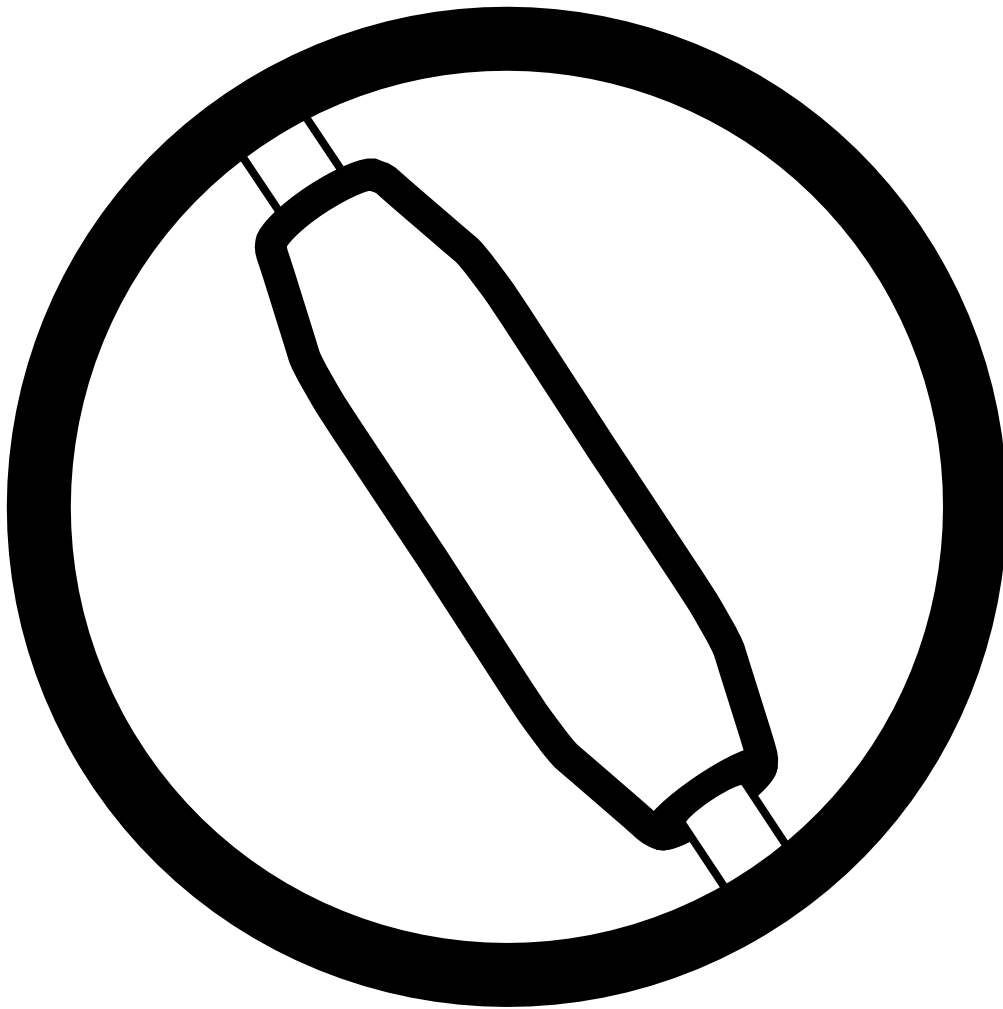


LV-MSK

Multiconductor Splice for 600V-2kV
Class Mining Cable Types G, W,
G-GC, SHD-GC; Round and Flat
(P-137-4-MSHA)

Danger: Before attempting any cable repairs, make sure that the proper cable is disconnected, locked out, and suitably tagged.



General Instructions

Suggested Installation Equipment (not supplied with kit)

- Cable preparation tools
- Clean, lint-free cloths
- Electrician's tape
- Connector(s) and installation tools
- Raychem recommended torch

Recommended Raychem Torches

Install heat-shrinkable cable accessories with a "clean burning" torch, i.e., a propane torch that does not deposit conductive contaminants on the product.

Clean burning torches include the Raychem FH-2609, FH-2629 (uses refillable propane cylinders) and FH-2616A1 (uses disposable cylinder).

