

# DMX3



October 16

 **legrand**<sup>®</sup>  
Y2958H



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# DMX<sup>3</sup>

## 1. Weights

It is important to know the weight of the breaker for proper selection of handling equipment. Net Weight.

### Circuit breakers

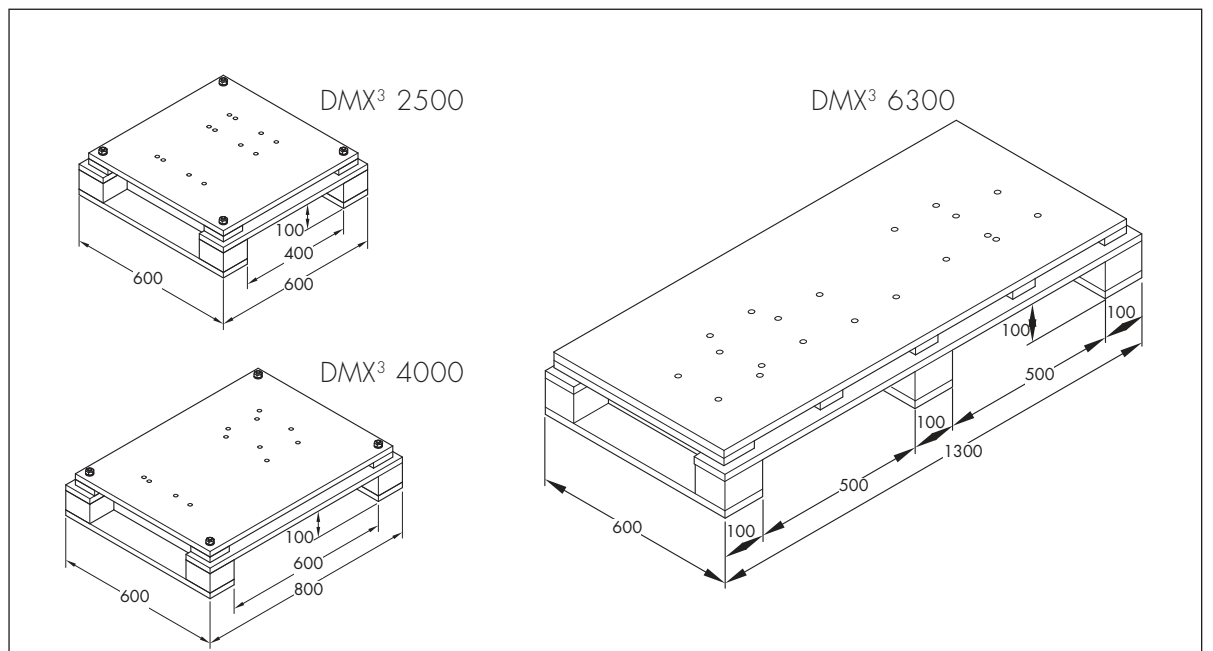
	Type	DMX <sup>3</sup> 2500		DMX <sup>3</sup> 4000	DMX <sup>3</sup> 6300
	Rating (A)	630/800/1000/ 1250/1600 (version 42kA)	630/800/1000/ 1250/1600/ 2000/2500	630/800/1000/ 1250/1600/2000 2500/3200/4000	5000/6300
Fixed	3P	39 kg	41 kg	59 kg	118 kg
	4P	46 kg	48 kg	76 kg	152 kg
Draw-out	3P	73 kg	77 kg	108 kg	225 kg
	4P	90 kg	94 kg	137 kg	274 kg

### Switch disconnectors

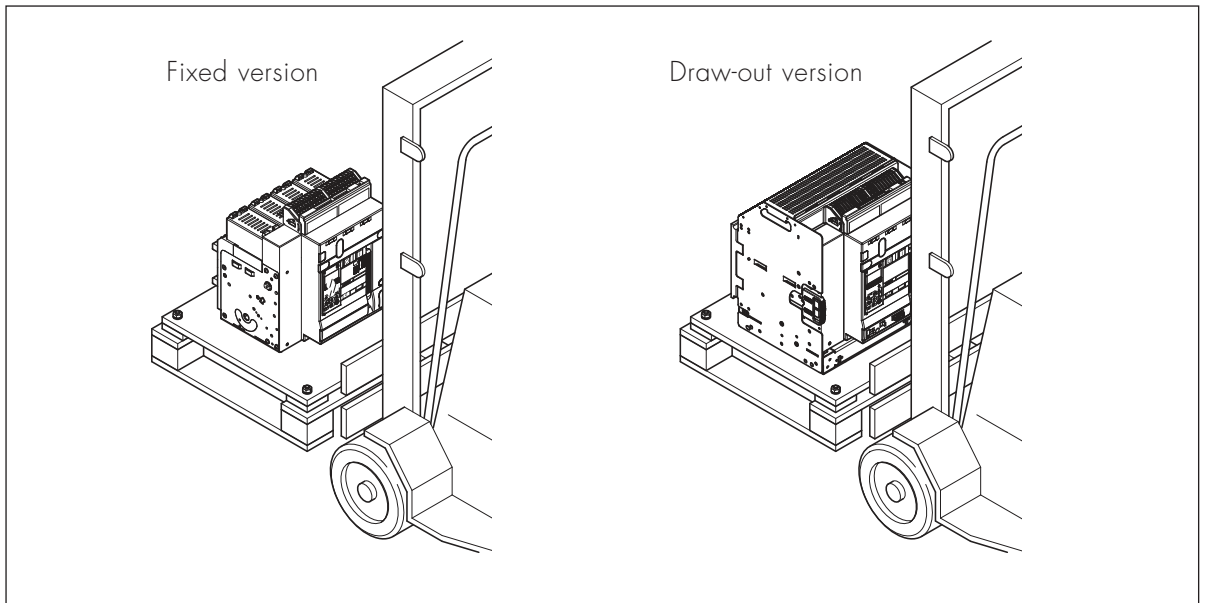
	Type	DMX <sup>3</sup> 2500	DMX <sup>3</sup> 4000	DMX <sup>3</sup> 6300
	Rating (A)	1250/1600/ 2000/2500	1250/1600/2000/ 2500/3200/4000	6300
Fixed	3P	39 kg	57 kg	114 kg
	4P	45 kg	73 kg	146 kg
Draw-out	3P	75 kg	106 kg	212 kg
	4P	91 kg	134 kg	268 kg

## 2. Handling and unpacking

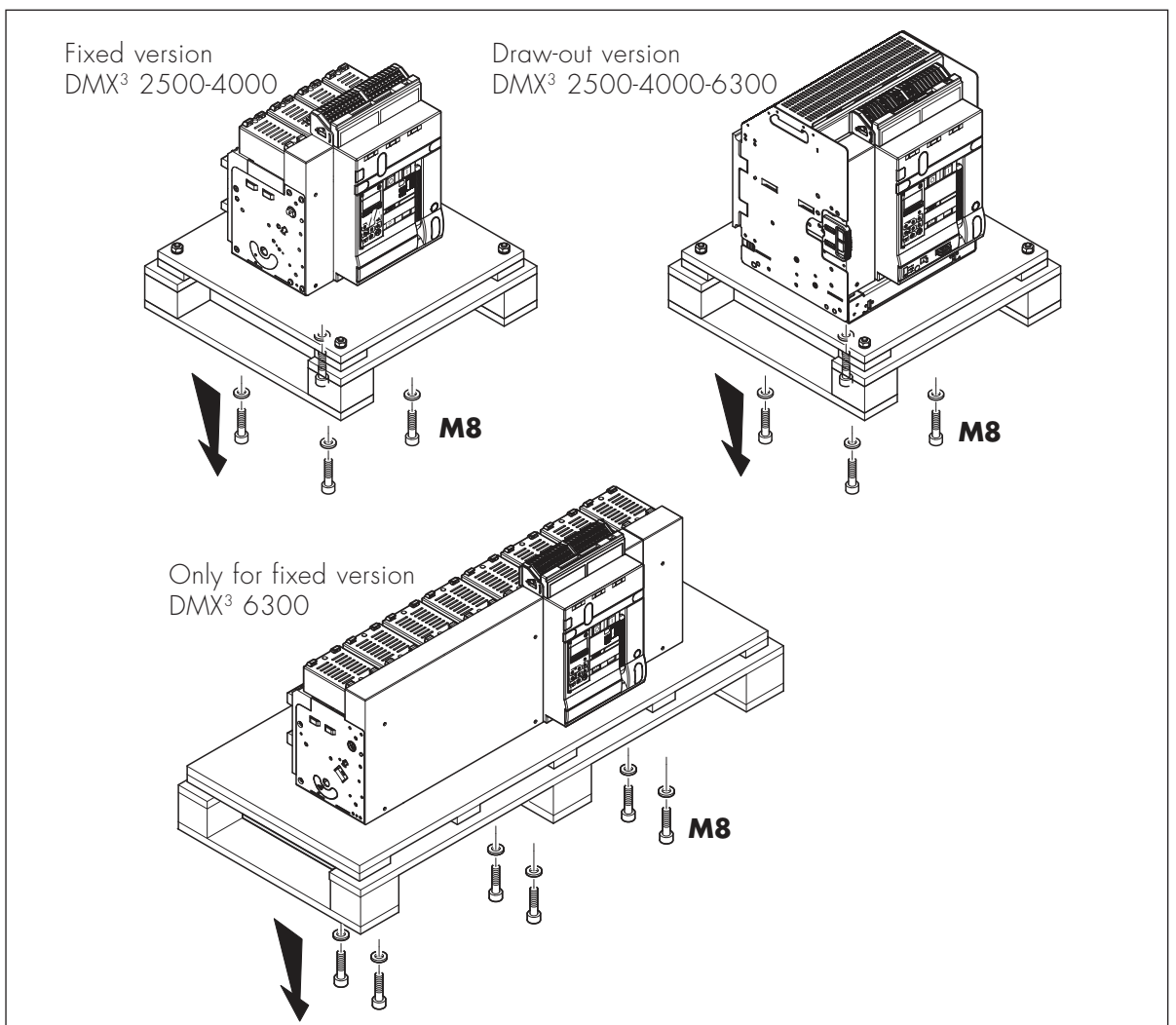
The breaker can be transported using a fork lift.



# DMX<sup>3</sup>

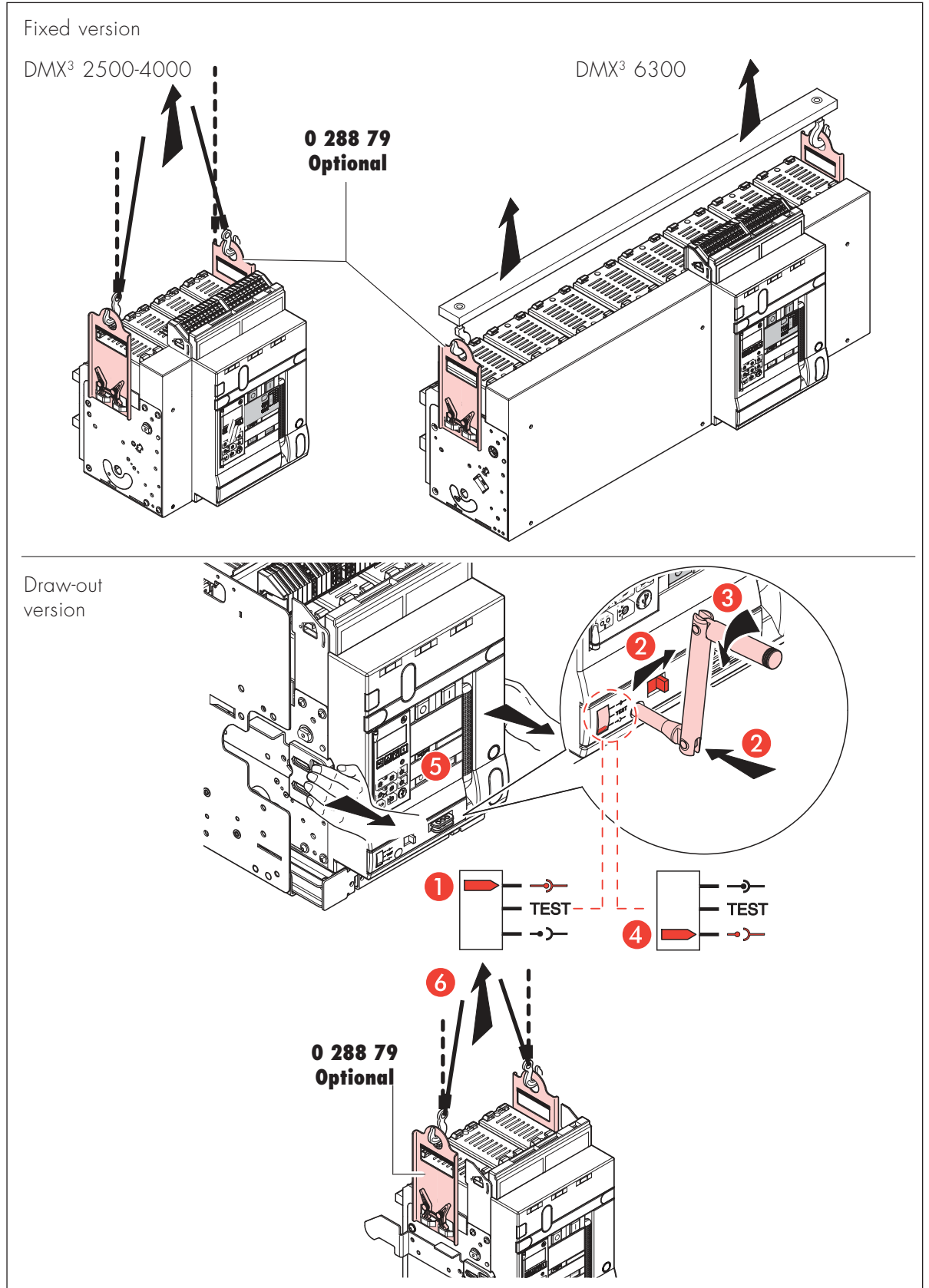


Remove breaker mounting screws.

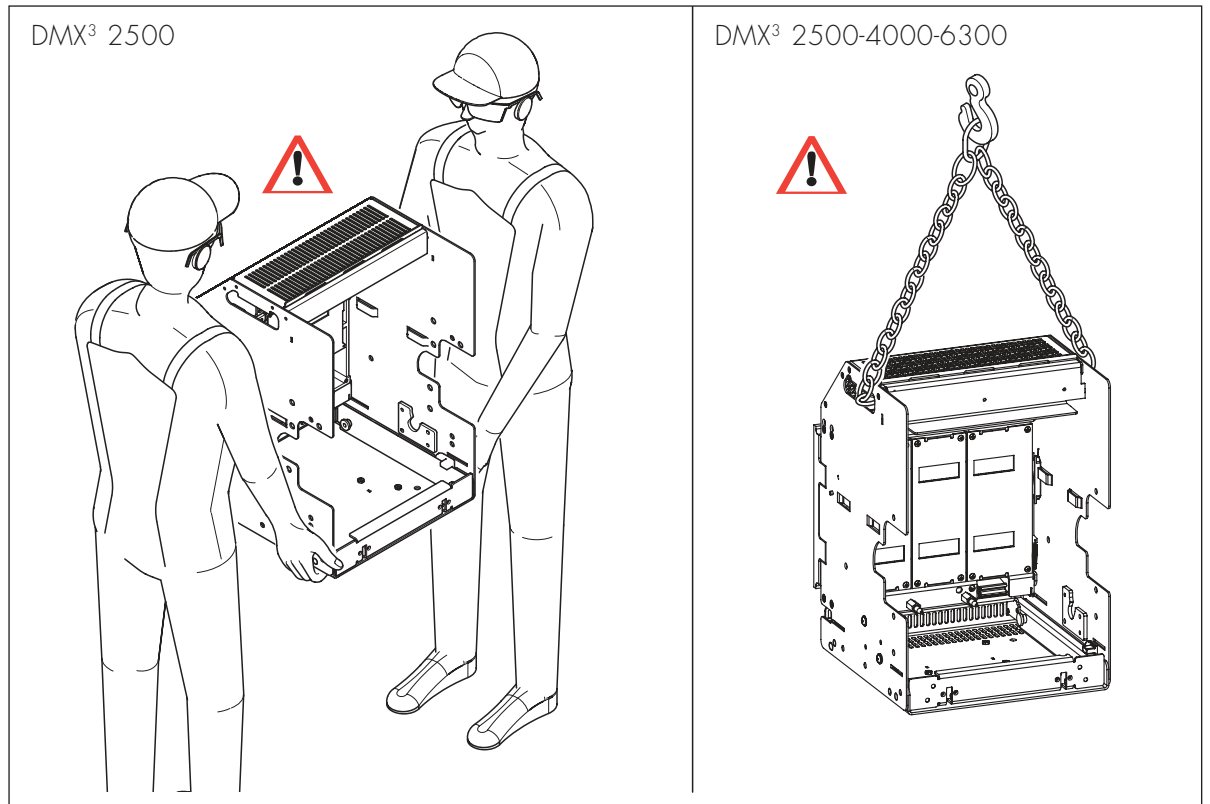


# DMX<sup>3</sup>

A special lifting handle are available (optional 0 288 79) to facilitate handling.



# DMX<sup>3</sup>



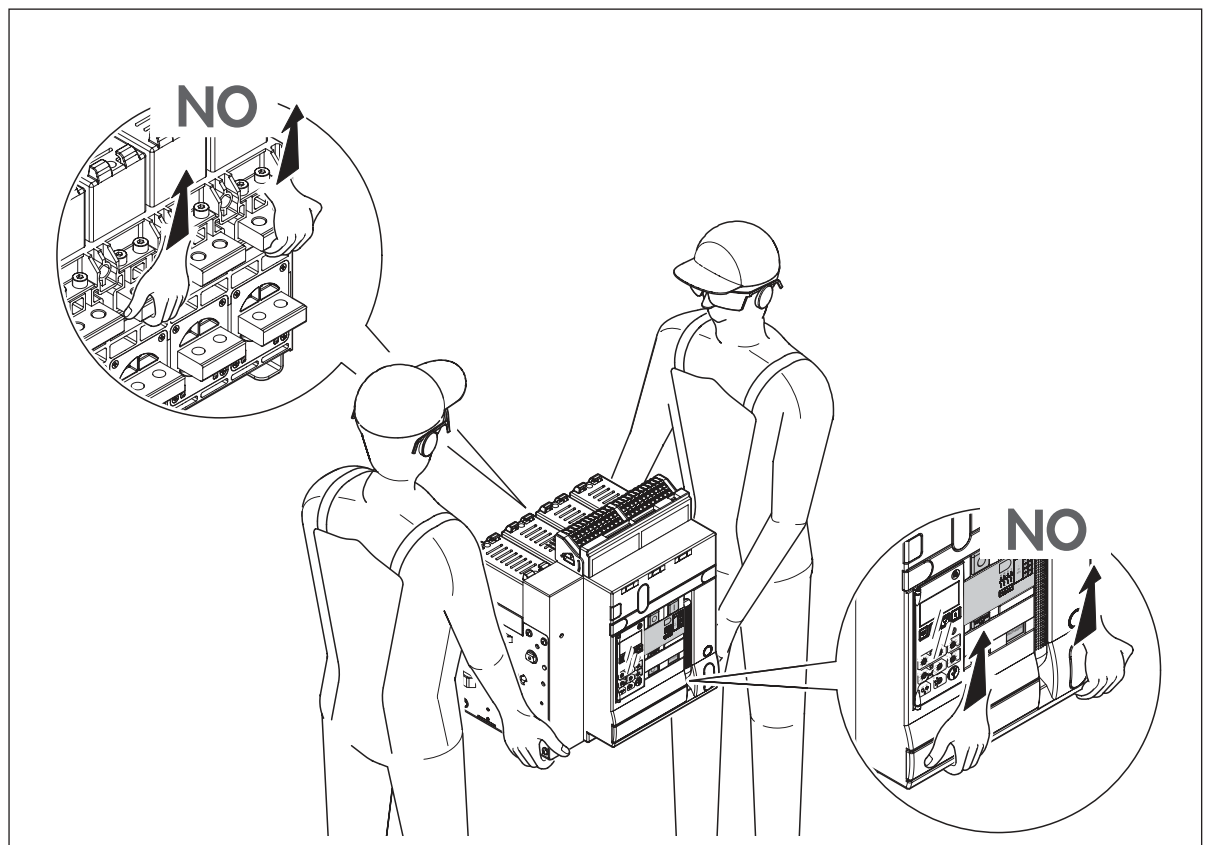
DMX<sup>3</sup> 2500-4000 breakers (fixed and draw-out version) can also be transported by 2 persons.



Heavy equipment. Exercise proper care to avoid personal injury and equipment damage.



Do not lift the breaker using front face or Terminals



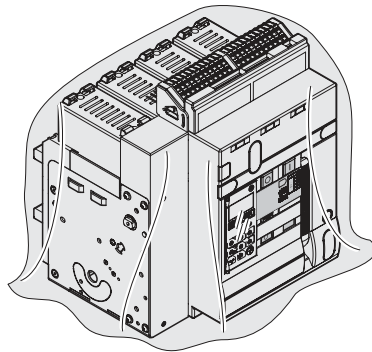
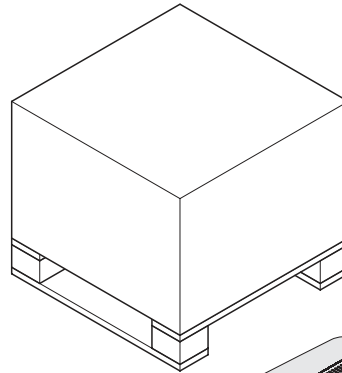
# DMX<sup>3</sup>

## 3. Storage for fixed and draw-out breakers

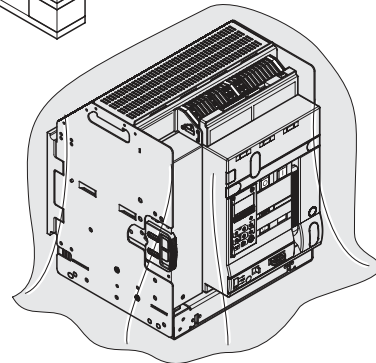
When Base and Breaker are not being used for a long time, pack them.



Store the breaker in a cool, dry place, away from dusty/corrosive environment.



Fixed version



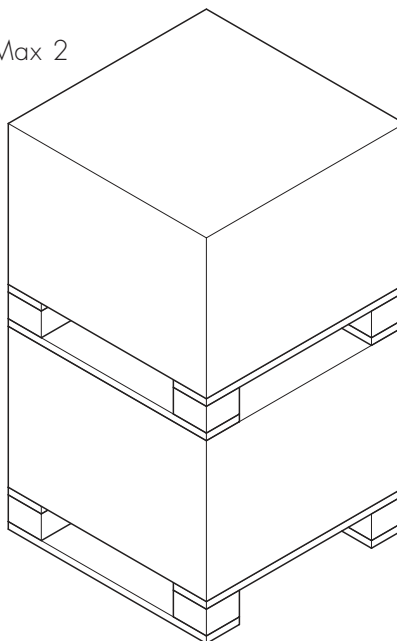
Draw-out version



Do not stack more than 2 breakers one above the other.

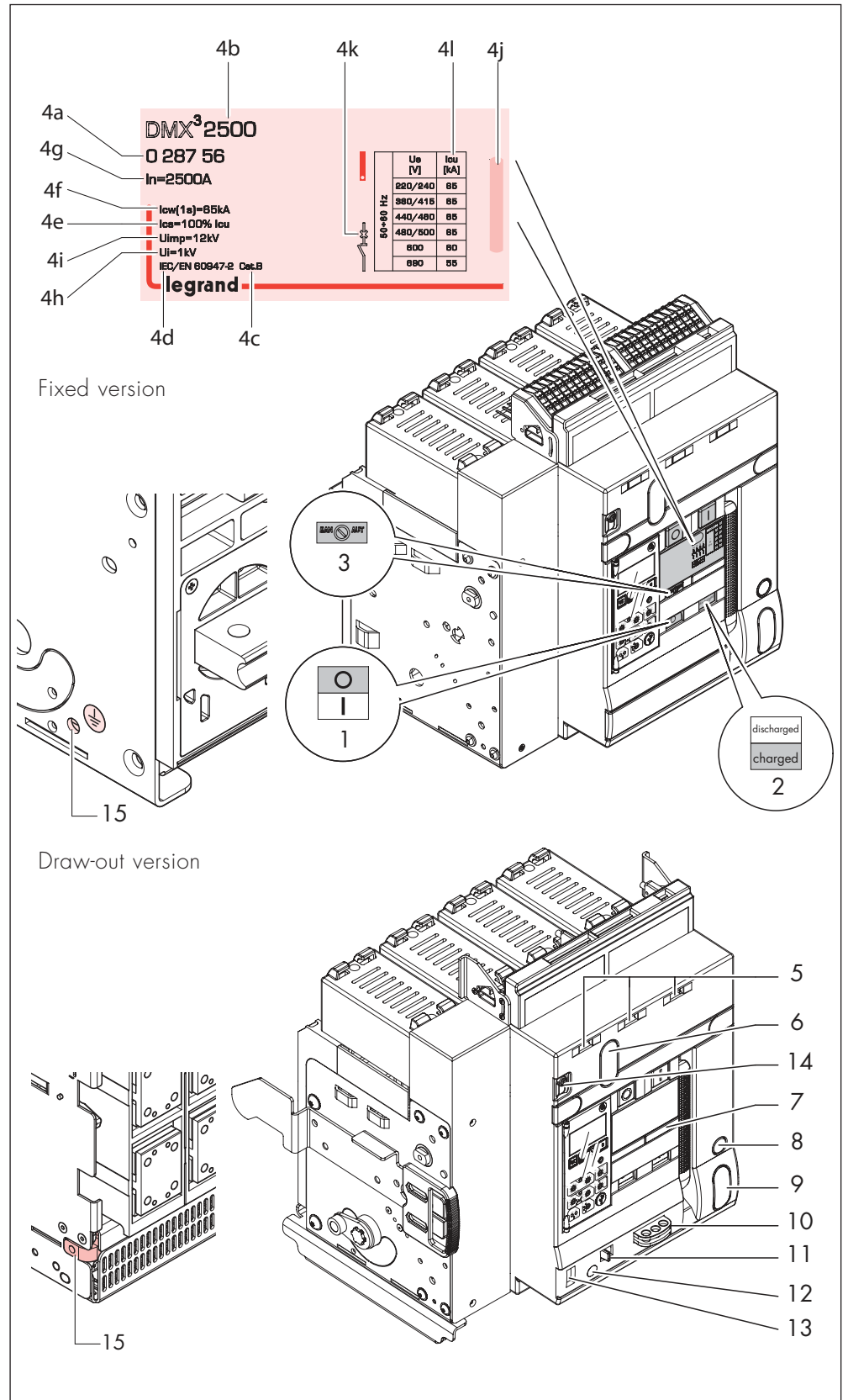
DMX<sup>3</sup> 2500-4000-6300

Max 2



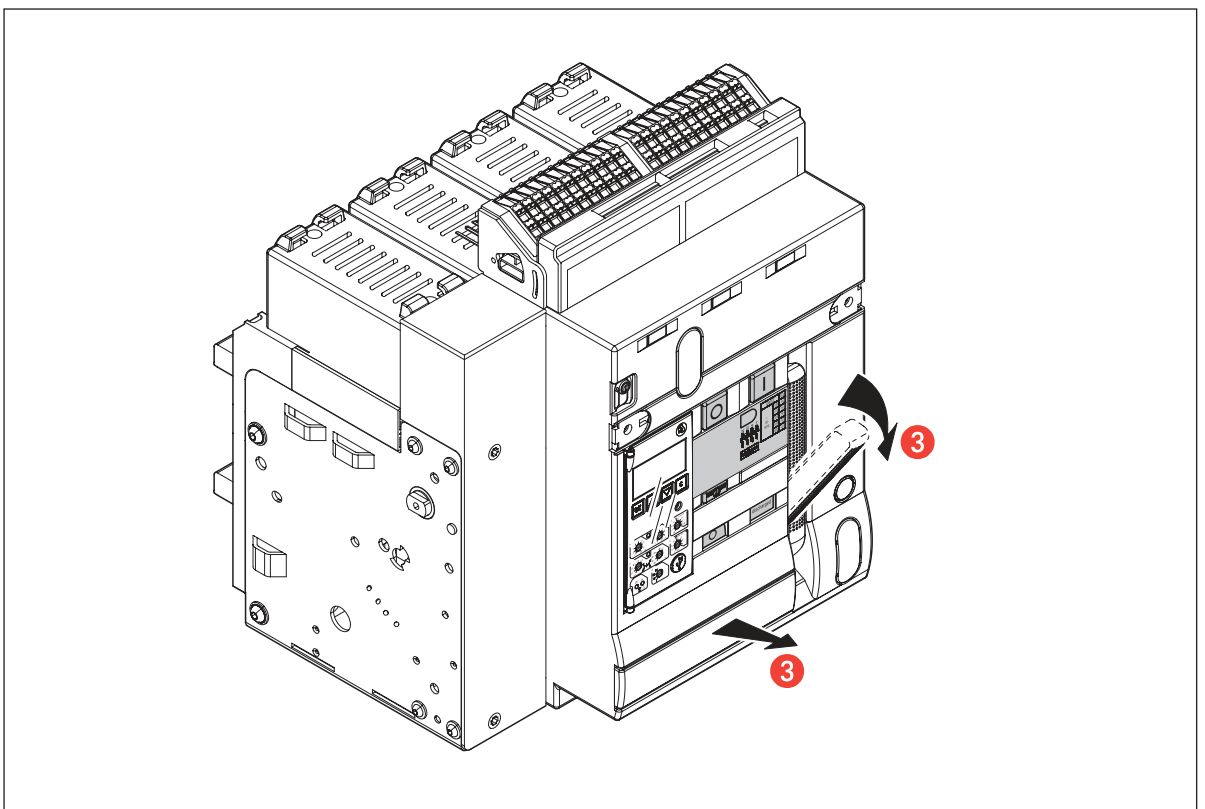
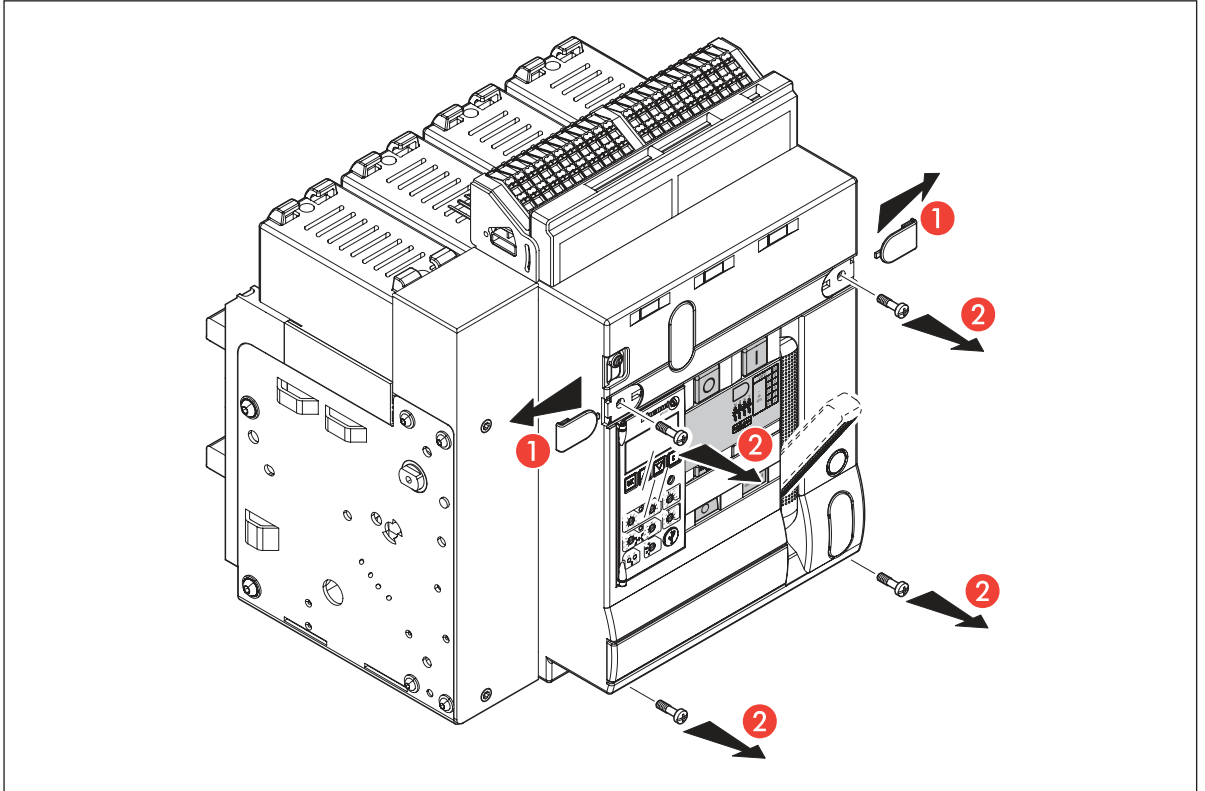
## 4. Identification

