



**ORMAZABAL**

Focus on Medium Voltage



MV switchgear  
Primary Distribution



**CPG.0 Single busbar gas-insulated cubicles**  
Up to 36 kV  
CPG System



## DESCRIPTION

The **CPG.0** range in **Ormazabal's CPG** system consists of a set of SF<sub>6</sub> gas-insulated (GIS type) modular cubicles for configuring different primary distribution electrical diagrams in Medium Voltage networks up to 36 kV.

The installation of components which enable it to withstand internal arcs in all its Medium Voltage compartments, combined with its advanced design which provides total protection against external environmental substances, make **CPG.0** cubicles the ideal solution for use in substations whether for utility companies or private companies, providing safe, reliable distribution.

The final quality of the supplied product is guaranteed by use of an automated manufacturing process, in which routine tests are performed across the various phases of the assembly procedure.



## STANDARDS

### IEC 62271-001

Common specifications for high-voltage switchgear and controlgear standards.

### IEC 62271-200

Alternating current metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV.

### IEC 62271-100

High voltage alternating current circuit-breakers.

### IEC 62271-102

Alternating current disconnectors and earthing switches.

### IEC 62271-105

High voltage alternating current switch-fuse combinations.



## CHARACTERISTICS

- Separate metal compartmented structure.
- SF<sub>6</sub>-insulated.
- Internal arc withstand.
- High level of safety and reliability.
- Continuity of service.
- No maintenance on live parts, reduced on the rest.
- Modularity and future extensibility without the use of additional gas.
- Installation on site without the need to move adjacent cubicles.
- Accessible from the front.
- Optimisation of installation costs and civil engineering works due to the reduced dimensions and operating space required.



## APPLICATIONS

Designed for use in a wide range of installations, both public and private, its main applications, include the following:

- Utilities
  - Primary distribution substations
  - Switching substations
  - Mobile substations
- Industrial sector
  - Cement industry
  - Chemical and petrochemical industry
  - Mining industry
  - Iron and steel industry
  - Automobile industry
  - Textile industry
  - Food industry
- Large infrastructures
  - Wind farms
  - Airports and Railways
- Power stations
  - Substation.

## TYPES OF CUBICLE

### CPG.0-V (Circuit-Breaker Cubicle)



Includes a circuit-breaker with vacuum breaking technology and a three-position disconnector in series with it.

### CPG.0-S (Disconnecter Cubicle)



Incorporates a three-position disconnector without capacity for on-load opening.

### CPG.0-F (Fused Protection Cubicle)



Equipped with a three-position switch-disconnector, also including fuse protection. The fuses are housed inside sealed fuse holders; these are inside the switch compartment.

### CPG.0-C (Busbar Cubicle)



Includes a vacuum circuit-breaker and two three-position disconnectors in series with it, one upstream of the circuit-breaker and the other downstream.

## TECHNICAL CHARACTERISTICS

	24 kV	36kV
<b>Rated current [A]</b>		
General busbar	Up to 1600	Up to 1600
Outgoing lines	Up to 1600*	Up to 1250*
<b>Lightning impulse [kV]</b>		
Between phases and phase-to-earth	125	170
Isolating distance	145	195
<b>Power frequency 1 min [kV]</b>		
Between phases and phase-to-earth	50	70
Isolating distance	60	80
<b>Rated short-circuit breaking current [kA]</b>	25	25
<b>Short-circuit making capacity (peak) [kA]</b>	63	63
<b>Rated short-time current [kA – 1/3 s]</b>	25	25
<b>Internal arc withstand [kA – 1 s]</b>	25	25
<b>Combined switch-fuse breaking capacity [kA]</b>	25	25
<b>Frequency [Hz]</b>	50/60	50/60
<b>IP rating</b>	IP3X	IP3X

(\* For fused protection cubicle = 200 A)

## PHYSICAL CHARACTERISTICS

Dimensions [mm]	CPG.0-V	CPG.0-S	CPG.0-F	CPG.0-C
<b>Height</b>				
Control Compartment Low	2125	2125	2125	2125
Control Compartment High	2425	2425	2425	2425
<b>Width</b>	600	600	600	1200
<b>Depth</b>	1365	1365	1403	1365
<b>Weight [kg]</b>	< 750	< 550	< 550	< 1300





## STRUCTURE

**CPG.0** cubicle architecture is divided into separate compartments.

Their structure consists of a metal frame, whose mechanical rigidity ensures the non-deformity of the assembly in the expected service conditions.

The **switch compartment**, which is sealed for life, houses the switching and breaking switchgear, with SF<sub>6</sub> gas as the insulating medium. Built of stainless steel, designed and tested to withstand an internal arc up to 25 kA/1 s. The gases generated as a consequence of an internal arc are cooled and can be channelled through a relief duct located at the back. It can be connected to the busbar and the medium voltage cables respectively by means of bushings at the top and bottom.

The gas pressure is tested by means of a temperature-compensated pressure gauge.

The function of the **busbar compartment**, located in the upper part of the cubicle, is to house the busbar (electrical connection between cubicles).

