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Instruction Manual

Cable Splicing

Models 4500-10 to 4500-16

(Doc. REV D 1/18/2018)

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1. INTRODUCTION

Geokon Splice Kits are designed for the field splicing of Geokon Instrumentation Cables. There are seven different models of splice kit depending on the size of the cable and if the cable is vented. All kits come complete with Posi-Lock connectors and epoxy kit, plus tube unions for vented cable. For a full description of the dimensions of various sizes, see Appendix B.

Model 4500-10: Geokon Splice Kit for 0.250"
Model 4500-11: Geokon Splice Kit for 0.335" **vented** cable
Model 4500-12: Geokon Splice Kit for 0.375" cable
Model 4500-13: Geokon Splice Kit for 0.500" cable
Model 4500-14: Geokon Splice Kit for 0.625" cable
Model 4500-15: Geokon Splice Kit for 0.187" cable
Model 4500-16: Geokon Splice Kit for 0.312" cable

2. KIT COMPONENTS

Each kit consists of a clear PVC tube, end caps that have Swagelok fittings installed, Posi-Lock connectors, and epoxy compound. (The quantity of Posi-Lock connectors as well as the size of the tube and Swagelok connectors will vary by model number.) Vented cable kits will also have a barbed plastic tube union for the vent line.

Figure 1 - Splice Kit Components

3. SPLICING INSTRUCTIONS

1) Loosen the nut of the Swagelok fitting on the end cap that is glued to the tube. Push the cable through the fitting and out the other end.

Figure 2 - Initial Cable Insertion

2) Strip the outer jacket of the cable back one and a half to two inches. Various tools can be used for this operation; the primary goal is to get the jacket off without nicking the inner conductors. Remove inner plastic and foil (if applicable).

3) Strip the jackets of the inner conductors back one quarter inch.

Figure 3 - Cable and Conductor Jackets Stripped Back

4) Push the other cable through the fitting in the loose end cap. Repeat steps two and three on the second cable.

Figure 4 - Both Cables Prepared

5) Following the Posi-Lock connector instructions shown in Figure 5, connect the individual conductors of the two cables together. Make sure to connect like colors together and to connect the ground wire together as well. When tightening the Posi-Lock connectors, tighten to finger tight only. Figure 6 shows the completed connection.

