

# Power Delivery and Reliability Solutions

High Reliability  
Super Stability  
Smart Integrated Solutions



*Powering Business Worldwide*



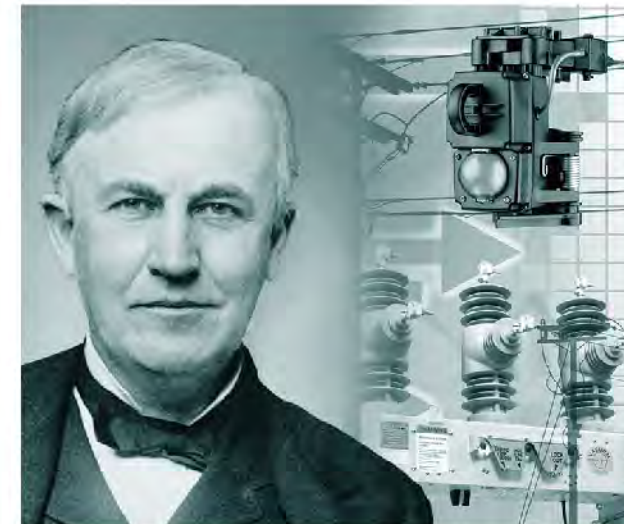


Eaton Cooper Power Systems, a global manufacturer, famous for its market leadership and technical innovation, provides most safe and reliable power transmission and distribution to worldwide power utilities, industries and enterprises, public institutions and homes. We provides a wide range of forward-looking products and solutions for Distributed Generation Installations, Power Quality, Outage Management, Distribution Automation, Environmental protection.

Products include transformer, regulator, capacitor, MRPs, components, cutouts, disconnectors, overhead switchgear, RMU, VCB, and smart grid solutions, etc., which not only applied widely to substation, outdoor overhead, underground, and in-plant medium voltage distribution systems, but also to railway, solar and wind field.

We are committed to constantly improving electrical distribution for end-users to solve problems, to achieve a more reliable and safer power systems with better power quality. Your success drives us to move forward continuously and we listen to your sound for requirement.

### History



We're proud to trace our heritage back to the industry's pioneer. Thomas A. Edison, Incorporated, one of Thomas Edison's original companies founded in 1910 and with corporate roots that go back to 1889, combined with McGraw Electric Company in 1957 to form McGraw-Edison. In 1985, McGraw-Edison became part of Cooper Power Systems. In 2012, Cooper Power Systems joined in big Eaton family, playing key roles in the development of modern distribution systems, and helping Eaton Cooper Power Systems become a leading manufacturer of electrical distribution equipment.

### Main Products

#### Line Installation and Protective Equipment (LIPE)

- 10kV L-Cutout
- 10kV Disconnect & Switches
- 10kV M-Force Disconnect & Switches
- IEC Separable Connectors
- ANSI Separable Connectors
- MV Cold-shrink Cable Accessories

#### Transformer and Components and Regulator

- Transformer
- Transformer Components & Fusing
- VR-32 Voltage Regulator

#### Capacitor

- Power Capacitor
- Capacitor Bank
- MV metal enclosure capacitor bank
- LV var compensation and filter bank
- LV Capacitor

