

RODURFLEX®



THE COMPOSITE INSULATOR SYSTEM

**Over 30 Years Experience
with the RODURFLEX® System**

LAPP INSULATOR COMPANY LLC
THE POWER OF RELIABILITY

WWW.LAPPINSULATOR.COM

HISTORY OF LAPP INSULATOR GMBH



A PROUD TRADITION OF MANUFACTURING EXPERTISE

The LAPP Insulator GmbH facility is located in Northern Bavaria in the city of Wunsiedel, Germany. This region of Germany is noted for the production of ceramic products, and has a long tradition for quality and expert workmanship.

LAPP Insulator, GmbH was founded in 1879 by Phillip Rosenthal. Ph. Rosenthal & Company initially focused on the production and development of ceramic products for electrical applications. As the electric power industry evolved, new products were designed to meet the changing demand for high voltage insulators. These included long rod porcelain, substation insulators (solid and hollow core), and the addition of a high voltage test lab (in 1930).

THE INTRODUCTION OF RODURFLEX® COMPOSITE INSULATORS

Composite insulators were introduced to the world market by Ph. Rosenthal & Company in 1967 under the trade name RODURFLEX®. Composite insulators were developed to enhance the performance of high voltage insulators in contaminated environments. The concept of applying a silicone rubber housing over a fiberglass reinforced resin rod was first conceived by Ph. Rosenthal & Company.

THE EXPANDING APPLICATION OF RODURFLEX®

Initial installations were in niche markets where severe environmental contamination required routine cleaning of glass and ceramic insulators. Unlike these traditional insulating materials, RODURFLEX® does not require washing or cleaning. Two unique properties of our silicone rubber housing eliminate the need for cleaning:

1. The ability of the housing to repel water (known as hydrophobicity).
2. The ability of the housing to encapsulate surface contaminants, thus rendering the contamination layer as hydrophobic as the base polymer.

These early installations were so successful, that the application of RODURFLEX® was expanded to new voltage ratings and designs.

LAPP Insulator GmbH is a wholly owned subsidiary of LAPP Insulator Company LLC, USA

Terms and Warranties

All sales of LAPP products described in this catalog are subject to LAPP's Terms and Conditions of Sale as contained in LAPP's Sales Order or Order Acknowledgement Forms and the limited warranties and limitations of liability thereunder.

THE HISTORY OF RODURFLEX® INSULATORS

Today, RODURFLEX® has been successfully applied in more than 50 countries at voltages up to 1,100KV. With more than 35 years of manufacturing and service experience, RODURFLEX® stands alone as the premier manufacturer of composite insulators.



110kV Line (Germany)



20kV Line (Germany)



420kV Line (South Africa)



500kV Line (United States)



765kV Line (United States)
(Canada)



400kV Line (South Africa)

1965

Development of composite insulators began. After two years of extensive testing the following criteria were established for this new product:

- The base polymer for the housing and sheds (1) must be silicone rubber. This polymer has inherent resistance to UV and corona. It also provides a hydrophobic (water repellent) surface that is desirable for resistance to 60Hz contamination flashover.
- The weathersheds (2) should be molded separately and chemically bonded to the housing. This allows variable leakage distances for a fixed insulator length, and eliminates moldlines that can encourage 60Hz leakage currents.
- The metal fittings (3) must be fixed to the fiberglass core (not the silicone housing) for maximum mechanical strength.
- The metal fittings require a corona ring (4) for protection of the housing.
- The housing must be chemically bonded (5) to the fiberglass core.

1967

- Suspension class RODURFLEX® production begins.

1974

- Introduction of hydrolysis resistant resin system for the fiberglass reinforced resin rod (6).

1979

- Introduction of high temperature vulcanized (HTV) silicone rubber to improve the mechanical characteristics of the material.
- Sheath thickness increased to 3 mm to reduce the electric field strength within the FRP rod and provide better protection for potential damage during handling and installation.

1982

- Meta stable silicone sealing system (8) to prevent moisture ingress to the FRP rod.

1983

- Introduction of acid resistant glass fibers (ECR) to prevent brittle fracture of the FRP core. Rosenthal was the first manufacturer to recognize the performance attributes of ECR glass fibers, and to adopt it in the manufacturing process.

