

INSTALLATION INSTRUCTION

Manual and motorized disconnectors OT(M)1600E_-3200E_-135

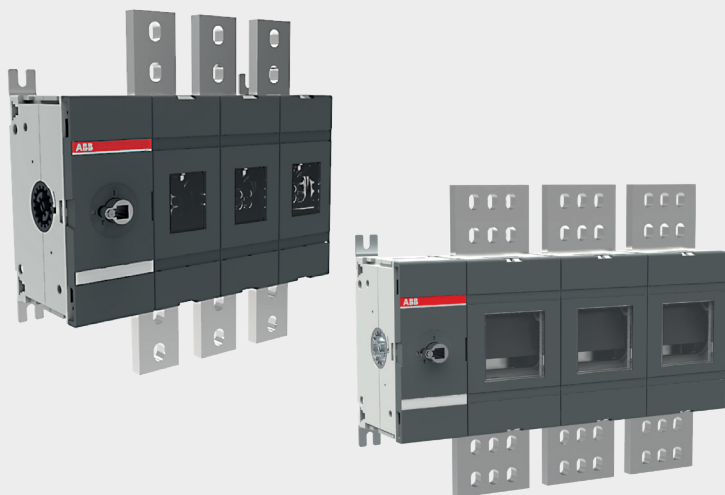
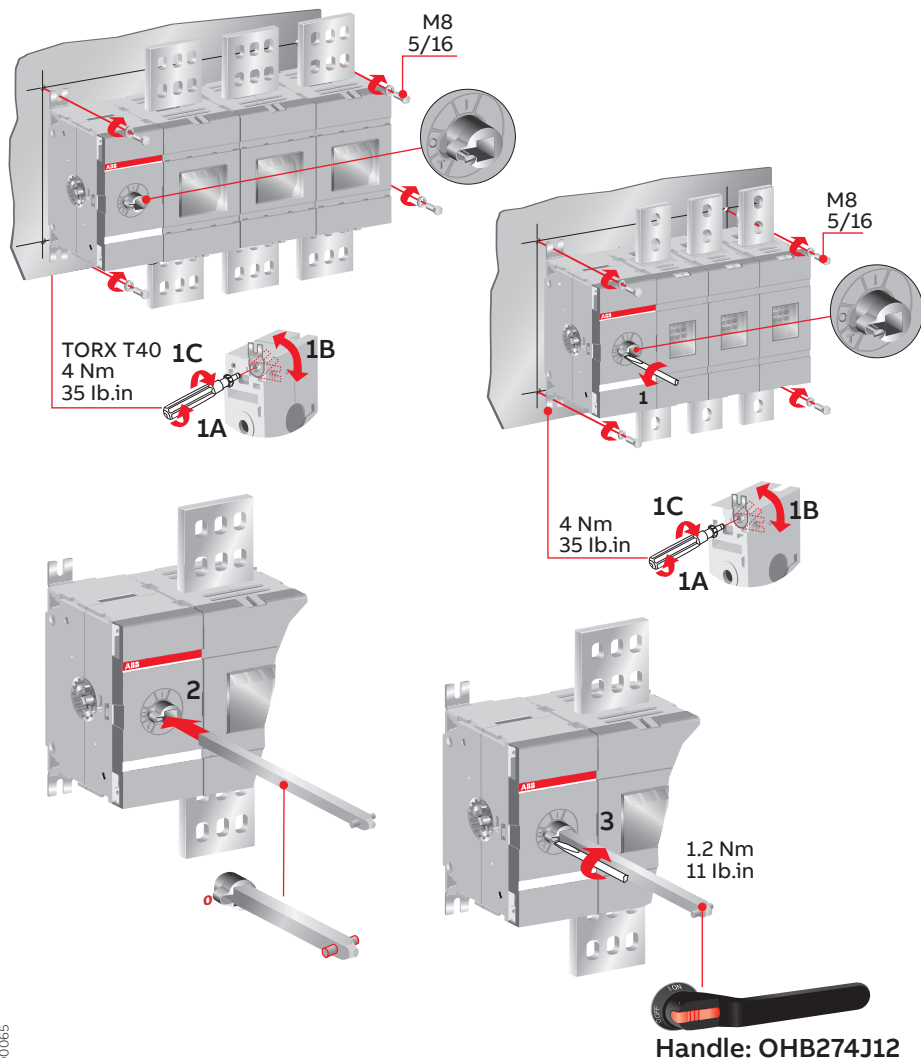


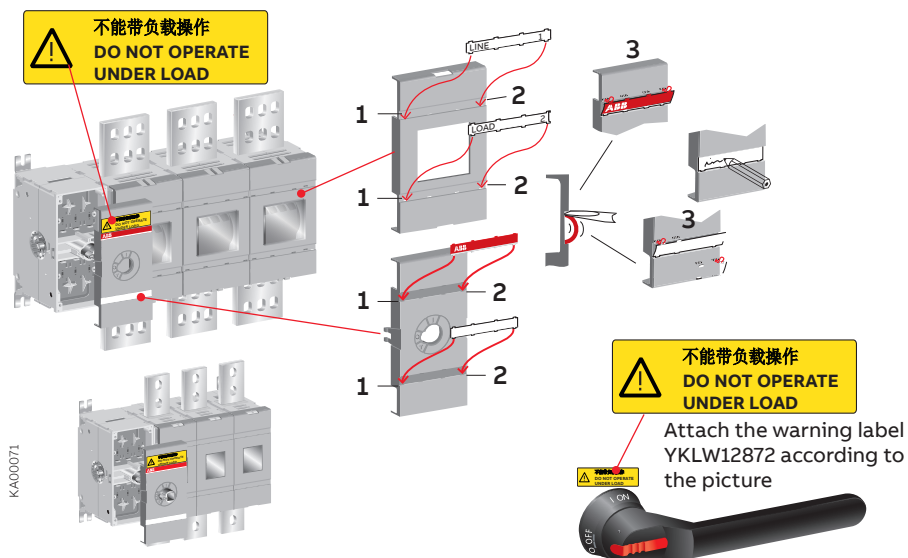
Table of contents

1	Installation	03
2	Labels	04
3	Terminal clamps OZX_	05
4	Terminal shrouds OTS_	06–07
5	Barrier installation and Circuits	08–10
6	Connection kits	11–12
7	Ratings and supporting distances	13–14
8	Auxiliary contacts OA_	15
9	Auxiliary contacts wiring	16–17
10	Module for aux contacts OEA28	18
11	Direct mount handle OTV_	19
12	Interlocking OTZT4	20
13	OTM installation	21
	13.1 Mounting the motorized disconnecter	21
14	OTM Connecting	22
	14.1 Control circuit	23
15	OTM Operating	23
	15.1 Electrical operation	23–25
	15.1.1 Impulse control	25
	15.1.2 Continuous control	25
	15.2 Manual operation using the handle	26
	15.3 Locking	27–29
	15.3.1 Locking the electrical operation	27
	15.3.2 Locking the manual operation	28–29
16	Technical data	30
	16.1 Motor operation	30
	16.2 State information	31
17	OTM Accessories	32
	17.1 Auxiliary contacts	32
	17.1.1 Mounting of auxiliary contacts	32
	17.1.2 Mounting of the test auxiliary contacts	33
18	Dimensional drawings	34–38

1 Installation

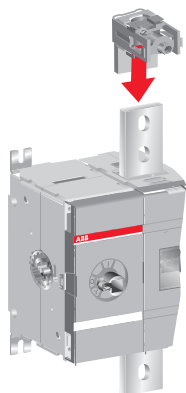


2 Labels



3 Terminal clamps

OZX_

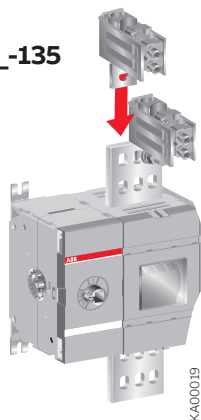


OT(M)1600E_-135

OZXB3
OZXB4
OZXB5
OZXB6
OZXB7L

OT(M)2500E_-135

OZXB3
OZXB4
OZXB5
OZXB6
OZXB7L

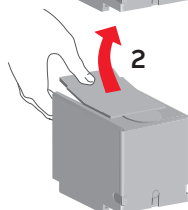
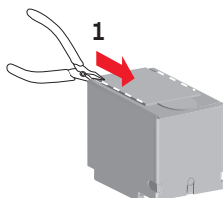


4 Terminal shrouds

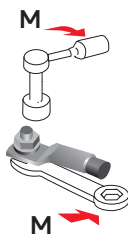
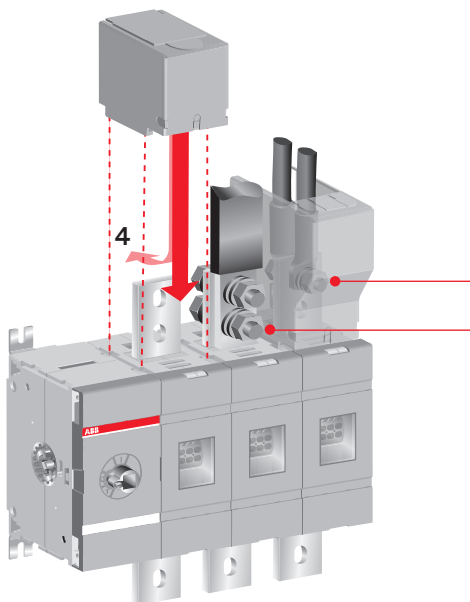
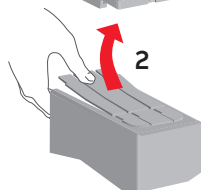
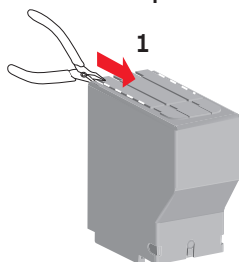
OTS_