- 1 Main contacts status indication
- 2 Spring status indication
- 3 Reset button for tripping device
- 4a Product reference
- 4b Product type
- 4c Utilization Category
- 4d Standards compliance
- 4e Rated service short-circuit breaking capacity
- 4f Rated short-time withstand current
- 4g Rated Current
- 4h Rated insulation voltage
- 4i Rated impulse withstand voltage
- 4j Coloured label for breaking capacity
- 4k Identification symbol of the device
- 4l Rated ultimate short-circuit breaking capacity according to the rated operational voltage  $U_e$
- 5 Visualization windows for electrical auxiliaries
- 6 Place for key lock or padlock in open position
- 7 Place for operation counter
- 8 Place to lay draw-out Bar
- 9 Place for key lock in in draw-out and test position
- 10 Pad Lock of draw-out window
- 11 Racking shutter: Bring to the right in order packing to insert the draw-out bar (operation disabled if the breaker is closed)
- 12 Draw-out Bar insertion
- 13 Draw-out position indication: inserted/test/draw-out
- 14 Dielectric test selector (if present)
- 15 Earth connection



## 5. Racking-out frontal cover

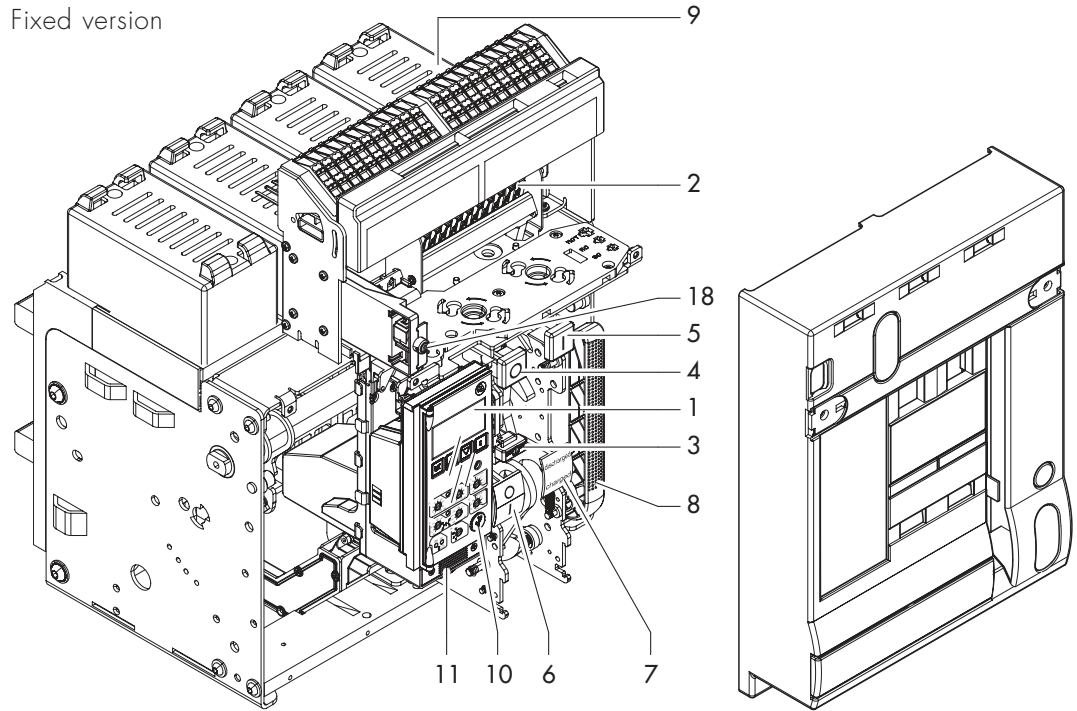
For fix and draw-out breakers.



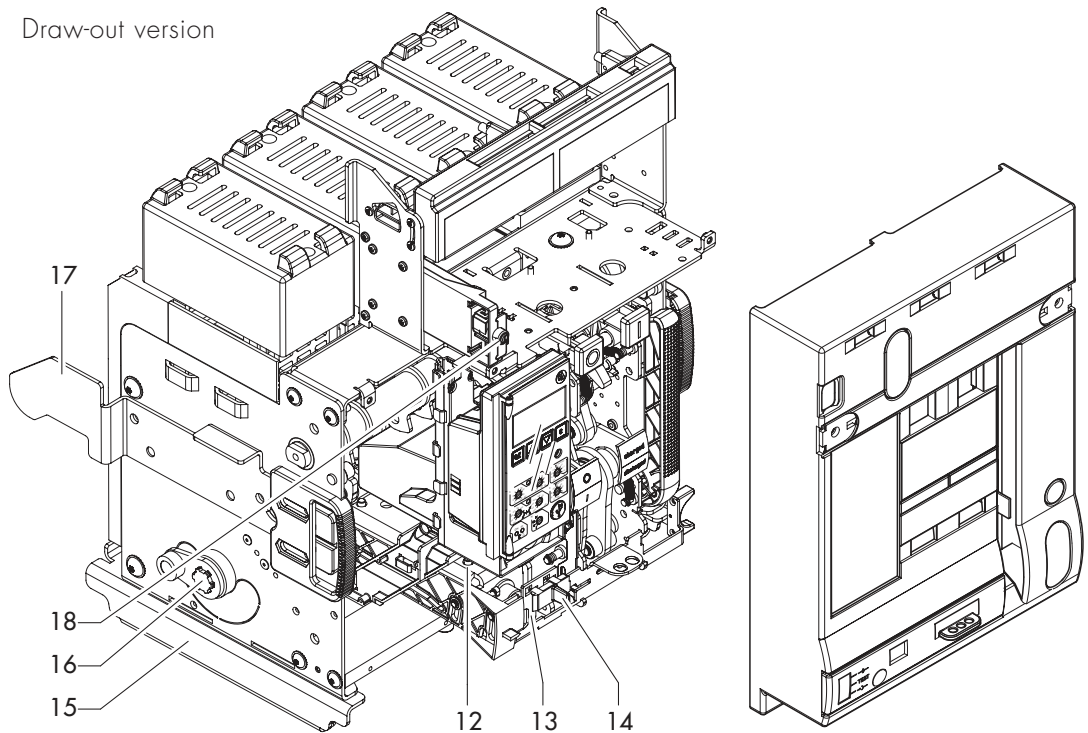
## 6. Exploring

- 1 Protection Unit
- 2 Auxiliary Contacts
- 3 Reset button
- 4 OFF button
- 5 ON button
- 6 ON-OFF Indication
- 7 Spring Status Indication
- 8 Charging handle
- 9 Dejon cell
- 10 Mini USB cover
- 11 Battery cover
- 12 Draw-out mechanish
- 13 Draw-out bar insertion
- 14 Racking shutter
- 15 Support to place the breaker in draw-out cassette
- 16 Draw-out main shaft
- 17 Insertion guide
- 18 Dielectric test selector (if present)

Fixed version



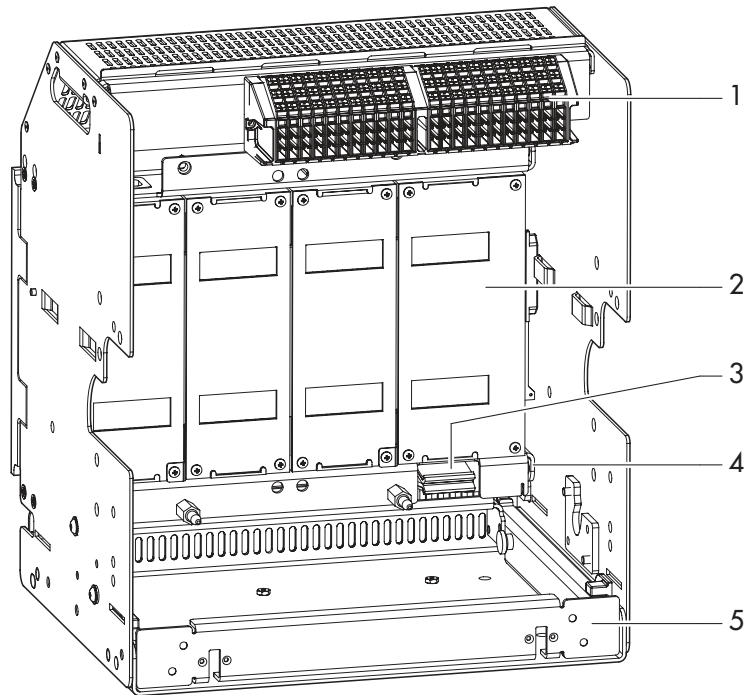
Draw-out version



# DMX<sup>3</sup>

- 1 Aux terminal block
- 2 Safety shutter
- 3 DMX<sup>3</sup> Automatic Breaker Earth connection
- 4 Earth terminal
- 5 Removable cassette

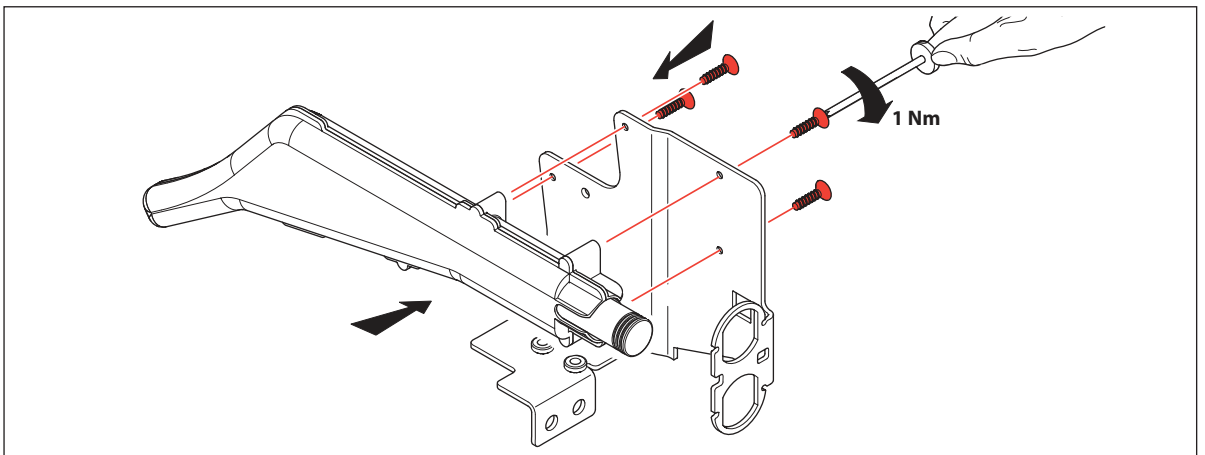
Base  
Draw-out version



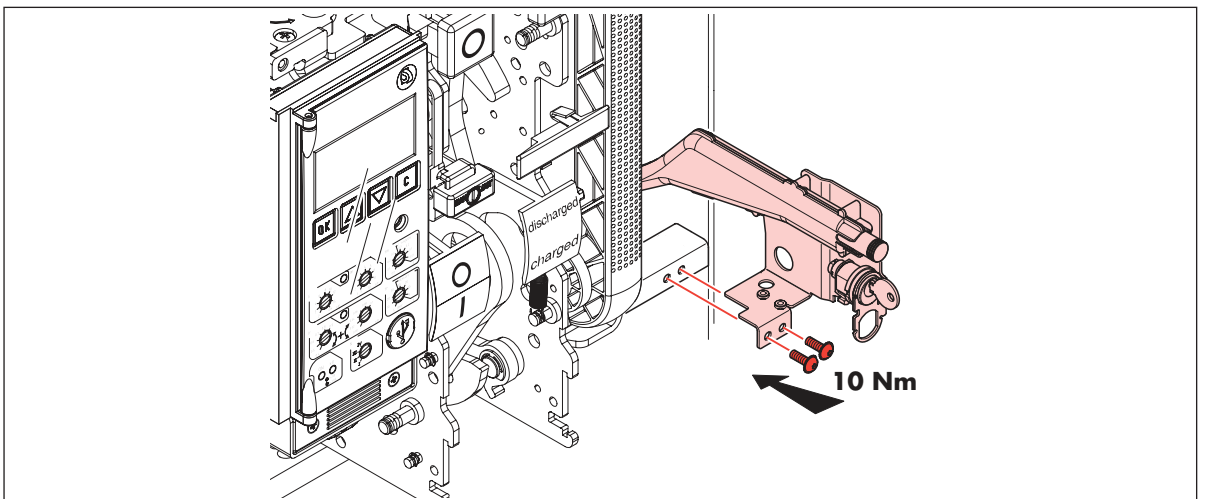
# DMX<sup>3</sup>

## Only for draw-out breaker

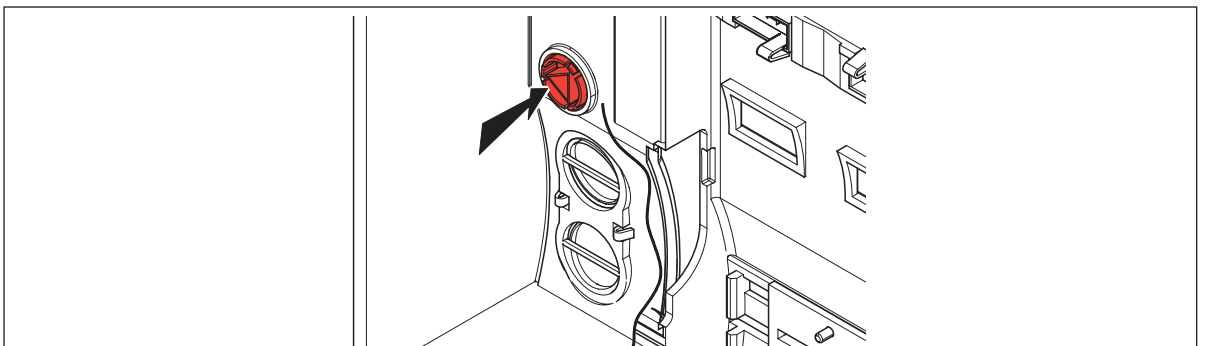
- 1 Remove frontal cover
- 2 If necessary install the mechanical interlock
- 3 If necessary install the ready to close contact
- 4 If necessary install the motor operator
- 5 If necessary install the keylock (optional) for draw-out version
- 6 Screw the case of the draw-out bar on the delivered support



- 7 Screw the support on the bottom crossbar



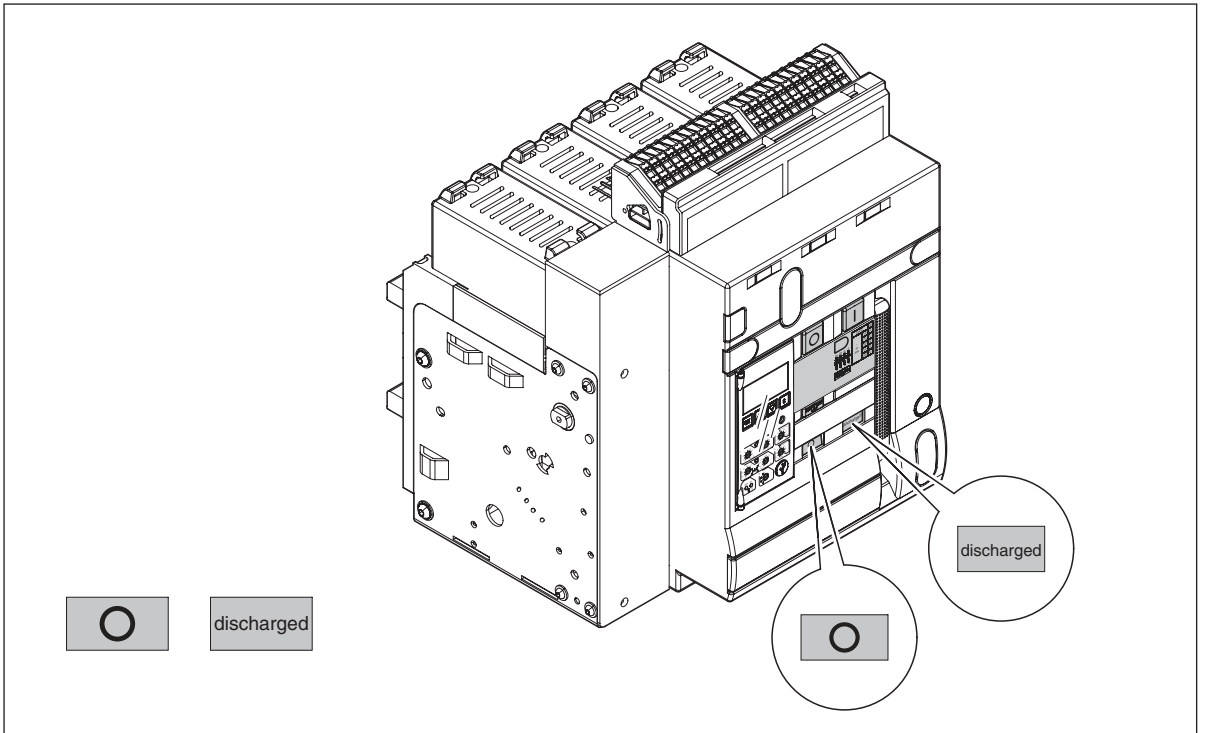
- 8 Remove the cap from the frontal cover





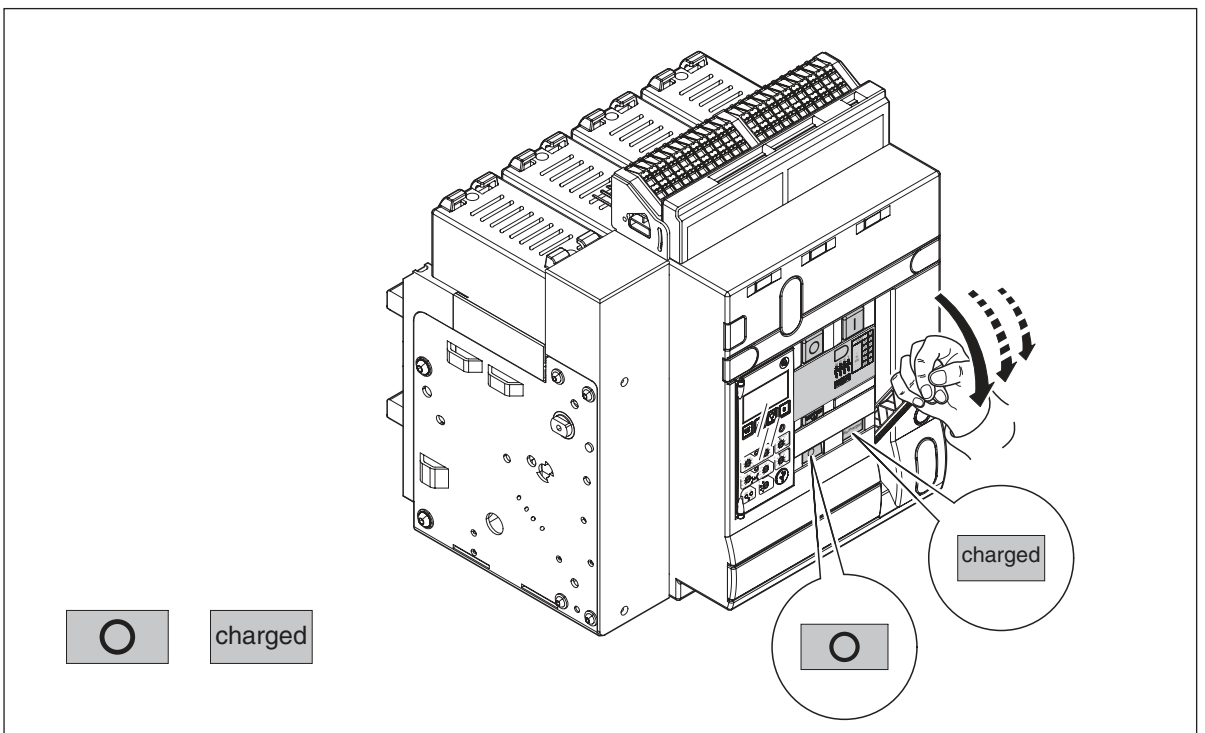
# DMX<sup>3</sup>

## 7. Operating



Before installing the breaker, follow the following operations.  
Initially, the Breaker is  and Spring is .



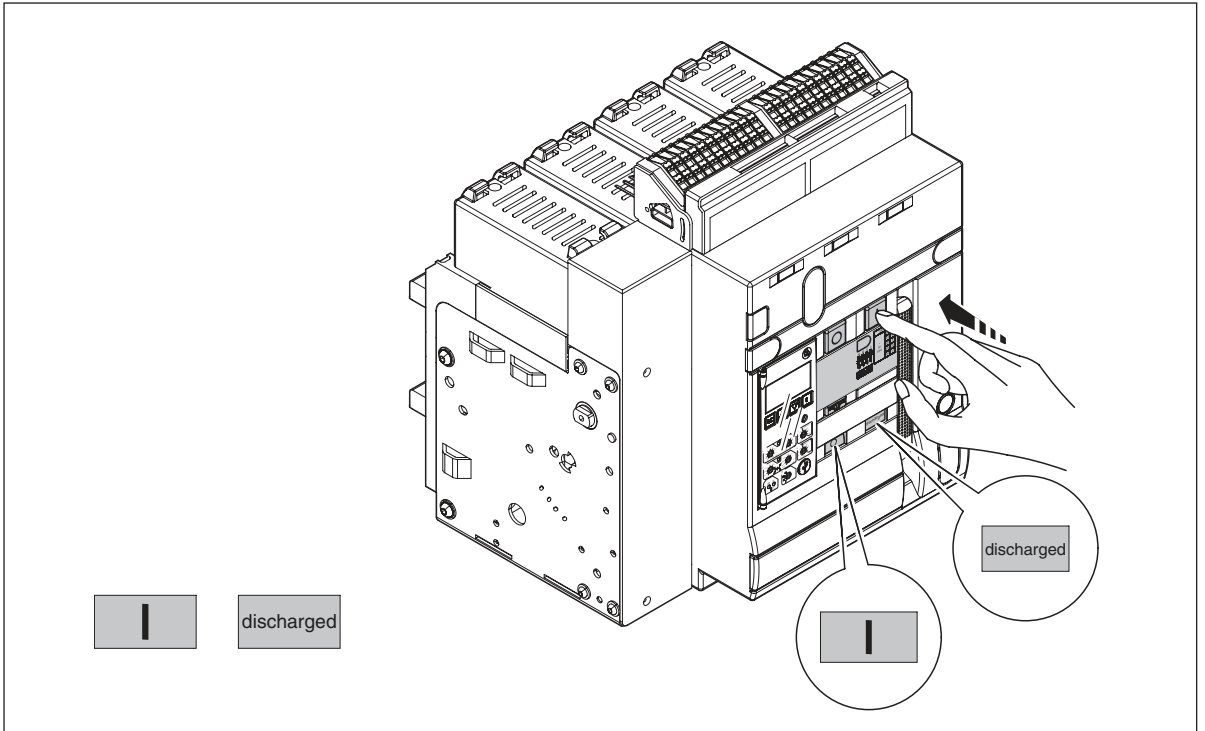
Charge the Main spring through multiple strokes of charging handle.  
Now the breaker is  and spring is .



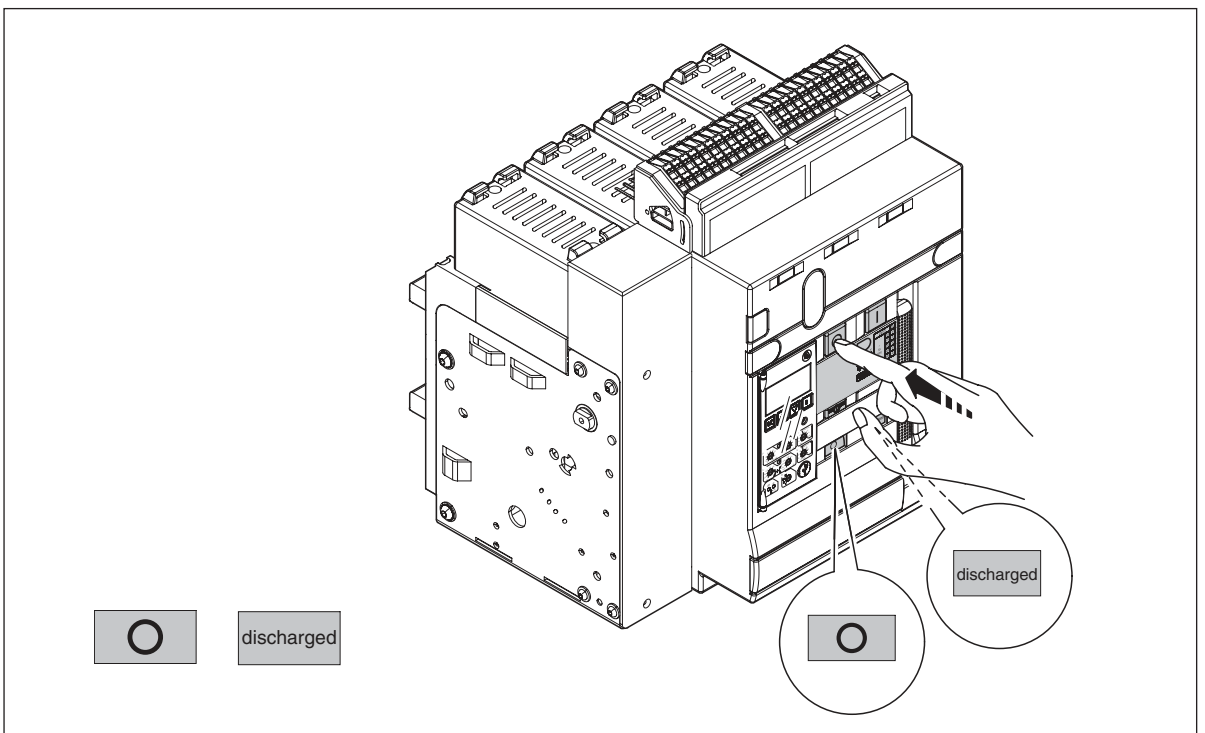
# DMX<sup>3</sup>

Push 'ON' button to close the breaker.  
Now, the breaker is  and spring is .

In this situation, spring can be charged again for next operation.



Push 'OFF' button to trip the breaker.  
Now, the Breaker is  and Spring is .



