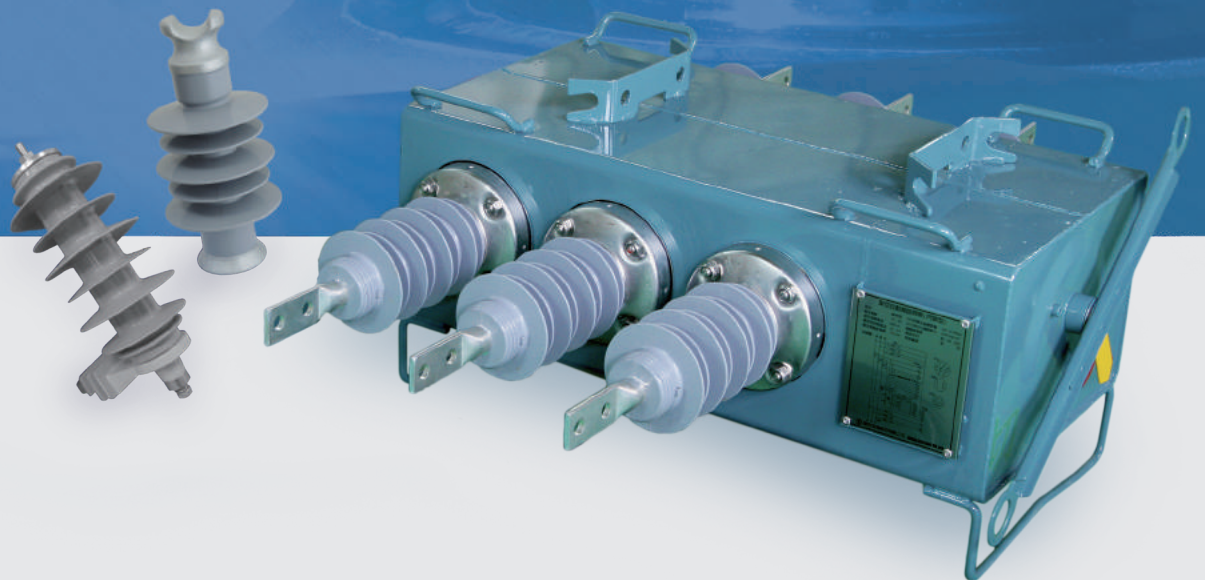


PRODUCT CATALOGUE

Overhead System





Information

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About Us

Established in 1983, Jaker Electric Co., Ltd., has over 30 years of experience in this industry and continues to develop and invest in electrical power solutions. The company is engaged mainly in the development, manufacturing, and sales of power-equipment products. Its wide range of products includes circuit breakers, disconnecting switches, load break switches, line switches, arresters, and transformer components. It is worth emphasizing that we have a firm commitment to maintaining competitive prices and providing the highest quality, safest, and most practical products.



Overhead Line Switch

This equipment is applicable to 24 kV overhead distribution lines, primarily as three automatically connected load switches. The line switch complies with IEC62271-1 and IEC62271-103 standards. It can be operated either remotely or manually to switch the load current and can provide voltage and current data through transducers such as a current transformer or a voltage transducer in the switch box.

Characteristics

- **Arc extinction:**

Arc extinction is achieved when the movable contact is driven away from the single-pressure arc suppression chamber (PUFFER) while driving a piston to compress SF6 gas in the chamber to blast out SF6 gas.

- **Low-pressure lockout:**

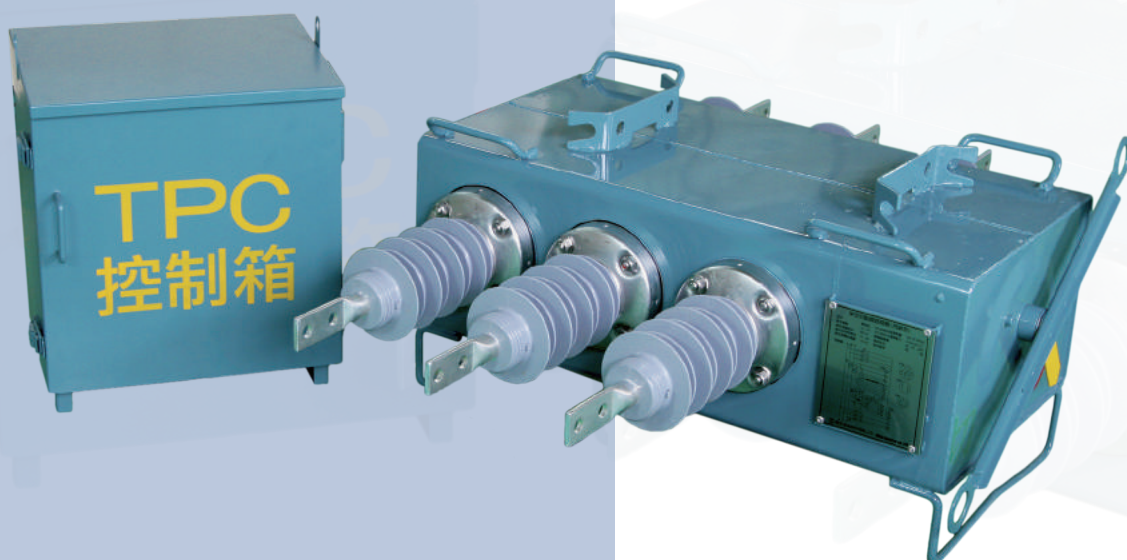
When the sensor detects an abnormal decrease in the switchgear pressure of 0.3–0.4 kg/cm², it initializes the switchgear locking mechanism to prevent switchgear operation and displays the low-pressure alarm signal to avoid incorrect operation.