OT(M)1600E_-135

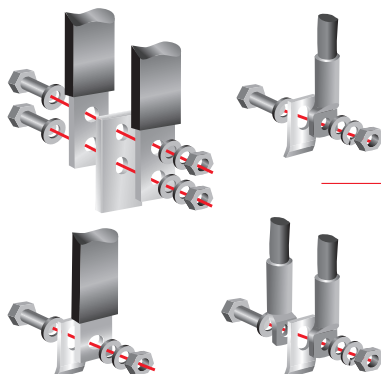
OTS1600^G_T 1S



OTS1600^G_T 1L

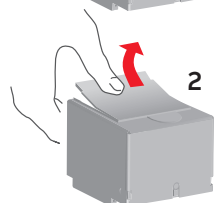
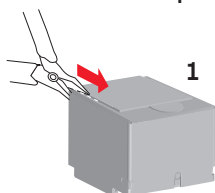


M12
50...75 Nm
443-664 lb.in

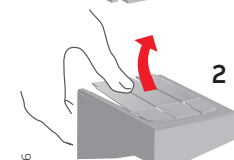
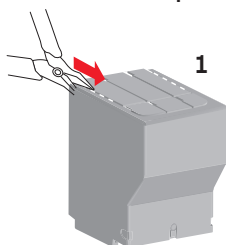


OT(M)2500E_-135

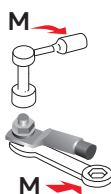
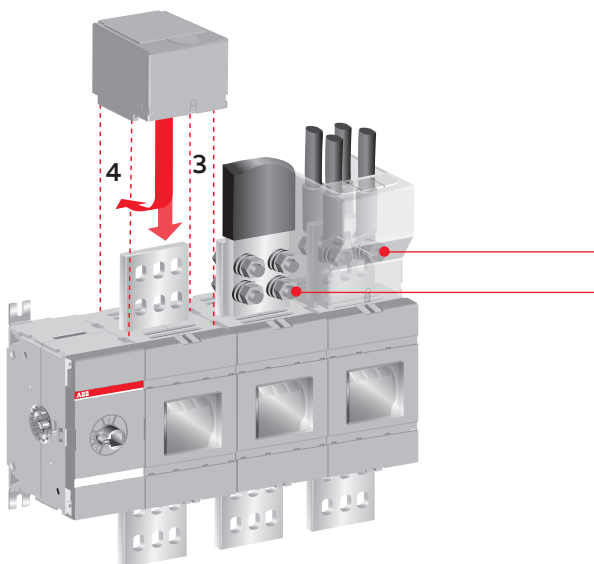
OTS2500^G_T1S



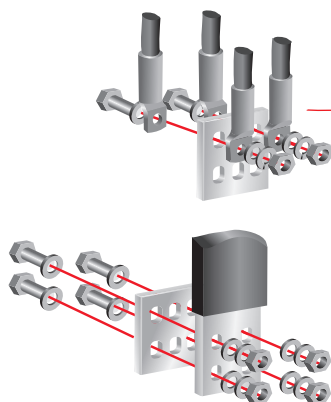
OTS2500^G_T1L



KA00066



M12
50...75 Nm
443-664 lb.in



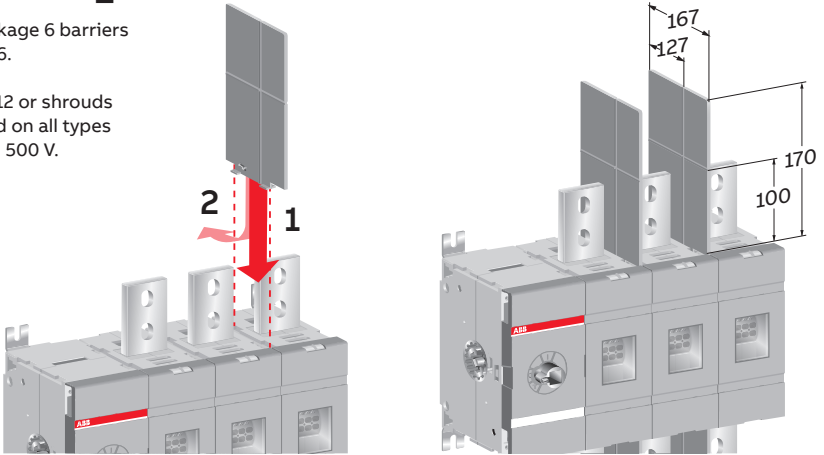
5 Barrier installation and Circuits

Barrier 68912 installation

OT(M)1600E_-135

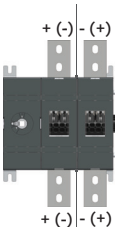
Type for package 6 barriers is OTB1600/6.

Barriers 68912 or shrouds must be used on all types at voltages ≥ 500 V.



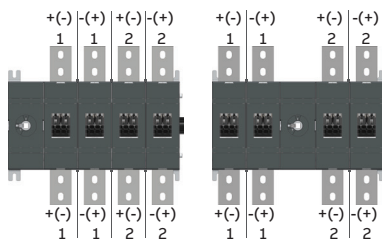
Circuit 1

OT(M)1600E02-135



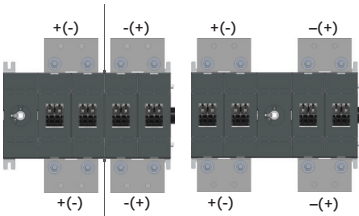
Circuit 2

OT(M)1600E04-135, OT1600E22-135



Circuit 3

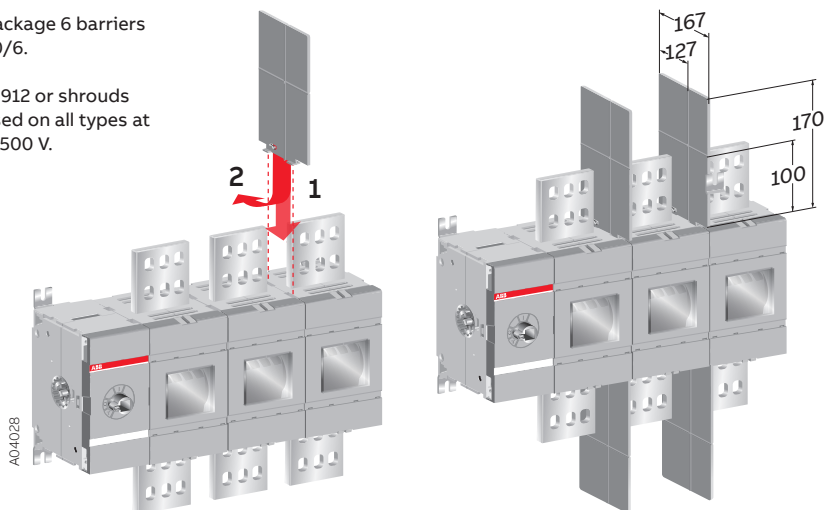
OT(M)1600E04-135, OT1600E22-135



OT(M)2500E_-135

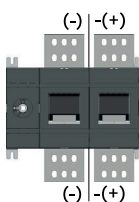
Type for package 6 barriers
is OTB1600/6.

Barriers 68912 or shrouds
must be used on all types at
voltages ≥ 500 V.



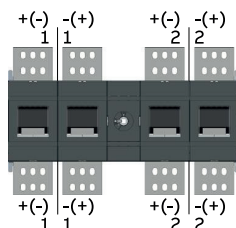
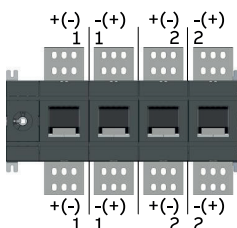
Circuit 1

OT(M)2500E02-135



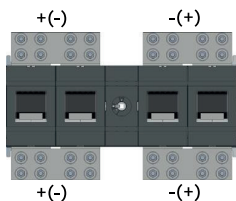
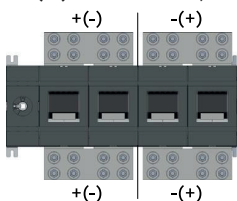
Circuit 2

OT(M)2500E04-135, OT2500E22-135



Circuit 3

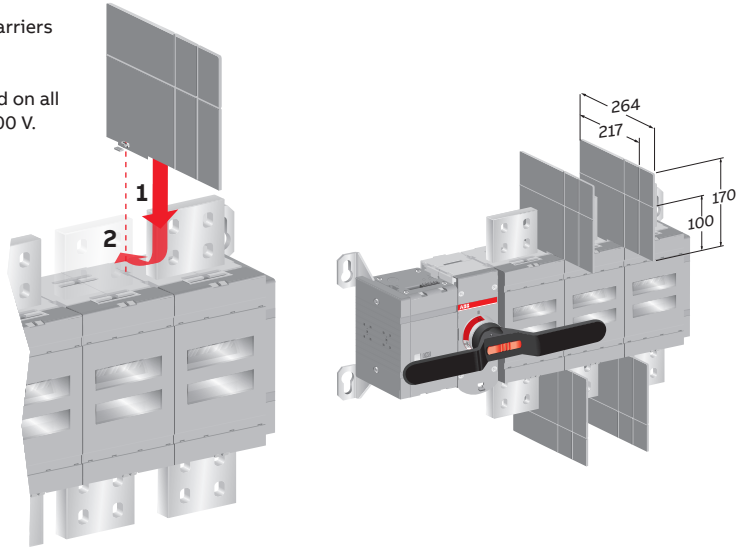
OT(M)2500E04-135, OT2500E22-135



OT(M)3200E_-135

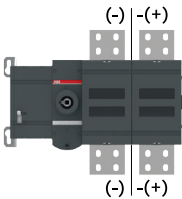
Type for package 6 barriers is OTB4000/6.

Shrouds must be used on all types at voltages ≥ 500 V.