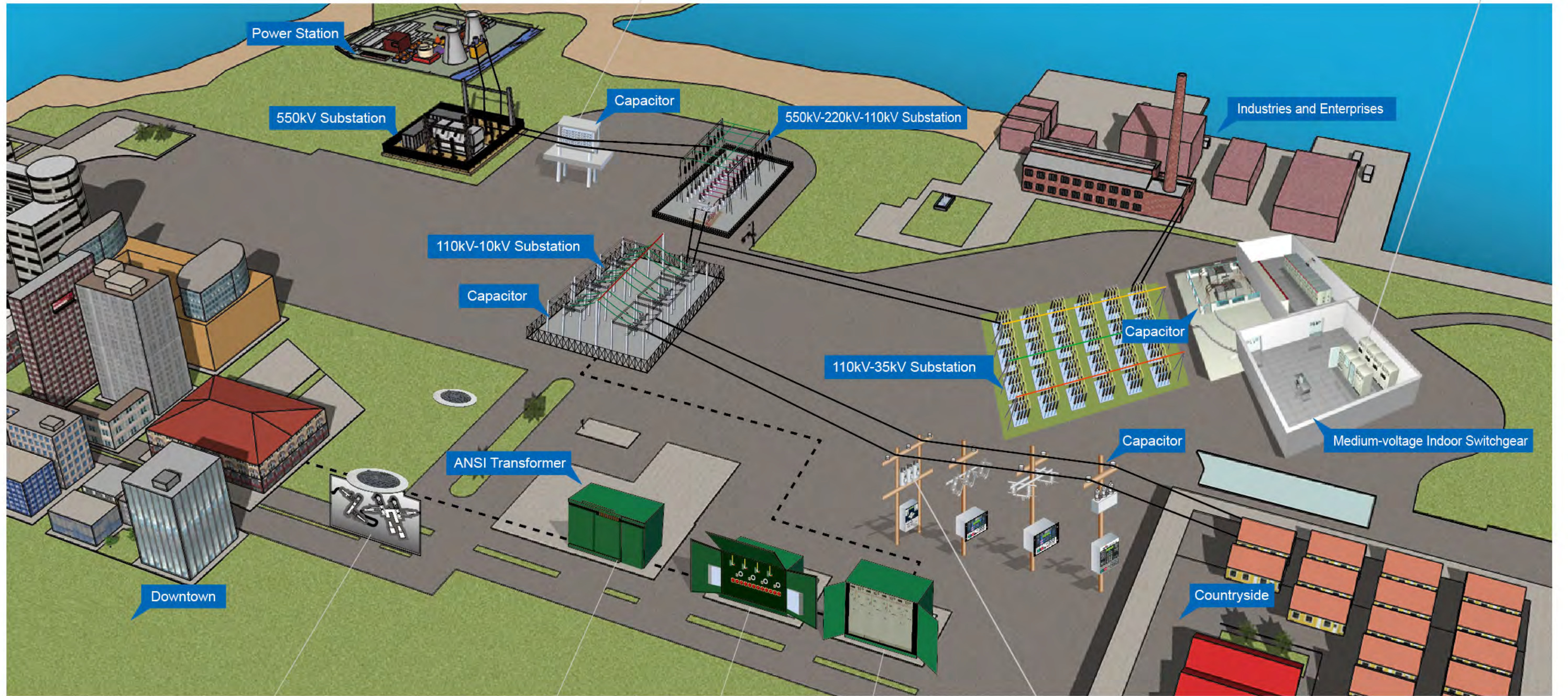
#### Smart Switchgears

- Overhead Switchgear
- Underground Switchgear
- Medium-voltage Indoor Switchgear

#### Controls and EAS Products

- Form6 Controls
- FXD Controls
- Power Engineering Software and Solutions







**Power Capacitor**

The research area covers engineering innovation, research of high-tech material, development of new product, technological innovation and experimental test for research, etc. to provide a strong technical support and test for the design and study of HVDC, HV series compensation, SVC, HV harmonic filters, shunt banks, etc.



HV Power Capacitor



LV Capacitor



HV Filter and var Compensation Bank

**LIPE – Overhead Equipment**

In 10kV outdoor overhead distribution systems, the equipments with excellent features work closely with overhead transformer, circuit breaker and load breaker switchgear, etc..



10kV Dropout Cutout



10kV Disconnect & Switches



M-Force Disconnect & Switches

**LIPE – Connectors & Accessories**

Separable connectors under USA standard are molded by high quality EPDM rubber, fully insulated and sealed, widely used for padmounted switchgear and transformer, sectionalizing cabinet, etc..



IEC Separable Connectors



ANSI Separable Connectors



MV cold Shrink cable accessories

**LIPE – Regulator & Transformer**

Under USA leading technology standard, our regulator and transformer are widely applied in industrial park, residential area, commercial center and China rural power distribution systems.



VR-32 Voltage Regulator



Transformer



Transformer Components & Fusing

**Switchgear – Underground Distribution Systems**

Since 1942, high quality distribution switchgears came out under R&D in USA. Since 1995, they have been introduced into China and promoted to power grid in many cities with excellent operation performance.



