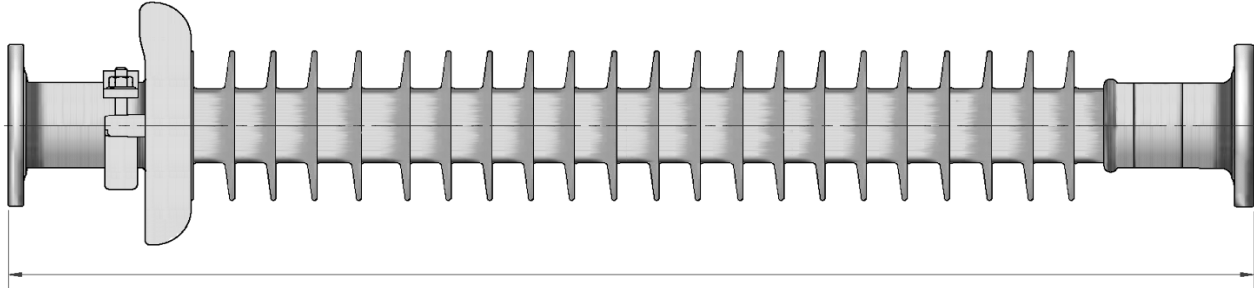


MATERIAL STANDARD

INSULATOR, STATION POST, POLYMER FOR 230 kV NOMINAL SYSTEMS



height

size and number of actual
weathersheds will vary

1. Scope

This material standard applies to polymer, station post insulators.

This material standard applies to the following Seattle City Light Stock Number:

Stock No.: 012781

2. Application

Insulator is intended for use in substations to support 230 kV bus.

3. Industry Standards

Insulator shall meet the applicable requirements of the following industry standards:

ANSI C29.1-1988 (R2001) Test Methods for Electrical Power Insulators

ANSI C29.9-1983 (R2002) Wet-Process Porcelain Insulators —Apparatus, Post Type

ASTM A153-2005 Standard Specification for Zinc Coating (Hot Dip) on Iron and Steel Hardware

Insulator is intended to be as similar as practical to Technical Reference Number 304 unit as identified in Table 2 of ANSI C29.9 for porcelain post type insulators. No industry standard exists for polymer station post insulators.

STANDARDS COORDINATOR

Laura Vanderpool

STANDARDS SUPERVISOR

John Shipek

UNIT DIRECTOR

Andrew Strong

MATERIAL STANDARD

Insulator, Station Post, Polymer for 230 kV Nominal Systems

4. Construction**4.1 General**

Unless indicated otherwise, all values cited below should be consistent with industry standards – they are repeated here for the convenience of the reader. Values or requirements different from industry standards are identified with the symbol ▲.

Insulator shall meet the following requirements (with the grading ring installed):

	Requirements	Reference
Stock Number	012781	-
BIL Rating, kV	900	ANSI C29.9, Table 2
Overall Height, in.	80 +/- 1/8	ANSI C29.9, Table 2
Impulse Withstand Minimum, kV rms	900	ANSI C29.9, Table 2
Leakage Distance, minimum, in.	165	ANSI C29.9, Table 2
Positive Critical Impulse Flashover, minimum, kV peak-to-peak	1,010	ANSI C29.9, Table 2
Low Frequency Wet Withstand Minimum, kV rms	385	ANSI C29.9, Table 2
Ultimate Mechanical Strength Cantilever, lb	1,600 ▲	SCL preference
Ultimate Mechanical Strength In Tension, lb	17,500 ▲	SCL preference
Ultimate Mechanical Strength In Compression, lb	3,400 ▲	SCL preference
Ultimate Mechanical Strength In Torsion, in-lb	30,000 ▲	SCL preference

4.2 Weathershed/Sheath Material

Weathershed/sheath material shall be made out of silicon rubber – to qualify as silicon type, weathershed/sheath material must be composed of at least 33% silicon by weight; “EP silicon alloys” do not qualify.

Parting lines along the weathershed/sheath must be kept to a minimum so as to reduce the likelihood of tracking when contaminated.

Weathershed/sheath material shall be gray.

4.3. End Fittings

	Requirements	Reference
Material	ductile iron or forged steel	SCL preference
End Fitting Type (top/structure)	flange	ANSI C29.9, Table 2
End Fitting Type (bottom/line)	flange	ANSI C29.9, Table 2

End fittings shall have a 5” inch diameter bolt circle as defined in ANSI C29.9, Table 2 for technical reference number 304 type insulators.

4.4 Grading Ring

One 9” diameter (plus/minus 3”) grading ring shall be provided for the line end of each insulator. Grading rings shall be designed to allow easy installation and removal with the conductor in place. No information bands or tags shall be placed in the area where the grading ring brackets are mounted to the end fitting. Grading ring installation instructions shall be packed with each insulator in a waterproof, ultraviolet-light resistant plastic envelope or other waterproof, Seattle City Light approved means.

Insulator, Station Post, Polymer for 230 kV Nominal Systems

5. Notice of Changes

Manufacturer shall provide Seattle City Light reasonable notice of anticipated design changes. This includes, but is not limited to, changes in polymer formulation, dimensions, electrical characteristics, mechanical characteristics, or accessories.

6. Testing

Insulator test data that establishes compliance with the requirements of ANSI C29.9, Section 7 shall be provided upon request.

7. Marking

Insulator shall be clearly and indelibly marked in accordance with ANSI C29.9, Section 6. Load ratings shall be stated in units of pounds.

Labeling shall be in English.

8. Packaging

Insulators shall be packaged in wood crates to protect against physical damage that could occur during shipping, handling, or long-term outside storage. If slatted crates are used, each insulator shall be sealed in plastic. If sealed crates are used, plastic is not required.

Insulator weathersheds shall not bear any load due to its own weight or that of insulators or crates above or below it.

Crates shall be secured to pallets for handling by forklift. Pallets shall not exceed 4 feet in height or 1,000 pounds in weight. Crates shall be marked with the manufacturer's name or symbol, catalog number, Seattle City Light's Stock Number, and Purchase Order number.

Number of insulators per crate: 18 maximum.

9. Issuance

Stock Unit: EA

10. Approved Manufacturers

Manufacturer	Catalog No.
MacLean Power Systems (Reliable Power Products)	NAA100XH46S1
NGK-Locke	S2-SN471-22-W