## 8. Technical specifications

### 8.1 General features

CIRCUIT BREAKERS										
According to IEC 60947-2 DMX <sup>3</sup>		DMX <sup>3</sup> 2500 42kA	DMX <sup>3</sup> 2500			DMX <sup>3</sup> 4000			DMX <sup>3</sup> 6300	
Poles number		3P-4P	3P-4P			3P-4P			3P-4P	
Rated uninterrupted current (In) [A]		630÷1600	630÷2500			3200-4000			5000-6300	
Isolation voltage (Ui) [V]		1000	1000			1000			1000	
Rated impulsive voltage (Uimp) [kV]		12	12			12			12	
Service voltage at 50÷60Hz (Ue) [V]		690	690			690			690	
Type		<b>B</b>	<b>N</b>	<b>H</b>	<b>L</b>	<b>N</b>	<b>H</b>	<b>L</b>	<b>L</b>	
Rated ultimate breaking capacity (Icu) [kA]	220V÷500Va.c.	42	50	65	100	50	65	100	100	
	600Va.c.	42	50	60	75	50	65	75	75	
	690Va.c.	42	50	55	65	50	65	65	65	
Rated service breaking capacity Ics (% Icu)		-	100	100	100	100	100	100	100	
Rated short circuit making capacity (kA)	220V÷500Va.c.	88	105	143	220	105	143	220	220	
	600Va.c.	88	105	132	165	105	143	165	165	
	690Va.c.	88	105	121	143	105	143	143	143	
Rated short-time withstand current Icw (kA) t=1s	220V÷500Va.c.	42	50	65	85	50	65	85	100	
	600Va.c.	42	50	60	75	50	65	75	75	
	690Va.c.	42	50	55	65	50	65	65	65	
Rated short-time withstand current Icw (kA) t=3s	220V÷500Va.c.	36	45	45	65	50	65	65	85	
	600Va.c.	36	45	45	65	50	65	65	75	
	690Va.c.	36	45	45	65	50	65	65	65	
Breaking capacity Isu/lit (kA) for phase-earthed systems and IT systems	220/240Va.c.	19,2	30	30	48	48	48	48	75.6	
	415Va.c.	19,2	30	30	48	48	48	48	75.6	
	500Va.c.	-	-	-	48	48	48	48	-	
Neutral protection (%)		0-50-100	0-50-100			0-50-100			0-50-100	
Service category		B	B			B			B	
Isolation capability		yes	yes			yes			yes	
Endurance (cycles)	mechanical	without maintenance	10000	10000			10000			5000
		with maintenance	20000	20000			20000			10000
	electrical	without maintenance	10000	10000			10000			5000
Opening time		15 ms	15 ms			15 ms			15 ms	
Closing time		30 ms	30 ms			30 ms			30 ms	
Visualization of contacts position		S	S			S			S	
Visualization of charged/discharged springs		S	S			S			S	
Auxiliary contacts		S*/O	S*/O			S*/O			S*/O	
Fault contact		S	S			S			S	
Shunt trip		O	O			O			O	
Closing coil		O	O			O			O	
Undervoltage release		O	O			O			O	
Undervoltage release with time delay		O	O			O			O	
Motor operator		O	O			O			O	
Mechanical counter		O	O			O			O	
Mechanical interlock		O	O			O			O	

\* Standard version with n° 4 NO/NC (max n° 6 optional contacts 288 15).  
S=Standard      O=Optional

# DMX<sup>3</sup>

SWITCH DISCONNECTORS		DMX <sup>3</sup> -I 2500	DMX <sup>3</sup> -I 4000	DMX <sup>3</sup> -I 6300
According to IEC 60947-3 DMX <sup>3</sup>		DMX <sup>3</sup> -I 2500	DMX <sup>3</sup> -I 4000	DMX <sup>3</sup> -I 6300
Poles number		3P-4P	3P-4P	3P-4P
Rated uninterrupted current (In) [A]		1250÷2500	3200-4000	6300
Isolation voltage (Ui) [V]		1000	1000	1000
Rated impulsive voltage (Uimp) [kV]		12	12	12
Service voltage at 50÷60Hz (Ue) [V]		690	690	690
Utilization category		AC23	AC23	AC23
Rated short circuit making capacity (kA)		220V÷500Va.c.	143	220
		600Va.c.	132	165
		690Va.c.	121	143
Rated short-time withstand current Icw (kA) t=1s		220V÷500Va.c.	65	85
		600Va.c.	60	75
		690Va.c.	55	65
Rated short-time withstand current Icw (kA) t=3s		220V÷500Va.c.	45	65
		600Va.c.	45	65
		690Va.c.	45	65
Isolation capability		yes	yes	yes
Endurance (cycles)	mechanical	without maintenance	10000	10000
		with maintenance	20000	20000
	electrical	without maintenance	10000	10000
Opening time		15 ms	15 ms	15 ms
Closing time		30 ms	30 ms	30 ms
Visualization of contacts position		S	S	S
Visualization of charged/discharged springs		S	S	S
Auxiliary contacts		S*/O	S*/O	S*/O
Shunt trip		O	O	O
Closing coil		O	O	O
Undervoltage release		O	O	O
Undervoltage release with time delay		O	O	O
Motor operator		O	O	O
Mechanical counter		O	O	O
Mechanical interlock		O	O	O

\* Standard version with n° 4 NO/NC (max n° 6 optional contacts 288 15).

S=Standard      O=Optional

# DMX<sup>3</sup>

## 8.2 Real dimensions of the device

	DMX <sup>3</sup> 2500	DMX <sup>3</sup> 4000	DMX <sup>3</sup> 6300
<b>Dimensions - fixed version 3P</b>			
Width	273 mm	408 mm	797 mm
Depth	354 mm	354 mm	354 mm
Height	419 mm	419 mm	419 mm
<b>Dimensions - fixed version 4P</b>			
Width	358 mm	538 mm	1057 mm
Depth	354 mm	354 mm	354 mm
Height	419 mm	419 mm	419 mm
<b>Dimensions - draw-out version 3P</b>			
Width	327 mm	425 mm	804 mm
Depth	433 mm	433 mm	433 mm
Height	473 mm	473 mm	473 mm
<b>Dimensions - draw-out version 4P</b>			
Width	412 mm	555 mm	1064 mm
Depth	433 mm	433 mm	433 mm
Height	473 mm	473 mm	473 mm

## 8.3 Net Weight

<b>CIRCUIT BREAKERS</b>					
	Type	DMX <sup>3</sup> 2500		DMX <sup>3</sup> 4000	DMX <sup>3</sup> 6300
	Rating (A)	630/800/1000/ 1250/1600 (42kA version)	630/800/1000/ 1250/1600/ 2000/2500	630/800/1000/ 1250/1600/2000 2500/3200/4000	5000/6300
Fixed	3P	39 kg	41 kg	59 kg	118 kg
	4P	46 kg	48 kg	76 kg	152 kg
Draw-out	3P	73 kg	77 kg	108 kg	225 kg
	4P	90 kg	94 kg	137 kg	274 kg

<b>SWITCH DISCONNECTORS</b>				
	Type	DMX <sup>3</sup> 2500	DMX <sup>3</sup> 4000	DMX <sup>3</sup> 6300
	Rating (A)	1250/1600/ 2000/2500	1250/1600/2000/ 2500/3200/4000	6300
Fixed	3P	39 kg	57 kg	114 kg
	4P	45 kg	73 kg	146 kg
Draw-out	3P	75 kg	106 kg	212 kg
	4P	91 kg	134 kg	268 kg

## 9. Features of the main electrical accessories

### Motor operator

#### Technical features

Rated operating voltage  $V_n$  (Va.c.): 24V-48V-110V÷130V-220V÷250V-400V÷440V - 480V  
(Vd.c.): 24V-48V-110V÷130V-220V÷250V

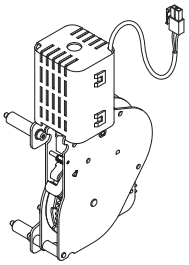
Voltage range (%  $V_n$ ): 85÷110

Maximum power consumption (W/VA): 180/180 (DMX<sup>3</sup> 2500), 240/240 (DMX<sup>3</sup> 4000-6300)

Maximum peak current for about 80ms: 2÷3 $I_n$

Charging time (s): 5 (DMX<sup>3</sup> 2500), 7 (DMX<sup>3</sup> 4000-6300)

Operating frequency (n°/min): 2 (DMX<sup>3</sup> 2500), 1 (DMX<sup>3</sup> 4000-6300)



### Closing coil

#### Technical features

Rated operating voltage  $V_n$  (Va.c.): 24V-48V-110V÷130V-220V÷250V -415V/440V/480V  
(Vd.c.): 24V-48V-110V÷130V-220V÷250V

Voltage range (%  $V_n$ ): 85÷110

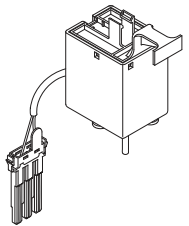
Pick-up consumption (W/VA): 500/500

Pick-up time (ms): 180

Hold consumption (W/VA): 5/5

Closing time (ms): 50

Isolation voltage (kV): 2,5



### Shunt trip

#### Technical features

Rated operating voltage  $V_n$  (Va.c.): 24V-48V-110V÷130V-220V÷250V -415V/440V/480V  
(Vd.c.): 24V-48V-110V÷130V-220V÷250V

Voltage range (%  $V_n$ ): 70÷110

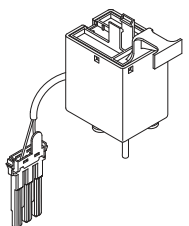
Pick-up consumption (W/VA): 500/500

Pick-up time (ms): 180

Hold consumption (W/VA): 5/5

Opening time (ms): 30

Isolation voltage (kV): 2,5



### Undervoltage release

#### Technical features

Rated operating voltage  $V_n$  (Va.c.): 24V-48V-110V÷130V-220V÷250V -415V/440V/480V  
(Vd.c.): 24V-48V-110V÷130V-220V÷250V

Voltage range (%  $V_n$ ): 85÷110

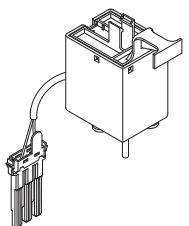
Pick-up consumption (W/VA): 500/500

Pick-up time (ms): 180

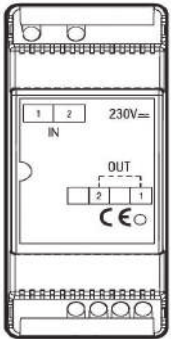
Hold consumption (W/VA): 5/5

Opening time (ms): 60

Isolation voltage (kV): 2,5



# DMX<sup>3</sup>



## Time delayer for undervoltage release

*Technical features*

Case: 2 modules

Rated operating voltage  $V_n$  (Va.c. - Vd.c.): 110V-230V

Input supply:

110Vdc 85% - 110%

110Vac 85% - 110% 50 - 60 Hz

Pick-up consumption: 16,5 VA -W

Hold consumption: 5 VA-W

230Vdc 85% - 110%

230Vac 85% - 110%, 50 - 60 Hz

Pick-up consumption: 34,5 VA -W

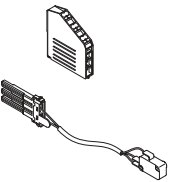
Hold consumption: 10 VA-W

Opening threshold:  $0,35 \pm 0,7 U_n$

Closing threshold:  $0,85 U_n$

Time-delay for each module: 1 s at  $U_n$  (is possible to connect up to 3 modules - 1s of delay for each one module installed)

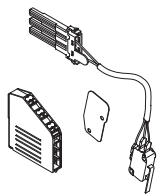
Operating temperature: (-10) - (+55) °C



## Signal contact for auxiliaries

*Technical features*

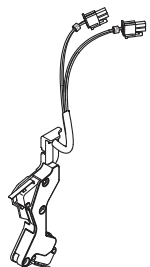
Rated operating voltage  $V_n$  (Va.c.): 250V 16A  
(Vd.c.): 250V 0,3A



## Additional signalling contact

*Technical features*

Rated operating voltage  $V_n$  (Va.c.): 250V 16A  
(Vd.c.): 250V 0,3A

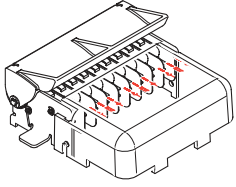


## Contact ready to close with charged springs

*Technical features*

Rated operating voltage  $V_n$  (Va.c.): 250V 16A

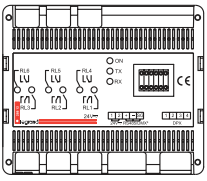
# DMX<sup>3</sup>



## Inserted/test/draw-out contacts

*Technical features*

Rated operating voltage  $V_n$  (Va.c.): 250V 16A  
(Vd.c.): 250V 0,3A



## Module programmable output

*Technical features*

Case: 9 modules

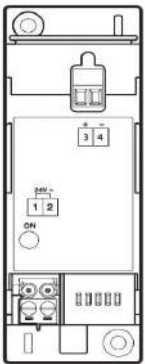
Input supply: 50– 60 Hz; 24 Va.c. +/- 10%; 24 Vd.c. +/- 10%

Contact rated current:

AC 250V 8A

DC 30V - 8A; 110V - 0,3A; 220V - 0,12A

Operating temperature: (-10) – (+55) °C



## External auxiliary supply

*Technical features*

Case: 2 modules

Input supply : 50– 60 Hz; 24 Va.c. +/- 10%; 24 Vd.c. +/- 10%

Input power supply (W/VA)  $\geq 5$

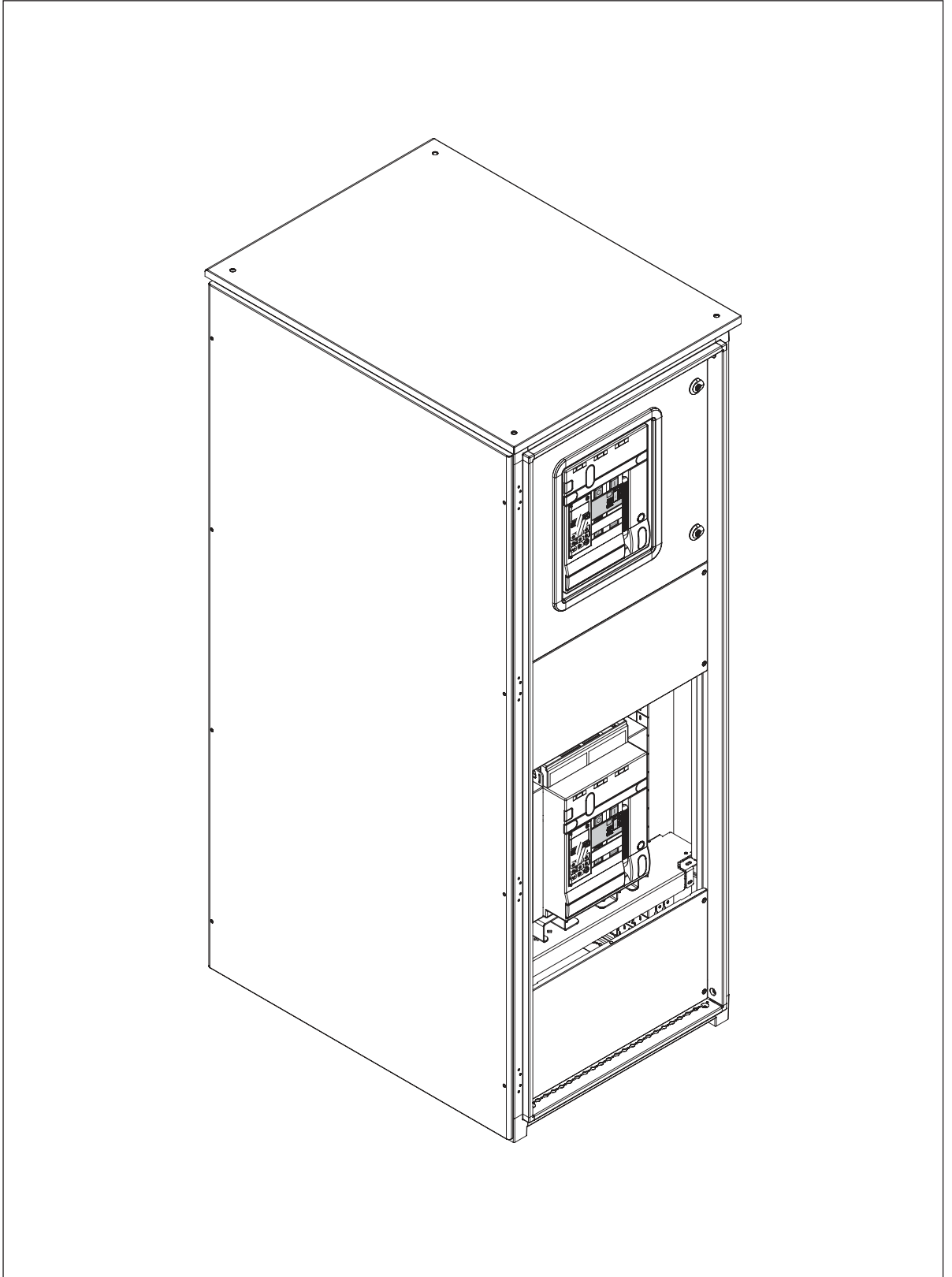
Operating temperature: (-10) – (+55) °C

N°1 module is suitable to supply no more than n°1 MP6 or up to n°4 MP4 protection unit.

# DMX<sup>3</sup>

## 10. Installation and door cut-out

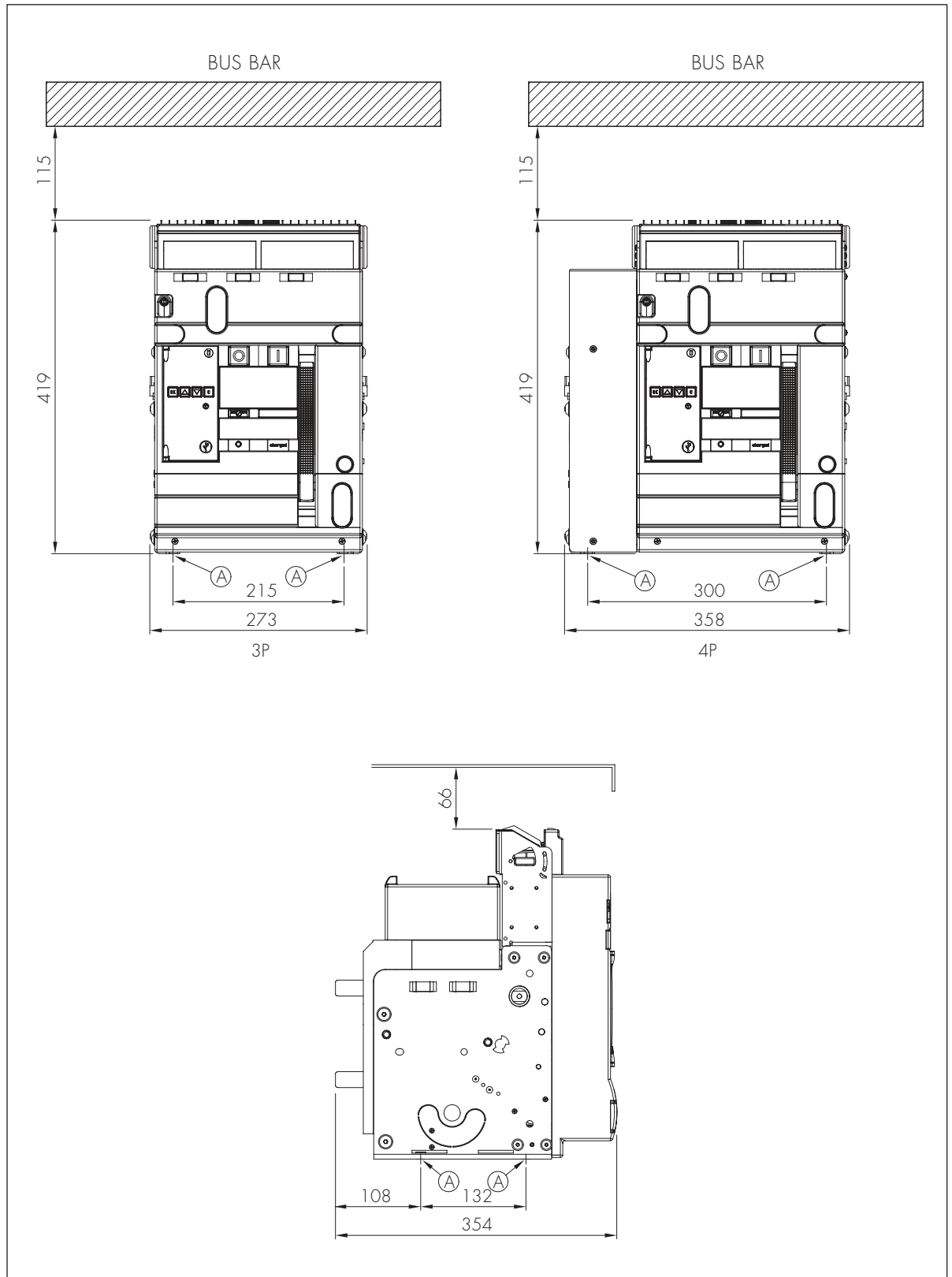
Typical installation of DMX<sup>3</sup> breakers in an enclosure.



# DMX<sup>3</sup>

## 10.1 Installation of breaker DMX<sup>3</sup> fixed version

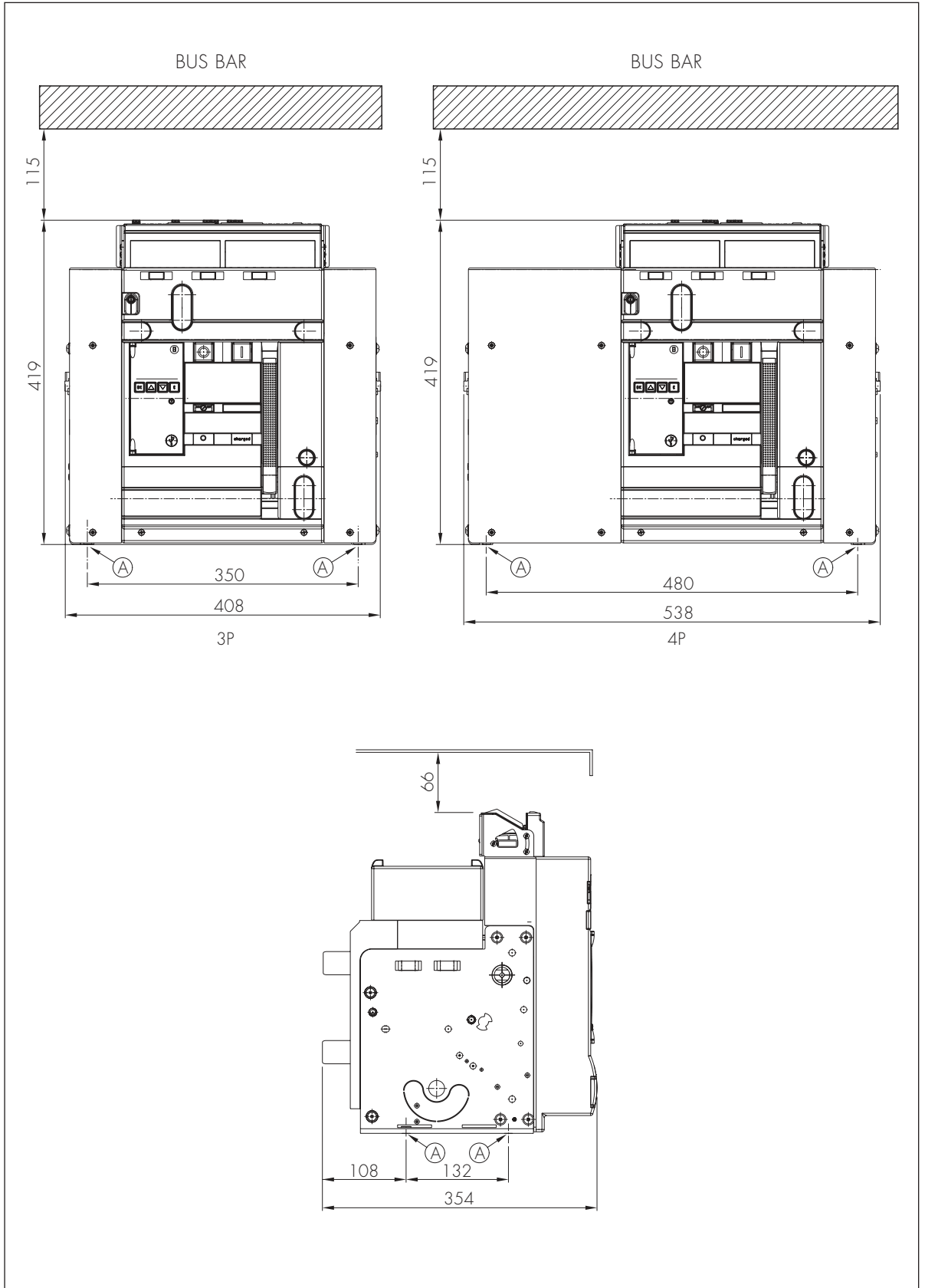
**DMX<sup>3</sup> 2500.** Mounting details (also for 42kA version).



Ⓐ = Fixing point on plate of enclosure

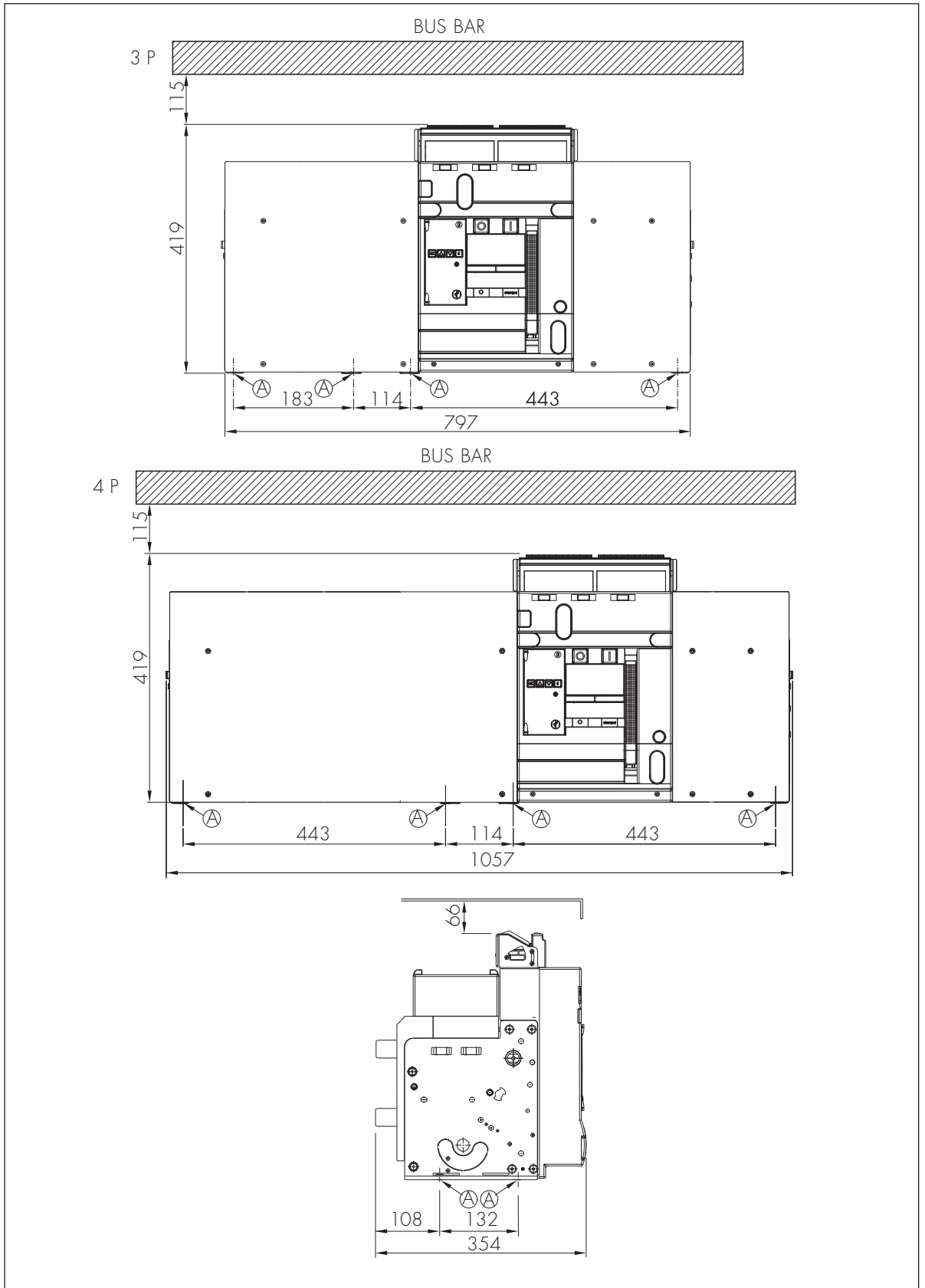
# DMX<sup>3</sup>

## DMX<sup>3</sup> 4000. Mounting details.



# DMX<sup>3</sup>

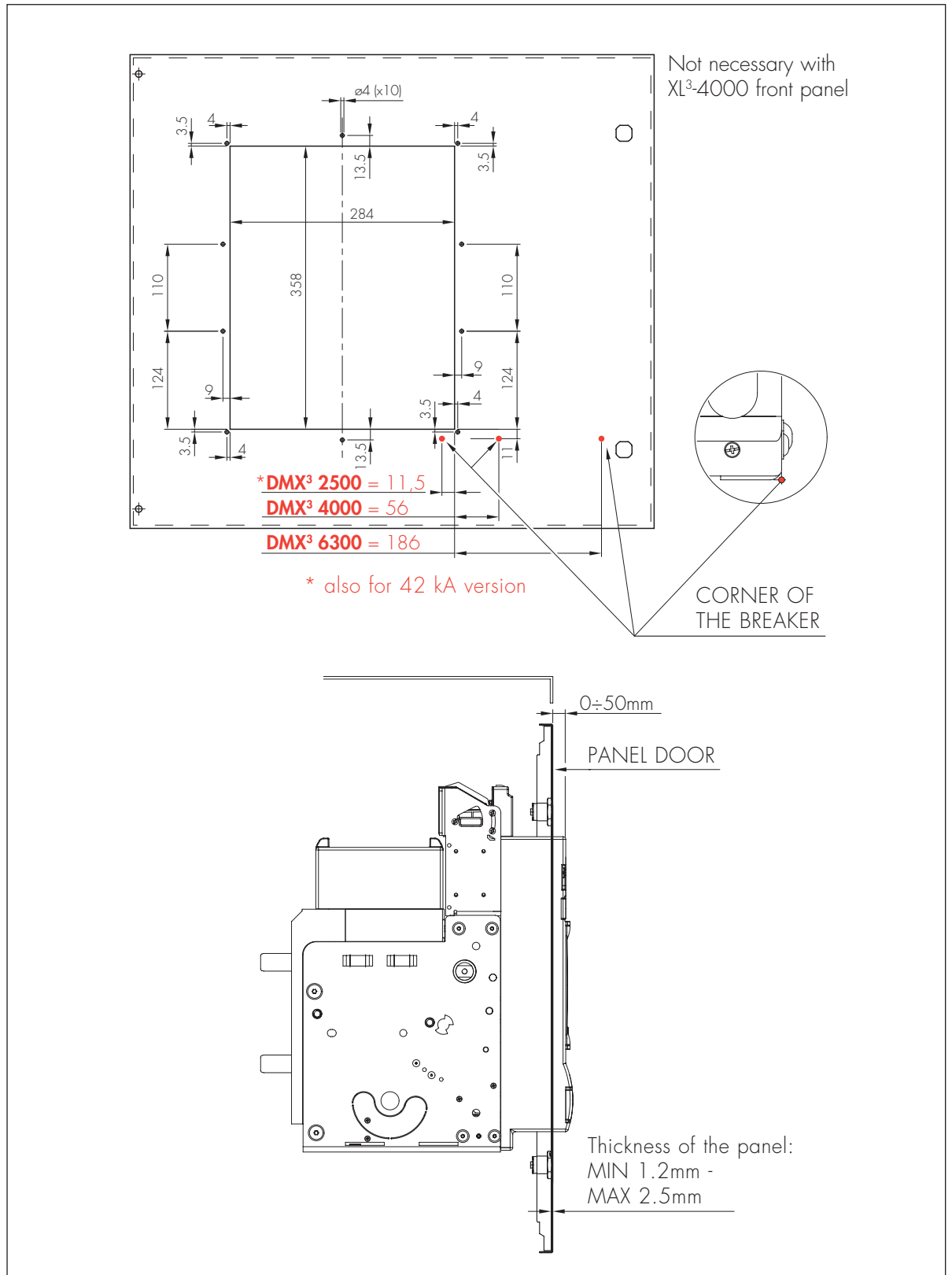
## DMX<sup>3</sup> 6300. Mounting details.



