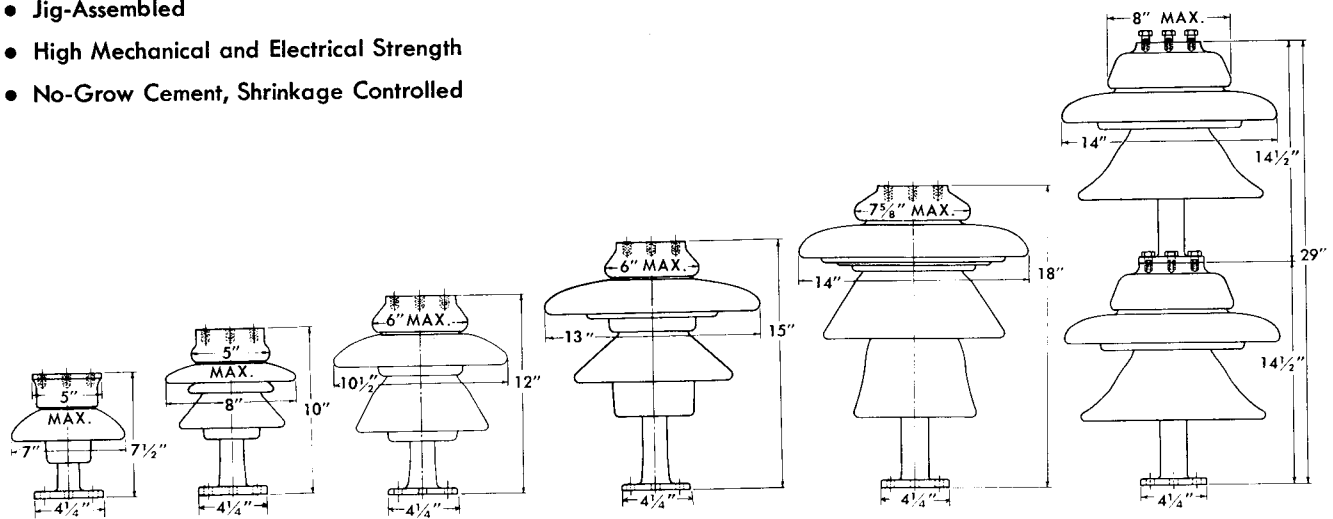




CAP-AND-PIN INSULATORS—7.5-69 KV
3" BOLT CIRCLE, STANDARD STRENGTH

FEATURES

- Purified Porcelain
- Controlled Compression Glaze
- Jig-Assembled
- High Mechanical and Electrical Strength
- No-Grow Cement, Shrinkage Controlled



Cat. No. 740
TR 1

Cat. No. 741
TR 4

Cat. No. 742
TR 7

Cat. No. 744
TR 10

Cat. No. 705
TR 13

Cat. No. 723 (Two Units)
TR 16

Cat. No. 724 (single unit)
TR 147

Note: Caps have 4 tapped holes 1/2" — 13 NC-2 on 3" bolt circle.
 Pins have 4 holes 5/16" dia. on 3" bolt circle.

ELECTRICAL PROPERTIES

Voltage Rating, KV		NEMA Tech. Ref. No.	Cat. No.	Flashover Voltage, KV				Withstand Voltage, KV		Radio-Influence Voltage		Leakage Distance, Inches	Dry Arcing Distance, Inches	Puncture Voltage, KV
BIL	Nom.			60-Cycle		Impulse†		60-Cycle		Test Voltage to Ground, KV—Rms	Max. Radio Influence Voltage, Microvolts at 1000 Kc			
				Dry	Wet	Pos.	Neg.	Dry 1 Min.	Wet 10 Sec.					
95	7.5	1	740	60	40	105	120	36	30	5	50	7 1/2	5 1/4	80
110	15	4	741	85	55	125	200	50	45	10	50	12	7 1/4	115
150	23	7	742	110	75	170	250	70	60	15	100	20	9 1/2	145
200	34.5	10	744	145	100	225	290	95	80	22	100	28	14	195
250	46	13	705	170	125	280	340	120	100	30	200	36	17	225
350	69	16	723*	235	180	390	475	175	145	44	200	52	28	—
190	—	147	724*	140	85	210	260	95	70	22	100	26	13 3/4	195

MECHANICAL PROPERTIES

Voltage Rating, KV		NEMA Tech. Ref. No.	Cat. No.	Cantilever Strength, Pounds		Tension Strength, Pounds	Torsion Strength, In.—Lb	Compression Strength, Pounds	Tension Proof, Test Load, Pounds	Number in Standard Package	Weight Per Unit, Pounds	
BIL	Nom.			Upright	Under-hung						Net	Package
95	7.5			1	740							
110	15	4	741	2000	1000	7000		10,000	4	16.3	18.5	
150	23	7	742			8000			3	26.7	34.3	
200	34.5	10	744	2000		7000	10,000	15,000	2	36.0	43.5	
250	46	13	705	2000	1000	8000	12,000	15,000	1	53.0	69.0	
350	69	16	723*	1500		12,000	15,000	25,000	1	104.0	120.0	
190	—	147	724*	3000	2000	12,000	15,000	25,000	2	52.0	60.0	

* Single units 724 supplied without mounting bolts. Two-high stack 723 supplied with bolts as illustrated.

