

Sealing and terminating

A Termination is required at both ends of each length of cable, and it should be fitted as soon as the cable has been prepared.
A complete termination consists of two basic items:

First, the seal assembly which separates and insulates the conductor's from each other and from the cable sheath. Secondly a cable gland.

The Seal Assembly

Standard seal kit (WRPS) (-20c - 105c)

Name	Ref
Brass Pot	WRPS (followed by cable size)
Polypropylene stub cap / disc	Provided with each kit.
Conductor sleeving (PVC)	WRZP Black supplied
Compound	WRMX

Earth tail seal kit (WRPSL) (-20c - 105c)

Name	Ref
Brass Pot	WRPSL (followed by cable size)
Polypropylene stub cap / disc	Provided with each kit.
Conductor sleeving (PVC)	WRZP Black & GN /YW supplied
Compound	WRMX

Cable Glands

Wrexham Mineral Cables (WMC) brass externally threaded compression Ring Type Glands hold both ATEX & IECEx approval and can be used with suitable Certified Apparatus in Zone Classification 1 and 2 for use in potentially explosive atmospheres.

The WMC gland system is suitable for ambient service temperatures of -20°C to 450°C.

Depending on cable size our range of glands are supplied with 20mm, 25mm, 32mm & 40mm threads are manufactured in accordance with BS EN 60702-2

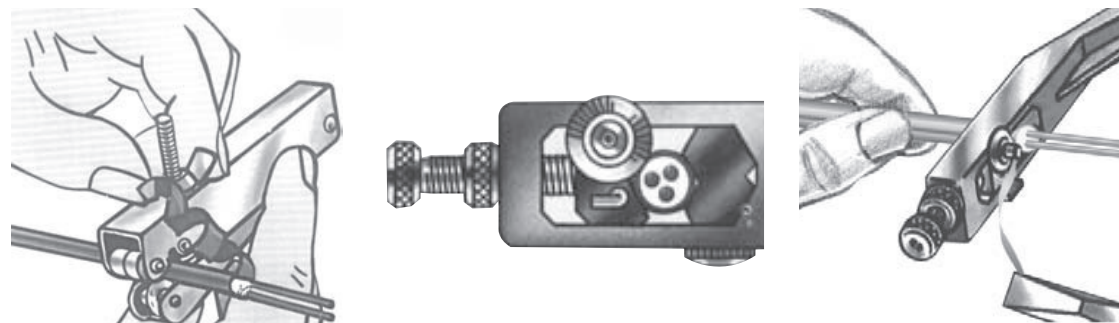
Initial cable preparation

First cut the cable to length with a hacksaw. Offer up the gland shroud to the end of the cable, in reverse, to determine the amount to be cut off to ensure a tight fit over the LSZH outer covering on the cable. Cut the gland shroud accordingly. Mark out the outer covering to the required tail length + 70mm for 20mm and 25mm glands, + 80mm for 32mm glands and + 90mm for 40mm glands. Remove the outer covering to this mark with a knife, taking extreme care not to score the copper sheath.

Tools will not operate correctly if a replacement blade is required or the cable sheath is distorted. Remove all tooling and wipe the conductors to remove any remaining insulation.

Ringing Tool

The correct amount of sheath as shown above should be scored with a ringing tool. This cuts a groove round the copper sheath so the copper residue will break away cleanly, leaving a neat square end.

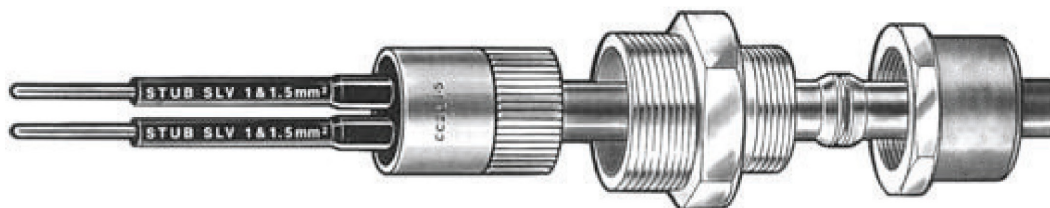


Rotary Stripper Positioning

Place the cable inside the device as shown. Hand tighten the thread so the blade is in contact with the cable. A good tip is to use some form of lubricant on the area of the sheath to be stripped, such as Vaseline or Copper Slip.

