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Installation Procedure For Raychem Shielded Cable Splice Kits With Mini-Seal Crimp Primary Splices

1.0 Scope

This standard contains the procedures for making environment resistant 1 to 1 in-line splices in shielded and jacketed cables listed in Paragraph 5.0 using Raychem D-150 Series shielded cable splice kits.

2.0 References

Raychem Specification Control Drawing (SCD) Series D-150. See Paragraph 5.0 for applicable Raychem parts.

3.0 Application Equipment

3.1 Wire Handling Tools

- a) Wire stripper for primaries.
- b) Wire stripper for cable jacket.
- c) Small sharp scissors or diagonal cutters for braid.
- d) Ruler readable to 0.50 (0.025).
- e) Raychem AD-1377 Crimp Tool (calibrated).

3.2 Heating Tools

Use one of the following or Raychem approved alternative.

- a) CV-5000 Thermogun Model 500B with TG-135 reflector.
- b) CV-5300 Mini-gun 1 with MG-1 reflector.

4.0 General Information

4.1 Splice Kit Description

The Raychem D-150 Series shielded cable splice kits consists of:

- a) Soldershield braid splice for splicing and encapsulating the cable shields.
- b) Mini-seal crimp barrels for splicing the primary conductors.
- c) Mini-seal crimp sealing sleeves for encapsulating the primary conductor splices.



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5.0 Installation Procedures

Use procedure paragraph applicable to the cable configuration being spliced.

Cable Primaries			Splice Kit Number	Applicable Paragraph
No.	AWG Range	Plating		
1	26 to 20	Tin/Silver Nickel	D-150-0168 D-150-0228	5.1 5.1
1	20 to 16	Tin/Silver Nickel	D-150-69 D-150-0229	5.1 5.1
1	16 to 12	Tin/Silver Nickel	D-150-0170 D-150-0230	5.1 5.1
2	26 to 20	Tin/Silver Nickel	D-150-0174 D-150-0231	5.2 5.2
2	18 to 16	Tin/Silver Nickel	D-150-0175 D-150-0232	5.2 5.2
2	14	Tin/Silver Nickel	D-150-0176 D-150-0233	5.2 5.2
2	12	Tin/Silver Nickel	D-150-0177 D-150-0234	5.2 5.2
3	26 to 24	Tin/Silver Nickel	D-150-0178 D-150-0235	5.3 5.3
3	22 to 20	Tin/Silver Nickel	D-150-0179 D-150-0236	5.3 5.3
3	18 to 16	Tin/Silver Nickel	D-150-0180 D-150-0237	5.3 5.3
3	14 to 12	Tin/Silver Nickel	D-150-0181 D-150-0238	5.3 5.3
4	26 to 24	Tin/Silver Nickel	D-150-0178 D-150-0235	5.3 5.3
4	22 to 20	Tin/Silver Nickel	D-150-0179 D-150-0236	5.3 5.3
4	18 to 16	Tin/Silver Nickel	D-150-0180 D-150-0237	5.3 5.3
4	14 to 12	Tin/Silver Nickel	D-150-0181 D-150-0238	5.3 5.3

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5.1 Single Conductor Shielded Cable

Applicable cable gauges and splice kit numbers:

26, 24, 22, 20	D-150-0168 or -0228
18, 16	D-150-0169 or -0229
14, 12	D-150-0170 or -0230

5.1.1 Cable Preparation

Tolerances: All lengths ± 0.50 (0.025)

- a) Remove cable jacket and shield: 18.00 (0.700)
- b) Strip primaries: 7.00 (0.275)
- c) Remove cable jacket: 9.50 (0.375)

5.1.2 Assembly Procedure

- a) Place the shield splice sleeve (small end first) onto one of the cables.
- b) Primary Conductor Splice.
 - 1) Place the sealing sleeve onto one of the cables.
 - 2) Crimp primaries into opposite ends of the crimp splice using a calibrated Raychem AD-1377 crimp tool. Be sure matching primaries from each cable are in same sleeve.
 - 3) Center the sleeve over the splice.
 - 4) Apply heat to the center of the sleeve until it recovers, and then heat ends until sealing rings melt and flow along wires.
 - 5) Inspect per Paragraph 6.1.
- c) Shield Splice
 - 1) Center the shield splice sleeve over the splice and the exposed cable shields.
 - 2) Heat sleeve.
 - a) Heat center of sleeve until the solder melts and the shield and tube recover.
 - b) Move the heat toward one end of the shield slowly enough to keep the sleeve recovering as you move along.
 - c) Apply heat for an additional 5 to 10 seconds to the final 12.5 mm (half-inch) of the sleeve shield to ensure sufficient heat transfer to the cable shield to make a good joint.
 - d) Apply heat to end of sleeve until rings melt and flow along cable jacket.
 - e) Repeat for other end of sleeve.
 - 3) Inspect per Paragraph 6.2.

