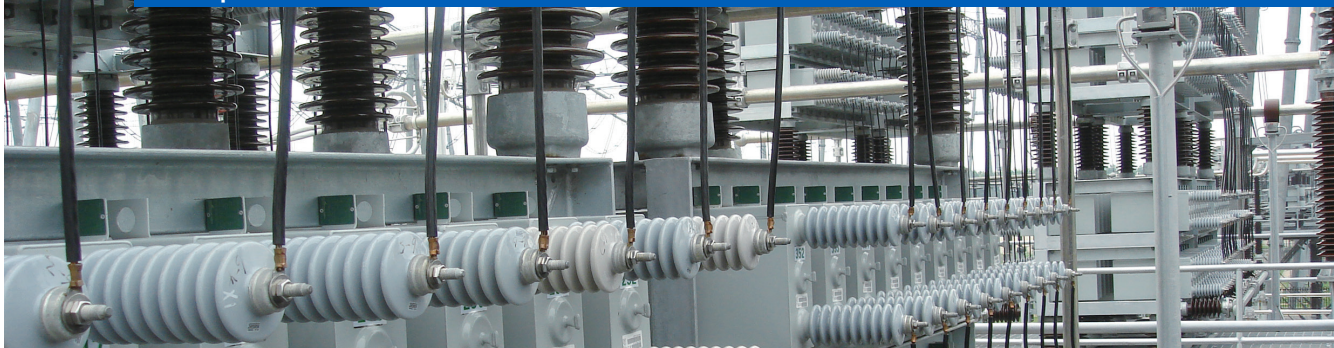


Eaton's Cooper Power Systems Power Capacitors – Capacitor Banks and Switches



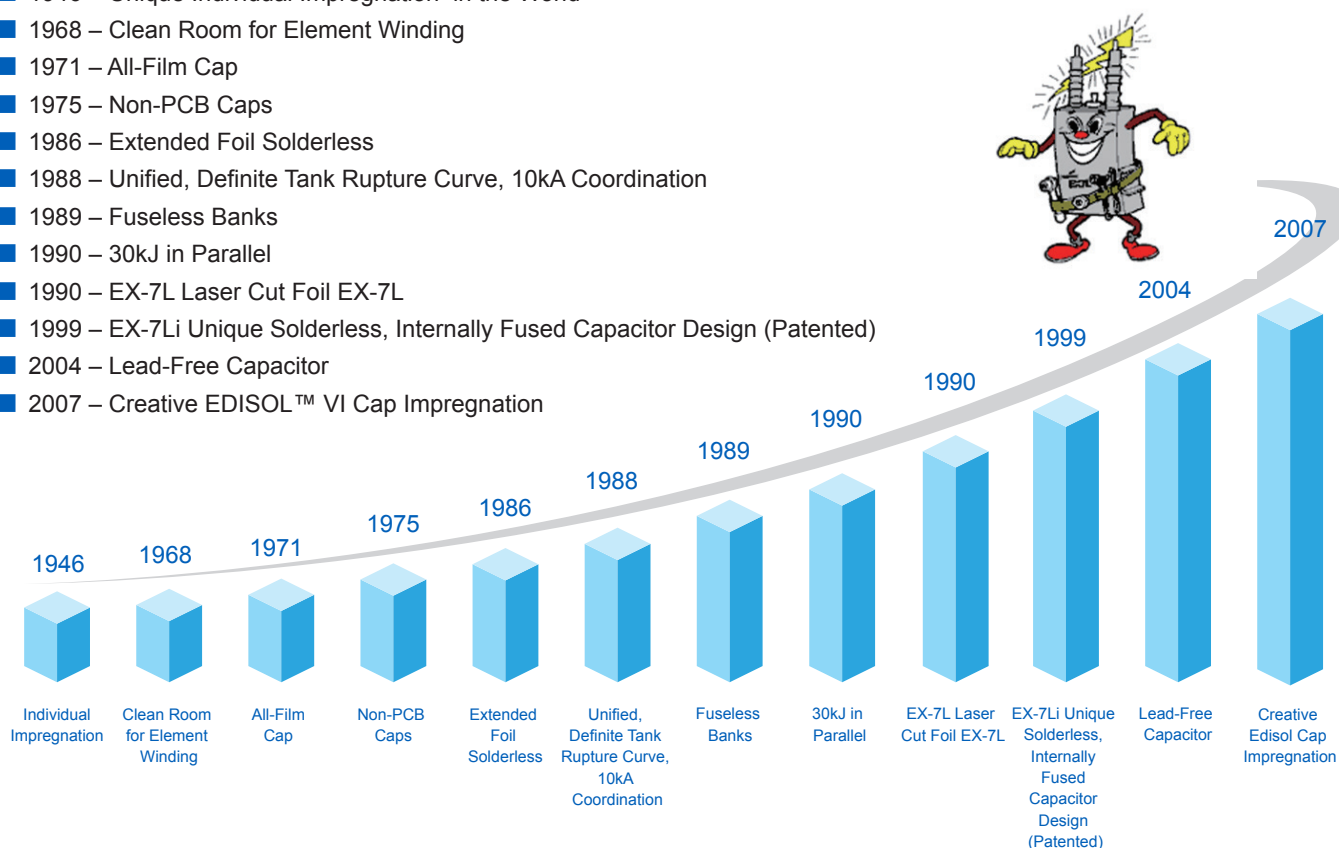
Introduction

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 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



Powering Business Worldwide

**Cooper
Power Systems**
by **EATON**

Advanced Technology

Patent Mechanical Crimp

EX™ mechanical connection system provides solderless internal connections that eliminate localized heating and cold solder joints. The EX crimping system also allows 100% inspection during assembly assuring integrity of internal connections and maximizes operational safety.

