



 **EnergoBit**
Products



Dear partners,

Over a quarter of century we have built our name and we continue to do it, in our own style of elegance and professionalism, in the sector of major electrical energy players. The high quality of the products and services that we offer represents the guarantee of our commitment towards all our partners.

The world is constantly changing and evolving, as well as the expectations of those around us. The future is undoubtedly translated through a new vision, new approaches, decisions and ideas. We are striving for perfection, but we are aware that everything is about evolution, adaptation and continuous development, diversifying our activity and portfolio to meet our clients' requirements and needs.

The energy solutions we propose and offer include a full range of services such as: energy audit and technical design, production of electrical equipment, general contracting, maintenance and operation services. Our production units are real nucleus where our well-trained and skilled employees transform any project and electrical diagram into real artworks designed to meet our customers specific needs. At the same time, we are looking to constantly innovate and align our products to the latest efficiency requirements. The new line of distribution transformers represents a testimony to these concerns, for the moment our company being the only Romanian manufacturer of ultra-low losses distribution transformers.

We invite you to discover us through the pages of this catalogue and if we have stirred your interest, we would be honoured to visit us in any of our offices around the country.

EnergoBit Team



Prefabricated transformer substations in concrete case, range ROBUST

The prefabricated concrete transformer substations ROBUST range are public or industrial distribution substations, used in looped or radial MV networks (up to 20 kV), equipped with power transformers between 16 and 3150 kVA.

These substations can be fully equipped in the factory, with all the medium voltage and low voltage electric equipment, protection relays, active and reactive power metering, tele control, own services circuits.

The substations are built in order to be easy to transport to the site; the commissioning is made in a very short time and with minimum costs. The installation is practically reduced to arranging the field, cables and ground socket connections.

Today EnergoBit offers a comprehensive portfolio of prefabricated transformer substations according to the requirements of Electrica, ENEL, CEZ, E.ON.

Main characteristics

- The prefabricated transformer substation is delivered fully equipped from the factory
- Activating the equipment is made from inside or outside according to the chosen configuration
- Protection degree: IP 43, IP45 or IP54
- Case thermal class 10K

EnergoBit has developed a complete range of prefabricated substations, in order to provide time, space, cost and flexibility related advantages in on-going projects.

The investments made in our manufacturing competence, as well as the skills and creativity of our designers have allowed us to provide you with the ROBUST range, both in standard and optimized variants, but also to use your proposal of customizing the product.

- ROBUST optim
- ROBUST standard
- ROBUST custom



Energobit offer includes:

- **ROBUST 160**
rated power of the transformer between 16kVA and 160kVA, activating the equipments from inside
- **ROBUST 630E/I**
rated power of the transformer between 16kVA and 800kVA, activating the equipments from outside/inside
- **ENEL HOMOLOGATED DG2061 ED1/ED2**
rated power of the transformer up to 630kVA
- **ROBUST 1000E/I**
rated power of the transformer between 1000kVA and 1600kVA, activating the equipments from outside/inside
- **ROBUST 2x630**
rated power of the transformer between 2x630kVA and 2x800kVA, activating the equipments from inside
- **ROBUST OPTIONAL**
rated power of the transformer up to 3150kVA
- **ROBUST OPTIONAL MDP&MCP**
technical container solutions for primary distribution
- **ROBUST MBC**
2,4kVAr modules
- **ROBUST SOLAR**
rated power of the transformer up to 3150kVA



Air insulated Metal Clad medium voltage switchgear for primary distribution, range MOD24MC

Medium voltage switchgear range MOD24MC are designed to be used in power generation stations, electrical substations and suitable to provide protection and control for motors, capacitors and transformers.

Medium voltage switchgear range MOD24MC are also suitable to be used for applications in industry, oil and gas, mining, infrastructure and residential, airports, water treatment plants.

Today EnergoBit offers a comprehensive portfolio of medium voltage switchgear according to the requirements of Electrica, CEZ, E.ON.

Reference standards

The switchgear and main components comply with the following Standards:

- IEC 62271-1 for general purposes.
- IEC 62271-200 for the switchgear.
- IEC 62271-102 for the earthing switch.
- IEC 62271-100 for the circuit-breakers.
- IEC 60071-2 for the insulation coordination.
- IEC 60470 for the contactors.
- IEC 60265-1 for the switch-disconnectors.
- IEC 60529 for degree of protections.