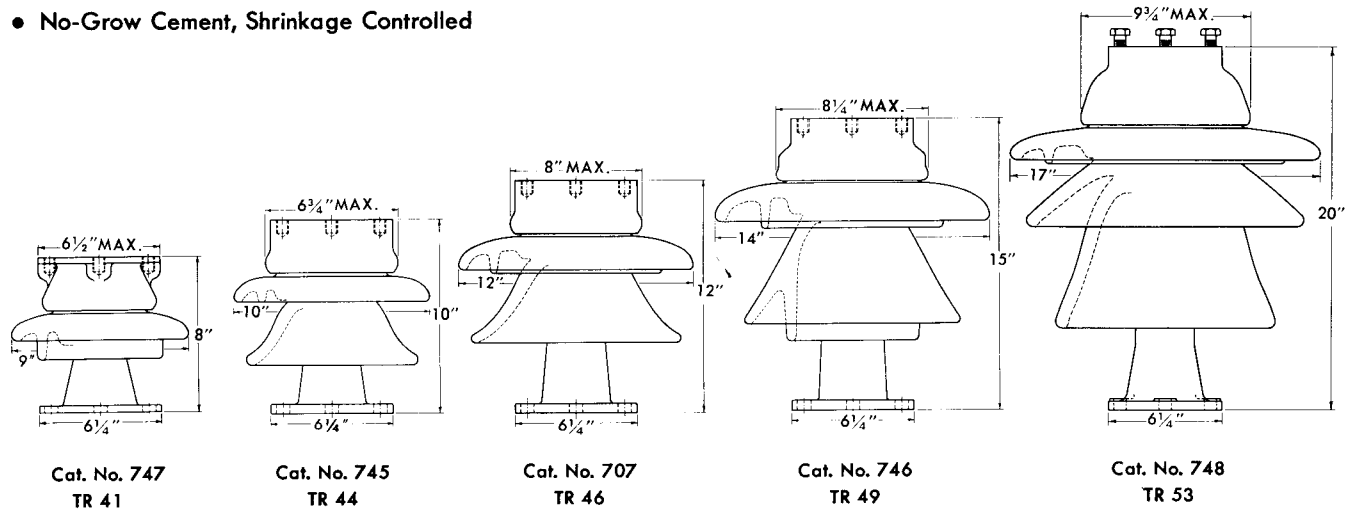
† Crest kV 1 1/2 x 40 microsecond wave, critical value.



CAP-AND-PIN INSULATORS—7.5-46 KV
5" BOLT CIRCLE, HIGH STRENGTH

FEATURES

- Purified Porcelain
- Controlled Compression Glaze
- Jig-Assembled
- High Mechanical and Electrical Strength
- No-Grow Cement, Shrinkage Controlled



Note: Caps have 4 tapped holes 3/8"—11 NC-2 on 5" bolt circle.
 Pins have 4 holes 9/16" dia. on 5" bolt circle.

ELECTRICAL PROPERTIES

Voltage Rating, KV		NEMA Tech. Ref. No.	Cat. No.	Flashover Voltage, KV				Withstand Voltage, KV		Radio-Influence Voltage		Leakage Distance, Inches	Dry Arcing Distance, Inches	Puncture Voltage, KV
BIL	Nom.			60-Cycle		Impulse†		60-Cycle		Test Voltage to Ground KV—Rms	Max. Radio Influence Voltage, Microvolts at 1000 Kc			
				Dry	Wet	Pos.	Neg.	Dry 1 Min.	Wet 10 Sec.					
95	7.5	41	747	60	40	105	120	36	30	5	50	8	5 1/2	90
110	15	44	745	85	55	125	200	50	45	10	50	14	7 1/2	115
150	23	46	707	110	75	170	250	70	60	15	100	18	10 1/2	145
200	34.5	49	746	145	100	225	290	95	80	22	100	28	13 1/2	195
250	46	53	748	170	125	280	340	120	100	30	200	40	18	225