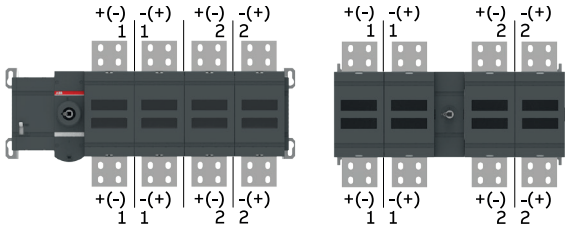
Circuit 1

OT(M)3200E02-135



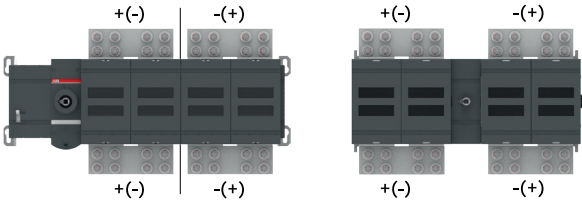
Circuit 2

OT(M)3200E04-135, OT3200E22-135



Circuit 3

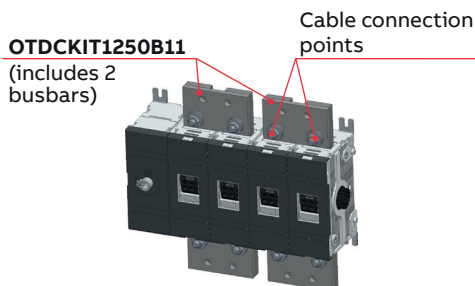
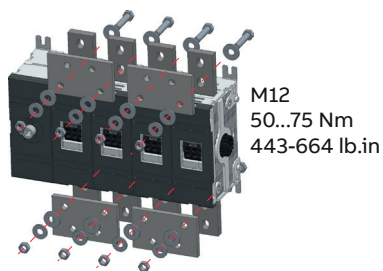
OT(M)3200E04-135, OT3200E22-135



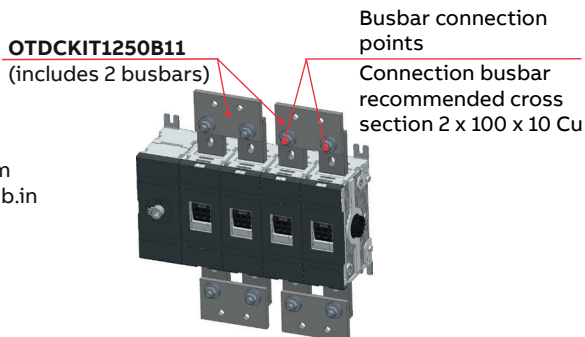
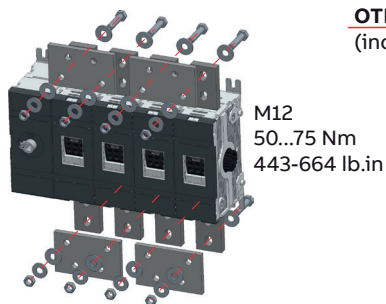
6 Connection kits

OT(M)1600E_-135

Cable connection, Circuit 3

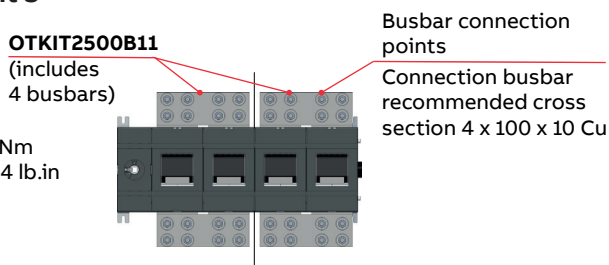
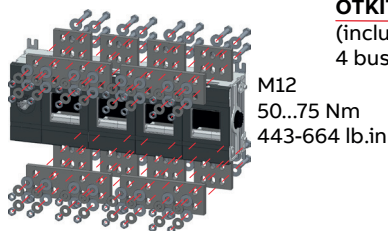


Busbar connection, Circuit 3



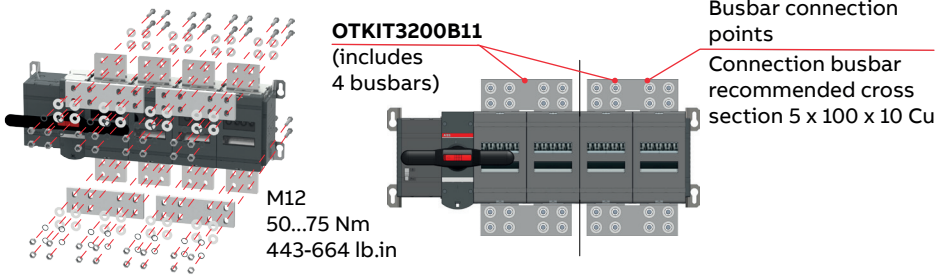
OT(M)2500E_-135

Busbar connection, Circuit 3



OT(M)3200E_-135

Busbar connection, Circuit 3



7 Ratings and supporting distances

OT(M)1600...3200E_-135

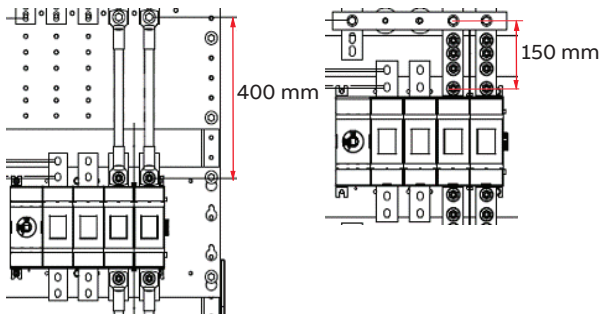
With cables, Support distance 400 mm

Disconnecter types						With cables. Support distance 400 mm		
						Max. Let-through Peak Current when protected with Fuses or Circuit Breaker	Max. Let-through Energy when protected with Fuses or Circuit Breaker	
		Num- ber of poles	Circuit type	DC-20B rating @1500V	AC-20B rating @1000V	I _{cw} 0,3s		
OT1600E02-135	OT1600E20-135	2	1	1600 A	1600 A	36 kA	76 kA	43 MA ² s
OT1600E04-135	OT1600E40-135	4	2	1600 A	1600 A	36 kA	76 kA	43 MA ² s
OT1600E22-135		4	2	1600 A	1600 A	36 kA	76 kA	43 MA ² s
OT1600E04-135	OT1600E40-135	4	3	2500 A	2500 A	50 kA	105 kA	115 MA ² s
OT1600E22-135		4	3	2500 A	-	50 kA	105 kA	115 MA ² s
OTM1600E2M230V-135		2	1	1600 A	-	36 kA	76 kA	43 MA ² s
OTM1600E4M230V-135		4	2	1600 A	-	36 kA	76 kA	43 MA ² s

With busbars, Support distance 150 mm

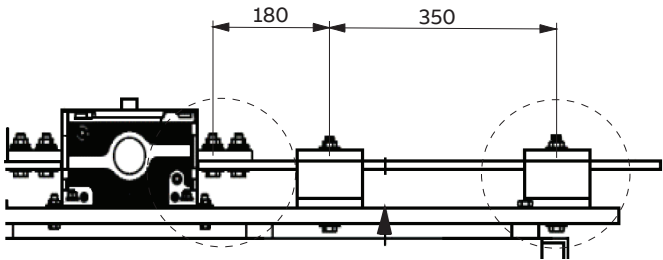
Disconnecter types						With busbars. Support distance 150 mm		
						Max. Let-through Peak Current when protected with Fuses or Circuit Breaker	Max. Let-through Energy when protected with Fuses or Circuit Breaker	
		Num- ber of poles	Circuit type	DC-20B rating @1500V	AC-20B rating @1000V	I _{cw} 0,3s		
OT1600E02-135	OT1600E20-135	2	1	1600 A	1600 A	50 kA	110 kA	88 MA ² s
OT1600E04-135	OT1600E40-135	4	2	1600 A	1600 A	50 kA	110 kA (*120 kA)	88 MA ² s (*154 MA ² s)
OT1600E22-135		4	2	1600 A	1600 A	50 kA	110 kA (*120 kA)	88 MA ² s (*154 MA ² s)
OT1600E04-135	OT1600E40-135	4	3	2500 A	2500 A	65 kA	140 kA	210 MA ² s
OT1600E22-135		4	3	2500 A	-	65 kA	176 kA	339 MA ² s
OTM1600E2M230V-135		2	1	1600 A	-	50 kA	110 kA	88 MA ² s
OTM1600E4M230V-135		4	2	1600 A	-	50 kA	110 kA (*120 kA)	88 MA ² s (*154 MA ² s)

*) Busbars supported on both side of the disconnect contact terminals



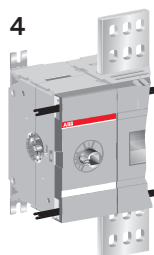
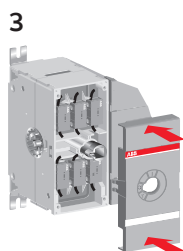
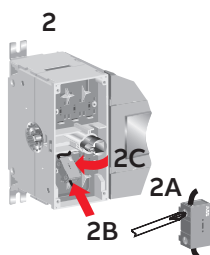
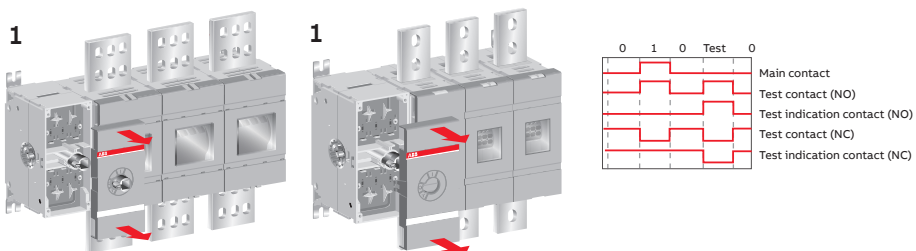
With busbars, Support distance 180 mm

Disconnector types						With busbars Support distance 180 mm		
						Max. Let-through Peak Current when protected with Fuses or Circuit Breaker	Max. Let-through Energy when protected with Fuses or Circuit Breaker	
						l _{cw} 0,3s		
OT2500E02-135		2	1	2500 A	2500 A	80 kA	176 kA	363 MA²s
OT2500E04-135		4	2	2500 A	2500 A	80 kA	176 kA	363 MA²s
OT2500E22-135		4	2	2500 A	2500 A	80 kA	176 kA	363 MA²s
OT2500E04-135		4	3	4000 A	4000 A	100 kA	220 kA	616 MA²s
OT2500E22-135		4	3	4000 A	4000 A	100 kA	220 kA	616 MA²s
OT3200E02-135		2	1	3200 A		80 kA	176 kA	363 MA²s
OT3200E04-135		4	2	3200 A		80 kA	176 kA	363 MA²s
OT2500E22-135		4	2	3200 A		80 kA	176 kA	363 MA²s
OT3200E04-135		4	3	6000 A		100 kA	220 kA	616 MA²s
OT3200E22-135		4	3	6000 A		100 kA	220 kA	616 MA²s
OTM2500E2M230V-135		2	1	2500 A	-	80 kA	176 kA	363 MA²s
OTM2500E4M230V-135		4	2	2500 A	-	80 kA	176 kA	363 MA²s
OTM2500E4M230V-135		4	3	4000 A	-	100 kA	220 kA	616 MA²s
OTM3200E2M230V-135		2	1	3200 A	-	80 kA	176 kA	363 MA²s
OTM3200E4M230V-135		4	2	3200 A	-	80 kA	176 kA	363 MA²s
OTM3200E4M230V-135		4	3	6000 A	-	100 kA	220 kA	616 MA²s

