ASSEMBLY FITTING INSTRUCTIONS FOR INSTALLATION OF CMP CABLE GLAND TYPE T3CDS

FOR TERMINATION OF CABLES WITH WIRE BRAID. SINGLE WIRE ARMOUR (SWA), STRIP ARMOUR, & TAPE ARMOUR, AND INTENDED FOR USE IN POTENTIALLY FLAMMABLE ATMOSPHERES (HAZARDOUS AREAS)

INCORPORATING EC DECLARATION OF CONFORMITY
ASSEMBLY FITTING INSTRUCTIONS FOR INSTALLATION OF CABLE GLAND TYPE T3CDS

Always adopt safe working practices as your prime consideration, and use good engineering principles when carrying out your duties. Everyone is responsible for following corporate health and safety requirements.

These Cable Glands are certified EEx d IIC & EEx e II as Category 2 IIGD equipment for use in Zone 1, Zone 21, Zone 2 and Zone 22 Hazardous Areas with Braided, SWA (Single Wire Armour), Strip Armour, and Tape Armour cables, providing a flameproof seal on the cable inner sheath, and an environmental seal to the cable outer sheath with the added benefit of deluge protection to the armour lock chamber. The Type T3CDS version is suitable for bonding of lead sheathed cables, and includes an additional brass continuity washer in contact with the cable gland entry component (Sub-Assembly A).

PLEASE READ THESE INSTRUCTIONS CAREFULLY BEFORE BEGINNING THE INSTALLATION

This cable gland design has four key elements to its general construction, as shown by the diagram below. When opening the cable gland there are two loose components, the armour cone and clamping ring, which facilitate a disconnectable arrangement.

It is not necessary to dismantle the cable gland any further than illustrated below.

<table>
<thead>
<tr>
<th>SUB-ASSEMBLY A</th>
<th>ITEM 4</th>
<th>ITEM 5</th>
<th>SUB-ASSEMBLY B</th>
</tr>
</thead>
<tbody>
<tr>
<td>'CDS' INNER SEAL HOUSING</td>
<td>REVERSIBLE ARMOUR CONE</td>
<td>UNIVERSAL REVERSIBLE ARMOUR CLAMPING RING</td>
<td>BODY AND OUTER SEAL HOUSING</td>
</tr>
<tr>
<td>DELUGE SEAL</td>
<td></td>
<td></td>
<td></td>
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</table>

**INSTALLATION INSTRUCTIONS**

1. Select the correct cable gland size using physical dimensions of the cable cross-referenced against the selection table opposite.

2. Separate the cable gland into two sub-assemblies A and B by unscrewing the entry component (1) from the body (2).  
   Note: Items 4 and 5 are loose components. See fig 1 opposite and diagram above.

3. Determine conductor length required and strip back cable outer sheath and cable braid or armour to suit the equipment geometry. (Note, when cutting armour wires, care should be taken to avoid cutting into the inner cable sheath beneath the armour wires). Expose the cable braid or armour further by stripping the outer sheath enough to allow contact with the tapered cone. This length may vary slightly depending upon diameter of the cable. See fig 2 and table opposite for guidance.

   Note: The reversible armour cone is suitable for terminating several cable armour types including Braid, SWA (Single Wire Armour), Strip Armour and Tape Armour. Identification of the cable armour types is marked on the cone. For reference:
   - Smooth / Plain Side of Cone – is for terminating SWA Cable (W)
   - Grooved Side of Cone – is for terminating Braid, Strip Armour or Tape Armour (X,Y,Z)

4. Secure entry component (sub-assembly ‘A’) into equipment using a spanner, and in cases where a locknut is to be fitted inside the equipment, two spanners will be required to tighten correctly. (See additional notes and comments on final page regarding accessories).

5. Pass sub-assembly ‘B’ and clamping ring (5) over the cable, outer seal nut first.

6. Insert reversible armour cone (4), in the orientation to suit the cable braid or armour type, into compensating sleeve (3) and pass the cable through sub-assembly ‘A’ equally spacing the braid or armour around the cone. See fig 3.

