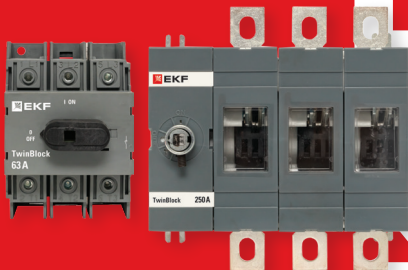




# EKF



## TECHNICAL MANUAL

### Switch disconnectors

### TwinBlock EKF

## 1 DESCRIPTION

Switch disconnectors TwinBlock EKF are designed to carry rated currents and switch 50/60 Hz electrical circuits with rated voltages up to 690V AC, and are installed in electrical distribution enclosures.

Switch disconnectors are supplied in the following versions:

- Switch disconnectors with pre-installed handle – 40 A, 63 A, 80 A, 100 A and 125 A models.
- Switch disconnectors without handle (ordered separately) – 160 A, 200 A, 250 A, 315 A, 400 A, 630 A, 800 A, 1000 A, 1250 A, 1600 A, 2000 A and 2500 A models.
- Changeover switches with pre-installed handle - 40 A, 63 A, 80 A, 100 A and 125 A models.
- Changeover switches without handle (ordered separately) – 160 A, 200 A, 250 A, 315 A, 400 A, 630 A and 800 A models.

Changeover switches TwinBlock EKF are designed to switch loads to backup lines with power break (position indication I-0-II). The devices are used to switch loads between two power sources, even under high inductive currents and motor inrush currents.



Extra pole options



Changeover switch versions

Switch disconnectors TwinBlock (40-800 A models) have the option of connecting an extra fourth pole.

Versions without handle can be complemented by either option:

- External rotary handle
- Directly mounted rotary handle

## 2 TECHNICAL DATA

Products are listed in table 1.

Table 1

| Item code       | Name  |
|-----------------|---|
| tb-40-3p-f      | Switch disconnecter 40A 3P with directly mounted rotary handle TwinBlock EKF  |
| tb-63-3p-f      | Switch disconnecter 63A 3P with directly mounted rotary handle TwinBlock EKF  |
| tb-80-3p-f      | Switch disconnecter 80A 3P with directly mounted rotary handle TwinBlock EKF  |
| tb-100-3p-f     | Switch disconnecter 100A 3P with directly mounted rotary handle TwinBlock EKF |
| tb-125-3p-f     | Switch disconnecter 125A 3P with directly mounted rotary handle TwinBlock EKF |
| tb-s-160-3p     | Switch disconnecter 160A 3P without handle TwinBlock EKF                      |
| tb-s-200-3p     | Switch disconnecter 200A 3P without handle TwinBlock EKF                      |
| tb-s-250-3p     | Switch disconnecter 250A 3P without handle TwinBlock EKF                      |
| tb-s-315-3p     | Switch disconnecter 315A 3P without handle TwinBlock EKF                      |
| tb-s-400-3p     | Switch disconnecter 400A 3P without handle TwinBlock EKF                      |
| tb-s-630-3p     | Switch disconnecter 630A 3P without handle TwinBlock EKF                      |
| tb-s-800-3p     | Switch disconnecter 800A 3P without handle TwinBlock EKF                      |
| tb-s-1000-3p    | Switch disconnecter 1000A 3P without handle TwinBlock EKF                     |
| tb-s-1250-3p    | Switch disconnecter 1250A 3P without handle TwinBlock EKF                     |
| tb-s-1600-3p    | Switch disconnecter 1600A 3P without handle TwinBlock EKF                     |
| tb-s-2000-3p    | Switch disconnecter 2000A 3P without handle TwinBlock EKF                     |
| tb-s-2500-3p    | Switch disconnecter 2500A 3P without handle TwinBlock EKF                     |
| tb-s-40-3p-rev  | Changeover switch 40A 3P with directly mounted rotary handle TwinBlock EKF    |
| tb-s-63-3p-rev  | Changeover switch 63A 3P with directly mounted rotary handle TwinBlock EKF    |
| tb-s-80-3p-rev  | Changeover switch 80A 3P with directly mounted rotary handle TwinBlock EKF    |
| tb-s-100-3p-rev | Changeover switch 100A 3P with directly mounted rotary handle TwinBlock EKF   |

