

TECHNICAL MANUAL

Air circuit breaker
VA-45 v2 EKF

1 DESCRIPTION

1.1 The air circuit breakers VA-45 v2 up to 6300A EKF are designed to carry current under normal conditions and break overcurrent (short circuits and overloads, including single-phase earth faults) to be used in three-phase AC electrical circuits at rated voltage up to 690V at 50 Hz.

1.2 The air circuit breakers (ACB) comply with IEC 60947-2:2016.

2 APPLICATION

- As the main circuit breaker;
- Protection of electric motor circuits;
- Protection of outgoing lines, including those in the main switchboard and distribution boards.
- Automatic transfer systems with islanding (with three circuit breakers) and without islanding (with circuit breakers);
- Protection of outgoing lines on the low side of transformer substation, 10/0,4 kV.

3 TECHNICAL DATA

Table 1

Parameter		Value				
		VA-45/2000	VA-45/3200	VA-45/4000	VA-45/5000	VA-45/6300
Rated current I_n , A		630, 800, 1000, 1250, 1600, 2000	2000, 2500, 3200	3200, 4000	5000	6300
Rated ultimate maximum breaking capacity I_{cu} , kA	Ue 400 V	85	100	100	120	120
	Ue 690 V	60	65	65	80	80
Rated operating maximum breaking capacity I_{cs} , kA	Ue 400 V	70	65	65	80	80
	Ue 690 V	55	50	50	70	70
Rated maximum making capacity I_{cm} , kA	Ue 400 V	187	220	220	264	264
	Ue 690 V	132	143	143	176	176
Rated short-time withstand current for 1 sec. I_{cw} , kA	Ue 400 V	70	65	65	85	85
	Ue 690 V	40	65	50	65	65
Mechanical endurance, C-O cycles	With service	20 000	10 000	10 000	6 000	6 000
	Without service	10 000	5 000	5 000	3 000	3 000
Electrical endurance, C-O cycles	Ue 400 V	6 500	3 000	1 500	500	500
	Ue 690 V	3 000	1 500	750	300	300
Rated operating AC voltage 50Hz U_n , V		400/690				

Table 1 continued

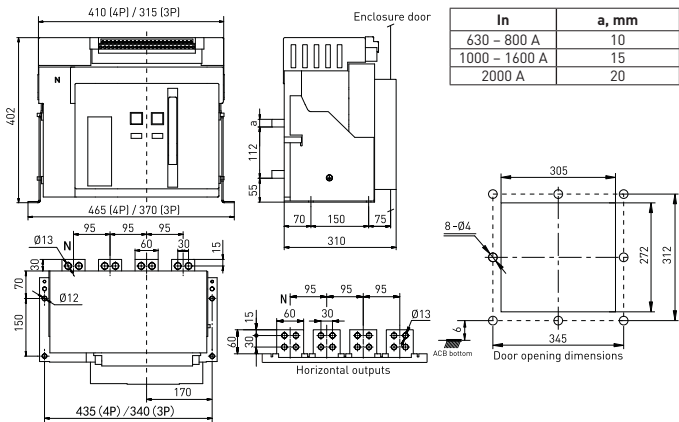
Parameter	Value				
	VA-45/2000	VA-45/3200	VA-45/4000	VA-45/5000	VA-45/6300
Rated insulation AC voltage 50Hz Ui, V	1 000				
Rated pulse withstand voltage Uimp, V	12 000				
Breaking time, ms	25-30				
Max. making time, ms	70				
Type of trip unit	Microprocessor				
Location of busbars when connected to the ACB terminals	Rear horizontal				
Number of poles (standard)	3P				
Number of poles (made-to-order)	4P				
Utilization category by IEC 60947-2:2016	B				
Degree of protection for surface-mounted ACB	IP30 for front panel IP00 for terminal side				
Operating temperature, °C	from -15 to +60				
Altitude above sea level, m	2000				
Min. service life, years	15				

Connection options with copper and aluminum wires are supported. Do not connect copper and aluminum wires to one terminal concurrently.

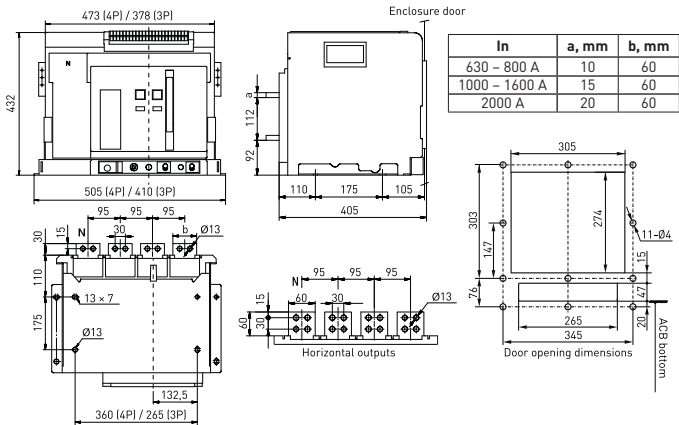
For operating manual, visit our website www.global.ekfgroup.com