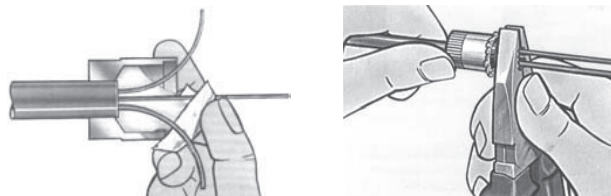
Start the stripping action applying slight forward pressure in the direction of the scored cable. Continue until reaching scored sheath created by the ringing tool.

Alternatively if no ringing tool is available the length can be stripped as above and pliers used to stop the stripping action and create a straight neat end.



Glands and Shrouds

Glands (and if required shrouds), should be slid onto the cable sheath before applying the seal pot.



Fitting of the pots

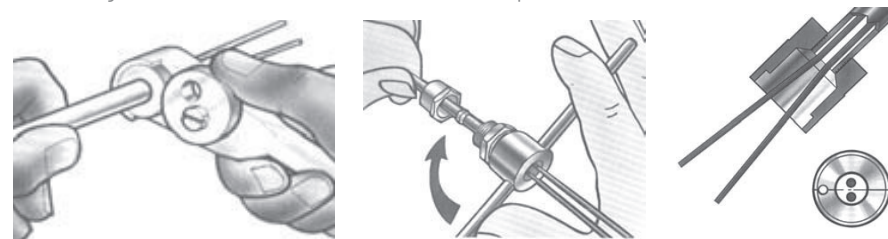
Pot wrench tools are available for all sizes of seal pot.

Leave the gland nut and compression ring on the stripped end of cable and position the seal pot in the recess within the gland body and screw the gland into the Pot wrench. Finger tightness is sufficient at this stage. As you apply downward pressure the pot will create a thread on the cable sheath. Continue until the sheath is level with or protruding slightly from the shoulder inside the pot. Picture shows plan view of earth tail type of pot. The earth tail should be kept as far away from the cable conductors as possible.

Sealing and Terminating Guide to Installation

Filling the Seal

Slide the stub cap / disc over the conductors and into the seal pot recess to check for fit, then, partially withdraw. Press the sealing compound into the seal pot from one side only, to avoid cavities, preferably with the thumb or finger behind the paper to ensure cleanliness. Fill the seal pot completely, overfilling slightly. Care should be taken to avoid contamination of the sealing compound. Slide the stub cap or disc/sleeve assembly over the conductors up to the sealing compound. With the aid of a pair of pliers, apply pressure to the face of the disc. Check for alignment for stub cap / disc in to the pot. Continue until the sheath is level with or protruding slightly from the shoulder inside the pot. Picture shows plan view of earth tail type of pot. The earth tail should be kept as far away from the cable conductors as possible.



With the wrench

The WZRP Wrench is only available for 20mm seal pots. This has a ratchet system to lock the seal pot in to the Wrench. Ensure the pot wrench is square to the cable end before attempting to screw on. This will also create a thread on the copper sheath and should be screwed to the same point as above.

Testing

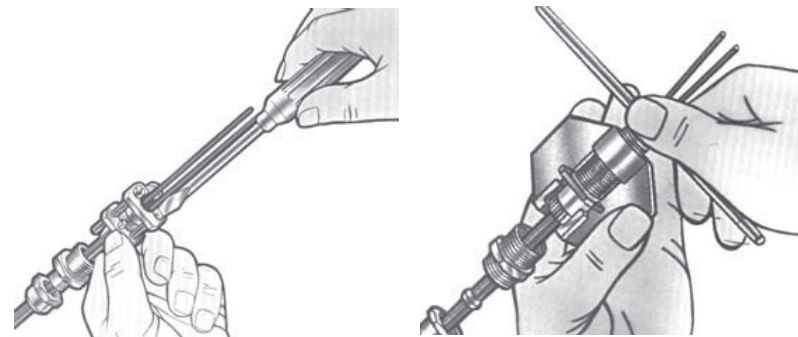
The seal should be visually inspected for obvious defects. If there is a minor fault such as incomplete crimping, it may be practicable just to repeat the operation. After both ends of a cable have been terminated with permanent seals, the cable should be subjected to an insulation test. This is a test at a dc voltage appropriate to the intended operating voltage. The insulation resistance should be noted and compared with the value measured at least twenty-four hours later. Initial low readings may result from many causes-for instance, cables sealed in high humidity conditions.