Table 1 continued

| Item code       | Name  |
|-----------------|---|
| tb-s-125-3p-rev | Changeover switch 125A 3P with directly mounted rotary handle TwinBlock EKF   |
| tb-s-160-3p-rev | Changeover switch 160A 3P without handle TwinBlock EKF                        |
| tb-s-200-3p-rev | Changeover switch 200A 3P without handle TwinBlock EKF                        |
| tb-s-250-3p-rev | Changeover switch 250A 3P without handle TwinBlock EKF                        |
| tb-s-315-3p-rev | Changeover switch 315A 3P without handle TwinBlock EKF                        |
| tb-s-400-3p-rev | Changeover switch 400A 3P without handle TwinBlock EKF                        |
| tb-s-630-3p-rev | Changeover switch 630A 3P without handle TwinBlock EKF                        |
| tb-s-800-3p-rev | Changeover switch 800A 3P without handle TwinBlock EKF                        |
| tb-40-4p-f      | Switch disconnecter 40A 4P with directly mounted rotary handle TwinBlock EKF  |
| tb-63-4p-f      | Switch disconnecter 63A 4P with directly mounted rotary handle TwinBlock EKF  |
| tb-80-4p-f      | Switch disconnecter 80A 4P with directly mounted rotary handle TwinBlock EKF  |
| tb-100-4p-f     | Switch disconnecter 100A 4P with directly mounted rotary handle TwinBlock EKF |
| tb-125-4p-f     | Switch disconnecter 125A 4P with directly mounted rotary handle TwinBlock EKF |
| tb-s-160-4p     | Switch disconnecter 160A 4P without handle TwinBlock EKF                      |
| tb-s-200-4p     | Switch disconnecter 200A 4P without handle TwinBlock EKF                      |
| tb-s-250-4p     | Switch disconnecter 250A 4P without handle TwinBlock EKF                      |
| tb-s-315-4p     | Switch disconnecter 315A 4P without handle TwinBlock EKF                      |
| tb-s-400-4p     | Switch disconnecter 400A 4P without handle TwinBlock EKF                      |
| tb-s-630-4p     | Switch disconnecter 630A 4P without handle TwinBlock EKF                      |
| tb-s-800-4p     | Switch disconnecter 800A 4P without handle TwinBlock EKF                      |
| tb-s-1000-4p    | Switch disconnecter 1000A 4P without handle TwinBlock EKF                     |
| tb-s-1250-4p    | Switch disconnecter 1250A 4P without handle TwinBlock EKF                     |
| tb-s-1600-4p    | Switch disconnecter 1600A 4P without handle TwinBlock EKF                     |
| tb-s-40-4p-rev  | Changeover switch 40A 4P with directly mounted rotary handle TwinBlock EKF    |
| tb-s-63-3p-rev  | Changeover switch 63A 4P with directly mounted rotary handle TwinBlock EKF    |

Table 1 continued

| Item code       | Name  |
|-----------------|---|
| tb-s-80-4p-rev  | Changeover switch 80A 4P with directly mounted rotary handle TwinBlock EKF  |
| tb-s-100-4p-rev | Changeover switch 100A 4P with directly mounted rotary handle TwinBlock EKF |
| tb-s-125-4p-rev | Changeover switch 125A 4P with directly mounted rotary handle TwinBlock EKF |
| tb-s-160-4p-rev | Changeover switch 160A 4P without handle TwinBlock EKF                      |
| tb-s-200-4p-rev | Changeover switch 200A 4P without handle TwinBlock EKF                      |
| tb-s-250-4p-rev | Changeover switch 250A 4P without handle TwinBlock EKF                      |
| tb-s-315-4p-rev | Changeover switch 315A 4P without handle TwinBlock EKF                      |
| tb-s-400-4p-rev | Changeover switch 400A 4P without handle TwinBlock EKF                      |
| tb-s-630-4p-rev | Changeover switch 630A 4P without handle TwinBlock EKF                      |
| tb-s-800-4p-rev | Changeover switch 800A 4P without handle TwinBlock EKF                      |

