Medium voltage switchgear for Substation Solutions

cpg.0 y cpg.1

Families of single and double busbar GIS-type cubicles

Up to 40.5 kV

Reliable innovation. Personal solutions.
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The quality of products designed, manufactured and installed by Ormazabal is backed by the implementation and certification of a quality management system, based on the international standard ISO 9001:2008.
Our commitment to the environment is reaffirmed with the implementation and certification of an environmental management system as laid down in international standard ISO 14001.
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.
Introduction

Foreword

MV/MV and HV/MV substations are some of the most critical nodes in any electrical network.

The growing demand for electricity and the increased power in these substations requires a guaranteed maximum reliability and continuity of service in rated current levels in the medium-voltage cubicles.

After many years of experience in the design, development, manufacture and commissioning of gas-insulated switchgear (GIS) in secondary distribution, in 2005 Ormazabal launched the cpg system on the global markets:

High-performance, flexible and extensible GIS-type cubicles both single and double busbar.

In the last few years the cpg system has been extended with higher electrical values, such as up to 2500 A and up to 40.5 kV.

The cpg system has now been integrated into many applications for utilities, renewable energy, industry and major infrastructures. There are currently more than 6500 units of this system in service in more than 25 countries.

Ormazabal is the leading provider of customised solutions for utilities, energy end users, as well as for applications of renewable energy systems based on our own technology.

We promote the development of the electric power sector in relation to the challenges of future energy needs. We collaborate with the main local, regional and national companies in the electric power sector as part of our firm commitment to innovation in the field of safety of people, reliability of networks, energy efficiency and sustainability.

Our team of highly qualified professionals with a focus on innovation, has been developing in-house products and solutions throughout a consolidated history covering more than a century, always establishing a close relationship with our customers focusing on achieving mutual benefits in the long term.

Velatia is a family-run, industrial, technological and benchmark global group operating in the areas of electrical networks, electronics and communication networks, as well as in the consulting, security and aeronautics component sectors, where safety, efficiency and reliability are highly valued.

Our customer orientation has led to the development of our extensive network of factories in Spain, France, Germany, Poland, Brazil, Mexico and China, helping to meet our customers’ needs in more than 50 countries.

The solutions of the companies that make up Velatia aim to create a world that is better connected, more sustainable, more intelligent, better communicated, safer, and more human.
Its electric network

«Your trusted partner for reliable and intelligent electric power networks»

Your business and SSS applications

Our close relationship with our customers and our in-depth knowledge of the electric business are our keys to success, allowing us to offer substation solutions (SSS) based on high added value products and services adapted to the needs of the utilities, end users of electricity and renewable energies.
Our product map (SSS and DNS)

We believe that excellence does not lie solely in offering effective products and services, but also in the ability to respond to individual requirements and demands.

We provide our customers with personalised projects for efficient energy distribution via primary and secondary distribution equipment and solutions.

### Our lines of business

| SSS: Substation solutions for primary distribution |
| DNS: Secondary distribution network solutions |

### Our products for your segment

<table>
<thead>
<tr>
<th>SSS</th>
<th>cpg.0</th>
<th>cpg.1</th>
<th>gae1250max</th>
<th>cibor</th>
<th>transforma</th>
<th>ormacontainer</th>
</tr>
</thead>
</table>

| DNS | cpg.0 | cpg.1 | gae | ga | cibor | transforma | cibor | ormacontainer |

- **SSS**: Substation solutions for primary distribution
- **DNS**: Secondary distribution network solutions

### Power transformers

- **transforma**

### Distribution transformers

- **transforma**
  - **Conventional**
    - transforma.apc
    - transforma.line
  - **Non-conventional**
    - transforma.org

### Advanced measurement, detection & analysis, monitoring and communications

- **ekorsys family**

### Protection, automation and control

- **Low-Voltage Board**

### Transfoorma

- **Conventional**
  - transforma.apc
  - transforma.line
- **Non-conventional**
  - transforma.org

### Biodegradable natural dielectric liquid

### Extended range of solutions

| Concrete prefabricated transformer substations (TS) |
| Prefabricated metal TS |
| CEADS |
| Breaking substations |

| Concrete enclosures for transformer substations (TS) |
| Metal enclosure for TS |
| Photovoltaic substation |
| Portable substation |

| Underground |
| Prefabricated metal TS |
| CEADS |
| Breaking substations |

| Indoor switching and surface |
| Modular |
| Photovoltaic substation |
| Portable substation |

### Low-Voltage Board

- **Organic**
Main characteristics:

Security

Protection for people, the environment and their electrical installations.

Particular attention is paid to personal safety of operators and the general public, even in fault conditions.

Internal Arc

The cpg cubicles have been designed to withstand the effects of an internal arc conforming to IEC 62271-200 (class IAC).

Gas-filled and screened

The cutting and connecting devices are housed in lifetime hermetically sealed stainless steel gas tanks. This provides resistance according to the normal service conditions for indoor switchgear referred to in IEC 62271-1.

The whole power circuit is fully insulated, including the cable terminals, and it is all screened, earthed and installed inside a metal enclosure.

Interlocks

The cpg cubicles come as standard with mechanical and electrical interlocks in accordance with IEC 62271-200, allowing safe and reliable operation.

The interlocks prevent unsafe operations:

- They prevent the feeder disconnector from opening if the circuit-breaker is closed
- They make it impossible to close the feeder disconnector and the earthing switch at the same time
- They allow the access cover to the medium voltage cable compartment to be opened when the earthing switch and circuit-breaker are closed

Padlocks, keyed and electrical interlocks are optionally available based on customer specifications.

Indicators

Additional safety with the use of:

- Position indicators for the position of the connection switchgear: Visual indication in the mimic plan, validated by the kinematic chain test in accordance with current standards (IEC 62271-102)
- Capacitive indicators of presence/absence of voltage (IEC 61243-5). Permanent indication (multi-LED) and optional contacts for remote signalling and performing electromagnetic interlocks cpg.1)
- Signalling gas pressure inside each of the gas tanks in the cubicles, via volt-free contacts (cpg.1 family)

Reliability

Helps maintain the continuity of your mains electric supply

Lifetime sealtight insulation

Insulation inside a stainless steel gas tank provides an extended service life and requires no maintenance of the active parts.

Installation, assembly on site, extension and replacement with no need to handle gas.

Environmental adaptation

Resistance to normal environmental conditions stipulated in standard IEC62271-1.*

(*) For other special conditions, please contact Ormazabal.

Routine tests 100%

All switchgear is 100% subjected to routine electrical and mechanical tests in accordance with the relevant standards. We also perform 100% water-tightness tests on our switchgear as a routine test in order to guarantee reliability throughout its service life.

- Water-tightness test
- Power frequency test
- Main circuit resistance measurement
- Mechanical operation test
- Partial discharge test

Other tests performed

- Seismic tests (optional)
Efficiency

High-value features that make your tasks easier

Modularity

The design cpg is totally modular. Provides flexibility in diagram configuration.

Extensibility and replacement

Single extensibility on both sides with no need to handle gas, allowing a fast and economical installation process, in a small space and without having to move contiguous cubicles to remove a central cubicle.

Ergonomics

cpg provides the following easy-to-use features:

- Front access for installation of medium voltage cables and fuses
- Connection and testing of single cables
- Simple interface with operators
- Horizontal fuse holder
- Effortless operations of the driving mechanisms
- Optimised dimensions
- Secure access to the control and signalling area
- Connection reliability of control and signalling circuits via connectors

Sustainability

Continuous efforts to reduce gas emissions

Environmentally friendly:

- Continued decrease in the use of greenhouse gases
- Emission of negligible SF₆ during the manufacturing processes
- Reduction of the rate of gas leakage in the switchgear
- SF₆ gas not used during the installation
- Ongoing measures to reduce our environmental footprint
- End of life management
- Use of highly recyclable materials.
- Continuous investment in research on alternative materials and in-house technology
- Reduced dimensions of the cubicle room, due to its front access and its design with no removable switchgear

Continuous innovation

Helps maintain the continuity of your mains electric supply

A team of professionals focused on innovation, provides a constant supply of new developments and updates, such as:

- New integral protection and automation functions
- Cable fault preventive diagnostics
- Partial discharge (PD) detection for network diagnostics
Technical details

Family

**cpg.0**
With single busbar

- Automatic circuit-breaker
- Circuit-breaker with side connection on the left
- Protection with fuses
- Protection with fuses with side connection on the right
- Disconnector
- Busbar rise
- Busbar coupling
- Busbar earthing

**cpg.1**
With double busbar

- Automatic circuit-breaker
- Protection with fuses
- Disconnector
- Longitudinal busbar coupling
- Transversal busbar coupling

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**Applicable electrical standards**

<table>
<thead>
<tr>
<th>IEC</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IEC 62271-1</td>
<td>Common specifications for high-voltage switchgear.</td>
</tr>
<tr>
<td>IEC 62271-200</td>
<td>Alternating current metal-enclosed switchgear for rated voltages above 1 kV and up to and including 52 kV.</td>
</tr>
<tr>
<td>IEC 62271-103</td>
<td>Switches for rated voltages above 1 kV and below 52 kV.</td>
</tr>
<tr>
<td>IEC 62271-102</td>
<td>Alternating current disconnectors and earthing switches.</td>
</tr>
<tr>
<td>IEC 62271-105</td>
<td>High voltage alternating current switch-fuse combinations.</td>
</tr>
<tr>
<td>IEC 62271-100</td>
<td>High-voltage alternating current circuit-breakers.</td>
</tr>
</tbody>
</table>

*For other regulations, contact [Ormazabal](mailto:ormazabal@company.com).*
## Technical details