NEVER TEST A CABLE WHICH HAS UNSEALED ENDS, THIS WILL RESULT IN FALSE READINGS

Degree of Ingress Protection

The electrical installation, when carried out in an area which is dusty, damp or likely to be wet, must use equipment and boxes suitable for the conditions in which they are to be installed. For threaded entries a rating of IP54 can be achieved by tightening the Wrexham glands in the recommended manner, or by using a suitable thread sealant a rating of IP67 may be achieved. The threaded Entry Hole should have at least three threads of Medium Fit Tolerance. With plain hole entries a rating of IP67 may be achieved with Wrexham glands using a sealing washer and thread sealant. However, the surface finish, variations in wall thickness, dimensional tolerances and quality of the entry hole of the enclosure can adversely affect the IP Rating.

Sealing and Terminating Guide to Installation



Crimping the Pot Closure

Two types of crimping tools are available.
Ref: WZDD available for all pot sizes A low cost expendable tool, with a life span of approximately 100 operations.

Fully slacken the two screws, slide the crimping plate over the conductors and up to the seal pot. The slotted base plate swivels around the cable under the seal pot then tighten the two screws evenly. This will drive the stub cap or disc fully into the seal pot recess and secure it into position by indenting the brass seal pot wall in three positions. Slacken and remove

Tooling Ref: WZDC Available for 20mm & 25mm seal pots only

Fully slacken the drive screw by means of the handle. Slide the conductors through the hole in the crimping plate and through the hollow drive screw. Place the seal pot into the seating in the brass body of the crimping tool and tighten fully hand tight. This drives the stub cap or disc fully into the seal pot recess and secures with the three indent crimps. Slacken and remove the tool. Ensure that when removing tool the pot does not move from its position on the cable.

Hazardous area products and their terminations

Wrexham Mineral cables will take reasonable steps to ensure the user / installer complies with the special conditions for safe use in accordance with the latest ATEX Directive or IECEx requirements. It places responsibility on manufacturers of flameproof equipment to supply products that comply with specified ATEX / IECEx classifications, as determined by the end-user. This material should be installed by skilled personnel in accordance with the latest IEE wiring regulations. Installation shall be carried out by suitably trained personnel in accordance with the applicable code of practice e.g. IEC or EN 60079-14. Inspection and maintenance of this equipment shall be carried out by suitably trained personnel in accordance with the applicable code of practice e.g. IEC / EN 60079-17. Repair of this equipment shall be carried out by suitably trained personnel in accordance with the applicable code of practice e.g. IEC / EN 60079-19

