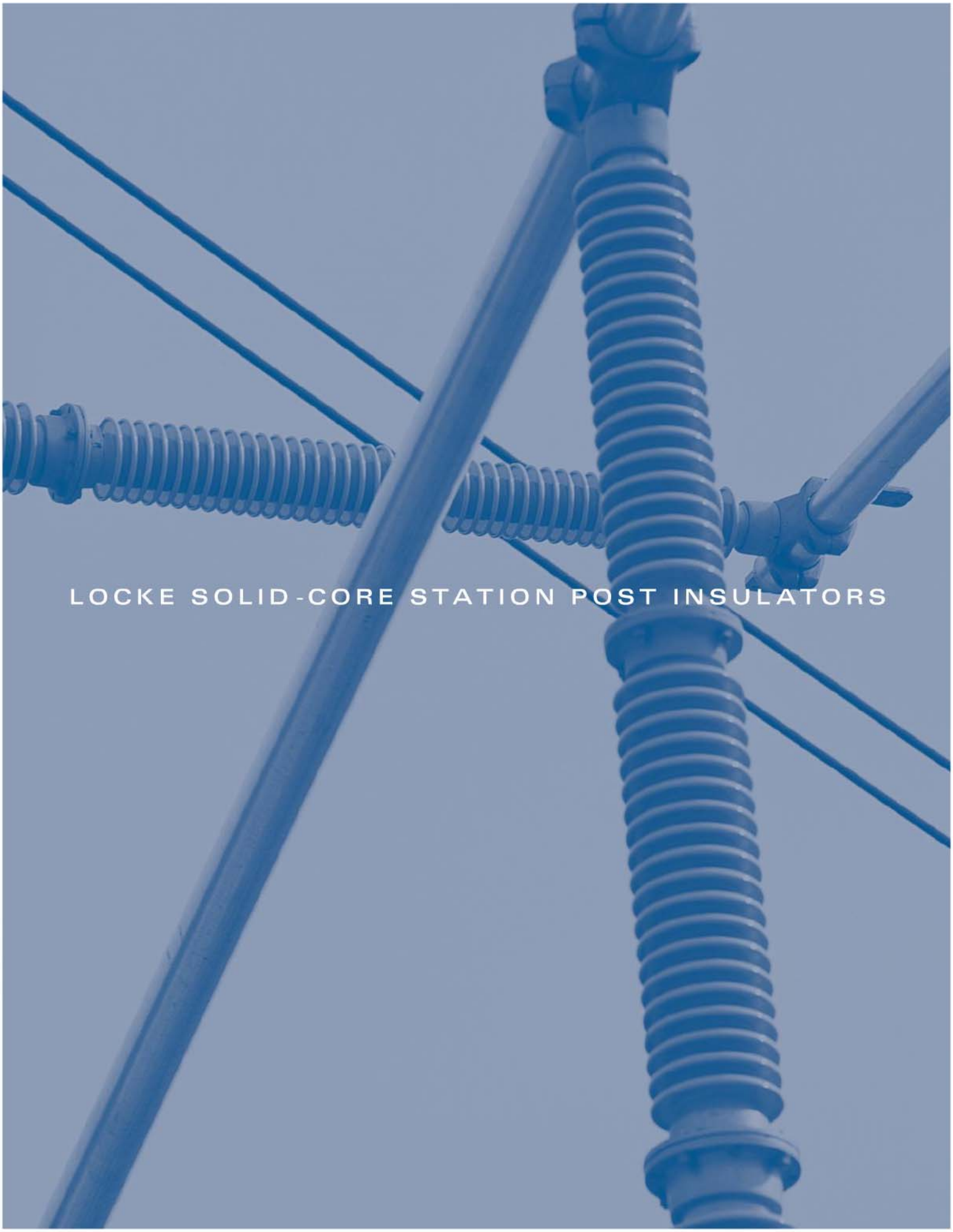
CATALOG NUMBER 012

LOCKE SOLID-CORE STATION POST INSULATORS

LOCKE® INSULATORS

NGK-LOCKE, INC.



LOCKE SOLID-CORE STATION POST INSULATORS



LOCKE SEMICONDUCTING GLAZE INSULATORS

Introducing Locke semiconducting glaze insulators. Locke semiconducting glaze insulators provide superior performance even under the most severe contamination with a field proven life of over twenty years.

The glaze on a Locke semiconducting glaze insulator has an impedance which is set within a specified range. This glaze impedance provides for a more linear voltage distribution, inhibits moisture condensation and suppresses dry band arcing.

