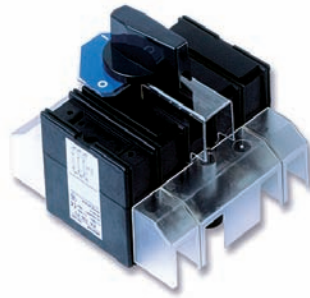




RA100P3/OHB
+cable terminal shrouds



RA100P3/R
+cable terminal shrouds



RAB1P3/OHY
+fuse link shroud



RAB2P3/OHY
+fuse link shroud

R type series is divided into two groups:

- RA switch disconnectors
 - 3-pole with optional neutral (N) 4th pole
 - RA100 - 4th pole switchable
- RAB switch disconnectors fuses
 - 3-pole with optional neutral (N) 4th pole
 - RAB000 - 4th pole switchable

GENERAL INFORMATION

- safety of service and easy installation,
- self-extinguishing thermoplastics (VO flammability class),
- silver plated parts of current circuits,
- self-tightening and self-cleaning contacts,
- high electrical and mechanical endurance,
- high short-circuit making and breaking capacity,
- double, safe clearance between open contacts,
- complete isolation of fuse links in „off” position,
- manually operated drive (spring powered),
- wide range of accessories.

APPLICATIONS

Switch disconnectors series **R** are designed for distribution of electricity and protection against short circuits and overloads in three phase alternative current circuits. They can be used as:

- main switch disconnector in distribution boards,
- switch disconnector,
- switch disconnector for motor control and protection.

OPERATING CONDITIONS

- to be installed in the room free of any dust, aggressive or explosive gases,
- for moderate, marine and tropical climate,
- ambient temperature from -25°C to +55°C,
- altitude up to 2000 meters above sea level,
- outdoor – in cabinets with protection degree > IP 34.

CONSTRUCTION AND OPERATION

RA switch disconnectors and **RAB** switch disconnectors fuses consists of following parts:

- bottom part of the body with fitted current circuits (stationary contacts, cable terminals)
- top part of the body with fitted contacts (**RA**) or spring loaded contacts for fuse link blades (**RAB**)
- traverse with moving contacts
- manually operated drive (spring powered)

Current circuit of each phase has four clearances between contacts in switched off position(double clearance for each pair of contacts, two pairs of contacts for each phase phase) ensuring required isolating distance and safe replacement of fuse links in **RAB** switch disconnectors fuses. Manually triggered, springpowered drive delivers rapid switching. **RA** switch disconnectors and **RAB** switch disconnectors fuses can be equipped with two types of handles:

- R type - installed on disconnector's shaft
- OHB, OHY type - for installation on distribution board's door

Handle position indicates disconnector's state - switched on or switched off. OHB and OHY handles are designed for locking by up to three padlocks in OFF („O”) position. Handles are available in colours black and yellow-red. Wide range of accesories is available for **RA** switch disconnectors and **RAB** switch disconnectors fuses like additional shafts, shaft joints, auxiliary switches, cable terminal shrouds, fuse link shrouds, etc.

INSTALLATION

RA switch disconnectors and **RAB** switch disconnectors fuses are designed for operation in horizontal or vertical position with permissible deviation of 30° in any direction. **RA** switch disconnectors and **RAB** switch disconnectors fuses should be mounted to support structure with screws with spring washers.

Table 119. Screw terminals tightening torque

| Screw | M6 | M8 | M10 | M12 |
|-------------------|------|-------|-------|-------|
| Tightening torque | 7 Nm | 14 Nm | 24 Nm | 38 Nm |

