

STANDING OUT IN THE UNIVERSE

**TRITON™**  
**CDS™**

DELUGE **PROOF** CABLE **GLANDS**



GLOBAL **PRODUCTS** FOR **GLOBAL** APPLICATIONS



CMP PRODUCTS

OUT OF THIS **WORLD** INTO **TOMORROW**

## EASE OF INSTALLATION AND CRUCIAL CABLE CARE

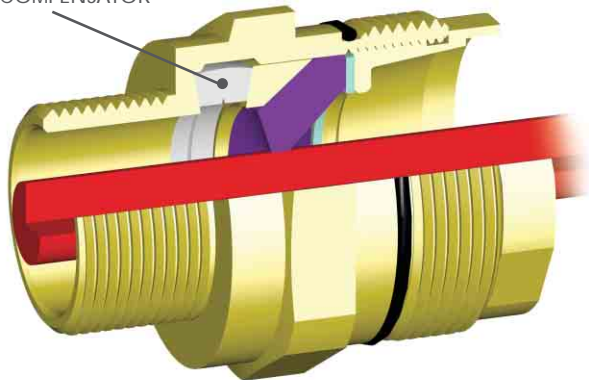
**TRITON™** delivers a unique concept in cable sealing techniques incorporating the patented Compensating Displacement Seal system, **CDS™**

Introduced to effectively handle all types and sizes of cable construction taking the concern out of the mind of the operator, letting the product do the job instead. This concept provides effective sealing on the cable inner sheath, utilising a proven reliable and robust explosion proof sealing device installed with a 'best in class' manner. Taking a crucial cable care principal into account in its design, this concept leaves nothing to chance yet delivers the ultimate in assembly and installation simplicity that guarantees a safety level that is unsurpassed by its rivals.

This latest development in a long line of original cable gland solutions from CMP Products is designed and fully approved to the latest European Normatives (EN) EN 50014, EN 50018, EN 50019 & EN 50281. **TRITON™ CDS™** complies fully with the Essential Health & Safety Requirements detailed in Annex II of Directive 94/9/EC (ATEX 95) in relation to the design and construction of equipment intended for use in potentially explosive atmospheres. This compliance covers not only the traditional protection required against ignition of Gas and Vapours, but also the latest Dust Hazard protection. This enables the product to be CE marked and coded with an ATEX Category 2 Gas and Dust marking, and it is effectively labelled Ex II 2 GD. Close consideration should go to the fact that **TRITON™ CDS™** has been tested and approved with the minimum level of limitations of certification possible, pertinently the fewest on the market - **without any equal.**

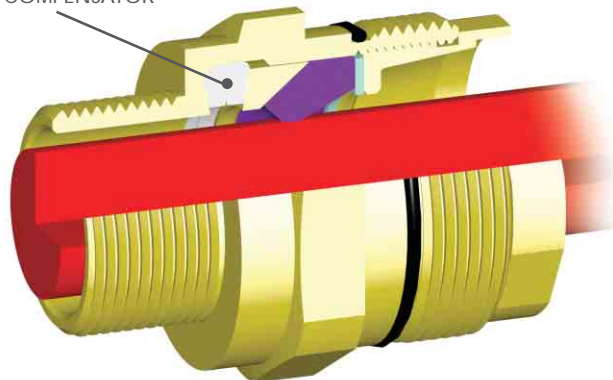
### THE UNIQUE COMPENSATING DISPLACEMENT SEAL (**CDS™**) SYSTEM DEMONSTRATED

CDS COMPENSATOR



**Figure 1** - When a smaller diameter cable is installed the inner compensator is effected to a lesser extent

CDS COMPENSATOR



**Figure 2** - When a larger diameter cable is installed, the inner compensator is effected to a greater extent

A Fully functional 3D Virtual Reality Demonstration of the **TRITON™ CDS™** Cable Gland and Cable Installation procedure is available on request.

