

HVS-2510E-J Series 25kV Class

Splice for 1/C jacketed and unjacketed Concentric Neutral Power Cables

ENERGY DIVISION

Suggested Installation Equipment (not supplied with kit)

- Cable preparation tools
- Tyco Electronics P63 cable preparation kit or cable manufacturer approved solvent
- Clean, lint-free cloths
- Non-conducting abrasive cloth, 120 grit or finer
- Electrician's tape
- Connector(s) and installation tools
- Tyco Electronics recommended torch

Safety Instructions

DANGER: 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 Tyco Electronics 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.

Customer Service

For 24 hour customer service, call 800-327-6996.

Installation Instructions

1. Product selection

Check kit selection with cable diameter dimensions in Table 1.

Table 1

Kit	Nominal Cable Range	Insulation Diameter Range	Maximum Connector Dimensions	
			Diameter	Length
HVS-2511E-J	#1-250 kcmil	0.90-1.20 (23-31mm)	1.10 (28mm)	4" (100mm)
HVS-2512E-J	350-500 kcmil	1.20-1.50 (31-38mm)	1.35 (34mm)	6" (152mm)
HVS-2513E-J	750-1000 kcmil	1.50-1.80 (38-46mm)	1.85 (40mm)	8" (203mm)

Recommended Tyco Electronics 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 Tyco Electronics FH-2629, FH-2649 (uses refillable propane cylinders) and FH-2618A (uses disposable cylinder).

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-2618A	Full pressure
FH-2649	25 psig
FH-2629	15 psig

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:

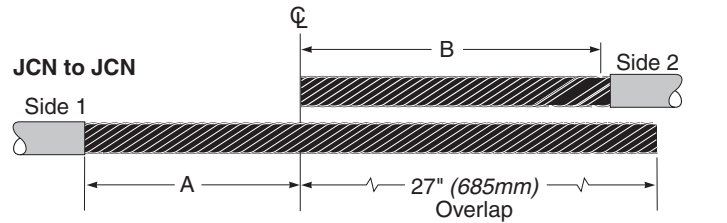
1. Uniform wall thickness.
2. Conformance to substrate.
3. No flat spots or chill marks.
4. Visible sealant flow if the tube is coated.

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.

2. Prepare cables

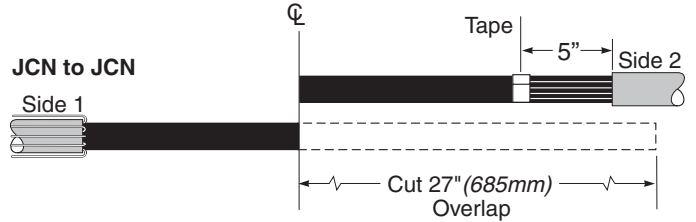
JCN

Overlap the two cables as shown. Refer to Table 2 (below) and remove the cable jacket to Dimensions A (plus the 27" overlap) and B.



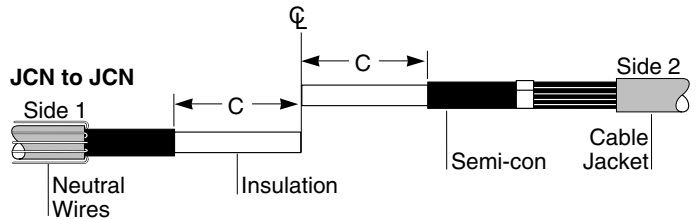
1213

Fold back the neutral wires on Side 1. Trim the neutral wires on Side 2 to 5" and tape over ends as shown.



1214

Cut Side 1 cable at center line.



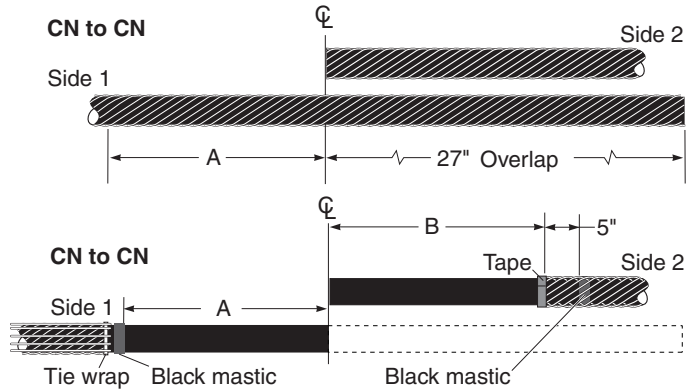
1215

CN

Temporarily place a tie wrap on side 1 and proceed with cable preparation by folding back the wires on side 1 and cutting the wires off on side 2.