MECHANICAL PROPERTIES

Voltage Rating, KV		NEMA Tech. Ref. No.	Cat. No.	Cantilever Strength, Pounds		Tension Strength, Pounds	Torsion Strength, In.—Lb	Compression Strength, Pounds	Tension Proof Test Load, Pounds	Number in Standard Package	Weight Per Unit, Pounds	
BIL	Nom.			Upright	Under-hung						Net	Package
95	7.5			41	747						4000	3000
110	15	44	745	4000	3000	10,000	14,000	20,000	2000	3	30	34
150	23	46	707	4000	3000	10,000	16,000	20,000	2000	2	38	43
200	34.5	49	746	4000	3000	14,000	20,000	30,000	2000	1	53	64
250	46	53	748	6000	3500	20,000	40,000	60,000	2000	1	94	107

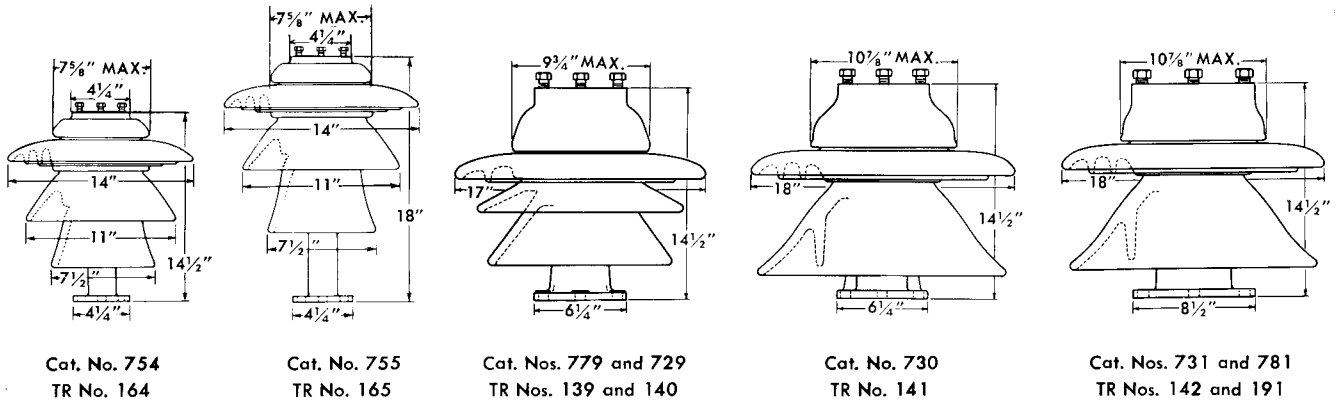
† Crest kv 1 1/2 x 40 microsecond wave, critical value.



CAP-AND-PIN INSULATORS—STACKING UNITS, 69–500 KV
3", 5", 7", BOLT CIRCLE, STANDARD AND HIGH STRENGTH

FEATURES

- Purified Porcelain
- Controlled Compression Glaze
- Jig-Assembled
- High Mechanical and Electrical Strength
- No-Grow Cement, Shrinkage Controlled



Caps have 4 tapped holes $\frac{1}{2}$ "—13 NC-2 on 3" bolt circle.
 Pins have 4 holes— $\frac{9}{16}$ " dia. on 3" bolt circle.

Caps have 4 tapped holes $\frac{5}{8}$ "—11 NC-2 on 5" bolt circle.
 Pins have 4 holes— $\frac{1}{16}$ " dia. on 5" bolt circle.

Caps have 4 tapped holes $\frac{3}{4}$ "—10 NC-2 on 7" bolt circle.
 Pins have 4 holes— $\frac{13}{16}$ " dia. on 7" bolt circle.

ELECTRICAL PROPERTIES

NEMA Tech. Ref. No.	Cat. No.	Bolt Circle, Inches	Flashover Voltage, KV				Withstand Voltage, KV			Radio-Influence Voltage		Leakage Distance, Inches	Dry Arcing Distance, Inches	Puncture Voltage, KV
			60-Cycle		Impulse†		60-Cycle			Test Voltage to Ground, KV—Rms	Max. Radio Influence Voltage, Microvolts at 1000 Kc			
			Dry	Wet	Pos.	Neg.	Dry 1 Min.	Wet 10 Sec.	Impulse					
164 165	754 755	3	160 170	95 125	235 280	290 340	115 120	75 100	210 250	22 30	100 200	33 36	14 $\frac{3}{4}$ 17	225 225
139 140 141	779 729 730	5	160	95	235	290	115	75	210	22	100	33	14 $\frac{3}{4}$ 16	215
142 191	731 781	7	160	95	235	290	115	75	210	22	100	33	16	215

