

Metal-Enclosed Capacitor Banks



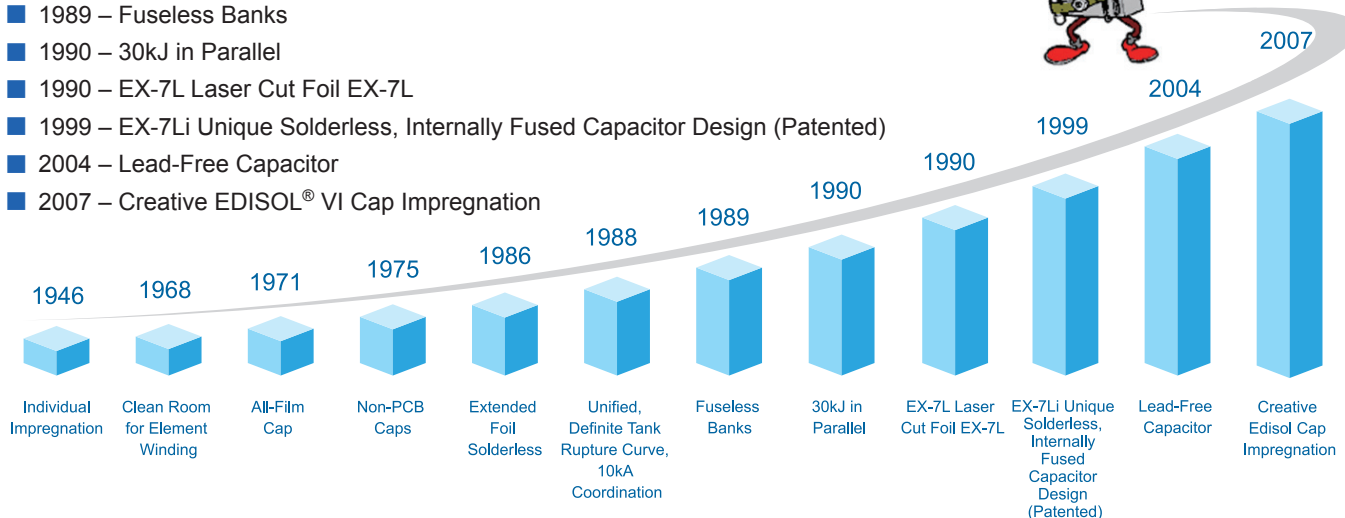
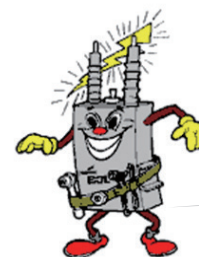
Introduction

Cooper McGraw-Edison™ EX™-7 Single-Phase externally fused, fuseless and internally fused HV capacitors feature the latest design innovations: all-film, extended foil and solderless connections. They are designed, manufactured, and tested to meet or exceed the requirements of all applicable IEC and ANSI/IEEE, NEMA, GB, DL standards. Their low cost per kvar makes these capacitors a simple, economical source of reactive power on electric power systems for power factor correction, voltage support, loss reduction, improving power transfer capability and releasing system capacity.

Cooper Shanghai Power Capacitor Co., Ltd (CSPC), established in June 2004, has obtained ISO9001:2000 quality management system certificate and enjoyed the isochronous manufacture technics with Eaton's Cooper Power Systems, which has more than 70 years experience on power capacitor manufacture, located in Greenwood USA.

Splendent Development Milestone

- 1946 – Unique Individual Impregnation in the World
- 1968 – Clean Room for Element Winding
- 1971 – All-Film Cap
- 1975 – Non-PCB Caps
- 1986 – Extended Foil Solderless
- 1988 – Unified, Definite Tank Rupture Curve, 10kA Coordination
- 1989 – Fuseless Banks
- 1990 – 30kJ in Parallel
- 1990 – EX-7L Laser Cut Foil EX-7L
- 1999 – EX-7Li Unique Solderless, Internally Fused Capacitor Design (Patented)
- 2004 – Lead-Free Capacitor
- 2007 – Creative EDISOL® VI Cap Impregnation



Metal-Enclosed Capacitor Banks

Metal-Enclosed Capacitor Banks

Reduce losses and CO₂ emissions, improve power quality, safety, and reliability in your distribution system. Eaton's Cooper Power Systems — with 70 years of capacitor development experience — introduces metal-enclosed capacitor banks that are smaller, easy-to-install and maintain, and non-intrusive.

Improving power factor in the distribution system can save a huge number of KWH annually. Capacitor also can improve power quality by supporting voltage and mitigating harmonic issues when applied as harmonic filters.

It is widely used in utility, railway, mining, petrochemical engineering, pumping station, data center, and smelter/heavy industries, where reactive power compensation is needed.