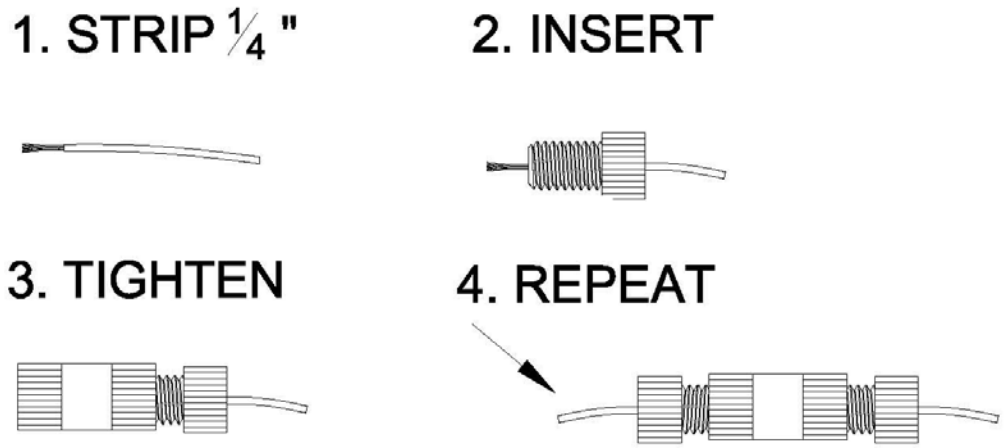


Figure 5 - Posi-Lock Instructions

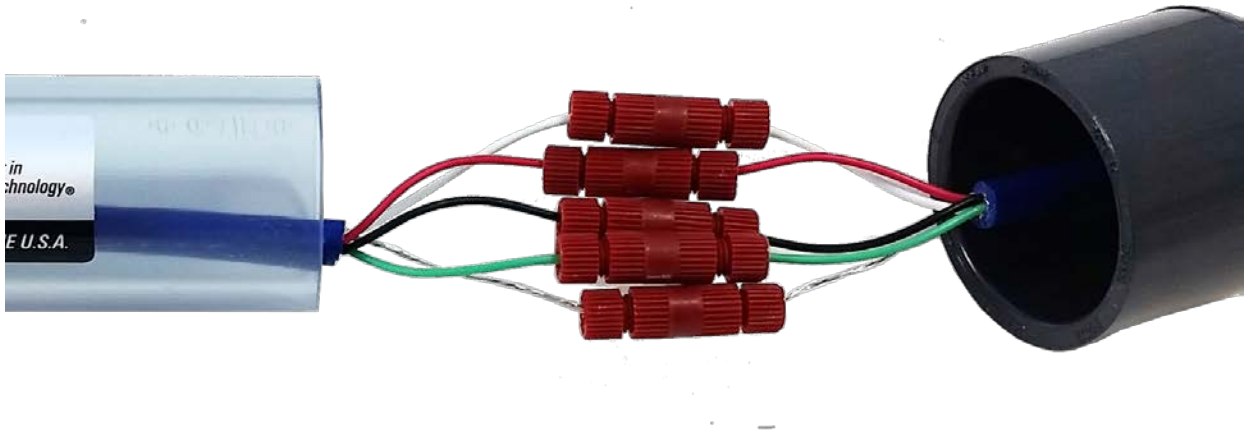


Figure 6 - Posi-Lock Connectors Attached to Conductors

6) **Model 4500 - 11 Vented cable kits** will include an additional barbed plastic tube union fitting for splicing the vent lines. Special precautions should be taken when splicing vented cables to prevent water or debris from getting into the vent tube. Push both ends of the vent lines onto the barb fitting.

7) Position the Posi-Lock connectors in the center of the tube.

Figure 7 - Posi-Lock Connectors Centered Inside the Tube

8) Tighten the Swagelok fitting on the end cap afixed to the tube by following the instructions in Appendix A. Be sure to use *two wrenches*, as shown in Figure 10 of Appendix A, to prevent stripping of the threads in the plastic cap.

9) Take readings at the readout station to make sure the sensor and the thermistor are reading properly.

10) Prepare the epoxy filler according to the instructions below:

ATTENTION! Wear disposable gloves while performing the following operations.

With the encapsulant tube still in the mixing bag, point the heat-sealed end of the mixing tube away from yourself and others.

Flip the white barrier wafer with your thumb and forefinger to allow the two-part epoxy encapsulant to mix. Refer to the chart below for mix time and shake the tube with an up and down motion as noted on the following chart.

Temperature:	Below 60 °F	Between 65 °F and 85 °F	Between 86 °F and 100 °F
Mix Time:	Use alternate mixing method shown below	**Shake for one minute**	**Shake for 30 seconds**
Alternative Mixing Method: At temperatures below 65 °F **DO NOT SHAKE.** After flipping the white barrier, remove the tube from the mixing bag, cut the heat-sealed end, and remove the white barrier with the wooden paddle. Stir vigorously with the wooden mixing paddle for one minute to blend the two components together. Pour into enclosure.			

Table 1 Encapsulant Mixing Guide

11) Once the epoxy is mixed, open the mixing bag, unscrew the cap, and squeeze the material into the splice kit tube. Slightly tilt the tube while filling to let the air pockets escape.

12) Put a bit of epoxy on the outer rim of the tube where the second cap will come in contact with it once it is put on.

13) Fill the tube to the top and push the cap on.

14) Install the cap onto the open end of the tube and tighten the Swagelok fitting per the instructions in Appendix A.

15) Allow a few hours for the epoxy to cure. The cable splice is now complete.

APPENDIX A. SWAGELOK TUBE FITTING INSTRUCTIONS

These instructions apply to one inch (25 mm) and smaller fittings.

A.1 Installation

1) Fully insert the tube into the fitting until it bumps against the shoulder.

