

28 kV, 1/0, 1/C, TRXLPE Insulated, Jacketed CN Cable**1. Scope**

This standard covers the detailed requirements for 28 kV, tree retardant, cross-linked polyethylene (TRXLPE), 1/0, single conductor cable with full concentric neutral (CN) used for the distribution of electric energy.

Industry designation: **1/C +1N**

This standard applies to Seattle City Light (SCL) Stock No. 012098.

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.

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 STANDARD

28 kV, 1/0, 1/C, TRXLPE Insulated, Jacketed CN Cable

standard number: **6020.06**

superseding: September 28, 2018

effective date: January 28, 2019

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5. Construction, continued**5.2 Conductor**

		Requirements	Reference
Size		1/0 AWG	ICEA S-94-649, Section 2.5, Table 2.4
Diameter	minimum	0.318 in	ICEA S-94-649, Section 2.5
	nominal	0.325 in	ICEA S-94-649, Section 2.5, Table 2.4
	maximum	0.331 in	ICEA S-94-649, Section 2.5
Metal		1350 aluminum	ASTM B233
Stranding type		solid	ASTM B233
Class		none	none
Stranding subtype		none	none
Number of strands		1	none
Temper		H14 (1/2 hard) ▲	ASTM B609
Lay, outer layer		none	none
Lay, successive layers		none	none

5.3 Conductor Shield (Stress Control Layer)

		Requirements	Reference
Thickness, minimum point		12 mil	ICEA S-94-649, Part 3, Table 3-1

5.4 Insulation

		Requirements	Reference
Material		unfilled tree retardant cross-linked 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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5. Construction, continued**5.5 Extruded Insulation Shield**

		Requirements	Reference
Material		discharge-free (thermosetting material)	ICEA S-94-649, Section 5.1 to 5.4.1.5
Thickness	minimum point	30 mil	ICEA S-94-649, Section 5.2, Table 5-1
	maximum point	60 mil	ICEA S-94-649, Section 5.2, Table 5-1

5.6 Concentric Neutral Conductor / Metallic Shield

Concentric neutral conductor shall be full rated.

		Requirements	Reference
Metal		copper, uncoated	ICEA S-94-649, Section 6.1
Type		round annealed wire, #14 AWG, helically applied	ICEA S-94-649, Section 6.4
Number of wires , minimum		16	ICEA S-94-649, Section 6.4, Table 6-2
Cross-sectional area , nominal		65,760 cmil	ICEA S-94-649, Section 6.4
Water blocking components for metallic shield		not required	ICEA S-94-649, Section 6.6

5.7 Jacket (Non-Metallic Covering)

		Requirements	Reference
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	45 mil	ICEA S-94-649, Section 7.2.1, Table 7-10
	maximum point	80 mil	ICEA S-94-649, Section 7.2.1, Table 7-10
Maximum diameter over jacket		1.35 in ▲	SCL preference

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5. Construction, continued**5.8 Sheath (Continuous Metallic Covering)**

Cable shall not be provided with a sheath.

5.9 Assembly and Identification

	Requirements	Reference
Red stripe identification	required ▲	ICEA S-94-649, Section 8.2.1.1

6. Packaging

	Requirements	Reference
Reel type	steel, fluted	WC 26, Section 2.1.2
Reel dimension	flange diameter, maximum	72 in ▲
	outside width, maximum	45 in ▲
	drum diameter, minimum	19 in ▲
	length per reel ± 10%	3400 ft ▲
	gross weight, maximum	3500 lb ▲

7. Issuance

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
Hendrix	Milford, NH
Southwire	Carrollton, GA
	Heflin, AL

9. References**SCL Material Standard 6015.00**, "Medium Voltage Cable – General"**10. Sources**

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