Developed by Locke's parent company, NGK Insulators Ltd. of Japan, this semiconducting glaze has been under development since 1969. Extensive field-testing has been carried out in Japan, U.S.A., Australia and Taiwan. The patented formulation and application of this glaze is unsurpassed for its long term performance and durability.

Maintenance costs for washing or greasing are reduced or eliminated by the use of Locke semiconducting glaze insulators. Outages due to contamination flashover are completely eliminated. Laboratory testing has shown Locke semiconducting glaze insulators to have fog withstand voltages at least 40% greater than ordinary glazed insulators of the same dimensions.

Locke semiconducting glaze insulators also provide superior RIV performance, even under polluted conditions. The linear voltage distribution and dry band arc suppression mean fewer, if any, partial discharges.

Locke semiconducting glaze station post insulators are available in various strength ratings for BIL ratings from 95 kV through 2050 kV. Semiconducting glaze may also be applied to Locke's cap & pin replacement post insulators.

Locke semiconducting glaze is not a coating that can wear off or will ever need to be replaced. It is the same hard ceramic glaze that is normally applied to high voltage porcelain insulators, but it is doped with special oxides that make the glaze semiconducting. Through the careful selection and application of these oxides, Locke semiconducting glaze will maintain its essential characteristics longer than other such glazes on the market today. Field testing and monitoring has predicted that Locke semiconducting glaze will maintain its initial impedance to within an acceptable performance level for at least thirty-five years.

Locke semiconducting glaze can be applied to any insulator in this catalog. Simply request semiconducting glaze when specifying glaze color at the time of inquiry.

APPLICATION GUIDE FOR LOCKE HLD & SEMICONDUCTING GLAZE INSULATORS

Recommended application criteria, based on the degree of surface contamination, ESDD, is provided in Table 1.

The recommended ESDD application range is given based on the contamination withstand voltage characteristics of each individual insulator, taking into account a ten (10%) percent safety margin over the maximum line-to-ground voltage of the system. Contact the factory for more specific information or help in determining the rating or type required.

Note: The contamination withstand voltage characteristics were obtained by the Clean Fog Method as adopted by the IEEE.