- **Pressure relief device:**

When the switch box short circuits because of an abnormally elevated pressure, the pressure relief device instantly opens the box before rupture, releasing the pressure outside the pressure relief device (explosion-proof) in order to avoid harming people.

- **Voltage and current sensor (optional):**

SCADA control system information regarding voltage and current data can be acquired from the sensor installed in the switch box.



Specifications

Items		Specifications	
Rate voltage		15 kV	25.8 kV
Phase		Three phase	
Rate current		600 A	
Short time current		12 kA @ 1 sec	
Peak current		31.5 kA	
Making current		31.5 kA (peak)	
Rated short-duration power-frequency withstand voltage	Common value	>28 kV	>50 kV
	Across the isolating distance	>32 kV	>60 kV
(BIL)	P-G	>110 kV	>125 kV
	P-P	>110 kV	>125 kV
	Poles	>125 kV	>145 kV
Resistance for contactors		100uΩ±25% @ 20°C	
Operations / operate torque		More than 1000 times / 10-30 kgf	
Rate of leakage		<5×10-6 bar×cm³/s	
Rate of leakage per year		<0.5%	
Switch body	dimension	1.48(m)×0.83(m)×0.44(m)	1.48(m)×1.05(m)×0.54(m)
	weight	75 kg±10%	88kg±10%
	material	SUS 304 2.0t	
	IP protection	IPX7	

Current Transformer

Items		Specifications
Rate primary current		600 A
Rate secondary current		1 A
Short time current		12 kA @ 1 sec
Rated burden		3.75 VA
Secondary rated frequency rated voltage		3 kV (rms) @ 1min
Tolerance / phase angle difference (degrees)	30 A	3.0% / 5.4
	120 A	1.5% / 2.7
	600 A	1.0% / 1.8
	720 A	1.0% / 1.8
	1200 A	5.0% / -
	2400 A	10.0% / -

Voltage Transducer

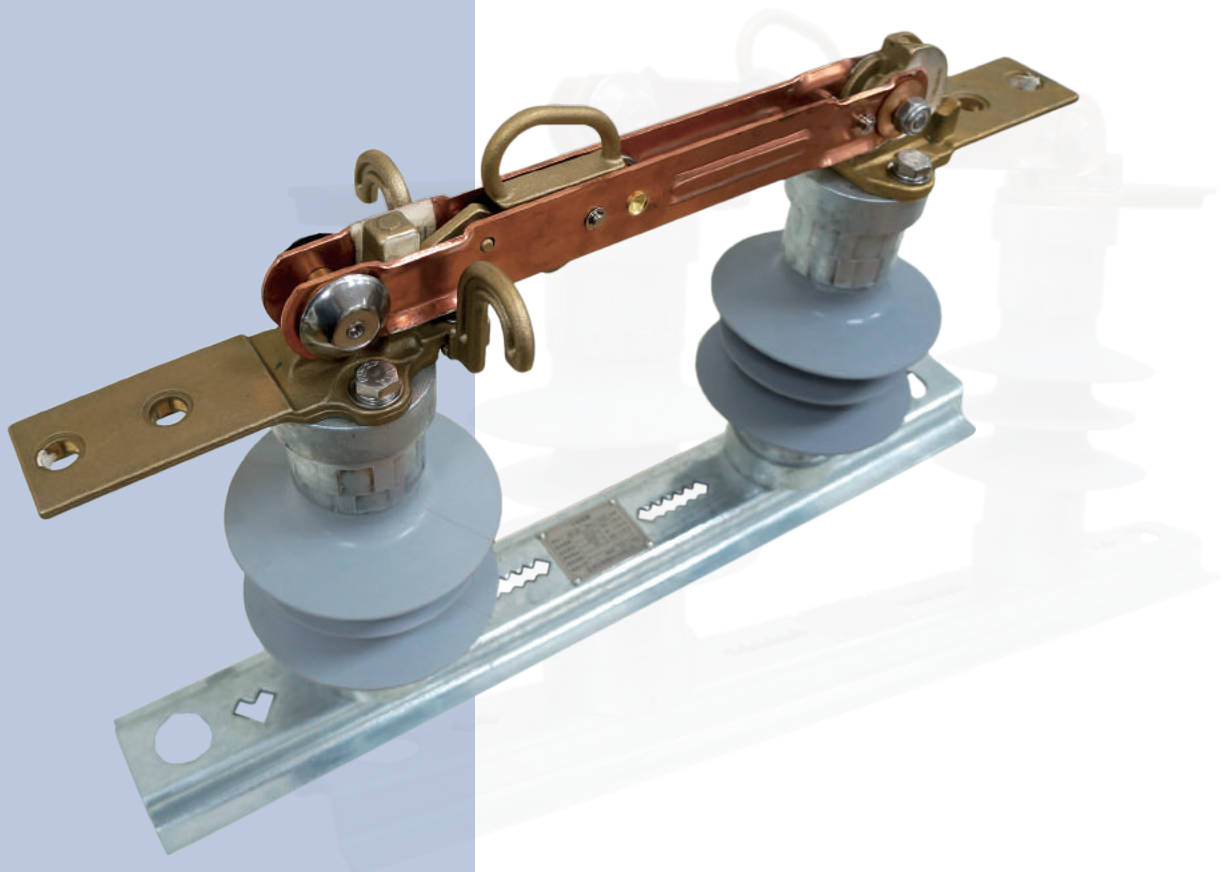
Items	Specifications	
Rated voltage	15 kV	25.8 kV
Rate secondary voltage	5 V	
Tolerance: Acceptable tolerance (ϵ) $\leq 1\%$, phase angle differences (ψ) ≤ 1.5 degree. (Inclusive of waterproof metallic connector with 7 meters of conducting wire, rated burden $1\text{M}\Omega\pm 2\%$ and below).		