General characteristics:

- Compact design
- Air-insulated
- Metal-clad medium voltage switchgear: main bus-bar compartment, circuit breaker compartment, cable compartment, low voltage compartment.
- Cable compartment is designed with ample space for ease cable connection.
- Medium voltage switchgears equipped with reliable interlocking system to prevent miss operation and to ensure safety.
- Easy operation and low maintenance.





Electrical characteristics

| | | | | |
|--|-----------------------------|----|------------|-----|
| Rated voltage | | kV | 12 | 24 |
| Power Frequency With-stand Voltage | Between phases and to earth | kV | 28 | 50 |
| | Across isolating distances | kV | 32 | 60 |
| Rated Lighting Impulse Withstand Voltage | Between phases and to earth | kV | 75 | 125 |
| | Across isolating distances | kV | 85 | 145 |
| Rated current horizontal busbars | | A | 630 - 2500 | |
| Rated short time withstand current (3s) | | kA | 16-20-25 | |
| Making capacity | | kA | 40-50-63 | |
| Frequency | | Hz | 50 | |

Mechanical characteristics

| | | | | |
|------------|--------|---|--|--|
| Dimensions | Height | 2250 mm | | |
| | Width | 800 mm (for vertical bus bar rated current up to 1250A) 1000 mm (for vertical bus bar rated current 1600A – 2500A) | | |
| | Depth | 1590 mm | | |

Air insulated medium voltage switchgear for secondary distribution, range MOD6

Modular units range MOD6 have been planned to meet the public and industrial power distribution's requirements.

Modular units MOD6 are used for the MV sections in MV/LV transformer substations, in public distribution systems and MV consumer or distribution substations.

The MOD6 range is made up of standard, modular and compact units, and internal arc resistant. The MOD6 switchgear are air insulated modular units, containing SF6 switch-disconnector or vacuum circuit breaker.

Today EnergoBit offers a comprehensive portfolio of medium voltage switchgear according to the requirements of Electrica, ENEL, CEZ, E.ON.

Complex switchboard configurations can be realized using the standard panels.



MOD6 range unit definitions

- RMb incoming cable-connection unit
- LM switch unit
- TM fuse-switch combination unit
- IMP single-isolation fixed circuit breaker unit
- IMS single-isolation fixed circuit breaker unit
- IMPw single-isolation withdrawable circuit breaker unit
- IMSw single-isolation withdrawable circuit breaker unit
- CS, CD switch unit right or left outgoing line
- RMs/RMd connection unit right or left outgoing line
- MCT current and voltage measurement unit
- MT voltage measurement unit
- SI MV/LV transformer unit for auxiliaries
- LLM cables power supply for main incoming line and standby line



The main characteristic of MOD6 range cells is modularity, which allow us to realize complex and custom solutions.

MOD6 range cells represent the most efficient solution possible to be implemented which, in the same time, leaves opened options for future evolution.

Electrical characteristics

| | | | | |
|--|---------------------------------------|----|------------|-----|
| Rated voltage | | kV | 12 | 24 |
| Power Frequency Withstand Voltage | Between phases and to earth | kV | 28 | 50 |
| | Across isolating distances | kV | 32 | 60 |
| Rated Lighting Impulse Withstand Voltage | Between phases and to earth | kV | 75 | 125 |
| | Across isolating distances | kV | 85 | 145 |
| Rated current | | A | 630 - 800 | |
| Rated current horizontal busbars | | A | 630 - 1250 | |
| Rated short time withstand current (1s) | | kA | 16-20 | |
| Making capacity | | kA | 40 | |
| Frequency | | Hz | 50 | |
| Protection degree | IP3X -external enclosure of the panel | | | |
| | IP2X –internal part of the panel | | | |



LM

switch unit for line



TM

fuse-switch combination unit for transformer protection



MCT

current and voltage measurement unit

Oil distribution transformers range ECO-T

Through investments in production capacities and relying on the know-how and creativity of our engineers, EnergoBit has launched a new range of products: oil-insulated distribution transformers ECO-T.

These are manufactured in the newest and most modern transformers production facility in Romania.