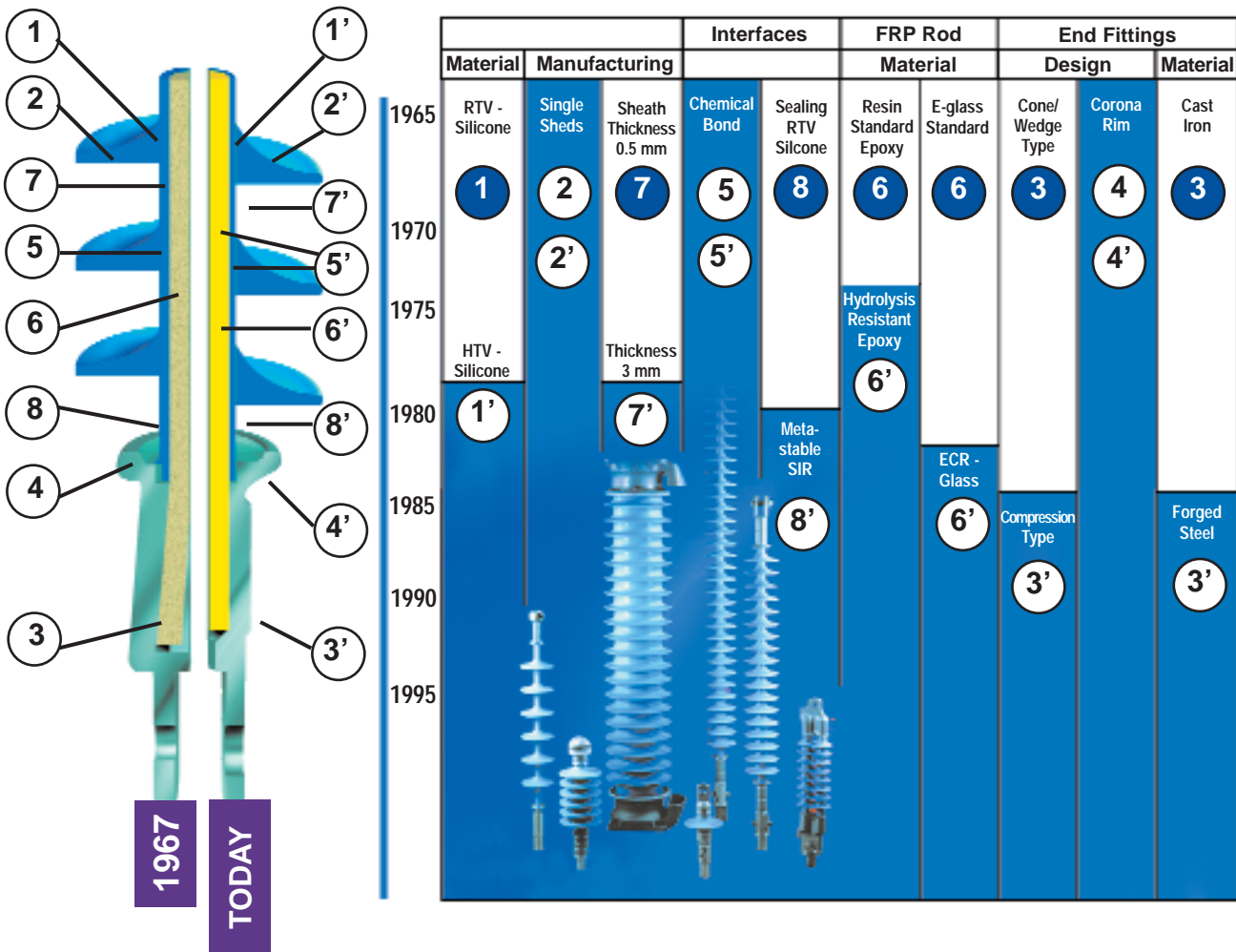
1985

- Compression type, forged steel, end fittings were introduced to improve the insulator's mechanical strength.

ONLY RODURFLEX® PROVIDES RELIABILITY AND CONSISTENCY

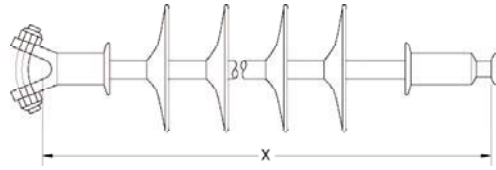
- Over 35 years of field experience.
- A silicone rubber formulation that has not changed since 1979.
- No brittle fractures reported since the introduction of ECR glass (1983).
- Proven longevity with applications at all transmission class voltages.
- Extensive service experience in light to heavy contamination areas.

Design of Rodurflex® Insulators in 1967 and Today



RODURFLEX® insulators have been installed world-wide in more than 50 countries at all voltage levels up to 1100KV.





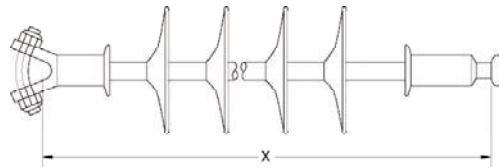
MECHANICAL RATING
 SML=25,000 lbs. 111 kN
 RTL=12,500 lbs. 56kN

SUSPENSION CLASS INSULATOR

TYPICAL LINE VOLTAGE	"X" SECTION LENGTH	ANSI CLASS	CATALOG NUMBER	LEAKAGE		DRY ARC	ELECTRICAL FLASHOVER (KV)				NET WEIGHT
				INCHES	mm		INCHES	DRY	WET	POS	
69	41 (1041)		S25YB-03K1766	74	1880	32 (813)	315	260	520	535	7.7 (3.5)
			S25YB-00K8041	86	2184	32 (813)	315	260	520	535	8.6 (3.9)
69	47 (1194)	60-1	S25YB-03K1767	87	2210	38 (980)	380	315	630	650	8.8 (4.0)
			S25YB-03K1768	108	2743	38 (985)	380	315	630	650	10.6 (4.8)
115	54 (1380)		S25YB-01K9325	106	2692	45 (1155)	450	385	735	750	9.3 (4.2)
			S25YB-03K1773	120	3048	45 (1160)	450	385	735	750	10.1 (4.6)
138	60 (1535)	60-2	S25YB-01K9326	117	2972	51 (1310)	515	435	840	860	9.9 (4.5)
		60-3	S25YB-02K0866	143	3632	52 (1325)	515	435	840	860	12.6 (5.7)
161	65 (1651)	60-4	S25YB-00K7942	138	3505	56 (1435)	550	465	900	910	11.7 (5.3)
			S25YB-03K1774	155	3937	56 (1440)	550	465	900	910	13.2 (6.0)
161	71 (1815)	60-5	S25YB-01K9328	140	3556	63 (1595)	610	510	990	1010	11.9 (5.4)
			S25YB-03K1775	170	4318	63 (1595)	610	510	990	1010	13.0 (5.9)
161	77 (1965)	60-6	S25YB-01K9329	153	3886	69 (1745)	670	560	1080	1130	12.6 (5.7)
			S25YB-03K1776	186	4724	69 (1745)	670	560	1080	1130	13.7 (6.2)
161/230	83 (2105)	60-7	S25YB-01K9330	163	4140	74 (1875)	720	600	1165	1210	12.1 (5.5)
			S25YB-03K1777	200	5080	74 (1885)	720	600	1165	1210	14.6 (6.6)
230	88 (2235)	60-8	S25YB-01K9331	173	4394	79 (2005)	770	650	1260	1280	12.6 (5.7)
			S25YB-03K1778	216	5486	79 (2015)	770	650	1260	1280	15.4 (7.0)

NOTES:

1. All section lengths are based on Y-Ball end fittings. See table below for length adjustments for other end fitting combinations.
2. Electrical values are per ANSI standards and are without corona ring(s).
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5. Dimensions, tolerances and testings per ANSI C29.11 and C29.12.