If un-jacketed, mark distance "A" back on side 1 and distance "B" on side 2.

After folding back concentric wires on side 1, wrap one layer of S1061 rubberized black mastic under wires at the "A" mark and one layer on side 2 at the "B" mark under the neutral wires. Tape over ends as shown.



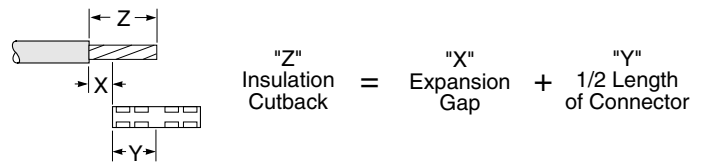
Note: If a JCN is being spliced to a CN, prepare the JCN per side 1 and the CN per side 2.

Table 2

Kit	Jacket Cutback	Jacket Cutback	Semi-con Cutback	Maximum Connector Dimensions		Expansion Gap "X"
	A	B	C	Length	Diameter	
Dimensions in inches						
HVS-2511E-J	14"	18"	5.25"	4.00"	1.10"	0.25"
HVS-2512E-J	16"	21"	6.50"	6.00"	1.35"	0.50"
HVS-2513E-J	17"	23"	7.50"	8.00"	1.85"	0.50"
Dimensions in millimeters						
HVS-2511E-J	(355mm)	(460mm)	(135mm)	(100mm)	(28mm)	(5mm)
HVS-2512E-J	(405mm)	(535mm)	(165mm)	(152mm)	(35mm)	(15mm)
HVS-2513E-J	(430mm)	(585mm)	(190mm)	(203mm)	(47mm)	(15mm)

3. Remove insulation

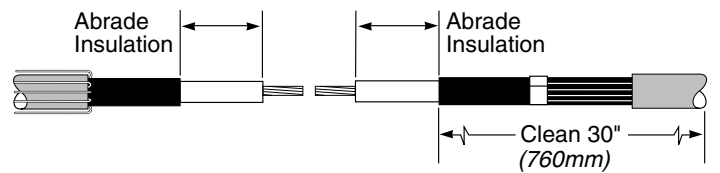
Refer to Table 2 and cut back the insulation as shown.



400

4. Abrade insulation; clean cable

Abrade the insulation, if necessary, to remove imbedded semi-con. Clean cable as shown.



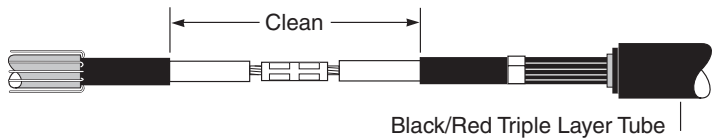
1215b

5. Place tubes over cable; install connector

Protect tubes from end of conductor as it is placed over the cable.

Install the connector. After installation, deburr connector.

Using an approved solvent, clean the insulation as shown.

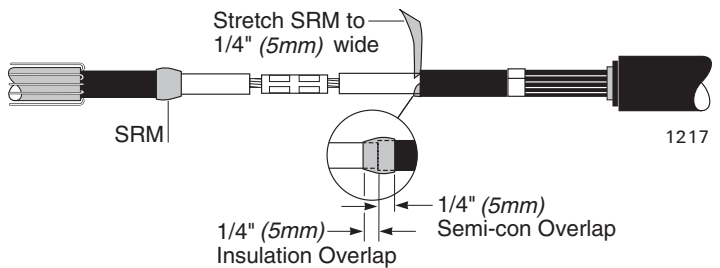


1216

6. Apply SRM at semi-con cutback

Remove backings from the short angle-cut piece of SRM. Place tip of SRM at semi-con cutback and tightly wrap to fill semi-con step. Overlap semi-con and insulation as shown. Taper SRM down to meet insulation.

Depending on cable size, more SRM may be supplied than is required to fill the step. After filling the step, discard excess angle-cut pieces.



