



# TECHNICAL MANUAL

Air circuit breakers  
VA-450 v2 EKF

## 1 DESCRIPTION

Air circuit breakers VA-450 v2 EKF are designed to carry current under normal conditions and break overcurrent (short circuits and overloads, including single-phase ground faults) to be used in three-phase 50/60 Hz AC circuits at rated voltage up to 690 V. The air circuit breakers (ACB) comply with IEC 60947-2.

## 2 APPLICATION

- As the main circuit breaker;
- Protection of electric motor circuits;
- Protection of outgoing lines, switchboards and distribution panels;
- Electrical circuit isolation and partitioning (three ACBs);
- Protection of outgoing lines on the consumer side of 10/0,4 kV transformer substation.

## 3 TECHNICAL DATA

Table 1

Characteristics		Values
Rated current $I_n$ , A		630, 800, 1000, 1250, 1600
Ultimate short-circuit breaking capacity $I_{cu}$ , kA	400 V AC	65
	690 V AC	50
Service short-circuit breaking capacity $I_{cs}$ , kA	400 V AC	55
	690 V AC	42
Rated maximum making capacity $I_{cm}$ , kA	400 V AC	143
	690 V AC	105
Rated short-time withstand current for 1 sec. $I_{cw}$ , kA	400 V AC	50
	690 V AC	42
Mechanical endurance, O-C cycles	With service	30 000
	Without service	15 000
Electrical endurance, O-C cycles	400 V AC	6000
	690 V AC	3000

Table 1 continued

Characteristics	Values
<b>Rated current <math>I_n</math>, A</b>	<b>630, 800, 1000, 1250, 1600</b>
Rated operating voltage at 50/60 Hz $U_e$ , V AC	400, 690
Rated insulation voltage at 50/60 Hz $U_i$ , V AC	1000
Breaking time, ms	<30
Max. making time, ms	70
Type of trip unit	Microprocessor
Location of busbars when connected to the ACB terminals	Rear horizontal
Power supply connection	To top or bottom terminals
Number of poles	3
Utilization category, IEC 60947-2	B
Degree of protection for surface-mounted ACB	IP30
Operation ambient temperature, °C	-15 to +60
Altitude above sea level, m	2000
Min. service life, years	15

Copper and aluminum wire connections are supported. Do not connect copper and aluminum wires to one terminal concurrently.

For Operation Manual, scan the QR-code on the insert or on the inside of the package.