7. Whilst continuing to push the cable forward to maintain the cable braid or armour in contact with the cone, tighten compensating sleeve (3) into entry component (1) until the components are metal to metal, and cannot be tightened any further. See Note below.

8. Terminate the cable braid or armour by first securing entry component with a spanner (to prevent additional stress being transferred to entry threads) then tighten body (2) onto entry component (1) using a second spanner until the components are metal to metal, and cannot be tightened any further. See figure 4 and 5.

9. Using a standard spanner, tighten the Outer Seal Nut (6) onto the body (2) until it comes to an effective stop. This will occur when:
   - The Outer Seal Nut (6) is metal to metal with the body (2) of the cable gland, or
   - The Outer Seal has clearly engaged the cable and cannot be further tightened without the use of excessive force by the installer.

   Figure 5 shows a completed assembly.

**THIS COMPLETES THE INSTALLATION**

Note: The cable gland cannot be over-tightened onto the cable inner sheath because of the internal compensator that is designed to prevent any excess force from being applied to the cable.
REMOTE INSTALLATION

1. For remote installation follow steps 1 to 8 opposite, ignoring step 4.

2. Disconnect body (2) from entry component (1). Unscrew compensating sleeve (3) until cable can be withdrawn from entry component.

3. Secure entry component (sub-assembly 'A') into equipment. Re-enter the terminated cable, captivated with cone and ring into (sub-assembly 'A'), then tighten compensating sleeve (3) into entry component (1) until the components are metal to metal, and cannot be tightened any further. See Note† opposite.

4. Tighten body (2) onto entry component (1) until the components are metal to metal, and cannot be tightened any further.

5. Close outer seal by tightening outer seal nut (6) onto body (2). Figure 5 shows a completed assembly.

THIS COMPLETES THE INSTALLATION

INSPECTION

For inspection purposes, reverse the steps 5 and 4 above to verify that the cable braid or armour has been terminated effectively. After examination of the cable braid or armour termination repeat steps 4 and 5 above to complete the exercise.

<table>
<thead>
<tr>
<th>Gland Size</th>
<th>Entry Threads 'C'</th>
<th>Min. Thread Length 'D'</th>
<th>Cable Dia 'A'</th>
<th>Cable Dia 'B'</th>
<th>Armour Range</th>
<th>Ordering Reference</th>
<th>PVC Shroud Reference</th>
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<tbody>
<tr>
<td>20/16</td>
<td>M20 1/2&quot;</td>
<td>15</td>
<td>3.1</td>
<td>6</td>
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<td>POSPVC02</td>
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</tbody>
</table>

* For IP67 & IP68 requirements the Cable Diameter 'B' (minimum value) shown above should be increased by 1.0mm to ensure complete compliance.
TECHNICAL DATA

CABLE GLAND TYPE : T3CDS
INGRESS PROTECTION : IP66, IP67, IP68
CABLE TYPE (S) : CABLE TYPE (S) : WIRE BRAID, SWA (SINGLE WIRE ARMOUR), STRIP ARMOUR & TAPE ARMOUR CABLES
PROCESS CONTROL SYSTEM : BS EN ISO 9001 - 2000

HAZARDOUS AREA CLASSIFICATION

ATEX / CENELEC APPROVAL : EEx d / EEx e Equipment in Zone 1, Zone 2, Zone 21 & Zone 22, Gas Group IIA, IIB & IIC
ATEX CERTIFICATION DETAIL : II 2 GD - SIRA00ATEX1148X

SPECIAL CONDITIONS FOR SAFE USE

These Cable Glands shall not be used where the temperature at the point of mounting is below -60°C or exceeds 130°C
Concerning direct cable entry to Ex d enclosures, These Cable Glands shall not be used with Group IIC Enclosures that have a free volume that exceeds 2000 cm³

ACCESSORIES

The following accessories are available from CMP Products, as optional extras, to assist with fixing, sealing and earthing:
- Locknut
- Earth Tag
- Serrated Washer
- Entry Thread (I.P.) Sealing Washer
- Shroud

Note * : Although shrouds are available for use with these cable glands they are not recommended in areas exposed to harsh environmental conditions, e.g. Marine, Coastal and Offshore. These cable glands are designed to withstand penetration by water, dusts and solids, and in addition to the ingress protection levels required, they are also Deluge Protected with an integral deluge seal to protect the armour lock chamber.

