miniblok
Compact Prefabricated Transformer Substations
Up to 36 kV, 630 kVA  IEC 62271-202 standard

Reliable innovation. Personal solutions.

www.ormazabal.com
Preface

In 1998 Ormazabal introduced its range of compact prefabricated transformer substations, to be installed at ground level. The miniblok, or underground minisub, both consisted of mb electrical compact equipment assembly. Since then the compact prefabricated transformer substations have continuously evolved with enhanced performances, being adapted to the needs of the MV distribution network.

miniblok is a kiosk-type Compact Prefabricated Transformer Substation, installed at ground level and externally operated, with reduced dimensions, standard-built, tested and supplied from the factory as a unit. It is characterised by incorporating an Ormazabal mb Medium Voltage associated type (A) compact equipment assembly, for use in both public and private distribution networks up to 36 kV.

miniblok, prefabricated transformer substation is used in several Distribution Network Solutions (DNS) for utilities (public distribution, smart grids...), end users (infrastructures, industry, tertiary) and renewable energies (wind farms, etc). Its careful exterior design and reduced dimensions minimise its visual impact, making it suitable when the available space is limited, in both industrial and residential areas.

The main advantage of these Transformer Substations is their high safety and protection for both people and property against internal faults, their IAC classification, as well as their robustness and reliability.

Currently over 4,000 miniblok have been installed worldwide.

Safety

- High personnel safety against internal arcs, accidental direct contact, touch and step voltage
- Equipment operating surface
- No access to live parts
- Dielectric liquid collection pits
- Double door with fixing in place at 90º and 180º for performing operations and maintenance
- Test performed on the mb as an individual unit and as a whole assembly in the miniblok.

Reliability

- Fully factory-assembled and equipped (enclosure, switchgear, transformer and internal earthing circuit)
- Product tested as a unit
- Protection against strong external impacts
- Fast changes of electrical equipment
- Recoverable nature to use both in permanent applications and temporary uses

Efficiency

- Ventilation by natural air circulation, class I, through grilles and one upper perimeter outlet
- Fast and simple replacement of the equipment
- Easy to transport due to its reduced dimensions and weight
- MV and LV cables input/output through semi-perforated holes in the base

Sustainability

- Minimum visual, environmental and acoustic impact
- Reduced size and versatility
- Low risk of insulator spillage on the public roads, with no harm to the environment

Continuous innovation

- Auxiliary Low Voltage feeder inlet, located on the side of the enclosure. Allows the entry of cables coming from a generator set, to supply clients in the event of an incident, via the low voltage board.
- Great capacity for integration to the environment
- Ideal for use in public distribution networks up to 36 kV
- Smart-Grids ready substation

Standards

EN 50532
Compact Equipment Assembly (CEADS)

IEC - EN 62271-202
High Voltage Switchgear: Prefabricated Transformer Substations

On request:
Specific regulations of the Utility. Applicable local regulations

Technical data

miniblok

- Monoblock concrete enclosure (base and walls) with removable roof.
- mb associated compact equipment assembly:
  - Fully gas insulated Medium Voltage Switchgear: cgmcosmos 2LP up to 24 kV or cgm3-2LP up to 36 kV. Electrical diagram (RMU) with 2 feeder functional units, input and output, and a protection functional unit with a switch-fuse combination.
  - Ormazabal protection, control and metering units (remote control, telemetring, integrated control, telemangement, etc.).
  - Medium Voltage Distribution Transformer, 250, 400 or 630 kVA.
  - LV Switchgear: Low Voltage board with control and protection unit, as well as an auxiliary safety supply.
  - Direct MV and LV interconnections.
  - Self-supporting frame.
  - Earthing circuit connection.
  - Lightning and auxiliary services circuit.
  - Optional: Operating insulated platform.

MV Switchgear

- Rated voltage [kV]: 24 / 36
- Frequency [Hz]: 50
- Internal Arc (IAC class): 16 kA / 0.5 s
- Transformer Power [kVA]: 250/400/630
- In Busbars
  - Rated current [A]: 400/630
  - Short-time current [kA]: 20
  - Power Frequency [kV]: 50 / 60
  - Lightning impulse [kVpeak]: 125 / 145
- Outgoing Line
  - Rated current [A]: 400/630
  - Short-time current [kA]: 20
  - Insulation level [kV]: 70 / 80
- Rated current [A]: 1000
- Rated current [A]: 400
- No. outputs 4

Low Voltage Board

- Rated voltage [V]: 440
- Rated current [A]: 1000
- Rated current [A]: 400

External dimensions and weights

<table>
<thead>
<tr>
<th>Family</th>
<th>miniblok.24</th>
<th>miniblok.36</th>
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</thead>
<tbody>
<tr>
<td>Width [mm]</td>
<td>2100</td>
<td>2100</td>
</tr>
<tr>
<td>Depth [mm]</td>
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<tr>
<td>Height [mm]</td>
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<tr>
<td>Visible height [mm]</td>
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<tr>
<td>Weight* [kg]</td>
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<td>7550</td>
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</tbody>
</table>

*With 630 kVA transformer and no remote control. For other configurations and/or values, please consult Ormazabal.