Based on EnergoBit's experience in the production of electrical equipment the new ECO-T oil insulated distribution transformers feature the following advantages:

- Complete range of transformers, standard or custom-made, EnergoBit being the sole domestic producer of amorphous core transformers (ultra-low losses)
- Top quality insured through the most modern production facility with the latest technology
- Short delivery time
- Warranty and post-warranty services

General characteristics:

- Rated voltage: up to 24kV
- Frequency : 50Hz
- Suitable for: indoor / outdoor
- Three phase
- Hermetically sealed
- Copper or aluminum windings
- ONAN

Constructive types:

- Distribution transformers with ultra-low losses (with amorphous cores) A_0-A_k ;
- Distribution transformers with low losses : A_0-B_k ;
- Distribution transformers with ultra-low losses (for pole/ground mounting) : A_0-C_k ;
- Normal losses : C_0-C_k ;
- Special transformers for PV Parks, Wind Farms, Micro Hydro Power Plants





Transformers range

| Sn (KVA) | 50 | 100 | 160 | 250 | 400 | 630 | 800 | 1000 | 1250 | 1600 |
|-----------------------------------|------|------|------|------|------|------|------|-------|-------|-------|
| AA Group | | | | | | | | | | |
| A ₀ | 90 | 145 | 210 | 300 | 430 | 600 | 650 | 770 | 950 | 1200 |
| A _k | 750 | 1250 | 1700 | 2350 | 3250 | 4800 | 6000 | 7600 | 9500 | 12000 |
| AB Group | | | | | | | | | | |
| A ₀ | 90 | 145 | 210 | 300 | 430 | 600 | 650 | 770 | 950 | 1200 |
| B _k | 875 | 1475 | 2000 | 2750 | 3850 | 5600 | 7000 | 9000 | 11000 | 14000 |
| AC Group | | | | | | | | | | |
| A ₀ | 90 | 145 | 210 | 300 | 430 | 600 | 650 | 770 | - | - |
| C _k | 1100 | 1750 | 2350 | 3250 | 4600 | 6500 | 8400 | 10500 | - | - |
| CC Group (just for pole mounting) | | | | | | | | | | |
| C ₀ | - | - | 300 | 425 | 610 | - | - | - | - | - |
| C _k | - | - | 3102 | 3250 | 4600 | - | - | - | - | - |

Low voltage distribution, automation and protection panels

EnergoBit is a full service provider in any power project that it undertakes, from identifying the most appropriate solutions to designing and building the equipment, regardless of its complexity.

The protection and control panels, as well as AC/ DC internal services panels come in both a standard version and in optional variants, which may be adjusted to fit the specifications of every project.

The low voltage distribution panels, dedicated to transformer substations and industrial applications represented the outset in the development of EnergoBit's production units.

We now offer the entire range of low voltage distribution panels and industrial automation panels.

Starting from the standardized variants for low voltage distribution, we designed and built technical solutions for special applications: electricity distribution panels with withdrawable drawers.

The street distribution boxes, distribution boxes for overhead transformer substations, measurement and protection blocks, public lighting switch points,

which all compose the DOMINO product range, being both modular and adaptable, complete the EnergoBit solution for low voltage distribution.

The MCC panels used in various industries, I.E.: plants for food products, beer, wine-alcohol, confections, textile, cement, oxygen etc, are made with last generation components in a very wide range that includes classical solutions (D.O.L., star-delta) or high performance electronic equipment (soft starters, inverters, d.c. converters)

From the very beginning of its manufacturing activity, EnergoBit sought to provide reactive power compensation solutions.

Currently, our portfolio includes low and medium voltage capacitor banks, fixed or automatic, with a wide range of powers.

EnergoBit also offers a complementary service pack, which facilitates the selection and installation of the capacity banks:

- network analysis and measurements,
- bank design and sizing,
- technical assistance with installation and commissioning.



Energobit offer includes:

- Protection and Control Panels
- AC/ DC internal services Panels
- Low voltage distribution Panels $\leq 6000A$
- Industrial automation panels
- ENEL homologated low voltage distribution panels
- ENEL homologated protection and control panels
- Street distribution boxes, distribution boxes for overhead transformer substations, measurement and protection blocks, public lighting switch points, range DOMINO
- Capacitor banks, fixed or automatic



Energobit in figures

10 milion

consumers (residential and industrial) serviced by

Energobit
equipment

Over

5 500 prefabricated transformer substations produced by **Energobit**

600 Energobit
employees

Hundreds of clients from different fields:

production, transport and distribution of electricity, automotive, oil & gas, FMCG, retail, telecom, tourism, construction, real estate, heavy industry, public institutions, financial.

Over **50 000**

electrical equipment produced in Energobit's factories in the past **15** years

The distribution transformer's

lifetime is of
30 years

Over

200

employees in the production process

Over

15 000

switchgears produced and installed by

Energobit

Over

6 000

equipment produced last year in our factories



EnergoBit headquarters in Cluj-Napoca



Transformer substation in Industrial Park Tetarom



Transformer substations in Jibou factory



Transformer substation in Solar Park



Jibou Factory



Jibou Production Line



Cluj-Napoca Production Line



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