## 4 OVERALL AND INSTALLATION DIMENSIONS

VA-450 fixed

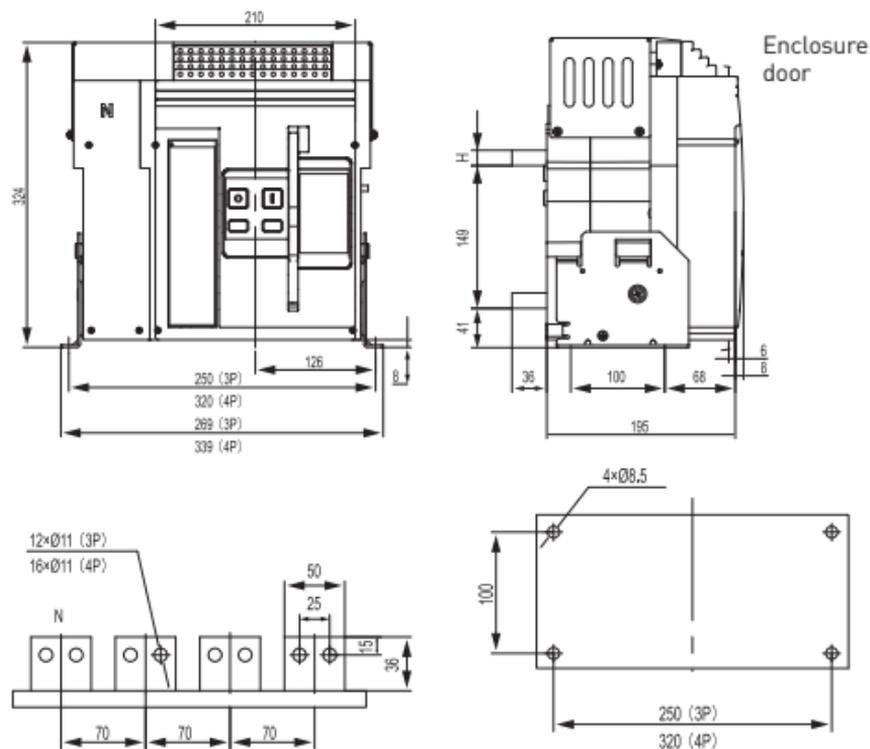


Figure 1

Table 2

Rated current In, A	Busbar, mm
630	5
800, 1000	10
1250, 1600	16

## VA-450 withdrawable

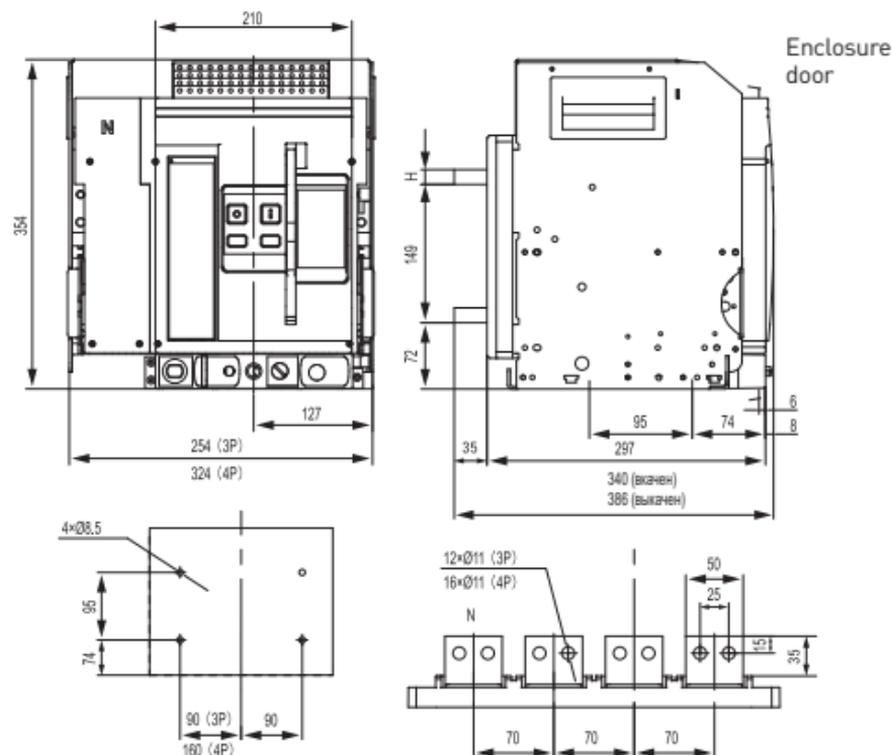


Figure 2

Table 3

Rated current $I_n$ , A	Busbar, mm
630	5
800, 1000	10
1250, 1600	16

## Wiring diagram

Wiring diagram of secondary and control circuits of air circuit breakers VA-450 v2 EKF