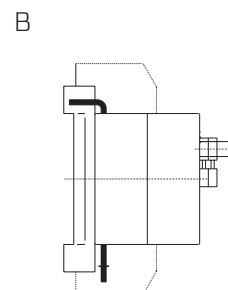
Table 120. RA technical data

| Article | Unit | RA 100 | RA 160 | RA 250 | RA 400 | RA 630 | RA 1250 |
|---|----------------------------|-----------------|--------|--------|------------|------------|---------|
| Parameter | | Value | | | | | |
| Rated thermal current | I_{th} A | 100 | 160 | 250 | 400 | 630 | 1250 |
| Rated insulation voltage | U_i V | 1000 | | | | | |
| Rated impulse withstand voltage | U_{imp} kV | 8 | | | | | |
| Rated frequency | Hz | 50 ÷ 60 | | | | | |
| Rated switching current for AC 22A $U_e = 690$ V | I_e A | 100 | 125 | 125 | 250 | 400 | - |
| Rated switching current for AC 22B $U_e = 690$ V | I_e A | - | - | - | 400 | 630 | - |
| Rated switching current for AC 22A $U_e = 500$ V | I_e A | - | - | - | - | - | 1250 |
| Rated switching current for AC 22B $U_e = 415$ V | I_e A | - | - | 250 | - | - | - |
| Rated switching current for AC 23A $U_e = 500$ V | I_e A | | 160 | 160 | - | - | - |
| Rated switching current for AC 23A $U_e = 690$ V | I_e A | 40 | - | - | - | - | - |
| Rated short-circuit making capacity | I_{cm} kA _{max} | 7 | 9 | 20 | 25 | 35 | 100 |
| Rated short-time withstand current 1 s | I_{cw} kA | 2,5 | 8 | 8 | 15 | 15 | 50 |
| Mechanical durability | number of cycles | 10000 | 8000 | 8000 | 5000 | 5000 | 3000 |
| Electrical durability at utilization category AC 22 A | | 1500 | 1000 | 1000 | 1000 | 1000 | 500 |
| Duty | - | Continuous duty | | | | | |
| Protection degree IP | - | IP 00 | | | | | |
| Weight | kg | 0,95 | 1,7 | 1,85 | 3,3 | 4,3 | 12,5 |
| Busbar cross-section | mm ² | 15 x 2 | 20 x 4 | 25 x 4 | 2 x 25 x 4 | 2 x 30 x 5 | 60 x 10 |
| Cable conductor cross-section | mm ² | 35 | 95 | 120 | 240 | 2 x 185 | - |

Table 123. RA switch disconnectors with „B” type cable terminals

| Type | I _n | Number of poles | Accessories* | Article | Article No. |
|--------|----------------|-----------------|--------------|----------------|---------------|
| RA 100 | 100 A | 3 | - | RA 100 P3 B | 63-823064-031 |
| | | 3 + N | - | RA 100 P3 NB | 63-823064-111 |
| | | 4 | - | RA 100 P4 B | 63-826064-071 |
| | | 3 | R1 | RA 100 P3 B/R | 63-823064-151 |
| | | 3 + N | R1 | RA 100 P3 NB/R | 63-823064-231 |
| | | 4 | R1 | RA 100 P4 B/R | 63-823064-191 |
| RA 160 | 160 A | 3 | - | RA 160 P3 B | 63-823165-051 |
| | | 3 + N | - | RA 160 P3 NB | 63-823165-061 |
| | | 3 | R1 | RA 160 P3 B/R | 63-823165-171 |
| | | 3 + N | R1 | RA 160 P3 NB/R | 63-823165-181 |
| RA 250 | 250 A | 3 | - | RA 250 P3 B | 63-823165-071 |
| | | 3 + N | - | RA 250 P3 NB | 63-823165-081 |
| | | 3 | R1 | RA 250 P3 B/R | 63-823165-191 |
| RA 400 | 400 A | 3 + N | R1 | RA 250 P3 NB/R | 63-823165-201 |
| | | 3 | - | RA 400 P3 B | 63-811618-051 |
| | | 3 + N | - | RA 400 P3 NB | 63-811618-071 |
| RA 630 | 630 A | 3 | R1 | RA 400 P3 B/R | 63-811618-171 |
| | | 3 + N | R1 | RA 400 P3 NB/R | 63-811618-191 |
| | | 3 | - | RA 630 P3 B | 63-811618-061 |
| | | 3 + N | - | RA 630 P3 NB | 63-811618-081 |
| RA 250 | 250 A | 3 | R1 | RA 630 P3 B/R | 63-811618-181 |
| | | 3 + N | R1 | RA 630 P3 NB/R | 63-811618-201 |

* R1 - handle mounted on shaft

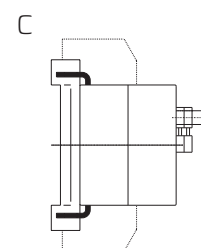


RA 250 P3 B

Table 124. RA switch disconnectors with „C” type cable terminals

| Type | I _n | Number of poles | Accessories* | Article | Article No. |
|--------|----------------|-----------------|--------------|----------------|---------------|
| RA 100 | 100 A | 3 | - | RA 100 P3 C | 63-823064-041 |
| | | 3 + N | - | RA 100 P3 NC | 63-823064-121 |
| | | 4 | - | RA 100 P4 C | 63-823064-081 |
| | | 3 | R1 | RA 100 P3 C/R | 63-823064-161 |
| | | 3 + N | R1 | RA 100 P3 NC/R | 63-823064-241 |
| | | 4 | R1 | RA 100 P4 C/R | 63-823064-201 |
| RA 160 | 160 A | 3 | - | RA 160 P3 C | 63-823165-091 |
| | | 3 + N | - | RA 160 P3 NC | 63-823165-101 |
| | | 3 | R1 | RA 160 P3 C/R | 63-823165-211 |
| | | 3 + N | R1 | RA 160 P3 NC/R | 63-823165-221 |
| RA 250 | 250 A | 3 | - | RA 250 P3 C | 63-823165-111 |
| | | 3 + N | - | RA 250 P3 NC | 63-823165-121 |
| | | 3 | R1 | RA 250 P3 C/R | 63-823165-231 |
| RA 400 | 400 A | 3 + N | R1 | RA 250 P3 NC/R | 63-823165-241 |
| | | 3 | - | RA 400 P3 C | 63-811618-091 |
| | | 3 + N | - | RA 400 P3 NC | 63-811618-111 |
| RA 630 | 630 A | 3 | R1 | RA 400 P3 C/R | 63-811618-211 |
| | | 3 + N | R1 | RA 400 P3 NC/R | 63-811618-231 |
| | | 3 | - | RA 630 P3 C | 63-811618-101 |
| | | 3 + N | - | RA 630 P3 NC | 63-811618-121 |
| RA 250 | 250 A | 3 | R1 | RA 630 P3 C/R | 63-811618-221 |
| | | 3 + N | R1 | RA 630 P3 NC/R | 63-811618-241 |