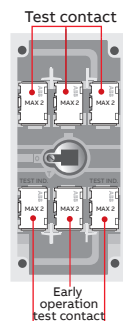


8 Auxiliary contacts

OA_

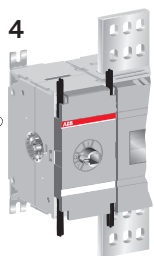
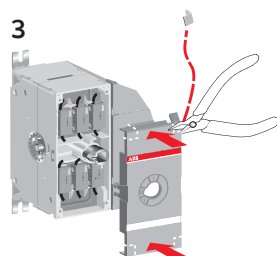


NO: OA1G10
NC: OA3G01

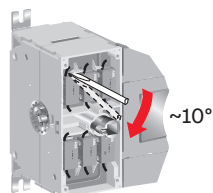


Test indication contact

or

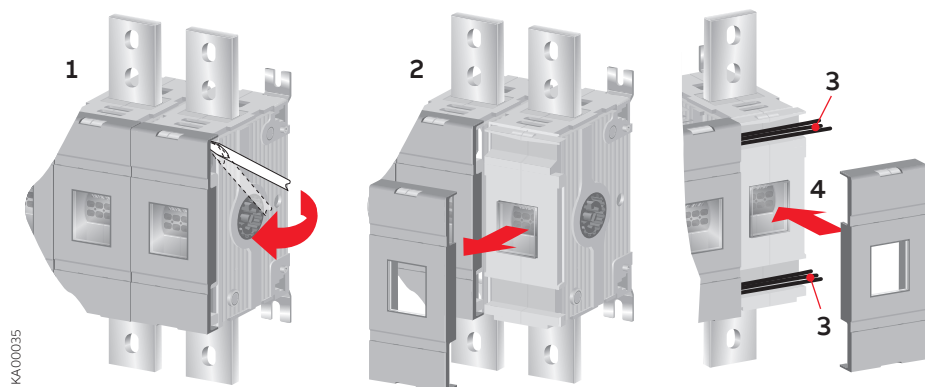


Remove

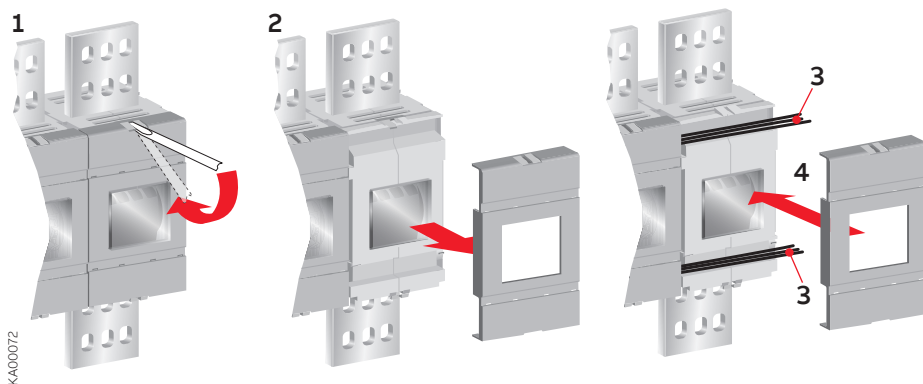


9 Auxiliary contacts wiring

OT(M)1600E_-135

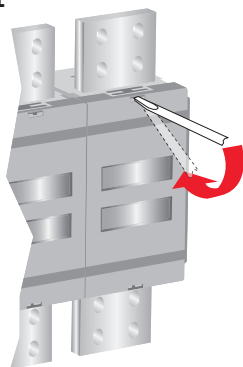


OT(M)2500E_-135

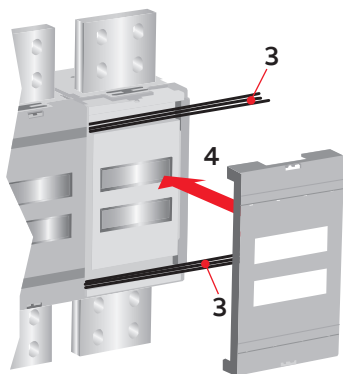
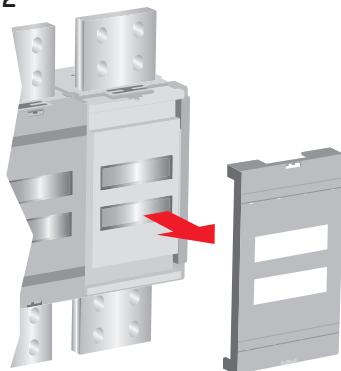


OT(M)3200E_-135

1

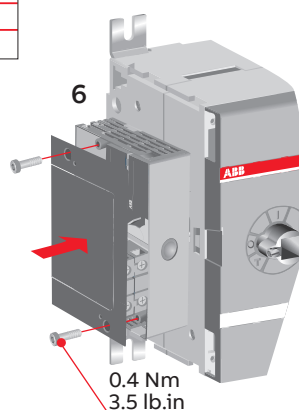
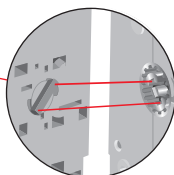
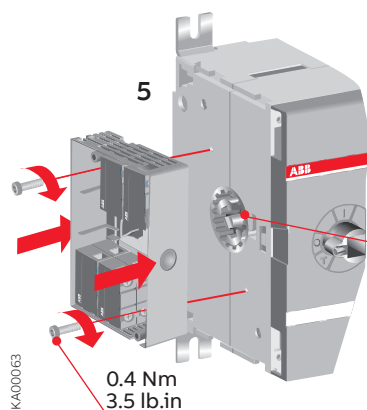
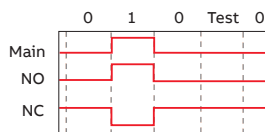
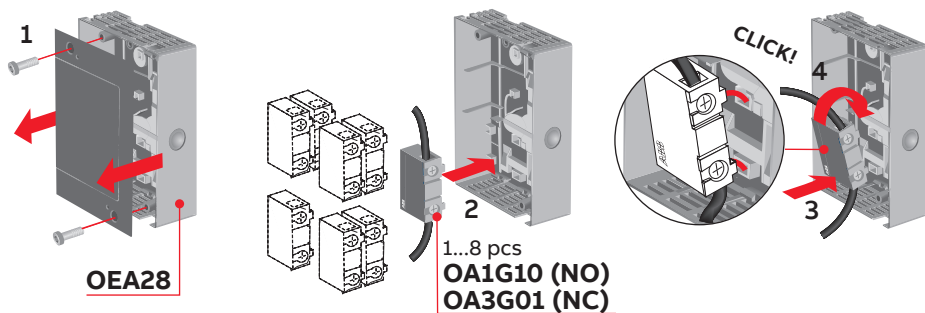


2



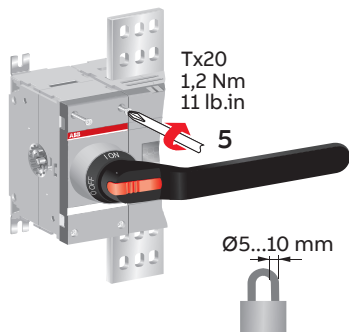
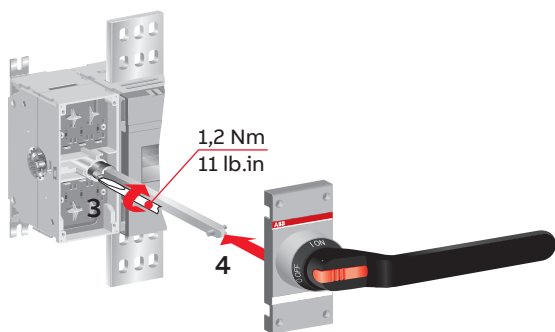
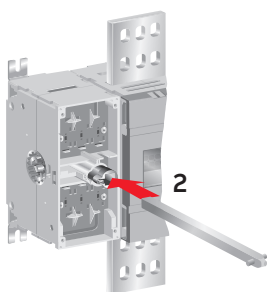
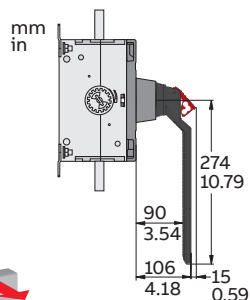
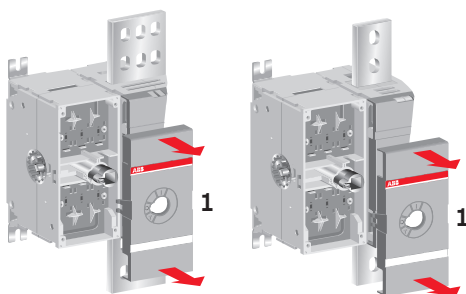
10 Module for aux contacts

