

MEDIUM VOLTAGE SOLUTIONS




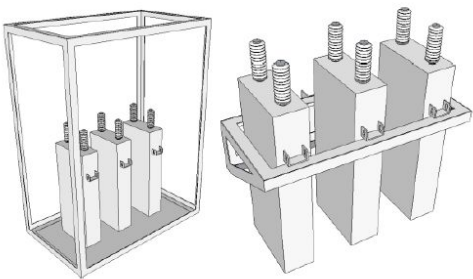

Save Your **Energy.**



M.V. CAPACITORS & CAPACITOR BANKS

COMAR supplies **single and three-phase capacitors**, as well as **capacitor banks**, featuring extra low losses, high reliability and they are applicable to various needs. They are used in making:

- power factor correction
- filters for harmonics
- protection against overvoltage
- loss reduction

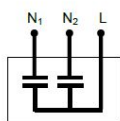
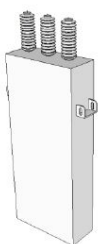
Capacitor Units		Capacitor Banks (BMT)
	CMMT $Q_n \leq 600 \text{ kVAr}$ $U_n \leq 24 \text{ kV}$	
	CTMT $Q_n \leq 450 \text{ kVAr}$ $U_n \leq 24 \text{ kV}$	

M.V. CAPACITORS & CAPACITOR BANKS

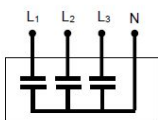
Capacitors

According to
IEC 60871-1

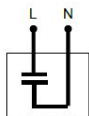
1-phase twin CGMT



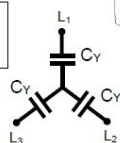
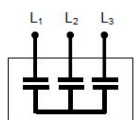
3-phase 4 bushings CNMT



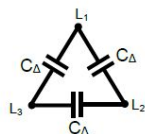
1-phase CMMT



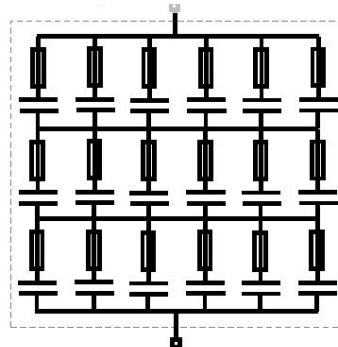
3-phase CTMT



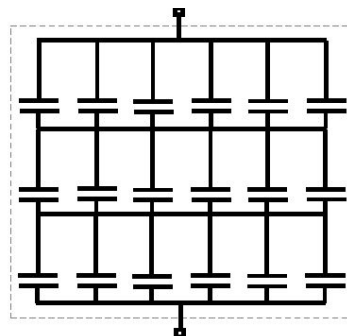
3-phase



Internally fused 1-phase capacitor unit

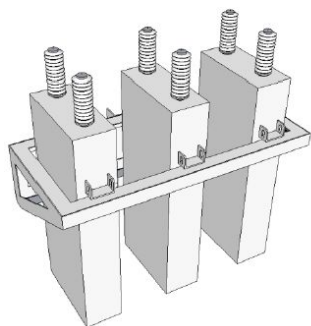


1-phase capacitor unit without internal fuses

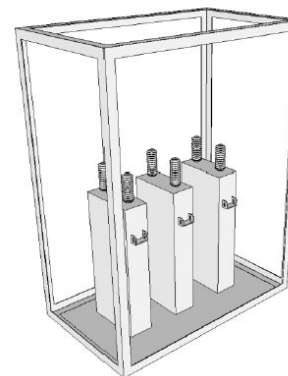


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Capacitor Banks (BMT)



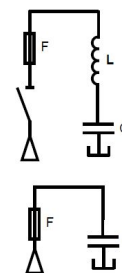
Outdoor
Pole mounting (metallic bracket IP00)



Indoor / Outdoor
Floor mounting (metallic cage IP00)