TABLE 1— APPLICATION GUIDE FOR LOCKE HLD & SEMICONDUCTING GLAZE SERIES INSULATORS

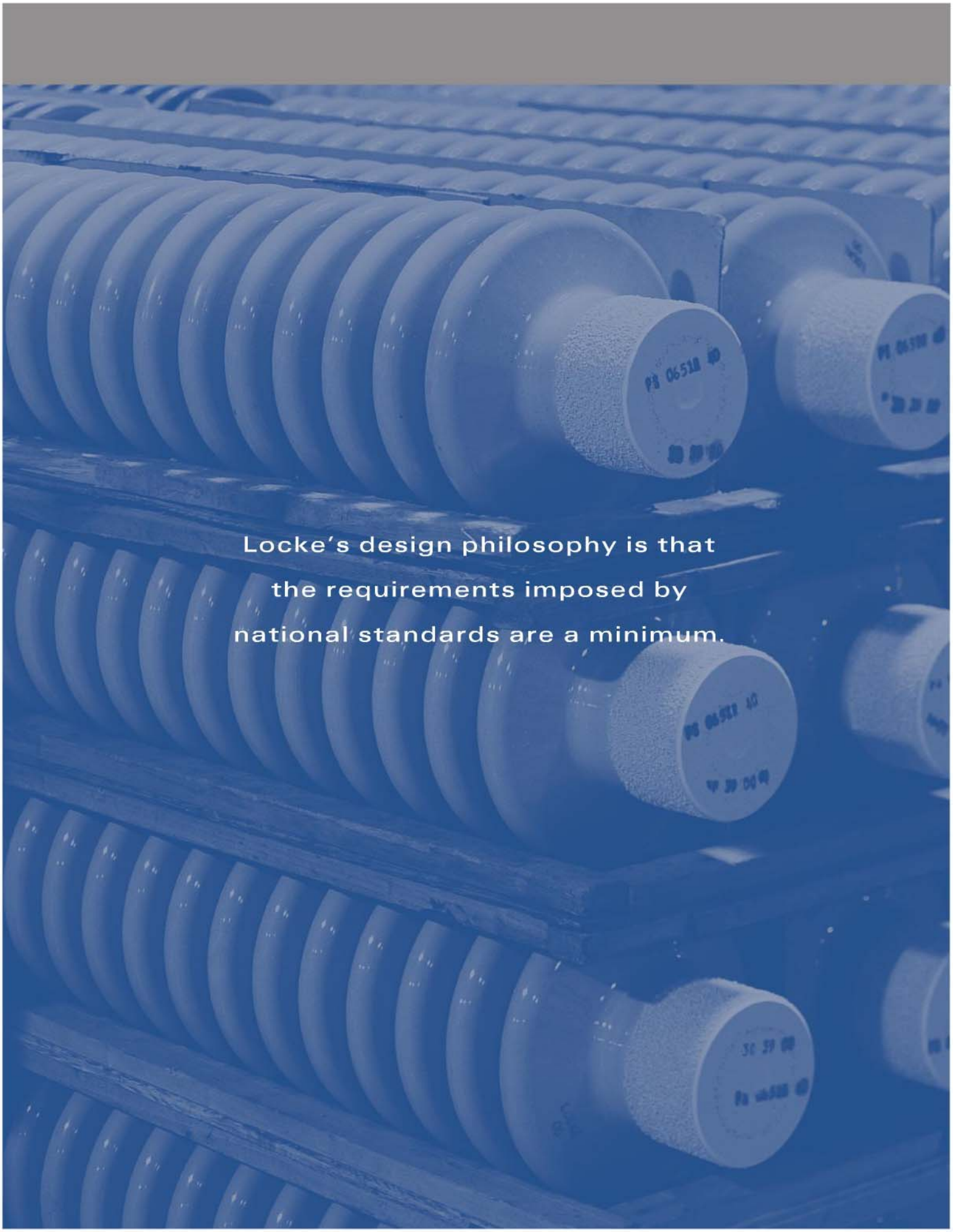
Maximum System Voltage (kV)	BIL (kV)	Recommended Range, ESDD (mg/cm²)			
		Regular Glaze		Semiconducting Glaze	
		Standard	HLD	Standard	HLD
121	550	Below 0.03	0.03-0.12	Up to 0.15	Up to 0.52
145	650	Below 0.03	0.03-0.12	Up to 0.18	Up to 0.64
169	750	Below 0.03	0.03-0.12	Up to 0.19	Up to 0.70
242	900		0.03-0.06	Up to 0.09	Up to 0.37
	1050	Below 0.03	0.03-0.12	Up to 0.20	Up to 0.82
362	1300	–	Below 0.03	Up to 0.06	Up to 0.36
	1470	–	0.04-0.10	Up to 0.14	Up to 0.56
525	1550	–	–	Up to 0.03	Up to 0.06
	1800	–	Below 0.03	Up to 0.06	Up to 0.14
	2050	–	0.04-0.08	Up to 0.14	Up to 0.37