### DESIGN FEATURES & BENEFITS

#### INNER EXPLOSION PROOF SEAL

- Unique new Compensating Displacement Seal (**CDS™**) system, compatible with all types of cable.
- At the critical cable sealing point the **CDS™** system protects the cable inner sheath from any excess force, which is transferred to and absorbed by the internal compensator incorporated in the **CDS™** system.
- Allows the Cable Gland to be tightened face to face every time regardless of cable diameter.

#### ARMOUR TERMINATION

- Multiple Universal Armour Clamp for Single Wire Armour, Steel Tape Armour & Braided cables.

#### DELUGE SEAL

- Proven, reliable 'O' Ring arrangement which is concealed and protected from damage after installation, and during service.

#### OUTER SEAL

- Closure range accepts all commonly used cables in the industry.
- Can be tightened face too face with a spanner every time, unlike the subjective hand tight installation of our competitors.



**TRITON™ CDS™ Cable Gland Type T3 CDS****TECHNICAL SPECIFICATIONS**

TYPE	:T3 CDS
PROCESS CONTROL (QA) SYSTEM	: BS EN ISO 9001
TEMPERATURE RATING	: -60°C TO +130°C
INGRESS PROTECTION	: IP66, IP67 & IP68 TO BS EN 60529
INGRESS PROTECTION (IP) CERT.	: 00ATEX1148
DELUGE PROTECTION	: TO DTS 01 : 1991
DELUGE TEST CERTIFICATE	: ITS 01005029
DESIGN SPECIFICATION	: GENERALLY IN ACCORDANCE WITH BS 6121
ENTRY THREAD SPECIFICATION	: BS 60423
CABLE GLAND MATERIAL	: BRASS (OTHER MATERIALS & FINISHES READILY AVAILABLE)
SEAL MATERIAL	: SOLO™ – LOW SMOKE & FUME
SEALING AREA(S)	: INNER & OUTER SHEATH
ARMOUR CLAMPING	: REVERSIBLE ARMOUR CONE & UNIQUE TRULY UNIVERSAL REVERSIBLE CLAMPING RING
CABLE TYPES	: S.W.A., S.T.A., & WIRE BRAID

**CENELEC APPROVAL DETAIL**

CENELEC APPROVAL CERTIFICATE	: SIRA 00ATEX1148X
COMPLIANCE CODE	: EN50014, EN50018, EN50019, & EN50281 -1 -1 -1 :1998
HAZARDOUS AREA CLASSIFICATION	: EEx d / EEx e EQUIPMENT ZONE 1, ZONE 2, ZONE 21, & ZONE 22 - GAS GROUPS IIA, IIB, IIC
CODE OF PROTECTION	:  II 2 GD (EEx d IIC / EEx e II)
Q.A. NOTIFIED BODY	: SIRA (0518)

**Special Conditions for Safe Use**

There are two special conditions for safe use detailed in the ATEX / CENELEC hazardous area certification for the **TRITON™ CDS™** cable gland. The first, which is a condition applied to all non-compound filled solutions from all cable gland manufacturers, is as follows:

"In respect of Direct Entry Ex d situations, the Type T3CDS Cable Gland shall not be used with Group IIC Enclosures that have a free volume that exceeds 2000 cm<sup>3</sup>"

The second is where CMP Products take the lead, which details the maximum temperature rating applicable specifically to this range of cable glands, which far exceeds that of its competitors nearest equivalent standard product, and is:

"The Type T3CDS Cable Gland shall not be used on enclosures where the temperature, at the point of mounting, exceeds 130°C"

It is important to note that unlike its nearest rivals the CMP **TRITON™ CDS™** product does not have a limitation for safe use in respect of external cable clamping, which makes this product the most versatile Cable Gland solution of its type available.

The **TRITON™ CDS™** product has fewer Special Conditions for Safe Use than any other Deluge Proof Cable Gland.

As all Special Conditions for Safe Use should be considered and taken into account during the selection process for any hazardous area equipment, CMP promote the following recommendation. Please ask for this information from all manufacturers in advance of purchasing product, before it is too late!