### Electrical characteristics

<table>
<thead>
<tr>
<th></th>
<th>cpg.0</th>
<th>cpg.1</th>
<th>cpg.0</th>
<th>cpg.1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rated voltage</strong></td>
<td>Ud</td>
<td>[kV]</td>
<td>Ud</td>
<td>[kV]</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>36</td>
<td>40.5</td>
<td>27</td>
</tr>
<tr>
<td><strong>Rated frequency</strong></td>
<td>f_r</td>
<td>[Hz]</td>
<td>f_r</td>
<td>[Hz]</td>
</tr>
<tr>
<td></td>
<td>50 / 60</td>
<td>60</td>
<td>50 / 60</td>
<td>60</td>
</tr>
<tr>
<td><strong>Rated current</strong></td>
<td>Ir</td>
<td>[A]</td>
<td>Ir</td>
<td>[A]</td>
</tr>
<tr>
<td>Busbars and cubicle interconnection</td>
<td>up to 2500</td>
<td>up to 2000</td>
<td>up to 3250</td>
<td>up to 2250</td>
</tr>
<tr>
<td>Outgoing line&lt;sup&gt;1&lt;/sup&gt;</td>
<td>up to 2500</td>
<td>up to 2000</td>
<td>up to 2250</td>
<td>up to 2000</td>
</tr>
<tr>
<td><strong>Rated short-term withstand current</strong></td>
<td>I&lt;sub&gt;k&lt;/sub&gt;</td>
<td>[kA]</td>
<td>I&lt;sub&gt;k&lt;/sub&gt;</td>
<td>[kA]</td>
</tr>
<tr>
<td>with t&lt;sub&gt;k&lt;/sub&gt; = 1 s - 3 s</td>
<td>25 / 31.5</td>
<td>25 / 31.5</td>
<td>25 / 31.5</td>
<td>25 / 31.5</td>
</tr>
<tr>
<td><strong>Peak value (Max)</strong></td>
<td>I&lt;sub&gt;p&lt;/sub&gt;</td>
<td>[kA]</td>
<td>I&lt;sub&gt;p&lt;/sub&gt;</td>
<td>[kA]</td>
</tr>
<tr>
<td></td>
<td>50 Hz: 62.5 / 80 60 Hz: 65 / 82</td>
<td>65 / 82</td>
<td>65 / 82</td>
<td>65 / 82</td>
</tr>
<tr>
<td><strong>Rated insulation level</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial frequency rated withstand voltage (1 min)</td>
<td>U&lt;sub&gt;i&lt;/sub&gt;</td>
<td>[kV]</td>
<td>50 / 60</td>
<td>70 / 80</td>
</tr>
<tr>
<td>Internal arc classification in accordance with IEC 62271-200</td>
<td>IAC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AFL (IEC 25 / 31.5 kA 1 s)</td>
<td>AFL (IEC 25 / 31.5 kA 1 s)</td>
<td>AFL (IEC 25 / 31.5 kA 1 s)</td>
<td>AFL (IEC 25 / 31.5 kA 1 s)</td>
<td></td>
</tr>
<tr>
<td><strong>Protection grade</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Category of loss of service continuity</td>
<td>LSC</td>
<td>LSC&lt;sup&gt;2&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compartmentalisation class</td>
<td>PM</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>1</sup> Fuse protection cubicle = 200 A  
<sup>2</sup> For other values, contact Ormazabal

### Driving mechanisms

#### Vacuum circuit-breaker

<table>
<thead>
<tr>
<th></th>
<th>cpg.0</th>
<th>cpg.1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rated voltage</strong></td>
<td>125 V&lt;sub&gt;ac&lt;/sub&gt;</td>
<td>125 V&lt;sub&gt;ac&lt;/sub&gt;</td>
</tr>
<tr>
<td><strong>Max. consumption</strong></td>
<td>56</td>
<td>280</td>
</tr>
<tr>
<td><strong>Minimum voltage coil</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Rated voltage</strong></td>
<td>125 V&lt;sub&gt;ac&lt;/sub&gt;</td>
<td>125 V&lt;sub&gt;ac&lt;/sub&gt;</td>
</tr>
<tr>
<td><strong>Peak current</strong></td>
<td>≤ 20</td>
<td>≤ 11</td>
</tr>
</tbody>
</table>

#### Disconnecter

<table>
<thead>
<tr>
<th></th>
<th>cpg.0</th>
<th>cpg.1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rated voltage</strong></td>
<td>125 V&lt;sub&gt;ac&lt;/sub&gt;</td>
<td>125 V&lt;sub&gt;ac&lt;/sub&gt;</td>
</tr>
<tr>
<td><strong>Average consumption</strong></td>
<td>55</td>
<td>250</td>
</tr>
<tr>
<td><strong>Motor operation time</strong></td>
<td>&lt; 15</td>
<td>&lt; 15</td>
</tr>
<tr>
<td><strong>Peak current</strong></td>
<td>&lt; 5</td>
<td>&lt; 4.5</td>
</tr>
</tbody>
</table>

<sup>3</sup> For other configurations, please contact Ormazabal

### Service conditions

#### Type of switchgear

- **Interior**

#### Ambient temperature

<table>
<thead>
<tr>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>-5 °C</td>
<td>+40 °C</td>
</tr>
</tbody>
</table>

#### Maximum mean ambient temperature, measured over a 24-hour period

- 23 °F | 104 °F

#### Relative humidity

- Maximum mean relative humidity, measured over a 24-hour period
  - < 95 %

#### Solar radiation

- Negligible

#### Maximum height above sea level

- 1000 m<sup>4</sup> | 3250 feet<sup>4</sup>

#### Ambient air pollution (dust, smoke, corrosive and/or flammable gases, vapours or salt)

acc. to normal service conditions indicated in IEC 62271-1.

<sup>4</sup> For other conditions, please contact Ormazabal
Construction structure

cpg.0

Front view

Side view

1. Gas tanks
   1.1. Vacuum circuit-breaker
   1.2. Three-position disconnector (cpg.0) / Feeder disconnector (cpg.1)
   1.3. Earthing switch (cpg.1)
   1.4. Gas pressure relief duct

2. Busbar compartment
   2.1. Main busbars

3. Base: Cable compartment
   3.1. Bushing
   3.2. Current transformers
   3.3. Voltage transformers
   3.4. Terminals

4. Low-voltage compartment

5. Operation interface
   5.1. Circuit-Breaker operation driving mechanism
   5.2. Driving mechanism for feeder disconnectors
   5.3. Earthing disconnector mechanism
   5.4. Pressure gauge: Pressure gauge (cpg.0) / Pressure switch (cpg.1)
   5.5. Voltage presence/absence indicator
   5.6. Mimic diagram

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cpg.1

Front view

Side view

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Design characteristics

Key components

Vacuum circuit-breaker
Compact circuit breaker with vacuum switching technology and excellent reliability, certified according to IEC 62271-100, including extended electrical endurance (class E2) with fast reclosing cycle and, as a result, maintenance-free for the whole of its service life.

Automatic circuit-breaker

<table>
<thead>
<tr>
<th>cpg.0</th>
<th>cpg.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opening capacity</td>
<td></td>
</tr>
<tr>
<td>Short-circuit (asymmetry) [kA]</td>
<td>25 / 31.5</td>
</tr>
<tr>
<td>DC &lt; 40 %</td>
<td>&lt; 40 %</td>
</tr>
<tr>
<td>No-load cable-charging breaking capacity [kA]</td>
<td>31.5 (24 kV)</td>
</tr>
<tr>
<td>Capacitor banks breaking capacity [kA]</td>
<td>400</td>
</tr>
<tr>
<td>Electrical endurance</td>
<td>E2</td>
</tr>
<tr>
<td>Automatic reclosing sequence</td>
<td>D-0.3&quot;CD-13°-CO</td>
</tr>
<tr>
<td>Mechanical endurance</td>
<td>M2</td>
</tr>
<tr>
<td>Rated current [A]</td>
<td>Up to 2500 (24 / 36 kV)</td>
</tr>
<tr>
<td>Rated short-time withstand current [kA / 1 s - 3 s]</td>
<td>25 / 31.5</td>
</tr>
<tr>
<td>Opening time [ms]</td>
<td>&lt; 45</td>
</tr>
</tbody>
</table>

Characteristics:
- Vacuum switching
  - Manual operation by push button (lockable)
- Motorised driving mechanism
  - Spring charging time < 15 seconds
- Operational coils:
  - Voltage release opening coil. Second optional opening coil.
  - 1 closing coil
  - 1 undervoltage coil (optional)

Disconnector
High-performance disconnector designed and developed by Ormazabal.

Disconnector and earthing switches

<table>
<thead>
<tr>
<th>cpg.0</th>
<th>cpg.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical endurance</td>
<td>M1</td>
</tr>
<tr>
<td>Rated current [A]</td>
<td>24 / 36 kV: Up to 2500 Up to 1600</td>
</tr>
<tr>
<td>Short-time current [kA - 1 / 3 s]</td>
<td>25</td>
</tr>
<tr>
<td>Earthing disconnector</td>
<td></td>
</tr>
<tr>
<td>Making capacity [kA]</td>
<td>62.5 (50 Hz) / 65 (60 Hz) 62.5-80 (50 Hz) / 65-82 (60 Hz)</td>
</tr>
<tr>
<td>Electrical endurance</td>
<td>E2*</td>
</tr>
</tbody>
</table>

Characteristics:
- Independent drive and levers for the operations:
  - Connection - disconnection [option of motorised driving mechanism]
  - Disconnection - earth connection [option of motorised driving mechanism]
  - cpg.0/f: 3 positions (connection - disconnection - earth connection)

Main busbars
The function of the main busbars is the electrical connection between cubicles.
They have a single-phase arrangement and are located on the upper sealed gas tank. This allows modularity and future extensibility with no need to handle gas on site.
This upper busbar assembly is composed of three independent, cylindrical, shielded, solid-insulated, copper conductors (6 conductors in double busbar configurations). The cubicles are connected using a busbar section and “T” or “L” shaped connectors.
The whole set is protected against dirt and condensation; in addition, it has a metal cover to protect it against impacts.
Busbars are designed to withstand thermal and dynamic stress from rated short-time currents (25-31.5 kA / 1 or 3 s) and rated current permanently up to 2500 A.
Main compartments

The cpg system presents a structure divided into independent compartments:

1. Gas tanks
2. Busbar compartment
3. Base: Cable compartment
4. Low-voltage compartment
5. Operation interface

Driving elements compartment

The lifetime sealed driving elements compartment, houses the switching and operation switchgear, where the insulating medium is gas SF₆.

cpg.₀ contains a single gas tank, while cpg.₁ is characterised by having one gas tank for the circuit breaker and the earthing switch, and a gas tank for each feeder disconnector.

Made of stainless steel, it is designed and tested to withstand an internal arc. The gases generated as a result of an internal arc are cooled and can optionally be channelled through a duct located at the rear.

The following elements are located inside, depending on their functionality:

- Feeder disconnector and earthing switch
- Vacuum circuit-breaker
- Fuse holders

Using upper and lower bushings it is possible to connect to the main busbar and medium voltage cables, respectively.

The gas pressure is tested in each cubicle by means of a pressure switch with a volt-free contact, allowing it to be used as a remote alarm.

Characteristics:

- Lifetime sealed insulation system
- Tested against internal arc
- Stainless steel – IP65 rating
- Main circuit, breaking and connecting device
- Plug-in terminal for external bushings acc/EN 50181
- Pressure indicator:
- Relief diaphragm

Driving mechanism

The driving mechanism is used to perform opening and closing operations on the medium voltage circuits.

The front distribution of the driving mechanisms and the use of levers allows safe, comfortable and simple operations with minimum effort.

The front mimic diagrams include the position indicating devices. Maximum reliability verified by kinematic chain test of the signalling mechanism in accordance with IEC 62271-102.

