

600 V, Aluminum, Overhead, Triplex And Quad Service Drop Cable



1. Scope

This standard covers the requirements for neutral-supported, 600 V, aluminum, cross-linked polyethylene (XLPE) insulated, multiplex cable used for the distribution of electric energy.

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

Stock No.	Phase Conductor Size	Pkg.	Code Word	Type
013271	#6 AWG	coil	Voluta-XLP	triplex
600672	#2 AWG	reel	Cockle-XLP	triplex
600673	#2 AWG	coil	Cockle-XLP	triplex
600664	1/0 AWG	reel	Janthina-XLP	triplex
012580	1/0 AWG	coil	Janthina-XLP	triplex
600669	4/0 AWG	reel	Cerapus-XLP	triplex
600734	#2 AWG	reel	Palomino-XLP	quadruplex
600735	1/0 AWG	reel	Costena-XLP	quadruplex
600738	4/0 AWG	reel	Appaloosa-XLP	quadruplex
600741	350 kcmil	reel	none	quadruplex

Aluminum Association code words are cited in this standard for the convenience of the reader. Cable assemblies identified by code word shall be consistent with the requirements of Aluminum Association Tables 30 and 41 as appropriate. Code words define:

- Type of construction
- Type of phase conductor insulation
- Thickness of phase conductor insulation
- Conductor alloy and temper
- Type of neutral
- Neutral rating
- Neutral covering
- Pertinent industry standard
- Insulation rating

2. Application

Cable assemblies are for single-phase, 3-wire, and three-phase, 4-wire secondary and service drops nominally rated up to 480 V phase-to-phase, 60 Hz.

Cable assembly is for overhead application. Support is provided by the bare, neutral messenger.

Stock Number 013271 has a special application as an overhead conductor for temporary streetlight services.

3. Industry Standards

Cables shall meet the requirements of the following industry standard:

ICEA S-76-474-2004 - Standard for Neutral Supported Power Cable Assemblies with Weather-Resistant Extruded Insulation Rated 600 Volts

Aluminum Association Code Words for Overhead Aluminum Electrical Conductors, Seventh Edition (January 1999)

ASTM B232-2001 - Standard Specification for Concentric-Lay-Stranded Aluminum Conductors, Coated-Steel Reinforced (ACSR)

NEMA WC-26-2000 - Binational Wire and Cable Packaging Standard

4. Conflict

Where conflict exists, the following order of precedence shall apply:

1. This Seattle City Light Material Standard
2. ICEA standards
3. Aluminum Association
4. Other industry standards

5. Construction

5.1 General

Cable shall meet the requirements of ICEA S-76-474, Section 1, for cross-linked polyethylene insulation. Maximum conductor operating temperatures shall be according to Table 5.1.

Table 5.1

Insulation Type	Normal Service	Emergency Overload	Short Circuit
XLPE	90° C	130° C	250° C

5.2 Conductors - Phase

Phase conductors shall meet the requirements of ICEA S-76-474, Sections 2.2 and 2.2.1, with the following clarifications:

Phase conductor alloy shall be 1350-H19 aluminum.

5.3 Conductors - Neutral

- Neutral conductors shall be bare.
- Neutral conductors shall be (full or reduced) according to Table 5.3.
- Neutral conductors shall be aluminum conductor coated-steel reinforced (ACSR/GA) according to the requirements of ASTM B232 and Table 5.3.
- Neutral conductor strength shall meet the requirements of Table 5.3.

Table 5.3

Phase Conductor Size	Neutral Conductor Size	Neutral Conductor Type	Code Word	Type	Neutral Conductor Rated Strength, Minimum (lb)
#6 AWG	#6 AWG	6/1 ACSR	Voluta-XLP	triplex	1180
#2 AWG	#4 AWG	6/1 ACSR	Cockle-XLP	triplex	1860
1/0 AWG	#2 AWG	6/1 ACSR	Janthina-XLP	triplex	2850
4/0 AWG	2/0 AWG	6/1 ACSR	Cerapus-XLP	triplex	5300
#2 AWG	#2 AWG	6/1 ACSR	Palomino-XLP	quadruplex	2850
1/0 AWG	1/0	6/1 ACSR	Costena-XLP	quadruplex	4380
4/0 AWG	4/0	6/1 ACSR	Appaloosa-XLP	quadruplex	8350
350 kcmil	4/0	6/1 ACSR	none	quadruplex	8350

5. Construction, continued

5.4 Insulation

Insulation shall meet the requirements of ICEA S-76-474, Sections 3.1, 3.1.2, 3.4, and 3.6.1.1 with the following clarifications: Insulation shall be cross-linked polyethylene.