OEA28

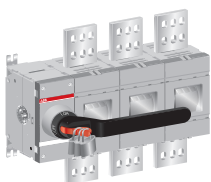


11 Direct mount handle OTV_

For OT1600...2500-135

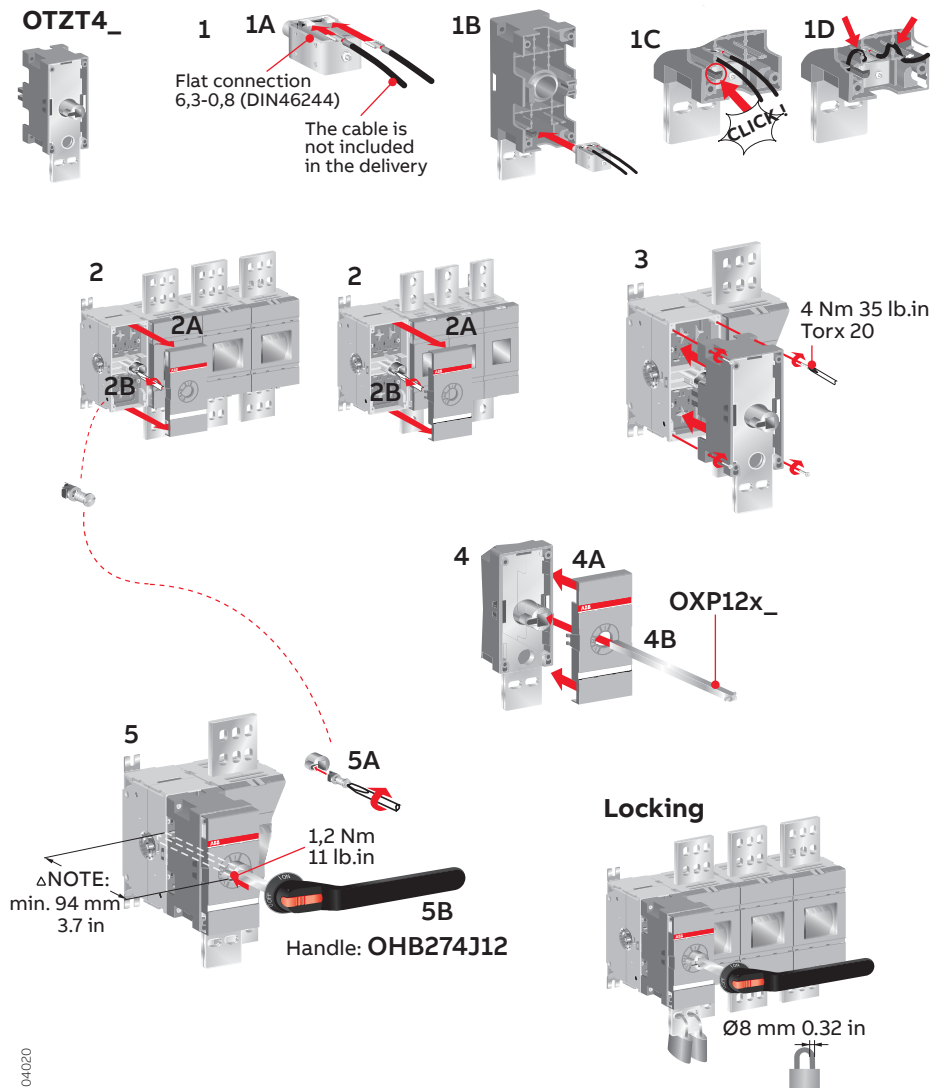


Note: Use protection against direct contact. For example:



12 Interlocking

OTZT4



13 OTM Installation

13.1 Mounting the motorized disconnecter

⚠ Use protection against direct contact.

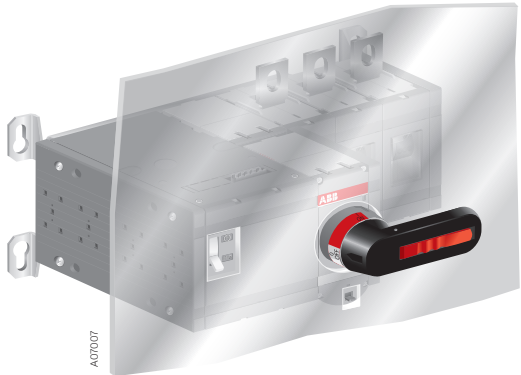


Figure 13.1 An example of using protection against direct contact

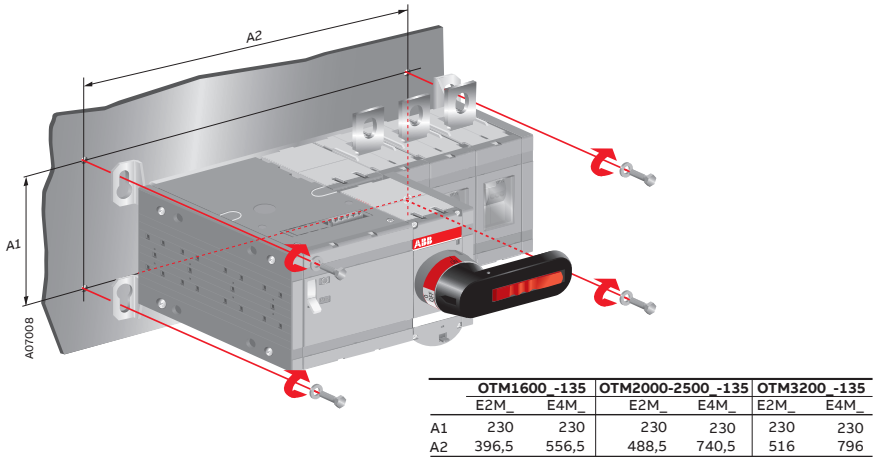


Figure 13.2 Motorized disconnectors, drilling hole distances / screw mounting [mm/in]

14 OTM Connecting



Only an authorised electrician may perform the electrical installation and maintenance of motorized disconnectors. Do not attempt any installation or maintenance actions when a motorized disconnector is connected to the electrical mains. Before starting work, make sure that the disconnector is de-energised.

14.1 Control circuit

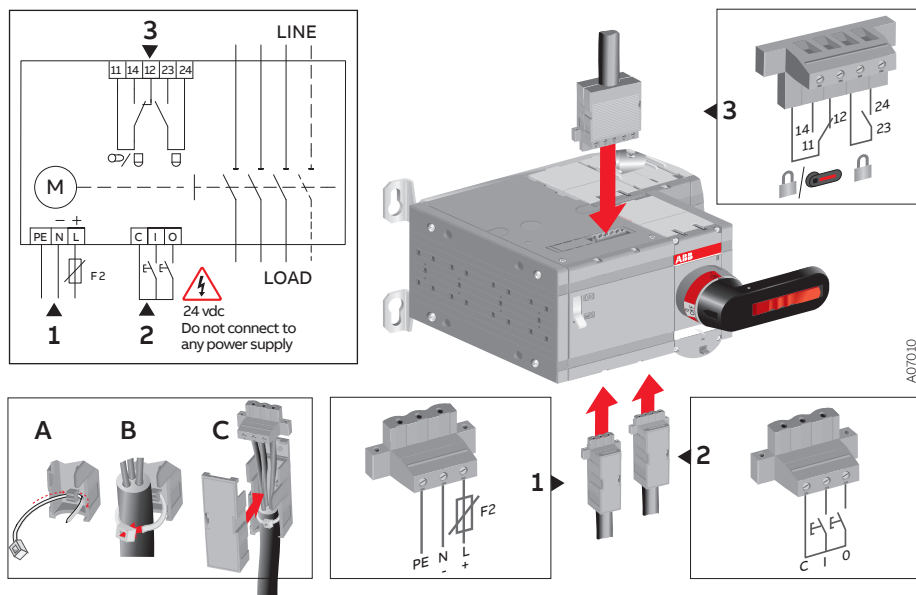


Figure 14.1 Motorized disconnector terminals

1. Terminal for motor operator voltage supply
2. Control terminal for push buttons or selector switch
3. Terminal for state information of locking



Do not couple power for the control terminal. See the correct terminal for the power supply in Figure 14.1.



The control voltage (output C = 24Vdc) on the control terminal is non-isolated, see box 2 in Figure 14.1.



When relay outputs are used with inductive loads (such as relays, contactors and motors), they must be protected from voltage spikes using varistors, RC-protectors (AC current) or DC current diodes (DC current).

15 OTM Operating



Never open any covers on the product, if the voltage is connected. There may be still dangerous external control voltages inside the motorized disconnecter even if the voltage is turned off.



Never handle control cables when the voltage of the motorized disconnecter or external control circuits are connected.



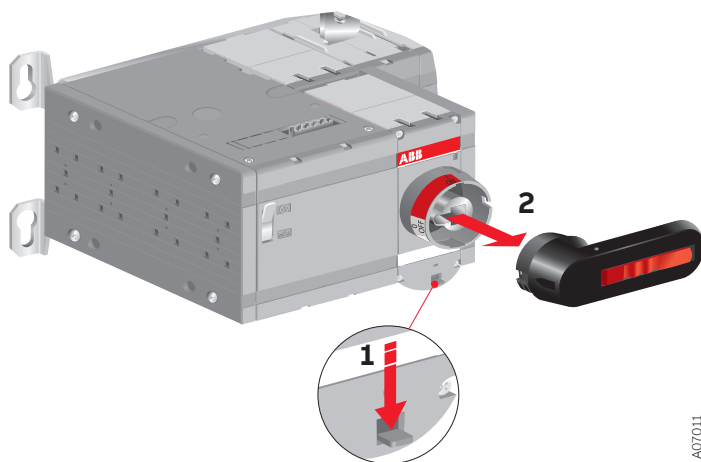
Exercise sufficient caution when handling the unit.

15.1 Electrical operation

The motorized disconnectors are available for remote control.

To operate the motorized disconnecter electrically:

1. Release the handle from the disconnecter panel by pressing down the locking latch under the disconnecter panel and pulling the handle off, see Figure 15.1.



A07011

Figure 15.1 Releasing the handle



Electrical operation is disabled if the handle is attached to the disconnecter panel.

- Turn the Motor/Manual selection switch to the Motor (M) position, see Figure 15.2.

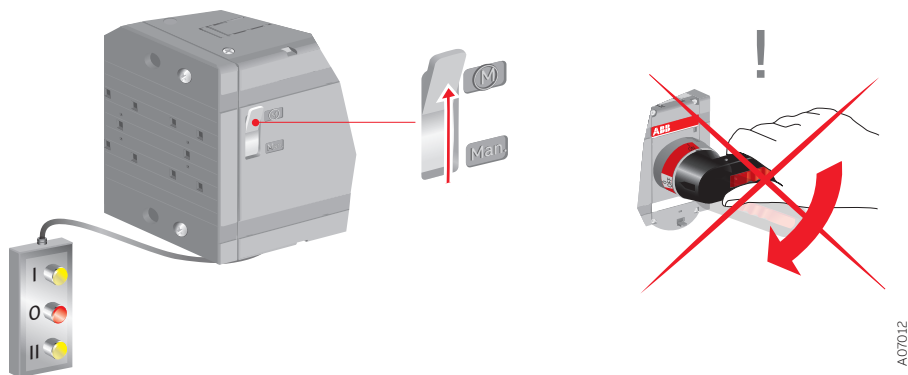


Figure 15.2 Motor/Manual selection disconnecter in the Motor (M) position

- Operate the motorized disconnecter with the push-buttons or selector switch via impulse control or continuous control.