Circuit breaker position contacts

Auxiliary contacts

Spring charge

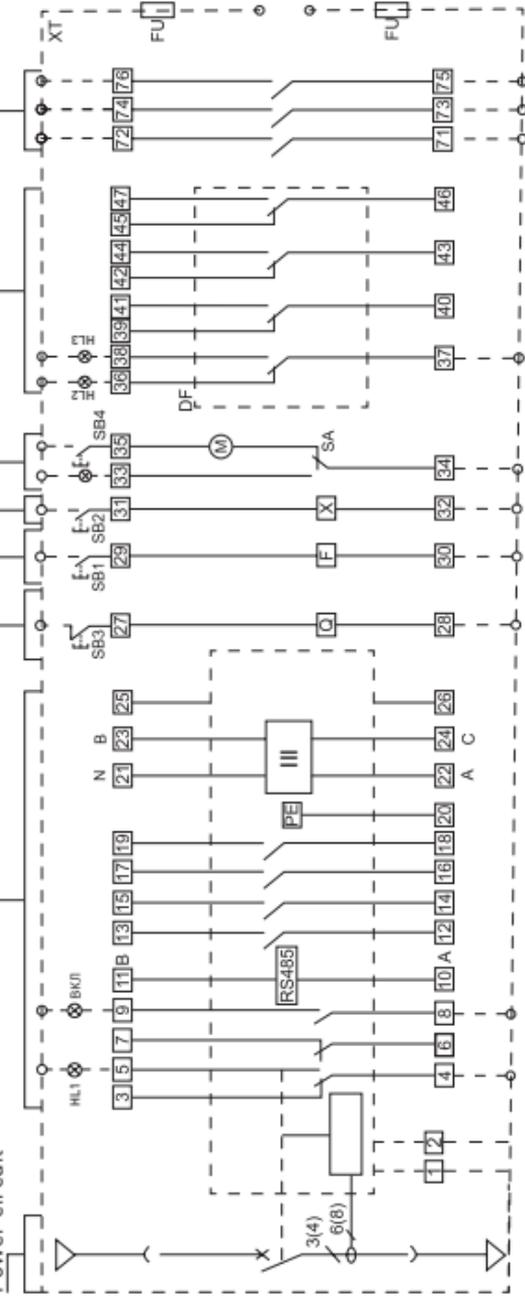
Closing release

Shunt release

Undervoltage release

Electronic trip unit

Power circuit



## **Description**

Q - Undervoltage release

F - Shunt release

X - Closing release

SA/M - Motor

FU - Fuse

I - Controller power supply

II - Programmable relay outputs

III - Voltage measuring inputs

HL1 - ACB Trip indicator

HL2 - ACB OFF indicator

HL3 - ACB ON indicator

Q - Undervoltage release (to be ordered separately)

F - Shunt release

X - Closing release

M - Motor mechanism

XT - Terminals of secondary circuits

FU - Fuse

## **Terminals of the secondary circuits**

1, 2 - Controller power supply

3-4-5 - Trip alarm CO contact

6,7 - ACB status NC contact (NO - for select models)

8,9 - ACB status NO contact

20 - Protective earthing

25, 26 - Connection contacts for external neutral current transformer

27,28 - Undervoltage release

29, 30 - Shunt release

31, 32 - Closing release

33, 34, 35 - Motor mechanism

36-47 - Auxiliary contacts (4 CO).

## 5 TRANSPORTATION AND STORAGE

The air circuit breakers can be transported in the original package by any means of enclosed transport that ensures protection of packed products against mechanical impacts and weather exposure.

The air circuit breakers shall be stored indoors in the original package at the ambient temperature from  $-25\text{ }^{\circ}\text{C}$  to  $+50\text{ }^{\circ}\text{C}$  and relative humidity of max. 50% at  $+40\text{ }^{\circ}\text{C}$  (or 90% at  $+20\text{ }^{\circ}\text{C}$ ).

Do not stack the ACB on top of each other for storage.

## 6 DELIVERY SCOPE

1. Air circuit breaker VA-450 v2 (complete with electric motor, closing release, opening release) - 1 pc.;
2. Bolts - 1 set;
3. Technical manual - 1 pc.;
4. Interphase barriers - 1 set;
5. Door frame - 1 pc.;
6. Undervoltage release - 1 pc.

## 7 WARRANTY

The manufacturer guarantees that the air circuit breakers comply with IEC 60947-2 provided that consumers follow all operating, transportation and storage conditions.

**Warranty period: 7 years from the date of sale specified in the sales receipt.**

**Shelf life: 7 years from the date of manufacture specified on the product package or housing.**

**Service life:** 15 years.

**Manufacturer:** 000 Elektroresheniya, Otravnaya st., 2b/9, 127273, Moscow, Russia, tel. +7 (495) 788-88-15.

**MEA regional headquarters:** EKF ELECTRICAL SOLUTION FZCO, Techno Hub-2, DSO, P.O. box 341079, Dubai, United Arab Emirates, tel. +971-4-547-06-18.

**Importer and EKF trademark service representative in the territory of the Republic of Kazakhstan:** TOO «Energoresheniya Kazakhstan», Kazakhstan, Almaty, Bostandyk district, Turgut Ozal st., 247, apt 4.

## **8 DISPOSAL**

Life-expired and failed products shall be disposed of in compliance with the national and local laws and regulations in force. To dispose of the product, send it to an authorized company for recycling in compliance with the national and local laws and regulations in force.

## **9 ACCEPTANCE CERTIFICATE**

The air circuit breakers VA-450 v2 EKF have been manufactured in compliance with laws and regulations in force and have been approved for operation.

Date of manufacture:

For information, refer to the product package or housing.

Quality control stamp

Online documents



EAC

v3



[ekfgroup.com](http://ekfgroup.com)

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