Unique Individual Impregnation

Individual closed loop capacitor fluid impregnation system assures superior fluid impregnation and gas molecule evacuation resulting in low infantile failure rates and long lasting electrical performance.

Environmentally Acceptable Edisol™ VI Non-PCB Dielectric Fluid

Environmentally acceptable Edison™ VI dielectric fluid that eliminates adverse health and environmental hazards is a blue non-PCB decal.

CLEANBREAK™ Element Fusing System

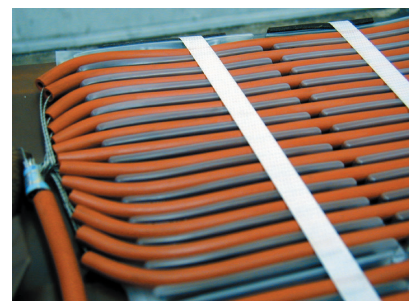
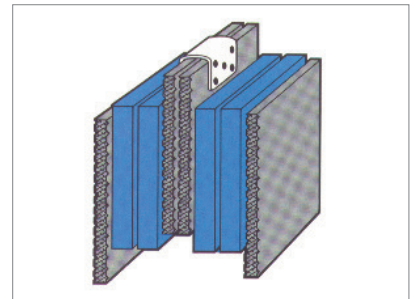
Each element is protected with a series connected CLEANBREAK™ current limiting fuse. This patented fusing system incorporates the following features:

- Polymer fuse card provides isolated fuse mounting which prevents potential damage to adjacent capacitor elements and fuses.
- Fuses are individually mounted within a polymer fuse tube. The tube protects the fuse from damage due to adjacent element failures and fuse operations. This significantly improves the dielectric performance by preventing fluid contamination and promotes proper clearing of element fuse.
- The CLEANBREAK™ fuse operates in a current limiting mode to chop the fault current into the failed element. This prevents the energy stored in the parallel connected elements from being discharged into the fault thus minimizing gassing and damage to the failed element and adjacent dielectric.

Low Losses

- Dielectric loss $\leq 0.05\text{Watt/kvar}$
- Internally fused unit total losses (dielectric loss + internal fuse loss + discharge resistor loss) $\leq 0.16\text{Watt/kvar}$
- Externally fused/fuseless unit total losses (dielectric loss + discharge resistor loss) $\leq 0.1\text{Watt/kvar}$

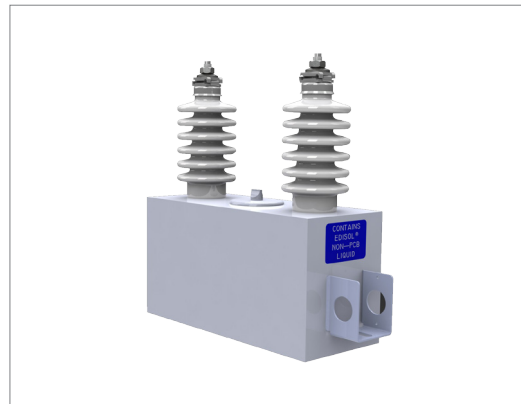
Low losses lead to low temperature rise after energization, reduce the losses of energy and operation cost. It is essential and important for optimum operating performance and long service life.



Cooper HV Power Capacitor

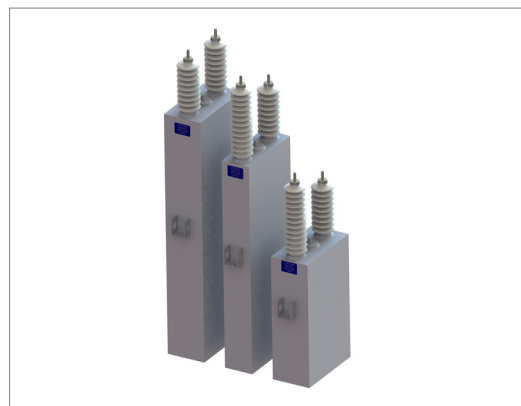
EX™-7L Externally Fused/ Fuseless Capacitor

- Capacity: 50 ~ 800kvar
- Voltage: 2 ~ 24kV
- Dielectric loss: $\leq 0.05\text{W/kvar}$
- Total losses (dielectric loss + discharge resistor loss): $\leq 0.1\text{W/kvar}$
- Frequency: 50-60Hz
- BIL: 75, 95, 110, 125, 150, 170, 200kV
- EDISOL™, Non-PCB Dielectric Fluid
- Temperature category: $-40^{\circ}\text{C} \sim +45^{\circ}\text{C}$; ($-50^{\circ}\text{C} \sim +55^{\circ}\text{C}$ customized)
- All-film, Extended Foil



EX™-7Li Internally Fused Capacitor

- Capacity: 100 ~ 1200kvar
- Voltage: 2 ~ 14kV
- Dielectric loss: $\leq 0.05\text{W/kvar}$
- Total losses (dielectric loss + internal fuse loss + discharge resistor loss): $\leq 0.16\text{W/kvar}$
- Frequency: 50-60Hz
- BIL: 75, 95, 110, 125, 150kV
- EDISOL™, Non-PCB Dielectric Fluid
- Temperature Category: $-40^{\circ}\text{C} \sim +45^{\circ}\text{C}$; ($-50^{\circ}\text{C} \sim +55^{\circ}\text{C}$ Customized)
- All-film, Extended Foil
- Cooper Patent CLEANBREAK™ Fusing System
- Solderless Connections



Type

EX - 7 - - - BIL Hz