The motor operator is protected from overloading by a fuse (F1) under the motor operator. Only use the same type of fuse that is described on the label close to the fuse.

The max. continuous operating rate is 1 cycle / 2 min, max. short-time rate <10 cycles is 5 cycles / min.

15.1.1 Impulse control

When using impulse control, the disconnector is controlled by electric impulses. When you press the control button, the disconnector is driven to the corresponding position (I or O). The control impulse must last more than 100 ms to take effect. A new command cannot be given until the disconnector has reached the position of the previous command. Figure 15.3 shows the operation of the disconnector with impulse control.



If a new command is given before the disconnector has reached the position of the previous command, the fuse (F1) may operate.

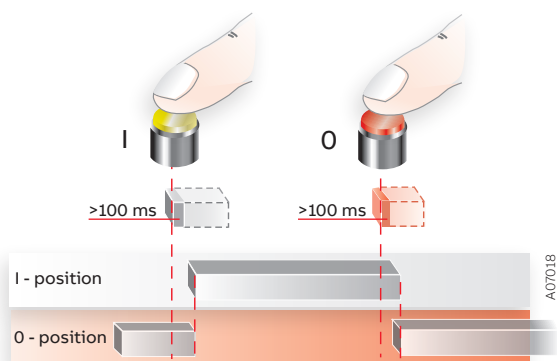


Figure 15.3 Impulse control

15.1.2 Continuous control

When using continuous control, the control command is supplied to the disconnector continuously. When you press the control button, the disconnector is driven to the corresponding position (I or O). The position will change only when the new command is given. Figure 15.4 shows the operation of the disconnector with continuous control.



The continuous control command can be given with push buttons, cam switches or with relays incorporated in PLC equipment or with other suitable contacts.

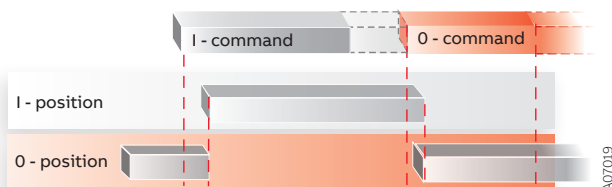


Figure 15.4 Continuous control

15.2 Manual operation using the handle

You can operate the motorized disconnecter manually by using the handle that is included in the delivery.

To operate the motorized disconnecter manually:

1. Turn the Motor/Manual selector to the Manual (Man.) position, see Figure 15.5.
The motor operator is switched off and electrical operation is prevented.

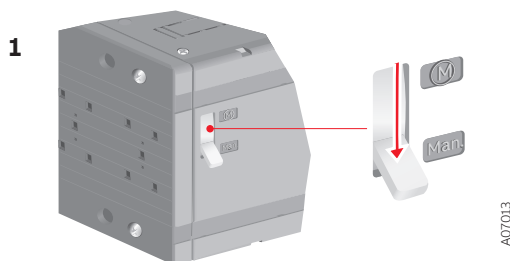


Figure 15.5 Motor/Manual selection in the Man. position

2. Attach the handle by pressing it to the disconnecter panel until it clicks into place, see Figure 15.6. You can attach the handle in both positions (I or O).

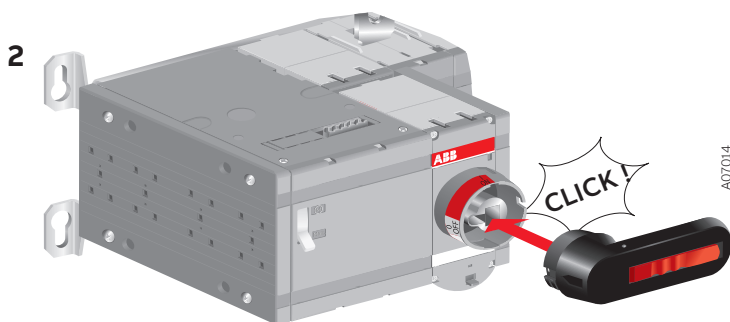


Figure 15.6 Attaching the handle

3. Operate the motorized disconnecter by turning the handle to the required position (I or O).



Electrical operation is prevented when the handle is attached to the disconnecter panel.

15.3 Locking

You can lock the motorized disconnecter to a specific position.

15.3.1 Locking the electrical operation

To disable electrical control, lock the locking latch with a padlock. After the locking latch has been locked, the disconnecter cannot be controlled electrically. You can lock the electrical operation to both positions (I or 0).

To lock electrical operation:

1. Pull up the locking latch under the disconnecter panel.
2. Place the padlock under the latch, see Figure 15.7.

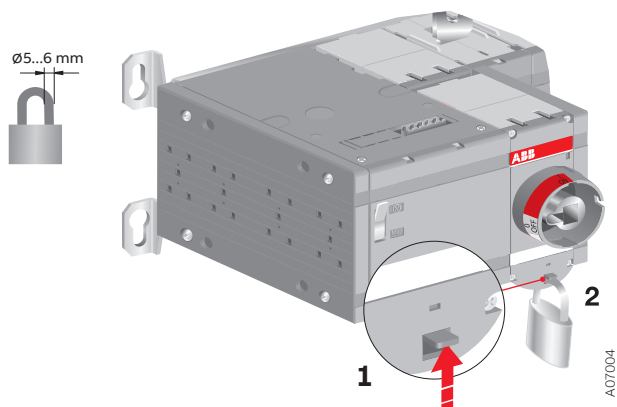


Figure 15.7 Locking the electrical operation



You cannot attach the handle when electrical operation is locked.

15.3.2 Locking the manual operation

By default, manual operation can only be locked to position 0. Locking to position I is optional and possible only with modifications to the disconnector panel.

To lock manual operation:

1. Turn the handle to the required position.
2. Pull out the clip from the handle and place the padlock on the handle; see Figure 15.8.

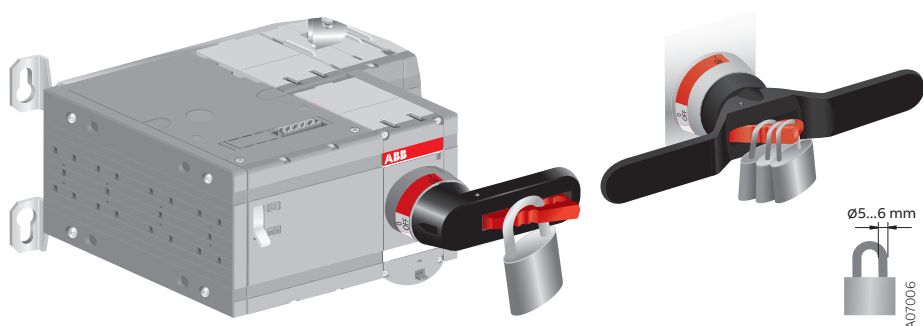


Figure 15.8 Locking the manual operation



The handle cannot be removed when padlocked to position 0.

The following chart shows the locking state information (the voltage on motor operator supply needed)*).

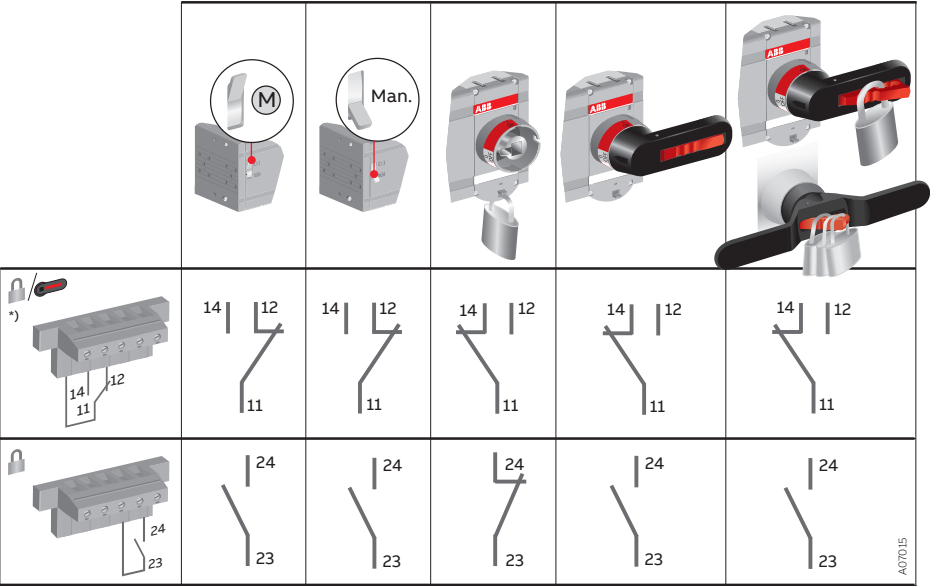


Figure 15.9 Locking state information

16 OTM Technical data

16.1 Motor operation

Motor operator, control circuit	Value	Cabling
Rated operational voltage U [V]	220-240 Vac, 50-60 Hz	
Operating voltage range	0,85... 1,1 x U	
Operating angle	90° 0-I, I-0	
Operating time	See Table 16.2	
Protection degree	IP 20, front panel	
Rated impulse withstand voltage U _{imp}	4 kV	
Voltage supply	PE N L	1,5 -2,5 mm ²
F2	Max. MCB 16A	
Cable of the push-buttons (no SELV)	C I O	1,5 -2,5 mm ²
Maximum cable length	100 m	
State information of locking (no SELV)		
Handle attached or motor operator locked	11-12-14 (C/O)	1,5 -2,5 mm ²
Locking motor operator	23-24 (NO)	1,5 -2,5 mm ²
Operating temperature	-25... +55 °C	
Transportation and storage temperature	-29... +70 °C	
Altitude	Max. 2000 m	

