

Installation Recommendation for Pyro Mi RMX and RME Increased Safety Seal for one, two, three, four and seven conductor cables

(TYPE OF PROTECTION “e”)

This Pyro Mi Cable Seal is intended for use in potentially explosive atmospheres with electrical apparatus designed to meet the requirements of type of protection “e” (increased safety). Type of protection “e” is defined as a method of protection by which additional measures are applied to the electrical apparatus to give increased security against the possibility of excessive temperatures and the occurrence of sparks during the service life of the apparatus. It applies only to electrical apparatus, no parts of which produce sparks or arcs or exceed the limiting temperature in normal service.

The RMX seal has been developed to comply with BS EN 50014 and BS EN 50019 but does not have the solvent resistance properties previously required by BS 4683 Part 4. Whilst its maximum operating temperature in accordance with BS EN 60702-2 is 105°C, in practice, the requirements of type of protection “e” lower this to 85°C. The RME seal is also used as a seal for Pyrotenax Thermoelectric Cables and the cold lead-in cables of Pyrotenax Heating Elements.

These instructions apply to one, two, three, four and seven conductor cables.

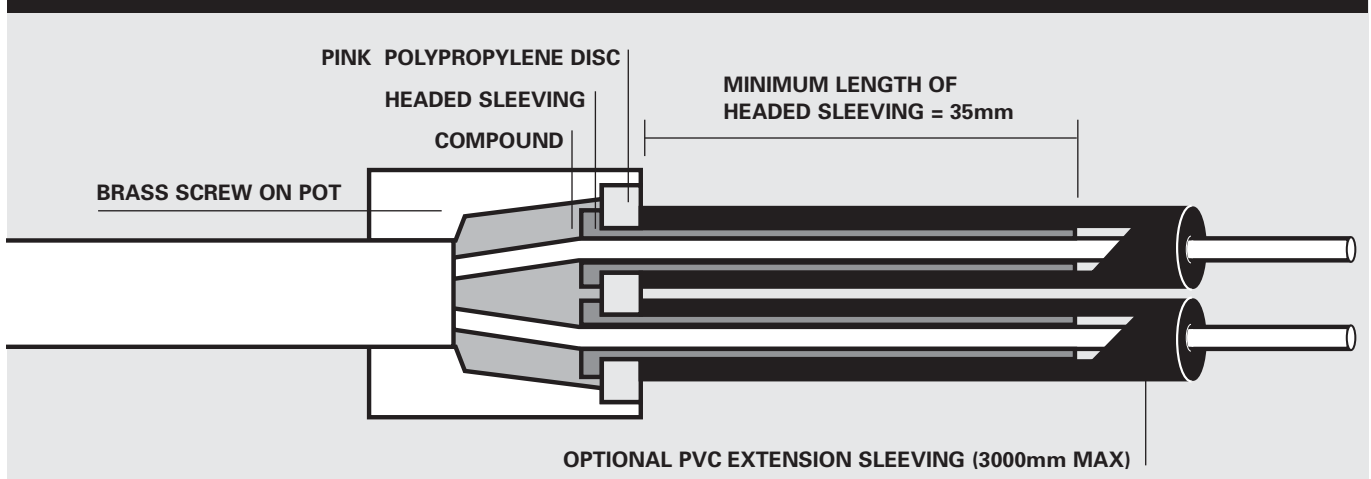


Table 1

Plain Seal Pyro Mi Ref.	Earth Tail Seal Reference	Max Operating Temperature	Compound	Pot Closure	Conductor Insulation	Extension Sleeving
RPA	RPAL	85°C	RMX Grey Compound	Pink Polypropylene	Headed PVC Sleeving* 150mm Long	PVC Sleeving Ref: RZE
RPMAA	RPMKA	100°C	RME Double Bond Epoxy Putty		Headed PTFE Sleeving* 150mm Long	

* The following sizes of Seals incorporate headed PTFE sleeving 100mm long. RPAL 4L1 20, RPAL 4L1.5 20, RPAL 4L2.5 20, RPAL 4H1.5 20 (with Earth Tail).

