



The Best Defense Against Surges



ZNP™

ZHP™

ZRP™

Moisture Can't Penetrate
Surges Can't Get Past



- + Direct Mold-On Housing
- + Zero Air Space
- + Ultimate Moisture Seal
- + Integrated Ground Lead Disconnect
- + Efficient Design: Fewer Parts
- + Higher Reliability
- + Patented Design

ZNP/ZHP/ZRP Durability

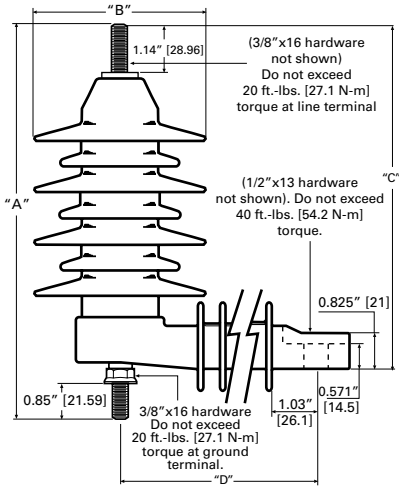
Zforce arresters are tested in accordance with ANSI/IEEE C62.11-1999 and IEC 99-4 for metal oxide arresters, and meet or exceed these minimum design criteria:

ZNP

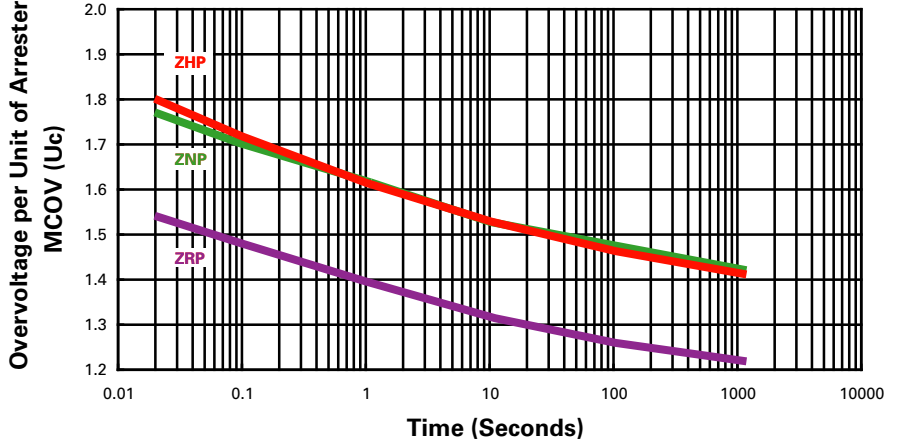
- High-Current Short Duration: 2 current surges of 65 kA magnitude and 4/10 microsecond wave shape.
- Low-Current Long Duration: 20 current surges of 75A magnitude and 2000 microsecond duration.

ZHP & ZRP

- High-Current Short Duration: 2 current surges of 100 kA magnitude and 4/10 microsecond wave shape.
- Low-Current Long Duration: 20 current surges of 250A magnitude and 2000 microsecond duration.

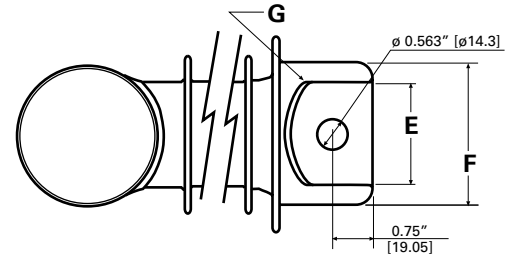


TOV Graph and Capability 3kV to 36kV



Insulated Bracket Data

Arrester Rating (kV)	Creepage		Skirts	E		F		G (Radius)	
	Inch	mm		Inch	mm	Inch	mm	Inch	mm
3-15	4.6	117	3	1.875	47.62	2.70	66.58	1.312	33.34
18-36	9.16	232	6	2.13	54.10	2.95	74.93	1.656	42.06



ZNP™ (5kA Normal Duty Polymer)

Physical Data

kV	Creepage ¹		Strike		A		B		C		D		Weight ²		Std. Pkg.
	Inch	Mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Lbs.	kg	
9	15.04	382	7.69	195	8.83	224	4.00	102	7.71	195	3.93	100	2.9	1.32	5
10	17.41	442	8.00	203	9.14	232	4.00	102	8.02	204	3.93	100	3.0	1.36	5
18	26.59	675	11.23	285	12.23	311	4.00	102	11.16	283	5.43	138	4.8	2.18	5

