



The type “ZIP”/“ZJP” intermediate class arresters offer the benefits of polymer housings for system voltages up to 161kV. The arresters are approximately 1/5 the weight of the porcelain equivalent. Handling and installation become much easier tasks. Also, the risk of damage to the housing is reduced compared to porcelain.

Performance

ZIP:
3 kV through 144 kV duty cycle rating, 2.55 kV through 115 kV MCOV, 2.4 kV through 161 kV system line-line voltage

ZJP:
3 kV through 45 kV duty cycle rating, 2.55 kV through 36.5 kV MCOV, 2.4 kV through 46 kV system line-line voltage

The arrester designs are tested in accordance with the latest industry standards for metal oxide arresters. The “ZIP”/“ZJP” arresters consistently withstand the following minimum design tests:

- High Current-Short Duration: 100 kA crest
- Duty Cycle per ANSI: 10 kA
- Nominal Discharge Current per IEC: 10 kA
- Line Discharge Class per IEC: Class 2
- Minimum Energy Capability: 5.0 kJ/kV MCOV
- Fault Withstand Capability:
 - ZIP—50 kA rms
 - ZJP—20 kA rms
- Working Cantilever Strength:
 - ZIP—5000 in.-lbs.
 - ZJP—720 in.-lbs.
- ZIP RUS listed

Design

The design consists of a number of metal oxide valve elements contained within a fiberglass winding and then inserted into the polymer housing. Type “ZIP”/“ZJP” arresters are shipped as single units for all ratings. There is no need to combine sections, even for the 144kV duty cycle rating. The metal oxide valve elements combine excellent protective characteristics with steady state performance to maximize protection over many years of service.

Fault Current Withstand

The severity of a failure depends on the duration and magnitude of the available fault current conducting through the arrester at the time of failure. This type of arrester, with its polymer housing, eliminates the potential danger of porcelain fragmentation. The design uses a fiberglass epoxy wrap to relieve the pressure that is present during a fault.

Benefits

The use of polymer housings for our arresters provides many benefits over porcelain designs.

- **LIGHTWEIGHT**—The lightweight design provides much easier handling and installation. The polymer arresters are less than 1/5 the weight of the porcelain equivalents. The burden on mounting structures and personnel is greatly reduced.
- **REDUCED CLEARANCES**—The smaller physical size of the polymer housing and the line side of the arrester allow the clearances to be reduced. This provides added flexibility with design and layout since they can be used in tighter areas.
- **SINGLE UNIT DESIGN**—The single unit design simplifies installation by reducing handling that was previously required for multi-section porcelain designs. This also provides improved contamination performance over multi-unit arresters.
- **DAMAGE RESISTANT**—The polymer housings resist damage from handling where porcelain units are most vulnerable to chipping and breakage.
- **SAFETY**—The “ZIP”/“ZJP” arresters minimize safety hazards to personnel and nearby equipment that exists with porcelain housings.

Reliability

Each completed “ZIP”/“ZJP” arrester unit must pass the following electrical tests: reference voltage, power loss, and RIV.