**ANZEx APPROVAL DETAIL**

AUSTRALIA - NEW ZEALAND (ANZEx) APPROVAL	: ANZEx 03.3001-0X
CODE OF PROTECTION CATEGORY	: Ex d IIC / Ex e II, DIP A21 IP66/IP68
COMPLIANCE STANDARDS	: IEC 60079-0:1998, 60079-1:2001, 60079-7:2001
	: IEC 61241-1-1:1999, 60529:1989

**CSA APPROVAL DETAIL**

CSA APPROVAL CERTIFICATE	: 1310517
CSA COMPLIANCE CODE	: C22.2 NO 0-M1991, 174-M1984,
	: CAN/CSA E79-0-2001, E79-1-2001
HAZARDOUS AREA CLASSIFICATION	: ZONE 1, CLASS I, II, III, CLASS I, DIV 2,
	: GROUPS A, B, C, D, CLASS II, DIV 2, GROUPS E, F, G;
	: ENCLOSURE TYPE 3, 4, & 4X, CLASS III
CSA CODE OF PROTECTION	: Ex d IIC & Ex e II

**UL LISTING DETAIL**

UL LISTING	: E200163
COMPLIANCE CODE	: UL514B
CLASSIFICATION	: ORDINARY AND WET LOCATIONS LISTED

**GOST APPROVAL DETAIL**

GOST APPROVAL CERTIFICATE	: 2002.C256
COMPLIANCE CODE	: 60079-0-98, 60079-1-99, 60079-14-96
HAZARDOUS AREA CLASSIFICATION	: ZONE I, Ex d IIC & Ex e II

**MARINE APPROVAL DETAIL**

AMERICAN BUREAU OF SHIPPING (ABS)	: 01-LD 234401-PDA
LLOYDS REGISTER SHIPPING (LRS)	: 01/00172
DET NORSKE VERITAS (DNV)	: E-6157

**Internationally Recognised Approvals**

- CENELEC / ATEX approved with minimum limitations for safe use.
- Fully meets the test requirements of EEx nR equipment or apparatus with Restricted Breathing features.
- Shell Deluge Tested to DTS01:91, after 20 years simulated accelerated ageing.
- Cable Glands rated IP66, IP67 to EN60529:1992 as standard, & IP68 to a depth of 10 metres.
- EMC Tested to EN55022 by SGS Independent Test Laboratory
- ANZEx Approved
- CSA Approved
- UL Listed for Marine use.
- GOST Approved
- DNV Approved
- ABS Approved
- Lloyds Approved
- CEPUL / INMETRO approval pending



## PRACTICAL INSTALLATION BENEFITS

- Fully sequential, three step make off procedure
- Quick and easy assembly process, with face to face installation every time
- CMP make no exaggerated claims concerning it's speed of installation but guarantee a 'Right First Time' installation well within the highest expectations prescribed.
- This 'Right First Time' Installation concept, helps to reduce 'down time' during plant construction whilst instilling peace of mind in the user.
- The risk of damage to the cable inner sheath is eliminated, regardless of the cable construction, even though the **CDS™** sealing system is fully tightened every time.
- EMC Noise Reduction levels for radiation emissions comply with current European guidelines. (providing in the region of 50db attenuation when terminated with screened cable).
- Continuous Operating Temperatures from -60°C to +130°C.
- Complies with Low Voltage Directive 73/23/EEC
- Uniform hexagon profile

## HOW TO ORDER

Please use the ordering reference numbers in the table below for standard brass cable glands. As there are a number of possible combinations of thread size variations, material, and finishes available from CMP, it is recommended when ordering, that the following information should be provided:

Cable Gland Size, Cable Gland Type, Thread Size, Material, Finish (if applicable)

e.g. 32 - T3CDS - 1" NPT - Brass - Nickel Plated

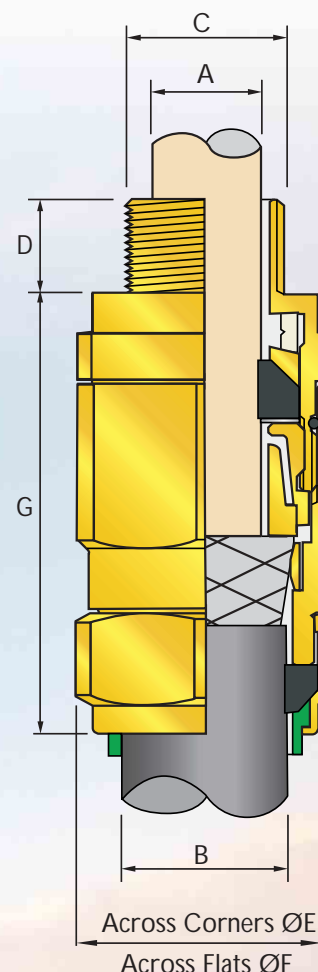
## OPTIONS

- Version for effective termination of lead sheathed cables, designated Type 'T3CDSPB'.
- Integral Entry Thread Seal, which removes the need for separate sealing washers. Designated Type RT3CDS or RT3CDSPB, the advantages of this option are:
  - Accidental omission of loose seals is prevented.
  - Mechanically enclosed, UV protected seal, eliminates the risk of seal damage.
  - Length of thread engagement maximised by virtue of reduced seal thickness.

**Note:** Care should be taken to ensure a suitable sealing area is available on the equipment the cable gland is being used with when this option is specified.



Integral Entry Thread Seal Option



## Other Complementary Cable Gland Solutions and Associated Accessories

**Other Materials:** CMP Products offer cable glands in Marine Brass, Brass with Electroless Nickel Plated finish, Stainless Steel, Copper Free Aluminium & Non-Metallic.

CMP Standard accessories include Locknuts, Serrated Washers, Earth Tags, Entry Thread Sealing Washers, in a variety of materials and finishes, together with PVC and SOLO LSF Shrouds.

CMP Products is also able to offer a wide range of Thread Conversion Adaptors and Reducers, from stock, together with a selection of Stopper Plugs with and without integral sealing ring.

## Cable Gland Selection Table

Gland Size	Entry Threads 'C'			Min. Thread Length 'D'	Cable Dia 'A'		Cable Dia 'B'		Armour Range				Across Corners Diameter 'E'	Across Flats Diameter 'F'	Installed Length Protrusion 'G'	Ordering Reference	PVC Shroud Reference
	Standard	Optional			Min	Max	Min	Max	Grooved Cone		Plain Cone		Max	Max	Max		
	Metric	NPT	PG	Min					Max	Min	Max	Grooved Cone	Plain Cone	Max	Max	Max	
20/16	M20	1/2"	PG11	15	3.1	8.6	6	13.4	0	1	0.9	1.25	24.4	22	74	20/16T3CDS	POSPVC02
20S	M20	1/2"	PG13.5	15	6.1	11.6	9.5	15.9	0	1	0.9	1.25	26.6	24	70	20ST3CDS	POSPVC04
20	M20	1/2"	PG16	15	6.5	13.9	12.5	20.9	0	1	0.9	1.25	33.3	30.5	74	20T3CDS	POSPVC06
25	M25	3/4"	PG21	15	11.1	19.9	18	26.2	0	1	1.25	1.6	40.5	37.5	82	25T3CDS	POSPVC09
25S	M25	3/4"	PG21	15	11.1	19.9	14	22	0	1	1.25	1.6	40.5	37.5	82	25ST3CDS	POSPVC09
32	M32	1"	PG29	15	17	26.2	22.9	33.9	0	1	1.6	2	51	46	82	32T3CDS	POSPVC11
40	M40	1-1/4"	PG36	15	22	32.1	26	40.4	0	1	1.6	2	61	55	85	40T3CDS	POSPVC15
50S	M50	1-1/2"	PG36	15	29.5	38.1	35	46.7	0	1	2	2.5	66.5	60	93	50ST3CDS	POSPVC18
50	M50	2"	PG42	15	35.6	44	38	53.1	0	1	2	2.5	78.6	70.1	98	50T3CDS	POSPVC21
63S	M63	2"	PG48	15	40.1	49.9	45.6	59.4	0	1	2.5	2.5	83.2	75	100	63ST3CDS	POSPVC23
63	M63	2-1/2"	-	15	47.2	55.9	54.6	65.9	0	1	2.5	2.5	89	80	100	63T3CDS	POSPVC25
75S	M75	2-1/2"	-	15	52.8	61.9	57	72.1	0	1	2.5	2.5	101.6	90	100	75ST3CDS	POSPVC28
75	M75	3"	-	15	59.1	67.9	60.4	78.5	0	1	2.5	2.5	111.1	100	110	75T3CDS	POSPVC30
90	M90	3-1/2"	-	15	66.6	79.3	69.2	90.4	0	1	2.5	2.5	127.5	115	135	90T3CDS	POSPVC32