4 OVERALL AND INSTALLATION DIMENSIONS

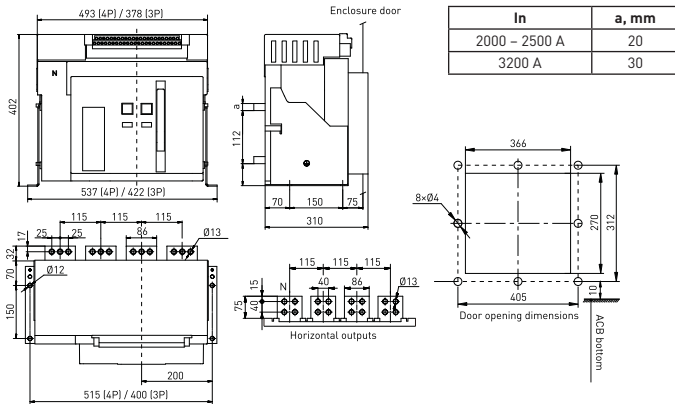
VA-45 2000 FIXED v2



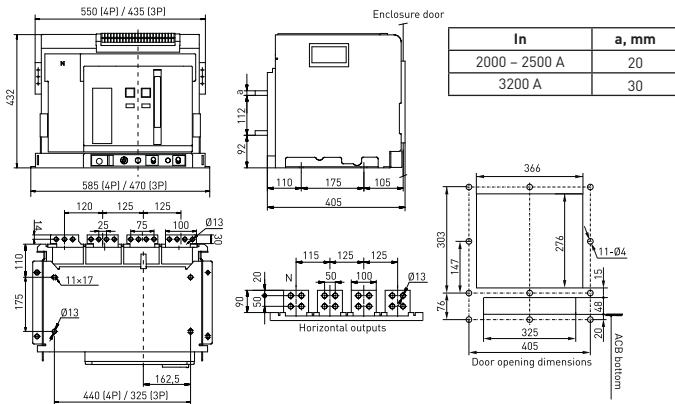
VA-45 2000 WITHDRAWABLE v2



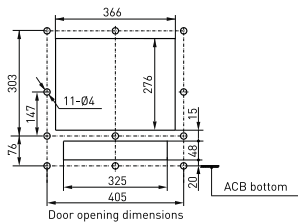
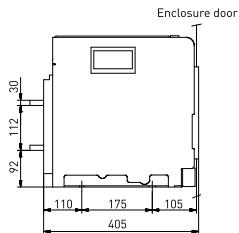
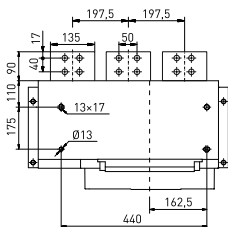
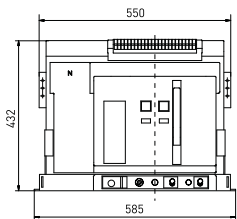
VA-45 3200 FIXED v2



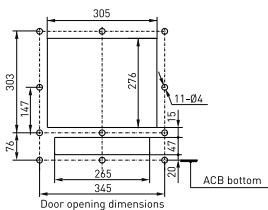
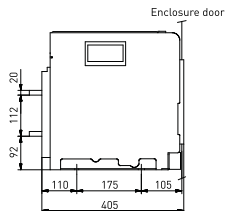
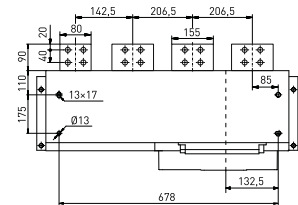
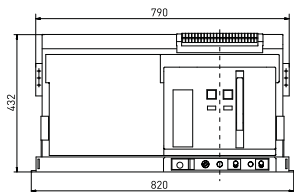
VA-45 3200 WITHDRAWABLE v2



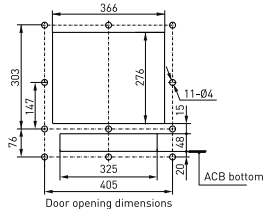
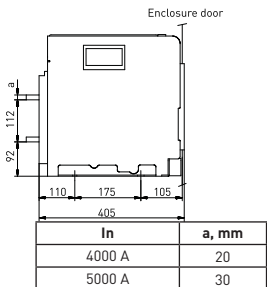
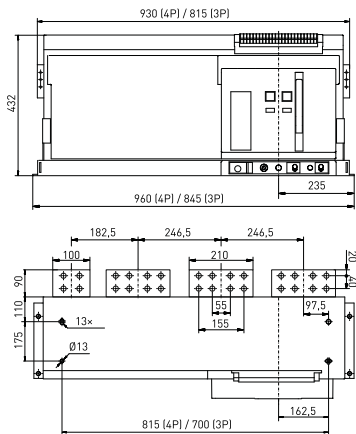
VA-45 4000 3P WITHDRAWABLE v2