Characteristics:

- Mimic and push-buttons
- Position signalling (kinematic chain)
  - Breaking and connection elements
  - Fuse trip
- Voltage capacitive indicator
- Interlocks (electrical and mechanical)
- Optimised operator interface
Main busbar compartment
Located at the top of the cubicle, it is used to house the busbar (electrical connection between the medium voltage cubicles).
Each of the phases that make up the busbar incorporates solid and shielded insulation, earthed by means of the compartment’s specific earthing bar.
Due to this single-phase arrangement, the cubicle is very reliable in terms of service continuity.
The installation of an optional phase segregation assembly using earthed metal plates allows it to withstand internal arcs.
Optionally, toroidal current transformers and plug-in voltage transformers can be installed in this compartment, which do not require metering cubicles.
Characteristics:
- Single-phase screening arrangement (optional)
- Solid and screened busbars
- External assembly
- Optional: Toroidal current transformers and plug-in voltage transformers

Cable compartment
The cable compartment, located in the lower front section of the cubicle, has a cover interlocked with the earthing switch, thus allowing front access to the medium voltage cables.
The external cone type bushings allow the toroidal current transformers and the connection of insulated medium voltage cables to be installed on them.
Characteristics:
- Up to 4 * screened terminals with reinforced connection (bolted) per phase
- Clamping flanges for medium voltage cables
- Earthing bars
- Effortless connections
- Optional: Toroidal current transformers, plug-in voltage transformers and auto-valves
(*) Up to 6 terminals in cpg.0 (2000 / 2500 A)

Low-voltage compartment
The low voltage compartment, located at the top of the cubicle and independent from the medium voltage compartments.
Characteristics:
- Compartment independent from the medium voltage
- Ready for the installation of protection relays, as well as control and measurement equipment
- Factory assembled and tested, according to the customers requirements
- Standard, compact design for the installation of Ormazabal protection relays and automation units, as well as great adaptability for protection relays, control and measurement units from other manufacturers, as well as equipment provided by the customer
- Custom size and design
Optionally, connectable low-voltage compartments can be supplied for the location of signalling elements and intervention of motorised functions.
Protection and automation

The cpg is used in a wide variety of areas in primary distribution, which generally include protection and control systems to provide related functions for each application.

cpg is suitable for use in substations with conventional protection relays as well as where a combination of several protection relays and control systems is required. The devices are installed in the cubicles’ low voltage compartment. The indicators and controls are integrated in the front door of the low voltage compartment.

Protection:

- Protection functions such as: Differential protection
- Remote protection
- Instant overcurrent protection
- Earth fault protection
- Overload protection
- Protection against over/under voltage
- Protection against over/under frequency
- Power directional protection
- Protection against load imbalance
- Automatic restart, etc.

- Substation protection
- Supply to customers of medium voltage
- Protection of switching substations and industrial customers
- Generator set protection unit

Automation

- Automation and control
- Remote control
- Automatic transfer
- Fault detection

Communication

A wide variety of interfaces and protocol structures are available for communication with the control system, depending on the type of device used. The connection is made using a data cable or an optical fibre cable, depending on the system.
Additional protection **ekor.rps-dd**
- Maximum frequency / minimum frequency / frequency derivative: 81M / 81m / 81R
- Directional power: 32
- Overvoltage phase / minimum voltage phase / negative sequence overvoltage: 3 x 59 / 3 x 27 / 47
- Neutral overvoltage: 59N / 64

Control functions
- Three-phase recloser: 79
- Recloser for single-phase trips due to overcurrent: 79
- Supervision of the closing/tripping coil: 74
- Recloser for restart after trip due to frequency trip: 79
- Synchronism control: 25
- Self-diagnosis of the state of protection

Metering
- Phase, neutral and sensitive neutral current.
- Power factor
- Single and compound voltages.
- Current maximeter.
- Energies
- Inverse sequence
- Powers
- Total harmonic distortion (THD)

Data gathering
- Chronological incident record.
- Log of maximum and minimum meterings.
- Chronological fault record.
- Disturbance recorder

**ekorsys: Automation and control**
- Remote control
  - **ekor.uct**
  - **ekor.ccp**
  - **ekor.rci**
- Automatic transfer
  - **ekor.stp**
  - **ekor.ccp**
  - **ekor.rtK**
- Fault detection
  - **ekor.rci**

**Advanced metering communication and management**
- **ekor.gid**

**Dispatching centre**

**Software**
- **ekor.soft**

For more information, please contact **Ormazabal** or visit [www.ormazabal.com](http://www.ormazabal.com)
**Type of modules**

**cpg.0-v**

Single busbar circuit-breaker cubicle.

Includes a vacuum circuit-breaker and a three-position disconnector in series with it. Both components are inside the operation elements compartment.

### Electrical characteristics

<table>
<thead>
<tr>
<th></th>
<th>Uₙ [kV]</th>
<th>24</th>
<th>36</th>
<th>40.5</th>
<th>27</th>
<th>38</th>
<th>50 / 60</th>
<th>60</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rated voltage</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Rated frequency</strong></td>
<td>fₚ [Hz]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Rated current</strong></td>
<td>Iᵣ [A]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>General busbar</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Feeder</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Short-time rated withstand voltage at industrial frequency (1 min)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between phases and earth</td>
<td>Ud [kV]</td>
<td>50</td>
<td>70</td>
<td>95</td>
<td>60</td>
<td>80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Via the isolating distance</td>
<td>Ud [kV]</td>
<td>60</td>
<td>80</td>
<td>118</td>
<td>66</td>
<td>88</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lightning impulse rated withstand voltage</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between phases and earth</td>
<td>Up [kV]</td>
<td>125</td>
<td>170</td>
<td>185</td>
<td>125</td>
<td>170</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Via the isolating distance</td>
<td>Up [kV]</td>
<td>145</td>
<td>195</td>
<td>215</td>
<td>145</td>
<td>195</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Automatic circuit-breaker

**Rated short-term withstand current (main circuit)**

Value tₖ = 1 s - 3 s

<table>
<thead>
<tr>
<th>Iₖ [kA]</th>
<th>25 / 31.5</th>
</tr>
</thead>
</table>

Peak value

<table>
<thead>
<tr>
<th>Iₚ [kA]</th>
<th>50 Hz: 62.5 / 80</th>
<th>60 Hz: 65 / 82</th>
<th>65 / 82</th>
</tr>
</thead>
</table>

**Rated closing and breaking capacity**

<table>
<thead>
<tr>
<th>Iᵣ [A]</th>
<th>Up to 2500*</th>
<th>Up to 1250</th>
<th>Up to 2250*</th>
</tr>
</thead>
</table>

Capacitive current capacity. Capacitor bank

<table>
<thead>
<tr>
<th>Iₑ [A]</th>
<th>400</th>
</tr>
</thead>
</table>

**Nominal operating sequence**

With no automatic reclosing: CO-15 s-CO / CO / CO-3 min-CO

With automatic reclosing: O-0.3 s-CO-15 s-CO / O-0.3 s-CO-3 min-CO

**Circuit-breaker category**

Mechanical endurance (operation class) M2

Electrical endurance (class) E2

**Feeder disconnector**

**Rated short-term withstand current (main circuit)**

Value tₖ = 1 s - 3 s

<table>
<thead>
<tr>
<th>Iₖ [kA]</th>
<th>25 / 31.5</th>
</tr>
</thead>
</table>

Peak value

<table>
<thead>
<tr>
<th>Iₚ [kA]</th>
<th>50 Hz: 62.5 / 80</th>
<th>60 Hz: 65 / 82</th>
<th>65 / 82</th>
</tr>
</thead>
</table>

**Feeder disconnector category**

Mechanical endurance M1

Operating cycles (breaks in short-circuit) - class E0

**Earthing disconnector**

**Rated short-term withstand current (earthing circuit)**

Value tₖ = 1 s - 3 s

<table>
<thead>
<tr>
<th>Iₖ [kA]</th>
<th>25 / 31.5</th>
</tr>
</thead>
</table>

Peak value

<table>
<thead>
<tr>
<th>Iₚ [kA]</th>
<th>62.5 / 80 (50 Hz) - 65/82 (60 Hz)</th>
<th>65 / 82</th>
</tr>
</thead>
</table>

Main switch making capacity (peak value)

<table>
<thead>
<tr>
<th>Iₑ [kA]</th>
<th>62.5 / 80 (50 Hz) - 65/82 (60 Hz)</th>
<th>65 / 82</th>
</tr>
</thead>
</table>

**Earthing disconnector category**

Mechanical endurance M1

Operating cycles (breaks in short-circuit) - class E2 (in combination with circuit breaker)

*With forced ventilation

**For other values, please contact Ormazaabal**

### Applications

Main transformer protection, feeder protection, busbar coupling protection, capacitor bank protection and auxiliary services transformer protection.
Configuration

Cubicle structure

Internal Arc
- IAC 25 kA 1 s
- IAC 31.5 kA 1 s

Gas cube
- Control pressure gauge with volt-free contact

Busbar compartment
- Up to 2500 A
- Current transformers
- Voltage transformers

Actuating mechanism

Three-position disconnector
- Motorised feeder disconnector
- Motorised earthing disconnector
- Voltage presence indicator

Vacuum circuit-breaker
- Motor
- Tripping coil
- 2nd tripping coil
- Closing coil
- Minimum voltage coil
- Blocking open/close push-button

Additional interlocks
- Electric interlocks
- Locking with lock
- Locking with a padlock

Cable compartment
- Up to 4 cables per phase
- Toroidal current transformers
- Plug-in voltage transformer

Low-voltage compartment

Cubicle height
- 2425 mm
- 2245 mm
- Signalling, control, automation and protection devices

Dimensions

<table>
<thead>
<tr>
<th>I$_{branch}$ [A]</th>
<th>a [mm] (inch)</th>
<th>h [mm] (inch)</th>
<th>hp [mm] (inch)</th>
<th>f [mm] (inch)</th>
<th>Weight [kg] (Lbm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>630</td>
<td>[600] (23.6)</td>
<td>[2125] (83.7)</td>
<td>[665] (26.2)</td>
<td>[1015] (40.0)</td>
<td>[280] (617.3)</td>
</tr>
<tr>
<td>1250</td>
<td>[600] (23.6)</td>
<td>[2425] (95.5)</td>
<td>[665] (26.2)</td>
<td>[1365*] (53.7*)</td>
<td>[850] (1873.9)</td>
</tr>
<tr>
<td>1600</td>
<td>[700] (27.6)</td>
<td>[2425] (95.5)</td>
<td>[665] (26.2)</td>
<td>[1365*] (53.7*)</td>
<td>[900] (1984.2)</td>
</tr>
<tr>
<td>2000/2500</td>
<td>[1000] (39.4)</td>
<td>[2425] (95.5)</td>
<td>[665] (26.2)</td>
<td>[1365*] (53.7*)</td>
<td>[1100/1200] (2425.1/2645.6)</td>
</tr>
</tbody>
</table>

*1410 mm/55.5 Inch in the case of cubicles with IAC AFLR rating.
Single busbar circuit-breaker cubicule with side connection on the right

Includes a vacuum circuit-breaker and a three-position disconnector in series with it. Both components are inside the switch compartment.