Safety Instructions

Warning: When installing electrical power system accessories, failure to follow applicable personal safety requirements and written installation instructions could result in fire or explosion and serious or fatal injuries.

To avoid risk of accidental fire or explosion when using gas torches, always check all connections for leaks before igniting the torch and follow the torch manufacturer's safety instructions.

To minimize any effect of fumes produced during installation, always provide good ventilation of confined work spaces.

As Raychem has no control over field conditions which influence product installation, it is understood that the user must take this into account and apply his own experience and expertise when installing product.

Adjusting the Torch

Adjust regulator and torch as required to provide an overall 12-inch bushy flame. The FH-2629 will

be all blue, the other torches will have a 3- to 4-inch yellow tip. Use the yellow tip for shrinking.

Regulator Pressure

| | |
|-----------|---------------|
| FH-2616A1 | Full pressure |
| FH-2609 | 5 psig |
| FH-2629 | 15 psig |

Cleaning the Cable

Use an approved solvent, such as the one supplied in the P63 Cable Prep Kit, to clean the cable. Be sure to follow the manufacturer's instructions. Failure to follow these instructions could lead to product failure.

Some newer solvents do not evaporate quickly and need to be removed with a clean, lint-free cloth. Failure to do so could change the volume resistivity of the substrate or leave a residue on the surface.

Please follow the manufacturer's instructions carefully.

General Shrinking Instructions

- Apply outer 3- to 4-inch tip of the flame to heat-shrinkable material with a rapid brushing motion.
- Keep flame moving to avoid scorching.
- Unless otherwise instructed, start shrinking tube at center, working flame around all sides of the tube to apply uniform heat.

To determine if a tube has completely recovered, look for the following, especially on the back and underside of the tube:

1. Uniform wall thickness.
2. Conformance to substrate.
3. No flat spots or chill marks.
4. Visible sealant flow if the tube is coated.

Note: When installing multiple tubes, make sure that the surface of the last tube is still warm before positioning and shrinking the next tube. If installed tube has cooled, re-heat the entire surface.

Installation Instructions

1. Product selection.

Check kit selection with cable dimensions in Table 1.

Table 1

| Kit | Cable Diameter Size Range | Power Conductor Size (AWG/kcmil) | | |
|---------------------|---------------------------|----------------------------------|---------------|-----------|
| | | W,G 2/C | G or G-GC 3/C | W 4/C |
| Flat Cables | | | | |
| LV-MSK-046 | 0.85-1.40" (22-36mm) | #6 - #2 | | |
| LV-MSK-047 | 1.30-2.40" (33-61mm) | #1 - 4/0 | #6 - #1 | #6 - #1 |
| LV-MSK-058 | 1.60-3.15" (41-80mm) | | #2 - 4/0 | #2 - 4/0 |
| Round Cables | | | | |
| LV-MSK-045* | 0.85-1.40" (22-36mm) | | #8 - #6 | #8 - #6 |
| LV-MSK-046 | 0.85-1.40" (22-36mm) | | #6 - #2 | #6 - #4 |
| LV-MSK-047 | 1.30-2.40" (33-61mm) | | #2 - 3/0 | #3 - 3/0 |
| LV-MSK-058 | 1.60-3.15" (41-80mm) | | 2/0 - 500 | 1/0 - 350 |

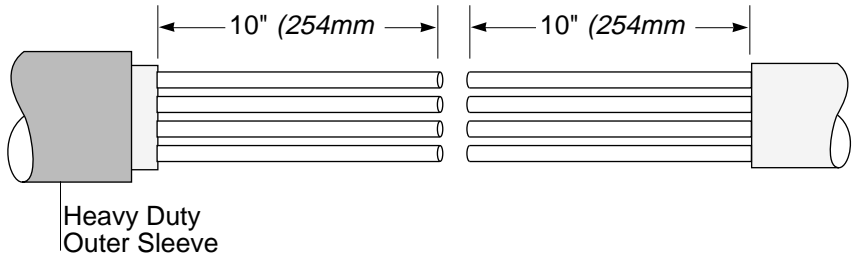
*LV-MSK-045 has a lower profile than the LV-MSK-046

2. Remove outer jacket; bind grounds; position outer tube.

Remove the outer jacket from the cable as shown.