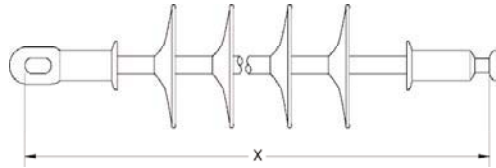
MECHANICAL RATING
 SML=25,000 lbs 111 kN
 RTL=12,500 lbs. 56kN

SUSPENSION CLASS INSULATOR

TYPICAL LINE VOLTAGE (KV)	"X" SECTION LENGTH (INCHES (mm))	ANSI CLASS	CATALOG NUMBER	LEAKAGE		DRY ARC (INCHES (mm))	ELECTRICAL FLASHOVER (KV)				NET WEIGHT (Lbs. (kg))
				INCHES	mm		DRY	WET	POS	NEG	
230	90 (2286)		S25YB-03K1781	198	5029	81 (2060)	810	670	1280	1300	14.3 (6.5)
			S25YB-03K1782	234	5944	81 (2075)	810	670	1280	1300	17.6 (8.0)
230	98 (2489)	60-9	S25YB-03K1783	207	5258	89 (2265)	900	720	1410	1440	14.6 (6.6)
			S25YB-03K1784	252	6401	89 (2280)	900	720	1410	1440	19.4 (8.8)
230	104 (2642)	60-10	S25YB-03K1785	222	5639	95 (2420)	950	770	1510	1600	15.4 (7.0)
			S25YB-03K1786	265	6731	95 (2420)	950	770	1510	1600	18.1 (8.2)
230	108 (2743)	60-10	S25YB-03K1787	226	5740	99 (2515)	>950	780	1550	1600	15.4 (7.0)
			S25YB-03K1788	276	7010	100 (2530)	>950	780	1550	1600	20.7 (9.4)
345	120 (3048)	60-12	S25YB-03K1789	257	6528	111 (2825)	>950	860	1770	1800	17.2 (7.8)
			S25YB-03K1790	309	7849	111 (2830)	>950	860	1770	1800	20.5 (9.3)
500	174 (4420)	60-14	S25YB-03K1791	415	10541	165 (4200)	>950	>950	>2000	>2000	25.8 (11.7)
			S25YB-03K1792	519	13183	165 (4200)	>950	>950	>2000	>2000	32.4 (14.7)

- NOTES:**
1. All section lengths are based on Y-Ball end fittings. See table below for length adjustments for other end fitting combinations.
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TOWER FITTING	LINE FITTING	LENGTH CHANGE	
		Inches	mm
EYE	BALL	+0.79	+20
EYE	EYE	+2.76	+70
SOCKET	BALL	-0.79	-20
CLEVIS	BALL	-0.59	-15
Y-CLEVIS	EYE	+1.97	+50
CLEVIS	EYE	+1.38	+35



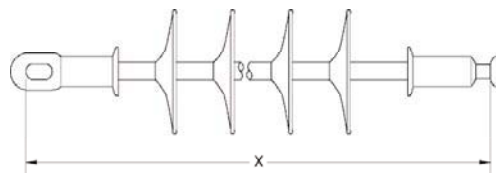
MECHANICAL RATING
 SML=30,000 lbs. 133 kN
 RTL=15,000 lbs. 67kN

SUSPENSION CLASS INSULATOR

TYPICAL LINE VOLTAGE (KV)	"X" SECTION LENGTH (INCHES (mm))	CATALOG NUMBER	LEAKAGE		DRY ARC (INCHES (mm))	ELECTRICAL FLASHOVER (KV)				NET WEIGHT (Lbs. (kg))
			INCHES	mm		DRY	WET	POS	NEG	
69	45 (1143)	S30EB-03K2055	70	1785	35 (900)	350	290	580	595	7.1 (3.2)
		S30EB-03K2056	87	2205	35 (900)	350	290	580	595	7.9 (3.6)
115	56 (1422)	S30EB-03K2057	100	2540	46 (1180)	460	400	755	770	8.6 (3.9)
		S30EB-03K2058	121	3080	46 (1180)	460	400	755	770	9.7 (4.4)
138	62 (1575)	S30EB-03K2059	110	2815	53 (1335)	520	440	850	870	9.5 (4.3)
		S30EB-03K2060	132	3355	53 (1330)	520	440	850	870	10.4 (4.7)
161	68 (1727)	S30EB-03K2061	129	3270	58 (1475)	565	485	925	940	9.9 (4.5)
		S30EB-03K2062	157	3990	58 (1485)	565	485	925	940	11.7 (5.3)
161	74 (1880)	S30EB-03K2063	142	3600	65 (1640)	645	540	1040	1080	11.5 (5.2)
		S30EB-03K2064	170	4320	65 (1650)	645	540	1040	1080	13.7 (6.2)
161	80 (2032)	S30EB-03K2065	155	3930	70 (1785)	695	585	1125	1155	11.2 (5.1)
		S30EB-03K2066	188	4770	70 (1790)	695	585	1125	1155	13.4 (6.1)
161	85 (2159)	S30EB-03K2067	167	4240	76 (1920)	740	620	1200	1240	13.0 (5.9)
		S30EB-03K2068	200	5080	76 (1925)	740	620	1200	1240	14.8 (6.7)
230	92 (2337)	S30EB-03K2069	181	4600	82 (2090)	820	680	1300	1320	12.6 (5.7)
		S30EB-03K2070	217	5500	83 (2105)	820	680	1300	1320	16.5 (7.5)

NOTES:

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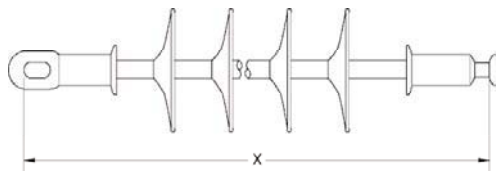
MECHANICAL RATING
 SML=30,000 lbs. 133 kN
 RTL=15,000 lbs. 67kN