Table 2 – Technical data

| Characteristics  | 40        | 63  | 80  | 100 | 125 | 160 |
|--|-----------|-----|-----|-----|-----|-----|
| Rated insulation voltage $U_i$ , V   | 1000      |     |     |     |     |     |
| Rated frequency, Hz  | 50 / 60   |     |     |     |     |     |
| Rated operating voltage $U_e$ , V AC   | 690 / 400 |     |     |     |     |     |
| Rated impulse withstand voltage $U_{imp}$ , kV                                     | 12        |     |     |     |     |     |
| Number of poles  | 3P, 4P    |     |     |     |     |     |
| Direction options  | One, two  |     |     |     |     |     |
| Arc chutes   | Available |     |     |     |     |     |
| Rated current $I_n$ , A  | 40        | 63  | 80  | 100 | 125 | 160 |
| Conventional thermal current $I_{th}$ , A  | 40        | 63  | 80  | 100 | 125 | 160 |
| Maximum cross-section of connected copper wires, mm <sup>2</sup>                   | 70        |     |     | 70  | 70  | 70  |
| Rated breaking capacity for $U_e=690V$ , AC-23, A                                  | 160       |     |     | 320 | 400 | 640 |
| Rated making capacity $I_{cm}$ , kA  | 0,7       | 1,4 | 2,1 | 3,6 | 3,6 | 30  |
| Rated short-time withstand current (RMS value for $U_e=690V$ , 1sec) $I_{cw}$ , kA | 0,5       | 1   | 1,5 | 2,5 | 2,5 | 8   |

Table 2 continued

| Characteristics                   | 40        | 63 | 80 | 100 | 125 | 160   |
|-----------------------------------|-----------|----|----|-----|-----|-------|
| Power dissipation/pole, W         | 4,5       |    |    | 4   | 6,3 | 6,5   |
| Tightening torque, N•m            | 7         |    |    | 7   | 7   | 7     |
| Size of connected screws          | –         |    |    | –   | –   | M8x25 |
| Mechanical endurance, O-C cycles  | 10 000    |    |    |     |     |       |
| Extra pole option                 | Available |    |    |     |     |       |
| Degree of protection              | IP00      |    |    |     |     |       |
| Operation ambient temperature, °C | -25 to 50 |    |    |     |     |       |

| Characteristics  | 200       | 250  | 315    | 400  | 630    | 800   |
|--|-----------|------|--------|------|--------|-------|
| Rated insulation voltage $U_i$ , V   | 1000      |      |        |      |        |       |
| Rated frequency, Hz  | 50 / 60   |      |        |      |        |       |
| Rated operating voltage $U_e$ , V AC   | 690 / 400 |      |        |      |        |       |
| Rated impulse withstand voltage $U_{imp}$ , kV                                     | 12        |      |        |      |        |       |
| Number of poles  | 3P, 4P    |      |        |      |        |       |
| Direction options  | One, two  |      |        |      |        |       |
| Arc chutes   | Available |      |        |      |        |       |
| Rated current $I_n$ , A  | 200       | 250  | 315    | 400  | 630    | 800   |
| Conventional thermal current $I_{th}$ , A  | 200       | 250  | 315    | 400  | 630    | 800   |
| Maximum cross-section of connected copper wires, mm <sup>2</sup>                   | 95        | 120  | 185    | 240  | 2x185  | 2x240 |
| Rated breaking capacity for $U_e=690V$ , AC-23, A                                  | 1600      | 2000 | 2520   | 3200 | 5040   | 6400  |
| Rated making capacity $I_{cm}$ , kA  | 30        | 30   | 65     | 65   | 80     | 80    |
| Rated short-time withstand current (RMS value for $U_e=690V$ , 1sec) $I_{cw}$ , kA | 8         | 8    | 15     | 15   | 20     | 20    |
| Power dissipation/pole, W  | 4         | 6,5  | 6,5    | 10   | 25     | 40    |
| Tightening torque, N•m   | 7         | 7    | 16     | 16   | 27     | 27    |
| Size of connected screws   | M8x25     |      | M10x30 |      | M12x40 |       |
| Mechanical endurance, O-C cycles   | 10 000    |      | 8000   | 8000 | 5000   |       |
| Extra pole option  | Available |      |        |      |        |       |

