15      | 2 1/2/3          | 30/32   | 50.0         | 62.0    | 54.0               | 60.0                | 120              | 96.0             | 102.0      | 115.5                    |
| 056307-VX    | 7-75           | M75x1.5             | 15      | 2 1/2/3          | 30/32   | 56.0         | 67.5    | 54.0               | 60.0                | 120              | 96.0             | 102.0      | 115.5                    |
| 056308-VX    | 8-80           | M80x2.0             | 20      | 3                | 32      | 59.0         | 69.0    | 68.0               | 61.5                | 140              | 96.0             | 102.0      | 120.0                    |
| 056399-VX    | 9s-90s         | M90x2.0             | 20      | 3/3 1/2          | 32/33   | 60.0         | 75.0    | 70.0               | 70.5                | 160              | 111.0            | 125.0      | 120.0                    |
| 056309-VX    | 9-90           | M90x2.0             | 20      | 3/3 1/2          | 32/33   | 73.0         | 81.5    | 70.0               | 70.5                | 160              | 111.0            | 125.0      | 120.0                    |
| 056310-VX    | 10-100         | M100x2.0            | 20      | 3 1/2/4          | 33/34   | 81.0         | 91.0    | 70.0               | 79.0                | 180              | 125.0            | 141.0      | 120.0                    |

All dimensions except NPT are in mm. Intermediate thread sizes are available on request. 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.

A2EXVS VX-BG200625E

# A2EX-VS VX (VORTEX®) BARRIER COMPRESSION GLAND

## 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

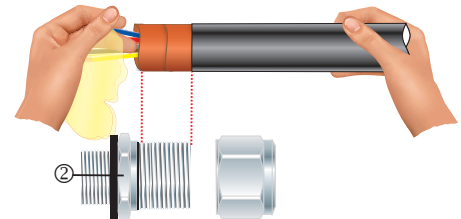
- The same thread size as the cable gland. (Thread adapters should be used to correct

any mismatch).

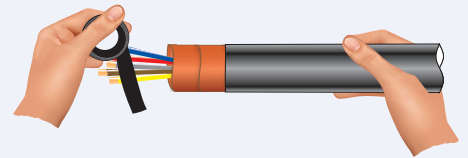
- With a thread tolerance of metric class '6H' or equivalent.
  - Where the thread length is a minimum of 10mm for Ex d applications or 3mm for all other applications
- OR CLEARANCE HOLES** (not Ex d)
- Where the hole size is the thread nominal size with a tolerance of +0.1 to +0.7mm. (e.g. the clearance 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. Cut the PVC sheath exposing the copper tape to the length of the inner ②. Remove all exposed tapes and foil on multicore cables.

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.

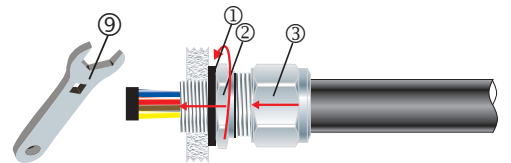


2. Using a clean cloth, clean the cable cores insulation. Using insulation tape, bundle the cores together at the end.

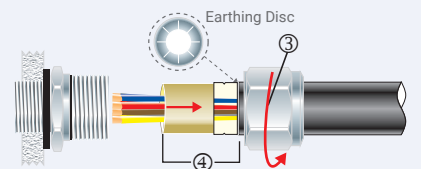


3. To maintain IP66/68, ensure the thread gasket ① is in place. Screw the gland unit into the apparatus. Tighten the inner ② using a CCG Spanner ⑨. Pass the cable end through the outer nut ③ and push the bundled cable cores through the inner ② diaphragm, earth disc and seal.

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.



4. Unscrew the outer nut ③. Withdraw the cable and barrier pot sub-assembly ④. Remove the insulation tape. Check the copper tape has passed through and makes 360° contact with the earthing disc.



Only Resin supplied by CCG may be used in the glands.

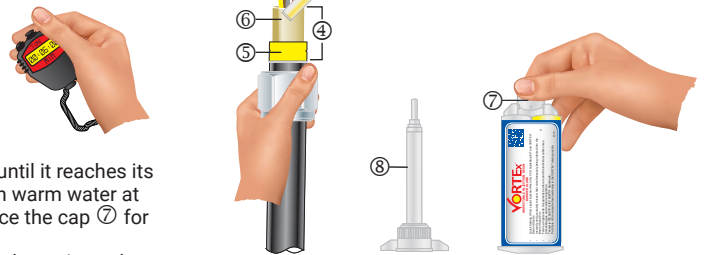
5. Remove the cap ⑦ from resin applicator and attach the mixing nozzle ⑧ (use extension nozzle for small multicore cables). Whilst holding the barrier pot sub-assembly ④ upright and holding the diaphragm seal firmly against the cable sheath inject the resin into the resin chamber\*. Make sure the resin fills the inspectible resin seal pot ⑤ all the way to the top of the protective resin pot ⑥ and wipe any excess resin away.

Wait for the resin to change from a liquid to a solid state, this should take:

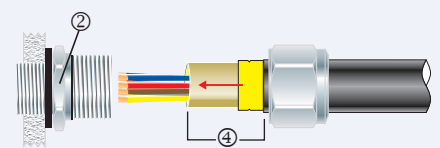
- 15 minutes at 10°C
- 7 minutes at 20°C
- 6 minutes at 30°C
- 5 minutes at 40°C

The cable gland can now be handled safely, and the resin will continue to cure until it reaches its full hardness. For installations in less than 5°C Ambient, warm the Resin tube in warm water at ± 50°C. If there is Resin left in the tube, discard the mixing nozzle ⑧ and replace the cap ⑦ for use with the next gland.

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



6. Re-insert the barrier pot sub-assembly ④ back into the inner ②.



7. Tighten the outer nut ③ to the installation torque using a CCG Spanner ⑨ to produce a seal and grip on the cable.