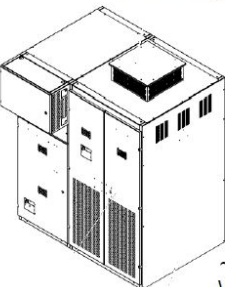
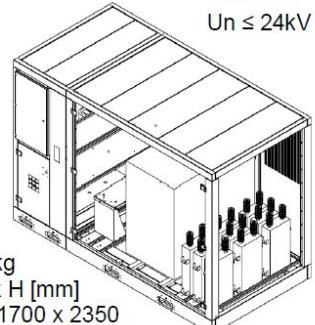
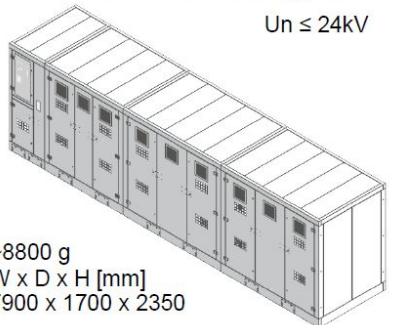
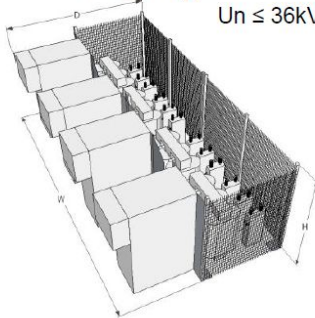
Accessories:

- Inrush reactors
- Expulsion fuses
- Fuse cut-outs (expulsion fuses)



M.V. AUTOMATIC PFC

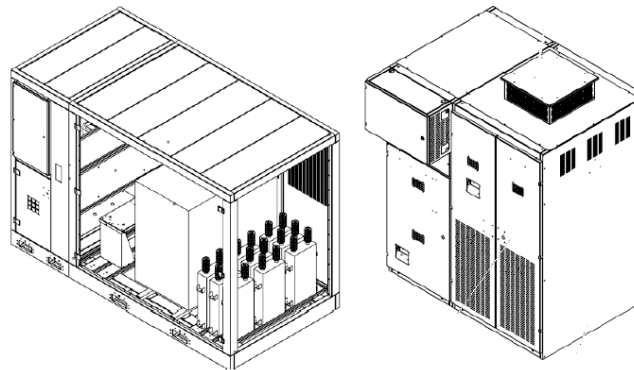
The range of **MVCELL** is designed for MV power factor correction applications composed of three-phase capacitors or capacitor banks for medium power factor correction of loads such as transformers, motors... They are particularly suited in cases where the user needs power factor correction that is easy to install and fast to integrate, as they are all compact and complete platforms.

Medium Voltage automatic systems (MVCELL)			
1 stage  Power factor correction of motors $U_n \leq 12\text{kV}$ ~800 .. 1400 kg W x D x H [mm] 1700 x 1150 x 2200	inlet + 1 stage  $U_n \leq 24\text{kV}$ ~4000 kg W x D x H [mm] 3800 x 1700 x 2350	inlet + 3 stages  $U_n \leq 24\text{kV}$ ~8800 g W x D x H [mm] 7900 x 1700 x 2350	4 stages  $U_n \leq 36\text{kV}$

M.V. AUTOMATIC PFC

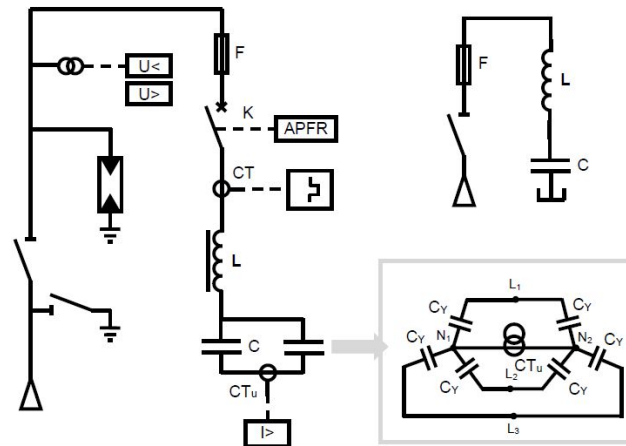
Modular solutions

Indoor
Metallic enclosure IP3X



Options:

- outdoor (IP41, IP54)
- inrush reactors or detuned reactors (189Hz)
- surge arrester
- overcurrent protection
- double Y connection, with unbalance protection
- infrared inspection window
- smoke detector



