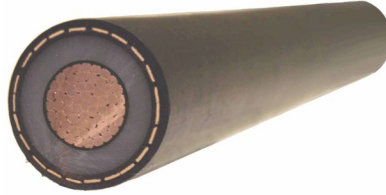


28 kV, 1/C, TRXLPE Insulated, Flat Strap Shielded Cable, Compressed Stranding



1. Scope

This standard covers the detailed requirements for 28 kV, tree retardant, cross-linked polyethylene (TRXLPE), single conductor cable used for the distribution of electric energy.

Industry designation: **1/C**

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

Stock Number	613645	613655
Size	500 kcmil	1000 kcmil

2. Application

Cable is intended for use on a nominal 26.4 kV, three-phase, 4-wire, solidly-grounded, wye-connected, 60 Hz power system.

At one time, this cable was designated for use as the preferred and alternate feeds to the West Point Sewer Treatment plant. This cable is no longer purchased. SCL engineers are encouraged to work with Material Control to coordinate depleting existing inventory. Stock numbers 012100 and 012102 are approved for use in replacement situations after 613645 and 613655 are used up.

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 standard:

ICEA S-94-649-2013; "Concentric Neutral 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 of which are detailed in SCL 6015.00.

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MATERIAL STANDARD28 kV, 1/C, TRXLPE Insulated, Flat Strap Shielded Cable,
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5.2 Conductor

		Requirements		Reference
Stock Number		613645	613655	SCL
Size		500 kcmil	1000 kcmil	various
Diameter	minimum	0.773 in	1.095 in	ICEA S-94-649, Section 2.5
	nominal	0.789 in	1.117 in	ASTM B8
	maximum	0.805 in	1.139 in	ICEA S-94-649, Section 2.5
Metal		copper		ASTM B49
Stranding type		concentric-lay		ASTM B8
Class		B		ASTM B8
Stranding subtype		compressed		ASTM B8
Number of strands		37	61	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-94-649, Section 2.2

5.3 Conductor Shield (Stress Control Layer)

		Requirements		Reference
Stock Number		613645	613655	SCL
Size		500 kcmil	1000 kcmil	various
Thickness, minimum point		16 mil	20 mil	ICEA S-94-649, Part 3, Table 3-1

5.4 Insulation

		Requirements		Reference
Stock Number		613645	613655	SCL
Size		500 kcmil	1000 kcmil	various
Material		unfilled tree retardant crosslinked polyethylene (TRXLPE)		ICEA S-94-649, Section 4.1
Approved material formulations		specified in general material standard		SCL 6015.00
Thickness	minimum point	265 mil		ICEA S-94-649, Section 4.2, Table 4-7
	nominal	280 mil		ICEA S-94-649, Table 8-1
	maximum point	310 mil		ICEA S-94-649, Section 4.2, Table 4-7
Insulation level		100%		ICEA S-94-649, Section 4.2, Table 4-7
Basic impulse level (BIL)		150 kV crest		ICEA S-94-649, Section 4.3, Table 4-6

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page: 3 of 4**5.5 Extruded Insulation Shield**

		Requirements		Reference
Stock Number		613645	613655	SCL
Size		500 kcmil	1000 kcmil	various
Material		discharge-free (thermosetting material)		ICEA S-94-649, Section 5.1 to 5.4.1.5
Thickness	minimum point	24 mil		ICEA S-94-649, Section 5.2
	maximum point	60 mil		ICEA S-94-649, Section 5.2

5.6 Metallic Shield

Flat strap conductors are for metallic shielding only.

		Requirements		Reference
Stock Number		613645	613655	SCL
Size		500 kcmil	1000 kcmil	various
Metal		copper, uncoated or tin coated		ICEA S-94-649, Section 6
Type		flat strap helically applied ▲		ICEA S-94-649, Section 6
Number of straps		19+4, -3 ▲	23+3, -3 ▲	SCL preference
Cross-sectional area, minimum		89,000 cmil ▲	106,000 cmil ▲	SCL preference
Water blocking components for metallic shield		required ▲		ICEA S-94-649, Section 6.6

5.7 Jacket

		Requirements		Reference
Stock Number		613645	613655	SCL
Size		500 kcmil	1000 kcmil	various
Material		linear low density polyethylene (LLDPE)		ICEA S-94-649, Section 7.1.1
Color		black		ICEA S-94-649, Section 7.1.1
Type		extruded to fill		ICEA S-94-649, Section 7.2.1
Thickness	minimum point	64 mil ▲		ICEA S-94-649, Section 7.2.1, Table 7-10 and SCL preference
	maximum point	120 mil		ICEA S-94-649, Section 7.2.1, Table 7-10
Maximum diameter over jacket		1.95 in ▲	2.40 in ▲	SCL preference

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page: 4 of 4**5.8 Sheath (Continuous Metallic Covering)**

Cable shall not be provided with a sheath.

5.9 Assembly and Identification ▲

	Requirements		Reference
Stock Number	613645	613655	SCL
Size	500 kcmil	1000 kcmil	various
Red stripe identification	required ▲		ICEA S-94-649, Section 8.2.1.1

6. Packaging

	Requirements		Reference	
Stock Number	613645	613655	SCL	
Size	500 kcmil	1000 kcmil	various	
Reel type	steel, fluted		WC 26, Section 2.1.2	
Reel dimension	flange diameter, maximum	96 in ▲		SCL preference
	outside width, maximum	54 in ▲		SCL preference
	drum diameter, minimum	29 in ▲	31 in ▲	SCL preference
	length per reel ± 10%	2,100 ft ▲		SCL preference
	gross weight, maximum	17,000 lb ▲		SCL preference

7. Issuance

	Requirements	
Stock Number	613645	613655
Size	500 kcmil	1000 kcmil
Stock unit	FT	

8. Approved Manufacturing Plants

Manufacturer	Location
Prysmian Group	DuQuoin, IL
	Marshall, TX
	Moose Jaw, SK, Canada
	St. Jerome, QC, Canada
Southwire	Carrollton, GA
	Heflin, AL

9. References

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

10. Sources

Shipek, John; Standards Supervisor, subject matter expert, and originator of 6020.14