

**MEDIUM VOLTAGE, ARC – PROOF,
AIR INSULATED, METAL – CLAD SWITCHGEAR**

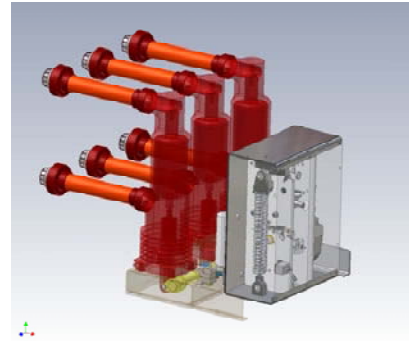
TYPE MOVIS 12/24 E

With vacuum circuit breaker



SHORT DESCRIPTION

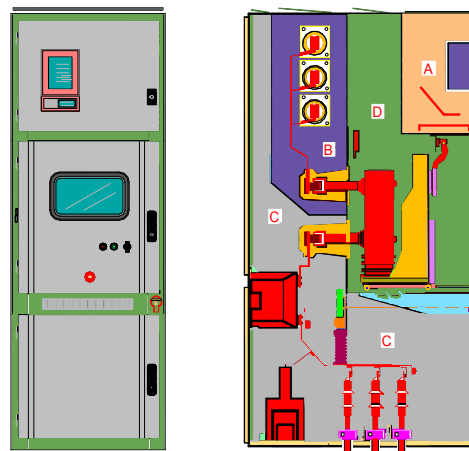
Air insulated, metal-clad switchgear, type MOVIS-12/24 E, with ENERGOINVEST – RAOP vacuum circuit breaker type VPE - 24 for voltage level insulation of 12 and 24 kV, is made in accordance with development trend within this category at world markets and following the valid IEC requirements.. It is designed for distributive and industrial concerns, but they also can be technically and economically successfully used in other places in a net where its characteristics satisfy conditions of installation.



CONSTRUCTION OF CUBICLES

Constructively, the switchgear's cubicles are entirety of four separated metal clad compartments::

- A. Low voltage compartment
- B. Busbar compartment
- C. Cable compartment
- D. Circuit breaker compartment



Each of these compartment has its own pressure relief which, in case of open arc, provides efficient evacuation of hot gases and a reliable personal protection against these gases. The arrangement of the compartments is such that circuit compartment is placed as the central one, but the others are placed around it in an order as follows: cable compartment underneath, busbar compartment on top of back side and low voltage compartment on top of front side.

This way of compartments arrangement provides easy monitoring of equipment, optimal size of compartments and high reliability of overall unit.

A withdrawable vacuum circuit breaker is inserted into the place supposed for circuit breaker, and it is of adequate characteristics and moved by motor – spring operating mechanism of high mechanical durability. Inserting of circuit breaker into circuit breaker compartment is very precise providing possibility of substitution of all the circuit breakers of the same characteristics. Handling can be performed either manually or by telecommand both in working and in testing position of the circuit breaker. Moving of the circuit breaker in its compartment is easily performed from its insertion into a cubicle toward its working position of screw mechanism or by electro motor, optionally.

INTERLOCKS

In order to achieve drive reliability and personnel safety besides performed electrical and mechanical optimization of assemblies and materials selection, the interlocks are applied, as follows:

- Mechanical interlocks of both certain apparatus types and some movable compartment parts;
- Electrical interlocks of both certain apparatus functions within compartments assembly and single apparatus;
- Electrical signalization of position and status of certain apparatus parts.

FEATURES

Owing to the concept of compartments it has been designed a type of switchgear that is characterized by:

- High level of reliability
- Personnel safety
- Easy application in modern procedure of distributive systems operation.
- Simple and easy setting at the built-in spot and quick put into a service,
- small dimensions

STANDARDS

Switchgear type MOVIS 12/24 E has been subjected to all type tests required by the International Standards IEC 62271-200.



MOVIS 12/24 E unit is designed and tested to withstand an internal arc caused by a short circuit current. The tests show that metal housing of MOVIS 12/24 E unit is able to protect personnel operating nearby in case of a fault which involves as far as striking an internal arc..

Use of quality materials (steel sheet with AlZn coating and etc..) and technological procedures, as well as strict

control through all phases of production's process, increase reliability of switchgear, safety of power supply and numerous other advantages , making them a very reliable bond in distribution line of power supply

CHARACTERISTICS

The characteristics of metal clad switchgears type MOVIS 12/24 E are appropriate to their purpose and to specific regulations (IEC 62271 – 200). The review of their basic characteristics as well as of their basic dimensions is given in Table I and Table II.

Given values are referred to standard climatic conditions:

- Maximum value of daily ambient temperature 40 °C
- Minimum value of daily ambient temperature -5 °C
- Allowed attitude 1000 m

In the case of MOVIS's application in different conditions, the manufacturer should be consulted.

Table I. Electrical characteristics of switchgears , type MOVIS 12/24 E

Rated voltage	kV	12	24
Rated power frequency withstand voltage 1 min	kV	28	50
Rated lightning impulse withstand voltage 1,2/50µs	kV/m	75	125
Rated bus – bar current	A	2 500	2 000
Rated feeder current	A	630 up to 2500	630 up to 2000
Rated short - time current	kA/ 3 s	25	25
Rated peak withstand current	kAm	63	63
Internal arc withstand current	kA/ 0.5 s	25	25
Degree of protection		IP 4X	IP 4X

Table II. Dimensions of cubicles type MOVIS

Rated voltage kV	Rated short - time current kA	Rated continuous current A	Wide m	Depth m	Haight m	Surface of the base m ²	Volume of cubicle m ³
12	25	630 up to 1250	0,65	1,30	2,10	0,845	1,775
		1600 up to 2500	0,8			1,105	2,321
24		630 up to 1250	0,8	1,60	2,40	1,360	3,264
		1600 up to 2000	1,00			1,600	3,840

MODULAR SWITCHGEAR COMPOSING

For switchgear's composing according to their needs, customers have following standard types of cubicles at their disposal:

- Incoming cubicle,
- Outgoing cubicle,
- Transformer cubicle,
- Measuring cubicle,
- Bus-tie cubicle with bar riser unit
- House transformer cubicle
- Bus-tie cubicle with bus bar raiser unit

