TECHNICAL DATA

 CABLE GLAND TYPE
 : TMC2X

 INGRESS PROTECTION
 : IP66, NEMA 4X

 PROCESS CONTROL SYSTEM
 : ISO 9001

 : ISO/IEC 80079-34:2011

## **EXPLOSIVE ATMOSPHERES CLASSIFICATION**

ATEX CERTIFICATION No : CML 18ATEX1336X

ATEX CERTIFICATION CODE : ( I 2G 1D, Ex db IIC Gb, Ex eb IIC Gb, Ex ta IIIC Da

UKEX CERTIFICATION No : CML 21UKEX1263X

IECEX CERTIFICATION NO : IECEX CML 18.0193X
IECEX CERTIFICATION CODE : Ex db IIC Gb / Ex eb IIC Gb. Ex ta IIIC Da

cCSAus CERTIFICATION No :2194053

cCSAus CERTIFICATION CODE : Class

: Class I Div 1 and 2 Groups A, B, C and D; Class II, Div 1 and 2, Groups E, F and G; Class III, Div 1 and 2; Enclosure Type 4X

: Ex d IIC; Ex e II: Class I, Zone 1, AEx d IIC; AEx e II; AEx ta IIIC

cULus CERTIFICATION NO : E161256
cULus CERTIFICATION CODE : Class I D

: Class I Div 1 & 2 Groups A, B, C, and D; Class II Div 1 & 2 Groups E, F, and G; Class III; Enclosure type 4X

## INSTALLATION INSTRUCTIONS

Installation should only be performed by a competent person using the correct tools. Read all instructions before beginning installation.

## INSTALLATION GUIDANCE NOTES

- . In accordance with NEC requirements, glands with NPT and Metric entry threads are suitable for Divisions.
- In accordance with CEC requirements, glands with NPT threads are suitable for both Divisions and Zones. Glands with Metric threads are only suitable for Zones fitted with an approved
  Metric to NPT thread conversion adaptor.
- FOR IEC and/or ATEX Installations
  - All tapes/shields/foils must be removed and any twisted pairs/triples unwound to form individual conductors.
  - Drain Wires: Pass sleeving/heat shrink tube over the drain, making sure it is positioned within the resin Tube/Resin Dam area. If required, shrink the tube by applying heat, then treat the drain wire as a conductor.
- For NEC Class 1 Div 1 and Zone 1 see article 501.15 of the NEC.
- The interface between a cable entry device and its associated enclosure / cable entry will require additional sealing to achieve ingress protection (IP) ratings higher than IP54. The minimum protection level is IP54 for explosive gas atmospheres and IP6X for explosive dust atmospheres. Parallel threads (and tapered threads when using a non-threaded entry) require a CMP sealing washer or integral O-ring face seal (where available) to maintain IP66. It is the installer's responsibility to ensure the IP rating is maintained at the interface.

  Note: When fitted to a threaded entry, all tapered threads on TMC2X product will automatically provide an ingress protection rating of IP66.
- 6. A CMP earth tag should be used when it is necessary to provide an earth bond connection. CMP earth tags have been independently tested to comply with Category B rating specified in IEC 62444 (there are no ratings stated in IEC 60079-0). Ratings are shown in the associated table. CMP earth tags slip over the cable gland or accessory entry thread from inside/outside the enclosure and must be secured with a locknut (if fitted internally).
- 7. Metric entry threads comply with ISO 965-1 and ISO 965-3 with a 6g tolerance as required by IEC 60079-1:2014. The CMP standard metric thread pitch is 1.5mm for threads up to M75, and 2.0mm from M90 and above. Special thread pitches between 0.7 2.0mm are available on all products on request. See certificate for details of other thread types. NPT threads are in accordance with ASME 81.20.1-2013 gauging to Cl 3.2 for external threads. For details of other thread types refer to IECEs certificate.
- 8. Enclosures must be strong enough to support the cable and cable gland assembly. The enclosure surface finish must be smooth and flat to facilitate sealing with an O-ring or Entry Thread Sealing Washer for the required IP rating.
- Enclosure walls must be sufficiently strong to support the cable and cable gland assembly. Enclosure entries shall be perpendicular. Any draft angles from the casting/moulding process should have a perpendicular flat spot machined to facilitate sealing with an O-ring or Entry Thread Sealing Washer.
- 10. CMP Products recommends that when using the cable gland with a through-hole, the hole must be circular, free of burrs and the diameter no larger than 0.7mm above the thread major diameter. A suitable CMP Products locknut shall be used to secure the product. See CMP Products catalogue for locknut options.