MECHANICAL PROPERTIES

NEMA Tech. Ref. No.	Cat. No.	Bolt Circle, Inches	Cantilever Strength, Pounds		Tension Strength, Pounds	Torsion Strength, In.—Lb	Compression Strength, Pounds	Tension Proof Test Load, Pounds	Number in Standard Package	Weight Per Unit, Pounds	
			Upright	Under-hung						Net	Package
164 165	754 755	3	4000 3000	3500 2000	12,000	30,000	60,000	2000	2	56 58	64 66
139 140 141	779 729 730	5	10,000 7000 10,000	6000 4000 6000	25,000 20,000 25,000	90,000 40,000 90,000	75,000 60,000 75,000	2000	1	86 79 100	99 91 117
142 191	731 781	7	10,000 20,000	6000 12,000	25,000 40,000	90,000 120,000	75,000 100,000	2000	1	109 118	123 132

† Crest kV $1\frac{1}{2}$ x 40 microsecond wave, critical value.

Note: For stack BIL and nominal voltage rating see stack tabulation data, Section 12.2.1.4 Pages 1–2.



CAP-AND-PIN INSULATOR—INSULATOR STACKS[▲], 69–500 KV

3", 5", 7", BOLT CIRCLES, NEMA STANDARD

MECHANICAL PROPERTIES

Voltage Rating, KV		NEMA Technical Reference Number		Unit Cat. No.	Bolt Circle, Inches	Height of Stack, Inches†	Cantilever‡ Strength, Pounds		Leakage Distance, Inches	Dry Arcing Distance, Inches	
BIL	Nom.	Stack	Units				Upright	Underhung			
350	69	166	2-164	754	3	29	2000	2000	66	29	
		56	2-140	729	5		3000	2350			
550	115	167	3-164	754	3	43½	1000	1000	99	44	
		19	3-140	729	5		1700	1470			
		183	2-140	729	5		2900	2350			
650	138	170	3-165	755	3	54	1000	1000	108	51	
		22	1-53	748	5		1450	1250			
			2-140	729			49	2350	1900		
		180	1-53	748	5					102	46
725	161	26	3-140	729	5	58	1700	1470	132	58	
			1-141	730	5		1200	1070			
750	161	168	4-164	754	3	58	1000	1000	132	58	
		25	4-140	729	5		1700	1470			
		184	3-140	729	5		2000	1750			
			1-139	779			910	840			
900	230	123	4-141	730	5	72½	1450	1350	165	73	
		126	5-140	729			7	750			700
		185	3-140	729			5	1170			1100
			2-139	779			7	2300			2300
1050	230	27	5-141	730	5	87	1000	950	198	87	
		128	6-140	729			7	2000			2000
		186	4-140	729			5	900			860
			2-139	779				7			1750
1300	345	196	6-191	781	7	101½	1000	950	231	102	
		131	7-141	730	5		770	740			
		187	4-140	729	5		1450	1350			
			3-139	779			7	680			660
1470	345	197	7-191	781	7	116	1000	950	264	116	
		136	8-141	730	5		900	860			
		188	5-140	729	5		1750	1750			
			3-139	779			7	770			740
1640	500	153	9-142	731	7	130½	1450	1350	297	131	
		—	5-142	731			7	680			660
			4-191	781			7	1400			1350
1800	500	157	10-142	731	7	145	1400	1350	330	145	

▲ Many other combinations of TR-139, TR-140, TR-141, and TR-191 are possible, with various cantilever strengths. Consult I-T-E Sales Office for cantilever ratings and application of combination stacks. Torsion, tension, and compression strengths of any mixed stack are those of the lowest rated insulator in the stack.

Note that when TR-140 and TR-141 are combined in the same stack, the BIL rating is reduced 25KV, but TR-139 and TR-140 may be combined

or TR-141, TR-142, and TR-191 may be combined in the same stack without reducing the BIL rating.

† Height of stack does not include 3½" high sub-base.

‡ When using mixed stacks, place the highest cantilever strength units in the section having the greatest cantilever stress, on the bottom on upright and on the top on underhung.