ZJP Intermediate Class Surge Arresters

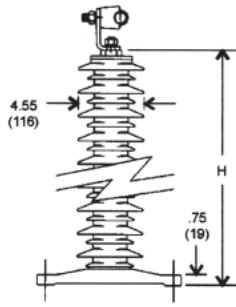


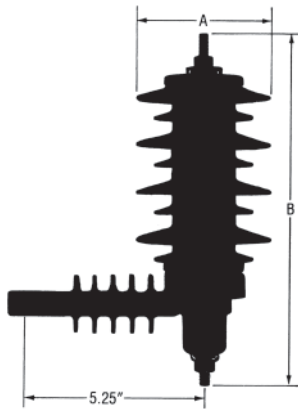
Figure 1

Physical Characteristics and Clearances													
Catalog Number	Figure	kV Rating	MCOV kV	Total Height		Creepage		Minimum Clearances ¹				Weight	
				In	Mm	In	Mm	A		R		Lb	Kg
ZJP0003-1211	1	3	2.55	6.8	173	15.7	400	9.5	241	5.5	140	7.7	3.5
ZJP0006-1211		6	5.10					9.5	241	5.5	140	8.1	3.7
ZJP0009-1211		9	7.65	6.82	400	9.5	241	5.5	140	8.4	3.8		
ZJP0010-1211		10	8.40	6.87	175	15.8	401	9.5	241	5.5	140	8.6	3.9
ZJP0012-1211		12	10.20	6.85	174			9.5	241	5.5	140	10.7	4.9
ZJP0015-1211		15	12.70	8.31	211	20.2	512	9.5	241	5.5	140	11	5
ZJP0018-1211		18	15.30	9.22	234	22	559	9.5	241	5.8	147	11.4	5.2
ZJP0021-1211		21	17.00	10.7	272	26.4	671	9.5	241	6.8	173	11.9	5.4
ZJP0024-1211		24	19.50	12.1	308	30.7	781	9.5	241	7.8	198	14	6.4
ZJP0027-1211		27	22.00	13.1	333	33.7	856	10.5	267	8.8	224	14.7	6.7
ZJP0030-1211		30	24.40	14.6	370	38.1	967	10.5	267	8.8	224	14.7	6.7
ZJP0033-1211		33	26.70	15.9	403	40.3	1024	10.5	267	8.8	224	15.7	7.1
ZJP0036-1211		36	29.00	16.8	428	44.2	1122	12.5	318	10.8	274	16.6	7.5
ZJP0039-1211		39	31.50	18.3	466	48.6	1234	13.5	343	11.8	300	17.5	8
ZJP0042-1211		42	34.00	19.2	489	51.4	1307	14.5	369	12.8	326	18.4	8.4
ZJP0045-1211		45	36.50	21.3	542	54.5	1385	15.5	394	13.8	351	19.3	8.8

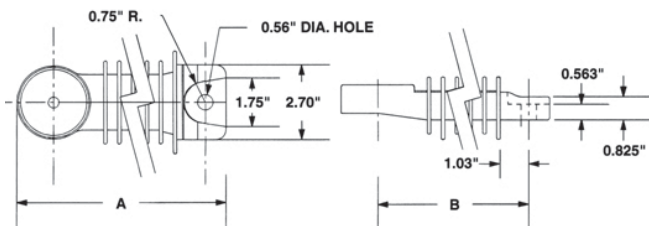
Notes:

1) These minimum clearances are determined by the protective capabilities of the arresters and they are secondary to any other clearance requirement that may exist for specific applications.

ZJP D Series Intermediate Class Arresters



Physical Characteristics and Clearances											
Catalog Number	kV Rating	Width A		Length B		Nominal Strike		Nominal Creepage		Weight	
		In	Mm	In	Mm	In	Mm	In	Mm	Lb	Kg
ZJP0003-D005	3	4.6	116	11.1	282	6.8	173	15.7	400	4.8	2.2
ZJP0006-D005	6									5.2	2.3
ZJP0009-D005	9			11.12	283	6.82	15.8	401	5.6	2.5	
ZJP0010-D005	10			11.17	284	6.87			175	5.7	2.6
ZJP0012-D005	12			11.15	283	6.85	174	7.8	3.5		
ZJP0015-D005	15			12.61	320	8.31	211	20.2	512	8.2	3.7
ZJP0018-D005	18			13.52	343	9.22	234	22	559	8.5	3.9
ZJP0021-D005	21			15	381	10.7	272	26.4	671	9	4.1
ZJP0024-D005	24			16.42	417	12.1	308	30.7	781	11.1	5
ZJP0027-D005	27			17.41	442	13.1	333	33.7	856	11.8	5.4
ZJP0030-D005	30			18.88	480	14.6	370	38.1	967		
ZJP0033-D005	33			20.18	513	15.9	403	40.3	1024	12.8	5.8
ZJP0036-D005	36			21.14	537	16.8	428	44.2	1122	13.7	6.2
ZJP0039-D005	39			22.64	575	18.3	466	48.6	1234	14.6	6.6
ZJP0042-D005	42			23.54	598	19.2	489	51.4	1307	15.5	7
ZJP0045-D005	45			25.64	651	21.3	542	54.5	1385	16.4	7.5