Table 2 continued

| Characteristics                   | 200       | 250 | 315 | 400 | 630 | 800 |
|-----------------------------------|-----------|-----|-----|-----|-----|-----|
| Degree of protection              | IP00      |     |     |     |     |     |
| Operation ambient temperature, °C | -25 to 50 |     |     |     |     |     |

| Characteristics  | 1000      | 1250   | 1600   | 2000      | 2500  |
|--|-----------|--------|--------|-----------|-------|
| Rated insulation voltage $U_i$ , V   | 1000      |        |        |           |       |
| Rated frequency, Hz  | 50 / 60   |        |        |           |       |
| Rated operating voltage $U_e$ , V AC   | 690 / 400 |        |        |           |       |
| Rated impulse withstand voltage $U_{imp}$ , kV                                     | 12        |        |        |           |       |
| Number of poles  | 3P, 4P    |        |        |           |       |
| Direction options  | One       |        |        | One, two  |       |
| Arc chutes   | Available |        |        |           |       |
| Rated current $I_n$ , A  | 1000      | 1250   | 1600   | 2000      | 2500  |
| Conventional thermal current $I_{th}$ , A  | 1000      | 1250   | 1600   | 2000      | 2500  |
| Maximum cross-section of connected copper wires, mm <sup>2</sup>                   | 2x300     | 2x400  | 2x500  | 3x500     | 4x500 |
| Rated breaking capacity for $U_e=690V$ , AC-23, A                                  | 10 000    | 10 000 | 10 000 | 2000      | 2500  |
| Rated making capacity $I_{cm}$ , kA  | 92        | 92     | 92     | 176       | 176   |
| Rated short-time withstand current (RMS value for $U_e=690V$ , 1sec) $I_{cw}$ , kA | 50        | 50     | 50     | 55        | 55    |
| Power dissipation/pole, W  | 19        | 29     | 48     | 55        | 85    |
| Tightening torque, N•m   | 65        | 65     | 65     | 65        | 65    |
| Size of connected screws   | M12x50    |        | M12x60 |           |       |
| Mechanical endurance, O-C cycles   | 3000      |        |        |           |       |
| Extra pole option  | N/A       |        |        | Available |       |
| Degree of protection   | IP00      |        |        |           |       |
| Operation ambient temperature, °C  | -25 to 50 |        |        |           |       |

Switch disconnectors can be operated in pollution degree 3 environment in compliance with IEC 60947-1.

Protection degree of rotary handle is IP65.

### 3 OVERALL DIMENSIONS

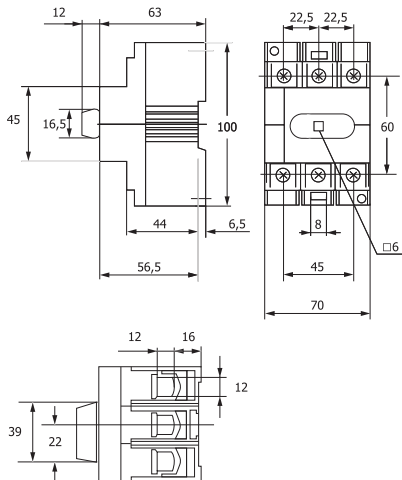


Figure 1. Overall and installation dimensions of 40-125 A 3P switch disconnectors

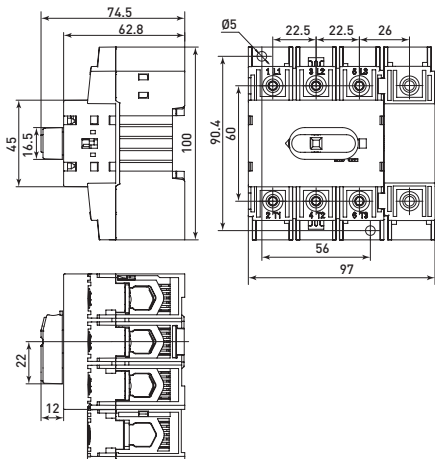


Figure 2. Overall and installation dimensions of 63-125 A 4P switch disconnectors