1217

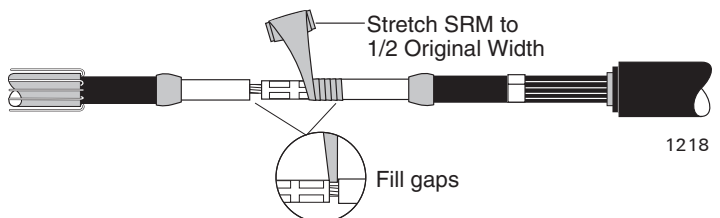
7. Apply SRM over connector

Remove backing from one side of the long strip of Stress Relief Material (SRM). Roll the SRM and remaining backing strip into a convenient size. Removing the remaining backing strip, tightly wrap the SRM around the connector and exposed conductor. Be sure to fill the gaps and low spots around the connector.

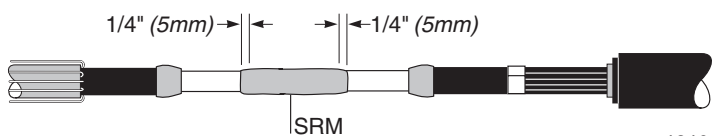
Continue to wrap SRM 1/4" (5mm) onto the solvent cleaned insulation as shown (finished SRM diameter should be only slightly larger than that of the cable insulation). It may not be necessary to use all of the SRM.

On cables of differing insulation diameters, SRM should be tapered down from the larger insulation OD to the smaller.

Note: If connector diameter is larger than insulation diameter, apply two tightly wrapped, half-lapped layers of SRM over the entire connector. Discard any excess SRM (long strips).



1218

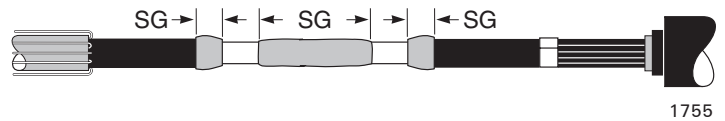


1219

8. Apply Silicone Grease (SG)

Snip open end of the SG ampule and apply a thin film of compound on the SRM over the connector and the semi-con steps.

Apply thin film of SG over surface of installed SRM

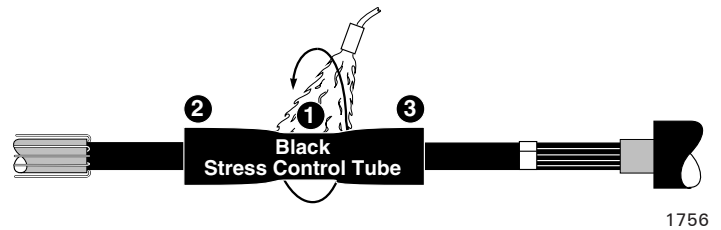


9. Position black stress control tube; shrink in place

Center the tube over the splice. Begin shrinking at the center (1) of the tube, working the torch around all sides of the tube. After the center portion shrinks, work towards one end (2), then to the opposite end (3).

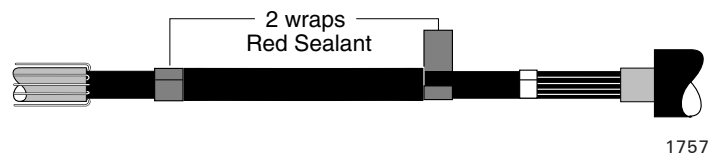
Note: Do not point the flame at the cable semi-con.

Post heat the connector area until the tube surface is smooth and the under-lying SRM wraps are no longer visible.



10. Apply red sealant

Remove release paper from red sealant strip and place two full wraps onto cable semi-con layer butted up against the black stress control tube