### Electrical characteristics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage $U_n$ [kV]</td>
<td>24, 36, 40.5, 27, 38</td>
</tr>
<tr>
<td>Rated frequency $f_r$ [Hz]</td>
<td>50 / 60, 60</td>
</tr>
<tr>
<td>Rated current $I_r$ [A]</td>
<td>Up to 2500, Up to 1600, Up to 2250*</td>
</tr>
<tr>
<td>Short-time rated withstand voltage at industrial frequency (1 min)</td>
<td></td>
</tr>
<tr>
<td>Between phases and earth $U_d$ [kV]</td>
<td>50, 70, 95, 60, 80</td>
</tr>
<tr>
<td>Via the isolating distance $U_d$ [kV]</td>
<td>60, 80, 118, 66, 88</td>
</tr>
<tr>
<td>Lightning impulse rated withstand voltage</td>
<td></td>
</tr>
<tr>
<td>Between phases and earth $U_p$ [kV]</td>
<td>125, 170, 165, 125, 170</td>
</tr>
<tr>
<td>Via the isolating distance $U_p$ [kV]</td>
<td>145, 195, 215, 145, 195</td>
</tr>
<tr>
<td>Internal arc classification $IAC$</td>
<td>AFL(R) 25 / 31.5 kA 1 s</td>
</tr>
</tbody>
</table>

### Automatic circuit-breaker

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated short-term withstand current (main circuit) $I_s$ [kA]</td>
<td>25 / 31.5</td>
</tr>
<tr>
<td>Peak value $I_p$ [kA]</td>
<td>50 Hz: 62.5 / 80, 60 Hz: 65 / 82</td>
</tr>
<tr>
<td>Rated closing and breaking capacity</td>
<td></td>
</tr>
<tr>
<td>Main active current breaking capacity $I_1$ [A]</td>
<td>Up to 2500*</td>
</tr>
<tr>
<td>Short-circuit breaking capacity $I_{sc}$ [kA]</td>
<td>25 / 31.5</td>
</tr>
<tr>
<td>Capacitive current capacity, Capacitor bank $I_{ma}$ [kA]</td>
<td>400</td>
</tr>
</tbody>
</table>

### Feeder disconnector

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated short-term withstand current (main circuit) $I_s$ [kA]</td>
<td>25 / 31.5</td>
</tr>
<tr>
<td>Peak value $I_p$ [kA]</td>
<td>50 Hz: 62.5 / 80, 60 Hz: 65 / 82</td>
</tr>
<tr>
<td>Feeder disconnector category</td>
<td></td>
</tr>
<tr>
<td>Mechanical endurance</td>
<td>M1</td>
</tr>
<tr>
<td>Operating cycles (breaks in short-circuit) - class</td>
<td>E0</td>
</tr>
</tbody>
</table>

### Earthing disconnector

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated short-term withstand current (earthing circuit) $I_s$ [kA]</td>
<td>25 / 31.5</td>
</tr>
<tr>
<td>Peak value $I_p$ [kA]</td>
<td>62.5 / 80 (50 Hz), 65 / 82 (60 Hz)</td>
</tr>
<tr>
<td>Main switch making capacity (peak value) $I_{ma}$ [kA]</td>
<td>62.5 / 80 (50 Hz), 65 / 82 (60 Hz)</td>
</tr>
<tr>
<td>Earthing disconnector category</td>
<td></td>
</tr>
<tr>
<td>Mechanical endurance</td>
<td>M1</td>
</tr>
<tr>
<td>Operating cycles (breaks in short-circuit) - class</td>
<td>E2 (in combination with circuit breaker)</td>
</tr>
</tbody>
</table>

* With forced ventilation
** For other values, please contact Ormazabal

### Applications

Main transformer protection, feeder protection, busbar coupling protection, capacitor bank protection and auxiliary services transformer protection.
Configuration

Cubicle structure

Internal Arc
- IAC 25 kA 1 s
- IAC 31.5 kA 1 s

Gas cubicle
- Control pressure gauge with volt-free contact

Busbar compartment
- Up to 2500 A
- Current transformers
- Voltage transformers

Actuating mechanism

Three-position disconnector
- Motorised feeder disconnector
- Motorised earthing disconnector
- Voltage presence indicator

Vacuum circuit-breaker
- Motor
- Tripping coil
- 2nd tripping coil
- Closing coil
- Minimum voltage coil
- Blocking open/close push-button

Additional interlocks
- Electric interlocks
- Locking with lock
- Locking with a padlock

Cable compartment
- Up to 4 cables per phase
- Toroidal current transformers
- Plug-in voltage transformer

Low-voltage compartment

Cubicle height
- 2425 mm
- 2245 mm
- Signalling, control, automation and protection devices

Dimensions

<table>
<thead>
<tr>
<th>( I_{	ext{max}} ) [A]</th>
<th>a [mm (inch)]</th>
<th>ap [mm (inch)]</th>
<th>h [mm (inch)]</th>
<th>hp [mm (inch)]</th>
<th>f [mm (inch)]</th>
<th>Weight [kg (Lbm)]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1250</td>
<td>[600] (23.6)</td>
<td>[789] (31.1)</td>
<td>[2425] (95.5)</td>
<td>[665] (26.2)</td>
<td>[1365*] (53.7*)</td>
<td>[&lt;1200] (&lt;2645.6)</td>
</tr>
</tbody>
</table>

*1410 mm/55.5 Inch in the case of cubicles with IAC AFLR rating.

Standard

Optional
Single busbar fuse protection cubicle.

Fitted with a three-position switch-disconnector (closed / open / earthing), including fuse protection. The fuses are housed inside sealtight fuse holder tubes, which are in turn inside the switch compartment, reinforcing its level of insulation.

The three-core opening switch via combined action due to a fuse blowing can be motorised as an option.

### Electrical characteristics

<table>
<thead>
<tr>
<th></th>
<th>Un [kV]</th>
<th>24</th>
<th>36</th>
<th>27</th>
<th>38</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage</td>
<td>f, [Hz]</td>
<td>50 / 60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated current</td>
<td>Ir [A]</td>
<td>Up to 2500</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transformer outgoing line</td>
<td>Ir [A]</td>
<td>200</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Short-time rated withstand voltage at industrial frequency (1 min)</td>
<td>Ud [kV]</td>
<td>50</td>
<td>70</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>Via the isolating distance</td>
<td>Ud [kV]</td>
<td>60</td>
<td>80</td>
<td>66</td>
<td>88</td>
</tr>
<tr>
<td>Lightning impulse rated withstand voltage</td>
<td>Up [kV]</td>
<td>125</td>
<td>170</td>
<td>125</td>
<td>170</td>
</tr>
<tr>
<td>Via the isolating distance</td>
<td>Up [kV]</td>
<td>145</td>
<td>195</td>
<td>145</td>
<td>195</td>
</tr>
<tr>
<td>Internal arc classification</td>
<td>IAC</td>
<td>AFL[R] 25 / 31.5 kA 1 s</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### the switch-disconnector

<table>
<thead>
<tr>
<th>Rated short-term withstand current (main circuit)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Value ( t_k = 1 \text{ s} - 3 \text{ s} )</td>
<td>( I_k ) [kA]</td>
</tr>
<tr>
<td>Peak value</td>
<td>( I_p ) [kA]</td>
</tr>
<tr>
<td>Mainly active current breaking capacity</td>
<td>( I_1 ) [A]</td>
</tr>
<tr>
<td>Main switch making capacity (peak value)</td>
<td>( I_{ma} ) [kA]</td>
</tr>
<tr>
<td>Switch category</td>
<td></td>
</tr>
<tr>
<td>Mechanical endurance</td>
<td>M1</td>
</tr>
<tr>
<td>Operating cycles (breaks in short-circuit) - class</td>
<td>E3</td>
</tr>
</tbody>
</table>
| Combined switch-relay take-over current | \( I_{ma} \) breaking current according to TD, 
\( I_{ma} > 800 \) |

#### Earthing disconnector

<table>
<thead>
<tr>
<th>Rated short-term withstand current (earthing circuit)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Value ( t_k = 1 \text{ s} - 3 \text{ s} )</td>
<td>( I_k ) [kA]</td>
</tr>
<tr>
<td>Peak value</td>
<td>( I_p ) [kA]</td>
</tr>
<tr>
<td>Earthing switch making capacity (peak value)</td>
<td>( I_{ma} ) [kA]</td>
</tr>
<tr>
<td>Earthing disconnector category</td>
<td></td>
</tr>
<tr>
<td>Mechanical endurance (manual)</td>
<td>M0</td>
</tr>
<tr>
<td>Operating cycles (breaks in short-circuit) - class</td>
<td>E2</td>
</tr>
</tbody>
</table>

* For higher values, please contact Ormazabal.

### Applications

Auxiliary services transformer protection.
**Configuration**

**Cubicle structure**

- **Internal Arc**
  - IAC 25 kA 1 s
  - IAC 31.5 kA 1 s

**Gas cubicle**
- Fuses combined with switch-disconnector
- Control pressure gauge with volt-free contact

**Busbar compartment**
- Up to 2500 A
- Current transformers
- Voltage transformers

**Actuating mechanism**
- Three-position switch-disconnector
  - Motorised switch-disconnector
  - Voltage presence indicator

**Additional interlocks**
- Electric interlocks
- Locking with lock
- Locking with a padlock

**Cable compartment**
- Up to 4 cables per phase
- Toroidal current transformers
- Plug-in voltage transformer

**Low-voltage compartment**
- 2425 mm
- 2245 mm
- Signalling, control, automation and protection devices

---

**Dimensions**

<table>
<thead>
<tr>
<th>$I_{	ext{max}}$ [A]</th>
<th>$a$ [mm] (inch)</th>
<th>$h$ [mm] (inch)</th>
<th>$hp$ [mm] (inch)</th>
<th>$f$ [mm] (inch)</th>
<th>Weight (kg) (Lbm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>[600] (23.6)</td>
<td>[2425] (95.5)</td>
<td>[665] (26.2)</td>
<td>[1365*] (53.7*)</td>
<td>[550] (1212.5)</td>
</tr>
</tbody>
</table>

*1410 mm/55.5 Inch in the case of cubicles with IAC AFLR rating.

- Standard
- Optional
Protection cubicle with single busbar fuses with side connection on the left

Fitted with a three-position switch-disconnector (closed / open /earthing), including fuse protection. The fuses are housed inside sealtight fuse holder tubes, which are in turn inside the switch compartment, reinforcing its level of insulation.

The three-core opening switch via combined action due to a fuse blowing can be motorised as an option.