SUSPENSION CLASS INSULATOR

TYPICAL LINE VOLTAGE	"X" SECTION LENGTH	CATALOG NUMBER	LEAKAGE		DRY ARC	ELECTRICAL FLASHOVER (KV)				NET WEIGHT
			INCHES	mm	INCHES (mm)	DRY	WET	POS	NEG	
230	98 (2489)	S30EB-03K2071	194	4930	89 (2250)	890	715	1400	1430	14.6 (6.6)
		S30EB-03K2072	234	5950	89 (2245)	890	715	1400	1430	15.9 (7.2)
230	106 (2692)	S30EB-03K2073	167	4230	96 (2435)	>950	775	1520	1550	11.2 (5.1)
		S30EB-03K2074	228	5795	96 (2445)	>950	775	1520	1550	15.2 (6.9)
345	123 (3124)	S30EB-03K2075	255	6465	114 (2885)	>950	900	1800	1845	17.4 (7.9)
		S30EB-03K2076	309	7845	114 (2895)	>950	900	1800	1845	21.2 (9.6)
345	133 (3378)	S30EB-03K2077	283	7200	123 (3135)	>950	>950	1990	>2000	18.1 (8.2)
		S30EB-03K2078	340	8640	123 (3140)	>950	>950	1990	>2000	21.6 (9.8)
345	141 (3581)	S30EB-03K2079	306	7760	131 (3335)	>950	>950	>2000	>2000	19.2 (8.7)
		S30EB-03K2080	372	9440	132 (3350)	>950	>950	>2000	>2000	26.5 (12.0)
500	153 (3886)	S30EB-03K2081	332	8425	143 (3640)	>950	>950	>2000	>2000	20.5 (9.3)
		S30EB-03K2082	516	13105	143 (3645)	>950	>950	>2000	>2000	32.4 (14.7)
500	175 (4445)	S30EB-03K2083	330	8385	165 (4195)	>950	>950	>2000	>2000	19.8 (9.0)
		S30EB-03K2084	519	13185	165 (4205)	>950	>950	>2000	>2000	32.0 (14.5)
500	184 (4674)	S30EB-03K2085	330	8385	174 (4425)	>950	>950	>2000	>2000	19.6 (8.9)
		S30EB-03K2086	519	13175	175 (4440)	>950	>950	>2000	>2000	31.7 (14.4)

- NOTES:**
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 4. **Other leakage options and section lengths are available. Contact LAPP Insulator Company for special designs.**
 5. Dimensions, tolerances and testings per ANSI C29.11 and C29.12.

TOWER FITTING	LINE FITTING	LENGTH CHANGE	
		Inches	mm
Y-CLEVIS	BALL	-0.79	-20
Y-CLEVIS	EYE	+1.18	+30
Y-CLEVIS	SOCKET	-0.39	-10
Y-CLEVIS	Y-CLEVIS	+0.39	+10
SOCKET	BALL	-1.57	-40
EYE	EYE	+1.97	+50



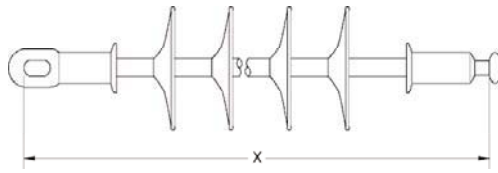
MECHANICAL RATING
 SML=50,000 lbs. 222 kN
 RTL=25,000 lbs. 111 kN

SUSPENSION CLASS INSULATOR

TYPICAL LINE VOLTAGE	"X" SECTION LENGTH	ANSI CLASS	CATALOG NUMBER	LEAKAGE		Dry ARC	ELECTRICAL FLASHOVER (KV)				NET WEIGHT
				INCHES	mm		INCHES (mm)	DRY	WET	POS	
69	45 (1143)		S50EB-03K1801	73	1855	31 (795)	305	250	505	520	14.1 (6.4)
			S50EB-03K1802	87	2210	31 (805)	305	250	505	520	15.2 (6.9)
115	56 (1422)		S50EB-03K1803	100	2540	42 (1070)	415	340	685	705	16.1 (7.3)
			S50EB-03K1804	122	3090	42 (1065)	415	340	685	705	17.4 (7.9)
138	62 (1575)		S50EB-03K1805	111	2819	48 (1225)	480	410	780	800	17.0 (7.7)
			S50EB-03K1806	132	3353	48 (1230)	480	410	780	800	18.7 (8.5)
161	68 (1727)		S50EB-03K1807	129	3277	54 (1370)	530	450	870	880	17.9 (8.1)
			S50EB-03K1808	153	3886	54 (1385)	530	450	870	880	20.3 (9.2)
161	74 (1880)		S50EB-03K1809	140	3556	60 (1520)	590	490	950	970	18.5 (8.4)
			S50EB-03K1810	173	4394	60 (1535)	590	490	950	970	21.8 (9.9)
161	80 (2032)	70-1	S50EB-03K1811	155	3937	66 (1675)	660	550	1060	1100	19.8 (9.0)
			S50EB-03K1812	188	4775	66 (1675)	660	550	1060	1100	22.0 (10.0)
161	85 (2159)		S50EB-03K1813	165	4191	71 (1810)	700	595	1140	1170	20.7 (9.4)
			S50EB-03K1814	200	5080	71 (1815)	700	595	1140	1170	23.6 (10.7)
230	92 (2337)	70-2	S50EB-03K1815	179	4547	78 (1985)	760	650	1250	1270	21.6 (9.8)
			S50EB-03K1816	219	5563	78 (1995)	760	650	1250	1270	25.4 (11.5)
230	98 (2489)	70-3	S50EB-03K1817	196	4978	84 (2140)	840	690	1340	1360	23.4 (10.6)
			S50EB-03K1818	235	5969	84 (2135)	840	690	1340	1360	25.4 (11.5)
230	106 (2692)		S50EB-03K1819	162	4115	92 (2325)	920	745	1460	1490	20.1 (9.1)
			S50EB-03K1820	228	5791	92 (2340)	920	745	1460	1490	25.4 (11.5)

NOTES:

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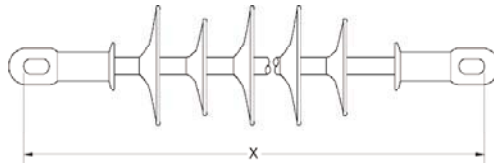
MECHANICAL RATING
 SML=50,000 lbs. 222 kN
 RTL=25,000 lbs. 111 kN

SUSPENSION CLASS INSULATOR

TYPICAL LINE VOLTAGE (kV)	"X" SECTION LENGTH (INCHES (mm))	ANSI CLASS	CATALOG NUMBER	LEAKAGE		DRY ARC (INCHES (mm))	ELECTRICAL FLASHOVER (KV)				NET WEIGHT (Lbs. (kg))
				INCHES	mm		DRY	WET	POS	NEG	
345	123 (3124)	70-5	S50EB-03K1821	257	6528	109 (2775)	>950	>950	1730	1780	28.0 (12.7)
			S50EB-03K1822	309	7849	109 (2780)	>950	>950	1730	1780	31.7 (14.4)
345	133 (3378)	70-6	S50EB-03K1823	281	7137	119 (3030)	>950	>950	1880	1950	30.0 (13.6)
			S50EB-03K1824	338	8585	119 (3040)	>950	>950	1880	1950	34.4 (15.6)
345	141 (3581)	70-8	S50EB-03K1825	310	7874	127 (3230)	>950	>950	>2000	>2000	32.2 (14.6)
			S50EB-03K1826	370	9398	127 (3235)	>950	>950	>2000	>2000	35.9 (16.3)
500	153 (3886)	70-9	S50EB-03K1827	330	8382	139 (3535)	>950	>950	>2000	>2000	33.5 (15.2)
			S50EB-03K1828	516	13106	139 (3545)	>950	>950	>2000	>2000	47.6 (21.6)
500	175 (4445)	70-10	S50EB-01K9360	330	8382	162 (4090)	>950	>950	>2000	>2000	33.3 (15.1)
			S50EB-02K0862	521	13106	162 (4110)	>950	>950	>2000	>2000	48.9 (22.2)
500	184 (4674)	70-11	S50EB-03K1829	330	8382	170 (4315)	>950	>950	>2000	>2000	32.6 (14.8)
			S50EB-03K1830	517	13106	170 (4340)	>950	>950	>2000	>2000	48.3 (21.9)

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TOWER FITTING	LINE FITTING	LENGTH CHANGE	
		Inches	mm
Y-CLEVIS	BALL	-0.59	-15
Y-CLEVIS	EYE	-0.20	-5
Y-CLEVIS	SOCKET	-1.38	-35
Y-CLEVIS	Y-CLEVIS	-0.79	-20
SOCKET	BALL	-1.18	-30
EYE	EYE	+0.39	+10



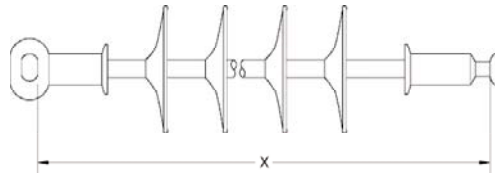
MECHANICAL RATING
 SML=100,000 lbs. 450 kN
 RTL=50,000 lbs. 225kN

SUSPENSION CLASS INSULATOR

TYPICAL LINE VOLTAGE (KV)	"X" SECTION LENGTH (INCHES (mm))	CATALOG NUMBER	LEAKAGE		DRY ARC (INCHES (mm))	ELECTRICAL FLASHOVER (KV)				NET WEIGHT (Lbs. (kg))
			INCHES	mm		DRY	WET	POS	NEG	
230	100	S100EE-03K2032	245	6230	80 (2040)	775	665	1285	1300	48.9 (22.2)
230	110	S100EE-03K2033	246	6245	90 (2295)	910	730	1430	1460	49.8 (22.6)
345	120	S100EE-03K2034	376	9560	101 (2555)	>950	790	1590	1630	64.2 (29.2)
345	130	S100EE-03K2035	370	9450	372 (2805)	>950	860	1770	1800	64.2 (29.2)
500	150	S100EE-03K2036	370	9420	131 (3315)	>950	>950	>2000	>2000	64.8 (29.5)
500	165	S100EE-03K2037	371	9440	145 (3690)	>950	>950	>2000	>2000	65.5 (29.8)

NOTES:

1. Electrical values are per ANSI standards and are without corona ring(s).
2. All dimensions are within allowable ANSI tolerances.
3. **Other leakage options and section lengths are available. Contact LAPP Insulator Company for special designs.**
4. Dimensions, tolerances and test per ANSI C29.11 and C29.12.



MECHANICAL RATING
 SML=25,000 lbs. 111 kN
 RTL=12,500 lbs. 56 kN

PORCELAIN STRING REPLACEMENT

NUMBER OF BELLS	TYPICAL SYSTEM VOLTAGE (KV)	"X" SECTION LENGTH INCHES (mm)	CATALOG NUMBER	LEAKAGE		DRY ARC INCHES (mm)	ELECTRICAL FLASHOVER (KV)				NET WEIGHT Lbs. (kg)
				INCHES	mm		DRY	WET	POS	NEG	
5	69	28.7 (730)	S25SB-03K1831	55	1410	21 (540)	200	170	340	350	6.6 (3.0)
6	69	34.5 (876)	S25SB-03K1832	68	1735	27 (685)	260	215	435	450	7.3 (3.3)
7	115	40.5 (1029)	S25SB-03K1927	79	2005	32 (825)	315	260	520	535	7.3 (3.3)
8	138	46.0 (1168)	S25SB-03K1928	89	2265	38 (960)	375	310	615	635	7.9 (3.6)
5	69	32.5 (825)	S25YB-03K1929	56	1425	24 (600)	230	190	380	390	6.6 (3.0)
6	69	37.75 (959)	S25YB-03K1930	66	1680	29 (735)	280	230	465	480	7.3 (3.3)
7	115	43.5 (1105)	S25YB-03K1931	81	2065	35 (880)	340	280	565	580	7.9 (3.6)
8	138	49.2 (1250)	S25YB-03K0982	89	2270	40 (1030)	370	320	650	670	9.0 (4.1)

NOTES:

1. Catalog sequence S25SB is a socket/ball design with section length and leakage to match the corresponding porcelain strings listed in column one.
2. Catalog sequence S25YB is a Y-Clevis/Ball design and increases the section length by approximately 3.25" to compensate for elimination of the Y/Ball adapter commonly used to attach porcelain strings to the tower.