Table 16.1 General technical data of motor operators

Type	Voltage U _e [V]	Nominal current ^{a)} I _n [A]	Current inrush ^{a)} [A]	Operating time ^{a)} I-0, 0-I [s]	Fuse 5 x 200 m 250 U
OTM1600E_-135	220-240 Vac	1,4	10	1,0-2,0	T 2 Ah
OTM2500E_-135	220-240 Vac	1,4	10	1,0-2,0	T 2 Ah
OTM3200E_-135	220-240 Vac	1,4	10	1,0-2,0	T 2 Ah

Table 16.2 Specified technical data of motor operators

^{a)} Under nominal conditions

16.2 State information

Measurement	Value
Handle attached or motor operator locked	11-12-14 (C/O): 5A, AC-1 / 250 V
Locking motor operator	23-24 (NO): 5A, AC-1 / 250 V
SCPD	Max. MCB C2A

Table 16.3

State information

17 OTM Accessories

17.1 Auxiliary contacts

17.1.1 Mounting of auxiliary contacts

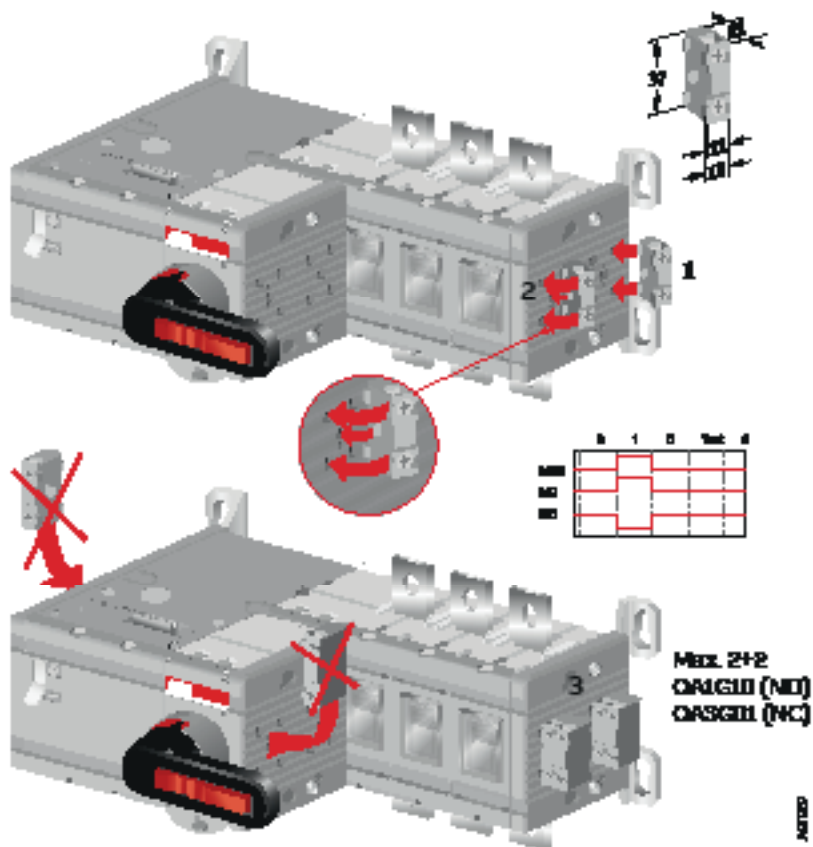


Figure 17.1 Mounting of auxiliary contacts, type OA_ on the right side of the disconnector

17.1.2 Mounting of the test auxiliary contacts

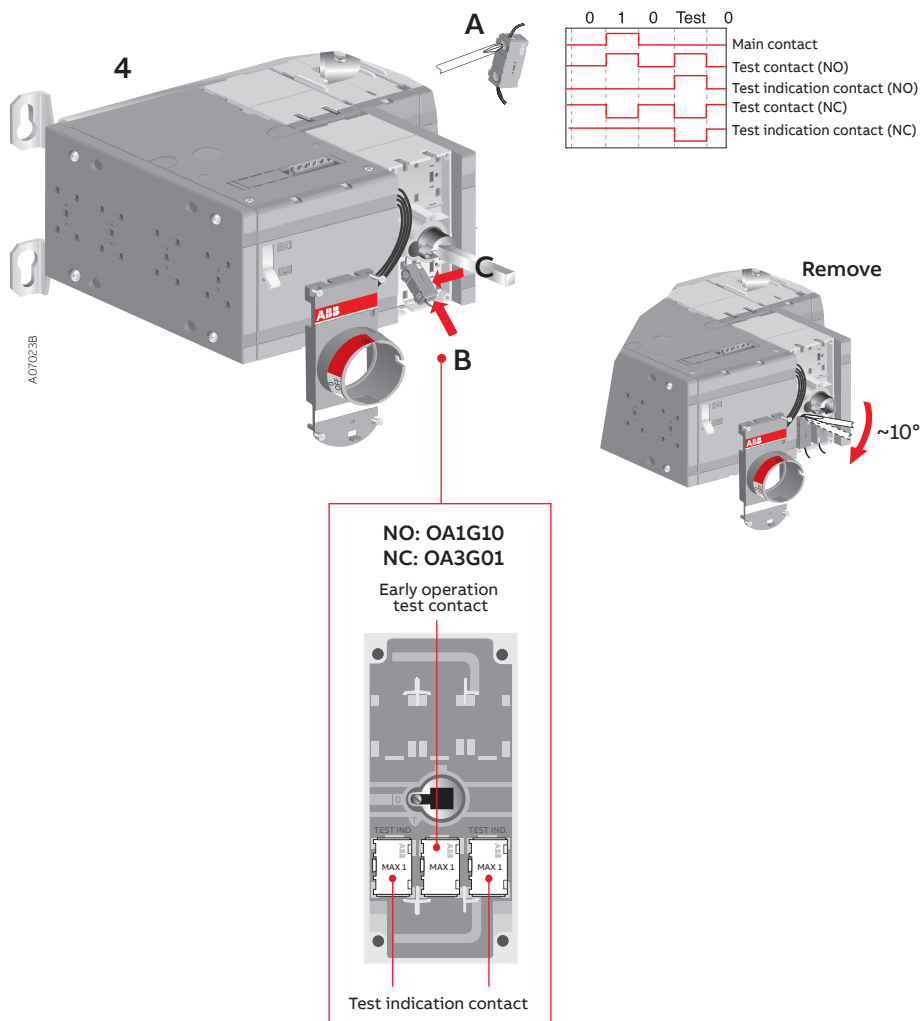
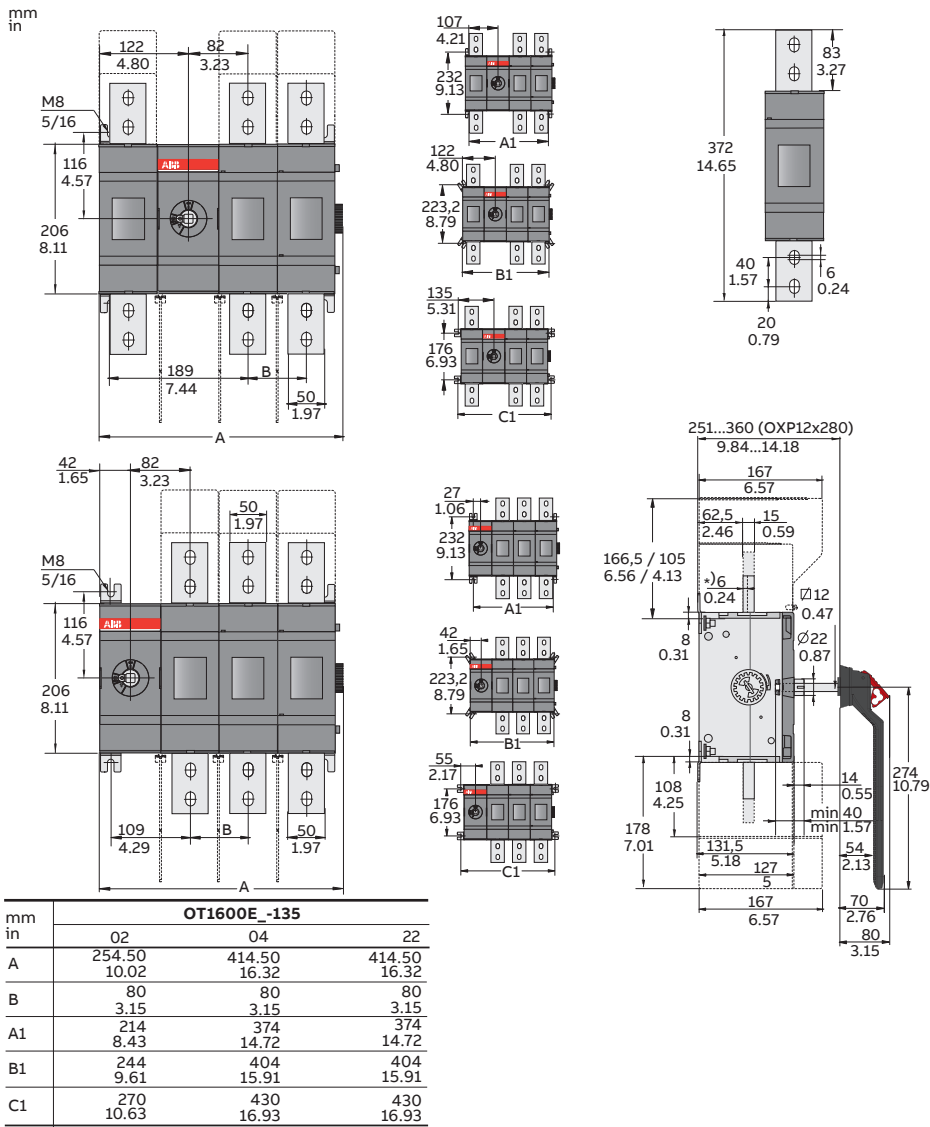