ZJP Intermediate Class Surge Arresters

Electrical Characteristics												
Catalog Number	Voltage Rating (kV-rms)	MCOV (kV-rms)	TOV ¹		Max Equiv FOW ² (kV-Crest)	Max Switch Surge ³ (kV-Crest)	Maximum Discharge Voltage (kV-Crest) Using an 8/20 μ s Current Impulse					
			1 s (kV-rms)	10 s (kV-rms)			1.5 kA	3.0 kA	5.0 kA	10 kA	20 kA	40 kA
ZJP0003	3	2.55	3.7	3.5	8.55	6.34	6.79	7.17	7.5	8.09	8.96	10.1
ZJP0006	6	5.10	7.41	7.04	17.1	12.7	13.6	14.3	15	16.2	17.9	20.2
ZJP0009	9	7.65	11.1	10.6	25.9	19.2	20.5	21.7	22.7	24.5	27.1	30.5
ZJP0010	10	8.40	12.2	11.6	28.3	21	22.5	23.7	24.8	26.8	29.6	33.4
ZJP0012	12	10.20	14.8	14.1	34.2	25.4	27.2	28.7	30	32.4	35.8	40.4
ZJP0015	15	12.70	18.4	17.5	43.1	32	34.2	36.1	37.8	40.8	45.1	50.8
ZJP0018	18	15.30	22.2	21.1	51.3	38.1	40.8	43	45	48.6	53.8	60.6
ZJP0021	21	17.00	24.7	23.5	56.6	42	44.9	47.5	49.6	53.6	59.3	66.8
ZJP0024	24	19.50	28.3	26.9	68.5	50.8	54.3	57.4	60	64.8	71.7	80.7
ZJP0027	27	22.00	31.9	30.4	77.3	57.4	61.4	64.8	67.8	73.2	81	91.2
ZJP0030	30	24.40	35.4	33.7	83.5	61.9	66.2	70	73.2	79	87.4	98.4
ZJP0033	33	26.70	38.8	36.9	91.9	68.2	72.9	77	80.6	86.9	96.3	108
ZJP0036	36	29.00	42.1	40.0	98.9	73.4	78.5	82.9	86.7	93.5	104	117
ZJP0039	39	31.50	45.7	43.5	109	80.5	86.1	90.9	95.1	103	114	128
ZJP0042	42	34.00	49.4	47	117	86.7	92.7	97.9	102	111	122	138
ZJP0045	45	36.50	53	50.4	125	92.9	99.4	105	110	119	131	148.3

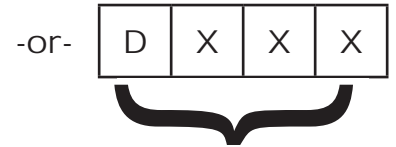
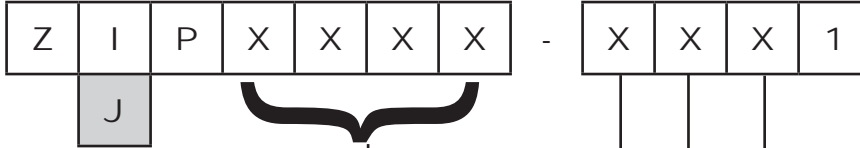
Notes:

- 1) Temporary Overvoltage without any Prior Duty
- 2) The equivalent Front-of-Wave is the maximum discharge voltage for a 10kA impulse current wave which produces a voltage wave cresting in a 0.5 μ s
- 3) Based on a switching surge current of 500 amperes



ZIP/ZJP Intermediate Class Arrester Ordering Information

Fault Withstand	
ZIP	= 50kA
ZJP	= 20kA



kV Rating	
0003	= 3
0006	= 6
0009	= 9
0010	= 10
0012	= 12
0015	= 15
0018	= 18
0021	= 21
0024	= 24
0027	= 27
0030	= 30
0033	= 33
0036	= 36
0039	= 39
0042	= 42
0045	= 45
0048	= 48
0054	= 54
0060	= 60
0066	= 66
0072	= 72
0084	= 84
0090	= 90
0096	= 96
0108	= 108
0120	= 120
0132	= 132
0144	= 144

Configuration (not available on "D" Series)	Top & Bottom Connectors (not available on "D" Series)
<p>1 - Stainless steel top cover with tripod base</p>	<p>1 - Eyebolt with a 90° angle bracket</p> <p>Conductor Range: 0.25" - 0.75" (6.35 - 19.05 mm)</p>
<p>2 - Tripod on top with stainless steel bottom cover (Inverted Mounting)</p>	<p>2 - Four hole NEMA pad with a 90° angle</p> <p>Conductor Range: 0.25" - 1.25" (6.35 - 31.75 mm)</p>
<p>3 - Stainless steel covers on both ends</p>	<p>3 - Four hole NEMA pad with a 45° angle</p> <p>Conductor Range: 0.25" - 1.25" (6.35 - 31.75 mm)</p>
<p>4 - Tripod on both ends</p>	

"D" Series ZJP only	
D001	= Crossarm Bracket
D005	= Standard Unit
D106	= with Birdguard
D109	= Birdguard and Crossarm Bracket