Disconnecting Switch

This switch is used in a 1 ϕ 15 kV outdoor power system to isolate the load current transformer magnetizing current and cable charging current for work black-out before isolation and visual inspection of the switch connection status.

Specifications

Type	JK-01-2 1P
Rating voltage (kV)	15
Rating current (A)	600
Short time current 3s kA (rms)	25
Rating frequency (Hz)	50/60
Short peak current kA (peak)	40
AC withstand voltage (kV/min)	50
BIL (kV) 1.2/50 μ s	110

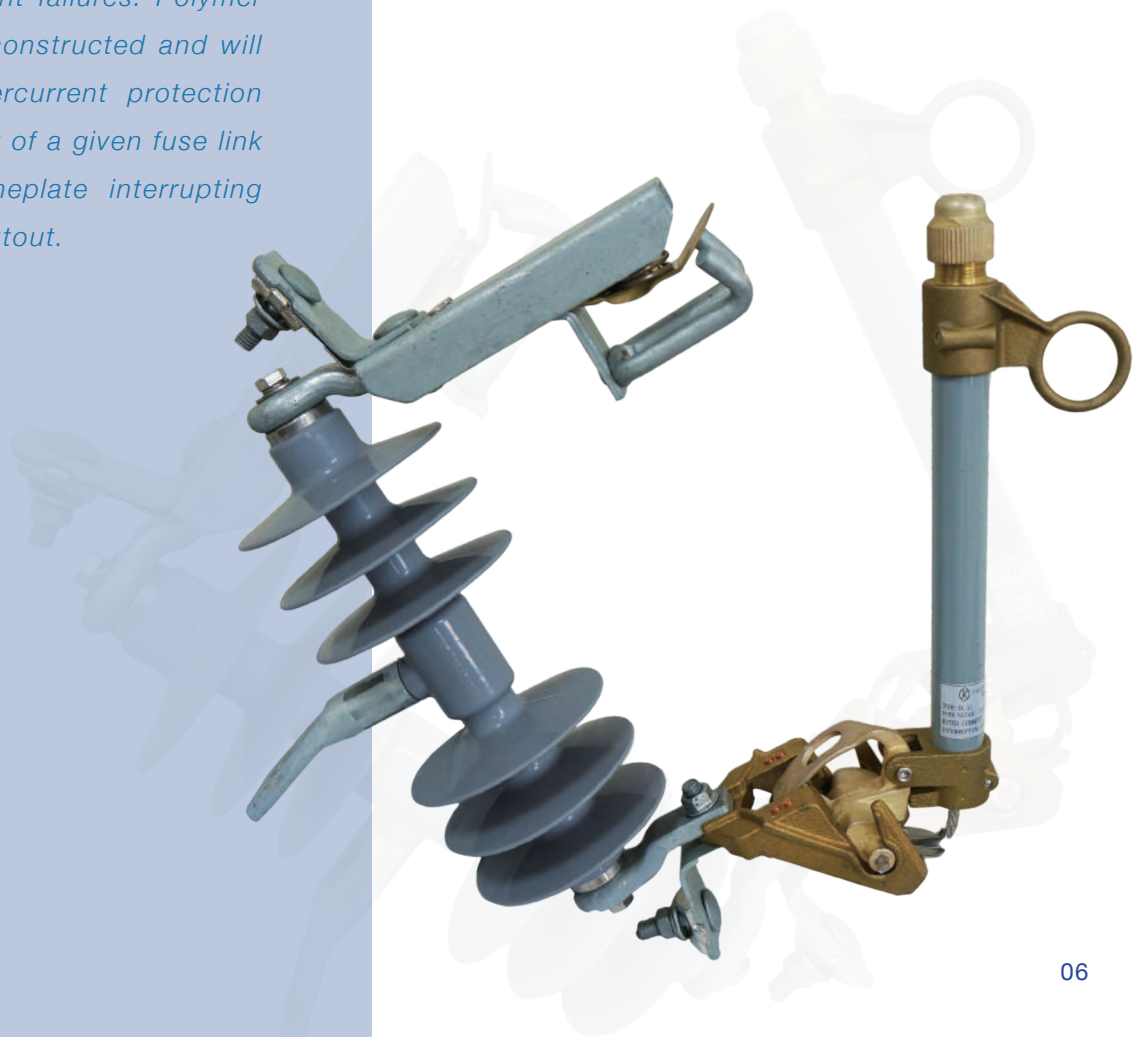


Polymer Fuse Cutout

JAKER ELECTRIC series offers new standard distribution cutouts in polymer and porcelain designs, providing reliable overcurrent protection for primary distribution circuits. Our premium polymer-insulated cutout incorporates an industry-recognized silicone rubber insulation material with superior hydrophobic qualities. The primary purpose of any cutout is to provide overcurrent protection safeguards for protecting an electric system from excessive currents produced by abnormal conditions such as faults, line or equipment overloads, or equipment failures. Polymer cutouts are ruggedly constructed and will provide full-range overcurrent protection from the minimum melt of a given fuse link to the maximum nameplate interrupting current rating of the cutout.

Construction

The fuseholder is constructed from an epoxy impregnated glass filament wound tube over an arc-quenching inner liner material. A large bronze-cast pull ring is utilized for ease of installation and re-fusing. The bronze trunnion, with the lifting ring having both front and side accessibility, is silver plated for minimum contact resistance. The grooved flipper assembly controls the link tension, ensures low fault current interruption, and prevents link breakage on “close-in.” The frame is overmolded with an industry leading, track resistant, silicone rubber polymer-housing. Independent laboratory tests have verified the superiority of silicone rubber in terms of resistance to UV degradation, surface tracking/performance in contaminated environments, and other important insulating properties.