LOCKE® INSULATORS

GUIDE TO SELECTION OF LOCKE SOLID-CORE STATION POST INSULATORS

BIL kV	STANDARD STRENGTH				HIGH STRENGTH				EXTRA HIGH STRENGTH			
	Uniform		Tapered		Uniform		Tapered		Uniform		Tapered	
	ANSI TR. No.	Catalog No. (Page)	ANSI TR. No.	Catalog No. (Page)	ANSI TR No.	Catalog No. (Page)	ANSI TR No.	Catalog No. (Page)	ANSI TR No.	Catalog No. (Page)	ANSI TR No.	Catalog No. (Page)
95	202	PS00910 (2)	---	---	222	PH00910 (2)	---	---	232	PE00910 (2)	---	---
110	205	PS01110 (2)	---	---	225	PH01110 (2)	---	---	235	PE01110 (2)	---	---
150	208	PS01510 (3)	---	---	227	PH01510 (3)	---	---	237	PE01510 (3)	---	---
200	210	PS02010 (3)	---	---	231	PH02010 (3)	---	---	241	PE02010 (3)	---	---
250	214	PS02510 (4)	---	---	267	PH02510 (4)	---	---	---	PE02510 (4)	---	---
350	216	PS03510 (4)	---	---	278	PH03510 (4)	---	---	---	PE03510 (4)	---	---
550	286	PS05510 (5)	---	---	287	PH05510 (5)	---	---	---	PE05510 (5)	---	---
	---	PS05580 (5)	---	---	---	PH05580 (5)	---	---	---	PE05580 (5)	---	---
650	288	PS06510 (6)	---	---	289	PH06510 (6)	---	---	---	PE06510 (6)	---	---
	---	PS06580 (6)	---	---	---	PH06580 (6)	---	---	---	PE06580 (6)	---	---
750	291	PS07510 (7)	---	---	295	PH07510 (7)	---	---	---	PE07510 (7)	---	---
	---	PS07580 (7)	---	---	---	PH07580 (7)	---	---	---	PE07580 (7)	---	---
900	304	PS090201 (8)	---	---	308	PH090201 (8)	308	PH09020 (8)	---	PE090201 (8)	---	PE09020 (8)
	---	PS090901 (9)	---	---	---	PH090901 (9)	---	PH09090 (9)	---	PE090901 (9)	---	PE09090 (9)
1050	312	PS105201 (10)	---	---	316	PH105201 (10)	---	PH10520 (10)	362	PE105201 (10)	---	PE10520 (10)
	---	PS105901 (11)	---	---	---	PH105901 (11)	---	PH10590 (11)	---	PE105901 (11)	---	PE10590 (11)
1300	324	PH130201 (12)	324	PH13020 (12)	---	---	367	PH130202 (12)	368	PE130201 (12)	369	PE13020 (12)
	---	PH130901 (13)	---	PH13090 (13)	---	---	---	---	---	PE130901 (13)	---	PE13090 (13)
1470	330	PH147201 (14)	---	---	---	---	371	PH147202 (14)	372	PE147201 (14)	373	PE14720 (14)
	---	PH147901 (15)	---	---	---	---	---	PH147902 (15)	---	PE147901 (15)	---	PE14790 (15)
1550	---	---	378	PX0611 (16)	---	---	379	PE15530 (16)	---	---	380	PX0602 (17)
	---	---	---	---	---	---	---	PE15590 (18)	---	---	---	---
1800	---	---	391	PX0800 (16)	---	---	392	PX0590 (17)	---	---	393	PX0603 (17)
	---	---	---	PE18090 (18)	---	---	---	---	---	---	---	---
2050	---	---	400	PE20530 (16)	---	---	401	PX608 (16)	---	---	---	PX0811 (Ask factory)
	---	---	---	PE20590 (18)	---	---	---	---	---	---	---	---

LOCKE INSULATORS


Locke's design philosophy is that
the requirements imposed by
national standards are a minimum.

Locke Solid-Core Post Insulators

Distinguishing features of Locke Solid-Core Post Insulators:

All Locke Solid-Core post insulators are made with our high-strength body. This means that we can provide the same mechanical strength with a slimmer, lighter insulator that has less surface area to collect airborne contaminants and less obtrusive to the eye. Locke's high-strength porcelain is less prone to sub-critical crack growth than our competitors flint boby porcelain.

Locke's design philosophy is that the requirements imposed by national standards are a minimum. We design our insulators to a two sigma level for mechanical strength, i.e. average failing loads must be at least two standard deviations above their mechanical rating. We also strive to provide insulators that are within a dimensional tolerance of no more than half that prescribed by ANSI C29.9-2018.

The "solid-core" structure of our porcelain means that our insulators are puncture proof by virtue of the internal dielectric path being almost the length of the external dielectric path through air. Only external flashover can occur from all conditions of electrical stress.

Quality control is exercised throughout the manufacturing process. Each and every insulator is subjected to bending stresses equivalent to 50% of the cantilever rating of the insulator.

Unlike other manufacturers who use short, squat sections to produce tall insulators, Locke's slim, long-section EHV posts do not require the use of rain shields to meet the wet flashover requirements of the standards.

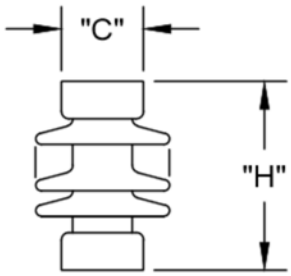
Locke assembles cap and flange hardware to our porcelain using a mortar mix of Portland cement and pure silica sand that provides excellent strength and durability. Locke's close quality control of our cement has given us the distinction of being one of the few insulators suppliers qualified by a large Canadian power company who feel that the freeze-thaw cycle in their service area has deleterious effects on an insulator's long-term mechanical strength.

Locke offers a full range of station post insulators from 95 kV BIL all the way to 2050 kV BIL in a variety of strength ratings. Requirements for special features or designs are always thoughtfully considered. Ask your local sales agent or contact the factory for quotations on insulators not listed in this catalog.