# DMX<sup>3</sup>

## 10.2 Door cut-out for fixed version

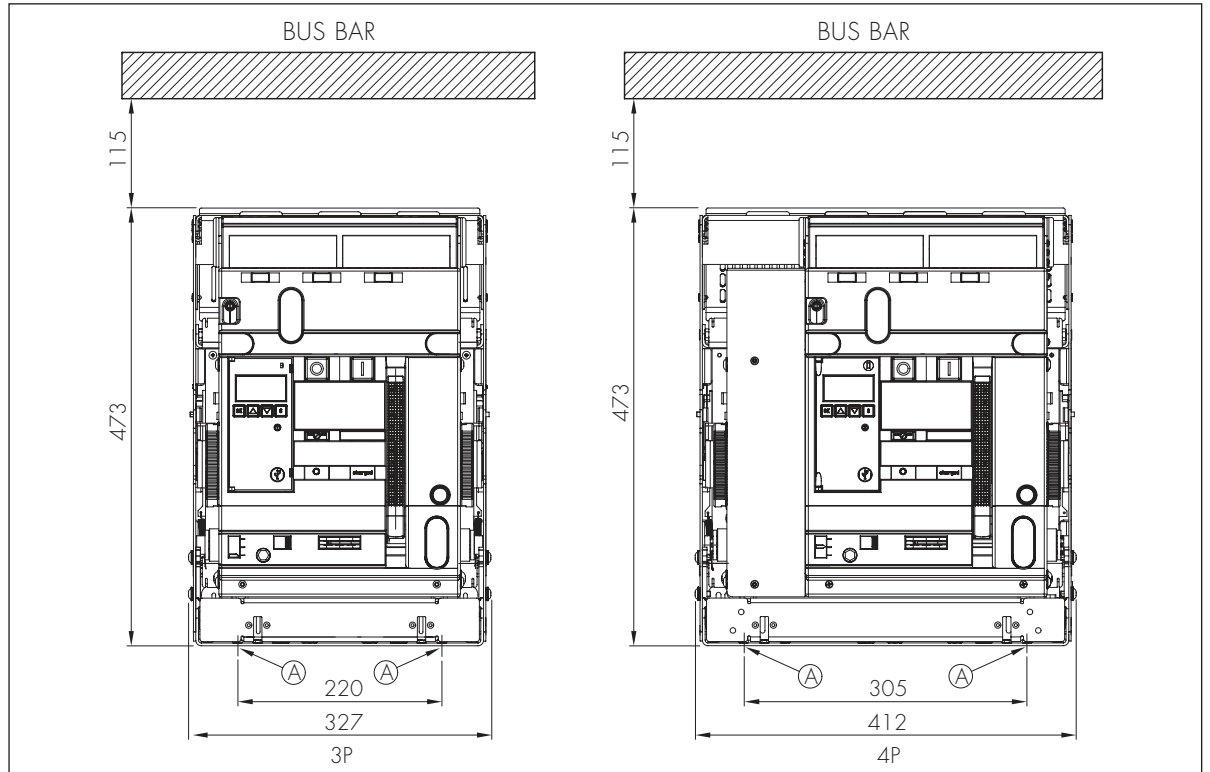
**DMX<sup>3</sup> 2500-4000-6300.** Mounting details.



# DMX<sup>3</sup>

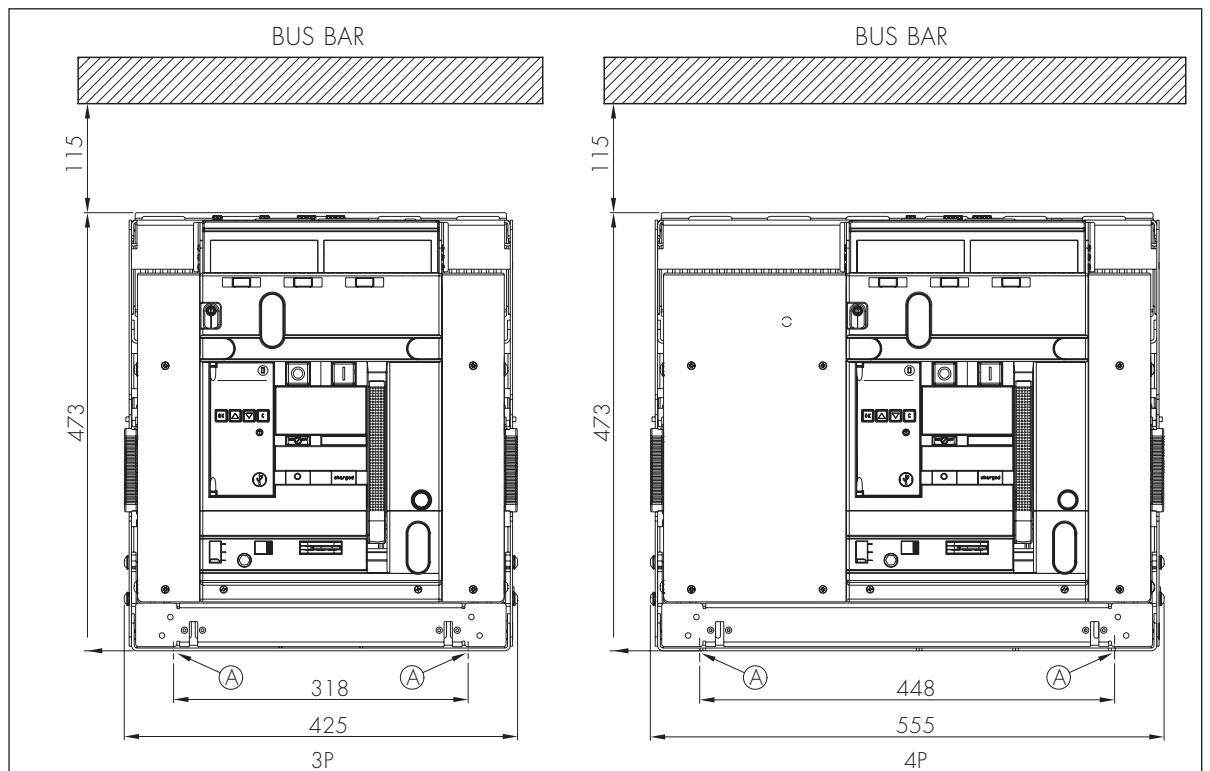
## 10.3 Installation of breaker DMX<sup>3</sup> draw-out version

**DMX<sup>3</sup> 2500.** Mounting details (also for 42kA version).



Ⓐ = Fixing point on plate of enclosure

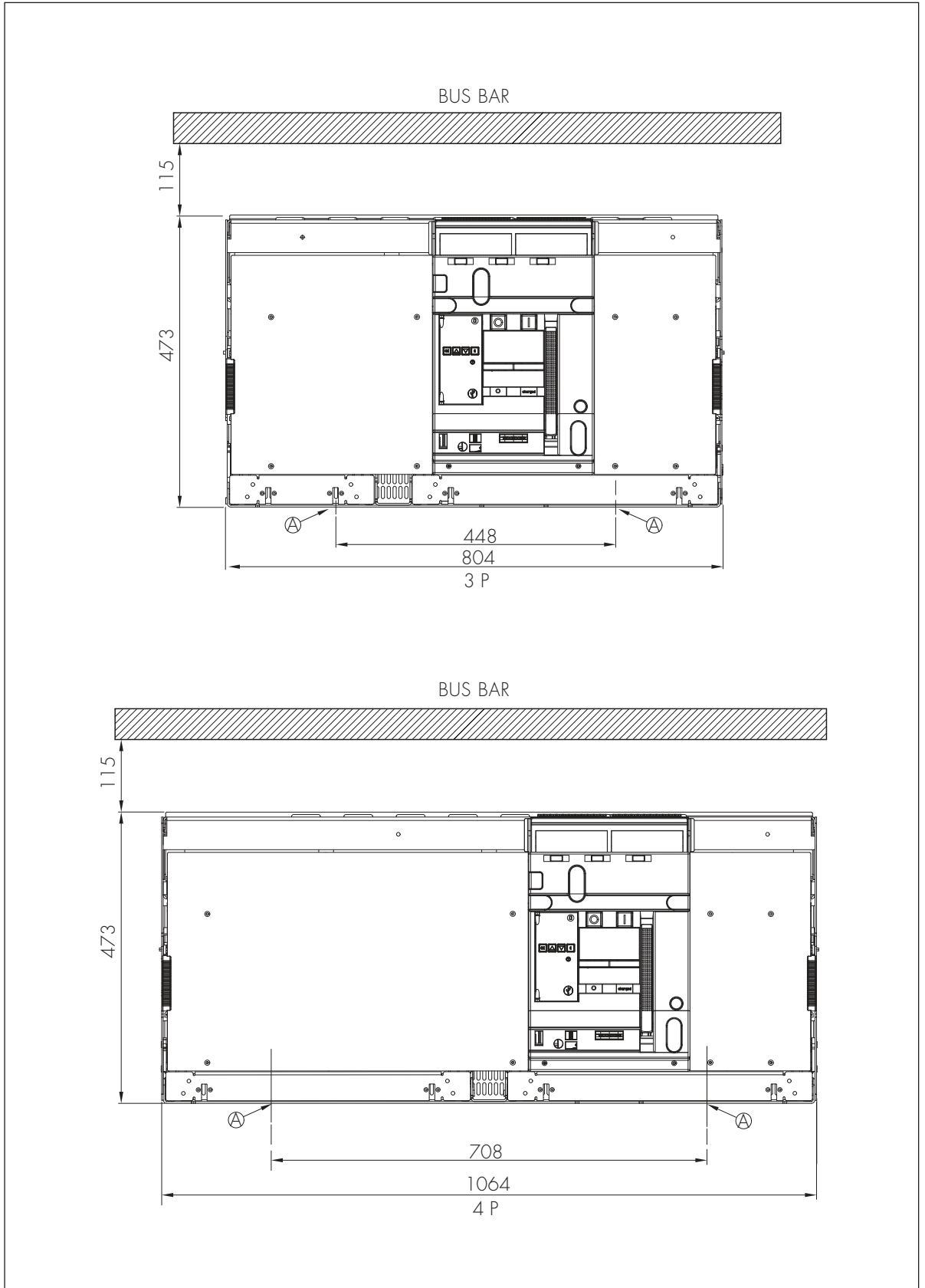
**DMX<sup>3</sup> 4000.** Mounting details.



Ⓐ = Fixing point on plate of enclosure

# DMX<sup>3</sup>

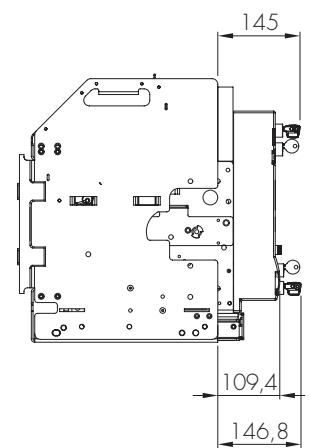
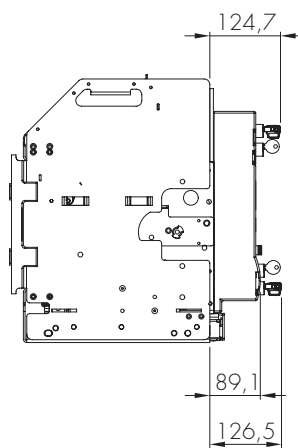
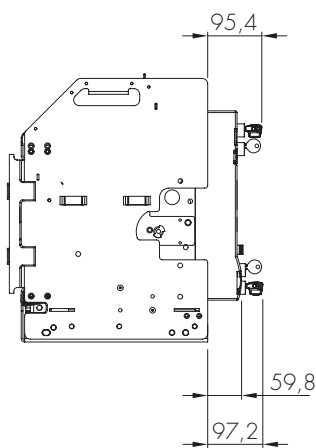
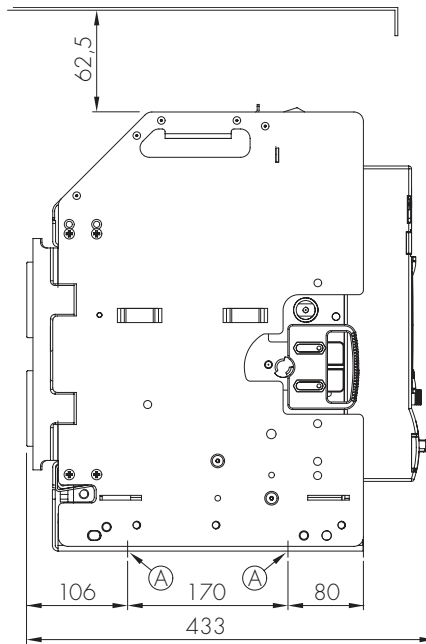
## DMX<sup>3</sup> 6300. Mounting details.



# DMX<sup>3</sup>

## DMX<sup>3</sup> 2500-4000-6300. Mounting details.

Ⓐ = Fixing point on plate of enclosure



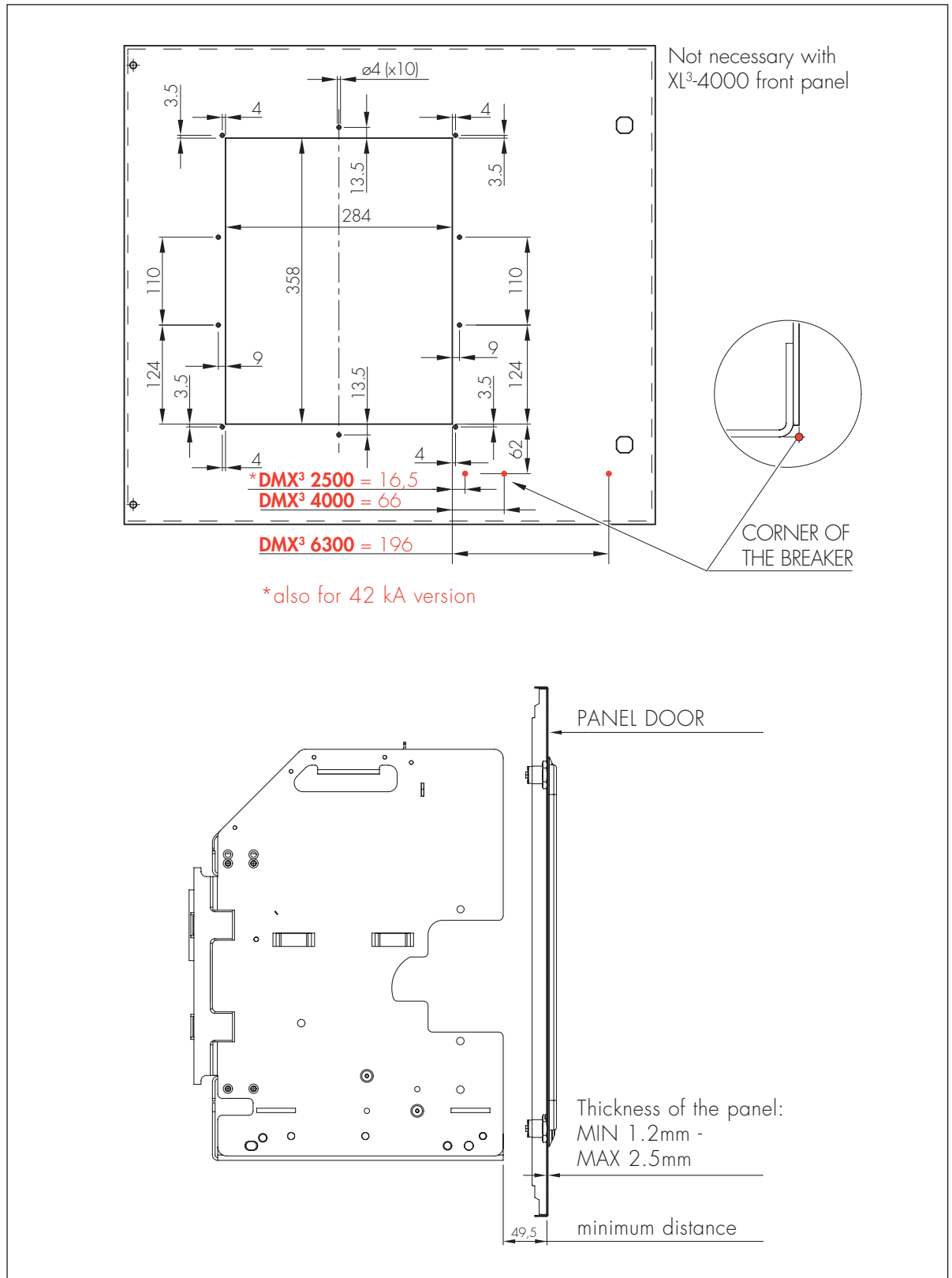
TEST



# DMX<sup>3</sup>

## 10.4 Door cut-out and door drilling for draw-out version

**DMX<sup>3</sup> 2500-4000-6300.** Mounting details.



# DMX<sup>3</sup>

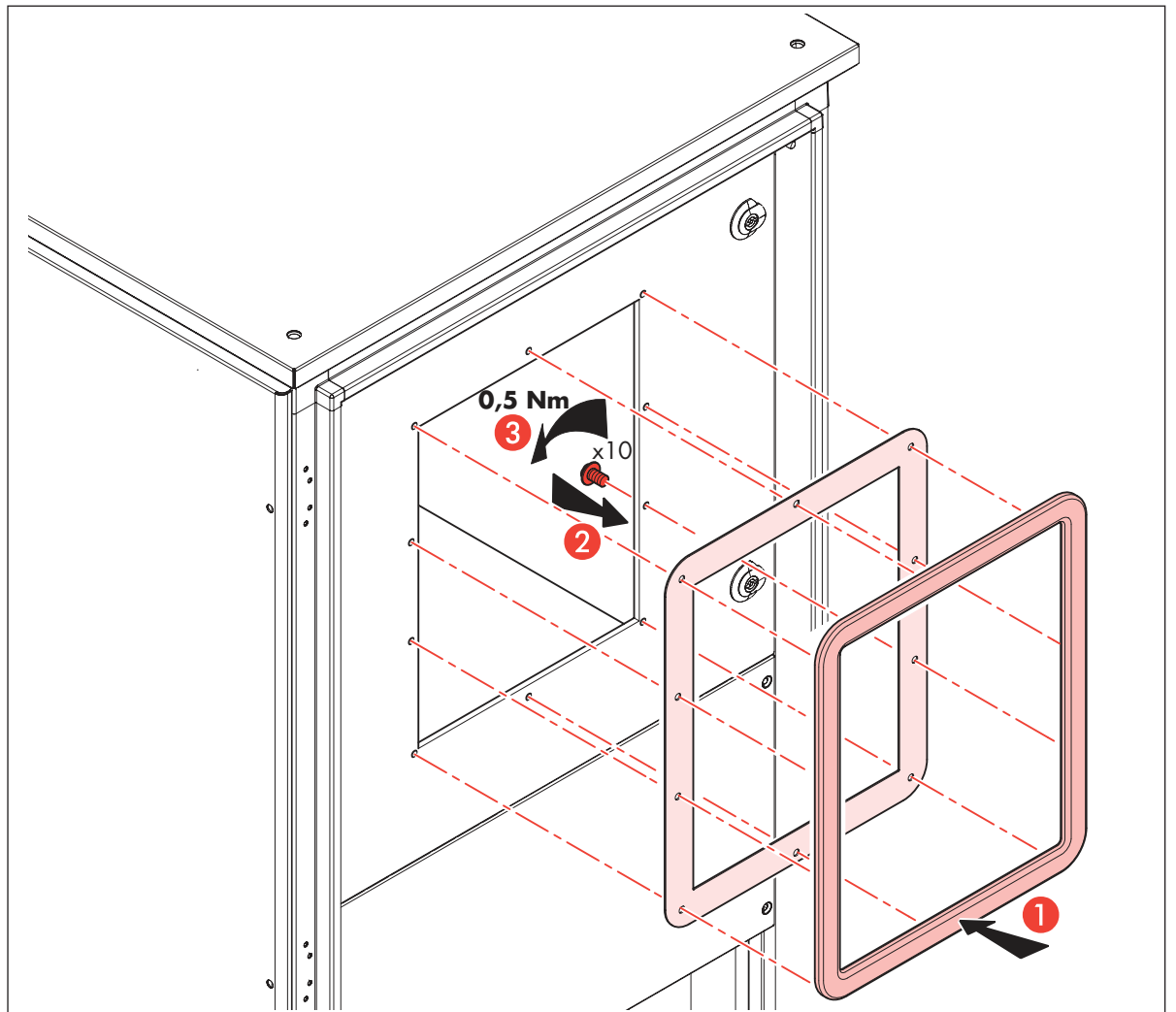
## 10.5 Fixing Door Sealing Frame

Function: To provide Ingress Protection.

Installation: fix the sealing frame and the rubber on the

panel door so that fits with the drilling on the door.

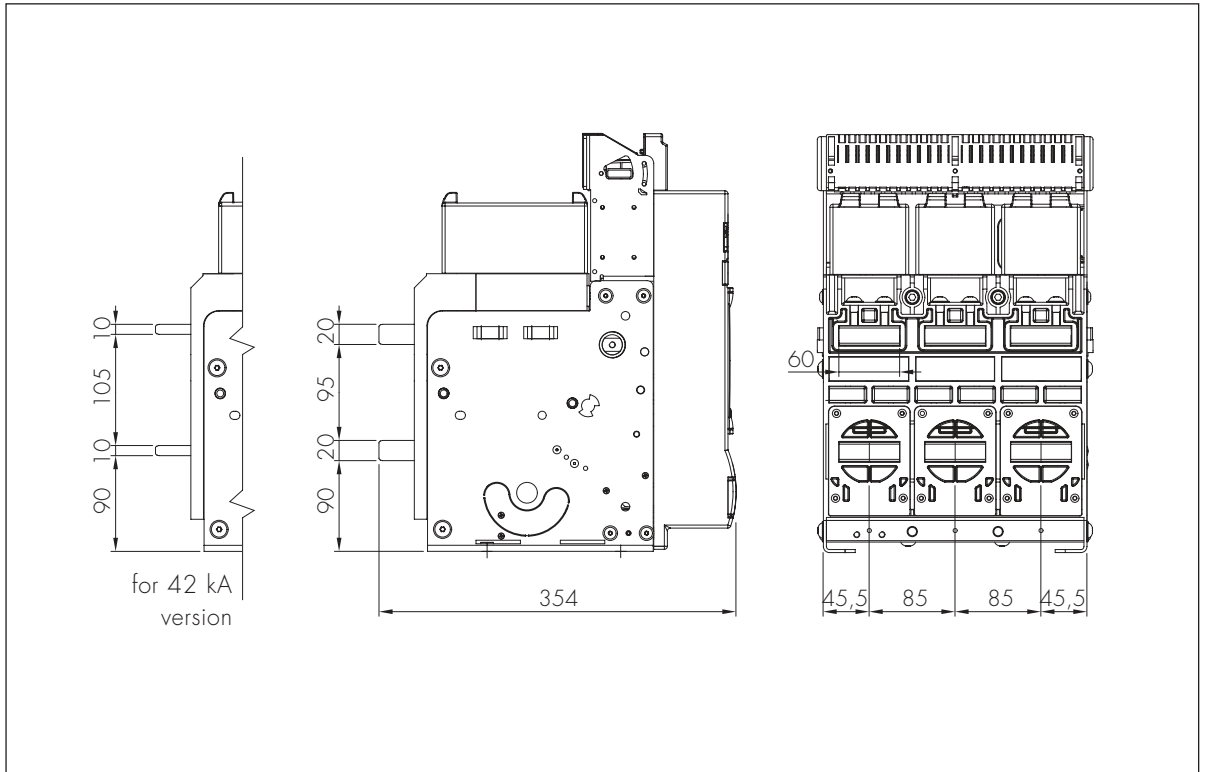
Srew the sealing frame.



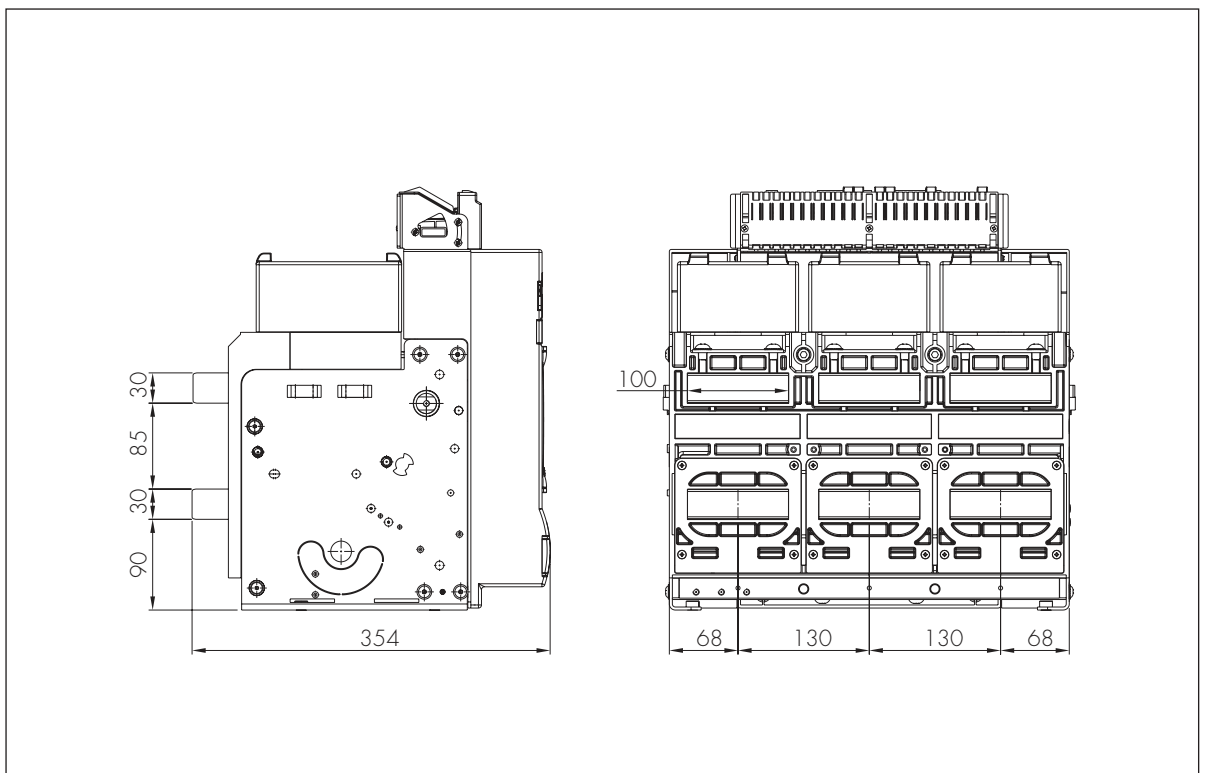
# DMX<sup>3</sup>

## 11. Termination - Fixed Breakers

DMX<sup>3</sup> 2500. 3 poles.

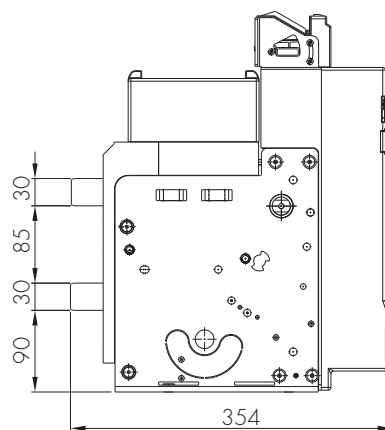
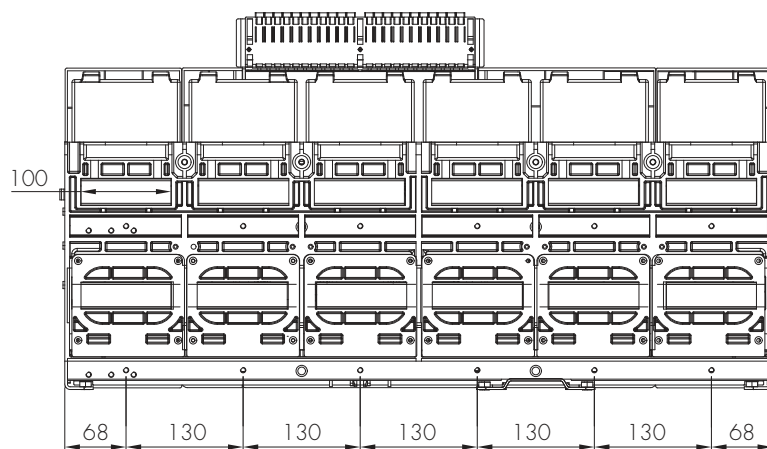


DMX<sup>3</sup> 4000. 3 poles.



