MODULAR MV
POWER FACTOR CORRECTION SYSTEM

Product Overview

Ampcontrol's modular MV PFC system and capacitor bank solutions are suitable for all energy intensive applications and environments including surface and underground mining, industrial operations and distribution utility networks.

The systems improve power factor, deliver voltage support and harmonic filtering to support optimal peak operating conditions in process, manufacturing and heavy industrial environments.

Standard and customised modular designs feature robust enclosures, flexible component configurations as well as reactor and capacitor types.

Each unit is fully designed, manufactured and tested before leaving the workshop, enabling fast tracked on site installation and commissioning with minimal works and labour.

Local engineering and service teams provide fast response times, dedicated project management and full after sales support.

Applications

- Power factor correction
- Voltage support
- Harmonic filtering

BENEFITS

- Standard modular designs or custom engineered to suit application requirements
- Fully workshop assembled and tested for fast installation and connection on site
- Increased personnel safety through interlocked enclosures with no live external parts
- Discreet design options for environmental aesthetics
- Energy savings
- Capacity optimisation

MODULAR PFC

MODULAR MV POWER FACTOR CORRECTION SYSTEMS

System features

Nominal voltage rating	Systems from 1kV to 24kV
Rated power	Up to 2500 kVAr per step, up to four steps with standard design or more by request. Step sizes and ratios to suit user's power requirements
Enclosure types	Standard modular or customised metal enclose rated up to IP65. Walk-in room or mesh enclosures available on request. Mobile, relocatable or skid mounted
Reactor types	Harmonic blocking or absorbing
Standard compliance	AS4871, AS2067, AS3000
Security and safety	Arc fault explosion vents, customisable mechanical and/or electrical interlocks, alarm and indicator lights and/or contacts
Monitoring, control and communication	Automatic, remote and local

Applications

Mining and industrial

Application of power factor correction devices compensate for some of the problems associated with dynamic loads that are characteristic of mining and industrial networks.

Voltage instability and harmonic distortion can cause nuisance tripping of electronic protective devices, damage to distribution or production equipment and can also affect Ex certifications of flameproof motors which require strict voltage distortion limitations.

Ampcontrol's MV PFC system mitigates these issues to deliver increased system capacity, improved equipment performance, maximise service continuity and lower energy costs.

Units are custom engineered to support the scale and scope of each application and are built to be robust and withstand the harsh environments of surface or underground mine environments.

Utilities

Reliability, sustainability and efficiency are the major focus of Utility networks with responsibilities to maintain network benchmarks set by regulators. Poor power quality in these networks place stress on the grid and can result in equipment damage or failure, communication interference, increased system losses and ultimately, power failures.

Ampcontrol's MV PFC solutions address these problems with our standard or customised units, delivered on site fully assembled, tested and ready for installation. Enclosures are built to withstand damage from weather or wildlife, with minimal impact to its surroundings and are secured so no internal hardware is accessible.

Commercial

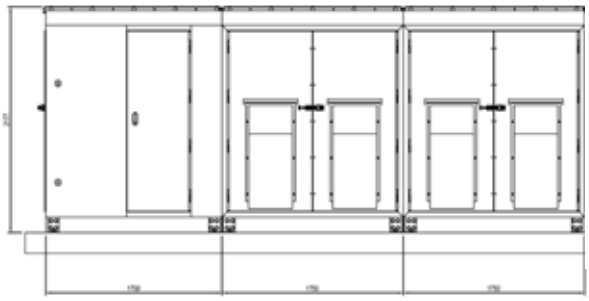
By delivering reactive power at the point of common coupling, energy consumption can be managed for entire facilities, such as shopping complexes and hospitals. A reduction in energy charges and tariffs can be achieved by supporting key infrastructure such as lighting and air conditioning systems.

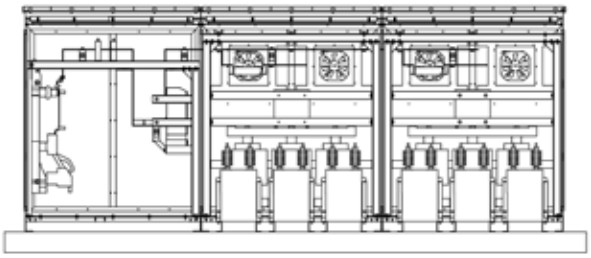
Ampcontrol's MV PFC systems deliver safety and aesthetic benefits through securely locked enclosures with no exposed live parts and a choice of enclosure finishes to match the environment.

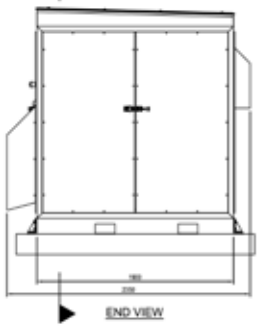
MODULAR PFC

MODULAR MV POWER FACTOR CORRECTION SYSTEMS

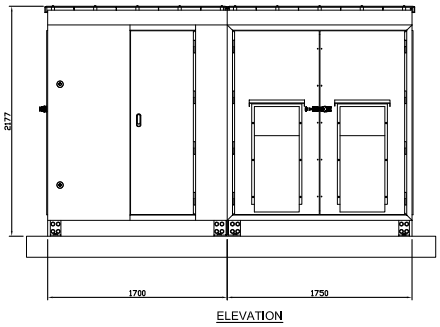
General arrangement - double step MV PFC system

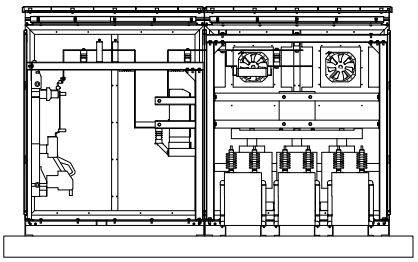


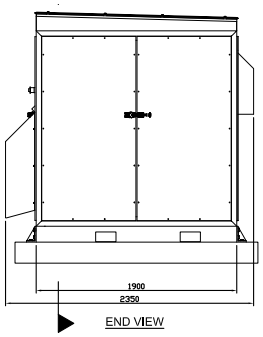




General arrangement - single step MV PFC







Previously supplied PFC and capacitor units

MODULAR PFC

MODULAR MV POWER FACTOR CORRECTION SYSTEMS

Case study

Customer	Gold mine, Victoria
Project description	Design, supply and commissioning assistance of 11kV modular capacitor bank, 750kVAr

Ampcontrol delivered a modular capacitor bank to a gold mine in Victoria. The mine had limited power supply on site and was relying on hired generators to supply the additional kVA required. Operating with a reasonable power factor of 0.9 there was potential to increase this to be able to draw additional power from the grid.

The capacitor bank was sized by Ampcontrol to free capacity from the incoming supply by locally generating reactive power for the site. As a result, the mine was able to remove the expensive generators from site and immediately see significant reductions in energy costs.

Design overview

General	• 11kV, 750kVAr, 1:2 step configuration • Step 1: 250kvar detuned 7% • Step 2: 500kvar detuned 7%
Cabinet	• Three modular sections (1 x incoming section, 2 x capacitor modules) • IP54 design • Double fans on each module • Stainless Steel heat shield
Control and protection	• Ampcontrol automatic power factor controller • Overcurrent protection • Key interlock system with timer and solenoid releases • Fuse failure indication • Local isolating circuit breaker