* R1 - handle mounted on shaft



RA 250 P3 C

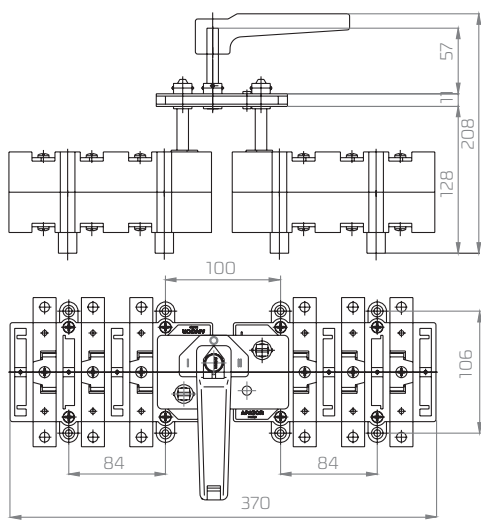
CHANGE-OVER SWITCHES I-O-II



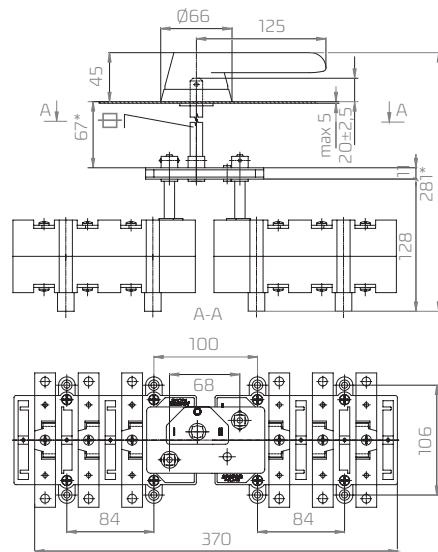
2 x RA 160 P3

| I - O - II | Poles | I _n | Article No. of RA switch | Article No. of coupling mechanism | |
|------------|-------|----------------|--------------------------------|-----------------------------------|---|
| | | | | handle mounted on shaft | handle OHB mounted on distribution board's door |
| 160 | 3 | 160 A | 2 x RA 160 P3 (63-822982-011) | +63-839949-011 | +63-839949-021 |
| 250 | 3 | 250 A | 2 x RA 250 P3 (63-822982-021) | +63-839949-011 | +63-839949-021 |
| 400 | 3 | 400 A | 2 x RA 400 P3 (63-811593-011) | +63-839972-011 | +63-839972-021 |
| 630 | 3 | 630 A | 2 x RA 630 P3 (63-811593-021) | +63-839972-011 | +63-839972-021 |
| 1250 | 3 | 1250 A | 2 x RA 1250 P3 (63-811601-011) | +63-930893-011 | +63-930893-021 |