Ratings/specifications

The 7.8/15 and 15/27 kV polymer cutouts have maximum design slant voltage ratings. These cutouts are to be used on systems that have phase-to-ground voltages no greater than the value listed to the left of the slant (/) and that have phase-to-phase voltages no greater than the value listed to the right of the slant. Polymer cutouts are available in 15.5 and 27 kV voltage ratings. Both polymer- and porcelain-type cutouts are available with a 100 or 200 A fuse holder.

Synthetic Arc-Quenching Fuse Tube

The inner liner is a synthetic arc-quenching formulation with the main part consisting of aluminum trihydrate. The liner is chemically bonded to the tube's glass-reinforced shell. This combination provides a moisture source to extinguish the arc during interrupt operations without the absorption of moisture, and provides a high bursting strength. It is also protected from the weather and environment by a special ultraviolet resistant coating.

Brackets

The polymer cutouts come packed with one per carton and includes a NEMA bracket for cross-arm mounting. All the above brackets are made from galvanized steel for long-lasting service. Cutouts can be ordered without brackets.

Terminals

Tin-plated bronze parallel groove type terminals are standard. They can accommodate aluminum or copper conductor sizes. The parallel groove design is perfect for handling two different conductor sizes as is the case when arresters are used.

Extra Corrosion Protection

The cutouts are available with stainless steel inserts, hood and bolts, and copper alloy loadbreak hooks for greater corrosion resistance in environmental areas where corrosion can be a major factor. Loadbreak hooks, for use with a loadbreak tool, are standard and serve as a “close-in” guide to ensure positive-make. A lubricant is applied to all separable connector interchanges. All hardware is designed to interlock during assembly to ensure correct alignment. The rugged design ensures smooth operation and a long operational lifetime.

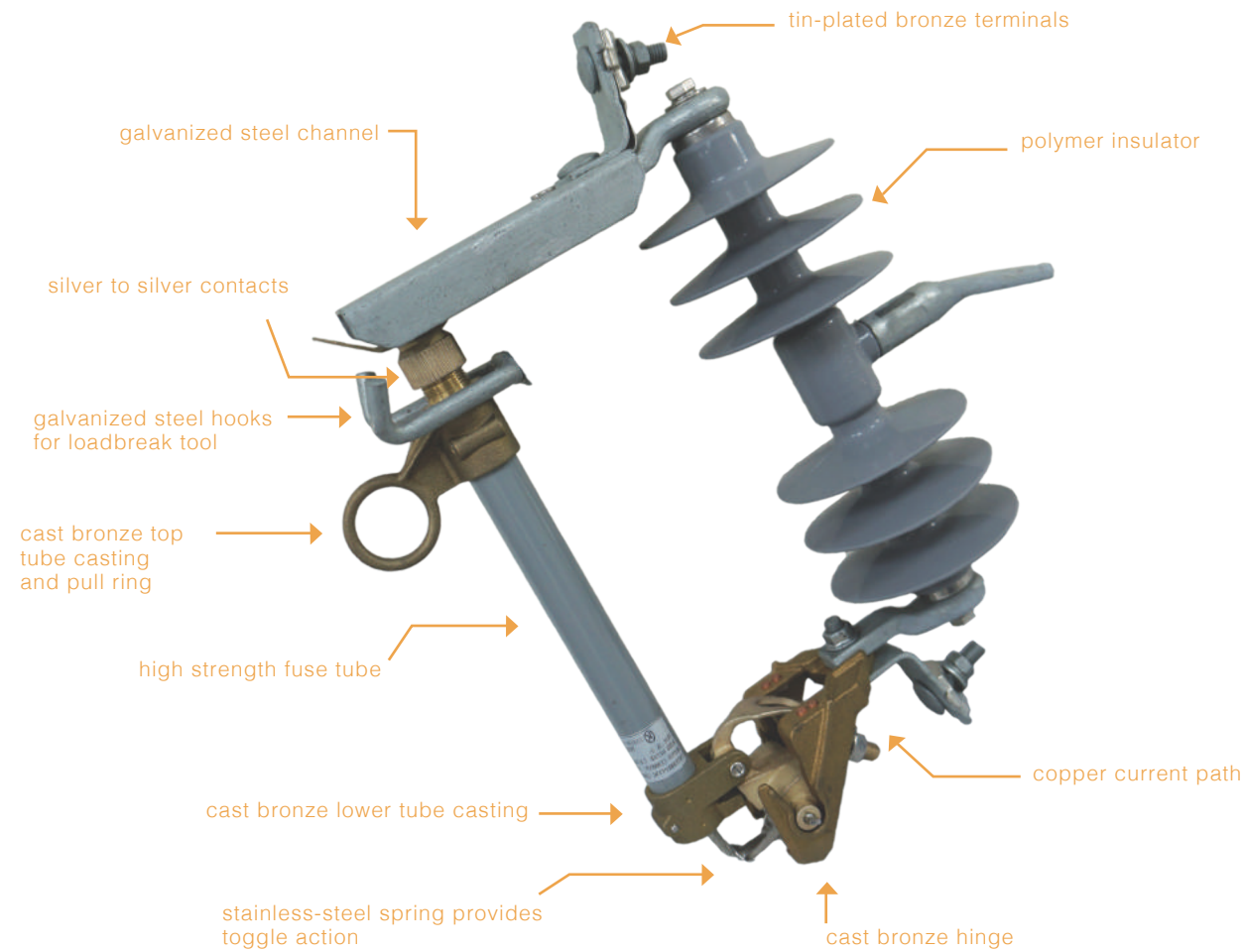
Specifications

Type NO.	JK-51	JK-43
Maximum design rating (kV)	7.8/15	15.5/27
Impulse withstand voltage (BIL) 1.2x50 μs (kV)	95	125
Minimum 60 Hz 1 min dry (kV)	35	42
Minimum 60 Hz 10 sec wet (kV)	30	36
Leakage (mm)	333	445