CAP-AND-PIN INSULATORS—INSULATOR STACKS[▲], 69–500 KV

3", 5", 7", BOLT CIRCLES, NEMA STANDARD

ELECTRICAL PROPERTIES

Flashover Voltage [▲] , KV				Withstand Voltage [▲] , KV		Radio-Influence Voltage		Unit Cat. No.
60-Cycle		Impulse [†]				Test Voltage to Ground KV-Rms	Max. Radio Influence Voltage, Microvolts at 1000 KC	
Dry	Wet	Pos.	Neg.	Dry 1 Min.	Wet 10 Sec.			
280	190	410	540	205	160	44	200	754
								729
385	285	610	780	280	230	73		754
								729
		710	900					779
								755
435	335	680	800	335	275	88	500	748
								729
475	370	780	980	375	305	103		748
								729
485	380	810	1020	385	315	103		729
								779
							730	
575	475	1010	1240	465	385	125	1000	729
								779
								730
660	570	1210	1450	545	455	146		729
								779
								781
745	660	1410	1650	610	525	180	2000	730
								729
								779
830	740	1610	1850	680	590	210		781
								731
								730
910	820	1810	2050	745	650	240	731	
								781
								731
990	900	2000	2240	810	710	270	731	
							781	

† Crest kV 1½ x 40 microsecond wave, critical value.

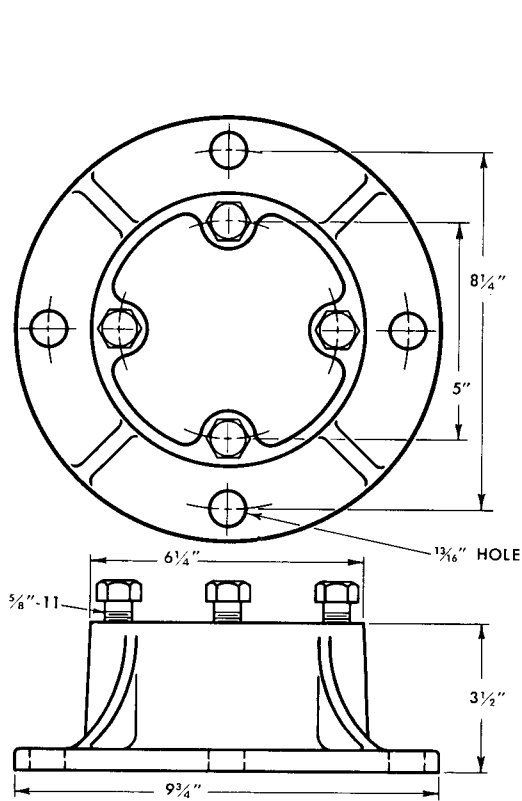
▲ Flashover and withstand ratings are predicated on a sub-base 3½ inches in height, or its equivalent.



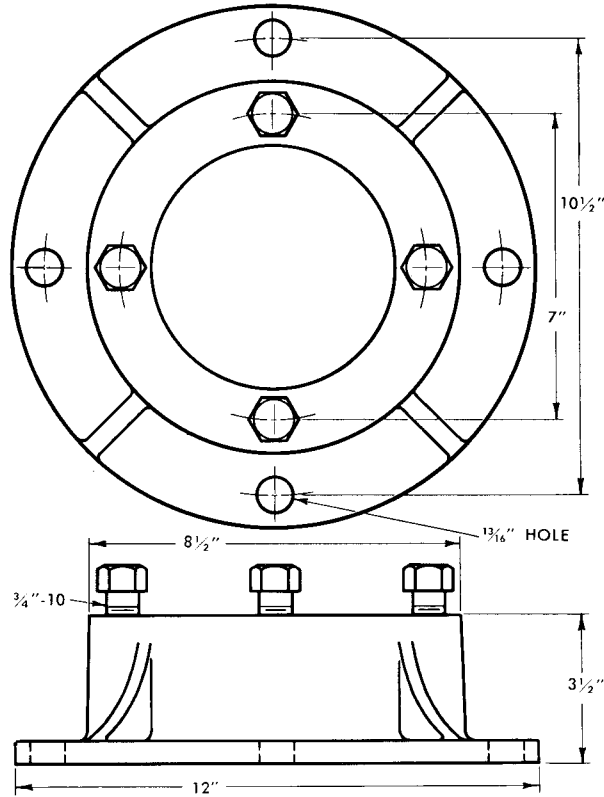
CAP-AND-PIN, SWITCH AND BUS INSULATOR BASES

FEATURES

- Ferrous Casting
- Hot-Dipped Zinc Galvanized
- Standard Spacers for improved Electrical Characteristics of Insulator Stacks.



Cat. No. 791



Cat. No. 786

Cat. No.	Used With Stacking Units	Number and Size of Cap Screws Furnished	Weight Per 100, Pounds	
			Net	Gross
791	5" Bolt Circle	4 5/8" - 11 x 1 1/4" Galv. Hex Cap Screws	1400	1500
786	7" Bolt Circle	4 3/4" - 10 x 1 5/8" Galv. Hex Cap Screws	2200	2400