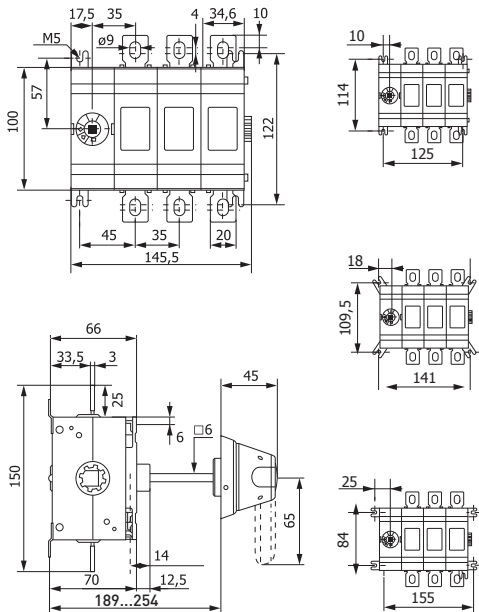


Figure 3. Overall and installation dimensions of 160-250 A 3P switch disconnectors

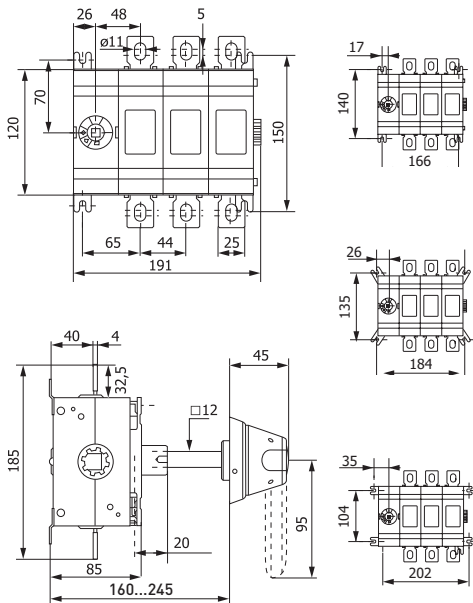


Figure 4. Overall and installation dimensions of 315-400 A 3P switch disconnectors

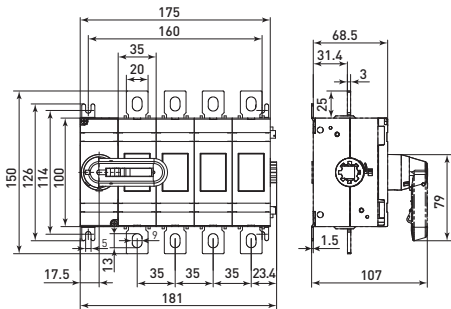


Figure 5. Overall and installation dimensions of 160-250 A 4P switch disconnectors

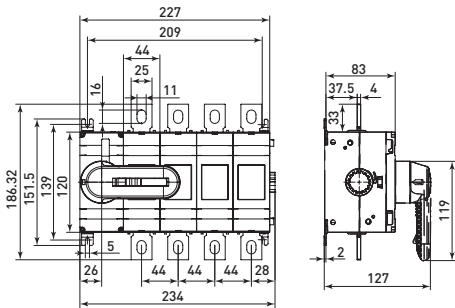


Figure 6. Overall and installation dimensions of 315-400 A 4P switch disconnectors

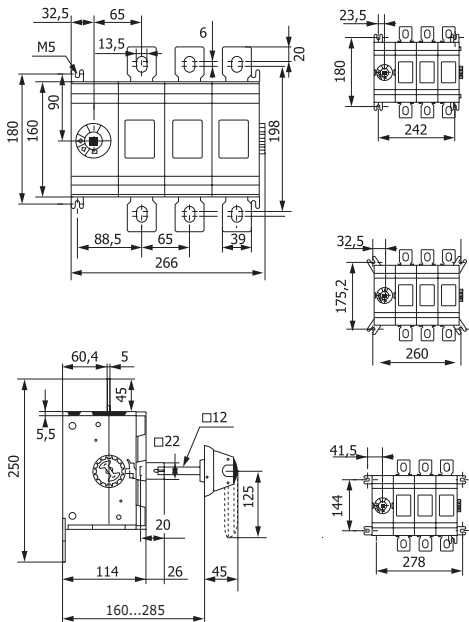


Figure 7. Overall and installation dimensions of 630-800 A 3P switch disconnectors