RVAC Ring Main Unit (SF6)



RVACH Ring Main Unit (Air)



RVAC Pad-mounted Switchgear (SF6)

**Switchgear – Overhead Equipment**

NOVA series of outdoor switch were pioneered by the U.S. COOPER company in the electrical industry, which are oil-free, free of SF6, maintenance-free, three-phase longitudinal magnetic field vacuum, mechanism arc extinguishing, epoxy resin solid insulation and permanent operating. Its superior performance and good stability was inspected in the past years of field operation, which earned the majority of users' worldwide acclaim.



NOVA Circuit Breaker / Recloser



NOVA Load-Break Switch



NOVA(I) Intelligent Overhead Switchgear

SOV and NOVAs are focus on China MKT for smart grid requirement. It is designed based on SGCC & CSG specification with spring mechanism. The two products are widely used in 10kV- 24kV system in China with excellent performance. It also expands OHS product line.



SOV Circuit Breaker



FZWe Load-Break Switch



NOVAs Circuit Breaker

**NOVAi & Controls**

Intelligent Equipments provide extensive database and help systems to operate more efficiently and resolve many problems.



FXD/Form6 Microprocessor-Based Pole Mount Control



NOVAi Three-Phase, Microprocessor-Controlled Reclosers



Intelligent Vacuum Circuit Breaker and Switchgear



**LIPE Products and Applications**



**10kV Dropout Cutout**  
 Application : Protection for overhead transformers and branches from overload and fault current in 10kV system  
 Features:

- Generation 4 ,most advanced design with single vent system and top press design
- All contacts with silver plated copper casting parts, lower resistance and then long life circle time
- Single vent can protect the overhead lines by prohibiting the ionized air spurting between the phases lines. Also provide stronger press than two vent system and make it easier to extinguish the small fault current comparing with two vent
- State Grid designating single vent Cutout
- Having full type test report by Xihari ,PCCC certification
- With interruption of 12.5kA and 16kA



**10kV Outdoor Disconnect Switch**  
 Application: Use in the outdoor overhead lines and work with circuit breakers and load-break switch to provide visible isolation  
 Features:

- Using high quality composite insulators, this can resist strong corrosion and have superior UV aging capability. And hydrophobicity, good self-recovery capability can meet IV heavy polluted level
- Main conductivity loop uses over 97% s copper, together with large cross-sectional area all that will guarantee a strong conductive capability
- Dual static contact and unique anti malfunction design will improve using safety
- Have Xihari Test Report and PCCC to guarantee the quality



**IEC & ANSI Separable Connectors**  
 Application: Sectionalizing Cabinet, RMU & Pad-mounted Switchgear, Pad-mounted Transformer  
 Features:

- Cooper Separable connector is molded by Cooper high quality EPDM rubber.
- Qualified by Cooper 5000-hrs multi-stress test. Prove the Cooper products characteristics which running under high overvoltage and high temperature and moisture environment.
- Full series of type test reports. SECRI ,CEPRI and CESI.
- 100% routine test ,including X-ray, AC withstand test and partial discharge test.
- We have a full range of product, IEC separable connectors are 17.5kV,24kV,36kV and 40.5kV;ANSI separable connectors are 15kV,25kV and 35kV.



**MV Cold-shrink Cable Accessories**  
 Application: Links power cable and cable, overhead line to cable  
 Features:

- Full ranges of products, from 10kV to 35kV.
- Imported liquid silicone rubber has an excellent dielectric strength, excellent aging and corona resistances.
- Its High permanent set value makes sure it has a 24 months maximum shelf life.
- Trackless expanding technology makes sure there are not mechanical expanding track after the supporting core removed. Eliminate the running risks.