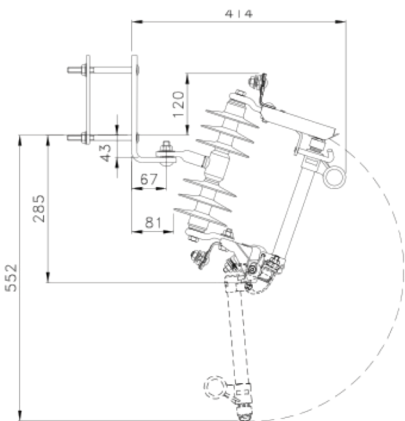
Application

The polymer cutout provides short-circuit protection to utility lines with the added feature of mechanical capability in a loadbreaking function. Cutouts provide reliable protection from overloads that melt the fuse link through the maximum interrupt capacity of the fuseholder and also provide inductive and capacitive loadbreaking capability. Each cutout includes standard loadbreak hooks for use with portable loadbreaking tools. This method is particularly useful for the switching of a 200 A fuseholder and a 300 A disconnect blade.

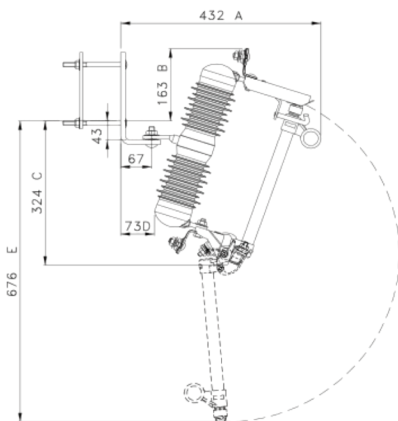
Cutouts production shown



Dimensions



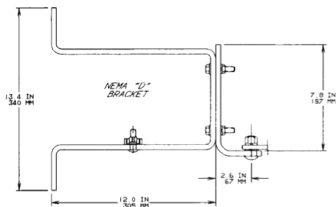
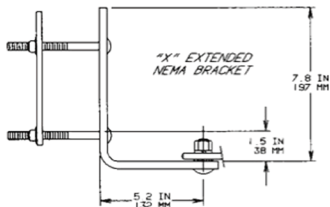
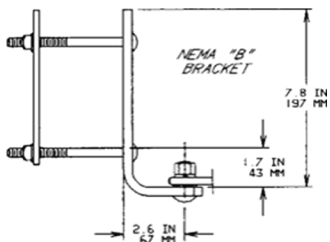
Dimension of 7.8/15 kV fuse cutout



Dimension of 15.5/27 kV fuse cutout

Rating voltage	A	B	C	D	E
7.8/15 kV	414 mm	120 mm	285 mm	81 mm	552 mm
15.5/27 kV	432 mm	163 mm	324 mm	73 mm	676 mm

Mounting bracket dimensions



Polymer Arresters

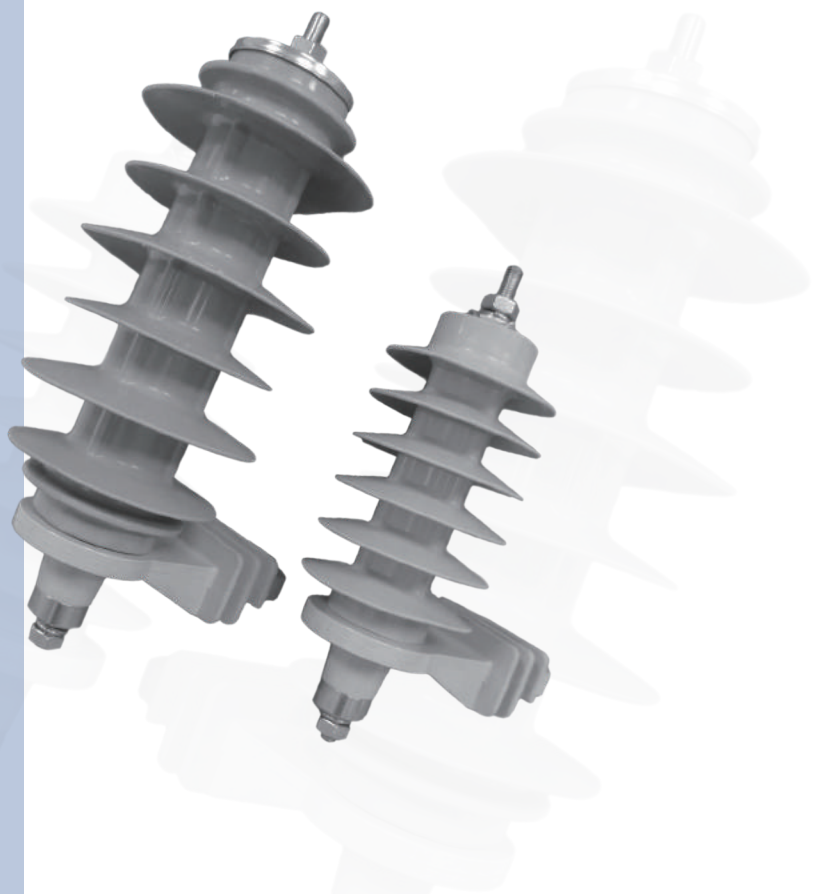
The JK-53 and JK-54 series arresters are composed of superior quality zinc oxide components and are applicable to overhead distribution lines with a nominal voltage of 11.4/22.8 kV, power distribution equipment such as transformers, cables, switchboards, and electrical equipment such as overvoltage protection devices.