BIL 95 - 110 KV

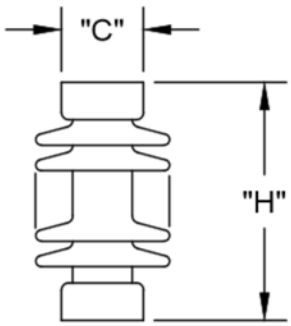
CHARACTERISTICS

Basic Impulse Insulation Level (kV)		95		
Catalog number		PS00910	PH00910	PE00910
Technical Reference number		202	222	232
Leakage distance (in.)		10 1/2	10 1/2	10 1/2
Cantilever Strength (lb.)		2,000	4,000	8,000
Tensile Strength (lb.)		7,000	15,000	28,000
Torsional Strength (in-lb.)		6,000	12,000	40,000
Compression Strength (lb.)		10,000	20,000	40,000
Critical Impulse Flashover Voltage, Positive (kV)		105	105	105
Withstand Voltage	Low Frequency, Wet (kV)	30	30	30
	Impulse (kV)	95	95	95
Radio-Influence Voltage Data	Test Voltage to Ground (kV)	5	5	5
	Maximum RIV at 1,000kHz (μV)	50	50	50
Height (in.) - "H"		7 1/2	10	10
Bolt circle diameter (in.)		3	5	5
(4) Tapped holes, size (in.)		1/2-13	5/8-11	5/8-11
Cap diameter (in.) - "C"		4 1/4	6 1/4	6 1/4



CHARACTERISTICS

Basic Impulse Insulation Level (kV)		110		
Catalog number		PS01110	PH01110	PE01110
Technical Reference number		205	225	235
Leakage distance (in.)		15 1/2	15 1/2	15 1/2
Cantilever Strength (lb.)		2,000	4,000	8,000
Tensile Strength (lb.)		8,500	20,000	28,000
Torsional Strength (in-lb.)		7,000	14,000	40,000
Compression Strength (lb.)		10,000	20,000	40,000
Critical Impulse Flashover Voltage, Positive (kV)		125	125	125
Withstand Voltage	Low Frequency, Wet (kV)	45	45	45
	Impulse (kV)	110	110	110
Radio-Influence Voltage Data	Test Voltage to Ground (kV)	10	10	10
	Maximum RIV at 1,000kHz (μV)	50	50	50
Height (in.) - "H"		10	12	12
Bolt circle diameter (in.)		3	5	5
(4) Tapped holes, size (in.)		1/2-13	5/8-11	5/8-11
Cap diameter (in.) - "C"		4 1/4	6 1/4	6 1/4

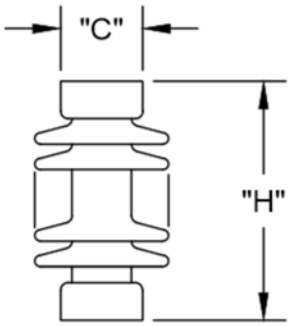


Notes: 1. These units are not furnished with mounting bolts. State size at time of inquiry if mounting bolts are required.
2. Light gray, chocolate brown or semiconducting glaze is available.

LOCKE INSULATORS

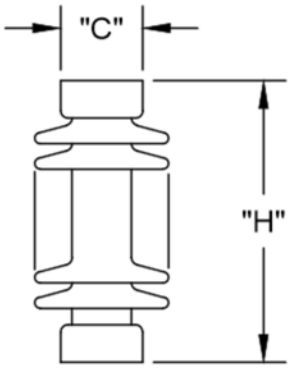
CHARACTERISTICS

Basic Impulse Insulation Level (kV)		150		
Catalog number		PS01510	PH01510	PE01510
Technical Reference number		208	227	237
Leakage distance (in.)		24	24	24
Cantilever Strength (lb.)		2,000	4,000	8,000
Tensile Strength (lb.)		10,000	20,000	28,000
Torsional Strength (in-lb.)		8,000	16,000	40,000
Compression Strength (lb.)		10,000	20,000	40,000
Critical Impulse Flashover Voltage, Positive (kV)		170	170	170
Withstand Voltage	Low Frequency, Wet (kV)	60	60	60
	Impulse (kV)	150	150	150
Radio-Influence Voltage Data	Test Voltage to Ground (kV)	15	15	15
	Maximum RIV at 1,000kHz (μV)	100	100	100
Height (in.) - "H"		14	15	15
Bolt circle diameter (in.)		3	5	5
(4) Tapped holes, size (in.)		1/2-13	5/8-11	5/8-11
Cap diameter (in.) - "C"		4 1/4	6 1/4	6 1/4