## SPECIAL CONDITIONS FOR SAFE USE

- The glands shall only be fitted to enclosures where the temperature, at the point of mounting, is below 85°C (185°F).
- . The cable shall be effectively clamped as close as possible to the gland.
- 8. When used for increased safety (Ex e) or dust protection by enclosure (Ex t) applications, the user shall provide a suitable interface seal between the gland and associated enclosure to maintain the appropriate level of ingress protection of IP54 for increased safety and IP6X for dust protection by enclosure.
- The TMC2X cable glands comprise a flameproof labyrinth joint having length and gap dimensions which are other than those specified in IEC 60079-1 and are not intended to be repaired in senior
- 5. Installation must be according to CEC wiring method for the types of cables that can be used in Class I, Div. 1 and 2 and Class I, Zone 1 and 2 Classified Areas, according to 60079-14 installation wiring method restrictions.
- Installation must be according to US (NEC) wiring method for the types of cables that can be used in Class I, Div. 1 and 2 and Class I, Zone 1 and 2 Classified Areas, according to 60079-14 installation wiring method restrictions.
- Prior to comissioning or operation of electrical equipment in the presence of flammable materials, the sealing compound must be cured for 24 hours at a temperature of no less than 5°C (41°F).
- For Metric threads, the installer shall follow guidance from the NEC or CEC to ensure that the enclosure entry meets the requirements for thread engagement.
- When the connector is supplied with metric entry threads, a CMP Entry Thread Washer should be fitted between the connector and the enclosure to prevent the ingress of moisture or dust into the enclosure. Thread tape must not be applied to the entry threads.

UL approved glands in sizes 075 to 162 to be tightened to the values

Number

of turns

3.50

4.00

4.50

6.00

6.50

9.00

7.00

0.75 0.99

0.72 0.96

TMC2 UL Tightening Guide

1.62

75 99 118 137 162

0.70 0.93 1.18 1.37 1.59

0.64 0.88 1.12 1.31 1.54

0.61 0.85 1.08 1.29 1.52

0.59 0.83 1.05 1.26 1.50

0.56 0.80 1.02 1.24 1.47

0.50 0.74 0.95 1.18 1.42 VI - 0.72 0.92 1.15 1.40 JI - 0.69 0.89 1.13 1.37 JI - 0.87 1.11 1.36 VI

TMC2 UL Tightening Guide

Gland Size

75 99 118 137 162

17.7 23.7 30.0 34.8 40.5

16.9 23.0 29.2 34.1 39.9

16.3 22.4 28.4 33.4 39.2

156 217 275 328 386

15.6 21.7 27.5 32.8 38.6 24 14.9 21.0 26.7 32.1 38.0 24 14.1 20.3 25.9 31.4 37.4 14 13.4 19.6 25.0 30.7 36.8 V10 12.7 18.9 24.2 30.0 36.1 36.1 12.7 18.2 23.4 29.3 35.5 34 17.5 22.5 28.6 34.9 8

- 27.3 33.6

- - - 26.6 33.0

specified in the following table:

19 1 25 1

18.4 24.4

of turns

3.50

5.00

5.50

6.00

6.50

- 10. Before installing the connector, ensure that the connector thread form and enclosure thread form are compatible
- 11. For guidance on mixing the RapidEx, please refer to FI320.

CMP Earth Tag Size	Short Circuit Ratings Symmetrical Fault Current (kA) for 1 second						
20	3.06						
25	4.06						
32	5.40						
40	7.20						
50	10.40						
63	10.40						
75	10.40						

CMP Products Limited on its sole responsibility declares that the equipment referred to herein conforms to the requirements of the ATEX Directive 2014/34/EU and UK statutory requirements SI 2016 No. 1107 (as amended). This is shown in the following harmonised/designated standards;

EN 60079-0:2018, EN 60079-1:2014, EN 60079-7:2015 + A1:2018, EN 60079-31:2014, BS 6121:1989, FN 62444:2013

111106/2

Malcolm Webber - Product Engineering Manager - (Authorised Person)

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C€ 2776 ⊌6 2503

Notified Body: CML B.V., Koopvaardijweg 32, 4906CV Oosterhout, The Netherlands



# INSTALLATION INSTRUCTIONS FOR CMP CABLE GLAND TYPE TMC2X

CMP TYPE TMC2X CABLE GLAND / GLAND FOR USE WITH INTERLOCKED & CORRUGATED CONTINUOUSLY WELDED METAL CLAD (TYPE MC OR MC-HL) OR TECK ARMORED (CANADA ONLY) AND ARMORED & JACKETED CABLES IN ORDINARY, WET & HAZARDOUS LOCATIONS.