**Capacitor Products and Applications**

**EX-7L/EX-7Li Capacitor**  
 Application: Series compesation, Shunt compensation ,harmonic filters  
 Features:

- Unit capacity 30kvar-1200kvar ,rated voltage 1000V-2400V ,50/60Hz ,internally fused or externally fused
- Low dielectric Losses ,internally fused 0.15W/kvar ,fuesless 0.08W/kvar
- Definite tank-rupture curve provides superior safety characteristic
- The best capacitor dielectric fluid Edisol®VI-patented by Cooper ,Non-PCB, environmentally acceptable.
- Stable capacitance, extremely little change with temperature variation
- EX® mechanical connection system-patented by Cooper , fault current ≥ 10kA
- Special tube and string that patented by Cooper for explosion fuse and current limiting fuse
- CLEANBREAK® element fusing system for internally fused unit



**CLE series :LV capacitor, LV reactor , Power factor Controller**  
 Application: Widely used in railway ,mining metallurgy, petrochemical ,wind power ,manufacturing , commercial buildings ,residential area, etc.  
 Features:

■ Loss	<0.25W/Kvar
■ Tolerance	-5~+10%
■ Discharge device	discharge to 50V or less from residual voltage within 1 minute
■ Safety performance	internal over-pressure and over current protection
■ Dielectric material	dry type, self- healing , Metallized polypropylene film
■ Temperature category	-40℃~+55℃
■ Sea-level	<4000m
■ Standard	IEC GB



**MV Metal enclosure capacitor bank**  
 Application: Var compensation ,harmonic filters , widely used in industry ,mining industry ,cement, petrochemical ,etc.  
 Features:

- Small footprint,easy installation and maintenance
- Various solution to meet different need
- Rated Voltage <24kV
- Indoor IP4X,Outdoor IP54
- Single or multiple stages, automatic switching
- Cooper capacitor and option accessories: Cooper CE® circuit breaker ,Cooper VCS® vacuum switch ,Cooper ULTRASIL® arrester, Cooper NXC® fuse,Cooper reactor ,Cooper CEC® contactor ,etc.



**Cooper capacitor bank**  
 Features:

- Internally fused ,externally fused and fuseless design
- Shunt bank
- HV harmonic filters and Var conpesation bank
- SVC
- SC,TCSC
- HVDC,EHV Var conpesation and filter bank





Switchgear Products and Applications



**RVAC ANSI Outdoor PMS (SF6 Insulation)**  
 Application: Urban HV power distribution terminal system, railway transportation, Large mine fields, etc.  
 Features:  
 ■ Professional outdoor design: 6mm stainless steel enclosure, Protection grade IP68, Special Water resistant groove.  
 ■ Gas tighting, Earthing touch interface, maintenance free  
 ■ SF6 insulation, Vacuum interrupting, Safer and eco-friendly.  
 ■ Flood withstand, 24 hour submerging test.  
 ■ Compact dimension, Install convenient, Easy fit with the environment.



**RVAC Indoor RMU (SF6 or Air Insulation)**  
 Application: Urban HV power distribution terminal system, railway transportation, Large mine fields, etc.  
 Features:  
 ■ Modularization design, Flexible for configuration.  
 ■ Compact dimension  
 ■ Gas tighting, Earthing touch interface, maintenance free  
 ■ 3 positions LBS, Reliable interlock insure the safety.  
 ■ Reliable pressure relief device, IAC design.



**Intelligent Vacuum Circuit Breaker and Switchgear**  
 Application: Grid, Infrastructure, Oil & Gas, Metallurgy, Power Generation, New Energy, Rail Transit etc.  
 Features:  
 ■ Voltage level: 12kV; rated current 630A-5000A; breaking current 20kA-50kA  
 ■ On-line monitoring circuit breaker mechanical property  
 ■ Circuit breaker closing/opening time, speed, opening range, overrun  
 ■ On-line monitoring temperature rise of panel's primary circuit  
 ■ Monitoring panel's insulation and internal arch  
 ■ Video image monitoring  
 ■ Electricity driven bottom trolley as well as earthing switch



**ASN Series Indoor Air Insulated Switchgear**  
 Application: Grid, Infrastructure, Oil & Gas, Metallurgy, Power Generation, New Energy etc.  
 Features:  
 ■ Voltage level: 12kV-40.5kV; rated current 630A-5000A; breaking current 20kA-50kA  
 ■ High strength design and five reliable protective interlocking systems  
 ■ Modular structure design, easy to install and maintain  
 ■ Individual pressure relief passage and device for each circuit breaker cubicle, cable cubicle and bus bar cubicle  
 ■ Internal arch type test  
 ■ High altitude design and vibration test