Power Quality and Efficiency Improvement

Distribution systems with metal enclosed capacitor bank will see increased power quality through:

- Reduced losses, leading to higher efficiency throughout the system
- Power factor improvement
- Voltage improvement
- System capacity release
- Harmonic filtering from engineered-to-order harmonic filters

Eaton's Cooper Power Systems metal enclosure capacitor banks are designed to IEC, IEEE standards for worldwide utility and industrial applications with standard ratings up to 25 kV and 150 kV-BIL. Miscellaneous categories of capacitor banks, for example, multi-steps and single fixed HV banks, are subject to meet various needs. Customization can be available for special design and configuration.

Improved Reliability

The capacitor enclosure leads to less downtime:

- Less susceptible to animal and pollution related outages
- Less maintenance needed as the equipment is protected by the enclosure
- Faster and easier maintenance — no bucket truck needed
- Lower system integration risk since CSPC provides the capacitors, fuses, and enclosure, etc.
- Installed in harsh environments as the enclosure protects the electrical equipment inside

Ease of Installation

- Reduce installation time — fully assembled, completely self-contained, tested, and ready to install
- Only requires one connection – to the power system

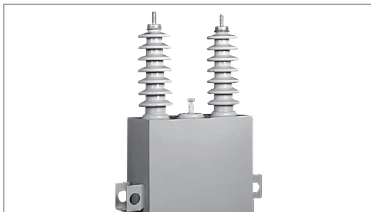
Ease of Maintenance

- Easy access to equipment at a workable height — no bucket trucks needed for routine maintenance
 - Less environmental contamination and animal interference
 - Easy to check the runs status of devices via plastic windows on the front panel
 - Optional disconnect and ground switches with visual verification
 - Optional relays for protection and remote control
 - Optional contactor for manual /auto-switching
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Metal-Enclosed Capacitor Banks

We offer a single-source solution for reactive power compensation and harmonic compliance related concerns. Beyond just capacitor banks and harmonic filter equipment, we provide an integrated approach which includes field measurements, computer simulations, and capacitor bank/harmonic filter design and specification. This combination allows us to provide a complete solution that meets power quality, safety, reliability, aesthetic, and ease of installation and maintenance needs.

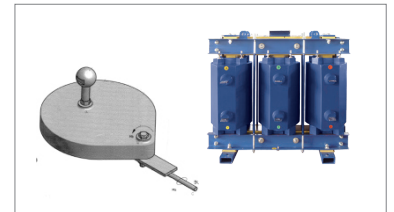
- Single point of responsibility and accountability
- Over 70 years of experience in design and manufacture of power capacitors
- We manufacture equipment and components to coordinate in the bank
 - Capacitors
 - Fuses
 - Switches
 - Controls
 - Relays
 - Reactors
- Field-based application engineers work in sizing and specifying to match requirements
 - providing the ability to customize to exact needs
- Systems engineering expertise
 - including the ability to take site measurements and analyze the data with the Eaton's Cooper Power Systems CYME™ software
 - assists with further sizing and planned upgrades as the load changes
- Structural engineering expertise to ensure all designs meet IEC/IEEE Standard and secondly shipment



Cooper Power Capacitor



Cooper HV fuse



Cooper De-tuning Reactor and
Current Limiting Reactor



Eaton Controller and Relay



Eaton Contactor



Cooper Arrester

EESS Global Service

Eaton's engineering and consulting services focus on understanding business requirements, and setting strategies to ensure long-term, efficient and safe operation of your power system. Eaton's engineers and consultants can help diagnose problems and identify ways to improve performance, or transform concepts into flexible, practical solutions that can improve productivity and capital utilization. Eaton can help keep power systems safe, efficient, reliable and up-to-date.

Metal-Enclosed Capacitor Banks

Medium Voltage Power Factor Correction -especially for motor local compensation

Features	
Voltage Class	Up to 24kV
Frequency	50/60Hz
Type of Rack Connection	Grounded/Ungrounded
Type of Capacitor	EX-7L/EX-7Li
IP Grade	Indoor up to IP44
Temperature Categories	-25°C~+45°C(Customized)
Enclosure Material	Stainless Steel/Painted Steel
Bank Installation	Fixed
Busbar	Copper or Aluminum
Reactor	Current Limiting
Incoming	Top/Bottom of Cable Box, Fixed With Cable Gland



Medium Voltage Power Factor Correction /Harmonic Filter -especially for multi-steps switched compensation/de-tuning (filters)

Features	
Voltage Class	Up to 35kV
Frequency	50/60Hz
Type of Rack Connection	Grounded/Ungrounded
Type of Capacitor	EX-7L/EX-7Li
IP Grade	Indoor up to IP44 Outdoor IP55
Temperature Categories	-25°C~+50°C(Customized)
Enclosure Material	Stainless Steel/Painted Steel
Bank Installation	Fixed
Busbar	Copper or Aluminum
Reactor	De-tuning(filter)/Current Limiting
Incoming	Bottom of Bank(Customized)



Consult factory for special requirement