



MV/LV Transformer Substations for
Distribution Network Solutions

miniblok

Compact Prefabricated
Transformer Substations

Up to 36 kV, 630 kVA

IEC 62271-202 standard

Reliable innovation. Personal solutions.

Preface

In 1998 **Ormazabal** introduced its range of compact prefabricated transformer substations, to be installed at ground level **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 into 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
- » Equipotential operating surface
- » No access to live parts
- » Dielectric liquid collection pits
- » Double door with fixing in place at 90° and 180° 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 10, 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: **cgmosmos**-2LP up to 24 kV or **cgm**.3-2LP 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, telemetering, integrated control, telemanagement, 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.
- » Lighting and auxiliary services circuit.
- » Optional: Operating insulated platform

Technical characteristics

	miniblok	24	36
Rated voltage [kV]		24	36
Frequency [Hz]		50	
Internal Arc (IAC class)		16 kA / 0,5 s	
Transformer Power [kVA]		250/400/630	
MV Switchgear Rated current [A]		400/630	
In Busbars		400/630 (L) 200 (P)	
Outgoing Line		16 / 20	
Short-time current [kA]			
Insulation level Power Frequency [kV]		50 / 60	70 / 80
Lightning impulse [kV] _{peak}		125 / 145	170 / 195
Low Voltage Board Rated voltage [V]		440	
Rated current [A]		1000	
Rated current [A]		400	
No. outputs		4	

- » Optionaly: Anti-vibration devices and insulating platform.

External dimensions and weights

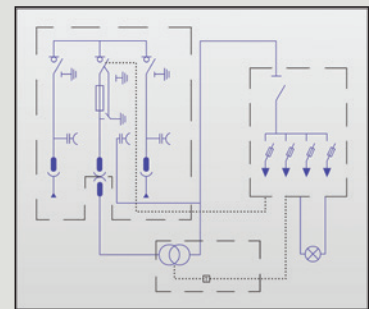
	miniblok.24	miniblok.36
Width [mm]	2100	2100
Depth [mm]	2100	2100
Height [mm]	2240	2240
Visible height [mm]	1600	1600
Weight* [kg]	7400	7550

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

Design



- 1 Concrete enclosure
- 2 Associated compact equipment assembly
 - 2.1 MV switchgear up to 36 kV
 - 2.2 Transformer up to 630 kVA
 - 2.3 LV board
- 3 Protection, control and metering units



Family

miniblok.24



miniblok.36