All Dimensions in Millimetres

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

## PERTINENT TECHNICAL CONSIDERATIONS



Under IEC 60079 – 14 (latest edition) Clause 9.1.4 states that "The connection of cables and conduits to the electrical apparatus shall be made in accordance with the requirements of the relevant type of protection."

It then goes on to say that care should be taken when selecting a suitable cable entry device in conjunction with certain types of cable employing materials which can exhibit 'cold flow' characteristics. The standard states by way of example that "cable entry devices not employing compression seals which act upon part(s) of the cable having cold flow characteristics" should be employed.

There is a reason for this, which has long been recognised by most respected industry experts, but has not necessarily been widely published. That is to say that a standard compression seal, which differs from any of the CMP conceptual solutions, found in most other types of armoured cable glands uses only one action to tighten the armour lock and simultaneously apply the seal onto the inner cable sheath. This singular, uncontrolled action means that the seal is installed "blind" with a high probability of excess pressure exerted on the cable. Ironically whilst this method of installation was used extensively in the past, and is still supplied by most manufacturers today, on assembly there is no way for the installer to identify the potential problem, although in the long term the consequences may be highly damaging. It is our view, which is unlike those of our competitors who will continue to say one thing and do another, that the use of compression seals is the single biggest problem in the cable connection business today.

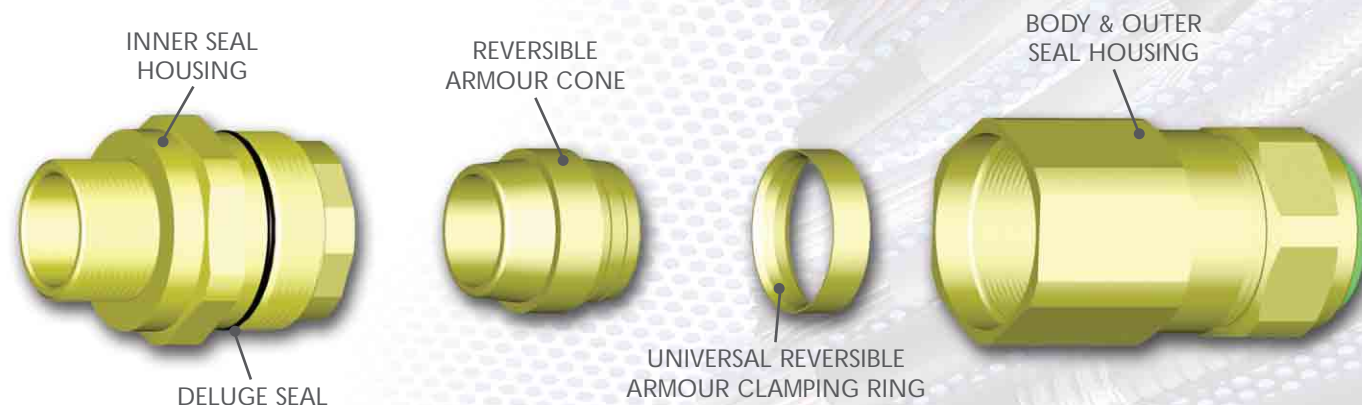
The latest standard also goes on to state that "Low smoke and/or fire-resistant cables usually exhibit cold flow characteristics", and that "Cold flow can be more fully described as thermoplastic materials which flow when subjected to pressure at ambient temperature." With its revolutionary concept of Cable Inner Sheath Sealing, the CMP **TRITON™ CDS™** fully embraces the requirements of this latest standard and addresses a number of other fundamental compatibility and installation issues that have remained unanswered by most other cable gland manufacturers.