Switchgear Products and Applications



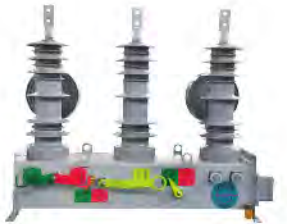
**Circuit Breaker/Recloser**  
 basic parameters:  
 ■ Ratio Voltage: 12kV  
 ■ Ratio Current: 630A  
 ■ Circuit Break: 20kA  
 Features:  
 ■ DPM Mechanism  
 ■ Vacuum Interrupt  
 ■ Outdoor Epoxy Insulation  
 ■ Manual/Electrical Close and Open  
 ■ Sequence: O-(0.3s)-CO-(2s)-CO-(2s)

**Load-Break Switch**  
 basic parameters:  
 ■ Ratio Voltage: 12kV  
 ■ Ratio Current: 630A  
 ■ Circuit Break: 20kA  
 Features:  
 ■ DPM Mechanism  
 ■ Vacuum Interrupt  
 ■ Outdoor Epoxy Insulation  
 ■ Manual/Electrical Close and Open



**Circuit Breaker**  
 basic parameters:  
 ■ Ratio Voltage: 12kV  
 ■ Ratio Current: 630A  
 ■ Circuit Break: 20kA  
 Features:  
 ■ DPM Mechanism  
 ■ Vacuum Interrupt  
 ■ Outdoor Epoxy Insulation  
 ■ Manual/Electrical Close and Open  
 ■ Sequence: O-(0.3s)-CO-(2s)-CO-(2s)  
 ■ Inner voltage sensor

**Circuit Breaker**  
 basic parameters:  
 ■ Ratio Voltage: 12kV & 24kV  
 ■ Ratio Current: 630A  
 ■ Circuit Break: 20kA  
 Features:  
 ■ Spring Mechanism  
 ■ Vacuum Interrupt  
 ■ Outdoor Epoxy Insulation  
 ■ Manual/Electrical Close and Open  
 ■ Sequence: O-(0.3s)-CO-(180s)-CO-(180s)



**Circuit Breaker**  
 basic parameters:  
 ■ Ratio Voltage: 12kV  
 ■ Ratio Current: 630A  
 ■ Circuit Break: 20kA  
 Features:  
 ■ Spring Mechanism  
 ■ Vacuum Interrupt  
 ■ SF6 Insulation  
 ■ Manual/Electrical Close and Open  
 ■ Inner zero-sequence CT

**Load-Break Switch**  
 basic parameters:  
 ■ Ratio Voltage: 12kV  
 ■ Ratio Current: 630A  
 ■ Circuit Break: 20kA  
 Features:  
 ■ Spring Mechanism  
 ■ Vacuum Interrupt  
 ■ SF6 Insulation  
 ■ Manual/Electrical Close and Open  
 ■ Inner zero-sequence CT



**Edison CE Indoor Vacuum Circuit Breaker**  
 Basic Parameters:  
 ■ Voltage level: 12kV-17.5kV;  
 ■ Rated current 630A-5000A  
 ■ Breaking current 20kA-50kA  
 Features:  
 ■ Mechanical life for 50,000 times  
 ■ Embedded pole design for 5000A-50kA  
 ■ Back to back capacitor switching current 630A  
 ■ Modular structure design with gear operating mechanism  
 ■ High quality and long life vacuum interrupter

**VN Series Indoor Vacuum Circuit Breaker**  
 Basic Parameters:  
 ■ Voltage level: 12kV-40.5kV  
 ■ Rated current 630A-5000A  
 ■ Breaking current 20kA-50kA  
 Features:  
 ■ Full specifications and various series  
 ■ High quality and long life vacuum interrupter  
 ■ Individual and modular spring mechanism  
 ■ 1.1 times temperature rise test passed  
 ■ -50 C low temperature test report





## **Eaton Asia Pacific Regional Headquarter**

Building 3, #280 Linhong Road, ChangNing

District, Shanghai, China, 200335

Tel: 021-52000099

Fax: 021-52000200

## **Eaton Cooper Electric Shanghai Headquarter**

No. 955 Shengli Road,

East Area of Zhangjiang High-Tech Park,

Pudong District, Shanghai, China, 201201

Tel: 021-28993600

Fax: 021-28994254