Table 2 Increased Safety Seal References

Pyro Mi Cable Size	Plain Seal Ref	Earth Tail Seal Ref
2L1	RPA2L1 20	RPAL2L1 20
2L1.5	RPA2L1.5 20	RPAL2L1.5 20
2L2.5	RPA2L2.5 20	RPAL2L2.5 20
2L4	RPA2L4 20	RPAL2L4 20
3L1	RPA3L1 20	RPAL3L1 20
3L1.5	RPA3L1.5 20	RPAL3L1.5 20
3L2.5	RPA3L2.5 20	RPAL3L2.5 20
4L1	RPA4L1 20	RPAL4L1 20
4L1.5	RPA4L1.5 20	RPAL4L1.5 20
4L2.5	RPA4L2.5 20	RPAL4L2.5 20
7L1	RPA7L1 25	RPAL7L1 25
7L1.5	RPA7L1.5 25	RPAL7L1.5 25
7L2.5	RPA7L2.5 25	RPAL7L2.5 25
1H2.5	RPA1H2.5 20	RPAL1H2.5 20
1H6	RPA1H6 20	RPAL1H6 20
1H10	RPA1H10 20	RPAL1H10 25
1H16	RPA1H16 20	RPAL1H16 25
1H25	RPA1H25 20	RPAL1H25 32
1H35	RPA1H35 20	RPAL1H35 32
1H50	RPA1H50 25	RPAL1H50 40
1H70	RPA1H70 25	Not Available
1H95	RPA1H95 25	Not Available
1H120	RPA1H120 32	Not Available
1H150	RPA1H150 32	Not Available
1H185	RPA1H185 32	Not Available
1H240	RPA1H240 40	Not Available
2H1.5	RPA2H1.5 20	RPAL2H1.5 20
2H2.5	RPA2H2.5 20	RPAL2H2.5 20
2H4	RPA2H4 20	RPAL2H4 25
2H6	RPA2H6 20	RPAL2H6 25
2H10	RPA2H10 25	RPAL2H10 32
2H16	RPA2H16 25	RPAL2H16 40
2H25	RPA2H25 32	RPAL2H25 40
3H1.5	RPA3H1.5 20	RPAL3H1.5 20
3H2.5	RPA3H2.5 20	RPAL3H2.5 25
3H4	RPA3H4 20	RPAL3H4 25
3H6	RPA3H6 25	RPAL3H6 25
3H10	RPA3H10 25	RPAL3H10 32
3H16	RPA3H16 25	RPAL3H16 40
3H25	RPA3H25 40	RPAL3H25 40
4H1.5	RPA4H1.5 20	RPAL4H1.5 20
4H2.5	RPA4H2.5 20	RPAL4H2.5 25
4H4	RPA4H4 25	RPAL4H4 25
4H6	RPA4H6 25	RPAL4H6 32
4H10	RPA4H10 25	RPAL4H10 32
4H16	RPA4H16 32	RPAL4H16 40
4H25	RPA4H25 40	RPAL4H25 40
7H1.5	RPA7H1.5 25	RPAL7H1.5 25
7H2.5	RPA7H2.5 25	RPAL7H2.5 25

Installation Instructions-Stripping the Cable Sheath and Fitting the Seal Pot

If the cable is plastic covered, first fit the gland shroud, then remove the plastic covering.

The cable sheath should be stripped back to expose the required length of conductor(s). In the case of seven conductor cable, strip an extra 10mm of sheath to allow for shortening to facilitate fitting the pot closure. Slide the gland onto the cable.

The seal pot can now be screwed on to the end of the cable, until it is positioned as shown below.

SHEATH APPROXIMATELY LEVEL WITH SHOULDER

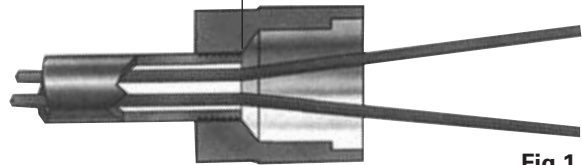


Fig.1

For more detailed instructions relating to the above procedures, please refer to our Publication Installation Recommendation CDE-0923 Rev. 0-1/06.