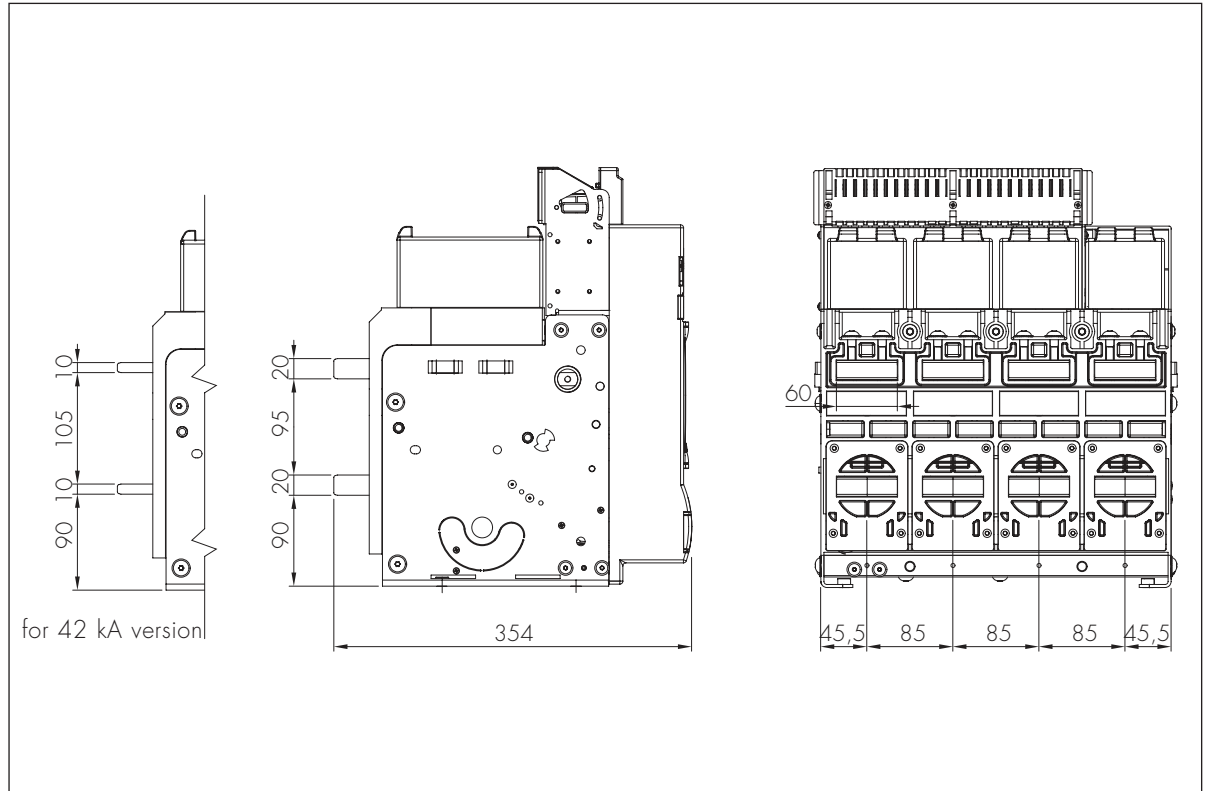
# DMX<sup>3</sup>

DMX<sup>3</sup> 6300. 3 pôles.

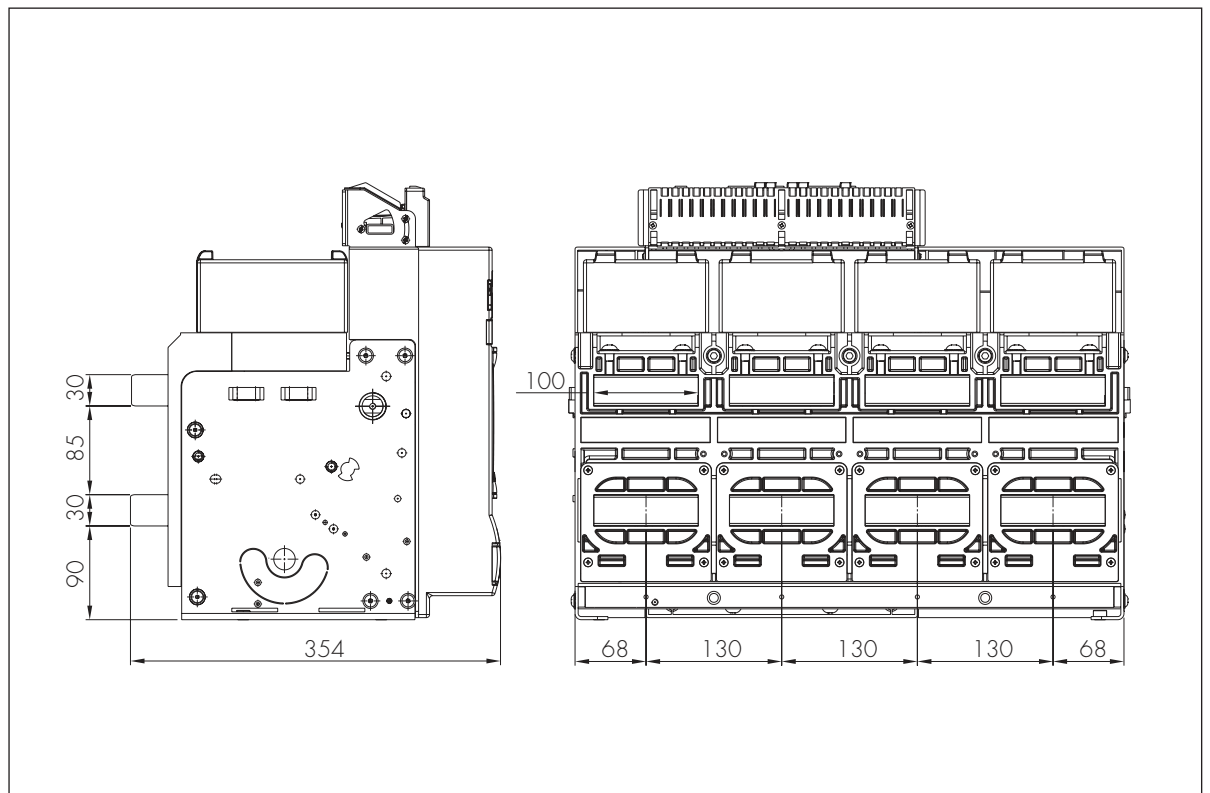


# DMX<sup>3</sup>

## DMX<sup>3</sup> 2500. 4 poles.

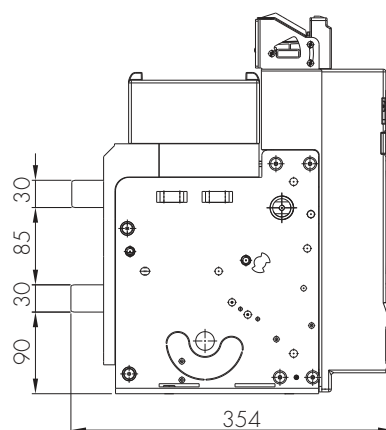
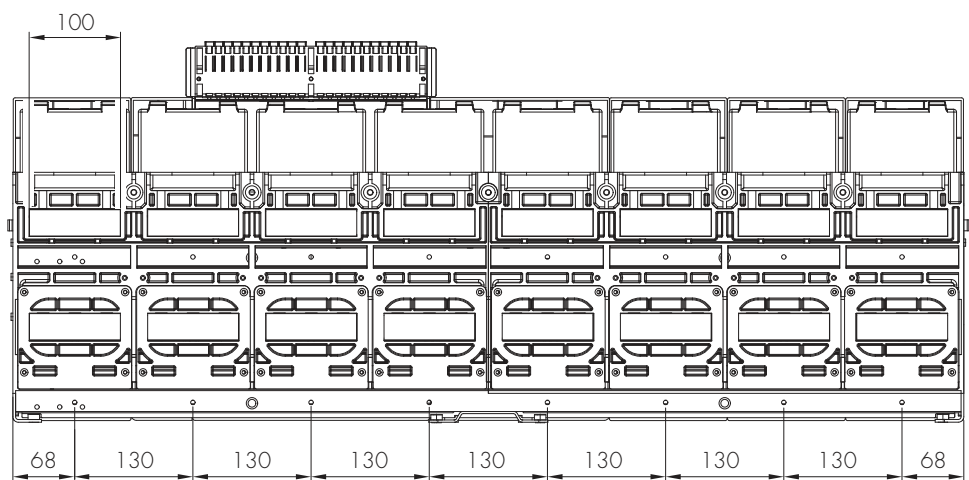


## DMX<sup>3</sup> 4000. 4 poles.



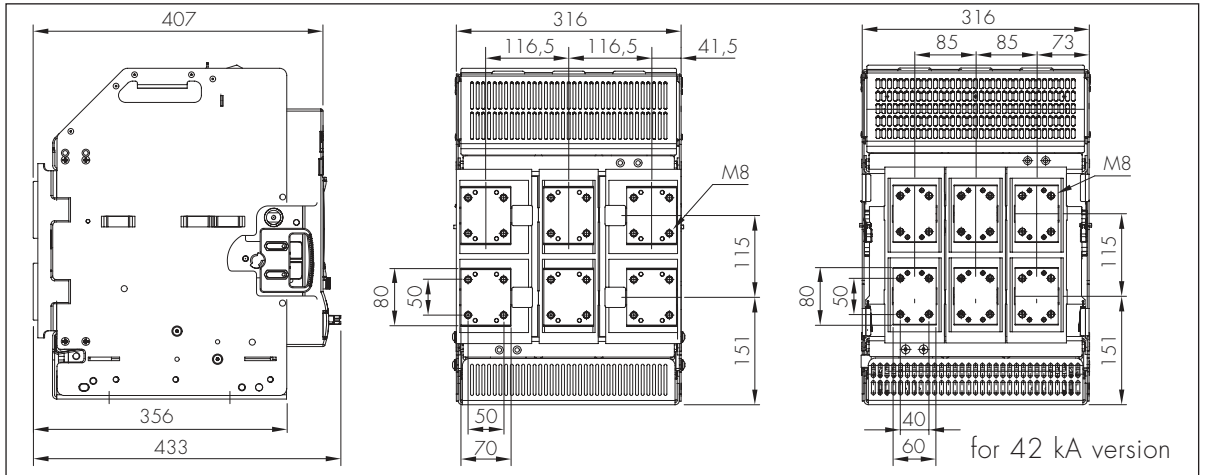
# DMX<sup>3</sup>

DMX<sup>3</sup> 6300. 4 pôles.

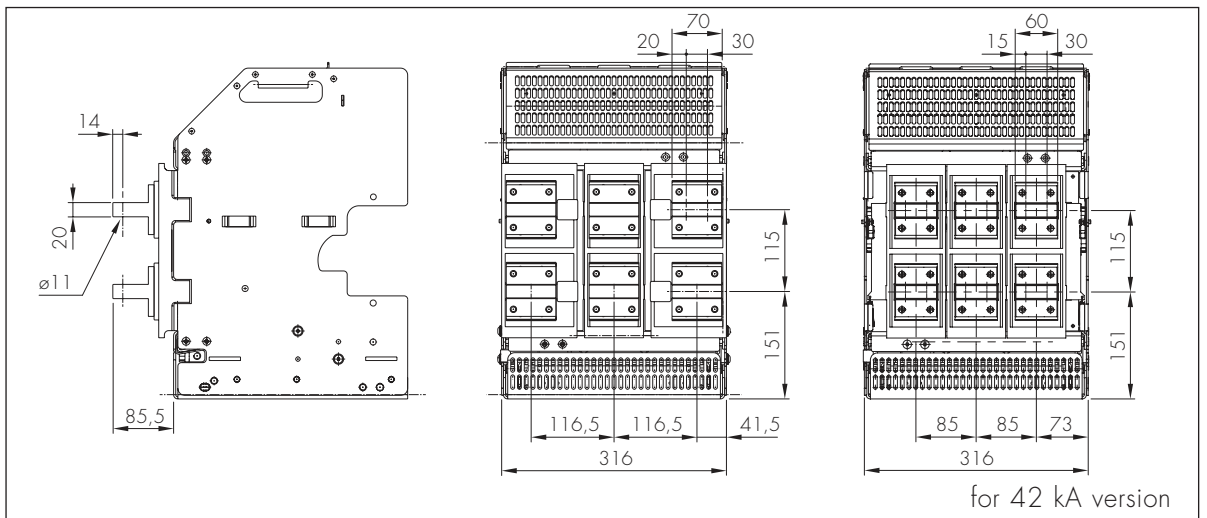


## 12. Termination - Draw-out breakers

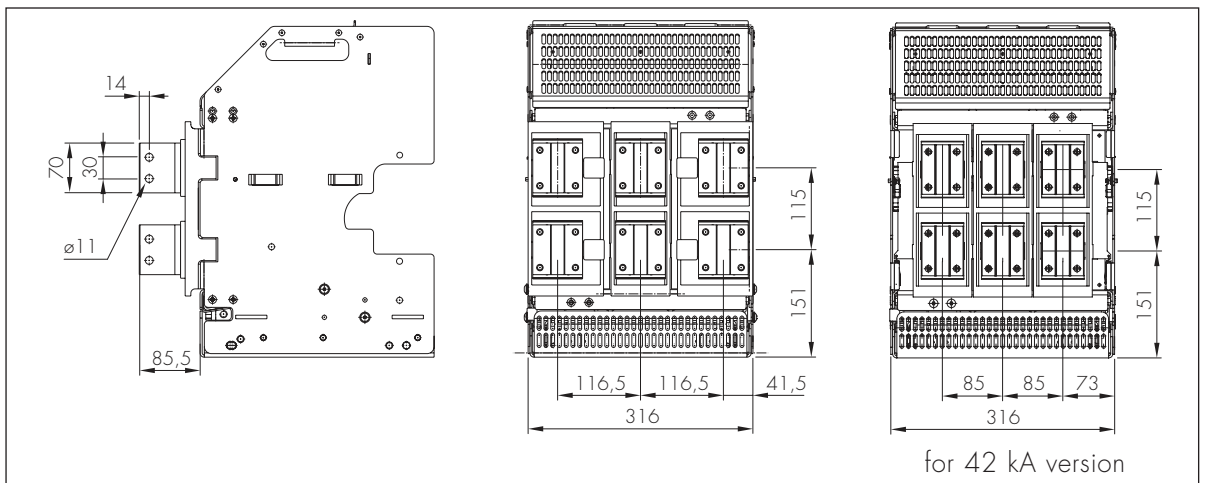
DMX<sup>3</sup> 2500. 3 poles flat terminals.



Horizontal Terminals.

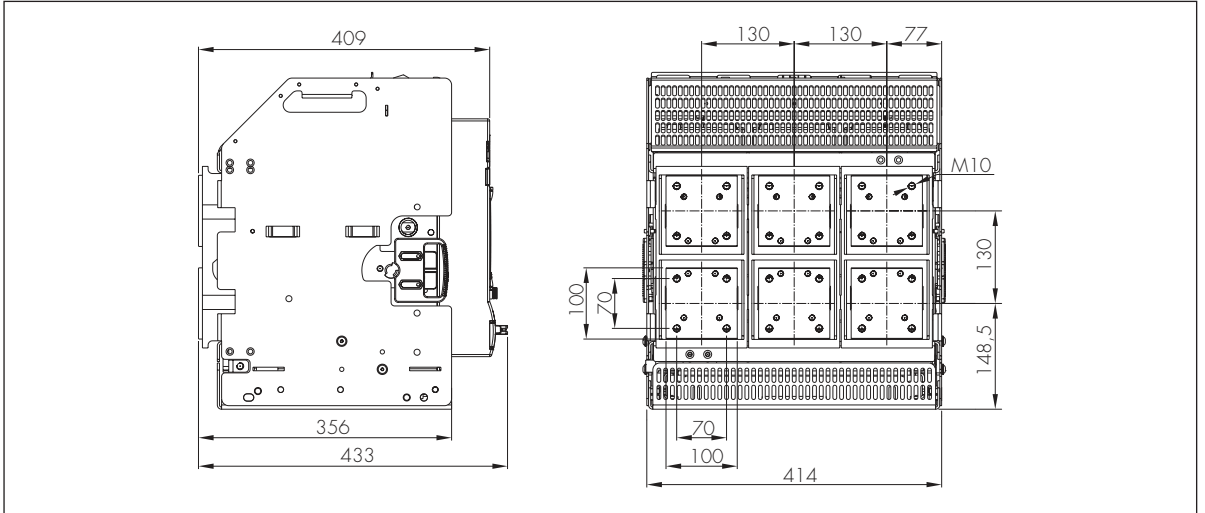


Vertical Terminals.

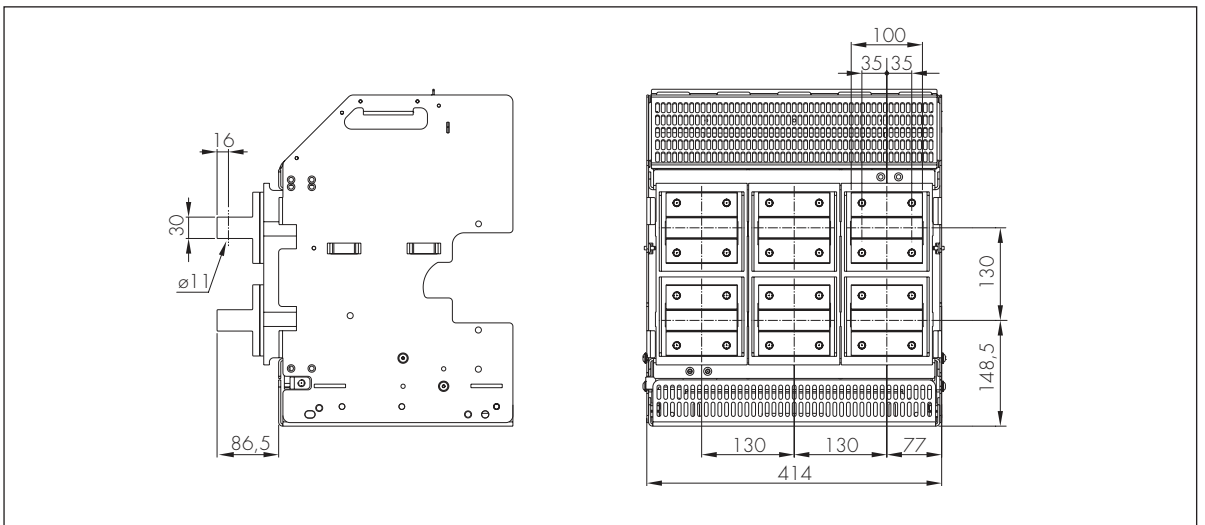


# DMX<sup>3</sup>

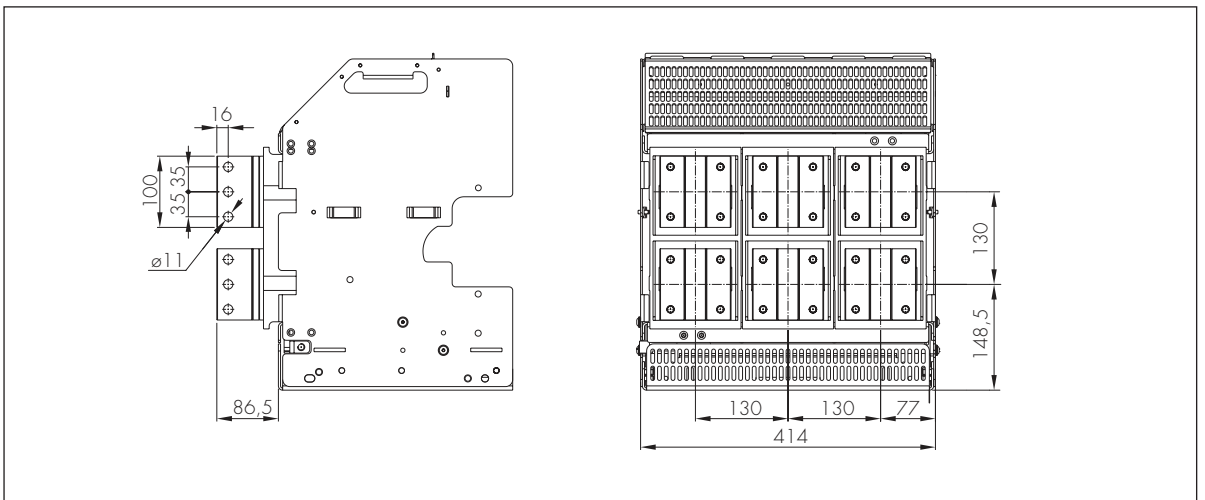
**DMX<sup>3</sup> 4000.** 3 poles flat terminals.



Horizontal Terminals.

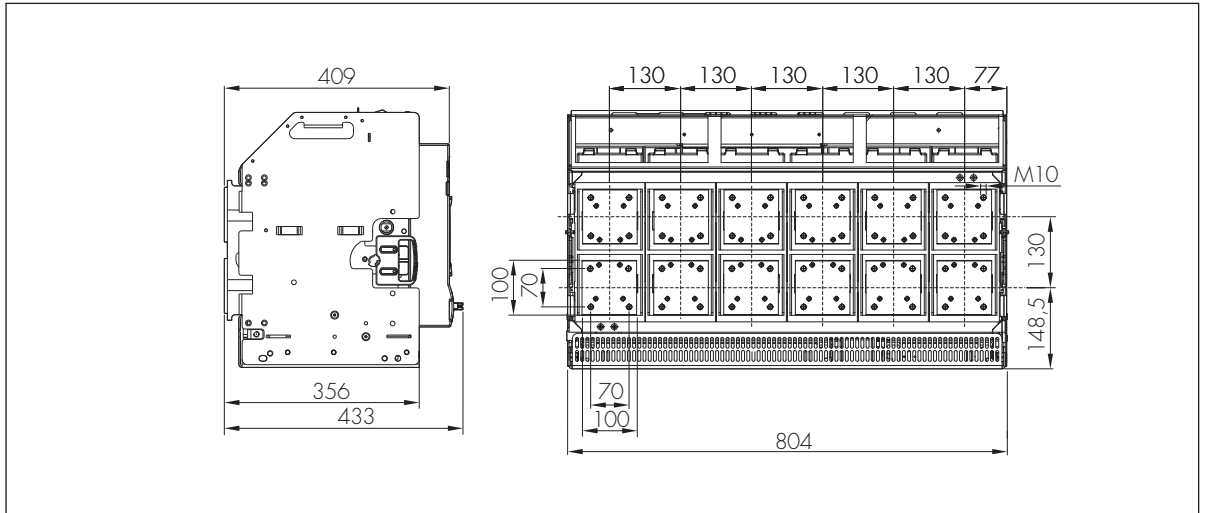


Vertical Terminals.

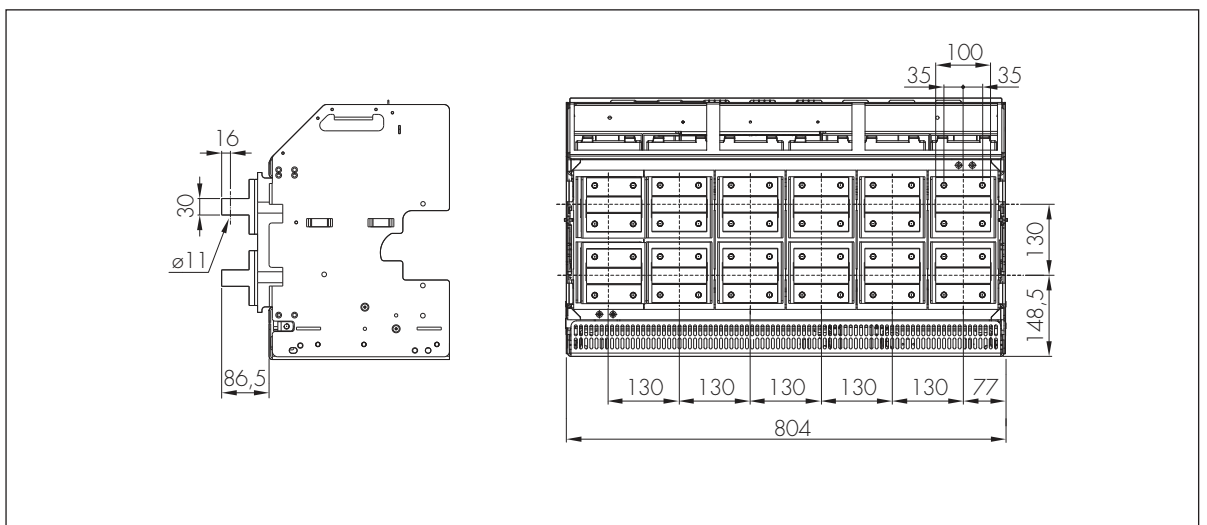


# DMX<sup>3</sup>

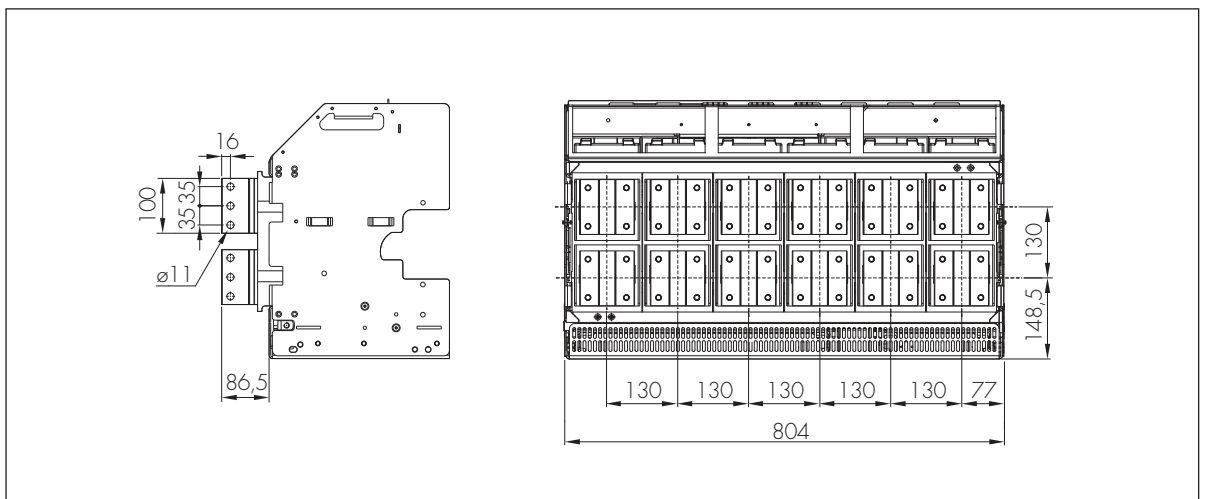
**DMX<sup>3</sup> 6300.** 3 poles flat terminals.



Horizontal Terminals.

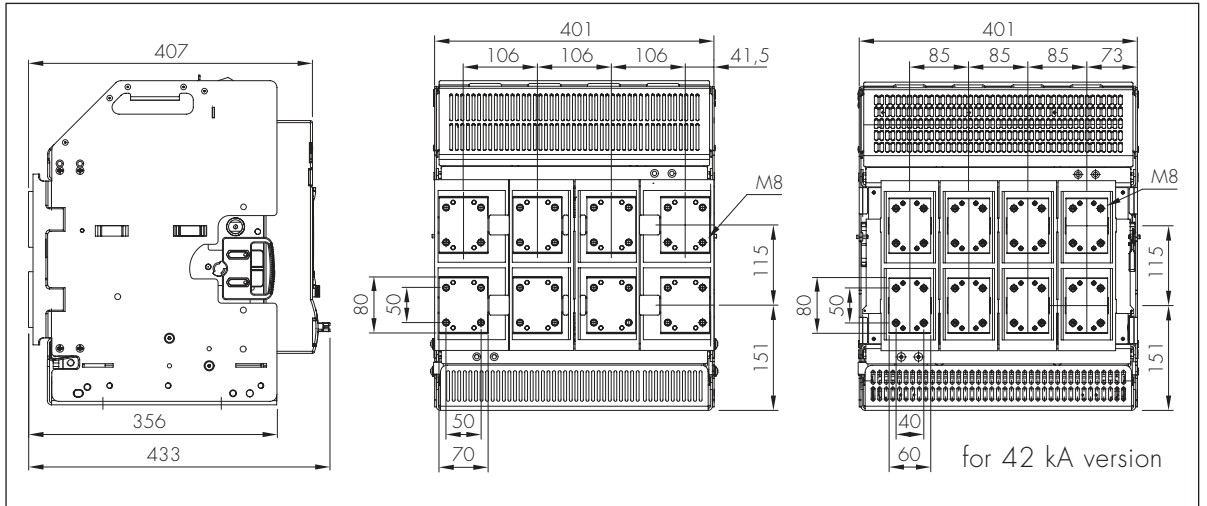


Vertical Terminals.

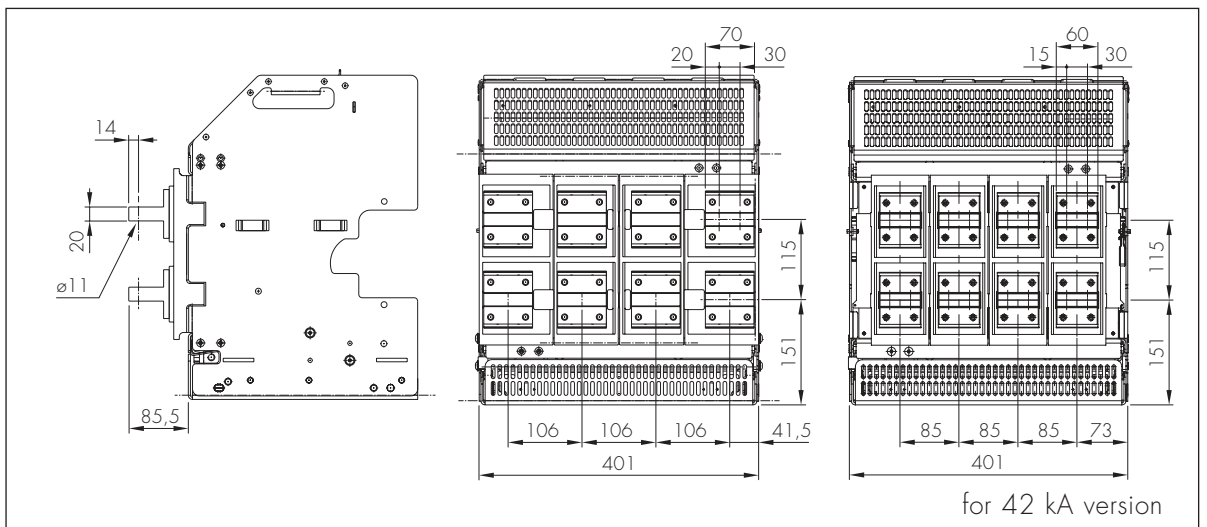


# DMX<sup>3</sup>

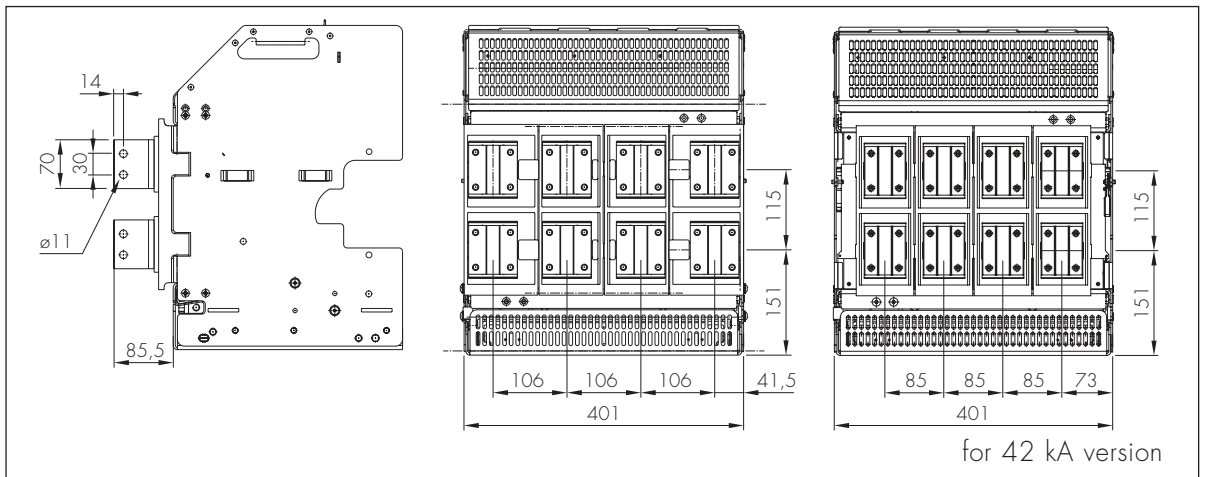
**DMX<sup>3</sup> 2500.** 4 poles flat terminals.



