



PYROTENAX

Pyro MI Fire Survival Cable

Compression Ring Type Glands For
use with all Pyro MI Wiring Cables
and Heating Cable Cold Leads –
Safe Use and Fitting Instructions

CERTIFICATE Nos. Baseefa08ATEX0327X C €₀₅₉₈
CODE IECEx BAS 08.0107X
Ex II 2 GD
Ex db IIC Gb
Ex eb IIC Gb
Ex tb IIIC Db

Gland nomenclature:

Metric Wiring Cable and Metric Cold Lead Cable Marking: Cable type followed by and gland thread e.g. 2L1.520 conductor Light duty cable with 1.5 mm² conductors 20 mm ISO metric thread

NOTE: For certain Heavy Duty cables the gland size increases when Pyro MI Earth Tail Seals are fitted.

Alternate Wiring Cable and Cold Lead Cable Marking: Glands for Copper and Stainless Steel Sheathed Wiring Cables and Heating Element Cold Lead-in Cable usually use a two digit number (cable conductor cross section in mm²) as the Cable Size. Glands to fit Imperial sized cables use a three digit number (which is the cable diameter in thousandths of an inch) followed by the thread form and size. For example, 215M20 or 215N12, where M = ISO metric thread and N = NPT thread. The following instructions apply to all Brass, Nickel plated Brass and Stainless Steel Ring Type Glands for use in Hazardous Area Applications assessed to IEC/EN 60079-0 and IEC/EN 60079-1 and compliance with ATEX Directive 2014/34/EU.

Instructions

1. The Compression Ring Type Glands are supplied with the components assembled to fit the cable sizes as indicated on the Gland Nut.
 2. Compression Ring Type Gland components of Brass, Nickel plated Brass and Stainless Steel and for different sizes of cable and materials shall not be mixed.
 3. The Compression Ring Type Gland is only certified for use on the cable sizes as indicated on the Gland Nut. The cable sizes are shown on the table overleaf or are indicated using the alternative marking convention mentioned above.
 4. Where the lead-in thread is not ISO Metric the thread form and are certified for areas with a possible presence of explosive gas and/or explosive dust - (Zone 1 and Zone 2 or Zone 21 and Zone 22) size is indicated on the gland back nut.
 5. The Compression Ring Type Glands may be used with apparatus of group II and are certified for areas with a possible presence of explosive gas and/or explosive dust - (Zone 1 and Zone 2 or Zone 21 and Zone 22) in an operating temperature range from -60°C to +250°C (or -60°C to 140°C when optional sealing washers are used see table 1 below).
 6. Installation shall be carried out by suitably trained personnel in accordance with e.g. IEC/EN 60079-14.
 7. Inspection and maintenance of this equipment shall be carried out by suitably trained personnel in accordance with IEC/EN 60079-17.
 8. A damaged gland shall be replaced with a complete new gland. This work shall be carried out by suitably trained personnel.
 9. If the Compression Ring Type Glands are likely to come into contact with aggressive substances, then it is the responsibility of the user to take suitable precautions to prevent them being adversely affected. It is essential to replace any cable covering removed to facilitate termination, by wrapping over the exposed gland and cable sheath with two full half laps of adhesive electrical insulating tape up to the entry position. This is then covered by the gland shroud. (Corrosive environments /aggressive substances e.g. acidic liquids or gases).
 10. Stainless Steel and Brass and Nickel plated Brass Gland assemblies shall not be fitted directly on to a heating cable, they shall only be used on Copper, Cupro-Nickel, Inconel, Alloy 825 or Stainless Steel sheathed mineral insulated heating element cold lead-in cables, provided the maximum temperature attained by the lead-in cable sheath, when the cables are energised, will not exceed the T temperature rating of the area in which they are installed, the maximum cable gland temperature, or the maximum cable seal operating temperature, whichever is lowest.
 11. Optional nVent sealing washers (green fibre or PTFE) may be used to provide sealing to IP66 with M20 and M25 metric threads. When using these washers the gland is rated for ambient temperatures -60°C to 140°C. It is recommended that sealing washers be replaced if glands are dis-assembled during routine maintenance work after a period in service.
 12. When using stainless steel glands, the use of a thread lubricant is recommended on the threads between backnut and gland body to prevent galling.
 13. In Ex d flameproof applications, glands must have a minimum of 8 threads engaged.
 14. Minimum wall thickness : Non metallic enclosures ≥ 2 mm. Metallic enclosures ≥ 1 mm.
 15. Perpendicularity: +/-1° or 0,2 mm at the outer edge of the gland, whichever is smaller.
 16. Earth tag should be installed inside of the enclosures.
 17. Only use nVent RAYCHEM locknuts or types recommended by the manufacturer.
 18. Gland torque:
 - Gland wrench tight for the threaded holes
 - Lock nut wrench tight for the unthreaded holes
 - Back nut torque is 34 Nm.
 19. Maximum surface roughness of enclosures : Non-metallic enclosure: Ra 6,4 µm, better than 3,2 µm is recommended. Metallic enclosure: Ra 0.38 µm (grain 240) recommended.
 20. Thread tolerance class for Ex d is 6H or better for the enclosure.
 21. In order to avoid any galvanic corrosion, contact nVent to consult compatibility of enclosure material with the gland.
- ⚠ The purchaser should make the manufacturer aware of any external effects or aggressive substances that the equipment may be exposed to.
- ⚠ The cable glands shall only be used for fixed installations, the cables must be fixed to prevent pulling or twisting.