Filling the Pot

After fitting the seal pot, check for squareness by sliding the gland over the pot. Remove any loose powder etc. inside the pot that may have resulted from the screwing action.

Cut the double headed sleeve into two parts such that there is at least 35mm of sleeve protruding from the front of the disc. Then fit into the disc as shown (Fig. 2). If the seal incorporates PTFE headed sleeves, then these should also be inserted into the disc in a similar manner. In either case the head of the sleeves should be pulled up hard against the disc.

ENSURE HEADS OF SLEEVE ARE FLAT AGAINST THE FACE OF THE DISC

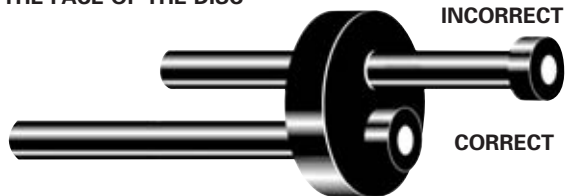


Fig.2

Slide the disc assembly over the conductors, and into the pot recess to check for fit, then partially withdraw. In the case of seven conductor cables, this operation can be facilitated by shortening the outer ring of conductors by 10mm. When terminating multi-core cables with 10mm², 16mm², or 25mm² conductors, the conductors should be "set" within the pot to facilitate location of the disc assembly within the recess.

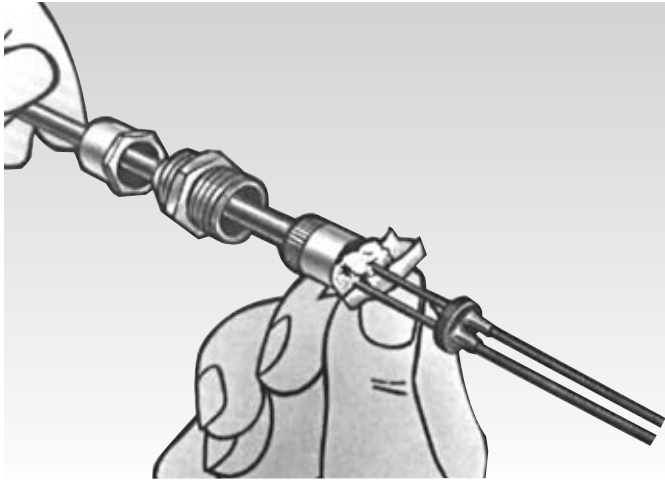


Fig.3

Press the compound into the pot from one side only to avoid cavities, with the thumb preferably behind the paper to ensure cleanliness (Fig. 3). Fill the pot completely, overfilling slightly. Care should be taken to avoid contamination of the sealing compound. The two part epoxy putty shall be mixed in equal amounts to produce an even colour with no light coloured streaks.

Crimping the Disc

Slide the disc assembly up to the pot, and press into the compound and pot recess with the aid of a pair of pliers, applying pressure only to the face of the disc. The seal is now ready for crimping. This may be carried out using one of the tools shown below.

(a) The plate type 3 point Pyro-X-Crimp Ref. ZDD

(followed by pot size 20, 25, 32 or 40mm). This is an inexpensive tool, with a life of approx. 100 seals.

Operation of the tool is illustrated (fig. 4)