CORONA RING RECOMMENDATION

Rodurflex suspension insulators are designed to be corona and RIV free for system voltages of 138kV and below. For system voltages above 138kV, the following corona rings are recommended. These corona rings will provide corona extinction at 115% of nominal system voltage.

INSULATOR TYPE	RING LOCATION	161kV	230kV	345kV	500kV
Suspension 25K lbs/111kN SML 30K lbs/133kN SML	TOWER LINE	NONE 6.4" diameter P/N 600 939	NONE 7.8" diameter P/N 601 227	NONE 13.8" diameter P/N 600 938	7.8" diameter P/N 601 227 17.7" diameter P/N 600 856
Suspension 50K lbs/222kN	TOWER LINE	NONE 6.4" diameter P/N 601 013	NONE 7.8" diameter P/N 601 222	NONE 13.8" diameter P/N 335 043	7.8" diameter P/N 601 222 17.7" diameter P/N 335 044
Suspension 100K lbs/450kN	TOWER LINE	NONE 7.8" diameter P/N 601 228	NONE 7.8" diameter P/N 601 228	NONE 13.8" diameter P/N 600 129	7.8" diameter P/N 601 228 17.7" diameter P/N 335 045

6.4" AND 7.8" RINGS

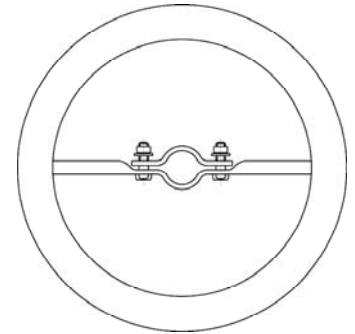
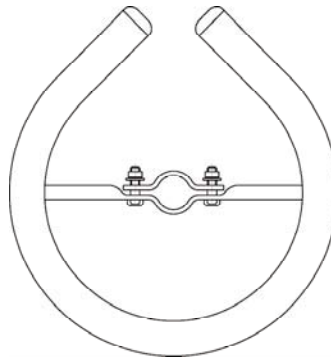
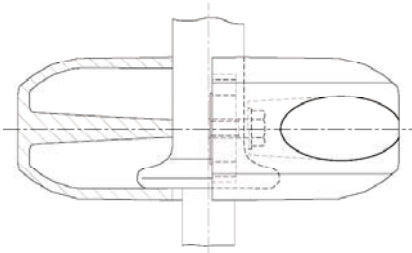
600 939
600 013
601 227
601 222
601 228

13.8" AND 17.7" RINGS

601 938
335 043
335 044
335 045

13.8" AND 17.7" RINGS

601 129
600 856



When corona rings are applied, the insulator characteristics provided in the product tables will be changed as listed below:

	161kV	230kV	345kV	500kV
Dry arc distance inches	-0.5"	-0.5"	-1.0"	-1.5"

SUSPENSION INSULATORS END FITTING TYPES

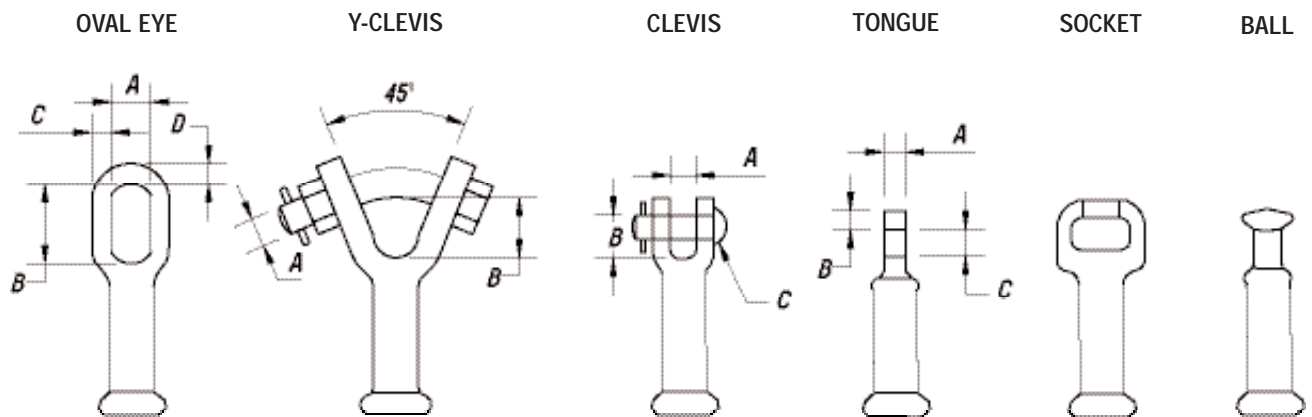
INSULATOR STRENGTH RATING (SML)				
	25K lbs. 120 kN	30K lbs. 133 kN	50K lbs. 222 kN	100K lbs. 450 kN
Y-CLEVIS	YES	YES	YES	NO
ANSI SOCKET	ANSI 52-5	ANSI 52-5	ANSI 52-8 ANSI 52-11	NO
ANSI BALL	ANSI 52-5	ANSI 52-5	ANSI 52-8 ANSI 52-11	NO
ANSI CLEVIS	YES	YES	YES	NO
ANSI TONGUE	YES	YES	YES	NO
EYE	YES	YES	YES	YES