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5.2 Two Conductor Shielded Cable

Applicable cable gauges and splice kit numbers:

26, 24, 22, 20	D-150-0174 or -0231
18, 16	D-150-0175 or -0232
14	D-150-0176 or -0233
12	D-150-0177 or -0234

5.2.1 Cable Preparation

Tolerances: All lengths ± 0.50 (0.025)

- a) Remove cable jacket and shield: 46.50 (1.825)
- b) Cut 1 primary on each cable: 17.00 (0.675) from cable jacket.
Note: Short primaries on cable A must be left uncut on cable B.
- c) Strip primaries: 7.00 (0.275)
- d) Remove cable jacket: 9.50 (0.375)

5.2.2 Assembly Procedure

- a) Place the shield splice sleeve (small end first) onto one of the cables.
- b) Primary Conductor Splices.
 - 1) Place the sealing sleeve onto the longer lead of each cable.
 - 2) Crimp primaries into opposite ends of the crimp splice using a calibrated Raychem AD-1377 crimp tool.
 - 3) Center the sleeves over the splices.
 - 4) Apply heat to the center of the sleeve until it recovers, and then heat ends until sealing rings melt and flow along wires.
 - 5) Inspect per Paragraph 6.1.
- c) Shield Splice
 - 1) Center the shield splice sleeve over the splice and the exposed cable shields.
 - 2) Heat sleeve
 - a) Heat center of sleeve until the solder melts and the shield and tube recover.
 - b) Move the heat toward one end of the shield slowly enough to keep the sleeve recovering as you move along.
 - c) Apply heat for an additional 5 to 10 seconds to the final 12.5 mm (half-inch) of the sleeve shield to ensure sufficient heat transfer to the cable shield to make a good joint.
 - d) Apply heat to end of sleeve until rings melt and flow along cable jacket.
 - e) Repeat for other end of sleeve.
 - 3) Inspect per Paragraph 6.2.

5.3 Three and Four Conductor Shielded Cable

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Applicable cable gauges and splice kit numbers:

26, 24,	D-150-0178 or -0235
22, 20	D-150-0179 or -0236
16, 18	D-150-0180 or -0237
14, 12	D-150-0181 or -0238

5.3.1 Cable Preparation

Tolerances: All lengths ± 0.50 (0.025)

- a) Remove cable jacket and shield: 46.50 (1.825)
- b) Cut primaries: 3-conductor: 2 on cable A and 1 on cable B; 4-conductor: 2 on both cables A and B: 17.00 (0.675) from cable jacket.
Note: Short primaries on cable A must be left uncut on cable B.
- c) Strip primaries: 7.00 (0.275)
- d) Remove cable jacket: 9.50 (0.375)

5.3.2 Assembly Procedure

- a) Place the shield splice sleeve (small end first) onto one of the cables.
- b) Primary Conductor Splices.
 - 1) Place the sealing sleeve onto the longer lead of each cable.
 - 2) Crimp primaries into opposite ends of the crimp splices using a calibrated Raychem AD-1377 crimp tool.
 - 3) Center the sleeves over the splices.
 - 4) Apply heat to the center of the sleeve until it recovers, and then heat ends until sealing rings melt and flow along wires.
 - 5) Inspect per Paragraph 6.1.
- c) Shield Splice
 - 1) Center the shield splice sleeve over the splice and the exposed cable shields.
 - 2) Heat sleeve.
 - a) Heat center of sleeve until the solder melts and the shield and tube recover.
 - b) Move the heat toward one end of the shield slowly enough to keep the sleeve recovering as you move along.
 - c) Apply heat for an additional 5 to 10 seconds to the final 12.5 mm (half-inch) of the sleeve shield to ensure sufficient heat transfer to the cable shield to make a good joint.
 - d) Apply heat to end of sleeve until rings melt and flow along cable jacket.
 - e) Repeat for other end of sleeve.
 - 3) Inspect per Paragraph 6.2.

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6.0 Inspection

6.1 Mini-seal Splices

- a) Conductors must be visible at point where they enter the crimp barrel.
- b) Both indentations of a crimp must be on the crimp barrel.
- c) Sealing sleeve inserts must have flowed along wire insulation.
- d) Sleeve must not have discolored to the degree that the crimp barrel cannot be inspected.
- e) Sleeve must not be cut or split.

6.2 Shield Splice

- a) Sleeve/shield must be recovered along its entire length.
- b) Sleeve must be recovered tightly around cable jacket.
- c) Sealing rings must have flowed along cable jacket.
- d) Sleeve must not have discolored to the degree that joint can not be inspected.
- e) Sleeve must not cut or split.
- f) Strands must not be poking through the sleeve.