Protective Characteristics

Voltage Rating (Ur) (kVrms)	MCOV (Uc) ³ (kV rms)	Max. Equiv. FOW ⁴ (kV Crest)	Max. Switch Surge ⁶ (kV Crest)	Max. Discharge Voltage (kV Crest) Using an 8/20 μs Current Impulse						
				1.5 kA	2.5 kA	3.0 kA	5.0 kA	10 kA	20 kA	40 kA
9	7.65	29.9	23.7	25.4	26.2	26.6	28.2	30.5	33.8	39.9
10	8.4	32.9	26.3	28.1	29.2	29.6	31.3	33.9	37.4	43.9
18	15.3	59.7	47.4	50.7	52.3	53.1	56.4	61.0	67.5	79.7



ZHP™ (10kA Heavy Duty Polymer)

Physical Data

kV	Creepage ¹		Strike		A		B		C		D		Weight ²		Std. Pkg.
	Inch	Mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Lbs.	kg	
3	7.96	202	5.47	139	6.52	166	4.30	109	5.40	137	3.93	100	2.3	1.05	5
6	11.94	303	6.02	153	7.66	195	4.30	109	6.54	166	3.93	100	3.0	1.37	5
9	15.92	404	7.76	197	8.80	224	4.30	109	7.68	195	3.93	100	3.6	1.64	5
10	18.28	464	8.21	209	9.14	232	4.30	109	8.02	204	3.93	100	3.7	1.68	5
12	19.90	506	8.91	226	9.94	253	4.30	109	8.82	224	3.93	100	4.2	1.91	5
15	23.84	606	10.01	254	11.09	282	4.30	109	10.02	254	3.93	100	4.9	2.23	5
18	27.87	708	11.40	290	12.23	311	4.30	109	11.16	283	5.43	138	5.9	2.68	5
21	31.85	809	12.54	319	13.37	340	4.30	109	12.30	312	5.43	138	6.5	2.96	5
24	35.83	910	13.69	348	14.51	369	4.30	109	13.44	341	5.43	138	7.1	3.23	5
27	39.92	1014	14.52	369	15.66	398	4.30	109	14.59	371	5.43	138	7.8	3.52	5
30	43.90	1115	15.51	394	16.78	426	4.30	109	15.71	399	5.43	138	8.4	3.80	1*
36	51.95	1320	17.79	452	19.13	486	4.30	109	18.06	459	5.43	138	9.6	4.38	1*

Protective Characteristics

Voltage Rating (Ur) (kVrms)	MCOV (Uc) ³ (kV rms)	Max. Equiv. FOW ⁵ (kV Crest)	Max. Switch Surge ⁶ (kV Crest)	Max. Discharge Voltage (kV Crest) Using an 8/20 μs Current Impulse						
				1.5 kA	2.5 kA	3.0 kA	5.0 kA	10 kA	20 kA	40 kA
3	2.55	10.4	7.8	8.5	8.8	8.9	9.3	9.9	10.9	12.4
6	5.1	20.7	15.5	16.9	17.5	17.7	18.6	19.8	21.8	24.7
9	7.65	31.0	23.3	25.4	26.2	26.6	27.9	29.7	32.7	37.0
10	8.4	34.5	25.9	28.2	29.1	29.5	31.0	33.0	36.3	41.1
12	10.2	41.3	31.0	33.8	34.9	35.4	37.2	39.6	43.5	49.3
15	12.7	51.7	38.8	42.2	43.6	44.2	46.5	49.5	54.4	61.6
18	15.3	62.0	46.5	50.7	52.3	53.1	55.8	59.4	65.3	73.9
21	17.0	72.3	54.3	59.1	61.0	61.9	65.1	69.3	76.2	86.2
24	19.5	82.6	62.1	67.6	69.7	70.7	74.4	79.2	87.0	98.5
27	22.0	92.9	69.9	76.0	78.4	79.6	83.7	89.1	97.9	110.8
30	24.4	103.3	77.6	84.4	87.1	88.4	93.0	99.0	108.8	123.1
36	29.0	124.0	93.1	101.3	104.5	106.1	111.5	118.8	130.5	147.7



