

Heat-Shrink Splices, Straight



1. Scope

This standard identifies the material required to install 110 kV and 150 kV basic impulse level (BIL) rated, straight, heat-shrink splices on extruded dielectric cable.

Cable splices are also known as cable joints or Raychems. Although the industry-popular Raychem Corporation was purchased by Tyco Electronics (now TE Connectivity) in 1999, the name is still sometimes used.

The material list in Section 5 includes all the parts necessary to complete an installation. The material list has been organized to be cable specific.

The material needed to trifurcate 3/C type cable and seal the exposed tape shield from the trifurcation point to the heat-shrink splice is outside the scope of this standard.

Paper insulated lead covered (PILC) cable, sector cable, and connecting more than two cables are outside the scope of this standard.

For cable technical data see SCL 9660.04.

For general cable preparation procedures see SCL U5-2.81/NSP-290.

For cutback lengths and splice installation procedures refer to the specific instructions that were provided with the splice kit.

2. Application

This standard is for Seattle City Light (SCL) engineers, crews, and contractors who join medium voltage cables.

Heat-shrink splices are used to permanently join two medium voltage cables. Cable may be insulated with TRXLPE, EPR, or EAM and shielded with tape, flat strap, or round wire/CN.

With the use of shim kits, cables of two different conductor sizes can be joined as long as they fall within the same kit range.

Heat-shrink splices provide electric stress control for the cable insulation, external insulation between the cable conductor and ground, and a seal against the external environment. Product may be installed indoors or outdoors on cable systems rated up to 26.4 kV.

The current and temperature rating of a properly installed heat-shrink splice is equal to or greater than that of the cable for which it is designed.

Heat-shrink splices are primarily used on the Network system.

3. Splice Attributes

3.1 Common

Common names	Splice, cable splice, cable joint, Raychem
Technology	Heat-shrink
Manufacturer	TE Connectivity

3.2 15 kV Class

Voltage rating (ph-g)	8.7 kV rms, grounded systems
Voltage rating (ph-ph)	15 kV rms
Basic impulse insulation level (BIL)	110 kV crest
SCL Material Standard	6873.11

3.3 25 kV Class

Voltage rating (ph-g)	14.4 kV rms, grounded systems
Voltage rating (ph-ph)	25 kV rms
BIL	150 kV crest
SCL Material Standard	6873.16

4. Parts Identification

Figure 4a. Heat-Shrink Splice Kit Components (Representative)



Splice kits, Stock Nos. 687510, 687514, and 687516 shall each include an appropriately-sized external grounding/shield interrupting kit.

5. Material List

For a specific cable, use the heat-shrink splice kit and compression connector indicated in Table 5. While tapered connectors are called out for in this standard, non-tapered or secondary connectors may be used as long as they are no sharper than an “H” style connector and the stress relief mastic (SRM) successfully smooths them out.

Table 5. Material List

Cable Stock No.	Rated Circuit Voltage (kV)	Type	Size (AWG/kcmil)	Shape	Shield Type	Required	
						Splice Kit Stock No.	Compression Connector Stock No.
613212	5	1/C	#6	compressed	tape	n/a	n/a
613222	5	1/C	350	compressed	tape	n/a	n/a
601025	5	1/C	500	class B	DW	n/a	n/a
613522	15	3/C	#1	compressed	tape	013055	677337
613523	15	3/C	#1	compressed	tape	013055	677337
613520	15	3/C	2/0	compressed	tape	013055	n/a
613521	15	3/C	3/0	compressed	tape	013056	677340
613526	15	3/C	3/0	compressed	tape	013056	677340
613530	15	3/C	350	compact	tape	013056	677345
613531	15	3/C	500	sector	tape	n/a	n/a
010128	15	3/C	500	compact	tape	013057	677347
613532	15	3/C	500	compact	tape	013057	677347
623640	15	1/C	500	compact	tape	013057	677347
012735	15	3-1/C	500	compressed	FS	013057	677347
613533	15	3/C	750	sector	tape	687514	n/a
613534	15	3/C	750	compact	tape	013057	677348
623670	15	3-1/C	1000	compressed	FS	013057	677351
623650	27	3-1/C+2N	#8	compressed	tape	n/a	n/a
602027	28	1/C	#1	class B	RW/CN	687510	677337
613540	28	3/C+3G	#1	compressed	Tape	687510	677337
602025	28	1/C+1N	1/0	solid	RW/CN	687507	677338
012098	28	1/C+1N	1/0	solid	RW/CN	687507	677338
602044	28	1/C	350	class B	RW/CN	687508	677345
012099	28	1/C	350	compact	FS	687514	677345
613613	28	1/C	350	compact	DW	687514	677345
613543	28	3/C+3G	350	compact	tape	687514	677345
012100	28	1/C	500	compact	FS	687514	677347
613615	28	1/C	500	compact	DW	687514	677347
613645	28	1/C	500	compressed	FS	687514	677347
602119	28	1/C	750	compact	DW	687516	677348
613618	28	1/C	750	compact	DW	687516	677348
974050	28	3/C	750	sector	tape	n/a	n/a
012101	28	1/C	750	compact	FS	687516	677348
012102	28	1/C	1000	compact	FS	687516	677351
613619	28	1/C	1000	compact	DW	687516	677351
613655	28	1/C	1000	compressed	FS	687516	677351
none	35	1/C	350	compressed	tape	n/a	n/a
623660	35	1/C	750	compact	DW	n/a	n/a
623655	35	1/C	1000	compact	tape	n/a	n/a

Notes:

1. For repair work, extra-long splice Stock No. 687506 may substitute for splice Stock No. 687507.

2. n/a: Not a stock item or not available from any source.

6. Tools

TE Connectivity recommends installing splices with a "clean burning" torch, which is a propane torch that does not deposit conductive contaminants on the product.

Information relating to the tool type, die number, and number of crimps is provided with the connector.

7. References

SCL Material Standard 6873.11, "Splice Kits, Cable, Heat-Shrink, Straight, 110 kV BIL"

SCL Material Standard 6873.16, "Splice Kits, Cable, Heat-Shrink, Straight, 150 kV BIL"

SCL Design Standard 9660.04, "Properties of Medium Voltage Cables"

SCL Construction Standard U5-2.81/NSP-290, "Primary Cable Preparation, General"

8. Sources

PCN 625799-000; Installation Instructions, Tyco Electronics, HVS-2520S Series, 25 kV Class, Splice for Extruded Dielectric (Poly/EPR) Power Cables: Metallic Tape, Wire Shield, UniShield, or Lead Sheath Cables; June 17, 2010

PCN 941169-000; Installation Instructions, Tyco Electronics, HVS-2510E-J, 25 kV Class, Splice for 1/C Jacketed and Unjacketed Concentric Neutral Power Cables; June 29, 2010

PCN DH793P-000; Installation Instructions, Tyco Electronics, HVS-C-1530S-SCL, 15 kV Class, Splice for Extruded Dielectric (Poly/EPR) Power Cable with Flat Strap Neutral (FS) or Table Shield; April 23, 2010

SCL Construction Standard 0535.11 (canceled); "Heat Shrink Splices, Straight, 110 kV BIL, Tyco"

Shipek, John; SCL Standards Supervisor and originator of 0535.21.