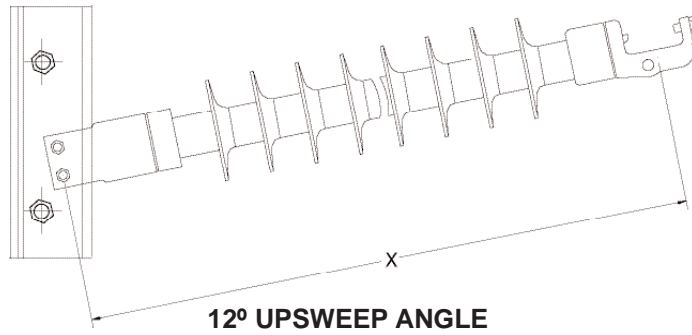
CATALOG NUMBER SYSTEM

<p>S</p> <p>S = Suspension Class</p>	<p>25</p> <p>25 = 25K lbs.SML</p> <p>30 = 30K lbs. SML</p> <p>50 = 50K lbs. SML</p> <p>100 = 100K lbs. SML</p>	<p>YB</p> <p>Y = Y-Clevis Fitting</p> <p>B = Ball Fitting</p> <p>S = Socket Fitting</p> <p>E = Eye Fitting</p> <p>C = Clevis Fitting</p> <p>T = Tongue Fitting</p>	<p>XXXXXXX</p> <p>LAPP Sequence Number</p>
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SUSPENSION END FITTING DIMENSIONS

SML Lbs. (kN)	OVAL EYE				Y-CLEVIS		CLEVIS			TONGUE			SOCKET BALL
	A	B	C	D	A	B	A	B	C	A	B	C	
25,000 (111)	1.18	2.36	0.59	0.70	0.75	1.57	0.79	1.81	0.79	0.63	0.47 min	0.79	52-5
30,000 (133)	1.18	2.36	0.59	0.70	0.75	1.57	0.79	1.81	0.79	0.63	0.47 min	0.79	52-5
50,000 (222)	1.18	2.36	0.78	1.02	0.80	1.81	0.79	2.10	0.94	0.75	0.70 min	0.94	52-8 52-11
100,000 (450)	1.14	2.95	0.98	1.37									





**2.5" (63mm) ROD DIAMETER
COMPOSITE LINE POST TRANSMISSION TYPE INSULATOR**

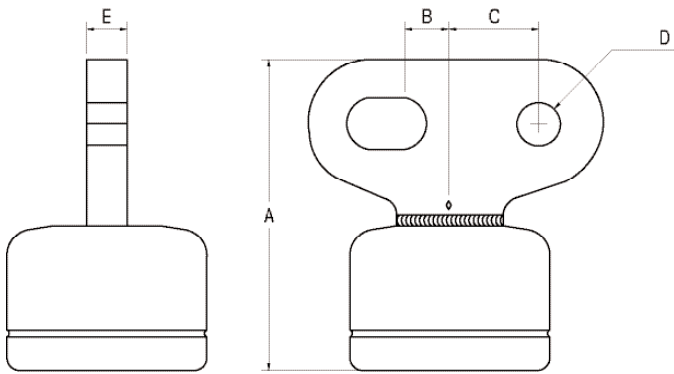
TYPICAL LINE VOLTAGE	"X" SECTION LENGTH	ANSI CLASS	CATALOG NUMBER	LEAKAGE		DRY ARC INCHES (mm)	ELECTRICAL FLASHOVER (kV)				RCL Lbs. (kN)	NET WEIGHT Lbs. (kg)
				INCHES	mm		DRY	WET	POS	NEG		
69	35 37		CLP2511-03K1957	75	1905	24 (605)	205	190	370	415	2790 (12.4)	72 (32.7)
			CLP2511-03K1958	91	2315	26 (660)	245	215	405	445	2610 (11.6)	75 (34.1)
115	42 42		CLP2511-03K1959	86	2180	30 (765)	290	260	470	505	2295 (10.2)	75 (34.1)
			CLP2511-03K1960	109	2780	30 (765)	290	260	470	505	2295 (10.2)	78 (35.5)
115	46 48	250-41	CLP2511-03K1872	104	2645	34 (865)	330	300	530	580	1960 (8.7)	78 (35.5)
		250-47	CLP2511-03K1961	130	3295	36 (920)	370	330	570	615	1960 (8.7)	82 (37.2)
138	52 52	250-47	CLP2511-03K1962	110	2800	40 (1020)	415	365	630	680	1780 (7.9)	81 (36.8)
			CLP2511-03K1963	148	3760	40 (1020)	415	365	630	680	1780 (7.9)	85 (38.6)
161	58 58	250-54	CLP2511-03K1964	126	3195	46 (1175)	495	430	730	780	1575 (7.0)	84 (38.2)
			CLP2511-03K1965	164	4155	46 (1175)	495	430	730	780	1575 (7.0)	89 (40.4)
161	62 62	250-60	CLP2511-03K1966	144	3655	50 (1275)	535	465	795	840	1460 (6.5)	88 (40)
			CLP2511-03K1967	182	4615	50 (1275)	535	465	795	840	1460 (6.5)	92 (41.8)
161	68 68	250-66	CLP2511-03K1968	155	3935	56 (1435)	600	520	890	945	1305 (5.8)	91 (41.4)
			CLP2511-03K1969	188	4775	56 (1435)	600	520	890	945	1305 (5.8)	95 (43.2)
230	78	250-75	CLP2511-03K1970	183	4670	67 (1690)	705	600	1050	1105	1125 (5.0)	97 (44.1)
230	78		CLP2511-03K1971	231	5870	67 (1690)	705	600	1050	1105	1125 (5.0)	103 (46.8)

- NOTES:**
1. Electrical values are per ANSI standards and are without a corona ring.
 2. RCL is the maximum continuous cantilever load at which the insulator can be applied.
 3. All dimensions are within allowable ANSI tolerances.
 4. **Other leakage options and section lengths are available. Contact LAPP Insulator Company for special designs.**
 5. Dimensions, tolerances and tests per ANSI C29.11 and C29.12.

