



## PERFORMANCE DATA

- Rated voltage Up to 24 kV (single stage)
- Rated power Up to 4 Mvar (single stage)

The **MVCELL** are high technology equipment usable to compensate the reactive power of grids. They are essential to improve the performance, saving energy. The single stage is typically used to compensate a single load, such as a motor.

Higher powers ( $> 4$  Mvar) can be achieved by paralleling stages. The multi stage is typically used to compensate an electric system, with many loads.

## DESCRIPTION OF THE EQUIPMENT

The first stage can be composed of:

- Cable entry
- Switch isolator
- Switch isolator with earthing blades
- Mechanical safety interlock
- Measuring transformers
- Surge protection devices (spd)
- Control board

Each additional compensation stage is composed of:

- Protection with HRC fuse
- switching device (contactor or circuit breaker)
- Series inductance (damping or de-tuning)
- Capacitor bank
- Other accessories available on request
- The rated voltage of each stage can be up to 24 kV, the rated power up to 4 MVar.

The equipment are customizable in terms of:

- Rated power and voltage
- Protection degree from IP00 till IP55
- Lightning withstand (BIL – Basic Insulation Level)
- Short circuit withstand: up to  $I_{cw} = 50$  KA @ 3s
- Safety levels for the operator
- Harmonic levels on the electric grid

Diagnostic levels:

- Low →
  - Undervoltage and overvoltage ansi 27/59
  - Over temperature in the cabinet
  - Under compensation
  - Harmonic level thdi too high
- Medium →
  - Capacitor Bank Unbalance With A Voltage Sensor On The Neutral (Neutral Voltage Sensor, Nvs) In A Single Star (Y) Configuration – Ansi 59n
  - Capacitor Bank Unbalance With A Current Sensor Between The Neutral Point In A Double Star (YY) Configuration (Neutral Current Sensor, Ncs) – Ansi 46n
  - Fuse Failure Indication
- High →
  - Overload ANSI 49RMS
  - Overcurrents ANSI 50/51
  - Capacitor bank unbalance with a voltage sensor between the neutral point in a double star (YY)
  - overpressure drives capacitive
  - fire detector protection
  - Indoor or outdoor installation
  - Altitude up to 4500 m above sea level

### CONFIGURATION

The range of MVCELL medium voltage cells 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, etc...

They are particularly suited in cases where the user needs power factor correction that is easy to install and fast and practical to combine with existing boards, also thanks to their structural conformation being compact and complete boards.

The standard one is composed of a MV cell made with a board with an IP30 degree of protection (it is possible to make the metalwork with an IP55 degree of protection), which incorporates the safety fuses, inrush peak current limiting reactors, capacitors or battery, and the key interlock system. The power supply is normally through cables from the bottom of the cell, but it is also possible to make them on request.

The main accessories available to complete the standard version are:

- CT to relieve unbalances;
- fast discharge devices;
- harmonic block reactors (in this case the ventilation unit is included too);
- device signaling fuses tripping;
- capacitive insulators and relative voltage on/off signaling;
- inspection window;
- space heater element with humidity gauge;
- inside light;
- other accessories on request.

Besides the standard versions, we also make cells defined on specifications and metalwork requested by the Customer.



Example of MVCELL power factor correction cells at 15KV-1+2+3 Mvar-50 Hz.