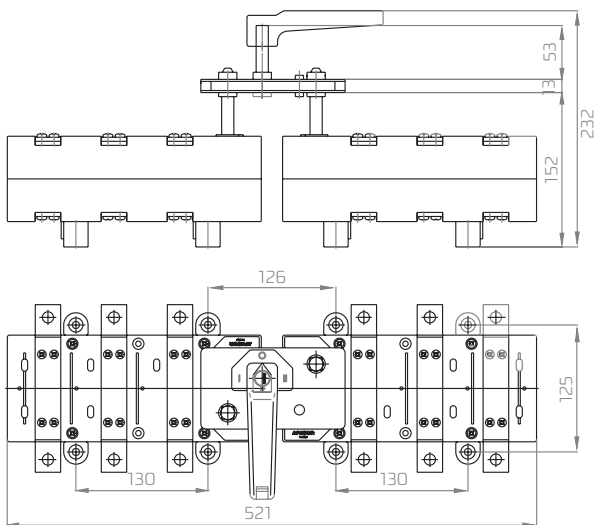
Dimensions of change-over switch I-O-II



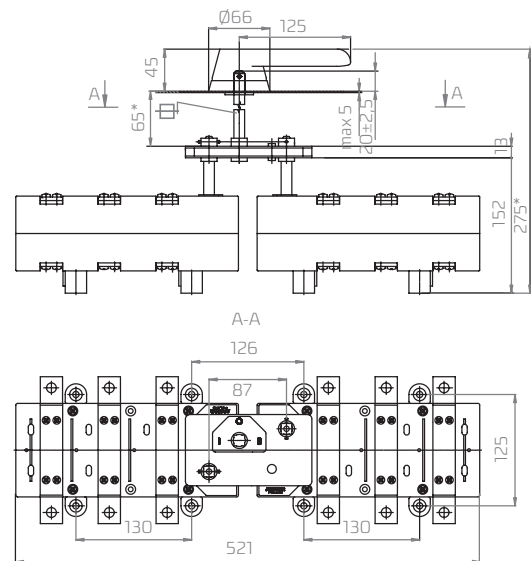
160 A - 250 A



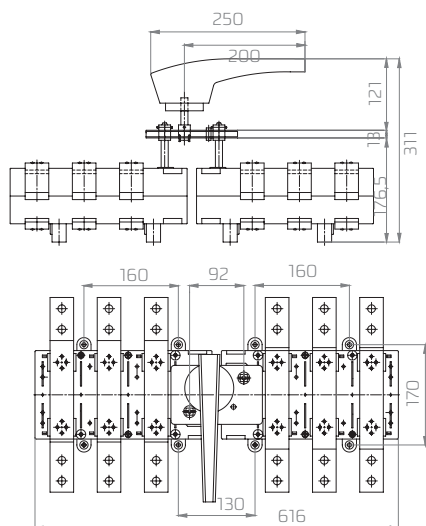
160 A - 250 A



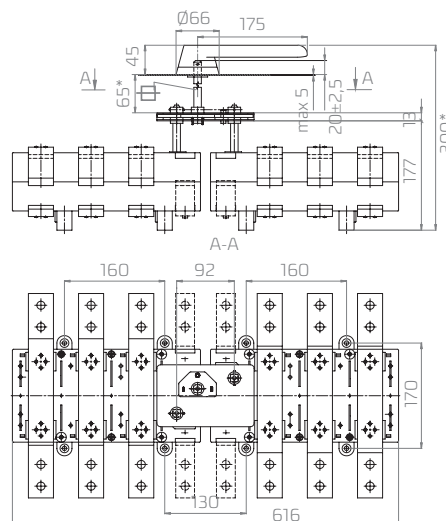
400 A - 630 A



400 A - 630 A



1250 A
handle mounted on shaft

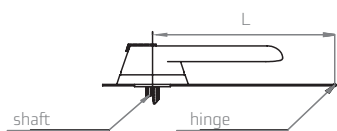


1250 A
handle mounted on distribution board's door

| Enclosures for RA type switch disconnectors | Order No. | |
|---|---------------|----------|
| | ENSTO | HENSEL |
| For RA 100..., RAB 000... | | |
| Enclosure with gray cover | OABP 203013 G | Mi 80101 |
| Enclosure with transparent cover | OABP 203013 T | Mi 80100 |
| Mounting plate | OMP 2030 | |
| Distance parts | OELA 1.04 | |
| Mounting plate | OMP 2030 | |
| Distance parts | OELA 1.04 | |
| For RA 160..., 250... | | |
| Enclosure with gray cover | OABP 303018 G | Mi 80201 |
| Enclosure with transparent cover | OABP 303018 T | Mi 80200 |
| Mounting plate | OMP 3030 | |
| Distance parts | OELA 1.04 | |
| For RA 400..., 630... | | |
| Enclosure with gray cover | OABP 304018 G | Mi 80211 |
| Enclosure with transparent cover | OABP 304018 T | Mi 80210 |
| Mounting plate | OMP 3040 | |
| Distance parts | OELA 1.04 | |

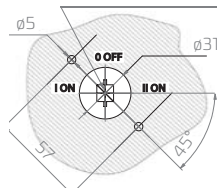
* R1 handle mounted on shaft

L-minimal distance between shaft and door's hinge



hole in enclosure's cover for mounting of OHB handles

mounting position of shaft and shaft's pin



| Switch disconnector | Length [mm] | Handle |
|---------------------|-------------|--------------|
| RA 100 | 80 | OH...65 J8 |
| RAB 000 | | |
| RA 160/250 | 120 | OH...95 J10 |
| RAB 00 | | |
| RA 400/630 | 150 | OH...125 J12 |
| RAB 1/2 | | |
| RAB 3 | 200 | OH...145 J12 |
| RA 1250 | | |