### Electrical characteristics

<table>
<thead>
<tr>
<th></th>
<th>Un [kV]</th>
<th>24</th>
<th>36</th>
<th>27</th>
<th>38</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated frequency</td>
<td>f [Hz]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General busbar</td>
<td>Ir [A]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transformer outgoing line</td>
<td>Ir [A]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feeder</td>
<td>Ir [A]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Side connection</td>
<td>Ir [A]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Short-time rated withstand voltage at industrial frequency (1 min)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between phases and earth</td>
<td>Ud [kV]</td>
<td>50</td>
<td>70</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>Via the isolating distance</td>
<td>Ud [kV]</td>
<td>60</td>
<td>80</td>
<td>66</td>
<td>88</td>
</tr>
<tr>
<td>Lightning impulse rated withstand voltage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between phases and earth</td>
<td>Up [kV]</td>
<td>125</td>
<td>170</td>
<td>125</td>
<td>170</td>
</tr>
<tr>
<td>Via the isolating distance</td>
<td>Up [kV]</td>
<td>145</td>
<td>195</td>
<td>145</td>
<td>195</td>
</tr>
<tr>
<td>Internal arc classification</td>
<td>IAC</td>
<td>AFL[R] 25 / 31.5 kA 1 s</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### The switch-disconnector

- **Rated short-term withstand current (main circuit)**
  - Value \( I_n \) = 1 s - 3 s
  - Value \( I_p \) = 50 Hz 62.5 / 80 Hz 65 / 82
  - Value \( I_r \) = 65 / 82
- **Main switch making capacity (peak value)**
  - Value \( I_{ma} \) = 630
- **Switch category**
  - Mechanical endurance
    - M1
  - Operating cycles (breaks in short-circuit)- class E3: E2
- **Combined switch-relay take-over current**
  - \( I_{ma} \) breaking current according to TD
  - > 800

### Earthing disconnector

- **Rated short-term withstand current (earthing circuit)**
  - Value \( I_n \) = 1 s - 3 s
  - Value \( I_p \) = 2.5 / 2.6
  - Value \( I_r \) = 2.6
- **Earthing switch making capacity (peak value)**
  - Value \( I_{ma} \) = 2.5 / 2.6
- **Earthing disconnector category**
  - Mechanical endurance (manual)
    - M0
  - Operating cycles (breaks in short-circuit)- class E2

* For other values, please contact Ormazabal

### Applications

Auxiliary services transformer protection.
Configuration

Cubicle structure

Internal Arc
- IAC 25 kA 1 s
- IAC 31.5 kA 1 s

Gas cubicle
- Fuses combined with switch-disconnector
- Control pressure gauge with volt-free contact

Busbar compartment
- Up to 2500 A
- Current transformers
- Voltage transformers

Actuating mechanism

Three-position switch-disconnector
- Motorised switch-disconnector
- Voltage presence indicator

Additional interlocks
- Electric interlocks
- Locking with lock
- Locking with a padlock

Cable compartment
- Up to 4 cables per phase
- Toroidal current transformers
- Plug-in voltage transformer

Low-voltage compartment

Cubicle height
- 2425 mm
- 2245 mm

Dimensions

<table>
<thead>
<tr>
<th>a [mm] (inch)</th>
<th>h [mm] (inch)</th>
<th>hp [mm] (inch)</th>
<th>f [mm] (inch)</th>
<th>Weight [kg] (Lbm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 [600]</td>
<td>[2425] (95.5)</td>
<td>[665] (26.2)</td>
<td>[1365*] (53.7*)</td>
<td>[850] (1873.9)</td>
</tr>
</tbody>
</table>

*1410 mm/55.5 Inch in the case of cubicles with MC AFLR rating.
**cpg.0-s**

Single busbar disconnector cubicle

Fitted with a three-position disconnector without load switching capability.

### Electrical characteristics

<table>
<thead>
<tr>
<th></th>
<th>U_n [kV]</th>
<th>24</th>
<th>36</th>
<th>40.5</th>
<th>27</th>
<th>38</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage</td>
<td>f [Hz]</td>
<td>50 / 60</td>
<td></td>
<td></td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Rated current</td>
<td>l [A]</td>
<td></td>
<td>Up to 2500</td>
<td>Up to 1600</td>
<td>Up to 2250*</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General busbar</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feeder</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated short-time withstand voltage at industrial frequency (1 min)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between phases and earth</td>
<td>U_d [kV]</td>
<td>50</td>
<td>70</td>
<td>95</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>Via the isolating distance</td>
<td>U_d [kV]</td>
<td>60</td>
<td>80</td>
<td>118</td>
<td>66</td>
<td>88</td>
</tr>
<tr>
<td>Lightning impulse rated withstand voltage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between phases and earth</td>
<td>U_p [kV]</td>
<td>125</td>
<td>170</td>
<td>185</td>
<td>125</td>
<td>170</td>
</tr>
<tr>
<td>Via the isolating distance</td>
<td>U_p [kV]</td>
<td>145</td>
<td>195</td>
<td>215</td>
<td>145</td>
<td>195</td>
</tr>
<tr>
<td>Internal arc classification</td>
<td>IAC</td>
<td>AFL(R) 25 / 31.5 kA 1 s</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Feeder disconnector

- Rated short-term withstand current (main circuit)
  - Value t_k = 1 s - 3 s
  - Peak value
    - 50 Hz: 62.5 / 80
    - 60 Hz: 65 / 82
    - 65 / 82

### Earthing disconnector

- Rated short-term withstand current (earthing circuit)
  - Value t_k = 1 s - 3 s
  - Peak value
    - 50 Hz: 62.5 / 80
    - 60 Hz: 65 / 82
    - 65 / 82

- Main switch making capacity (peak value)
  - 50 Hz: 62.5 / 80
  - 60 Hz: 65 / 82

### Applications

Feeder / transformer disconnection, riser for busbar coupling and busbar voltage metering.
Configuration

Cubicle structure
- Internal Arc
  - IAC 25 kA 1 s
  - IAC 31.5 kA 1 s

Gas cubicle
- Control pressure switch with volt-free contact

Busbar compartment
- Up to 2500 A
- Current transformers
- Voltage transformers

Actuating mechanism
- Three-position disconnector
  - Motorised feeder disconnector
  - Motorised earthing disconnector
  - Voltage presence indicator

Additional interlocks
- Electric interlocks
- Locking with lock
- Locking with a padlock

Cable compartment
- Up to 4 cables per phase
- Toroidal current transformers
- Plug-in voltage transformer

Low-voltage compartment
- Cubicle height
  - 2425 mm
  - 2245 mm
  - Signalling, control, automation and protection devices

Dimensions

<table>
<thead>
<tr>
<th>Current (A)</th>
<th>a (mm/inch)</th>
<th>h (mm/inch)</th>
<th>hp (mm/inch)</th>
<th>f (mm/inch)</th>
<th>Weight (kg/Lbm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1250</td>
<td>[600] (23.6)</td>
<td>[2425] (95.5)</td>
<td>[665] (26.2)</td>
<td>[1365*] (53.7)*</td>
<td>[550] (1212.5)</td>
</tr>
<tr>
<td>1600</td>
<td>[700] (27.6)</td>
<td>[2425] (95.5)</td>
<td>[665] (26.2)</td>
<td>[1365*] (53.7)*</td>
<td>[600] (1322.8)</td>
</tr>
<tr>
<td>2000/2500</td>
<td>[1000] (39.4)</td>
<td>[2425] (95.5)</td>
<td>[665] (26.2)</td>
<td>[1365*] (53.7)*</td>
<td>[1100/1200] (4245.1/2645.6)</td>
</tr>
</tbody>
</table>

*1410 mm/55.5 Inch in the case of cubicles with IAC AFLR rating.
Single busbar coupling cubicle

Includes a vacuum circuit breaker and two 3-position disconnectors in series with it, one upstream and the other downstream from the circuit breaker.

These elements are inside the operation elements compartment.

<table>
<thead>
<tr>
<th>Electrical characteristics</th>
<th>24</th>
<th>36</th>
<th>40.5</th>
<th>27</th>
<th>38</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage U_n [kV]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated frequency f [Hz]</td>
<td>50 / 60</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated current I_r [A]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General busbar</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Short-time rated withstand voltage at industrial frequency (1 min)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated short-term withstand current (main circuit)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated closing and breaking capacity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nominal operating sequence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circuit-breaker category</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Feeder disconnector</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Earthing disconnector</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applications</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* With forced ventilation
Single and double busbar GIS-type cubicle system

Configuration

Cubicle structure

Internal Arc
- IAC 25 kA 1 s
- IAC 31.5 kA 1 s

Gas cubicle
- Control pressure switch with volt-free contact

Busbar compartment
- Up to 2500 A
- Current transformers
- Voltage transformers

Actuating mechanism

Three-position disconnector
- Motorised feeder disconnector
- Motorised earthing disconnector
- Voltage presence indicator

Vacuum circuit-breaker
- Motor
- Tripping coil
- 2nd tripping coil
- Closing coil
- Minimum voltage coil
- Blocking open/close push-button

Additional interlocks
- Electric interlocks
- Locking with lock
- Locking with a padlock

Cable compartment
- Lower busbar
- Toroidal current transformers

Low-voltage compartment

Cubicle height
- 2425 mm
- 2245 mm
- Signalling, control, automation and protection devices

Dimensions

<table>
<thead>
<tr>
<th>$I_{max}$ [A]</th>
<th>$a$ [mm (inch)]</th>
<th>$h$ [mm (inch)]</th>
<th>$hp$ [mm (inch)]</th>
<th>$f$ [mm (inch)]</th>
<th>Weight [kg (Lbm)]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1250</td>
<td>[1200 (47.2)]</td>
<td>[2425 (95.5)]</td>
<td>[665 (26.2)]</td>
<td>[1365* (53.7*)]</td>
<td>[1300 (2866.0)]</td>
</tr>
<tr>
<td>1600</td>
<td>[1400 (55.1)]</td>
<td>[2425 (95.5)]</td>
<td>[665 (26.2)]</td>
<td>[1365* (53.7*)]</td>
<td>[1550 (3417.2)]</td>
</tr>
<tr>
<td>2000/2500</td>
<td>[2000 (78.7)]</td>
<td>[2425 (95.5)]</td>
<td>[665 (26.2)]</td>
<td>[1365* (53.7*)]</td>
<td>[2300/2500 (5070.6/5511.6)]</td>
</tr>
</tbody>
</table>

*1410 mm/55.5 Inch in the case of cubicles with IAC AFLR rating.
cpg.0 & cpg.1
Single and double busbar GIS-type cubicle system

Medium voltage switchgear for Substation Solutions

---

cpg.0-rb

Single busbar rise cubicle

Allows side cable input or output connection to connect to the main cubicle busbar and its earthing.

### Electrical characteristics

<table>
<thead>
<tr>
<th></th>
<th>Un [kV]</th>
<th>24</th>
<th>36</th>
<th>27</th>
<th>38</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated frequency</td>
<td>f, [Hz]</td>
<td></td>
<td>50 / 60</td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>Rated current</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General busbar</td>
<td>I, [A]</td>
<td></td>
<td>Up to 2500</td>
<td></td>
<td>Up to 2250*</td>
</tr>
<tr>
<td>Feeder</td>
<td>I, [A]</td>
<td></td>
<td>Up to 1250</td>
<td></td>
<td>Up to 1200</td>
</tr>
<tr>
<td>Short-time rated withstand voltage at industrial frequency (1 min)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between phases and earth</td>
<td>U, [kV]</td>
<td>50</td>
<td>70</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>Lightning impulse rated withstand voltage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between phases and earth</td>
<td>U, [kV]</td>
<td>125</td>
<td>170</td>
<td>125</td>
<td>170</td>
</tr>
<tr>
<td>Internal arc classification</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>IAC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>AFU(R)</td>
<td>25</td>
<td>31.5 kA</td>
<td>1 s</td>
<td></td>
</tr>
</tbody>
</table>

* For other values, please contact Ormazabal

---

Applications

Side connection to the busbar.
**Configuration**

**Cubicle structure**

**Internal Arc**
- IAC 25 kA 1 s
- IAC 31.5 kA 1 s

**Gas cubicle**
- Control pressure switch with volt-free contact
- Voltage presence indicator

**Busbar compartment**
- Up to 2500 A
- Current transformers
- Voltage transformers

**Cable compartment**
- Toroidal current transformers

**Low-voltage compartment**

**Cubicle height**
- 2425 mm
- 2245 mm
- Signalling, control, automation and protection devices

---

**Dimensions**

<table>
<thead>
<tr>
<th>current [A]</th>
<th>a [mm]</th>
<th>h [mm]</th>
<th>f [mm]</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1250</td>
<td>600</td>
<td>2425</td>
<td>1365</td>
<td>500</td>
</tr>
</tbody>
</table>

*1410 mm/55.5 Inch in the case of cubicles with IAC AFLR rating.
Busbar earthing cubicle

Includes a vacuum circuit-breaker and an earthing switch in series with it. Both components are inside the operation elements compartment.