CORRECT TOOLS

Always use the correct tools, as incorrect tools will inevitably lead to mistakes, potential damage and/or personal injury. Gloves are recommended when handling and terminating cables and cable glands.
Dedicated Cable Gland spanners for each cable gland size are available from CMP Products, and these are recommended for installing the product correctly. Adjustable spanners and wrenches are not recommended as there is a possibility of slippage that can lead to accidental injury or damage to surface finish.

Any sharp tools, instruments or knives used to cut or strip the cable sheath should be equipped with a safety blade or other safety feature consistent with the tool design and intended use.
Braid snips should be used to remove unwanted or excess cable braid. Ensure that braid snips are in good condition and effectively sharp enough to enable a first time clean cut of the cable braid without snagging.
A hacksaw, or other similar tool, should be used to cut armour wires. Hacksaw blades should be checked regularly and replaced when worn, or whenever evidence that a consistent first time clean cut is no longer possible. Note, when cutting armour wires, care should be taken to avoid cutting into the inner cable sheath beneath the armour wires.
Please refer to CMP Products in sourcing tools if required, who would be happy to assist.
Safety and personal protection should be given priority over all other considerations.

GENERAL INSTALLATION GUIDANCE

- BS EN 60079 -10 2003 Classification of Hazardous Areas
- BS EN 60079 -14 2003 Electrical Installations in Hazardous Areas (other than mines). Please refer to the selection guide in clause 10.4.2 for Ex d applications.
- BS EN 50262 - 1999 - Metric Cable Sealing Glands for Industrial Installations
- Installation should only be carried out by a competent person, skilled in the installation of cable glands
- Care should be taken to avoid damage to entry threads when handling and installing cable glands
- Depending upon the specific form of protection of the main equipment it may be necessary to fit an I.P. sealing washer, at the cable entry interface, to maintain the appropriate ingress protection levels. For Increased Safety (EEx e) equipment, or Increased Safety terminal chambers found on EEx d apparatus, a sealing washer is essential to maintain the minimum Ingress Protection rating and should always be fitted. For other forms of protection, e.g. Flameproof EEx d apparatus, the inclusion of a sealing washer is optional. CMP (I.P.) Sealing Washers, which are installed at the cable entry interface, between the equipment enclosure and the cable entry device (cable gland) have been 3rd party tested in Ingress Protection tests to BS EN 60529
- Always ensure that the correct fixing accessories provided by CMP Products are used, as appropriate to secure the cable glands into the mating equipment. In addition to (I.P.) Sealing Washers, CMP Products are also able to provide Locknuts, Earth Tags, and Serrated Washers which should be used as appropriate to the equipment configuration. Usually for any equipment other than EEx d apparatus, it will be necessary to use as a minimum a Locknut, and a Serrated Washer if the enclosure of the equipment or application requires it. The addition of an Earth Tag will depend upon the earth continuity provision of the enclosures installed.
- Cable Gland seals are included within the cable gland when despatched from the factory. There should be no circumstances where seals need to be removed from the cable gland. Care should be taken to avoid exposure of cable gland seals to dirt, hostile substances, e.g. solvents, and other foreign bodies
- Cable Gland components are not interchangeable with those of any other cable gland manufacturer. It is important to note that components from one manufacturer’s product cannot be used in that of another, and that modification of a cable gland product will invalidate the hazardous area certification.
- The cable gland is not a user serviceable product and spare parts are not permitted to be supplied under the certification.
- Cable Glands should not be installed whilst circuits are live. Similarly, following energising of the electrical circuits, cable glands should not be dismantled or opened until the circuit has been safely de-energised.

I, the undersigned, hereby declare that the equipment referred to herein conforms to the above directive.

Malcolm J. Graham - Technical Director
(Official Person)