The JK series is in the normal duty distribution class and offers significant improvements in protective characteristics and 60 Hz temporary overvoltage (TOV) capability for all common overhead and riser-pole applications in accordance with the IEC60099-4 and IEEE C62.11 standard.

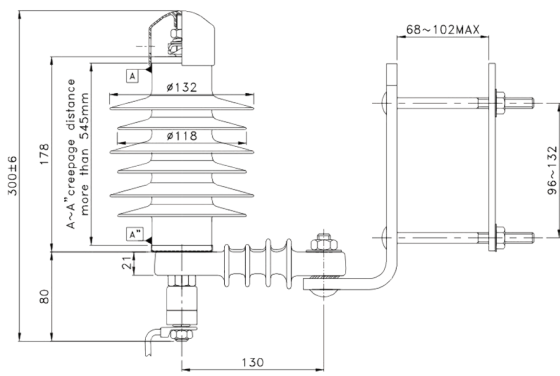
The arrester is covered with an RTV silicone rubber jacket and is injection molded and chemically bonded to the arrester's metal oxide component. It is hydrophobic and has salt-damage protection, dust-damage protection, and excellent ultraviolet sunlight resistance. The insulator creepage distance of 25 mm/kV is in accordance with the IEC 60815 standard for highly polluted areas (heavy class), and it is suitable for contaminated environments.

Construction

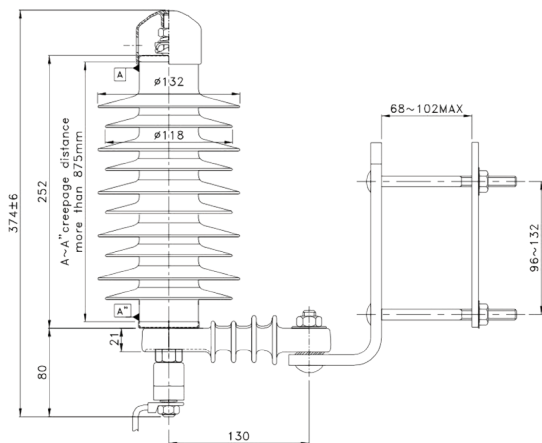
- The JK series is based on a cage of pre-stressed fiberglass rods for high mechanical strength. In the extremely rare event of the resistors being overloaded, arcing cannot result in the build-up of critical internal pressure because the resistors are not enclosed in a sealed mechanical shell. Thus, the arc can escape through the silicone sheath, leaving the mechanical support structure of the enclosure unharmed, thereby reducing the risk of internal components being ejected.
- The components of the arrester module assembly consist of metal oxide varistors (MOVs) that withstand the system voltage during steady-state conditions. The components are assembled with a strict quality control process.
- The combination of these technologies allows the surge arrester to be impervious to moisture and capable of withstanding extreme electrical, environmental, and cantilever load conditions.
- Following assembly, each arrester is subjected to a battery of electrical tests to ensure the highest quality and in-service field performance.



Dimensions



JK-53



JK-54

Specifications

Type		JK-53	JK-54
Duty- cycle voltage (kV)		9	18
MCOV RMS (kV)		7.65	15.3
Discharge voltage -current characteristic @ 8/20 μ s (kV)	5 kA	30	60
	10 kA	35	68
	20 kA	40	76
High-current short-duration withstand current @ 4/10 μ s (kA)		100	
Short circuit withstand current (kA)		20	
Impulse voltage 1.2/50 μ s (kV)		75	125
Power-frequency withstand voltage RMS (kV)	dry 1 min	27	42
	wet 10 sec	24	36

Characteristics

- The arrester offers all the advantages of a metal oxide distribution arrester in a light-weight, low-profile polymeric housing designed for either indoor or outdoor overhead applications. The polymeric housing eliminates the problem of chipped or cracked porcelain that can occur with rough handling or shipping.
- Superior transient overvoltage (TOV) and excellent overvoltage surge protection characteristics.
- The failure mode of the arrester is less severe than that of porcelain housed units. During the violent failure mode of porcelain housed arresters, an internal arc from excessive fault current causes thermal fracture of the porcelain housing. The hot gases created by the arc explode, sending porcelain fragments in all directions. On the other hand, a polymer housing will split open during failure conditions to relieve the internal pressure.

- 1,000 h climatic aging test

The polymer housing of the arrester is required to pass 1,000 h of an accelerated aging test. The tests are conducted in accordance with the IEEE C62.11 standard.

- Ground lead disconnecter

The purpose of this component is to allow a failed (shorted) arrester to automatically disconnect from the line. It helps prevent line lockout by disconnecting a failed arrester from the system and serves as an indication device that shows that the failed arrester requires a replacement. The ground terminal clamp will accept the same cross-section as that of conductors on line terminals. A 22 mm² grounded lead composed of soft copper wire is recommended.

Composition Pin Insulator

The JK-series composition pin insulator is manufactured and tested as per IEC and ANSI/IEEE standards. Polymer insulators are supplied with various metal fitting orientations based on customer requirements. The insulator can be used on distribution lines and transmission lines of up to 35 kV. It is mounted rigidly on a supporting structure by means of a steel or bolts. It has a non-puncturable design. To ensure a product of the highest integrity, raw materials for the polymer insulator are sourced from world-class suppliers. The main ingredient of the polymer insulator is silicone rubber, and it has both organic and inorganic characteristics.