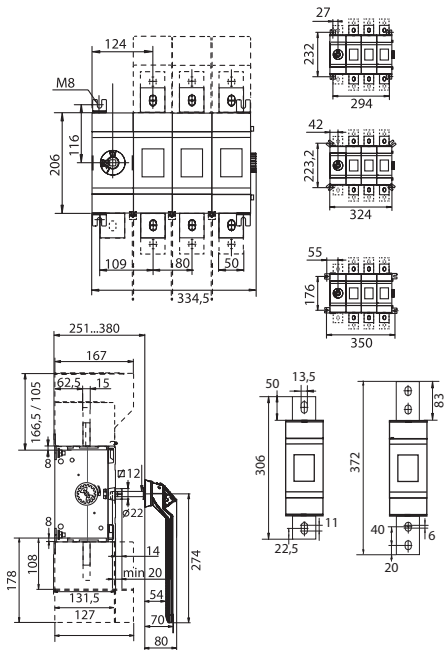


Figure 8. Overall and installation dimensions of 1000-1600 A 3P switch disconnectors

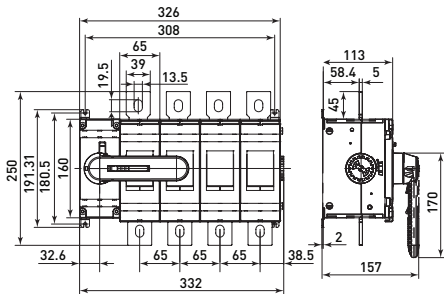


Figure 9. Overall and installation dimensions of 630-800 A 4P switch disconnectors

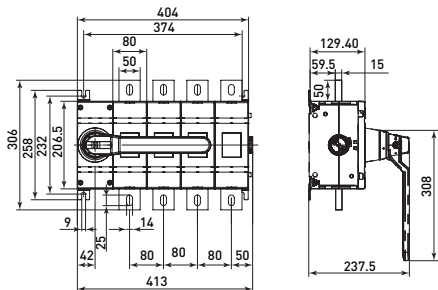


Figure 10. Overall and installation dimensions of 1000-1600 A 4P switch disconnectors

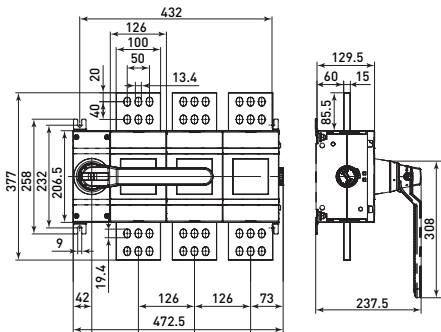


Figure 11. Overall and installation dimensions of 2000-2500 A 3P switch disconnectors

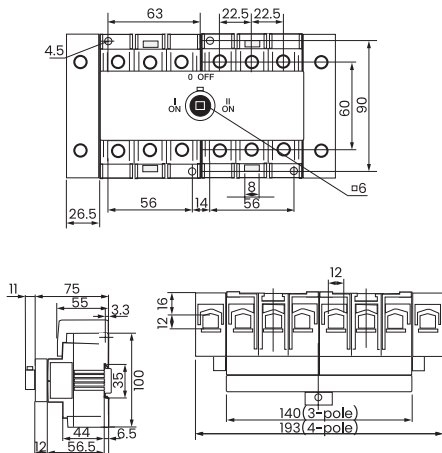


Figure 12. Overall and installation dimensions of 100-125 A 3P-4P changeover switches

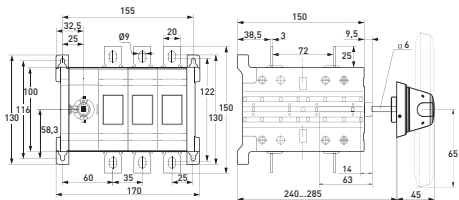


Figure 13. Overall and installation dimensions of 160-250 A 3P changeover switches

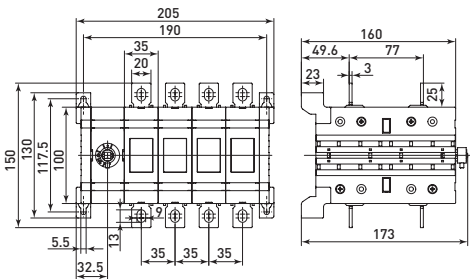


Figure 14. Overall and installation dimensions of 160-250 A 4P changeover switches