### Electrical characteristics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage</td>
<td>$U_n$ [kV]</td>
<td>24 36 40.5 27 38</td>
</tr>
<tr>
<td>Rated frequency</td>
<td>$f$ [Hz]</td>
<td>50 / 60 60</td>
</tr>
<tr>
<td>Rated current</td>
<td>$I_r$ [A]</td>
<td>Up to 2500 Up to 1600 Up to 2250</td>
</tr>
</tbody>
</table>

**Short-time rated withstand voltage at industrial frequency (1 min)**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Symbol</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between phases and earth</td>
<td>$U_d$ [kV]</td>
<td>50 70 95 60 80</td>
</tr>
<tr>
<td>Via the isolating distance</td>
<td>$U_d$ [kV]</td>
<td>60 80 118 66 88</td>
</tr>
</tbody>
</table>

**Lightning impulse rated withstand voltage**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Symbol</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between phases and earth</td>
<td>$U_p$ [kV]</td>
<td>125 170 185 125 170</td>
</tr>
<tr>
<td>Via the isolating distance</td>
<td>$U_p$ [kV]</td>
<td>145 195 215 145 195</td>
</tr>
</tbody>
</table>

**Internal arc classification**

<table>
<thead>
<tr>
<th>Classification</th>
<th>Symbol</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFLR</td>
<td>AFU</td>
<td>25 / 31.5 kA 1 s</td>
</tr>
</tbody>
</table>

**Earthing disconnector**

**Rated short-term withstand current (earthing circuit)**

<table>
<thead>
<tr>
<th>Current</th>
<th>Symbol</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value $t_e = 1$ or $3$ s</td>
<td>$I_s$ [kA]</td>
<td>50 Hz: 62.5 / 80 60 Hz: 65 / 82</td>
</tr>
<tr>
<td>Peak value</td>
<td>$I_p$ [kA]</td>
<td>65 / 82</td>
</tr>
</tbody>
</table>

**Main switch making capacity (peak value)**

<table>
<thead>
<tr>
<th>Current</th>
<th>Symbol</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value $t_e$</td>
<td>$I_{ma}$ [kA]</td>
<td>50 Hz: 62.5 / 80 60 Hz: 65 / 82</td>
</tr>
<tr>
<td>Peak value</td>
<td>$I_{pu}$ [kA]</td>
<td>65 / 82</td>
</tr>
</tbody>
</table>

**Earthing disconnector category**

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical endurance</td>
<td>M1 M0</td>
</tr>
<tr>
<td>Operating cycles (breaks in short-circuit) - class</td>
<td>E2 in combination with circuit breaker</td>
</tr>
</tbody>
</table>

* With forced ventilation  ** For other values, please contact OrmaZabal

### Applications

Earthing the upper busbar
Configuration

Cubicle structure

Internal Arc
- IAC 25 kA 1 s
- IAC 31.5 kA 1 s

Gas cubicle
- Control pressure gauge with volt-free contact

Busbar compartment
- Up to 2500 A
- Current transformers
- Voltage transformers

Actuating mechanism
- Motorised earthing disconnector
- Voltage presence indicator

Vacuum circuit-breaker
- Motor
- Tripping coil
- 2nd tripping coil
- Closing coil
- Minimum voltage coil
- Blocking open/close push-button

Additional interlocks
- Electric interlocks
- Locking with lock
- Locking with a padlock

Low-voltage compartment

Cubicle height
- 2425 mm
- 2245 mm
- Signalling, control, automation and protection devices

Dimensions

<table>
<thead>
<tr>
<th>a [mm] (inch)</th>
<th>h [mm] (inch)</th>
<th>hp [mm] (inch)</th>
<th>f [mm] (inch)</th>
<th>Weight (kg) (Lbm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>[600] (23.6)</td>
<td>[2125] (83.7)</td>
<td>[665] (26.2)</td>
<td>[1365*] (53.7*)</td>
<td>[850] (1873.9)</td>
</tr>
</tbody>
</table>

*1410 mm/55.5 Inch in the case of cubicles with IAC AFLR rating.
Double busbar circuit-breaker cubicle.

It incorporates, in independent compartments, a vacuum switching circuit breaker and an earthing switch in series with it, as well as a feeder disconnector.

### Electrical characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value 24</th>
<th>Value 36</th>
<th>Value 27</th>
<th>Value 38</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage [U_n] [kV]</td>
<td>24</td>
<td>36</td>
<td>27</td>
<td>38</td>
</tr>
<tr>
<td>Rated frequency [f_r] [Hz]</td>
<td>50 / 60</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated current [I_r] [A]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General busbar [I_g] [A]</td>
<td>Up to 2000</td>
<td>Up to 2000</td>
<td>Up to 2000</td>
<td>Up to 2000</td>
</tr>
<tr>
<td>Feeder [I_f] [A]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Short-time rated withstand voltage at industrial frequency (1 min)

<table>
<thead>
<tr>
<th>Voltage [U_d] [kV] at different positions</th>
<th>Between phases and earth</th>
<th>Via the isolating distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated value</td>
<td>50</td>
<td>60</td>
</tr>
<tr>
<td>Rated value</td>
<td>70</td>
<td>80</td>
</tr>
<tr>
<td>Rated value</td>
<td>60</td>
<td>66</td>
</tr>
<tr>
<td>Rated value</td>
<td>80</td>
<td>88</td>
</tr>
</tbody>
</table>

#### Lightning impulse rated withstand voltage

<table>
<thead>
<tr>
<th>Voltage [U_p] [kV] at different positions</th>
<th>Between phases and earth</th>
<th>Via the isolating distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated value</td>
<td>125</td>
<td>145</td>
</tr>
<tr>
<td>Rated value</td>
<td>170</td>
<td>165</td>
</tr>
<tr>
<td>Rated value</td>
<td>125</td>
<td>145</td>
</tr>
<tr>
<td>Rated value</td>
<td>170</td>
<td>165</td>
</tr>
</tbody>
</table>

### Automatic circuit-breaker

#### Rated short-term withstand current (main circuit)

<table>
<thead>
<tr>
<th>Value t_e = 1 s - 3 s [I_s] [kA]</th>
<th>25 / 31.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak value [I_p] [kA]</td>
<td>50 Hz: 62.5 / 80</td>
</tr>
<tr>
<td></td>
<td>60 Hz: 65 / 82</td>
</tr>
<tr>
<td>Rated closing and breaking capacity</td>
<td></td>
</tr>
</tbody>
</table>

#### Capacitive current capacity (50 Hz), Capacitor bank [I_m] [A]

<table>
<thead>
<tr>
<th>Value t_e = 1 s - 3 s [I_s] [kA]</th>
<th>400</th>
</tr>
</thead>
</table>

### Disconnector

#### Rated short-term withstand current (main circuit)

<table>
<thead>
<tr>
<th>Value t_e = 1 s - 3 s [I_s] [kA]</th>
<th>25 / 31.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak value [I_p] [kA]</td>
<td>50 Hz: 62.5 / 80</td>
</tr>
<tr>
<td></td>
<td>60 Hz: 65 / 82</td>
</tr>
</tbody>
</table>

#### Disconnector category

| Mechanical endurance | M1 | M0 |

### Earthing disconnector

#### Rated short-term withstand current (earthing circuit)

<table>
<thead>
<tr>
<th>Value t_e = 1 s - 3 s [I_s] [kA]</th>
<th>25 / 31.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak value [I_p] [kA]</td>
<td>50 Hz: 62.5 / 80</td>
</tr>
<tr>
<td></td>
<td>60 Hz: 65 / 82</td>
</tr>
</tbody>
</table>

#### Earthing disconnector category

| Mechanical endurance | M1 | M0 |

### Applications

Main transformer protection, feeder protection, capacitor bank protection, auxiliary services transformer protection, longitudinal coupling with medium voltage cables.
**Configuration**

**Cubicle structure**
- Internal Arc
  - IAC 31.5 kA 1 s
  - IAC 25 kA 1 s

**Gas cubicle**
- Control pressure switch with volt-free contact

**Busbar compartment**
- Up to 2000 A
- Current transformers
- Voltage transformers

**Actuating mechanism**
- Feeder disconnector
  - Motorisation
- Earthing disconnector
  - Motorisation
  - Voltage presence indicator

**Vacuum circuit-breaker**
- Motor
- Tripping coil
- 2nd tripping coil
- Closing coil
- Minimum voltage coil
- Blocking open/close push-button

**Additional interlocks**
- Electric interlocks
- Locking with lock
- Locking with a padlock

**Cable compartment**
- Up to 4 cables per phase
- Toroidal current transformers
- Plug-in voltage transformer

**Low-voltage compartment**
- Cubicle height
  - 2720 mm
  - Signalling, control, automation and protection devices

---

**Dimensions**

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Weight - kg</th>
<th>Weight - Lbm</th>
</tr>
</thead>
<tbody>
<tr>
<td>cpg.1-v2</td>
<td>1400</td>
<td>3086</td>
</tr>
</tbody>
</table>

---

**ORMAZABAL velatia**

31
cpg.1-f2

Double busbar fuse protection cubicle.

It has a switchgear compartment with a three-position switch-disconnector (closed / open / earthed), including fuse protection, with two separate switchgear compartments with feeder disconnectors.

The fuses are housed inside sealtight fuse holder tubes, which are in turn inside the switchgear compartment, reinforcing its level of insulation. The combined action by blowing a fuse allows three-phase opening of the switch.