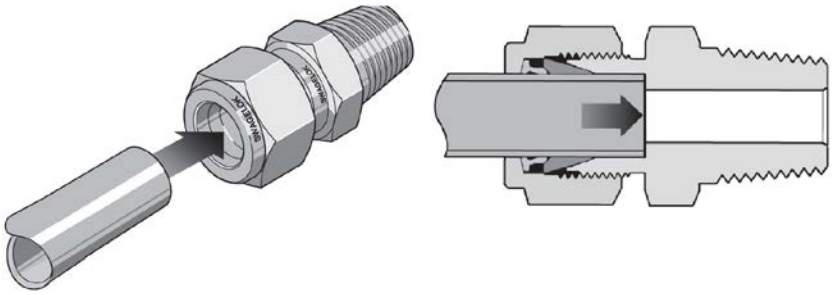


Figure 8 - Tube Insertion

2) Rotate the nut until it is finger-tight. (For high-pressure applications as well as high-safety-factor systems, further tighten the nut until the tube will not turn by hand or move axially in the fitting.)

3) Mark the nut at the six o'clock position.

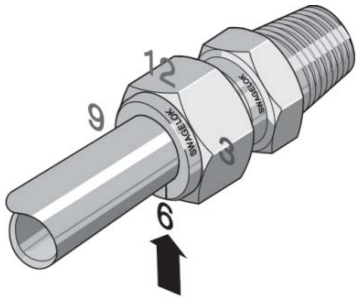


Figure 9 - Make a Mark at Six O'clock

4) While holding the fitting body steady, tighten the nut one and one quarter turns, until the mark is at the nine o'clock position. (Note: For 1/16", 1/8", 3/16", and 2, 3, and 4 mm fittings, tighten the nut three-quarters of a turn until the mark is at the three o'clock position.)

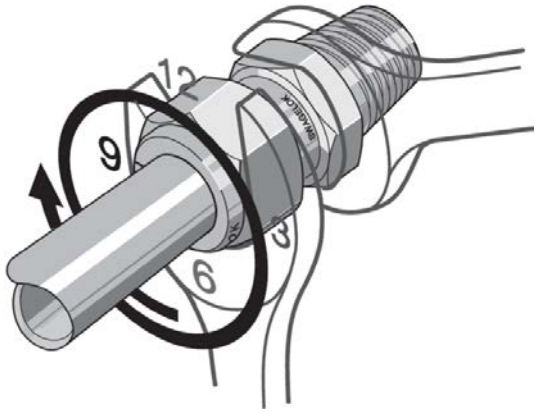


Figure 10 - Tighten One and One-Quarter Turns

A.2 Reassembly Instructions

Swagelok tube fittings may be disassembled and reassembled many times.
Warning! Always depressurize the system before disassembling a Swagelok tube fitting.

1) Prior to disassembly, mark the tube at the back of the nut, then make a line along the nut and fitting body flats. *These marks will be used during reassembly to ensure the nut is returned to its current position.*

Figure 11 - Marks for Reassembly

2) Disassemble the fitting.

3) Inspect the ferrules for damage and replace if necessary. **If the ferrules are replaced the connector should be treated as a new assembly. Refer to the section above for installation instructions.**

4) Reassemble the fitting by inserting the tube with preswaged ferrules into the fitting until the front ferrule seats against the fitting body.

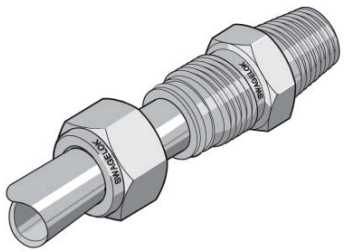


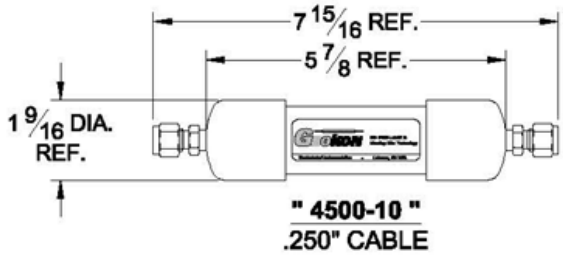
Figure 12 - Ferrules Seated Against Fitting Body

5) While holding the fitting body steady, rotate the nut with a wrench to the previous position as indicated by the marks on the tube and the connector. At this point, there will be a significant increase in resistance.