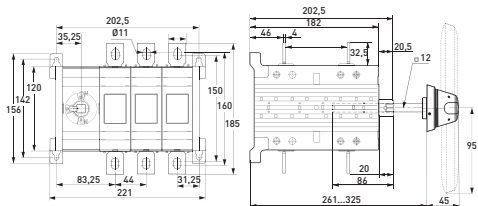


Figure 15. Overall and installation dimensions of 315-400 A 3P changeover switches

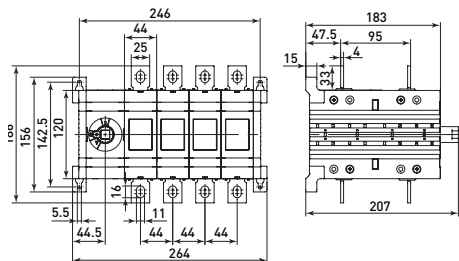


Figure 16. Overall and installation dimensions of 315-400 A 4P changeover switches

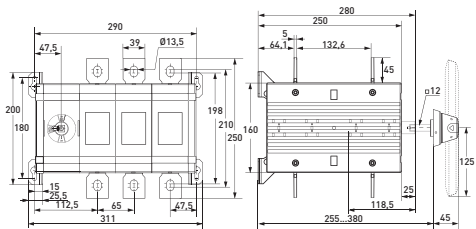


Figure 17. Overall and installation dimensions of 630-800 A 3P changeover switches

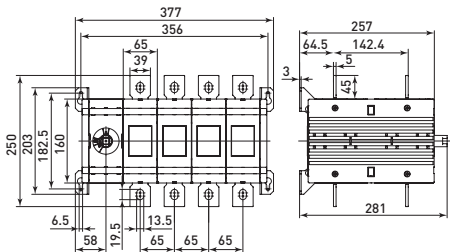


Figure 18. Overall and installation dimensions of 630-800 A 4P changeover switches

## 4 WIRING DIAGRAM

For wiring diagrams refer to Figures 19-a and 19-b

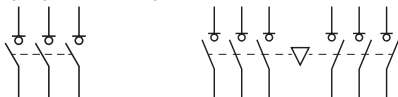


Figure 19-a. Wiring diagram of 3P switch disconnector

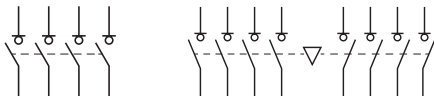


Figure 19-b. Wiring diagram of 4P switch disconnector

## 5 DELIVERY SCOPE

Products are supplied in an individual package.

For all available documentation, scan the QR-code on the insert or on the inside of the package.

## 6 INSTALLATION AND OPERATION

The device must be mounted and connected by qualified electrical personnel. Mounting types: DIN rail (for 40-125 A models only) and mounting plate. Operating position: not designated.

Before installation, make sure that:

- 1) The device suits the intended purpose.
- 2) The device is not damaged.

Make sure the power is off before installation and maintenance!

Under normal operating conditions, visually inspect the devices once a year and after every short circuit event. During inspection:

- Remove dust and grease.
- Tighten the screws.
- Switch the device on/off without loads.

Do not touch terminals or exposed live conductors when operating the device.

## 6.1 Mounting of 40-125 A models (to mounting plate and DIN rail).

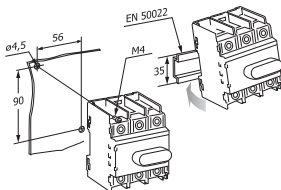
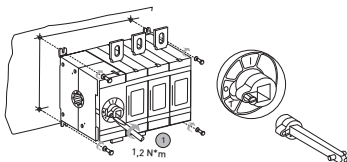
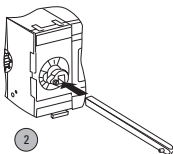


Figure 20. Mounting of 40-125 A models

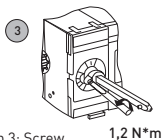
## 6.2 Installation of extension shaft



Step 1: Unscrew the screw.



Step 2: Insert the extension shaft.



Step 3: Screw the screw in.