### Electrical characteristics

<table>
<thead>
<tr>
<th></th>
<th>U_n [kV]</th>
<th>U_r [kV]</th>
<th>U_d [kV]</th>
<th>U_p [kV]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage</td>
<td>24</td>
<td>36</td>
<td>27</td>
<td>38</td>
</tr>
<tr>
<td>Rated frequency</td>
<td>50 / 60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated current</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General busbar</td>
<td>Up to 2000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transformer outgoing line</td>
<td>200</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Between phases and earth**

<table>
<thead>
<tr>
<th></th>
<th>U_s [kV]</th>
<th>U_l [kV]</th>
<th>U_a [kV]</th>
<th>U_k [kV]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated frequency</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated current</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General busbar</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transformer outgoing line</td>
<td>200</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Lightning impulse rated withstand voltage**

<table>
<thead>
<tr>
<th></th>
<th>U_s [kV]</th>
<th>U_l [kV]</th>
<th>U_a [kV]</th>
<th>U_k [kV]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated frequency</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated current</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General busbar</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transformer outgoing line</td>
<td>200</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Internal arc classification**

<table>
<thead>
<tr>
<th></th>
<th>IA_C</th>
<th>AFL(I) 25 / 31.5 kA 1 s</th>
</tr>
</thead>
</table>

### The switch-disconnector

**Rated short-term withstand current (main circuit)**

<table>
<thead>
<tr>
<th></th>
<th>I_s [kA]</th>
<th>I_p [kA]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value t = 1 s - 3 s</td>
<td></td>
<td>25 / 31.5</td>
</tr>
<tr>
<td>Peak value</td>
<td></td>
<td>50 Hz: 62.5 / 80</td>
</tr>
<tr>
<td>Main switch making capacity (peak value)</td>
<td>65 / 82</td>
<td></td>
</tr>
<tr>
<td>I_m [A]</td>
<td></td>
<td>630</td>
</tr>
<tr>
<td>50 Hz: 62.5 / 80</td>
<td></td>
<td>65 / 82</td>
</tr>
</tbody>
</table>

**Switch-disconnector category**

- Mechanical endurance: M1
- Operating cycles (breaks in short-circuit)- class: E3

**Combined switch-relay take-over current**

<table>
<thead>
<tr>
<th></th>
<th>I_{max} [kA]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value t = 1 s - 3 s</td>
<td>&gt; 800</td>
</tr>
</tbody>
</table>

### Earthing disconnector

**Rated short-term withstand current (earthing circuit)**

<table>
<thead>
<tr>
<th></th>
<th>I_s [kA]</th>
<th>I_p [kA]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value t = 1 s - 3 s</td>
<td></td>
<td>1 / 3</td>
</tr>
<tr>
<td>Peak value</td>
<td></td>
<td>2.5 / 2.6</td>
</tr>
<tr>
<td>Main switch making capacity (peak value)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I_{m} [kA]</td>
<td></td>
<td>2.5 / 7.5</td>
</tr>
</tbody>
</table>

**Earthing disconnector category**

- Mechanical endurance: M0
- Operating cycles (breaks in short-circuit)- class: E3

### Applications

Auxiliary services transformer protection.
**Configuration**

**Cubicle structure**
- Internal Arc
  - IAC 31.5 kA 1 s
  - IAC 25 kA 1 s

**Gas cubicle**
- Control pressure switch with volt-free contact
- Fuses combined with switch-disconnector

**Busbar compartment**
- Up to 2000 A
- Current transformers
- Voltage transformers

**Actuating mechanism**
- Feeder disconnector
  - Motorisation
- Earthing disconnector
  - Motorisation
  - Voltage presence indicator

**Additional interlocks**
- Electric interlocks
- Locking with lock
- Locking with a padlock

**Cable compartment**
- Up to 4 cables per phase
- Toroidal current transformers
- Plug-in voltage transformer

**Low-voltage compartment**
- Cubicle height
  - 2720 mm
  - Signalling, control, automation and protection devices

---

**Dimensions**

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>cpg.1-f2</td>
<td>1300 kg</td>
</tr>
</tbody>
</table>

---

**ORMAZABAL velatia**
**Double busbar disconnector cubicle**

Incorporates feeder and earthing disconnectors, located in independent compartments.

### Electrical characteristics

<table>
<thead>
<tr>
<th></th>
<th>U_n [kV]</th>
<th>U_d [kV]</th>
<th>I_R [kA]</th>
<th>I_p [kA]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rated voltage</strong></td>
<td>24</td>
<td>36</td>
<td>24</td>
<td>38</td>
</tr>
<tr>
<td><strong>Rated frequency</strong></td>
<td>50 / 60</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Rated current</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General interconnection of busbar and cubicles</td>
<td>Up to 2000</td>
<td>Up to 2000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feeder</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Short-time rated withstand voltage at industrial frequency (1 min)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between phases and earth</td>
<td>50</td>
<td>70</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>Via the isolating distance</td>
<td>60</td>
<td>80</td>
<td>66</td>
<td>88</td>
</tr>
<tr>
<td>Lightning impulse rated withstand voltage</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between phases and earth</td>
<td>125</td>
<td>170</td>
<td>125</td>
<td>170</td>
</tr>
<tr>
<td>Via the isolating distance</td>
<td>145</td>
<td>195</td>
<td>145</td>
<td>195</td>
</tr>
<tr>
<td>Internal arc classification</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IAC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Disconnector

<table>
<thead>
<tr>
<th></th>
<th>I_R [kA]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated short-term withstand current (main circuit)</td>
<td></td>
</tr>
<tr>
<td>Value t_e = 1 s - 3 s</td>
<td>25 / 31.5</td>
</tr>
<tr>
<td>Peak value</td>
<td>50 Hz: 62.5 / 80 60 Hz: 65 / 82 65 / 82</td>
</tr>
</tbody>
</table>

### Earthing disconnector

<table>
<thead>
<tr>
<th></th>
<th>I_R [kA]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated short-term withstand current (earthing circuit)</td>
<td></td>
</tr>
<tr>
<td>Value t_e = 1 s - 3 s</td>
<td>25 / 31.5</td>
</tr>
<tr>
<td>Peak value</td>
<td>50 Hz: 62.5 / 80 60 Hz: 65 / 82 65 / 82</td>
</tr>
</tbody>
</table>

### Applications

- Longitudinal busbar coupling with medium voltage cables
- Busbar voltage metering with VT disconnection
**Configuration**

**Cubicle structure**
- Internal Arc
  - IAC 31.5 kA 1 s
  - IAC 25 kA 1 s

**Gas cubicle**
- Control pressure switch with volt-free contact

**Busbar compartment**
- Up to 2000 A
- Current transformers
- Voltage transformers

**Actuating mechanism**
- Feeder disconnector
  - Motorisation
- Earthing disconnector
  - Motorisation
  - Voltage presence indicator

**Additional interlocks**
- Electric interlocks
- Locking with lock
- Locking with a padlock

**Cable compartment**
- Up to 3 + 3 cables per phase

**Low-voltage compartment**
- Cubicle height
  - 2720 mm
  - Signalling, control, automation and protection devices

**Dimensions**

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>kg</td>
<td>Lbm</td>
</tr>
<tr>
<td>cpg.1-s2</td>
<td></td>
</tr>
<tr>
<td>1200</td>
<td>2645</td>
</tr>
</tbody>
</table>
Single and double busbar GIS-type cubicle system
MV switchgear for Substation Solutions

Single longitudinal busbar coupling cubicle (c) and double (cl)
Includes the following items for each busbar in separate compartments: A vacuum circuit breaker and earthing switches in series with it, in a switchgear compartment and two feeder disconnector in their respective compartments.

### Electrical characteristics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>[kV]</th>
<th>24</th>
<th>36</th>
<th>27</th>
<th>38</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage</td>
<td>U_n</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated frequency</td>
<td>f_r</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated current</td>
<td>I_c</td>
<td>[A]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General busbar</td>
<td></td>
<td>1250 / 1600 / 2000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feeder</td>
<td></td>
<td>630 / 1250 / 1600 / 2000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Short-time rated withstand voltage at industrial frequency (1 min)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between phases and earth</td>
<td>U_d</td>
<td>[kV]</td>
<td>50</td>
<td>70</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>Via the isolating distance</td>
<td>U_d</td>
<td>[kV]</td>
<td>60</td>
<td>80</td>
<td>66</td>
<td>88</td>
</tr>
<tr>
<td>Lightning impulse rated withstand voltage</td>
<td>U_p</td>
<td>[kV]</td>
<td>125</td>
<td>170</td>
<td>125</td>
<td>170</td>
</tr>
<tr>
<td>Via the isolating distance</td>
<td>U_p</td>
<td>[kV]</td>
<td>145</td>
<td>195</td>
<td>145</td>
<td>195</td>
</tr>
</tbody>
</table>

### Automatic circuit-breaker

<table>
<thead>
<tr>
<th>Description</th>
<th>Symbol</th>
<th>Unit</th>
<th>25 / 31.5</th>
<th>65 / 85</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated short-term withstand current (main circuit)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value t = 1 s or 3 s</td>
<td>I_c</td>
<td>[kA]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peak value</td>
<td>I_p</td>
<td>[kA]</td>
<td>63 / 80 (50 Hz) / 65 / 85 (60 Hz)</td>
<td>65 / 85</td>
</tr>
<tr>
<td>Rated closing and breaking capacity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mainly active current breaking capacity</td>
<td>I_1</td>
<td>[A]</td>
<td>630 / 1250 / 1600 / 2000</td>
<td>2000</td>
</tr>
<tr>
<td>Short-circuit breaking capacity</td>
<td>I_2</td>
<td>[kA]</td>
<td>25 / 31.5</td>
<td></td>
</tr>
<tr>
<td>Nominal operating sequence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With reclosing</td>
<td></td>
<td></td>
<td>O-0.3 s CD-15 s CD / O-0.3 s CD-3 min CD</td>
<td></td>
</tr>
</tbody>
</table>

### Disconnectors

<table>
<thead>
<tr>
<th>Description</th>
<th>Symbol</th>
<th>Unit</th>
<th>25 / 31.5</th>
<th>65 / 85</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated short-term withstand current (main circuit)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value t = 1 s or 3 s</td>
<td>I_c</td>
<td>[kA]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peak value</td>
<td>I_p</td>
<td>[kA]</td>
<td>63 / 80 (50 Hz) / 65 / 85 (60 Hz)</td>
<td>65 / 85</td>
</tr>
<tr>
<td>Disconnectors category</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechanical endurance (operation class)</td>
<td></td>
<td></td>
<td>M0</td>
<td></td>
</tr>
<tr>
<td>Operating cycles (breaks in short-circuit)- class</td>
<td></td>
<td></td>
<td>E3</td>
<td></td>
</tr>
</tbody>
</table>

### Earthing disconnector

<table>
<thead>
<tr>
<th>Description</th>
<th>Symbol</th>
<th>Unit</th>
<th>25 / 31.5</th>
<th>65 / 85</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated short-term withstand current (earthing circuit)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value t = 1 s or 3 s</td>
<td>I_c</td>
<td>[kA]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peak value</td>
<td>I_p</td>
<td>[kA]</td>
<td>63 / 80 (50 Hz) / 65 / 85 (60 Hz)</td>
<td>65 / 85</td>
</tr>
<tr>
<td>Main switch making capacity (peak value)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechanical endurance (operation class)</td>
<td></td>
<td></td>
<td>M1</td>
<td>M0</td>
</tr>
</tbody>
</table>

### Applications

Longitudinal busbar coupling
Configuration

Cubicle structure

Internal Arc
- IAC 31.5 kA 1 s
- IAC 25 kA 1 s

Gas cubicle
- Control pressure switch with volt-free contact

Busbar compartment
- Up to 2000 A
- Current transformers
- Voltage transformers

Actuating mechanism

Feeder disconnector
- Motorisation

Earthing disconnector
- Motorisation
- Voltage presence indicator

Additional interlocks
- Electric interlocks
- Locking with lock
- Locking with a padlock

Low-voltage compartment

Cubicle height
- 2720 mm
- Signalling, control, automation and protection devices

Options

IEC
- cpg.1-cl

ANSI/IEEE
- cpg.1-c (type m)

Dimensions

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>kg</td>
<td>Lbm</td>
</tr>
<tr>
<td>cpg.1-c</td>
<td>1400</td>
</tr>
<tr>
<td>cpg.1-c (type c)</td>
<td>2800</td>
</tr>
<tr>
<td>cpg.1-cl</td>
<td>2800</td>
</tr>
</tbody>
</table>
Transversal busbar coupling cubicle

Includes the following elements in separate switchgear compartments:

A vacuum circuit breaker and two earthing switches in series with it, in the switchgear compartment and two feeder disconnectors in their respective compartments.