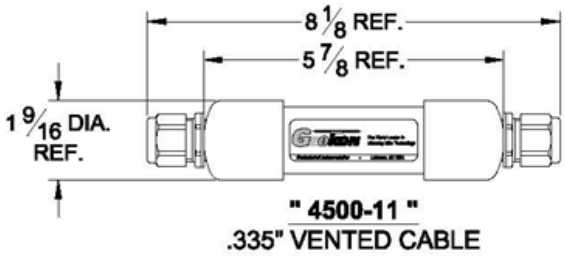
6) Tighten the nut slightly.

Figure 13 - Tighten Nut Slightly

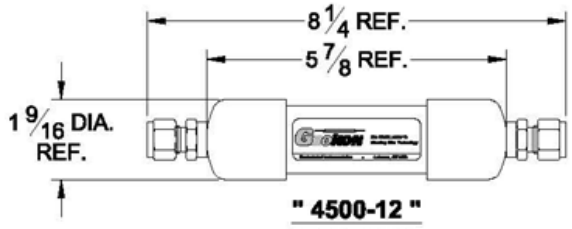
APPENDIX B. DIMENSIONS OF THE VARIOUS SPLICE KITS



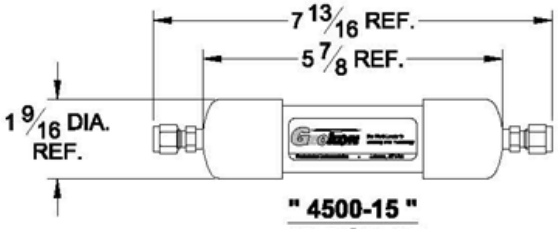
" 4500-10 "
.250" CABLE



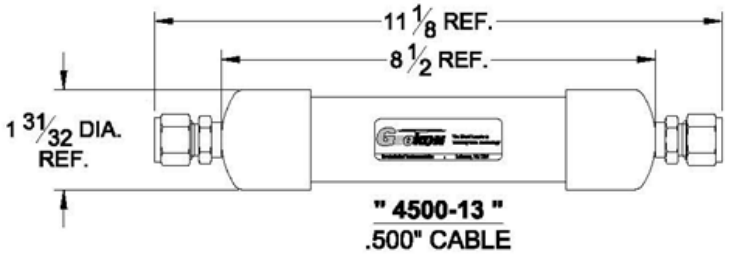
" 4500-11 "
.335" VENTED CABLE



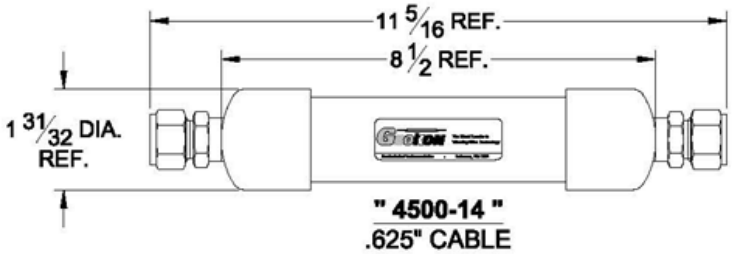
" 4500-12 "
.375" CABLE



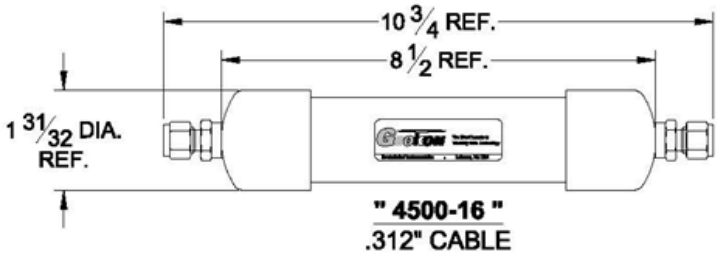
" 4500-15 "
.187" CABLE



" 4500-13 "
.500" CABLE



" 4500-14 "
.625" CABLE



" 4500-16 "
.312" CABLE