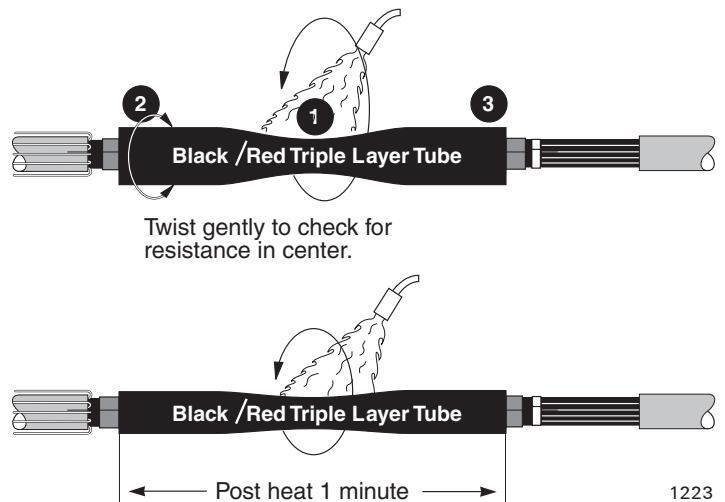


11. Position black/red triple layer tube; shrink in place

Center tube over joint as shown. Begin shrinking at center of tube (1), working torch with a smooth brushing motion around the tube. Before moving away from the center, make sure the tube has shrunk by gently twisting the unshrunk end to feel for resistance. After center portion shrinks, work torch as before toward one end (2), then to the opposite end (3).

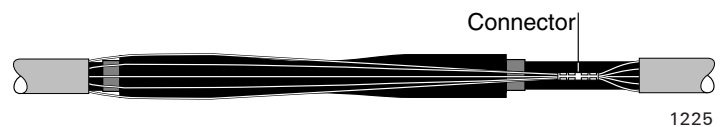
Note: Pay particular attention to the hard to reach parts, especially the back and underside of the tube. The tube should have a smooth and even surface when finished.

Post heat the entire tube for 1 minute after fully shrunk.



12. Connect neutral wires

Twist neutral wires together and splice with suitable connector(s). Bind wires to splice.

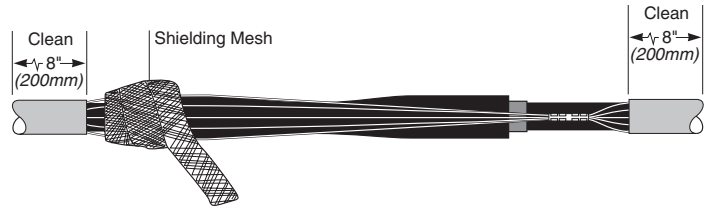


13. Install the shielding mesh.

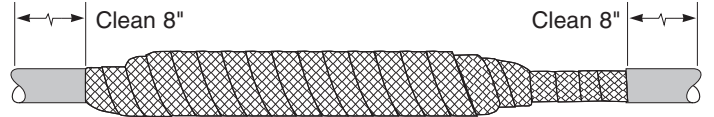
Wrap a half-lapped layer of the mesh across the entire splice and tie-off.

Abrade and solvent clean cable jackets as shown to provide an oil-free surface.

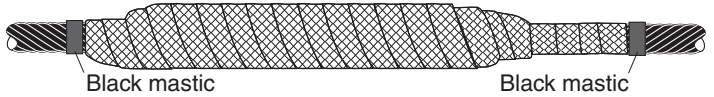
If one or both cables are CN, remove the temporary tie wrap and wrap one additional layer of S1061 over the existing wrap installed in step 2. Press sealant with hands to encapsulate the wires before applying the wraparound sleeve.



JCN



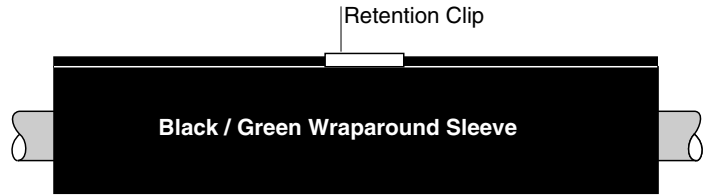
CN



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14. Position wraparound sleeve.

Remove or tape over all sharp points to prevent puncture of wraparound sleeve. Remove backing from the wraparound sealing sleeve and center sleeve over splice. Clamp the metal retention clip onto the butted rails at the center of the sleeve to hold the sleeve together while channels are installed.