### Electrical characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Value</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rated voltage</strong></td>
<td>U&lt;sub&gt;n&lt;/sub&gt; [kV]</td>
<td>24</td>
<td>36</td>
</tr>
<tr>
<td><strong>Rated frequency</strong></td>
<td>f&lt;sub&gt;r&lt;/sub&gt; [Hz]</td>
<td>50 / 60</td>
<td></td>
</tr>
<tr>
<td><strong>Rated current</strong></td>
<td>I&lt;sub&gt;r&lt;/sub&gt; [A]</td>
<td>1250 / 1600 / 2000</td>
<td></td>
</tr>
</tbody>
</table>

**Short-time rated withstand voltage at industrial frequency (1 min)**

<table>
<thead>
<tr>
<th>Voltage Description</th>
<th>Value</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between phases and earth</td>
<td>U&lt;sub&gt;d&lt;/sub&gt; [kV]</td>
<td>50</td>
<td>70</td>
</tr>
<tr>
<td>Via the isolating distance</td>
<td>U&lt;sub&gt;d&lt;/sub&gt; [kV]</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>Lightning impulse rated withstand voltage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between phases and earth</td>
<td>U&lt;sub&gt;p&lt;/sub&gt; [kV]</td>
<td>125</td>
<td>170</td>
</tr>
<tr>
<td>Via the isolating distance</td>
<td>U&lt;sub&gt;p&lt;/sub&gt; [kV]</td>
<td>145</td>
<td>195</td>
</tr>
</tbody>
</table>

**Internal arc classification**

- IAC: AFL(R) 25 kA 1 s
- AFL 31.5 kA 1 s

### Automatic circuit-breaker

**Rated short-term withstand current (main circuit)**

<table>
<thead>
<tr>
<th>Value</th>
<th>Peak value</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>t&lt;sub&gt;l&lt;/sub&gt; = 1 s or 3 s</td>
<td>I&lt;sub&gt;l&lt;/sub&gt; [kA]</td>
<td>25 / 31.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I&lt;sub&gt;p&lt;/sub&gt; [kA]</td>
<td>63 / 80 (50 Hz) / 65 / 85 (60 Hz)</td>
<td></td>
</tr>
</tbody>
</table>

**Mainly active current breaking capacity**

<table>
<thead>
<tr>
<th>Current</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>I&lt;sub&gt;1&lt;/sub&gt; [A]</td>
<td>1250 / 1600 / 2000</td>
<td></td>
</tr>
</tbody>
</table>

**Nominal operating sequence**

- Without reclosing: CO-15 s-CO - CO-3 min-CO
- With reclosing: –

**Circuit-breaker category**

- Mechanical endurance (operation class): M2
- Electrical endurance (class): E2

### Disconnector

**Rated short-term withstand current (main circuit)**

<table>
<thead>
<tr>
<th>Value</th>
<th>Peak value</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>t&lt;sub&gt;l&lt;/sub&gt; = 1 s or 3 s</td>
<td>I&lt;sub&gt;l&lt;/sub&gt; [kA]</td>
<td>25 / 31.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I&lt;sub&gt;p&lt;/sub&gt; [kA]</td>
<td>63 / 80 (50 Hz) / 65 / 85 (60 Hz)</td>
<td></td>
</tr>
</tbody>
</table>

**Disconnector category**

- Mechanical endurance: M0
- Operating cycles (breaks in short-circuit)- class: E3

### Earthing disconnector

**Rated short-term withstand current (earthing circuit)**

<table>
<thead>
<tr>
<th>Value</th>
<th>Peak value</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>t&lt;sub&gt;l&lt;/sub&gt; = 1 s or 3 s</td>
<td>I&lt;sub&gt;l&lt;/sub&gt; [kA]</td>
<td>25 / 31.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I&lt;sub&gt;p&lt;/sub&gt; [kA]</td>
<td>63 / 80 (50 Hz) / 65 / 85 (60 Hz)</td>
<td></td>
</tr>
</tbody>
</table>

**Main switch making capacity (peak value)**

<table>
<thead>
<tr>
<th>Current</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>I&lt;sub&gt;ma&lt;/sub&gt; [kA]</td>
<td>65 / 85</td>
<td></td>
</tr>
</tbody>
</table>

**Earthing disconnector category**

- Mechanical endurance: M1
- Operating cycles (breaks in short-circuit)- class: E0

### Applications

Transverse busbar coupling.
Configuration

Cubicle structure

Internal Arc
- IAC 31.5 kA 1 s
- IAC 25 kA 1 s

Busbar compartment
- Up to 2000 A
- Current transformers
- Voltage transformers

Actuating mechanism

Feeder disconnector
- Motorisation

Earthing disconnector
- Motorisation
- Voltage presence indicator

Additional interlocks
- Electric interlocks
- Locking with lock
- Locking with a padlock

Low-voltage compartment

Cubicle height
- 2720 mm
- Signalling, control, automation and protection devices

Dimensions

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>cpg.1-ct</td>
<td>2200</td>
</tr>
</tbody>
</table>

- Standard
- Optional
Other components and accessories

Indicators

Voltage presence indicator
Each cubicle has a voltage presence/absence detector with permanent illuminated signalling and, as an option, a volt-free auxiliary contact for remote signalling of the corresponding indication.

The fixed installation indicator has been designed in accordance with IEC 61243-5 and VDE 0682 Part 415.

Pressure monitoring
The gas pressure is tested in cpg.0 cubicles by means of a pressure gauge with a volt-free contact, allowing it to be used as a remote alarm.

CPG.1 cubicles incorporate pressure switches on each gas tank.

Cable connectors

Characteristics:
- For single-core and three-core cables.
- For dry or impregnated cables.
- Screened
- Elbow
- Up to 4 screw-in connectors per phase (6 for cpg.0 2000/2500 A)

Cable connectors and accessories installations

TI and TT

Current transformers
Characteristics:
- Toroidal / oblong type
- Encapsulation
- Installed on the outside of the operating elements compartment, upstream of the medium voltage connectors
- Unaffected by environmental conditions
- Simple error-free assembly during installation (earth)

Installation:
- Busbar compartment and cable compartment

Voltage transformers
Characteristics:
- Plug-in type
- Single phase
- Insulated
- Reinforced
- Inductive type
- Installed outside the operating elements compartment
- Unaffected by environmental conditions

Installation:
- Busbar compartment and cable compartment

HRC fuses

Short-circuit protection in the medium voltage network is performed via the fuse protection functions.

The fuse holder tubes reach a uniform temperature along the tube by placing them horizontally into the gas tank. With their cover closed they are completely sealtight against flooding and external contamination.

Characteristics:
- Horizontal fuse holder
- Front access
- Separate compartments per phase
- Protected inside the gas tank
- Insulation and water-tightness against external agents (contamination, temperature changes, adverse weather conditions, including flooding)
- Internal interlocks for safe access to the fuse holder area

Contact Ormazabal for more information about fuse selection.
Handling, installation and after-sales

Handling
- Smaller size and lower weight make handling and installation easier.
- Safe delivery of the cubicle:
  - Vertical position on pallet, packed in protective plastic with polystyrene corners

Connection between cubicles
The interconnection between cubicles is external to the operating elements compartment and is carried out via screened busbars with solid isolation, designed to allow the functional unit to be uninstalled without moving the adjacent units and without handling any gas.

Phase segregation between busbars

Spares and accessories
Metal enclosure
- Side cover

- Front door of cpg.1

Driving levers

Protection with fuses
- Fuse holder carriage

Regarding the handling and installation instructions, please request the corresponding Ormazabal manuals.
Inside buildings

- Simple handling with transpallet
- Reduced dimensions and minimum space required for its location due to the precise design and use of SF6 gas as an insulating medium
- Modularity and extensibility on both sides, allowing a fast and economical installation process, in a small space and without having to move contiguous cubicles to remove a central cubicle.
- Reduced dimensions of the cubicle room, due to its front access and its design with no removable switchgear and not requiring rear access passage
- Optimisation of installation costs and civil works due to the reduced dimensions and little need for manoeuvring space

The minimum distances [mm] (inches) recommended for correct installation, once located at their final location, are:

For cpg.0:

- Not required with gas expansion duct.
- ** According to Annex A of standard IEC 62271-200 (Depth of cable trench depending on the cable's radius of curvature).

For other installation conditions please contact Ormazabal's Technical Department.

For cpg.1

- Not required with expansion chimney.
- ** Extraction > 2100.
- *** According to Annex A of standard IEC 62271-200 (Depth of cable trench depending on the cable's radius of curvature).

For other dimensions, please contact Ormazabal.

Inside moving substations

The cpg cubicles can also be installed inside moving substations.

Inside wind turbine generator system substation and wind farms

The cpg cubicles can also be installed inside wind turbine generator system and wind farm substations.
**Commissioning and After-sales**

**Services**
- Technical support
- Reception of products
- Collection and delivery
- Supervision & installation
- Start up
- Training
- Warranty
- Inspection and maintenance
- Spares and accessories
- Repair
- Retrofitting
- Recycling
- Engineering
- Purchase process
- EPCM

**Recycling and end of life**

**Ormazabal** production centres have introduced the corresponding environmental management systems, according to the requirements of international standard ISO 14001 and endorsed by the Certificate of Environmental Management in force, among others.

The cubicles of the *cpg* system have been designed and manufactured in accordance with the requirements of the corresponding IEC and IEEE international standards.

Thanks to the sealtight compartments, filled with SF₆, which allow the full operation of the switchgear unit over its service life (IEC 62271-200).

At the end of the product’s life cycle, the SF₆ gas it contains must not be released into the atmosphere, but rather it must be recovered and processed for reuse in accordance with the instructions given in IEC 62271-303, IEC 60480 and CIGRE 117. In order to respect the safety of people and the environment, **Ormazabal** will provide the additional information required to perform this task correctly.