



## Improve system reliability with high cantilever strength and expanded overvoltage protection

When the power stops, everything stops. Protecting your equipment from damage or premature aging due to lightning exposure and other voltage surges is important not only to the equipment itself, but also the reliability of your system. The costs resulting from data loss, equipment damage, and company stand-still can be greater for the customer than direct lightning damage. Utilities spend millions annually on substation outages and resulting penalties from regulatory agencies.

### Optimal overvoltage protection

Eaton's Cooper Power series UltraSIL™ polymer-housed VariSTAR™ surge arresters are an economical solution to prevent lightning damage. The three levels of energy handling capability offered—standard, high, and extra-high—are ideal for protection against repeated high energy switching surges, and provide reliable protection for substation equipment, capacitor banks, multiple lines, and cable circuits.

### System reliability

Eaton a leader in arrester technology, has been providing high voltage arresters for over 45 years. This experience and expertise is focused on increasing system reliability with superior products utilizing highly engineered components to provide quality that exceeds industry standards. The UltraSIL polymer-housed arresters provide the greatest margin of protection for equipment, unsurpassed by any other solid-core design.

### Typical applications

- Protection of substation equipment such as power transformers or breakers
- Protection of shunt capacitor banks and capacitor switches from excessive energies caused by restriking or prestrike conditions
- Replacement protection for aging substation equipment
- The UXL family of arresters is ideal for the overbuild application due to the high-energy characteristics and structural integrity required to survive three fault conditions

### Energy Handling and Cantilever Capabilities

	Arrester Rating	3-108	120-240	240-360
Intermediate Energy	UIAA	3.9kJ/kV of MCOV/Uc 10,000 in-lbs		
Standard Energy	USAA	3.9kJ/kV of MCOV/Uc 14,000 in-lbs	6.2kJ/kV of MCOV/Uc 20,000 in-lbs	
High Energy	UHAA	6.2kJ/kV of MCOV/Uc 20,000 in-lbs	10.0kJ/kV of MCOV/Uc 35,000 in-lbs	
Extra-High Energy	UXAA	10.0kJ/kV of MCOV/Uc 35,000 in-lbs		
Extra-High Energy, High Strength*	UXLB	15.0kJ/kV of MCOV/Uc 80,000 in-lbs	15.0kJ/kV of MCOV/Uc 80,000 in-lbs	15.0kJ/kV of MCOV/Uc 80,000 in-lbs
Extra-High Energy, High Strength*	UXLC		15.0kJ/kV of MCOV/Uc 92,000 in-lbs	15.0kJ/kV of MCOV/Uc 92,000 in-lbs

**Note:** \* Tested to Class H per IEEE Std C62.11™-2012 standard



Powering Business Worldwide

Eaton has set a new standard of excellence in UltraSIL polymer-housed, station- and intermediate-class surge arresters. Higher cantilever strength, improved energy handling capability, increased creep distance, and premium line connectors provide superior equipment protection in a lightweight polymer arrester.



UI, US, UH, UX and UXL arrester families

### UltraSIL polymer housing

The UltraSIL polymer-housed surge arrester uses the industry preferred silicone rubber material. Years of field experience demonstrate that silicone rubber will remain hydrophobic in all types of environments, a feature not found in all polymeric materials. Independent laboratories have verified the superiority of 100% silicone rubber for its resistance to:

- UV degradation
- Contaminated environments
- Temperature instability (+200 °C to -70 °C)

### Perfect for harsh environments

Tested for use in the harshest environments, the arresters are tested in conformance with 1000 Hr salt fog test per IEEE Std C62.11™ - 2012 standard. The polymer-housed arrester not only passed the standard testing requirements, but showed zero evidence of degradation to the arrester housing. The increased standard creep distance of 31 mm/kV (line to line voltage) meets the requirements of Category IV (very heavy) pollution level per IEC 60099-4. The increased creep reduces the size of the arrester needed in highly contaminated environments such as:

- Salt fog environments, including coastal substations
- Industrial and factory applications, including mining and steel mills
- Renewable energy applications, including solar and wind farms
- Road salt in colder climates

### Higher cantilever strength with solid core

Metal Oxide Varistor (MOV) blocks are the critical component and have been refined over the past 45 years. Cantilever ratings are available for USAA, UHAA, and UXAA families up to 35,000 inch-lbs, and UXL family up to 92,000 inch-lbs.

**Eaton**  
1000 Eaton Boulevard  
Cleveland, OH 44122  
United States  
Eaton.com

**Eaton's Power Systems Business**  
2300 Badger Drive  
Waukesha, WI 53188  
Eaton.com/cooperpowerseries

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### Moisture impervious composite matrix

A high-strength composite matrix encapsulates and bonds the arrester's internal components and provides structural integrity.

Moisture impermeability is a unique characteristic Eaton's Cooper Power series composite matrix material. Unlike open weave or cage designs, the solid layer created by the composite matrix eliminates all paths for moisture penetration into the blocks. No failures in the polymer arrester family due to moisture ingress have been reported since its introduction - more than 350,000 in service. The moisture impervious design features four discreet sealing systems:

- Glass collar disk
- Composite wrap
- RTV bonded Interface
- Silicone rubber housing

### High ampacity line terminal



Impedance is critical to arrester performance. As the industry has moved to higher impedance steel connectors, Eaton has standardized on a low impedance option. The standard line terminal option includes a high strength, cast aluminum four-hole pad. Galvanized mild steel and bronze four-hole pads are available as non-standard options.

### Cast aluminum base



Eaton's Cooper Power series arresters feature a high-strength, highly engineered cast aluminum base for added strength in harsh environments.

The base utilizes industry standard mounting bolt circles. All arrester designs will mount with standard 1/2" hardware.

### Mounting options



**Note:** Cubicle mount only available on UI and US (3-36 kV) arresters.

### Station-class part number reduction - UIAA, USAA, UHAA and UXAA

The base with retrofit capability can easily convert from the standard base mount to the suspension or cubicle mount.

- Only one product is needed for three applications - reducing the number of unique part numbers needed in stock
- The tripod base can be removed without impacting the seal integrity of the arrester design