Horizontal Terminals.

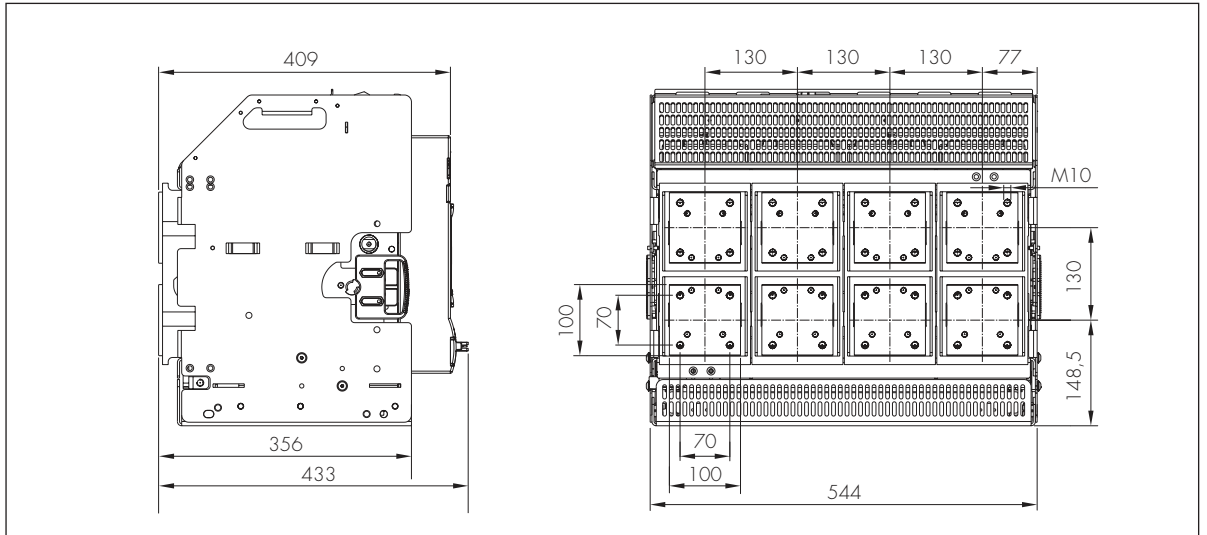


Vertical Terminals.

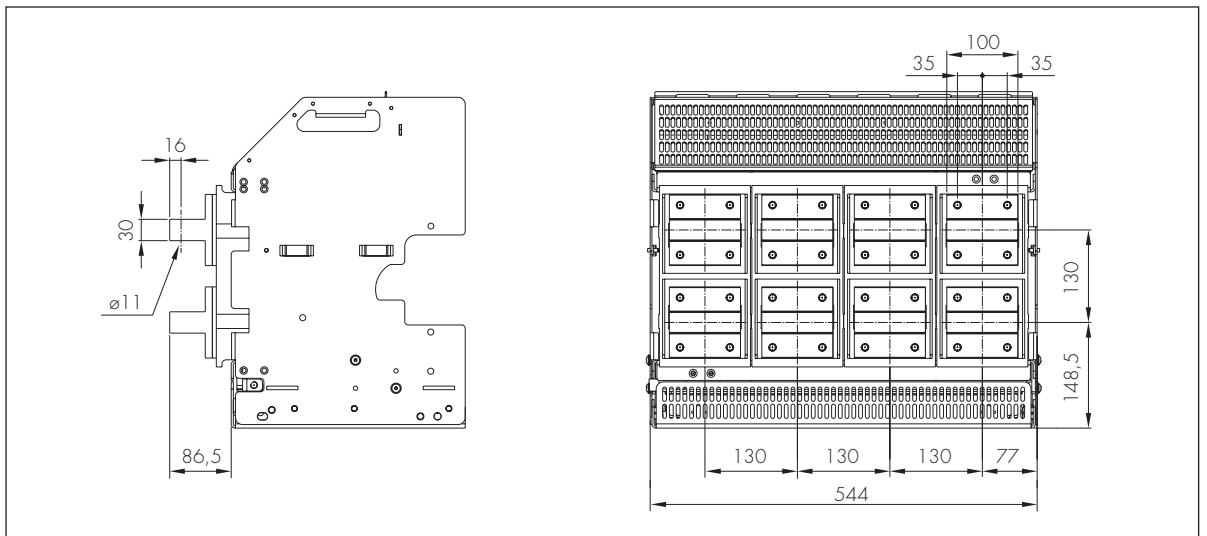


# DMX<sup>3</sup>

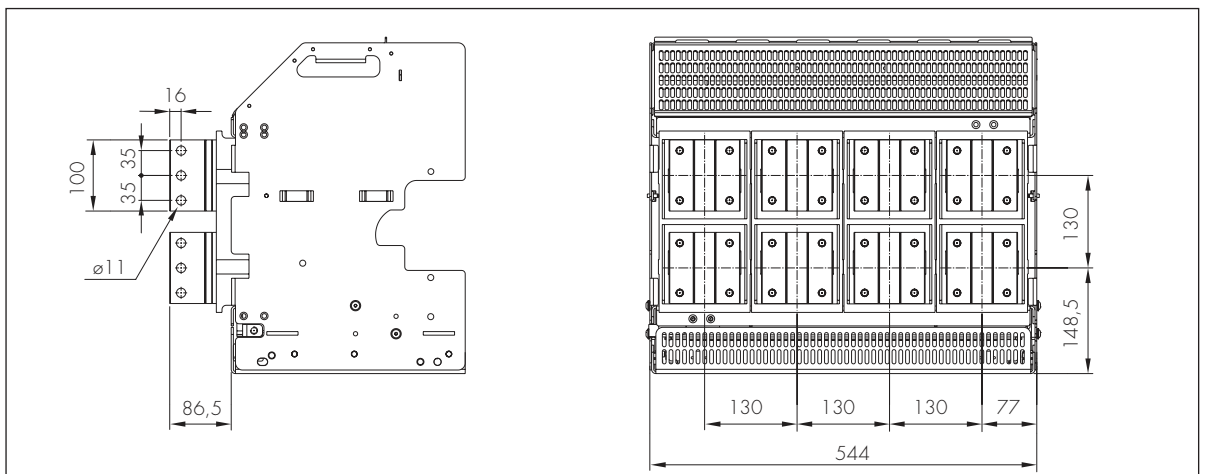
**DMX<sup>3</sup> 4000.** 4 poles flat terminals.



Horizontal Terminals.

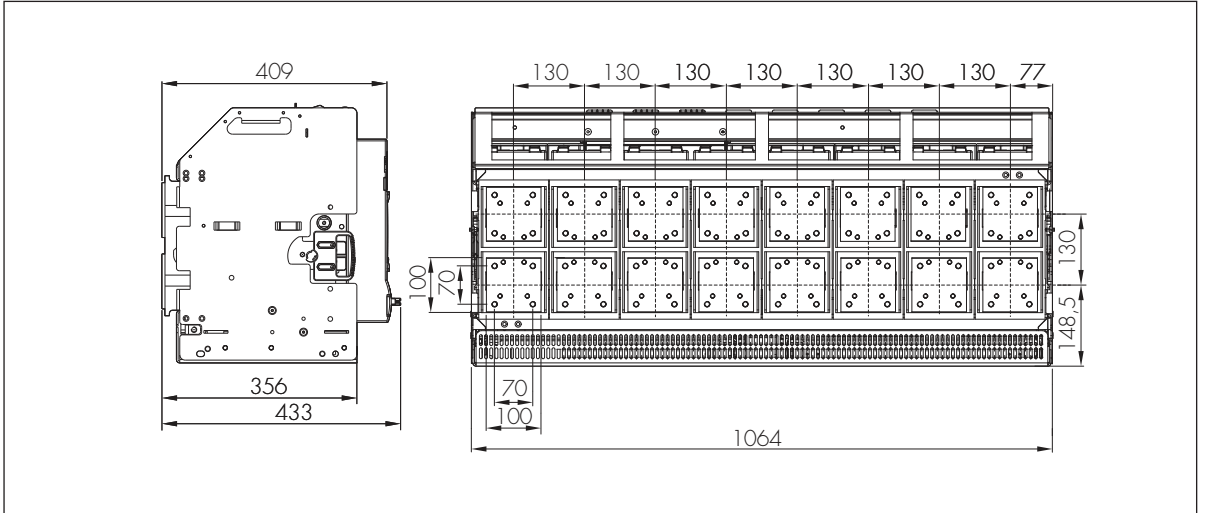


Vertical Terminals.

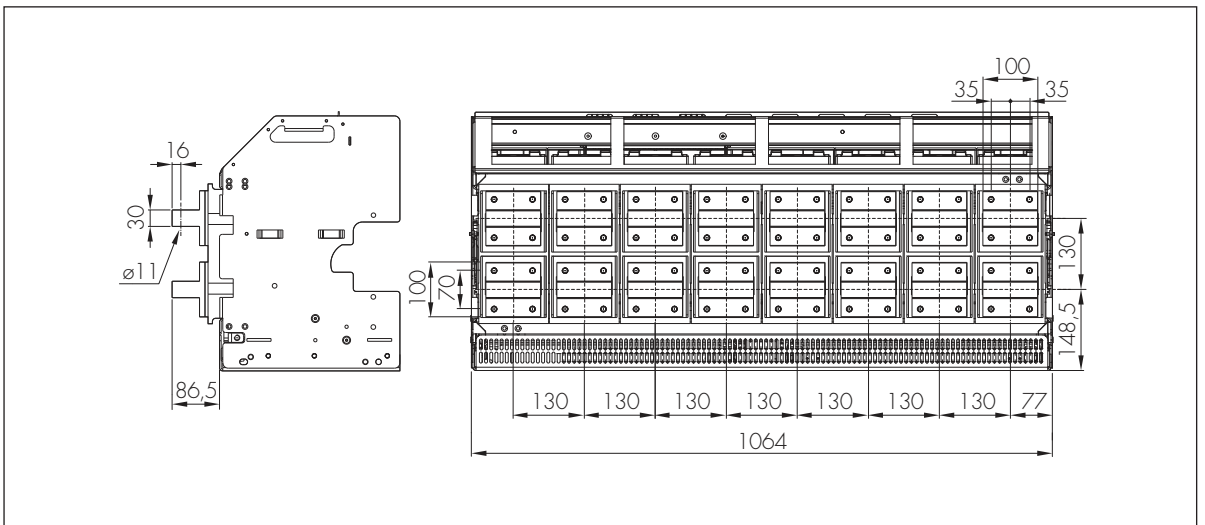


# DMX<sup>3</sup>

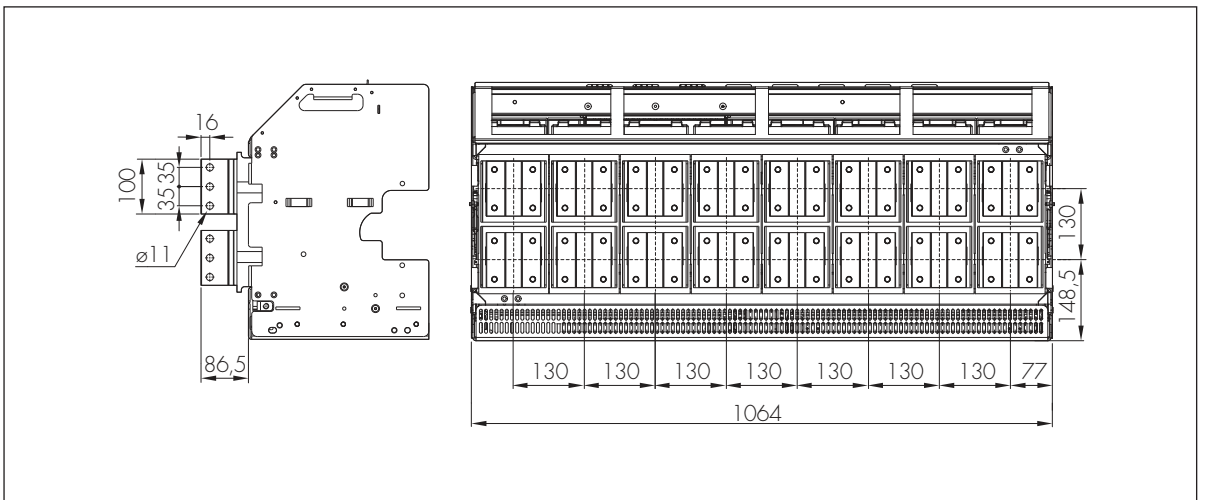
**DMX<sup>3</sup> 6300.** 4 poles flat terminals.



Horizontal Terminals.



Vertical Terminals.



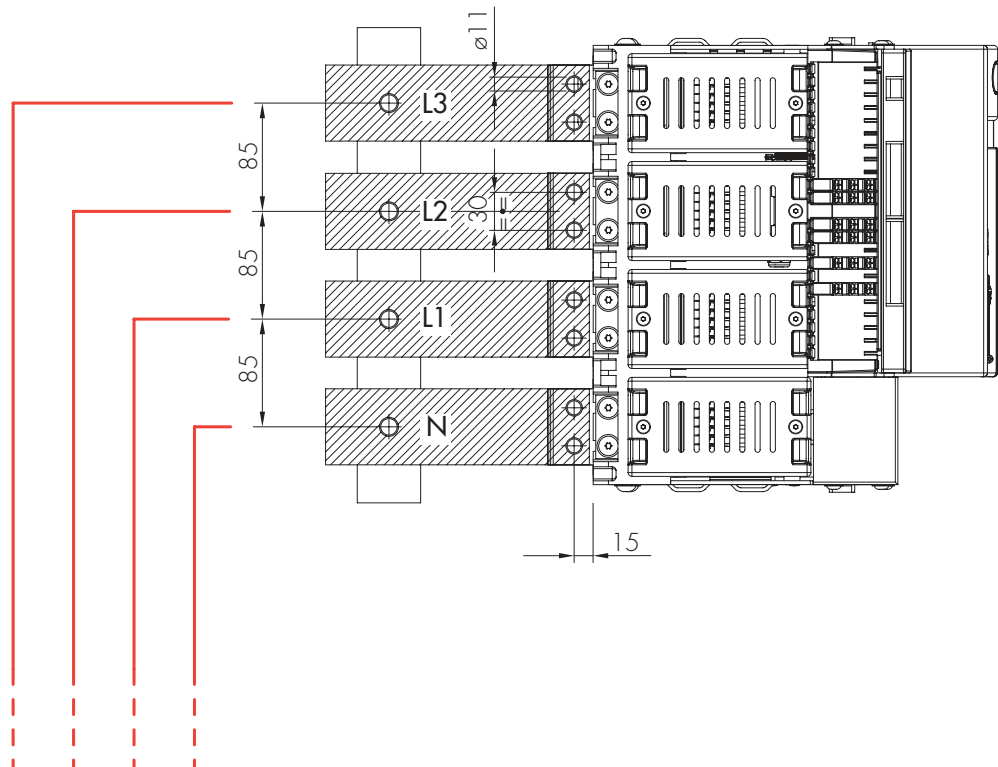
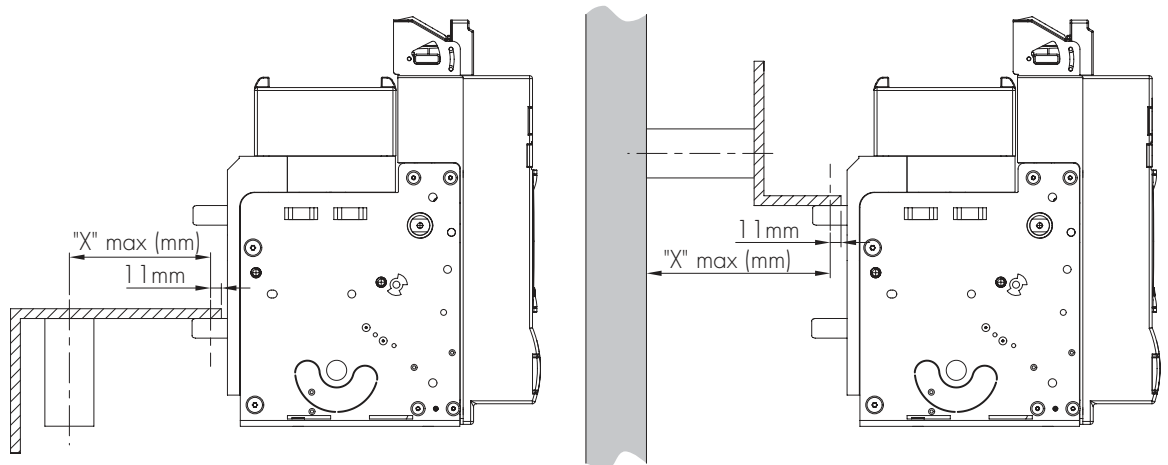
## 13. Connection for fixed version

### DMX<sup>3</sup> 2500.



Termination support must be made of isolating material and sized according to the bars in order to avoid performances during short circuit conditions.

$I_{cc}$ (kA)	$\leq 42$	$\leq 50$	$\leq 65$	$\leq 100$
"X" max (mm)	350	300	250	150



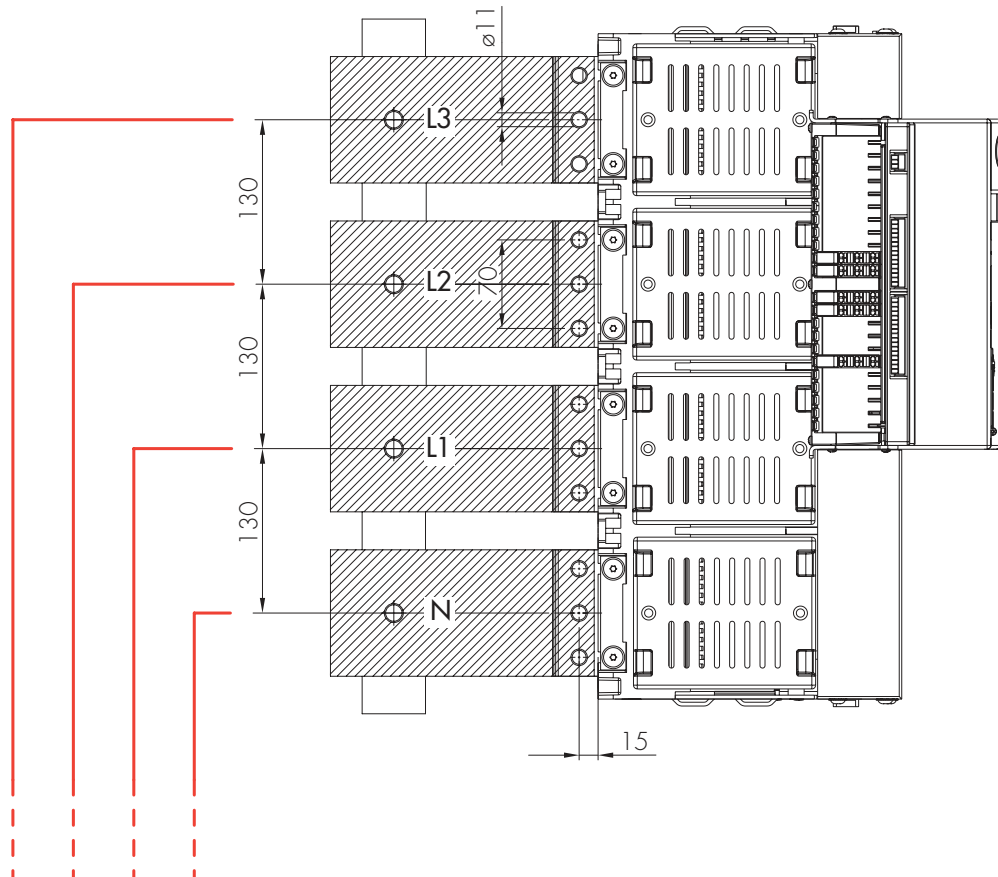
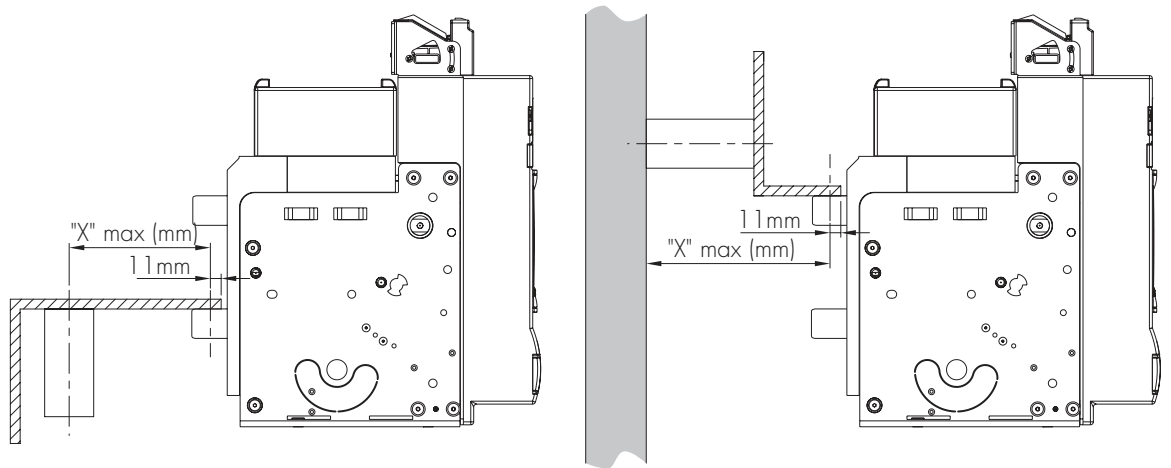
# DMX<sup>3</sup>

## DMX<sup>3</sup> 4000.



Termination support must be made of isolating material and sized according to the bars in order to avoid performances during short circuit conditions.

$I_{cc}$ (kA)	$\leq 42$	$\leq 50$	$\leq 65$	$\leq 100$
"X" max (mm)	350	300	250	150



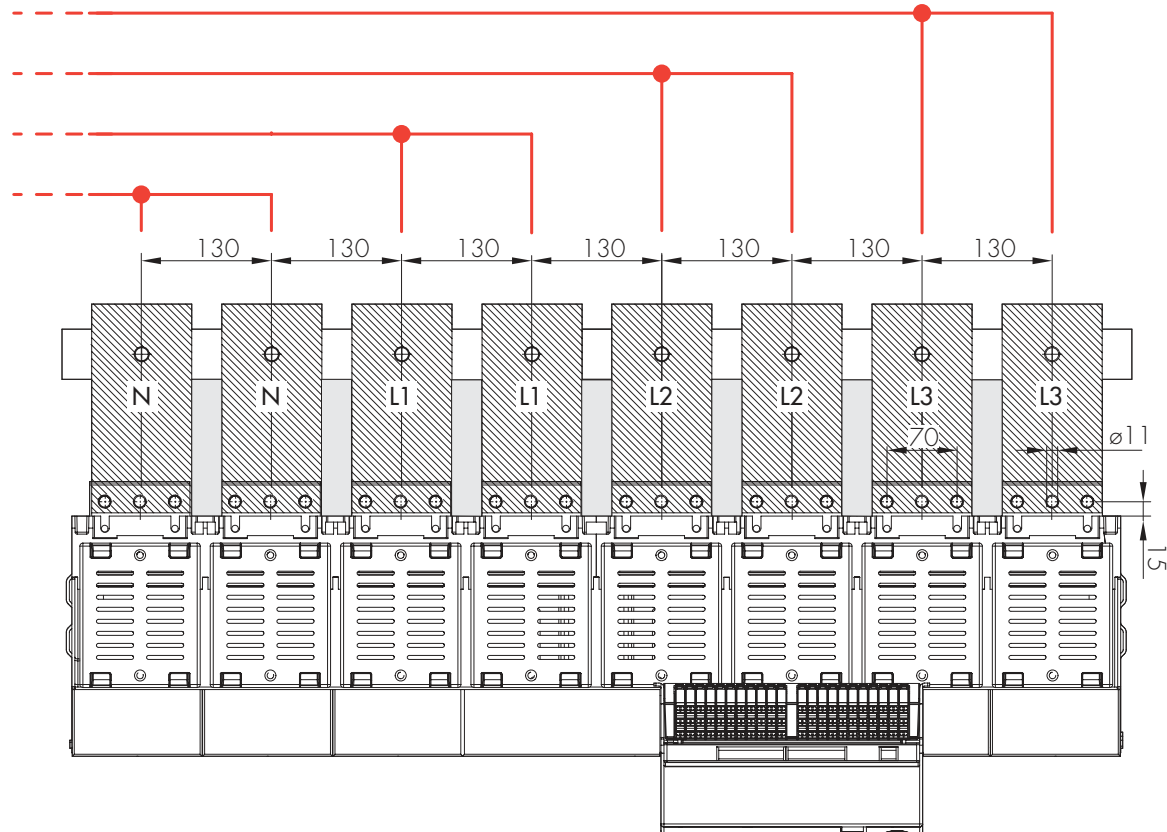
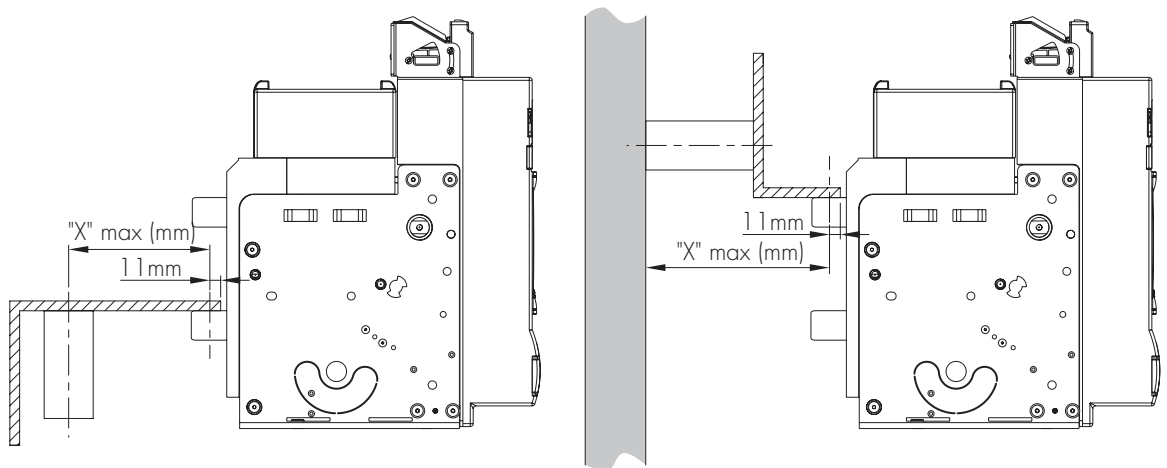
# DMX<sup>3</sup>

## DMX<sup>3</sup> 6300.



Termination support must be made of isolating material and sized according to the bars in order to avoid performances during short circuit conditions.

$I_{cc}$ (kA)	$\leq 42$	$\leq 50$	$\leq 65$	$\leq 100$
"X" max (mm)	350	300	250	150



## 14. Possible connections for draw-out version

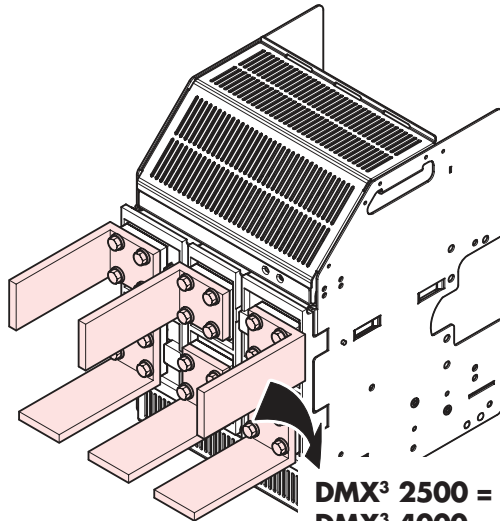
DMX<sup>3</sup>'s terminals offer more contact area to accept Aluminium links.

DMX<sup>3</sup>'s Universal Flat terminals greatly facilitate termination.

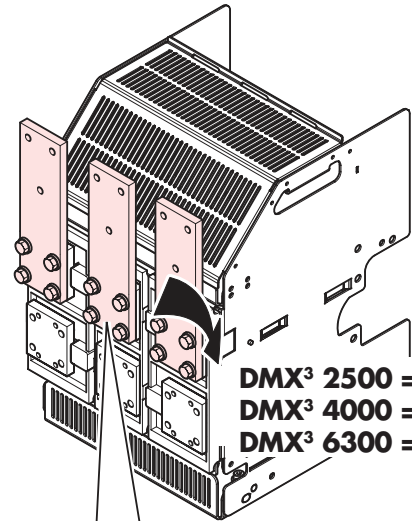
These terminals directly support all commonly used types of termination as shown in adjoining figure.



Termination support must be made of isolating material and sized according to the bars in order to avoid performances during short circuit conditions.