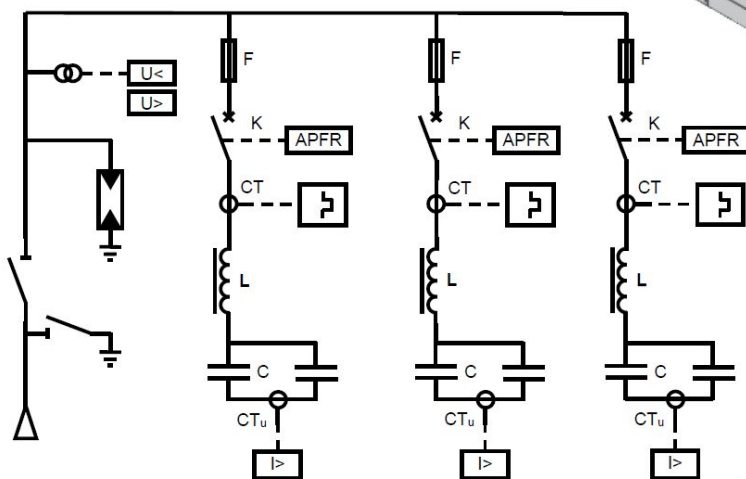
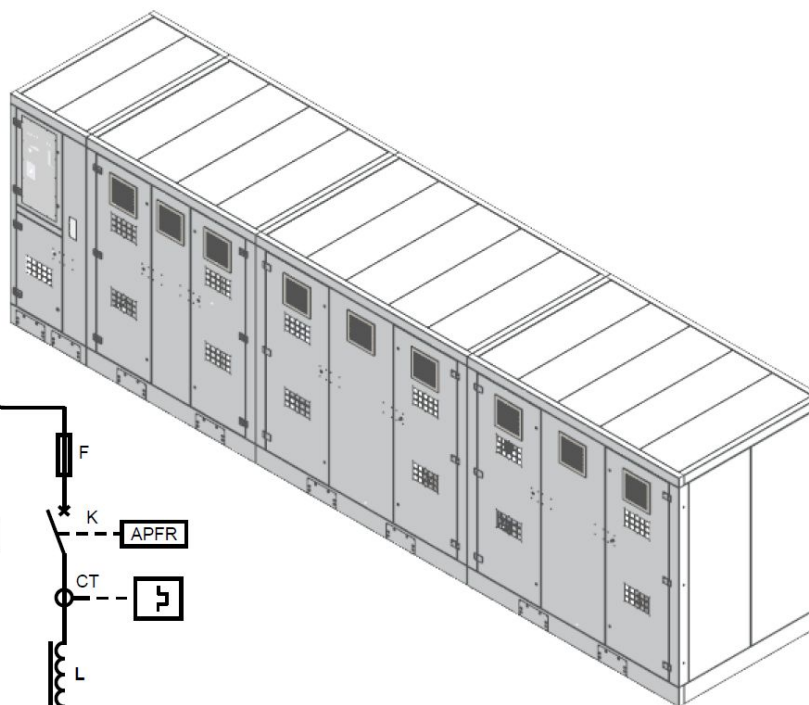
M.V. AUTOMATIC PFC

Modular installations

Indoor / Outdoor
Metallic enclosure IP3X

Example:

- 3 stages installation
- $12 < U_n \leq 24\text{kV}$



M.V. AUTOMATIC PFC

Safety devices to protect the power factor correction system

Inside the capacitor unit:

- Fuse on each capacitor element
- Pressure switch

Inside each capacitor stage:

- Overcurrent protection (1 protection relay + 3 current transformers)
- Current unbalance protection (YY configuration + 1 protection relay + 1 current transformer)
- Detuned reactor
- Over-temperature alarm

In the inlet stage of the capacitor installation:

- Overvoltage protection

Outside the capacitor unit:

- Smoke detector and over-temperature alarm connected to the fire protection system
- Upstream residual current device

PROJECTS (2020)

COMAR completed the commissioning of 2 automatic power factor correction systems, **3.5Mvar** at **11kV** each, integrated into 20-foot containers with IP55.



This supply has been installed at the **Petronas** Integrated Petroleum Complex in Pengerang, Malaysia.



PROJECTS (2020)

COMAR delivered two Medium Voltage automatic power factor correction systems, each of **2800kvar** **13.8kV 60Hz!**



المؤسسة العامة لتحلية المياه المالحة
Saline Water Conversion Corporation



This supply for **SWCC** has been installed at Al Khobar 2 desalination plant, Saudi Arabia.



PROJECTS (2020)

COMAR has also delivered two semi-automatic power factor correction systems in Medium Voltage at **5.5kV**!



LafargeHolcim

These phase plugs, installed at one of the largest cement plants in the world of the **LafargeHolcim** group, compensate for the high-power motors of the shredders.

CONTACTS

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