Fold back the ground check and ground(s) and temporarily secure to the cable jacket.

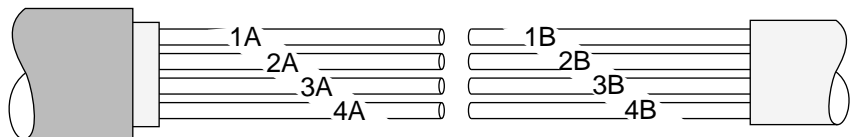
Slide plastic bag over cable to protect inside of outer sleeve. Slide the outer sleeve over the plastic bag, then slide both down the cable to allow room for splicing.



4096

2. Cut conductors.

Cut conductors to stagger dimensions shown in Table 2.



4097

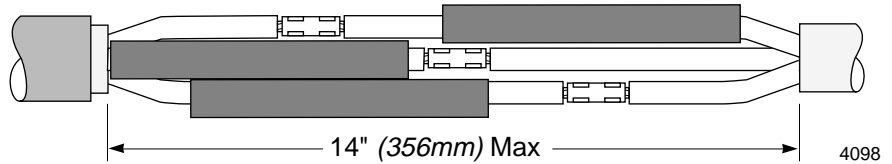
*LV-MSK-058: Stagger dimensions optional. Cut "A" side to 6" and "B" side to 8" for "No stagger splice".

Table 2

| | 1A | 1B | 2A | 2B | 3A | 3B | 4A | 4B |
|-----|---------------|----------------|----------------|---------------|----------------|---------------|----------------|---------------|
| 2/C | 4" (102mm) | 10" (254mm) | 10" (254mm) | 4" (102mm) | | | | |
| 3/C | 4" (102mm) | 10" (254mm) | 7" (178mm) | 7" (178mm) | 10" (254mm) | 4" (102mm) | | |
| 4/C | 4" (102mm) | 10" (254mm) | 6" (152mm) | 8" (203mm) | 8" (203mm) | 6" (152mm) | 10" (254mm) | 4" (102mm) |

4. Remove insulation; Position tubes: Install connectors.

Cutback insulation to appropriate dimension required for connector and clean as shown. Place tube over each conductor.



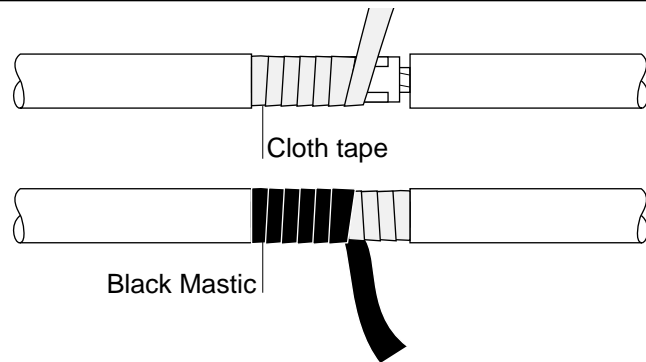
SHD-GC cables: Remove conductor shielding 1-1/2" (38mm) from insulation cutback.

Install connectors. Clean and deburr connectors.

Note: Make sure jacket to jacket dimension does not exceed 14" (356mm).

5. Apply cloth tape across connector. Smooth contour using black mastic.

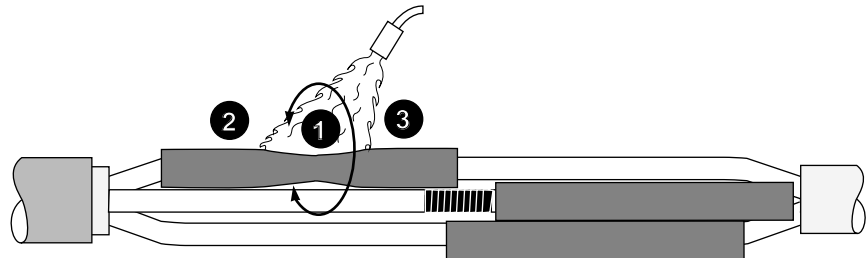
Apply one, half-lapped layer of cloth tape over each connector. Apply small amount of black mastic over the cloth tape to form a smooth contour. Do not exceed the diameter of the insulation.