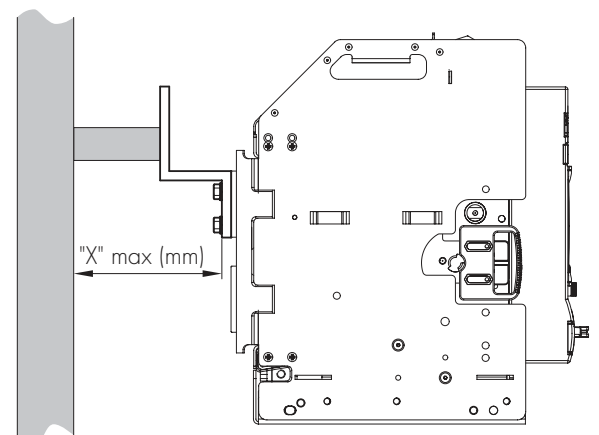
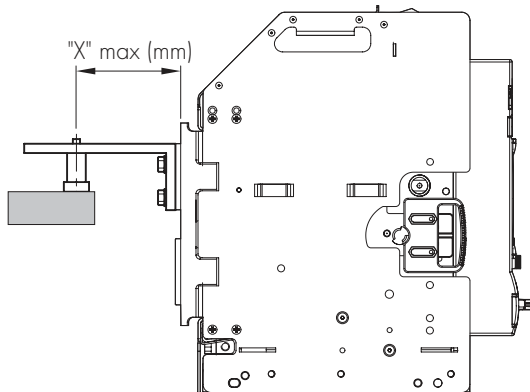
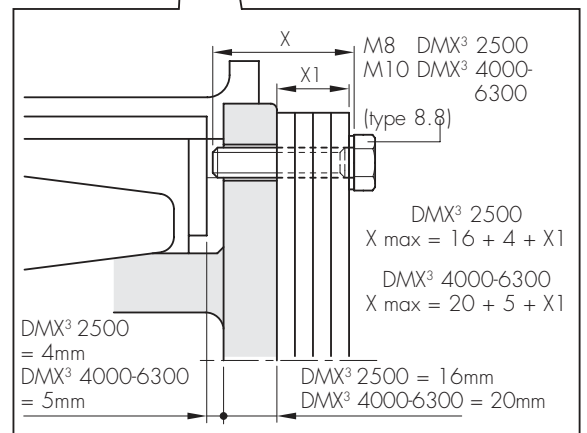
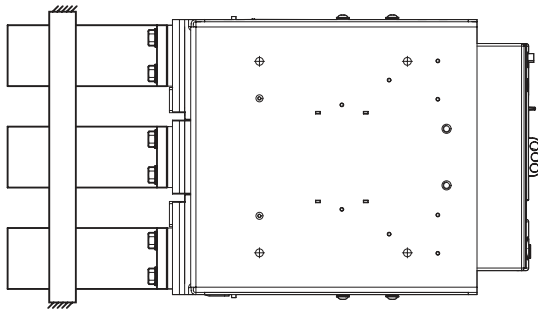


**DMX<sup>3</sup> 2500 = 25 Nm**  
**DMX<sup>3</sup> 4000 = 36 Nm**  
**DMX<sup>3</sup> 6300 = 36 Nm**



**DMX<sup>3</sup> 2500 = 25 Nm**  
**DMX<sup>3</sup> 4000 = 36 Nm**  
**DMX<sup>3</sup> 6300 = 36 Nm**

Icc (kA)	≤ 42	≤ 50	≤ 65	≤ 100
"X" max (mm)	350	300	250	150



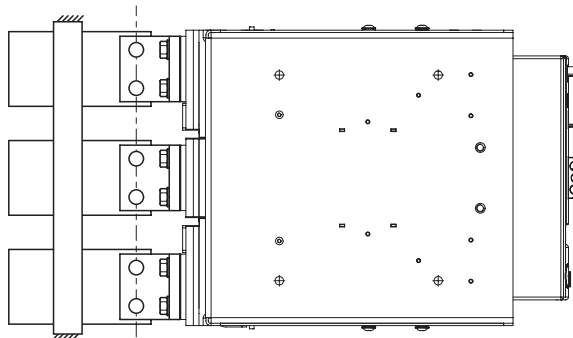
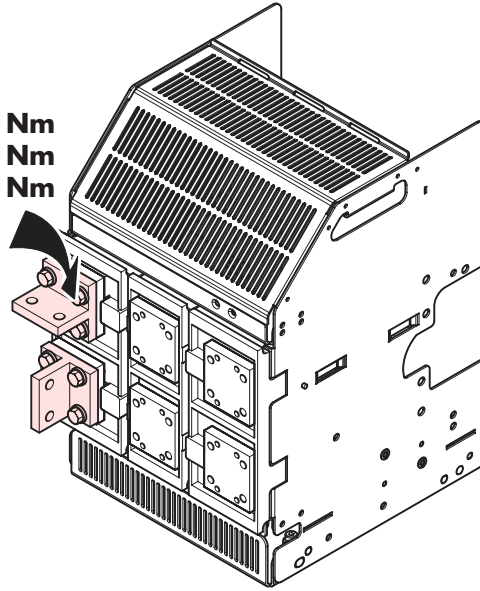
# DMX<sup>3</sup>

Installation of Terminal Adaptor available as an accessory.

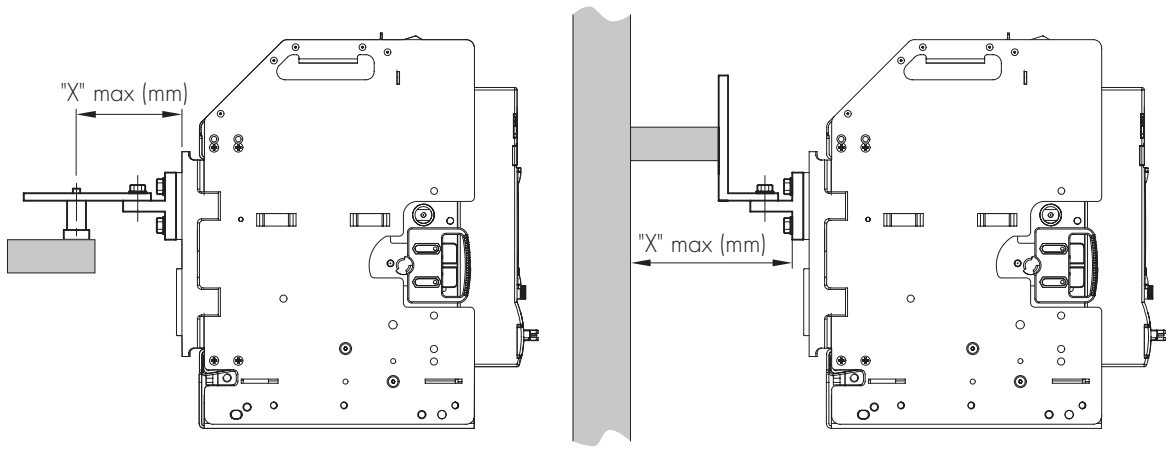


Termination support must be made of isolating material and sized according to the bars in order to avoid performances during short circuit conditions.

**DMX<sup>3</sup> 2500 = 25 Nm**  
**DMX<sup>3</sup> 4000 = 36 Nm**  
**DMX<sup>3</sup> 6300 = 36 Nm**

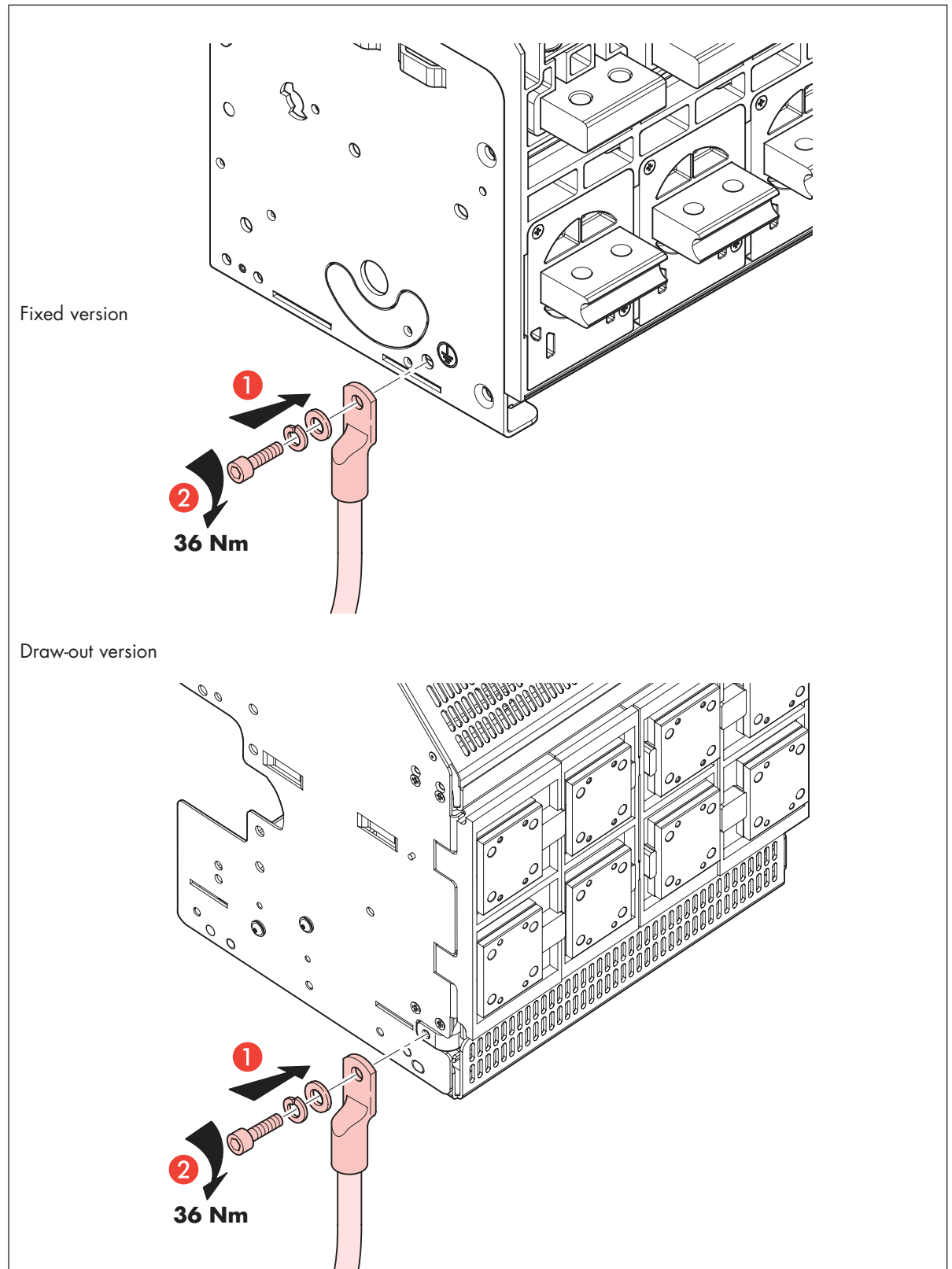


<b>I<sub>cc</sub> (kA)</b>	<b>≤ 42</b>	<b>≤ 50</b>	<b>≤ 65</b>	<b>≤ 100</b>
"X" max (mm)	350	300	250	150



## 15. Ground connection

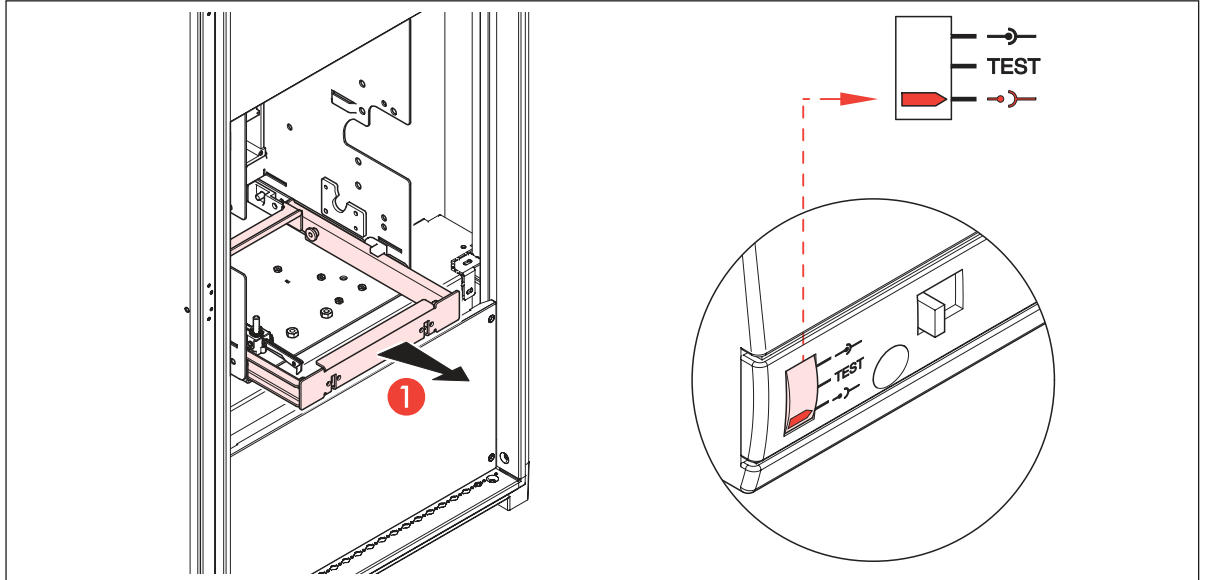
To realize ground connection, use suitable hole, fixing the cable lug with the bolt M10 delivered with the breaker.



# DMX<sup>3</sup>

## 16. Insertion on switchboard

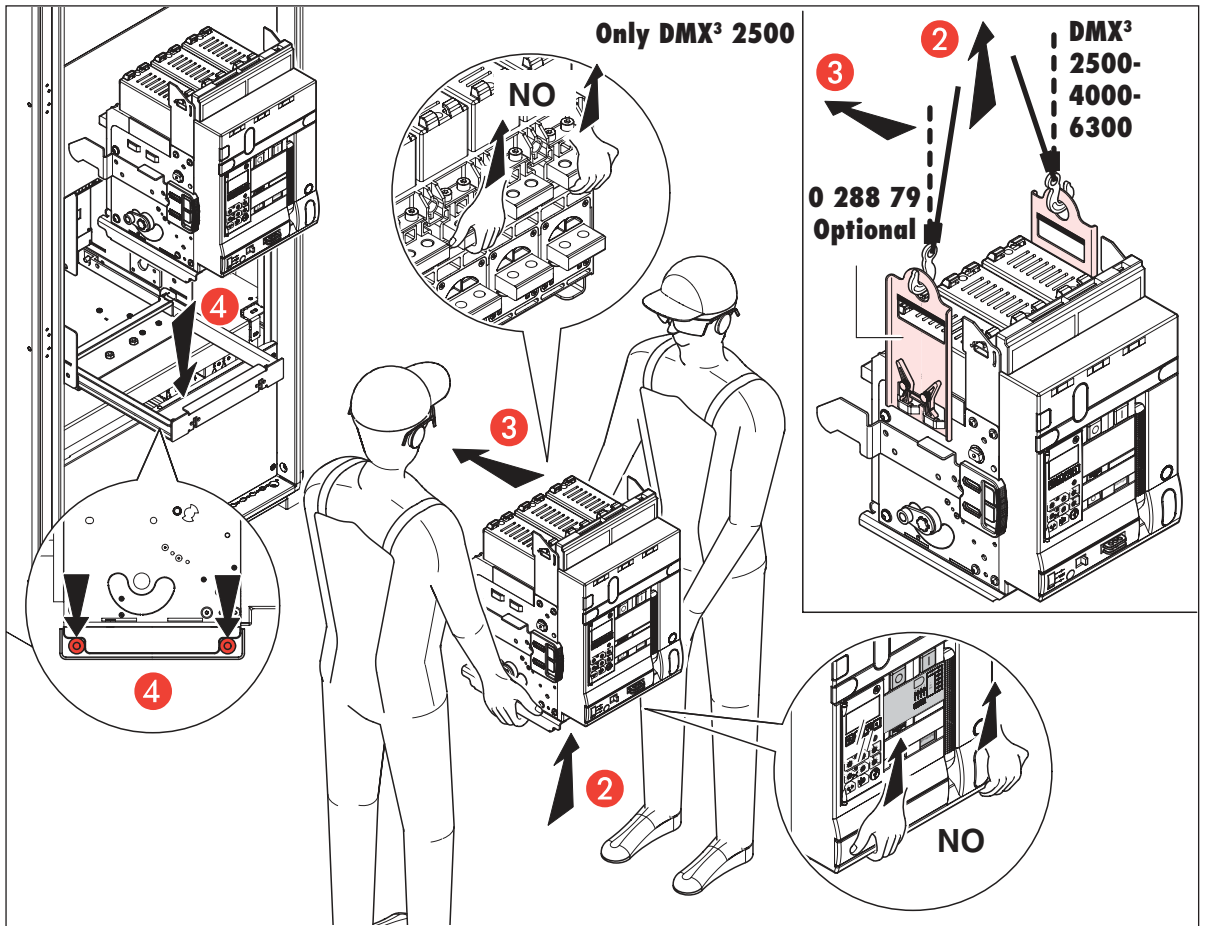
Pull-out the Base Rail and ensure that the breaker is in isolated position (see position indicator).



A special lifting handle are available (optional 0 288 79) also be transported by 2 persons. Ensure that Breaker rests correctly in 2 slots on either side of cradle rail.

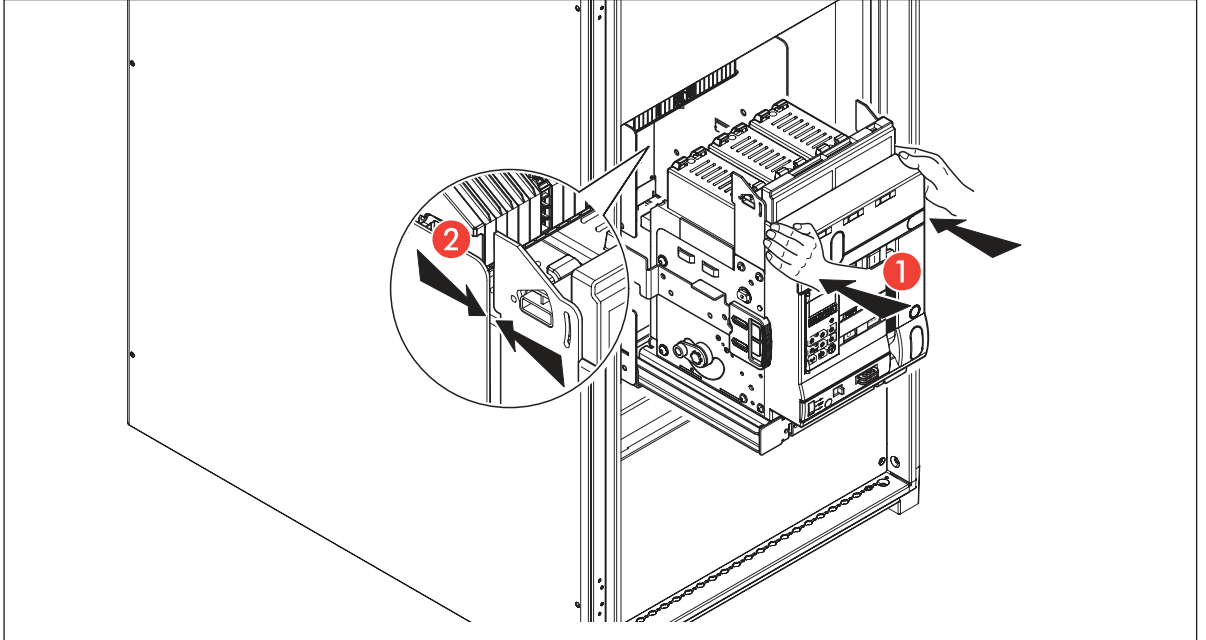


Improper loading of breaker may lead to personal injury and damage to product.



# DMX<sup>3</sup>

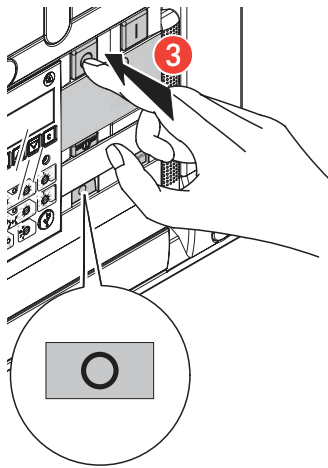
Gently push the breaker to Isolated position and close the Panel door. If equipped with Rating Mis insertion device (optional 0 288 25), base will not accept breaker of different rating.



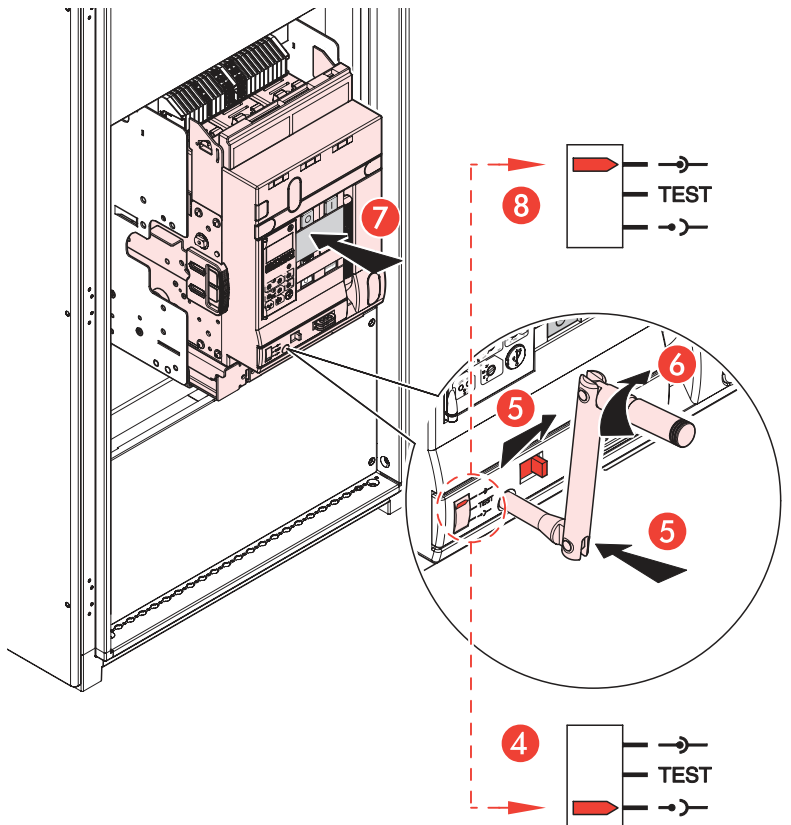
Press the OFF button and then open the Racking Shutter.



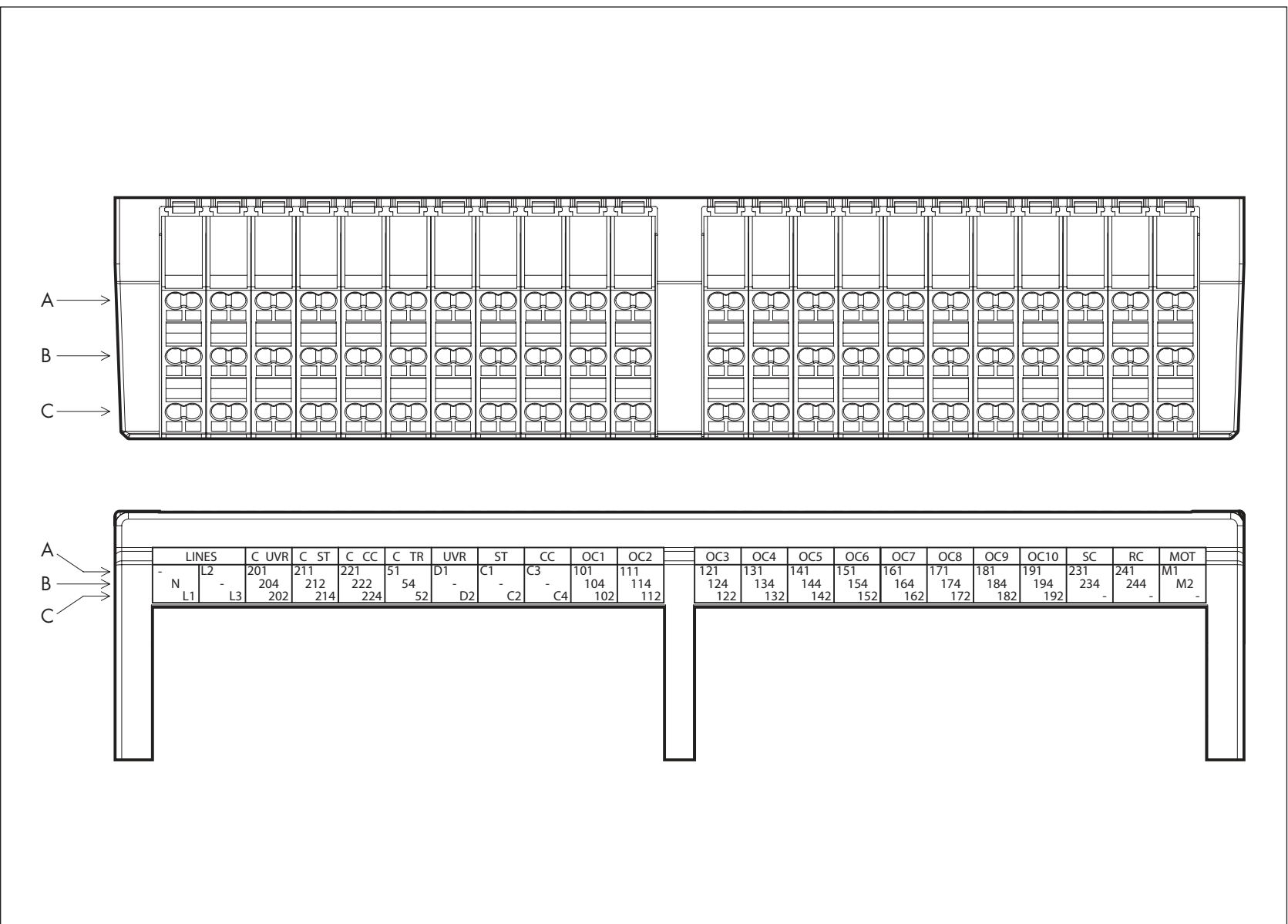
When the breaker is under current, the carry-out racking operation must be done only by specialized personnel.



Excessive forceful racking-in beyond Service position may lead to product damage.



**17. Auxiliary terminals block**



# DMX<sup>3</sup>

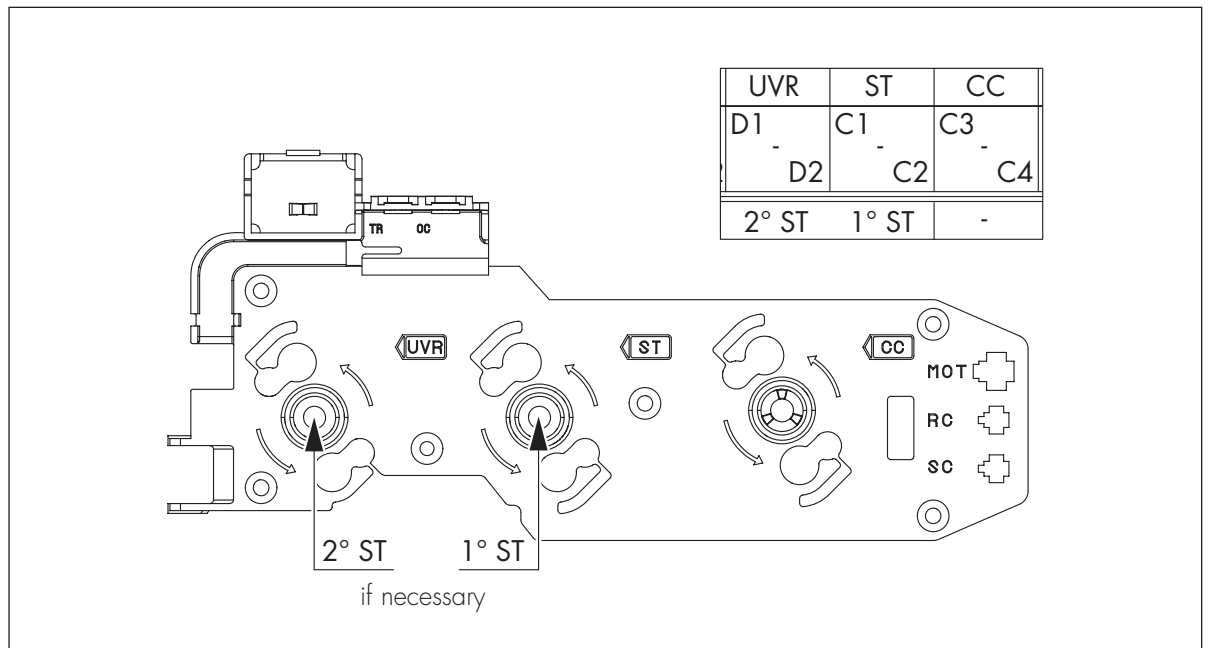
## 17.1 Shunt trip (ST)

Allows to open the breaker with an electrical signal. According to the features of the device, it's always possible to open the breaker (when closed). The shunt trip can work (depending on type) both on AC and DC current.

This device can work with an instantaneous supply, but works also with a continuous one.

If always supplied, the device is like an electrical lock in open position.

Some applications need a high safety on the open command, and, particularly, the duplication of the command circuit by a double shunt trip. In that case the second shunt trip can be placed instead of the UVR device.



## 18. New cabling system

New automatic "Cage Clamps".

Constant press on cable guarantee maximum contact during time.