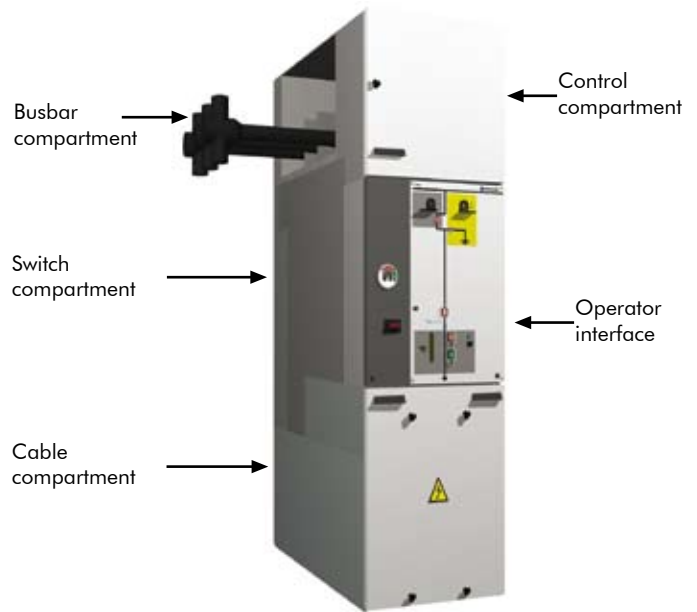
As an option, toroidal current transformers and/or plug-in voltage transformers can be installed in this compartment, without needing metering cubicles.

The **cable compartment**, located at the bottom of the cubicle, has a cover which is interlocked with the earthing system, and provides front access for the medium voltage cables. Toroidal current transformers and/or plug-in voltage transformers can be housed in the base.

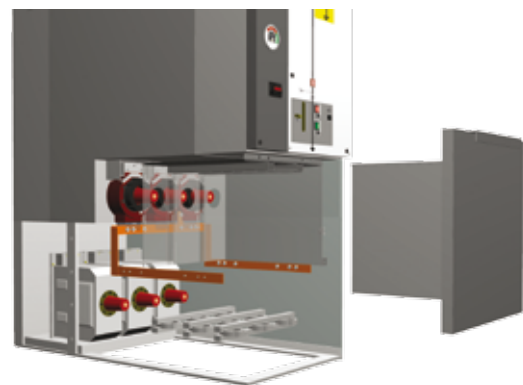
The **operator interface**, located in the middle, includes the mimic diagram and the switching components: disconnector driving mechanism, circuit-breaker opening/closing push-buttons, status indicators, groove for access of the spring loading lever, etc.

The **control compartment**, placed at the top of the cubicle and separate from the rest of the compartment, is ready for installation of the metering equipment and protection relays, containing the terminal block with the control signals already identified.

Connections with the driving mechanism area are made via connectors, which makes the assembly more flexible, and allows the control compartment to be assembled and connected on site in a simple direct way.



Busbar compartment



Cable compartment (front access)



Control compartment



## INTERNAL ARC

Both as a whole and for its various compartments, the cubicle is designed to withstand an internal arc of 25 kA/1 s, complying with the 5 criteria of Appendix A of standard IEC 62271-200 (class IAC-AFL).

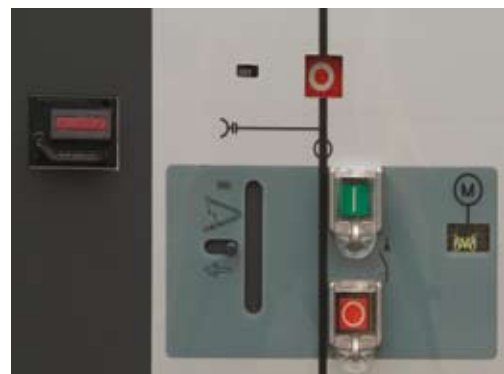
## SAFETY

- **Protected** against harsh environmental conditions (dust, pollution, humidity, salinity, etc.), **protected** against indirect contacts and long service life provided by its gas insulation, with the breaking and connection components housed in a separate stainless steel tank, totally sealed for life.
- **Internal arc withstand**, accredited by means of tests conducted in accordance with the criteria of standard IEC 62271200 (IAC-AFL 25 kA 1 s).
- **IP rating**: IP65 for the tank, and IP3X for the cubicle assembly.
- **Temperature-compensated monitoring of the gas** pressure inside the tank, including a potential-free contact.
- **Presence/absence of voltage indicator**, with permanent indication (multi-LED) and optional contacts for remote display and/or electromagnetic interlocks.
- **Whole power circuit fully insulated**, including the cable terminals, and entirely screened, earthed and installed inside a metal enclosure.
- **Ergonomic design, secure access** to the control and signalling area, located outside the switch compartment.
- **Safe, simple** operation.
- Internal **safety locks** as standard, which prevent incorrect operations being performed.



## RELIABILITY

- **Testing, including routine tests** of all equipment in the factory.
- **Ease and reliability of connecting** the control and signalling circuits via connectors.
- **Visual indication** of the switchgear position in the mimic diagram.
- **Sealed assembly**: installation and assembly on site, without gas handling.
- **Circuit-breaker** with vacuum breaking technology, compact and with excellent reliability, certified in accordance with standard IEC 62271-100, including extended electrical endurance (class E2) with rapid reclosing cycle, and hence maintenance-free during its whole service life.
- The live parts of the cubicles are **maintenance-free**, increasing availability and continuity of service.
- **Loss of service continuity category**: in accordance with IEC 62271-200: **LSC2B**.
- **Ormazabal's** protection, metering and control **electronic units: ekorRPS and ekorRPG**.





# ORMAZABAL

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- Transformer Substations
  - Prefabricated Transformer Substations up to 36 kV
  - MV Applications for Renewable Energies up to 36 kV
- Medium Voltage Secondary Distribution Switchgear
  - CGMCOSMOS System
  - CGM.3 System
- Medium Voltage Primary Distribution Switchgear
  - **CPG System**
  - CPA-AMC System
- Protection, Control, Automation and Remote Control
- Distribution Transformers
- Low Voltage Switchgear

In view of the constant evolution in standards and design, the characteristics of the elements contained in this catalogue are subject to change without prior notification. These characteristics, as well as the availability of components, are subject to confirmation by Ormazabal's Technical - Commercial Department.