6. Position tubes*; shrink in place.

Center tube over connection.

Shrink in place beginning at the center of the tube(1), working the torch with a smooth brushing motion around the tube.



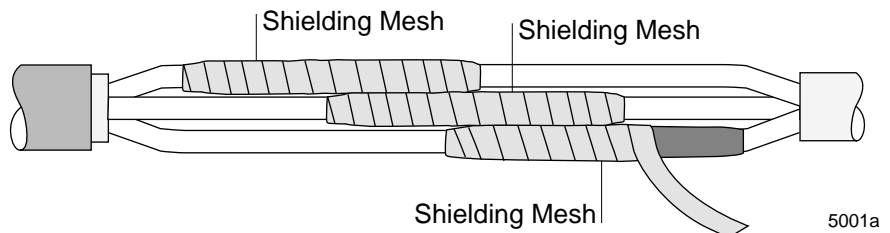
After the center shrinks, work the torch as before toward one end (2), and then the other (3). A small amount of adhesive will flow from both ends. Repeat for other two phases.

***Note:** For LV-MSK-045: apply 3 or more half-lapped layers of cloth tape over each phase extending 3/4" (19mm) onto conductor insulation.

SHD-GC cables only

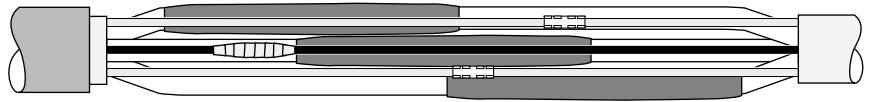
7. Cover each phase with mesh.

Wrap a half-lapped layer of mesh over each phase overlapping onto the conductor shielding and tie off.



8. Connect ground(s) and ground checks.

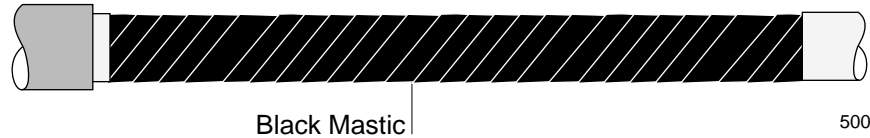
Connect grounds and ground check. Apply 3 or more half-lapped layers of cloth tape over the ground check connection, extending 3/4" (19mm) onto ground check insulation.



5001

9. Restore lay of cable.

For round cables, reestablish lay of conductors by turning one side of the cable with respect to the other. To restore original round cable shape, contour area where cable jacket was removed with black mastic.



5002

10. Abrade and clean jacket.

Abrade and clean the cable jacket as shown.

Note: Use drying wipe to remove any excess solvent.

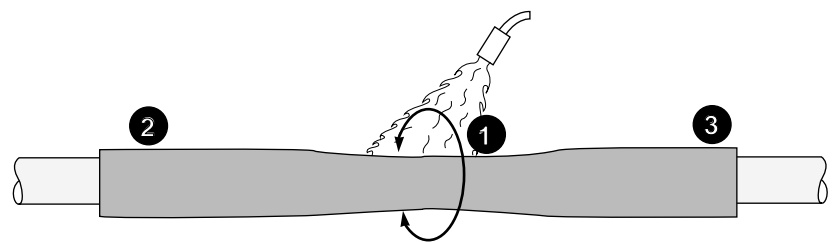


5003

11. Position outer sleeve; shrink in place.

Center the outer sleeve over the splice. Shrink in place beginning in the center of the sleeve (1), working the torch with a smooth brushing motion around the sleeve.

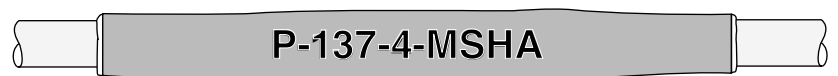
After the center shrinks, work the torch as before toward one end (2), and then the other (3). Adhesive will flow from both ends.



5004

Allow to cool before moving or placing in service.

Installation is complete.



5005