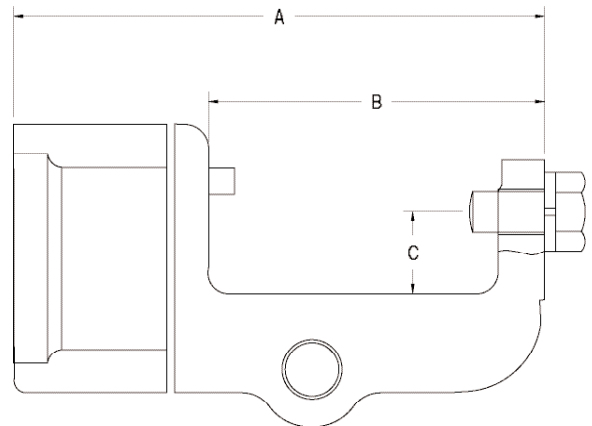
CLP END FITTING DIMENSIONS HORIZONTAL AND VERTICAL FITTINGS

DIMENSIONS (Inches)	A	B	C	D	E
DROP TONGUE	5.70	.86	1.65	0.78	0.75
HORIZONTAL CLAMPTOP	7.36	4.01	1.12		
VERTICAL CLAMPTOP	5.11	4.0	1.18	3.33	
5" BOLT CIRCLE	3.74		3.70	0.47	5.0

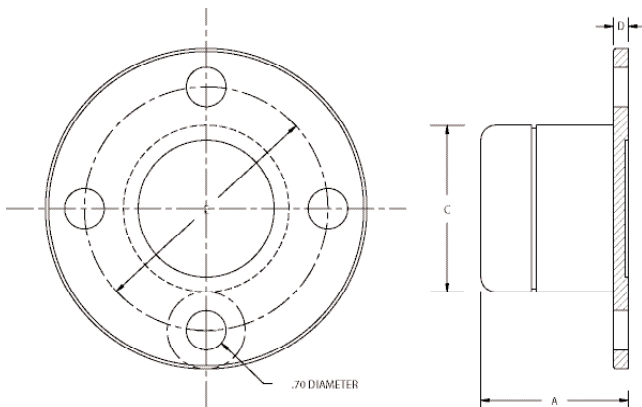
DROP TONGUE



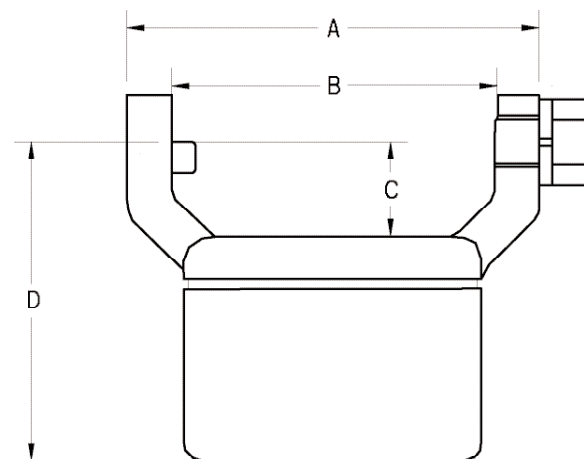
HORIZONTAL CLAMPTOP

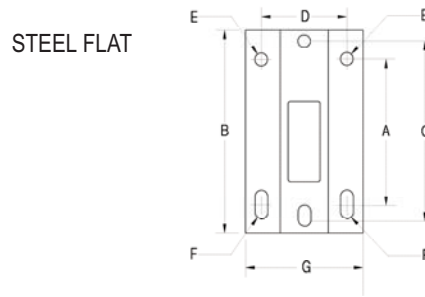
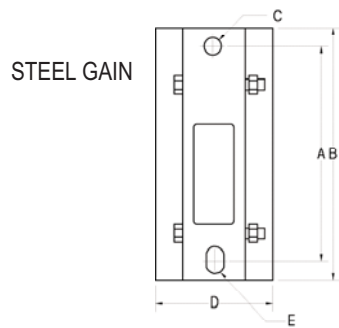


5" BOLT CIRCLE



VERTICAL CLAMPTOP

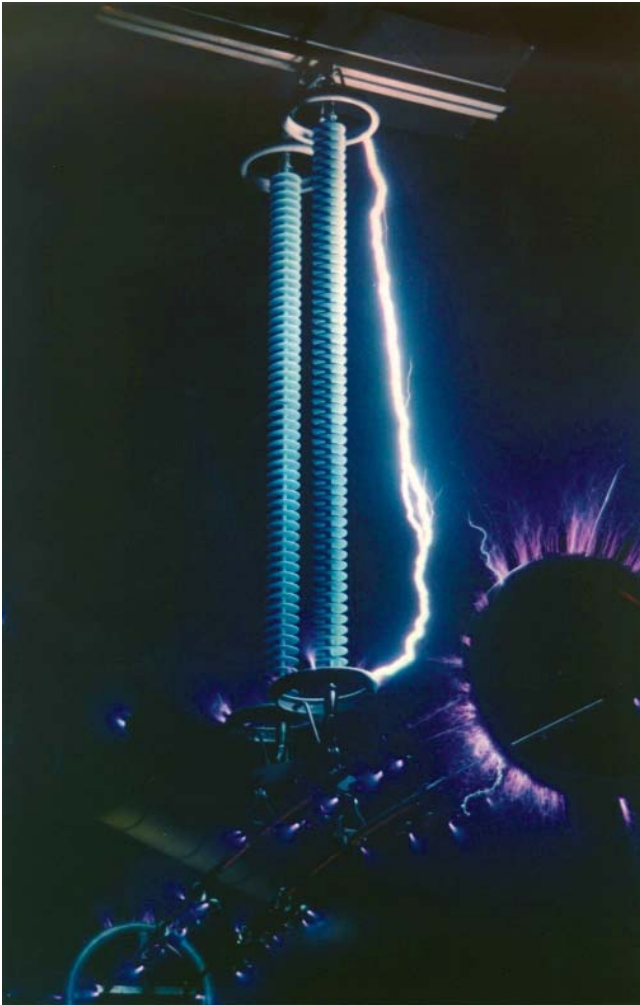




CLP BASE DIMENSIONS

HORIZONTAL BASES (INCHES)							
DIMENSIONS INCHES	A	B	C	D	E	F	G
BENDABLE GAIN	12.0	14.0	0.94	6.3	0.94 x 1.50	—	—
BENDABLE FLAT	10.0	14.0	12.0	6.1	0.87	0.87 x 1.50	8.07

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