614b

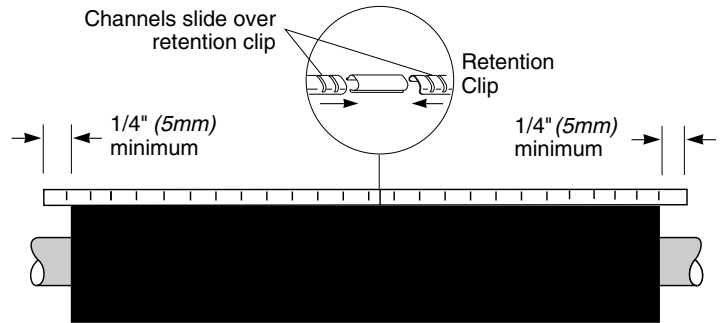
15. Install channels.

Connect the channels by overlapping the retention clip as shown at right.

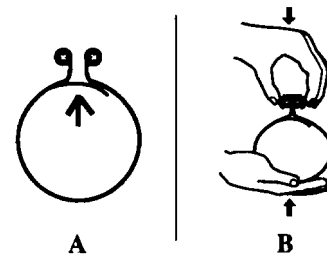
Note: Channels must overlap sleeve edge by 1/4 inch (5mm) minimum.

If channels slide on easily go to step 16. If channel fit seems tight, continue with next paragraph.

As shown in illustration A, make sure flap is not pinched between the rails. Push the sleeve up from the bottom and down from the top while sliding on channel as shown in illustration B. The idea is to flatten the rails together to prevent the channels from binding.



614c



16. Shrink the wraparound sleeve.

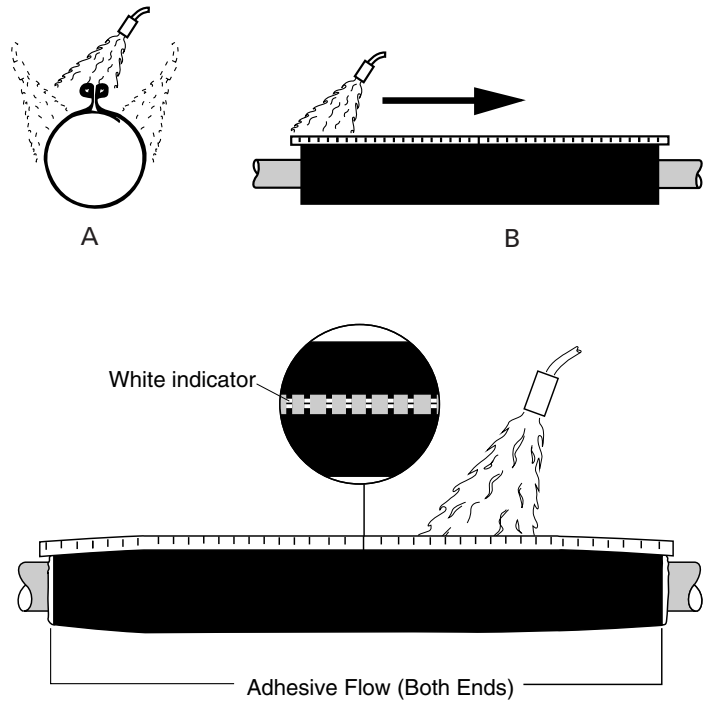
Preheat evenly along both sides of the rail/channel area until this area begins to shrink. To achieve uniform heating, move the flame back and forth from one side of the channel to the other as shown in illustration "A" while moving flame along the entire length of the channel as shown in illustration "B" until the sleeve starts to shrink. This technique will assure a properly preheated rail and channel area.

Begin shrinking at the center of the sleeve. After shrinking the entire circumference at the center, then work toward each end. Apply heat until the sleeve is fully shrunk and the heat-sensitive green paint is completely converted to black. Continue heating the rail/channel area for another 5 seconds per foot. A white line should be visible in the channel gaps indicating sufficient heating.

Note: Green heat-sensitive paint will turn black as sleeve shrinks in place.

This completes the splice.

Note: Allow to cool before moving or placing in service.



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The Information contained in these installation instructions is for use only by installers trained to make electrical power installations and is intended to describe the correct method of installation for this product. However, Tyco Electronics Corporation has no control over the field conditions which influence product installation. It is the user's responsibility to determine the suitability of the installation method in the user's field conditions. Tyco Electronics' only obligations are those in Tyco Electronics' standard Conditions of Sale for this product and in no case will Tyco Electronics be liable for any other incidental, indirect or consequential damages arising from the use or misuse of the products.

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