Minimum and nominal insulation thickness values shall meet the requirements of Table 5.4:

Table 5.4

Conductor Size	Minimum Thickness, mils	Nominal Thickness, mils
#6 AWG	41	45
#4 AWG	41	45
#2 AWG	41	45
1/0	54	60
4/0	54	60
350 kcmil	72	80

Insulation shall be free stripping from the conductor. This may be accomplished by the manufacturing processes or by the addition of a Mylar separator.

5.5 Assembly and Identification

Multiplex cable assemblies shall be twisted according to the requirements of ICEA S-76-474, Section 4.1.1.

Cable shall be marked according to the requirements of ICEA S-76-474, Section 4.2, with the following clarifications:

The outer surface of one or more of the phase conductors shall be durably and legibly marked throughout its length, at a maximum interval of 1 meter, with a print legend.

The print legend shall include, but not be limited to, the following information:

- Manufacturer plant name
- Type of insulation
- Year of manufacturer

Each phase conductor of a quadruplex cable assembly shall be individually identified.

Phase identification shall be accomplished by means of zero, one, or two raised ridges.

Triplex cable assemblies do not require phase conductor identification.

6. Packaging

6.1 Detailed Requirements

Cable shall be packaged according to the requirements of NEMA WC-26 and Tables 6.1a and 6.1b.

Table 6.1a - Reels

Stock No.	Phase Conductor Size	Length per Reel ± 10%, ft	Outside Flange Diameter, Max., in	Inside Traverse Width, Max., in	Weight per 100 ft., Approx., lbs	Weight per Reel, Approx., lbs	Code Word	Type
600672	#2 AWG	1800	36	24	24	432	Cockle-XLP	triplex
600664	1/0 AWG	1200	36	24	39	468	Janthina-XLP	triplex
600669	4/0 AWG	1000	42	26	73	730	Cerapus-XLP	triplex
600734	#2 AWG	1800	42	26	37	666	Palomino-XLP	quad
600735	1/0	1200	42	26	58	696	Costena-XLP	quad
600738	4/0	1000	50	32	109	1090	Appaloosa-XLP	quad
600741	350 kcmil	1000	58	32	159	1590	none	quad

Table 6.1b - Coils

Stock No.	Phase Conductor Size	Length per Coil ± 10%, ft	Outside Coil Diameter, Max., in	Inside Coil Diameter, in	Traverse Width, Max., in	Weight per 100 ft., Approx., lbs	Weight per Coil, Approx., lbs	Code Word	Type
013271	#6 AWG	500	29	18-20	8	12	60	Voluta-XLP	triplex
600673	#2 AWG	400	29	18-20	8	24	96	Cockle-XLP	triplex
012580	1/0	250	29	18-20	8	39	98	Janthina-XLP	triplex

6.2 Quantity

Actual quantity per package may vary from the quantity stated on the purchase order by plus or minus 10%.

6.3 Reels

Reels shall be reusable wood type, Class 1 or 2.

Reels may be new or recycled.

Recycled reels (when provided) shall have the surface of both outside flanges painted over with a solid color.

Recycled reels (when provided) shall be equivalent to new in quality and strength.

Reels shall be protected for shipment with coverings consistent with the recommendations of NEMA WC-26, Section 4.

Reels shall be provided with metal bushings if the gross weight of the reel exceeds 1,000 pounds.

6.4 Cable for Shipping

Phase conductors shall be dry when shipped.

Phase conductor ends shall be sealed to prevent the entrance of moisture.

The inner end shall not be brought out through the reel arbor.

The outer end shall be securely fastened with appropriately sized steel staples to the inner side of the flange.

6.5 Marking

Each **coil** shall be legibly marked with the following information:

- Manufacturer identification
- Product description, including code word
- Shipping length
- Weight
- Date of manufacture

Each **pallet** loaded with wire coils shall be legibly marked with Seattle City Light stock number.

Each **reel** shall be legibly marked with the following information:

- Manufacturer identification
- Product description, including code word
- Shipping length of cable on reel
- Gross weight
- Tare weight
- Net weight
- Date of manufacture
- Reel identification according to NEMA WC-26, Section 5
- Seattle City Light purchase order number
- Seattle City Light stock number

7. Shipping

Reels shall be shipped and delivered in the upright position (on the flange edges) on open flatbed trucks suitable for side unloading by forklift.

Reels shall not be strapped or palletted.

Cable shall be shipped to the address specified on the purchase order.

8. Issuance

Stock Unit: FT

9. Approved Manufacturers

Nehring Electrical Works Company

Prysmian Group

Southwire Company

10. References

ACPC Inc.; "Data Handbook, Aluminum Conductor, T&D Conductors, Overhead, Underground"; ACPC Inc.; Summer 1994

Shipek, John; SCL Standards Supervisor, subject matter expert and originator of 6007.50