Physical Data

kV	Creepage ¹		Strike		A		B		C		D		Weight ²		Std. Pkg.
	Inch	Mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Lbs.	kg	
3	7.96	202	5.47	139	6.52	166	4.30	109	5.40	137	3.93	100	2.3	1.05	5
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9	15.92	404	7.76	197	8.80	224	4.30	109	7.68	195	3.93	100	3.6	1.64	5
10	18.28	464	8.21	209	9.14	232	4.30	109	8.02	204	3.93	100	3.7	1.68	5
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21	31.85	809	12.54	319	13.37	340	4.30	109	12.30	312	5.43	138	6.5	2.96	5
24	35.83	910	13.69	348	14.51	369	4.30	109	13.44	341	5.43	138	7.1	3.23	5
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30	43.90	1115	15.51	394	16.78	426	4.30	109	15.71	399	5.43	138	8.4	3.80	1*
36	51.95	1320	17.79	452	19.13	486	4.30	109	18.06	459	5.43	138	9.6	4.38	1*

Protective Characteristics

Voltage Rating (Ur) (kVrms)	MCOV (Uc) ³ (kV rms)	Max. Equiv. FOW ⁵ (kV Crest)	Max. Switch Surge ⁶ (kV Crest)	Max. Discharge Voltage (kV Crest) Using an 8/20 μs Current Impulse						
				1.5 kA	2.5 kA	3.0 kA	5.0 kA	10 kA	20 kA	40 kA
3	2.55	8.6	6.2	6.8	7.1	7.2	7.5	8.2	9.0	10.3
6	5.1	17.1	12.4	13.6	14.1	14.3	15.1	16.3	18.1	20.6
9	7.65	25.7	18.6	20.3	21.2	21.5	22.6	24.5	27.1	30.9
10	8.4	28.5	20.7	22.6	23.5	23.9	25.1	27.2	30.1	34.3
12	10.2	34.2	24.8	27.1	28.2	28.7	30.1	32.6	36.1	41.2
15	12.7	42.8	31.1	33.9	35.3	35.9	37.7	40.8	45.2	51.5
18	15.3	51.3	37.3	40.7	42.3	43.0	45.2	49.0	54.2	61.7
21	17.0	59.9	43.5	47.5	49.4	50.2	52.7	57.1	63.2	72.0
24	19.5	68.4	49.7	54.2	56.4	57.4	60.2	65.3	72.2	82.3
27	22.0	77.0	55.9	61.0	63.5	64.5	67.8	73.4	81.3	92.6
30	24.4	85.5	62.1	67.8	70.5	71.7	75.3	81.6	90.3	102.9
36	29.0	102.6	74.5	81.4	84.6	86.0	90.4	97.9	108.4	123.5

1. Reduce creepage by 1.45 inches (36.8mm) when ordering without insulating bracket.
 2. Does not include metal mounting bracket hardware.
 3. MCOV=Maximum Continuous Operating Voltage that may be applied continuously between the terminals of the arrester.
 4. The equivalent Front-of-Wave is the maximum discharge voltage for a 5 kA impulse current wave which produces a voltage wave cresting in 0.5 μs.
 5. The equivalent Front-of-Wave is the maximum discharge voltage for a 10 kA impulse current wave which produces a voltage wave cresting in 0.5 μs.
 6. Based on a switching surge current impulse of 45x90 μs, 500 amperes.
- * Single pack modifier required for 30 kV and 36 kV ratings.

EZ Ordering Information



Please fill in the form below to specify the Zforce™ product that meets your specifications.

Z_P **P0** **kV** **-** **P1** **P2** **P3** **P4** **P5** **-** **P6** **P7**

Z_P Pole Type

ZNP - Zinc Oxide **Normal** Duty 5 kA Polymer Arrester

ZHP - Zinc Oxide **Heavy** Duty 10 kA Polymer Arrester

ZRP - Zinc Oxide **Riser** Pole Polymer Arrester

P0 General Options

0 - 3/8" x 16 SSTL Studs (line and ground terminals)

kV(U_r) Duty-Cycle Rating of Arrester

03, 06, 09, 10, 12, 15, 18, 21, 24, 27, 30, 36

P1 Insulating Bracket Options

- 0** - Standard Insulating Bracket with GLD
- 1** - Standard Insulating Bracket, No GLD
- 2** - No Insulating Bracket, with GLD (line arrester)
- 3** - No Insulating Bracket, No GLD (switchgear application)

P2 Additional Bracket Options

- 0** - No NEMA Brackets
- A** - Transformer Type A Bracket
- C** - Crossarm Bracket (top mounting with backstrap assembly)
- N** - Transformer Type N Bracket
- W** - Transformer Type W Bracket