Specific Conditions of use

1. When the gland is used for increased safety or dust protection, the entry thread shall be suitably sealed, in accordance with IEC/EN 60079-14, to maintain the ingress protection rating of the associated enclosure.
2. If these are to be used on metal sheathed heating cables, the gland shall only be fitted only on the cold lead section of the cable.
3. Gland parts are not interchangeable and different cable sizes or gland materials should not be mixed.
4. The operating temperature of the glands is detailed in the product description, as shown on the first page of these instructions and on the Ex-certificates.

The limits on diameters are shown in the table below:

Nominal Cable Diameter	Maximum Diameter Limit	Minimum Diameter Limit
Above 5.0 mm / 0.197 inch	+0.23 mm / 0.009 inch	+0.10 mm / +0.004 inch

Cable Size and Diameter

Wiring Cable Size	Bare Cable Diameter	
	(mm)	(inch)
2L1	5,1	0,201
2L1.5	5,7	0,224
2L2.5	6,6	0,260
2L4	7,7	0,303
3L1.5	6,4	0,252
3L2.5	7,3	0,287
4L1	6,3	0,248
4L1.5	7,0	0,276
4L2.5	8,1	0,319
7L1	7,6	0,299
7L1.5	8,4	0,331
7L2.5	9,7	0,382
1H2.5	5,3	0,209
1H6	6,4	0,252
1H10	7,3	0,287
1H16	8,3	0,327
1H25	9,6	0,378
1H35	10,7	0,421
1H50	12,1	0,476
1H70	13,7	0,539
1H95	15,4	0,606
1H120	16,8	0,661
1H150	18,4	0,724
1H185	20,4	0,803
2H1.5	7,9	0,311
2H2.5	8,7	0,343
2H4	9,8	0,386
2H6	10,9	0,429
2H10	12,7	0,500
2H16	14,7	0,579
2H25	17,1	0,673
3H1.5	8,3	0,327
3H2.5	9,3	0,366
3H4	10,4	0,409
3H6	11,5	0,453
3H10	13,6	0,535
3H16	15,6	0,614
3H25	18,2	0,717
4H1.5	9,1	0,358
4H2.5	10,1	0,398
4H4	11,4	0,449
4H6	12,7	0,500
4H10	14,8	0,583
4H16	17,3	0,681
4H25	20,1	0,791
7H1.5	10,8	0,425
7H2.5	12,1	0,476

Heating Cable Cold Lead Size	Bare Cable Diameter	
	(mm)	(inch)
CC1H2.5	5,3	0,209
DC1H2.5	5,3	0,209
SC1H2.5	5,3	0,209
IC1H2.5	4,9/5,3	0,209
AC1H2.5	5,3	0,209
CC1H6	6,4	0,252
DC1H6	6,4	0,252
SC1H6	6,4	0,252
IC1H6	6,4	0,252
AC1H6	6,4	0,252
CC1H10	7,3	0,287
DC1H10	7,3	0,287
CC1H16	8,3	0,327
DC1H16	8,3	0,327
AC1H16	8,3	0,327
CC1H25	9,6	0,378
AC1H25	10,0	0,394
CC1H35	10,7	0,421
AC2H1.0	7,3	0,287
DC2H2.5	6,6	0,260
SC2H2.5	6,6	0,260
AC2H2.5	8,7	0,343
AC2H6	14,0	0,551

Degree of Ingress of Protection (IP)

In some installations, for example damp and dusty conditions or in potentially explosive atmospheres, it is necessary to specify a minimum IP Rating for enclosures and to ensure that it is maintained when cable entries into the enclosures are affected.

Recommendations as to how this may be achieved should be available from the enclosure/apparatus manufacturer or supplier. Based on experience, the following information is offered for general guidance.

Plain Hole Entries

A rating of IP66 may be achieved with Pyro MI Glands with and without a sealing washer. However, certain characteristics of the enclosure can adversely affect the IP rating, e.g. surface finish, variations in wall thickness, dimensional tolerances and quality of entry hole. nVent recommends the use of sealing washers.

The plain clearance hole in the Ex enclosure shall have a diameter of not more than 0.7 mm greater than the nominal diameter of the gland entry thread diameter.

Threaded Entries

A rating of IP66 may be achieved with Pyro MI Glands tightened in the recommended manner (with and without sealing washer). The entry hole should have threads of medium fit tolerance (a thread sealant is not normally required unless conditions of Note 14 apply).

When performing maintenance requiring removal of gland from enclosure, it is recommended that IP sealing washers be replaced.

Fitting Instructions

Before installation:

1. Perform visual inspection of glands for scratches or damage, including threads. Ensure surface of cable where gland will seal to sheath is clean. If gland is contaminated: disassemble, clean, and visually inspect contaminated parts.
2. Slide the complete ring type gland onto the cable sheath before terminating the cable.
3. Assemble the completed termination into the terminal box entry.
4. Secure the gland body into the equipment by screwing it into a threaded entry by means of a spanner on the hexagon of the gland body.
5. Locate the seal pot in the desired position and fully tighten the back nut to swage down the compression ring onto the cable sheath. This secures the cable into the application.
6. Perform visual inspection of gland after tightening back nut and check for cracks, deformation / out-of-round.

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