CHARACTERISTICS

Basic Impulse Insulation Level (kV)		200		
Catalog number		PS02010	PH02010	PE02010
Technical Reference number		210	231	241
Leakage distance (in.)		37	37	37
Cantilever Strength (lb.)		2,000	4,000	8,000
Tensile Strength (lb.)		12,000	25,000	28,000
Torsional Strength (in-lb.)		10,000	20,000	40,000
Compression Strength (lb.)		15,000	30,000	60,000
Critical Impulse Flashover Voltage, Positive (kV)		225	225	225
Withstand Voltage	Low Frequency, Wet (kV)	80	80	80
	Impulse (kV)	200	200	200
Radio-Influence Voltage Data	Test Voltage to Ground (kV)	22	22	22
	Maximum RIV at 1,000kHz (μV)	100	100	100
Height (in.) - "H"		18	20	20
Bolt circle diameter (in.)		3	5	5
(4) Tapped holes, size (in.)		1/2-13	5/8-11	5/8-11
Cap diameter (in.) - "C"		4 1/4	6 1/4	6 1/4

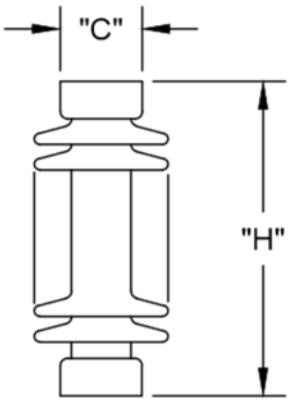


Notes: 1. These units are not furnished with mounting bolts. State size at time of inquiry if mounting bolts are required.
2. Light gray, chocolate brown or semiconducting glaze is available.

BIL 250 - 350 KV

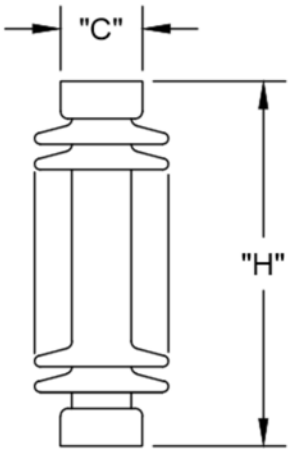
CHARACTERISTICS

Basic Impulse Insulation Level (kV)		250		
Catalog number		PS02510	PH02510	PE02510
Technical Reference number		214	267	---
Leakage distance (in.)		43	43	43
Cantilever Strength (lb.)		2,000	4,000	7,000
Tensile Strength (lb.)		14,000	25,000	28,000
Torsional Strength (in-lb.)		12,000	20,000	40,000
Compression Strength (lb.)		15,000	60,000	60,000
Critical Impulse Flashover Voltage, Positive (kV)		280	280	280
Withstand Voltage	Low Frequency, Wet (kV)	100	100	100
	Impulse (kV)	250	250	250
Radio-Influence Voltage Data	Test Voltage to Ground (kV)	30	30	30
	Maximum RIV at 1,000kHz (μV)	200	200	200
Height (in.) - "H"		22	24	24
Bolt circle diameter (in.)		3	5	5
(4) Tapped holes, size (in.)		1/2-13	5/8-11	5/8-11
Cap diameter (in.) - "C"		4 1/4	6 1/4	6 1/4



CHARACTERISTICS

Basic Impulse Insulation Level (kV)		350		
Catalog number		PS03510	PH03510	PE03510
Technical Reference number		216	278	---
Leakage distance (in.)		72	72	72
Cantilever Strength (lb.)		1,500	3,000	5,000
Tensile Strength (lb.)		16,000	25,000	28,000
Torsional Strength (in-lb.)		15,000	40,000	40,000
Compression Strength (lb.)		25,000	60,000	60,000
Critical Impulse Flashover Voltage, Positive (kV)		390	390	390
Withstand Voltage	Low Frequency, Wet (kV)	145	145	145
	Impulse (kV)	350	350	350
Radio-Influence Voltage Data	Test Voltage to Ground (kV)	44	44	44
	Maximum RIV at 1,000kHz (μV)	200	200	200
Height (in.) - "H"		30	30	32
Bolt circle diameter (in.)		3	5	5
(4) Tapped holes, size (in.)		1/2-13	5/8-11	5/8-11
Cap diameter (in.) - "C"		4 1/4	6 1/4	6 1/4



Notes: 1. These units are not furnished with mounting bolts. State size at time of inquiry if mounting bolts are required.
2. Light gray, chocolate brown or semiconducting glaze is available.

LOCKE INSULATORS