P3 Top Terminal Options*

- 00** - Standard-Four corner SSTL clamp and nut
- 02** - Two four corner SSTL clamps
- 11** - 18" Insulated Wire Lead with line ring terminal/flat washer/lock washer
- 12** - 18" Insulated Wire Lead with two ring terminals/flat washer/lock washer

P4 Universal Insulating Cap (Bird Guard)

- 0** - Without Cap
- 1** - With Cap
- 2** - Fuse Kit

P5 Bottom Terminal Options*

- 00** - Standard - U clamp and nut
- 01** - Four corner SSTL clamp and nut
- 02** - Two four corner SSTL clamps, (up/down)
- 12** - 12.0" Copper Strap

P6 Bagging Options

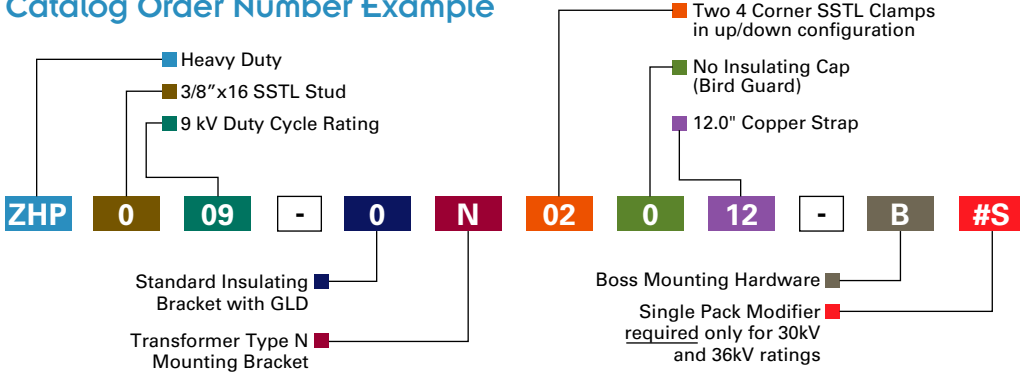
- B** - Boss Mounting Hardware
- H** - Lug Mounting Hardware

P7 Packaging Options

- #S** - Single Pack Modifier required only for 30kV and 36kV ratings
- #P** - Bulk Packaging

*Top/Bottom Terminal: Fits wire ranges for aluminum or copper conductors from No. 10 solid (3.0mm dia.) through 2/0 stranded (11.0mm dia.)

Catalog Order Number Example



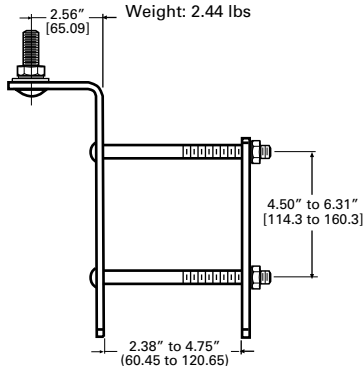
Boss Mounting Hardware



Lug Mounting Hardware

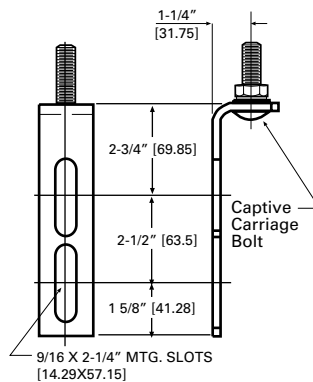
Mounting Brackets

Type "C" EEI - NEMA Top Mounted Crossarm Bracket
Weight: 2.44 lbs



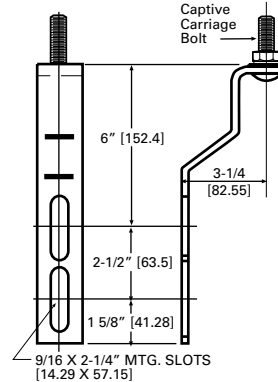
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Type "A" Weight: 1.08 lbs



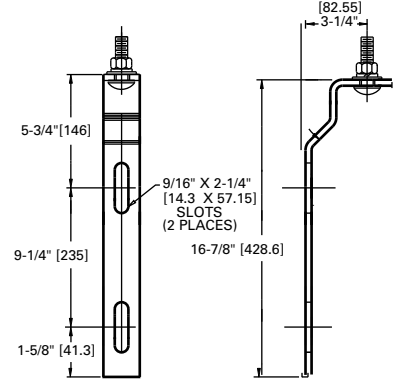
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Type "N" Weight: 1.39 lbs



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Type "W" Weight: 2.09 lbs



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