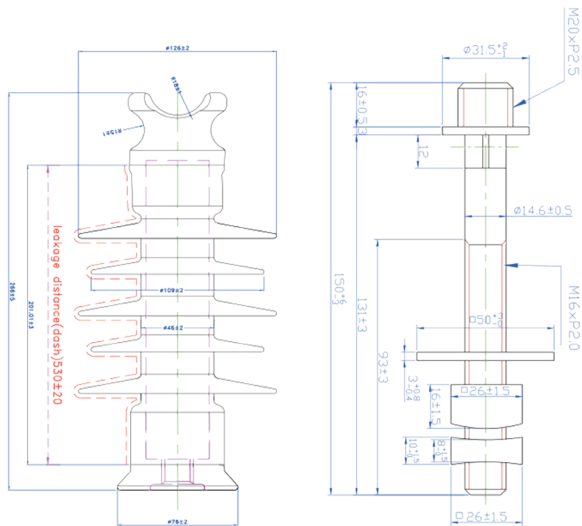
Therefore, silicone exhibits excellent features such as thermal resistance, chemical stability, electrical insulation, anti-abrasion, and a high luster compared to normal organic rubber materials.

Construction

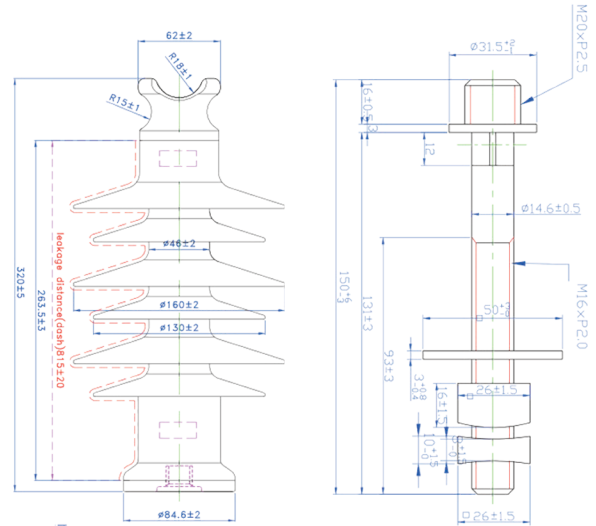
- The product is constructed from a glass-fiber reinforced epoxy resin rod of high strength (FRP rod). Glass fibers and the resin are optimized in the FRP rod. The glass fibers are boron-free electrically corrosion resistant (ECR) glass fibers or boron-free E-Glass and exhibit both high electrical integrity and a high resistance to acid corrosion. The matrix of the FRP rod is resistant to hydrolysis. The FRP rod is manufactured using a pultrusion process and is void free.
- The JK series is based on fiberglass rods for high mechanical strength and leaves the mechanical support structure of the enclosure unharmed. The components of the arrester module are assembled with a strict quality control process.
- The combination of these technologies allows the insulator to be impervious to moisture and capable of withstanding extreme electrical, environmental, and cantilever load conditions.
- All steel hardware components are galvanized after being machined, bent, or worked with in any manner. The zinc coating adheres tightly to the surface of the base metal with no uncoated spots.



Dimensions



15kV



25kV

Characteristics

- The polymeric housing eliminates the problem of chipped or cracked porcelain that can occur with rough handling or shipping. Safety (light weight for handling and installation).
- 1,000 h climatic aging test
The polymer housing of the insulator is required to pass 1,000 h of an accelerated aging test. The tests are conducted in accordance with the IEEE C62.11 standard.
- The composite polymer weather shield is composed of a silicone elastomeric compound or a silicone alloy compound. It is firmly bonded to the sheath, vulcanized to the sheath, or molded as part of the sheath and is free from imperfections. It protects the FRP rod against environmental influences such as external pollution and humidity.

Specifications

Type		JK-16	JK-22	JK-49
Max. voltage (kV)		15	25	35
Leakage distance (mm)		>530 mm	>815 mm	>1080 mm
RIV (μ V)		<100 μ V	<100 μ V	<200 μ V
Cantilever-Strength (pounds)		>2500	>2800	>2800
Impulse voltage 1.2/50 μ s (kV)		120	160	250 CIFO positive: 200kV CIFO negative: 265kV
Power-frequency withstand voltage RMS (kV)	dry 1min	70	100	125
	wet 10s	50	70	80

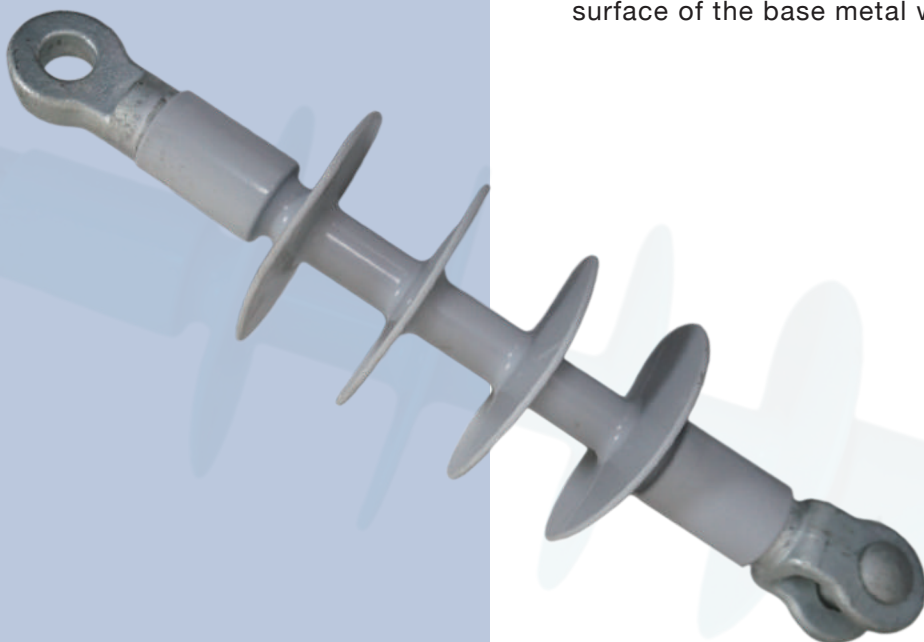
Suspension Insulator

The JK-series composition suspension insulator is manufactured and tested as per IEC and ANSI/IEEE standards. Polymer insulators are supplied with various metal fitting orientations based on customer requirements. The insulator can be used on distribution lines. It is mounted rigidly on a supporting structure by means of a steel or bolts. It has a non-puncturable design. To ensure a product of the highest integrity, raw materials for the polymer insulator are sourced from world-class suppliers. The main ingredient of the polymer insulator is silicone rubber, and it has both organic and inorganic characteristics.