Figure 21. Extension shaft installation

### 6.3 Installation of directly mounted rotary handle (160-250 A models)

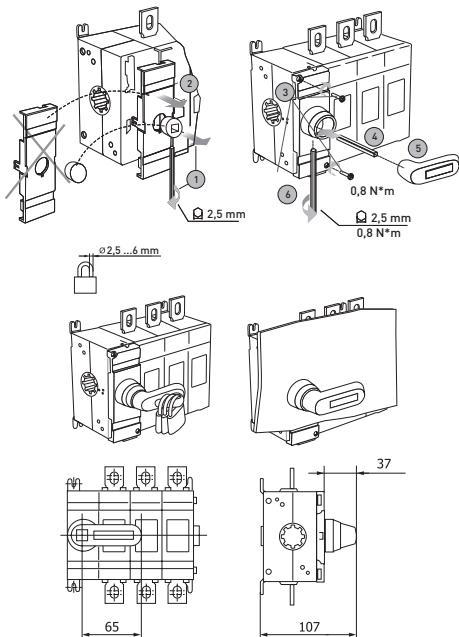


Figure 22. Installation of directly mounted rotary handle onto 160-250 A models

#### 6.4 Installation of directly mounted rotary handle (315-2500 A models)

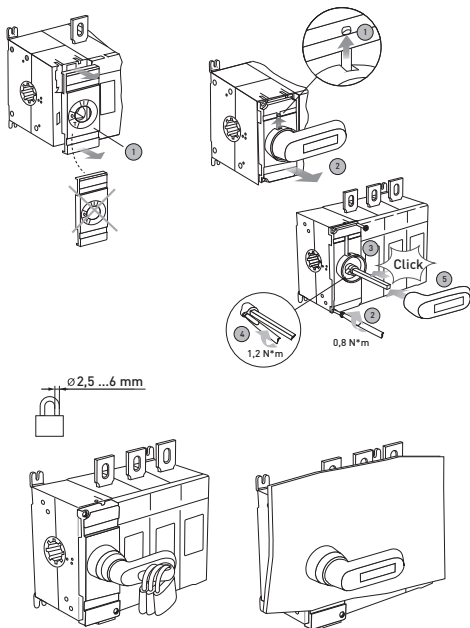


Figure 23. Installation of directly mounted rotary handle for 315-2500 A models

## 6.5 Installation of external rotary handle

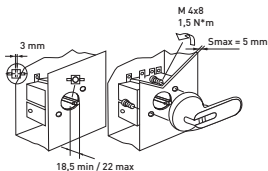


Figure 24. Installation of external rotary handle

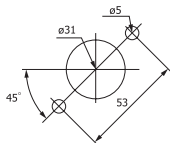


Figure 25. Installation dimensions for rotary handle

## 6.6 Installation of extra pole (160-800 A models)

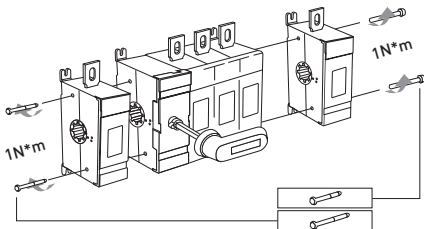


Figure 26. Installation of extra pole (screws are in the pole kit)

NO contact (tb-axcontac) is compatible with 40-125 A models, while NC contact (tb-axcontact-nc) is compatible with 160-2500 A models.

For changeover switch, auxiliary contacts are installed on the right of the device.

For detailed information on auxiliary contacts, scan the QR-code on the product packaging.

## **7 TRANSPORTATION AND STORAGE**

The devices can be transported by any means of enclosed transport that protects the packaged products from mechanical impact and weather exposure.

The devices shall be stored in the original package indoors at the ambient temperature from -60 to 50 °C at max.relative humidity of 90%.

## **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 effective national and local laws and regulations.

## **9 MANUFACTURER'S WARRANTY**

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 packaging or housing.

Service life: 20 years.

**Manufacturer:** OOO Elektroresheniya, Otradnaya 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., 7, apt 495.

## 10 CERTIFICATE OF ACCEPTANCE

Switch disconnectors Twinblock EKF comply with IEC 60947-3 and have been approved for operation.

Date of manufacture: for information, refer to the product package.

Quality control stamp



EAC



v3

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