SEALS OFFERED ARE WRPS & WRPSL

WMC PLAIN SEAL (WRPS) OR WITH EARTH TAIL (WRPSL)							
PLAIN SEAL WRPS & GLAND SIZE	EARTH TAIL WRPSL & GLAND SIZE	PLAIN SEAL WRPS & GLAND SIZE	EARTH TAIL WRPSL & GLAND SIZE	PLAIN SEAL WRPS & GLAND SIZE	EARTH TAIL WRPSL & GLAND SIZE	PLAIN SEAL WRPS & GLAND SIZE	EARTH TAIL WRPSL & GLAND SIZE
WRPS2L1 20	WRPSL2L1 20	WRPS1H2.5 20	WRPSL1H2.5 20	WRPS2H1.5 20	WRPSL2H1.5 20	WRPS3H25 40	WRPSL3H25 40
WRPS2L1.5 20	WRPSL2L1.5 20	WRPS1H6 20	WRPSL1H6 20	WRPS2H2.5 20	WRPSL2H2.5 20	WRPS4H1.5 20	WRPSL4H1.5 20
WRPS2L2.5 20	WRPSL2L2.5 20	WRPS1H10 20	WRPSL1H10 25	WRPS2H4 20	WRPSL2H4 25	WRPS4H2.5 20	WRPSL4H2.5 25
WRPS2L4 20	WRPSL2L4 20	WRPS1H16 20	WRPSL1H16 25	WRPS2H6 20	WRPSL2H6 25	WRPS4H4 25	WRPSL4H4 25
WRPS3L1 20	WRPSL3L1 20	WRPS1H25 20	WRPSL1H25 32	WRPS2H10 25	WRPSL2H10 32	WRPS4H6 25	WRPSL4H6 32
WRPS3L1.5 20	WRPSL3L1.5 20	WRPS1H35 20	WRPSL1H35 32	WRPS2H16 25	WRPSL2H16 40	WRPS4H10 25	WRPSL4H10 32
WRPS3L2.5 20	WRPSL3L2.5 20	WRPS1H50 25	WRPSL1H50 40	WRPS2H25 32	WRPSL2H25 40	WRPS4H16 32	WRPSL4H16 40
WRPS4L1 20	WRPSL4L1 20	WRPS1H70 25	Not Available	WRPS3H1.5 20	WRPSL3H1.5 20	WRPS4H25 40	WRPSL4H25 40
WRPS4L1.5 20	WRPSL4L1.5 20	WRPS1H95 25	Not Available	WRPS3H2.5 20	WRPSL3H2.5 25	WRPS7H1.5 25	WRPSL7H1.5 25
WRPS4L2.5 20	WRPSL4L2.5 20	WRPS1H120 32	Not Available	WRPS3H4 20	WRPSL3H4 25	WRPS7H2.5 25	WRPSL7H2.5 25
WRPS7L1 25	WRPSL7L1 25	WRPS1H150 32	Not Available	WRPS3H6 25	WRPSL3H6 25	WRPS12H1.5 32	Not Available
WRPS7L1.5 25	WRPSL7L1.5 25	WRPS1H185 32	Not Available	WRPS3H10 25	WRPSL3H10 32	WRPS12H2.5 32	Not Available
WRPS7L2.5 25	WRPSL7L2.5 25	WRPS1H240 40	Not Available	WRPS3H16 25	WRPSL3H16 40	WRPS19H1.5 40	Not Available

PRODUCTS WITHIN OUR ATEX & IECEx RANGE

Gland size & Cable Type	Gland Size & Cable Type	Gland Size & Cable Type	Gland Size & Cable Type
WRGM2L1/20	WRGM1H2.5/20	WRGM1H240/40	WRGM3H16/25 & 40
WRGM2L1.5/20	WRGM1H4/20	WRGM2H1.5/20	WRGM3H25/40
WRGM2L2.5/20	WRGM1H6/20	WRGM2H2.5/20	WRGM4H1.5/20
WRGM2L4/20	WRGM1H10/20 & 25	WRGM2H4/20 & 25	WRGM4H2.5/20 & 25
WRGM3L1/20	WRGM1H16/20 & 25	WRGM2H6/20 & 25	WRGM4H4/25
WRGM3L1.5/20	WRGM1H25/20 & 32	WRGM2H10/25 & 32	WRGM4H6/25 & 32
WRGM3L2.5/20	WRGM1H35/20 & 32	WRGM2H16/25 & 40	WRGM4H10/25 & 32
WRGM4L1/20	WRGM1H50/25 & 40	WRGM2H25/32 & 40	WRGM4H16/32 & 40
WRGM4L1.5/20	WRGM1H70/25	WRGM3H1.5/20	WRGM4H25/40
WRGM4L2.5/20	WRGM1H95/25	WRGM3H2.5/20 & 25	WRGM7H1.5/25
WRGM7L1/25	WRGM1H120/32	WRGM3H4/20 & 25	WRGM7H2.5/25
WRGM7L1.5/25	WRGM1H150/32	WRGM3H6/25	WRGM12H1.5/32
WRGM7L2.5/25	WRGM1H185/32	WRGM3H10/25 & 32	WRGM12H2.5/32
			WRGM19H1.5/40

Typical torque settings of glands

Gland size	TORQUE VALE (Nm)
WRGM 20mm GLAND	20
WRGM 25mm GLAND	30
WRGM 32mm GLAND	40
WRGM 40mm GLAND	50