

15 kV, 3/C, TRXLPE Insulated, Tape Shielded Cable**1. Scope**

This standard covers the detailed requirements for 15 kV, tree retardant, cross-linked polyethylene (TRXLPE), three conductor cable used for the distribution of electric energy.

Industry designation: **3/C**

This standard applies to the following Seattle City Light (SCL) stock numbers:

Stock Number	613523	613526	613530
Size	#1 AWG	3/0 AWG	350 kcmil

2. Application

Cable is intended for use on a nominal 13.8 kV, three-phase, three-wire, delta, 60 Hz, power system.

3. General Requirements

This detailed material standard is to be used in conjunction with the latest revision of SCL 6015.00, "Medium Voltage Cable – General."

4. Industry Standards

Cable shall meet the requirements of the following industry standards:

ICEA S-97-682-2013; "Utility Shielded Power Cables Rated 5 Through 46 kV"

See SCL 6015.00 to obtain the appropriate revision date for other referenced industry standards.

5. Construction**5.1 General**

Unless indicated otherwise, all values cited below should be consistent with industry standards. They are repeated here for the convenience of the reader. The ▲ symbol indicates special City Light requirements, some which are detailed in SCL 6015.00.

Standards Coordinator
Todd Oki

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MATERIAL STANDARD

15 kV, 3/C, TRXLPE Insulated, Tape Shielded Cable

5. Construction, continued

5.2 Conductor

		Requirements			Reference
Stock Number		613523	613526	613530	SCL
Size		#1 AWG	3/0 AWG	350 kcmil	various
Diameter	minimum	0.316 in	0.447 in		ICEA S-97-682, Part 2
	nominal	0.322 in	0.456 in		ASTM B8
	maximum	0.328 in	0.465 in		ICEA S-97-682, Part 2
Metal		copper			ASTM B49
Stranding type		concentric-lay			ASTM B8
Class		B			ASTM B8
Stranding subtype		compressed			ASTM B8
Number of strands		19			ASTM B8
Temper		soft drawn, annealed prior to stranding			ASTM B3
Lay, outer layer		left hand			ASTM B3, Section 5.5.1
Lay, successive layers		reversed			ASTM B3, Section 5.5.1
Sealant for stranded conductors		required ▲			ICEA S-97-682, Part 2
Diameter	minimum			0.604 in	ICEA S-97-682, Part 2
	nominal			0.616 in	ASTM B496
	maximum			0.628 in	ICEA S-97-682, Part 2
Metal		copper			ASTM B49
Stranding type		concentric-lay			ASTM B496
Class		none			none
Stranding subtype		compact			ASTM B496
Number of strands		35-37			ASTM B496, Table 1
Temper		soft drawn, annealed prior to stranding			ASTM B3
Lay, outer layer		left hand			ASTM B496, Section 5
Lay, successive layers		reversed			ASTM B496, Section 5
Sealant for stranded conductors		required ▲			ICEA S-97-682, Part 2

MATERIAL STANDARD

15 kV, 3/C, TRXLPE Insulated, Tape Shielded Cable

standard number: **6020.01**page: 3 of 5
superseding: October 30, 2015
effective date: January 28, 2019**5. Construction, continued****5.3 Conductor Shield (Stress Control Layer)**

	Requirements			Reference
Stock Number	613523	613526	613530	SCL
Size	#1 AWG	3/0 AWG	350 kcmil	various
Thickness, minimum point	12 mil	12 mil	16 mil	ICEA S-97-682, Part 3, Table 3-1

5.4 Insulation

	Requirements			Reference
Stock Number	613523	613526	613530	SCL
Size	#1 AWG	3/0 AWG	350 kcmil	various
Material	unfilled tree retardant cross-linked polyethylene (TRXLPE)			ICEA S-97-682, Part 4
Approved material formulations	specified in general material standard			SCL 6015.00
Thickness	minimum point	165 mil		ICEA S-97-682, Part 4, Table 4-7
	nominal	175 mil		ICEA S-97-682, Part 8, Table 8-1
	maximum point	205 mil		ICEA S-97-682, Part 4, Table 4-7
Insulation level	100%			ICEA S-97-682, Part 4, Table 4-7
Basic impulse level (BIL)	110 kV crest			ICEA S-97-682, Part 4, Table 4-6

5.5 Extruded Insulation Shield

	Requirements			Reference
Stock Number	613523	613526	613530	SCL
Size	#1 AWG	3/0 AWG	350 kcmil	various
Material	discharge-free (thermosetting material)			ICEA S-97-682, Part 5
Thickness	minimum point	24 mil		ICEA S-97-682, Part 5, Table 5-1
	maximum point	60 mil		ICEA S-97-682, Part 5, Table 5-1

5.6 Metallic Shield

	Requirements			Reference
Stock Number	613523	613526	613530	SCL
Size	#1 AWG	3/0 AWG	350 kcmil	various
Metal	copper, uncoated			ICEA S-97-682, Part 6
Type	helically applied tape ▲			ICEA S-97-682, Part 6 and SCL 6015.00
Water blocking components for metallic shield	not required			ICEA S-97-682, Part 6

5. Construction, continued**5.7 Jacket (Non-Metallic Covering)**

Jacket shall be applied over three conductor assembly.

		Requirements			Reference
Stock Number		613523	613526	613530	SCL
Size		#1 AWG	3/0 AWG	350 kcmil	various
Material		linear low density polyethylene (LLDPE)			ICEA S-97-682, Part 7
Color		black			ICEA S-97-682, Part 7
Type		overlying			ICEA S-97-682, Part 7
Thickness	minimum point	100 mil ▲			ICEA S-97-682, Part 7, Table 7-10
	maximum point	150 mil ▲			ICEA S-97-682, Part 7, Table 7-10
Maximum diameter over jacket		2.25 in ▲	2.45 in ▲	2.85 in ▲	SCL preference

5.8 Sheath (Continuous Metallic Covering)

Cable shall not be provided with a sheath.

5.9 Assembly and Identification

		Requirements			Reference
Stock Number		613523	613526	613530	SCL
Size		#1 AWG	3/0 AWG	350 kcmil	various
Red stripe identification		not required			ICEA S-97-682, Part 8

6. Packaging

		Requirements			Reference
Stock Number		613523	613526	613530	SCL
Size		#1 AWG	3/0 AWG	350 kcmil	various
Reel type		steel, fluted			WC 26, Section 2
Reel dimension	flange diameter, maximum	96 in ▲			SCL preference
	outside width, maximum	56 in ▲	56 in ▲	60 in ▲	SCL preference
	drum diameter, minimum	32 in ▲	36 in ▲	40 in ▲	SCL preference
	length per reel ± 10%	3,000 ft ▲	2,500 ft ▲	-	SCL preference
	length per reel ± 15%	-	-	2,200 ft ▲	SCL preference
	gross weight, maximum	17,000 lb ▲			SCL preference

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Stock Number	Requirements		
	613523	613526	613530
Size	#1 AWG	3/0 AWG	350 kcmil
Stock unit	FT		

8. Approved Manufacturing Plants

Manufacturer	Location
Prysmian Group – General Cable	DuQuoin, IL
	Malvern, AR
	Marshall, TX
	Moose Jaw, SK, Canada
	St. Jerome, QC, Canada
Southwire	Carrollton, GA
	Heflin, AL
	Starkville, MS

9. References

SCL Material Standard 6015.00, "Medium Voltage Cable – General"

10. Sources**Shipek, John**; SCL Standards Supervisor, subject matter expert, and originator of 6020.01
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