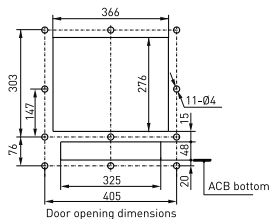
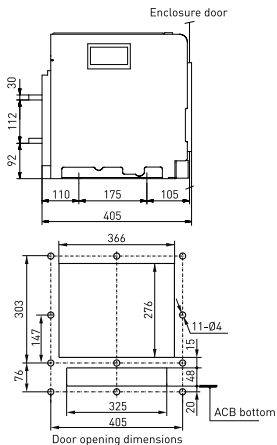
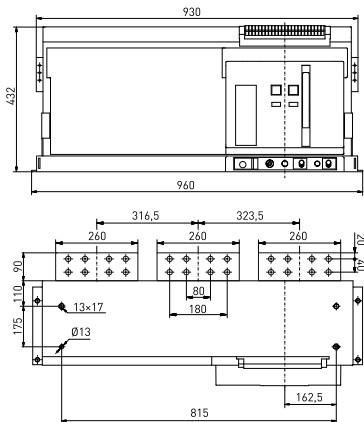
VA-45 4000 4P WITHDRAWABLE v2



VA-45 5000 WITHDRAWABLE v2

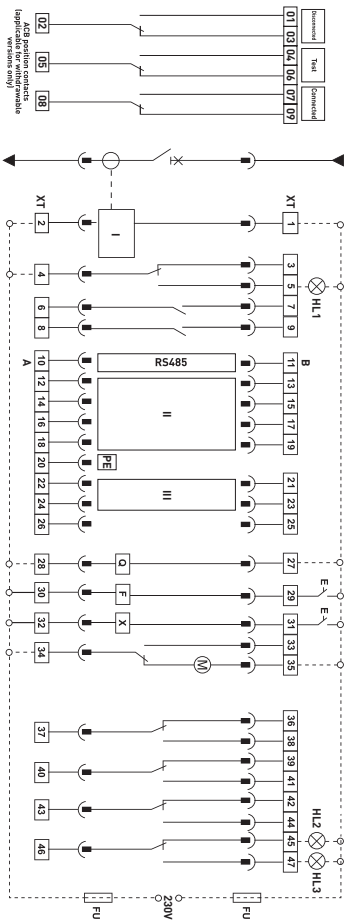


BA-45 6300 WITHDRAWABLE v2



Typical wiring diagram

Wiring diagram of secondary and control circuits of the air circuit breaker VA-45 v2



Description

- I – Controller power supply
- II – Programmable relay outputs
- III – Voltage measuring inputs
- HL1 – 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 (terminal clamps) of secondary circuits
- FU – Fuse

Terminals of the secondary circuits

- 1, 2 – Controller power supply 230V AC, for direct current: 1 terminal '+', 2 terminal '-'
- 3, 4, 5 – Alarm contact (250V AC, 3A)
- 6, 7, 8, 9 – Auxiliary contacts (NO) (250V AC, 3A)
- 10, 11 – RS-485 communication interface
- 12-19 – Programmable relay outputs
- 20 – Protective earthing
- 21, 22, 23, 24 – Voltage measuring inputs [21-«N», 22-«A», 23-«B», 24-«C»]
- 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)

Circuit breaker position contacts (applicable to withdrawable version only):

- 01, 02, 03 – position contact «Disconnected» (CO)
- 04, 05, 06 – position contact «Test» (CO)
- 07, 08, 09 – position contact «Connected» (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 and atmospheric impacts.

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

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

6 DELIVERY SCOPE

1. Air circuit breaker VA-45 v2 (complete with closing release, shunt release, motor mechanism) - 1 pc.;
2. Set of bolts - 1 pc.;
3. Technical manual - 1 pc.

7 MANUFACTURER'S WARRANTY

The manufacturer guarantees that the air circuit breakers comply with IEC 60947-2:2016 provided that the consumer follows 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.

Importer and EKF trademark service representative: EKF ELECTRICAL SOLUTION – FZCO, Dubai Silicon Oasis, DDP, Building A2, Dubai, United Arab Emirates.

Importer and EKF trademark service representative on the territory of the Russian Federation: 000 «Electroresheniya», Otradnaya st., 2b bld. 9, 5th floor, 127273, Moscow, Russia. Tel.: +7 (495) 788-88-15.

Importer and EKF trademark service representative on 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 CERTIFICATE OF ACCEPTANCE

The air circuit breaker VA-45 v2 EKF has been approved for operation.

Date of manufacture:

For information, refer to the product package.

Quality control stamp



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