INCORPORATING EU DECLARATION OF CONFORMITY TO DIRECTIVE 2014/34/EU AND UK STATUTORY REQUIREMENTS SI 2016 No. 1107 (AS AMENDED)





TMC2X - Corrugated & Interlocked Metal Clad Armor (MC) or TECK90 (Canada only), Continuously Welded Metal Clad Armor (MCHL), ACIC-HL, ACWU90-HL, RC90-HL, RA90-HL

162 only are UL Listed

Order Reference (NPT with RapidEx Resin)		Entry Thread		Minimum	Cable Armor Diameter				Cable Jacket Diameter		Max Over	Across Flats	Across Corners	Nominal		Appro: Weigh	
Aluminum	Nickel Plated Brass	Stainless Steel	NPT	NPT Option	Thread Length	Armor Stop In		Out		Min	Max	Conductors	Max	Max	Assembly Length	Shroud	Alumin (oz)
				Option		Min	Max	Min									
MC2X-050A075X	TMC2X-050NB075X	TMC2X-050SS075X	1/2"	-	0.78	0.42		0.55		0.500	0.750	0.51	1.20	1.32	2.44	PVC06	2.
MC2X-075A075X	TMC2X-075NB075X	TMC2X-075SS075X	-	3/4"	0.80	0.42		0.55		0.500	0.750	0.51	1.20	1.32	2.44	PVC09	۷.
MC2X-075A099X	TMC2X-075NB099X	TMC2X-075SS099X	1/2"	-	0.78	0.60		0.65		0.690	0.990	0.51	1.48	1.63	2.96	PVC09	3.00
MC2X-050A099X	TMC2X-050NB099X	TMC2X-050SS099X	-	3/4"	0.80	0.60		0.78		0.050	0.550	0.71	1.40	1.05			
TMC2X-100A118X	TMC2X-100NB118X	TMC2X-100SS118X	3/4"	-	0.80	0.79		0.86		0.870	1.180	0.71	1.81	1.99	3.15	PVC11	5.11
TMC2X-075A118X	TMC2X-075NB118X	TMC2X-075SS118X	-	1"	0.98	0.79				0.070	1.100	0.94	1.01				
TMC2X-125A137X	TMC2X-125NB137X	TMC2X-125SS137X	1"	-	0.98	0.94	1.08	1.08		1.020	1.370	0.94	2.05	2.26	3.55	PVC15	6.70
TMC2X-100A137X	TMC2X-100NB137X	TMC2X-100SS137X	-	1 1/4"	1.01	0.94	1.18	1.18	1.28	1.020	1.370	1.20	2.03	2.20			
TMC2X-150A162X	TMC2X-150NB162X	TMC2X-150SS162X	1 1/4"	-	1.01	1.22	1.35	1.35	1.50	1.300	1.620	1.20	2.36	2.60	3.59	PVC18	8.8
TMC2X-125A162X	TMC2X-125NB162X	TMC2X-125SS162X	-	1 1/2"	1.03	1.22	1.42			1.500	1.020	1.46	2.50	2.00	3.33	1 1 1 1 1 1	0
FMC2X-150A190X	TMC2X-150NB190X	TMC2X-150SS190X	1 1/4"	-	1.01	-	-	1.51		1.570	1.900	1.20	2.56	2.82	3.59	PVC37	9.4
FMC2X-125A190X	TMC2X-125NB190X	TMC2X-125SS190X	-	1 1/2"	1.03	-	-		1.72	1.570	1.500	1.46	2.30	2.02	3.33	1 4 C 3 /	٥.
MC2X-200A200X	TMC2X-200NB200X	TMC2X-200SS200X	1 1/2"	-	1.03	1.57	1.70	1.70		1.650	2.000	1.46	2.75	3.03	3.76	PVC21	11.0
TMC2X-150A200X	TMC2X-150NB200X	TMC2X-150SS200X	-	2"	1.06	1.57	1.70	1.70	1.88	1.050	2.000	1.63	2.75	5.05	3.70	1 4 C Z 1	
MC2X-250A233X	TMC2X-250NB233X	TMC2X-250SS233X	-	1 1/2"	1.03	-	-		2.21			1.46	2.95	3.25	3.97	PVC23	12.77
MC2X-200A233X	TMC2X-200NB233X	TMC2X-200SS233X	2"	-	1.06	-	-	1.81		1.910	2.330	1.90					
TMC2X-150A233X	TMC2X-150NB233X	TMC2X-150SS233X	-	2 1/2"	1.57	-	-		2.21			2.13	3.54	3.89		PVC28	
MC2X-300A272X	TMC2X-300NB272X	TMC2X-300SS272X	-	2"	1.06	2.14	2.46		2.61			1.90	3.54	3.89		PVC28	
MC2X-250A272X	TMC2X-250NB272X	TMC2X-250SS272X	2 1/2"	-	1.57	2.14				2.270 2	2.720	2.13			4.10		24
MC2X-200A272X	TMC2X-200NB272X	TMC2X-200SS272X	-	3"	1.63	2.14		2.46				2.55	4.33	4.76		PVC31	
TMC2X-350A325X	TMC2X-350NB325X	TMC2X-350SS325X	3"	-	1.63	2.49		2.78		2 620	3.250	2.98	4.33	4.76	4.67	PVC31	42
MC2X-300A325X	TMC2X-300NB325X	TMC2X-300SS325X	-	3 1/2"	1.69	2.49		2.78		2.020	0 5.230	2.98	7.33				42.0
MC2X-400A376X	TMC2X-400NB376X	TMC2X-400SS376X	3 1/2"	-	1.69	2.95				3.160	3.760	3.38	4.84	5.32	4.95	LSF33	53.4
TMC2X-350A376X	TMC2X-350NB376X	TMC2X-350SS376X	-	4"	1.73	2.95	3.45		3.54			3.38					
MC2X-400A425X	TMC2X-400NB425X	TMC2X-400SS425X	4"	-	1.73	-	-	3.56	3.94	3.700	4.250	3.38	5.23	5.75	5.16	LSF34	5