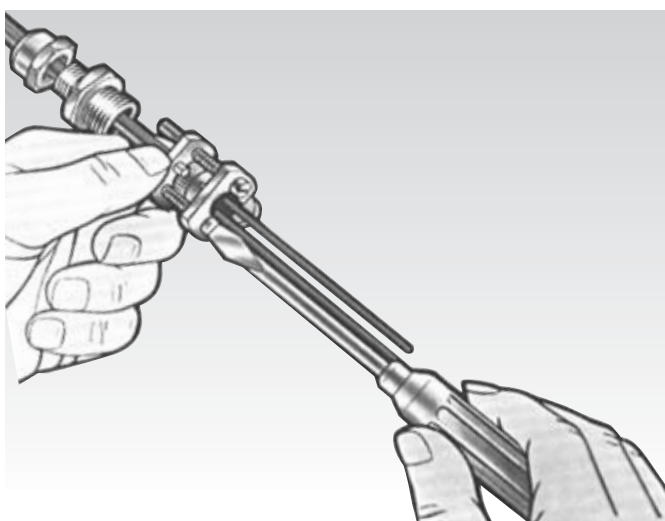


Fig.4

Operation of the Pyro Crimp

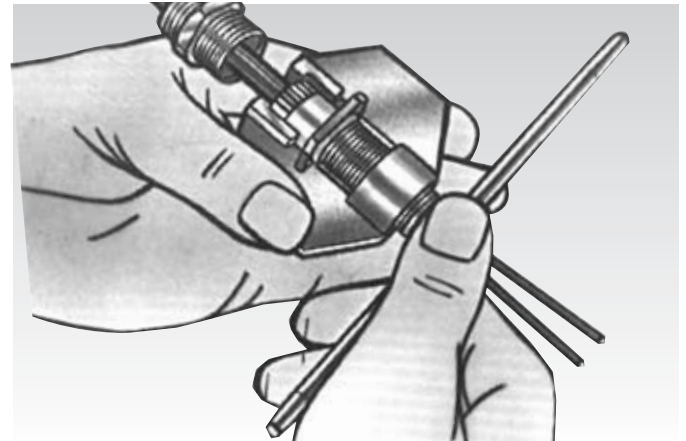


Fig.5

(b) The Pyro Crimp Ref. ZDC (followed by the pot size 20 or 25mm).

Operation of the tool is illustrated (Fig. 5). This tool has a longer life than the plate type tool. However, it is available for the 20 and 25mm pot sizes only. Remove the surplus compound that has exuded from the pot.

Extension Sleeving

The maximum length of headed conductor sleeving is shown in Table 1. If longer conductor tails are required, then extension sleeving should be fitted over the headed sleeve down to the face of the pot.

This may be facilitated by shortening the headed sleeve to **not less than 35mm**.

Testing

Cables should only be tested after both ends have been terminated with a permanent seal. In order to prove the integrity of the seals the cable should be subject to a further insulation resistance test 24 hours later, when the insulation resistance should be at least 100MΩ. The test voltage should be selected in accordance with BS 7671 IEE Regulations for Electrical Installation.

Never test a cable which has unsealed ends, because this will result in false readings.

Identification

The conductors should be identified using a bell set, ohmmeter or similar instrument and then coded in accordance with the current requirements of BS 7671 IEE Regulations for Electrical Installations.

Fault Finding

If a cable exhibits a low insulation resistance and a faulty seal is suspected, the following simple test is very useful. When attempting to locate faults on circuits involving multiple cable runs, it is preferable to isolate and test individual cables so as to avoid the errors introduced by parallel connections.

Standards and Approvals

The increased safety seal complies with the following International and European Standards.

IEC 60079-7

BS EN 60702-2

IEC 60702-2

BS EN 50014 and BS EN 50019

Baseefa02ATEX0194U  II 2G EEx e II

CE 1180

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 effected.

Recommendations as to how this may be achieved should be available from the enclosure/apparatus manufacturer or supplier (as required by Section 6 of the Health and Safety at Work Act).

Based on experience, the following information is offered for general guidance.

Plain Hole Entries

A rating of IP67 may be achieved with Pyro Mi Glands using 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.

Threaded Entries

A rating of IP54 may be achieved with Pyro Mi Glands tightened in the recommended manner.

The entry hole should have threads of medium fit tolerance (a thread sealant is not normally required).

A rating of IP67 may be achieved by using a suitable thread sealant.

Customer Services Team:
wiringsales.uk@tycothermal.com

Technical Support Team:
washington_tech@tycothermal.com



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Tyco Thermal Controls UK Limited
3 Rutherford Road, Stephenson Industrial Estate,
Washington, Tyne & Wear NE37 3HX, United Kingdom.
Tel: +44 (0) 191 419 8200 Fax:+44 (0) 191 419 8201
www.tycothermal.com