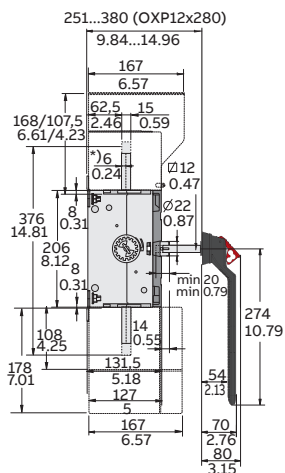
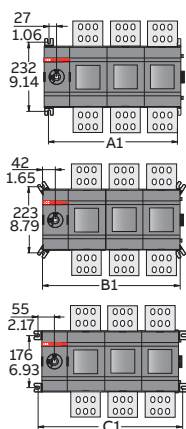
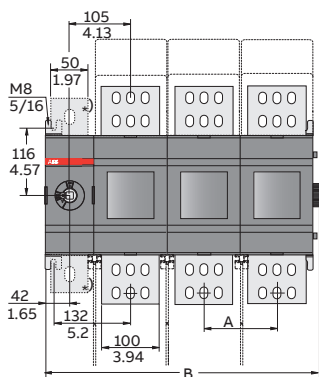
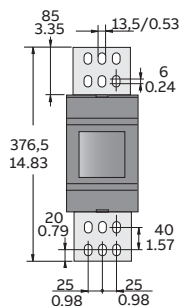
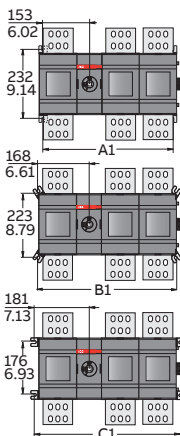
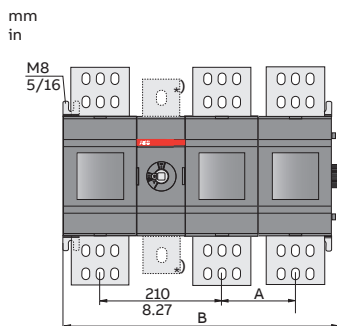
Figure 17.2 Mounting of the test auxiliary contacts, type OA_ to the disconnector mechanism of the motorized OTM1600-3200E_-135

18 Dimensional drawings

OT1600E_-135



OT2000-2500E_-135

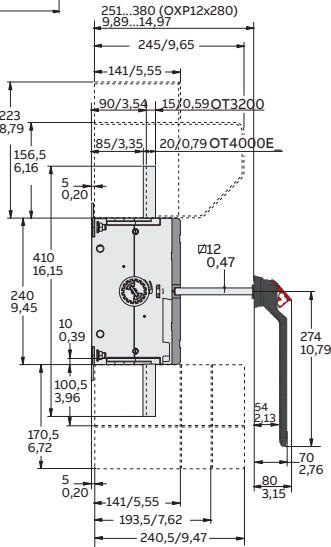
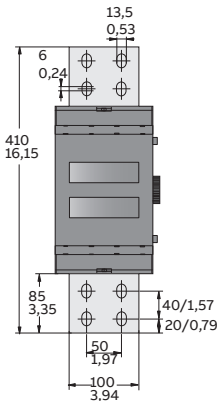
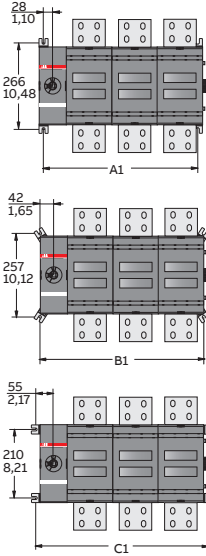
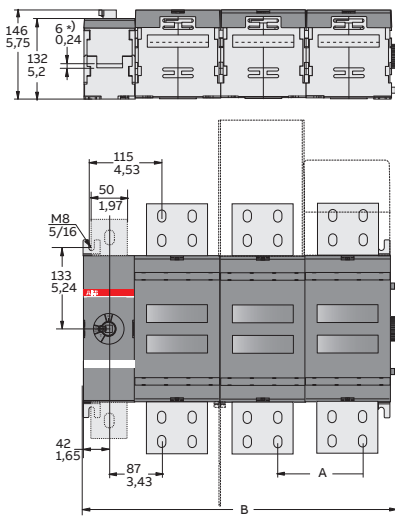


*) N3 types

mm in	OT2000 / 2500E_-135		
	02	04	22
A	126 4.96	126 4.96	126 4.96
B	346,5 13.64	598,5 23.56	598,5 23.56
A1	306 12.05	558 21.97	558 21.97
B1	336 13.23	588 23.15	588 23.15
C1	362 14.25	614 24.17	614 24.17

OT3200E_-135

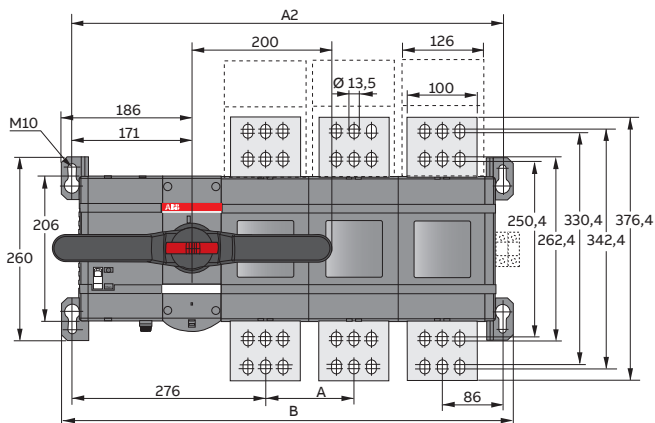
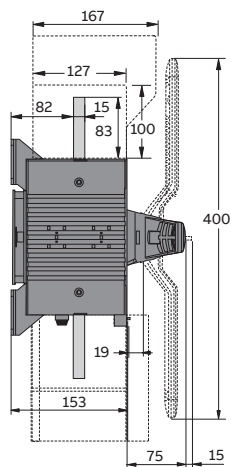
mm
in



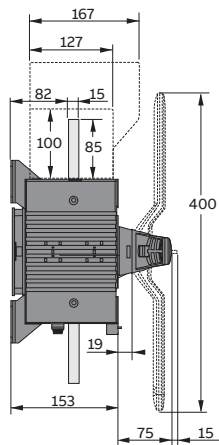
mm in	OT3200E_-135	
	02	04
A	140 5.51	140 5.51
B	374 14.72	654 25.75
A1	335 13.19	615 24.21
B1	364 14.33	644 25.35
C1	390 15.35	670 26.38

[illegible]

OTM1600_M-135		
	E2	E4
A	80	80
A1	230	230
A2	396,5	556,5
B	426,5	586,5

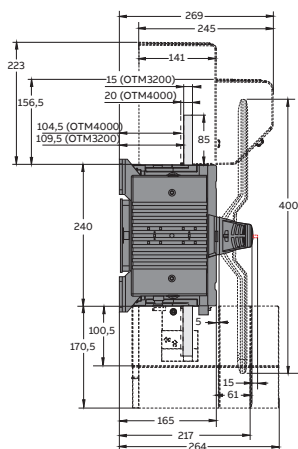


OTM2500_M-135		
	E2	E4
A	126	126
A1	230	230
A2	488,5	740,5
B	518,5	770,5



[illegible]

OTM3200_-135		
	E2	E4
A	140	140
A1	230	230
A2	516.5	796.5
B	546.5	826.5





BG	Внимание! Опасно напряжение! Да се монтира само от лице с електротехническа квалификация.
CN	警告！电压危险！只能由专业电工进行安装。
CZ	Varování! Nebezpečné napětí! Montáž smí provádět výhradně elektrotechnik!
DA	Advarsel! Farlig elektrisk spænding! Installation må kun foretages af personer med elektroteknisk ekspertise.
DE	Warnung! Gefährliche Spannung! Installation nur durch elektrotechnische Fachkraft.
EL	Προειδοποίηση! Υψηλή τάση! Η εγκατάσταση πρέπει να γίνεται μόνο από εξειδικευμένους ηλεκτροτεχνικούς.
EN	Warning! Hazardous voltage! Installation by person with electrotechnical expertise only.
ES	¡Advertencia! ¡Tensión peligrosa! La instalación deberá ser realizada únicamente por electricistas especializados.
ET	Hoiatus! Ohtlik pinge. Paigaldada võib ainult elektrotehnika-alane ekspert.
FI	Varoitus! Vaarallinen jännite! Asennuksen voi tehdä vain sähköalan ammattihenkilö.
FR	Avertissement! Tension électrique dangereuse! Installation uniquement par des personnes qualifiées en électrotechnique.
HR	Upozorenje! Opasan napon! Postavljati smije samo elektrotehnički stručnjak.
HU	Figyelmeztetés! Veszélyes feszültség! Csak elektrotechnikai tapasztalattal rendelkező szakember helyezheti üzembe.
IE	Rabhadh! Voltas guaiseach! Ba chóir do dhuine ag a bhfuil saineolas leictreicniúil, agus an té sin amháin, é seo a shuiteáil.
IT	Avvertenza! Tensione pericolosa! Fare installare solo da un elettricista qualificato.
LT	Dėmesio! Pavojinga įtampa! Dirbti leidžiama tik elektrotechniko patirties turintiems asmenims.
LV	Uzmanību! Bīstami - elektrība! Montāžas darbus drīkst veikt tikai personas, kurām ir atbilstošas elektrotehniskās zināšanas.
MT	Twissija! Vultaġġ perikoluż! Għandu jiġi installat biss minn persuna b'kompetenza elettroteknika.
NL	Waarschuwing! Gevaarlijke spanning! Mag alleen geïnstalleerd worden door een deskundige elektrotechnicus.
NO	Advarsel! Farlig spenning! Montering skal kun utføres av kvalifiserte personer med elektrokompetanse.
PL	Ostrzeżenie! Niebezpieczne napięcie! Instalacji może dokonać wyłącznie osoba z fachową wiedzą w dziedzinie elektrotechniki.
PT	Aviso! Tensão perigosa! A instalação só deve ser realizada por um electricista especializado.
RO	Avertizare! Tensiune periculoasă! Instalarea trebuie efectuată numai de către o persoană cu experiență în electrotehnică.
RU	Осторожно! Опасное напряжение! Монтаж должен выполняться только специалистом-электриком.
SE	Varning! Farlig spänning! Installation får endast utföras av en elektriker.
SK	Varovanie! Nebezpečné napätie! Montáž môže vykonávať iba skúsený elektrotechnik.
SL	Opozorilo! Nevarna napetost! Vgradnjo lahko opravi le oseba z elektrotehničnim strokovnim znanjem.



Contact us

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