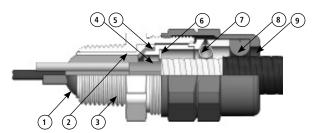
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FI401							
Certificate	Revision	Date					
UKEX	0	04/21					
IFS	21	10/24					
ATEX / IECEx	9	10/20					
UL	0	11/20					
CSA	8	10/24					

# INSTALLATION INSTRUCTIONS FOR CMP TMC2X

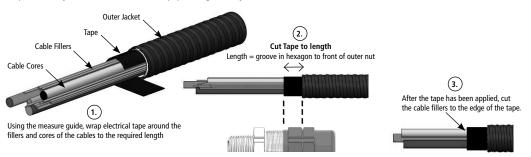
- RapidEx Resin
- 2. Resin Tube
- 3. **Entry Component**
- Sealant Tape or Inner Jacket
- 5. Resin Dam
- 6. End Stop
- 7. **Grounding Spring**
- Jacket Seal
- 9. Outer Nut



# PLEASE READ ALL INSTRUCTIONS CAREFULLY BEFORE BEGINNING THE INSTALLATION

# 1. Cable preparation — Without Inner Jacket

Strip back the jacket armor to suit the equipment geometry.



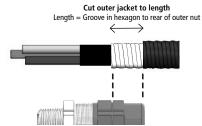
## 1. Cable preparation — With Inner Jacket

replace with electrical tape.

Strip back the jacket armor to suit the equipment geometry.



2. Using the armor measure guide, expose the armor further by stripping back the cable jacket.



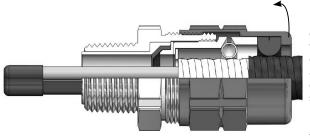
NOTE: When the outer jacket is at its maximum, cut distance may have to be increased by up to 10%.

## 3. Electrical tape MUST be wrapped around the tips of the cable cores.

This is to ensure the cable cores are together and also to cover any sharp edges that could potentially tear the resin dam during installation.



4. Pass the cable through the gland until the armor makes contact with the end stop. If it is not possible for the insulated conductors to pass through the end stop then it should be removed so that the armor can make contact with the integral end stop within the entry component. At this stage unscrew the outer nut and slide it back over the cable, enough to have access to the armor spacer. If no access is gained repeat step 2 and trim the outer jacket up to the length plus 10%. Assemble the gland.

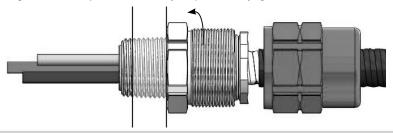


Note: For instrumentation cables utilizing shielded cable, individual/ overall drain wires, see Installation Guidance Notes overleaf.

Hand tighten the outer nut to compress the grounding spring to secure the armor. Do not over tighten the outer nut. Remove electrical tape from cable core tips. Separate the cable cores slightly to allow resin to flow between them. When insulating grounding conductors are present, spread the strands slightly to allow the resin to form a full seal.

Refer to 'RapidEx' assembly instructions to fill the gland resin tube with the required amount of RapidEx.

5. Once the resin has cured, loosen the outer nut to ensure that the grounding spring is not gripping the cable. Slide the outer nut back over the cable, enough to loosen the armor spacer from the entry component. Screw the entry component into the enclosure. Retighten the armor spacer when the entry component is fully tightened into the enclosure.



6. Finally, holding the cable central in the gland, tighten the Outer Nut to compress the Grounding Spring to secure the armor and the seal to engage the cable jacket. Do not over tighten the Outer Nut. The Entry Component and Outer Nut do not have to close face-to-face.