## INNER SEAL HOUSING

- Robust Explosion proof CDS system, less susceptible to damage than equivalent diaphragm seals.
- No need for Cable Guide to protect CDS system as cable conductors do not penetrate or damage the Explosion proof Seal as they pass through it.
- Explosion Proof seal does not tear or split as a result of frictional rotation during installation.
- Explosion proof inner seal remains in the Cable Gland, and does not ride on the cable, therefore is not prone to mechanical damage when the cable needs to be withdrawn from the equipment.
- Remote make off, disconnection and re-connection does not jeopardise the safety integrity of the Ex apparatus.
- Inspection can be affected without disturbing the inner seal.

## UNIVERSAL REVERSIBLE ARMOUR CLAMPING CONE &amp; RING

- Simple methodical Installation Procedure without the need for any confusing scientific recipe or torque measurement for cable clamping as the installation method uses a face to face installation every time.
- Reversible Armour Cone, for Multiple Cable Armour types, has clearly visible marking which makes incorrect assembly virtually impossible.
- Reversible Armour Clamping Ring is truly 'Universal' with a bi directional functionality – identical on both sides
- No possibility of inserting the Reversible Armour Clamping ring the wrong way – it's Right First Time. **UNLIKE OUR RIVALS**



## DELUGE PROTECTION SEAL

- Deluge Protection by means of tried & tested 'O' ring feature – Simple and effective arrangement.
- Internal Deluge seal is not exposed to mechanical damage or ultra violet radiation after installation and is completely protected in its operational working life, offering total reliability.
- There is no need to 'Pull' or re-position the deluge seal on installation or subsequent re-assembly after inspection, as the CMP 'O' Ring arrangement engages automatically during a simple installation procedure providing effective protection every time.

## BODY &amp; OUTER SEAL HOUSING

- Tried and tested Displacement Seal arrangement.
- Latest design limits the potential for over-tightening
- Wide cable acceptance range handles virtually all cable sizes known to man.
- One seal range per cable gland / hub size.
- No hidden extras. What you see is what you get.



CMP PRODUCTS



ABS



## OFFICE LOCATIONS AND STOCKING CENTRES

### CMP Products

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**Fax:** +44 191 265 0581  
**E-Mail:** cmp@cmp-products.co.uk

### British Engines (M.E.) FZE (CMP Dubai Office)

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United Arab Emirates

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**Fax:** +971 4 887 1015  
**E-Mail:** meoffice@cmp-products.com

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**Tel:** +65 6466 6180  
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### CMP America

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Texas 77338  
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**Fax:** +1 281 540 7672  
**E-Mail:** cmp@cmp-america.com

For any other requirement not listed within the CMP standard catalogue range, please feel free to convey your requirements to the nearest office detailed above, as CMP prides itself in having the ability and flexibility to provide solutions that meet the very needs of industry. Whether your application is for General Purpose Industrial, Ordinary Locations, Marine and Wet Locations, or Hazardous Locations, CMP delivers the solution at the right place, the right time and the right price.

## Industry Bodies and Associations

CMP Products are registered with and active supporters of the following Industry bodies and Trade Associations

- First Point Assessment Ltd
- The Energy Industries Council
- Gland Manufacturers Trade Committee
- Achilles
- Northern Offshore Federation
- Investors In People