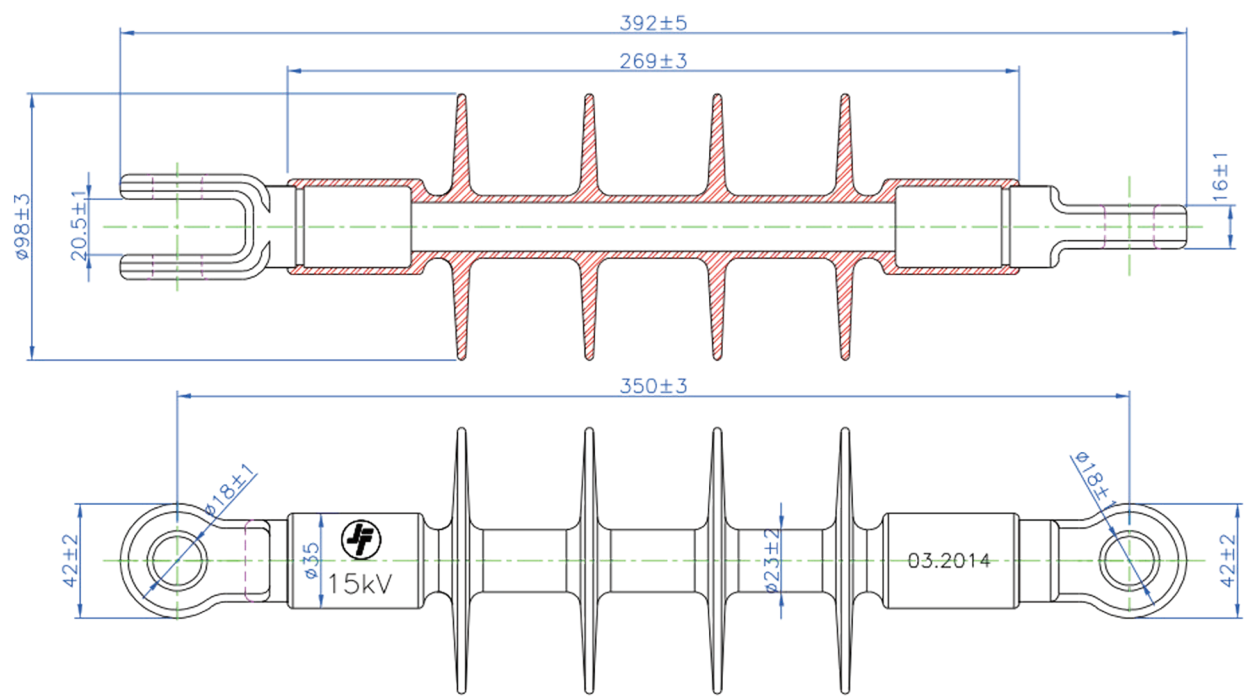
Therefore, silicone exhibits excellent features such as thermal resistance, chemical stability, electricity insulation, anti-abrasion, and a high luster compared to normal organic rubber materials.

Construction

- The product is constructed from a glass-fiber reinforced epoxy resin rod of high strength (FRP rod). Glass fibers and the resin are optimized in the FRP rod. The glass fibers are boron-free electrically corrosion resistant (ECR) glass fibers or boron-free E-Glass and exhibit both high electrical integrity and a high resistance to acid corrosion. The matrix of the FRP rod is resistant to hydrolysis. The FRP rod is manufactured using a pultrusion process and is void free.
- The JK series is based on fiberglass rods for high mechanical strength and leaves the mechanical support structure of the enclosure unharmed. The components are assembled with a strict quality control process.
- The combination of these technologies allows the insulator to be impervious to moisture and capable of withstanding extreme electrical, environmental, and cantilever load conditions.
- All steel hardware components are galvanized after being machined, bent, or worked with in any manner. The zinc coating adheres tightly to the surface of the base metal with no uncoated spots.



Dimensions



Characteristics

- The polymeric housing eliminates the problem of chipped or cracked porcelain that can occur with rough handling or shipping. safety (light weight for handling and installation).
- 1,000 h climatic aging test
The polymer housing of the insulator is required to pass 1,000 h of an accelerated aging test. The tests are conducted in accordance with the IEEE C62.11 standard.
- The composite polymer weather shield is composed of a silicone elastomeric compound or a silicone alloy compound. It is firmly bonded to the sheath, vulcanized to the sheath, or molded as part of the sheath and is free from imperfections. It protects the FRP rod against environmental influences such as external pollution and humidity.

Specifications

Type		JK-60
Max. voltage (kV)		15
The numbers of shelds		4
Leakage distance (mm)		>520 mm
Dry arc distance (mm)		>269 mm
RIV (uV)		<10 uV
SML for tension load (kN)		>70
Torsion (ft-lb)		>35
Critical impulse flashover voltage1.2/50 μs (kV)		140
Power-frequency withstand voltage RMS (kV)	dry 1 min	90
	wet 10 sec	65