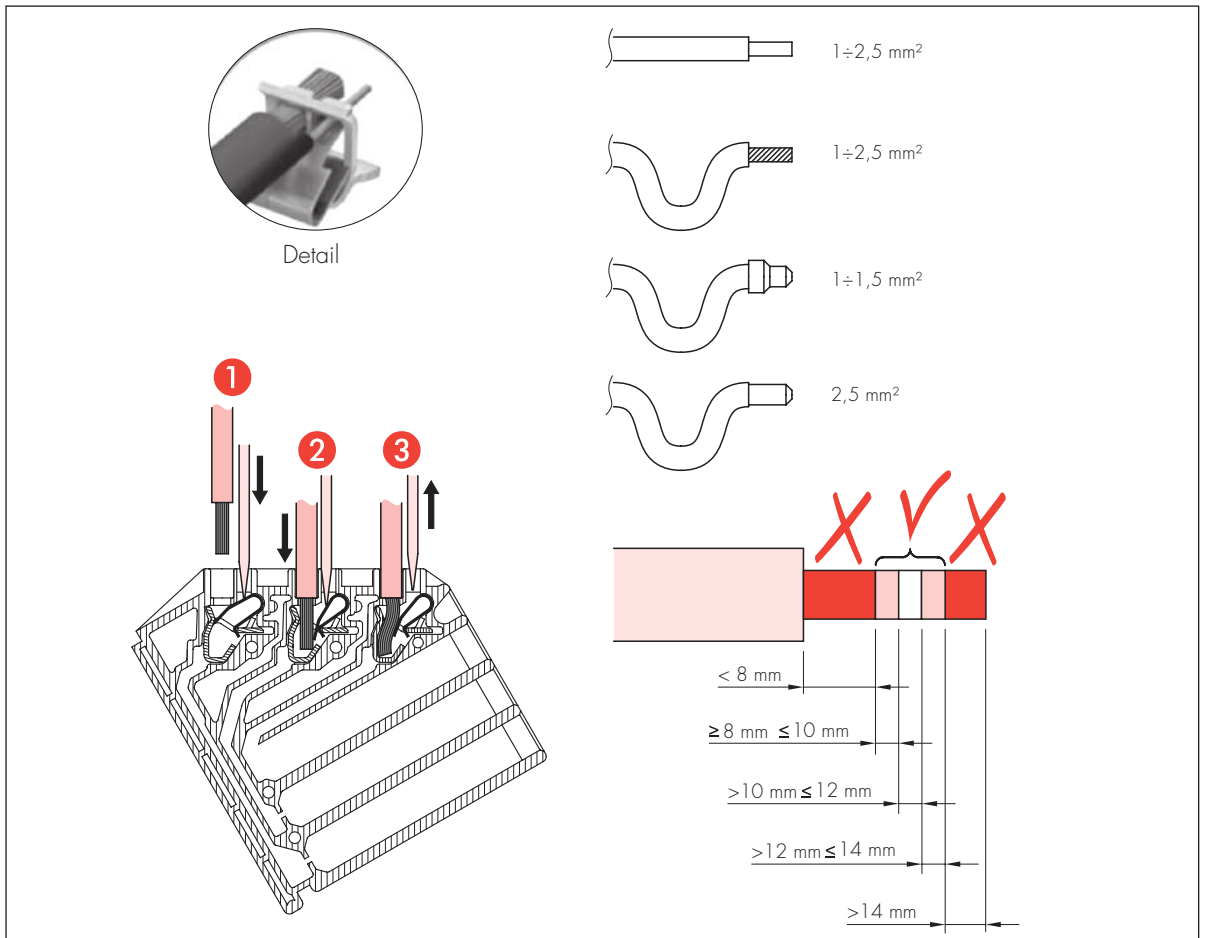
This is the solution to the problem of screw with 1/2 turn. Shape form of spring avoid the problem of incision of insulation.

1. Put the screw: the clamp open.

2. Put the cable.

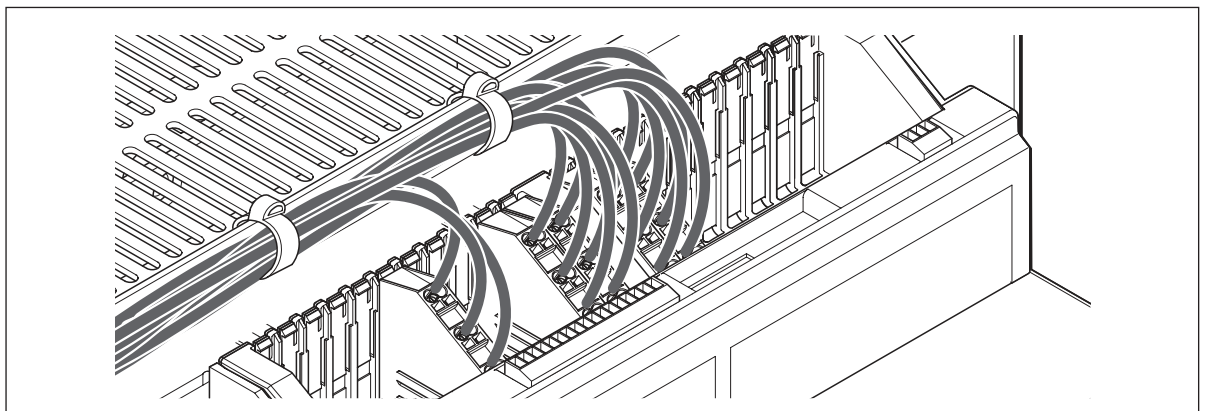
3. Extract the screw: clamp automatically lock the cable.

Detail: Electrical contact is guaranteed with max flexible cable diameter up to 2,5 mm<sup>2</sup>, also with two cable of different sections.



To have a major order and safety when cabling operations are done, the draw-out version of the DMX<sup>3</sup>

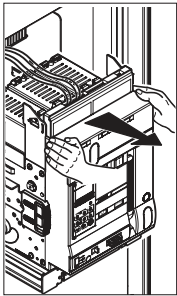
has several buttonholes usefull to collect all the cables with cable ties as shown.



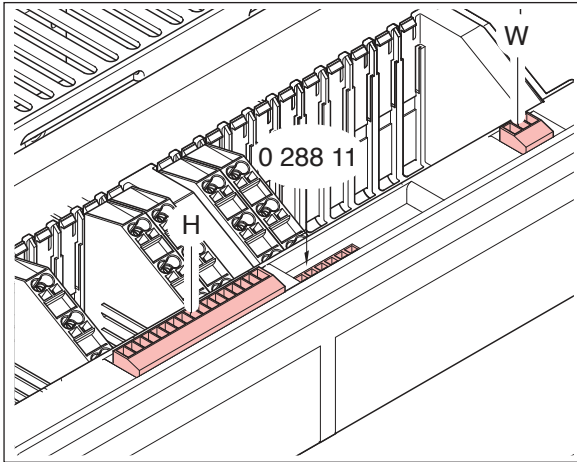
# DMX<sup>3</sup>



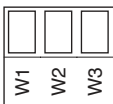
Only for draw-out version: cable the breaker in completely draw-out position.



## Standard version



**W)** Local programmable output (4A-230V a.c. max)



W1: Normal Open  
W2: Normal Close  
W3: Common

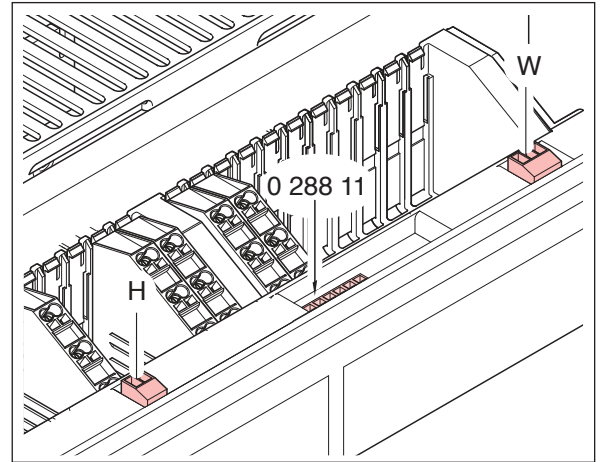
**0 288 11)** External neutral 6-way terminal

**H)**

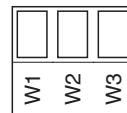


H1: } External auxiliary supply 0 288 06  
H2: }  
H3: "Programmable output module"  
Serial Port - RS485 (-)  
H4: "Programmable output module"  
Serial Port - RS485 (+)  
H5: GND RS485  
H6: Supervision Serial port - RS485 (-)  
H7: Supervision Serial port - RS485 (+)  
H8: -  
H9: -  
H10: -  
H11: Logic Selectivity Input  
H12: Logic Selectivity Input  
H13: -  
H14: -  
H15: Logic Selectivity Output  
H16: Logic Selectivity Output

## Basic version (only for DMX<sup>3</sup> 2500 42kA)



**W)** Local programmable output (4A-230V a.c. max)



W1: Normal Open  
W2: Normal Close  
W3: Common

**0 288 11)** External neutral 6-way terminal

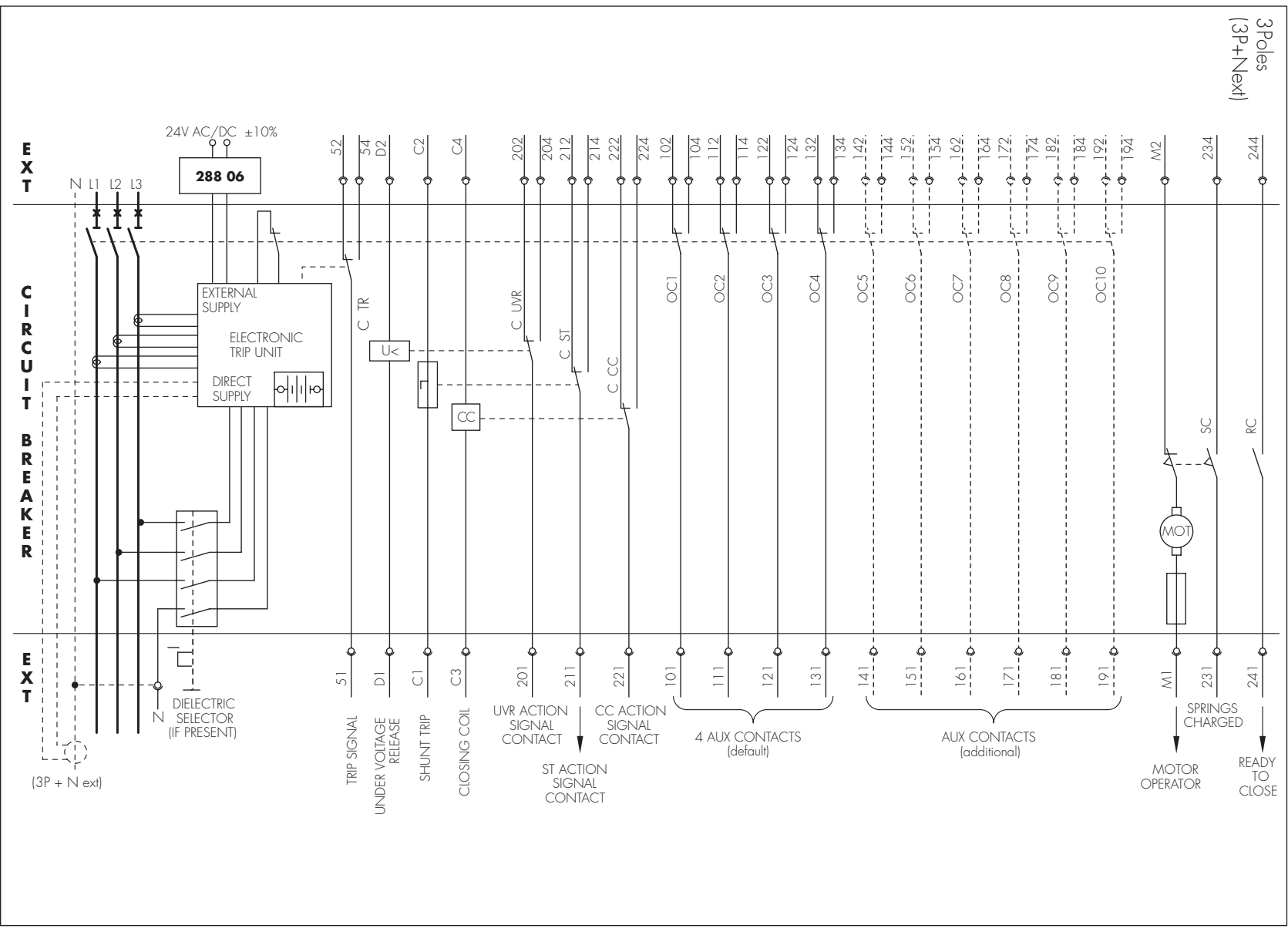
**H)**

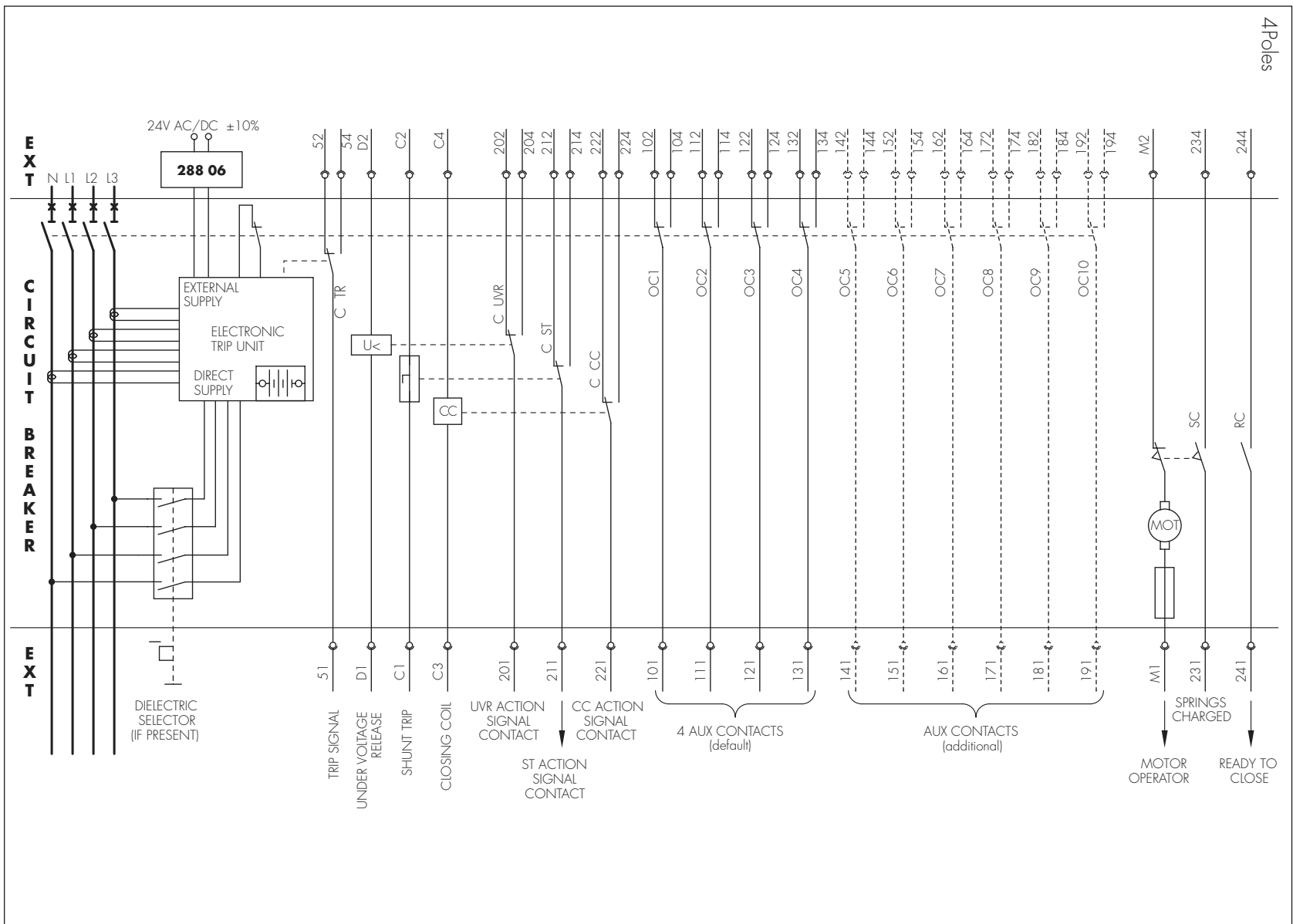


H1: } External auxiliary supply 0 288 06  
H2: }

# DMX3

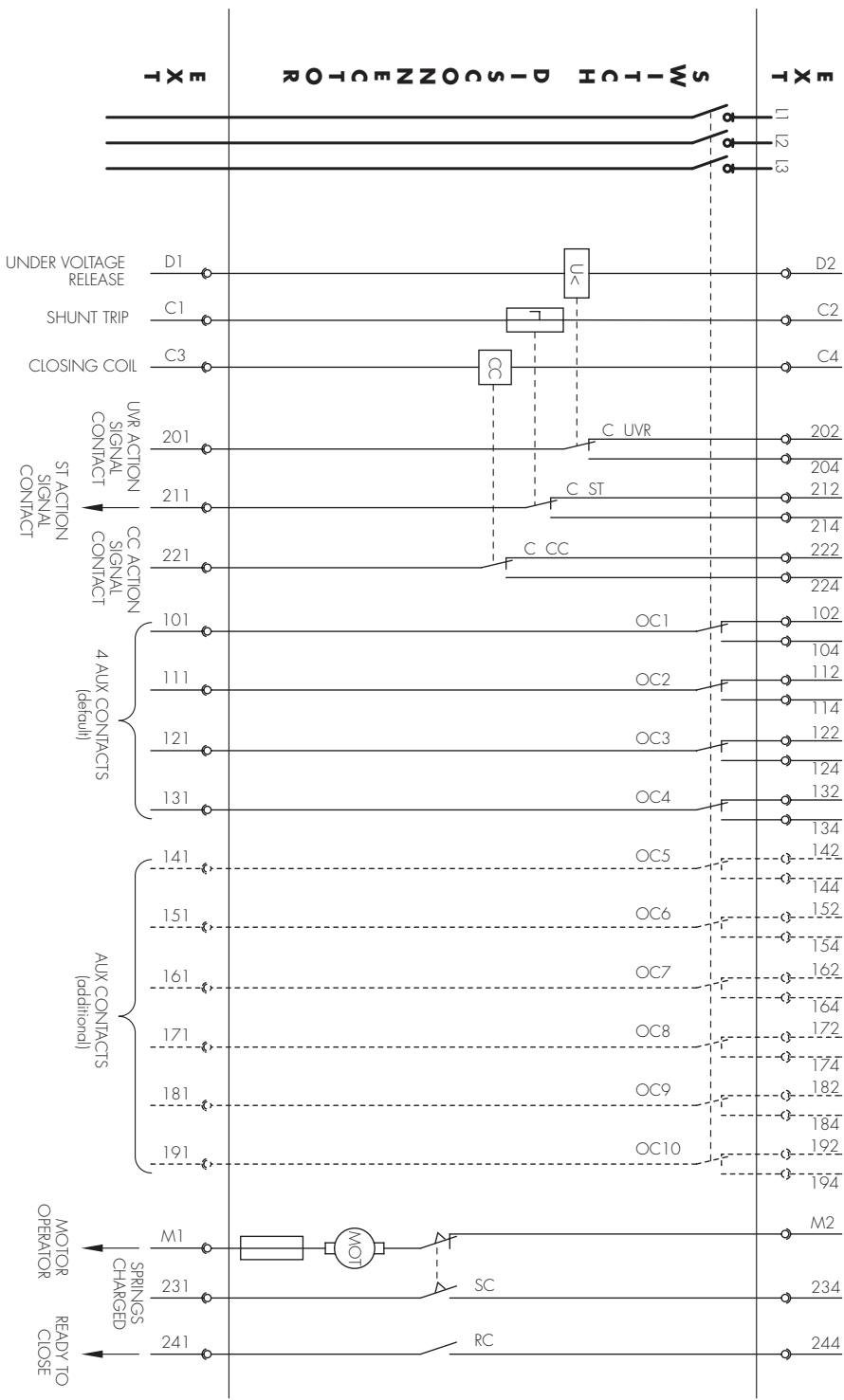
## 19. Electrical diagram



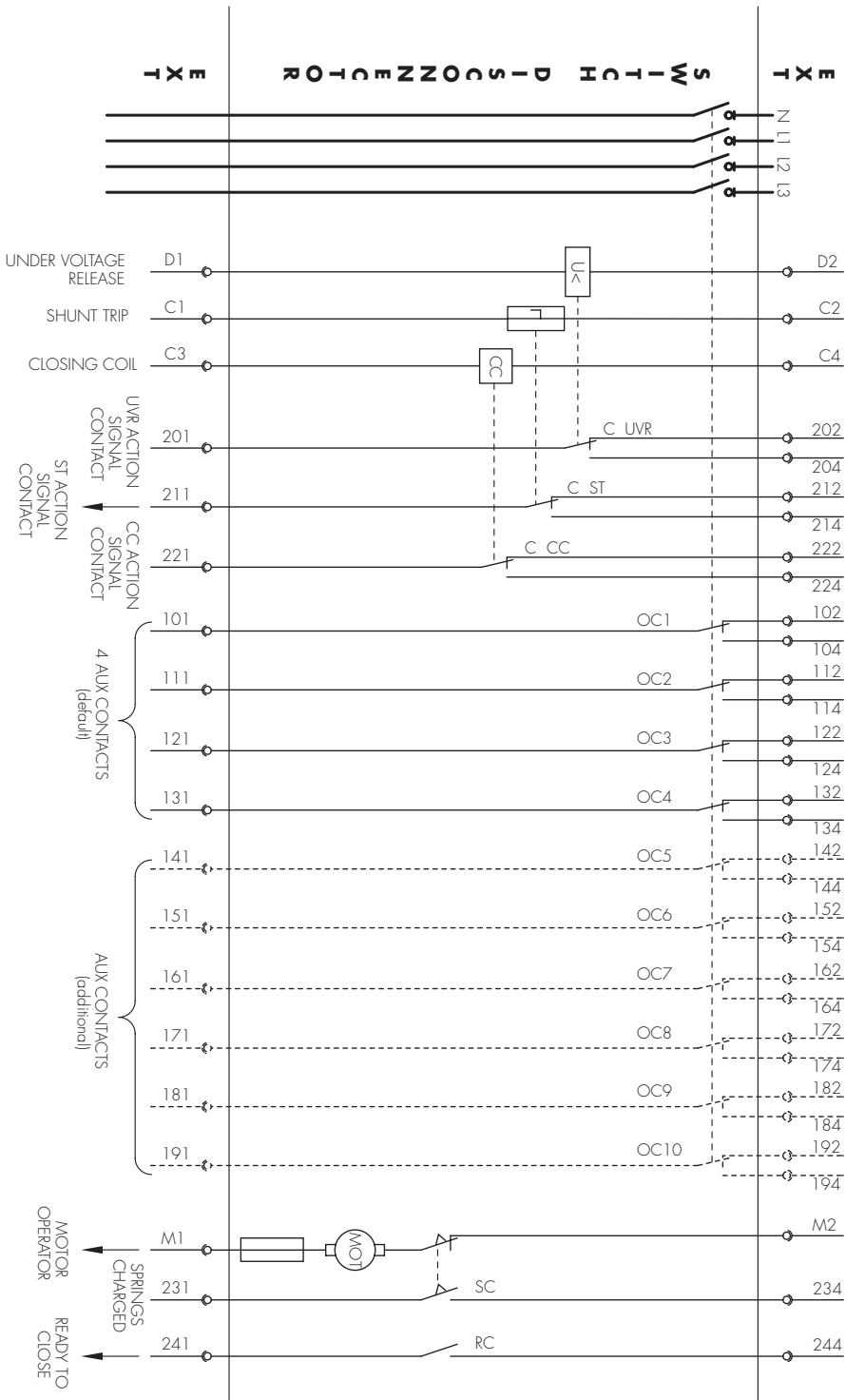


4Poles





3Poles



# DMX<sup>3</sup>

## 20. Dielectric test (if present)

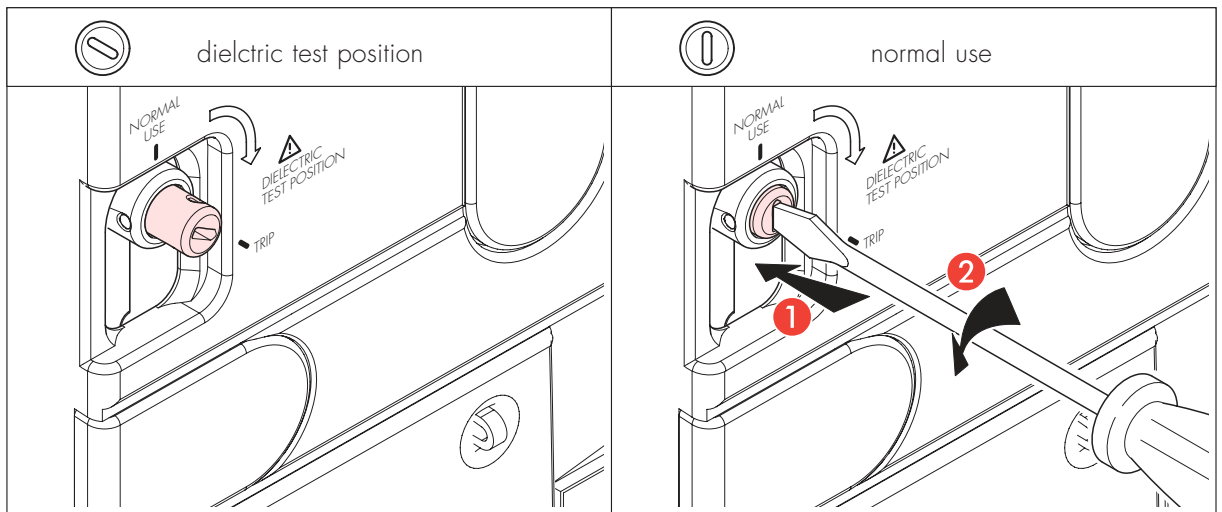
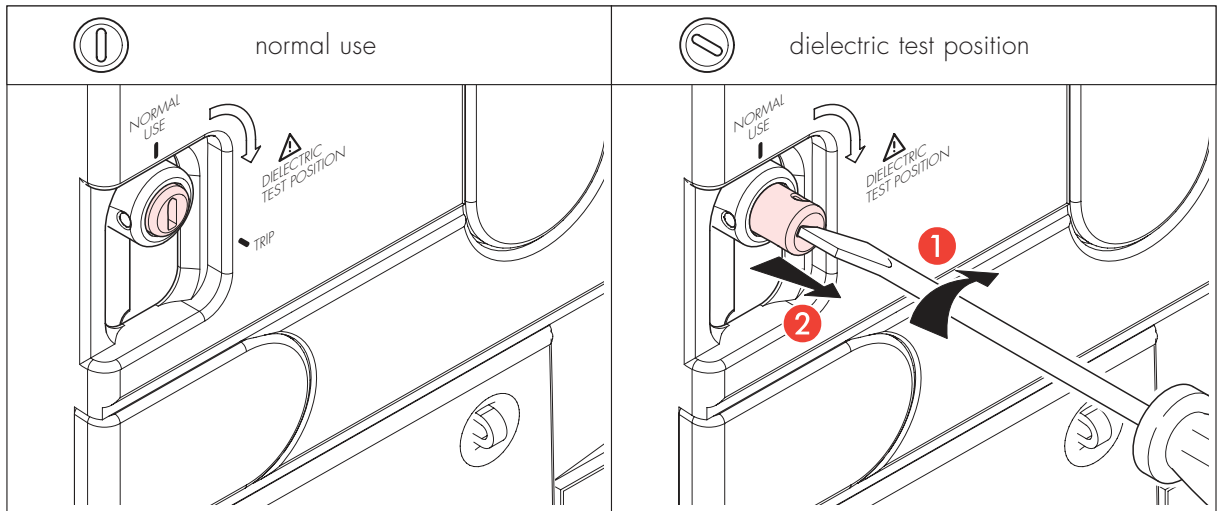
Before to realize a Dielectric test on the breaker, alone or fitted in an enclosure, it's mandatory to switch the selector from the position "normal use"

to the "Dielectric test position".

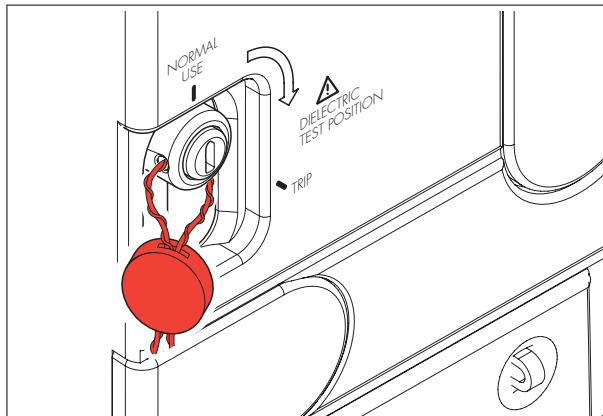
When test are end, set the selector (X) on "normal use" position.



Switch on test position with breaker in open position and discharged springs, if not breaker will trip.



In absence of dielectric selector, it's possible to test the device with main contacts in ON position.

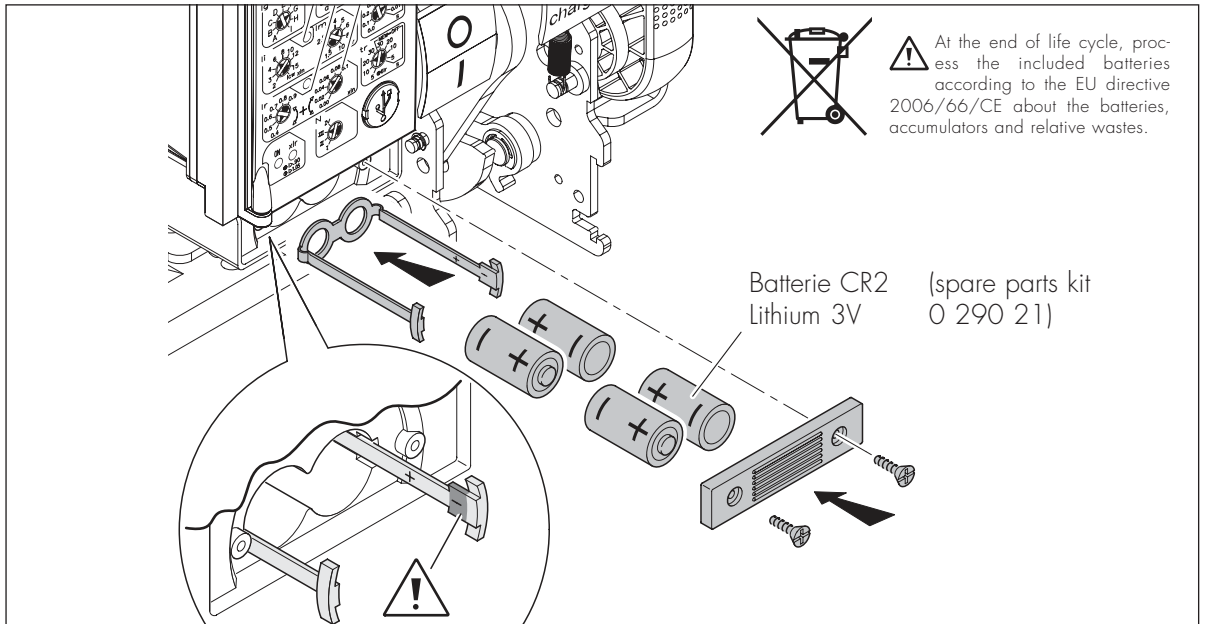


In this position, the selector can be sealed through a normal plumbing.

## 21. Setting protection unit

### 21.1 Insertion/substitution battery

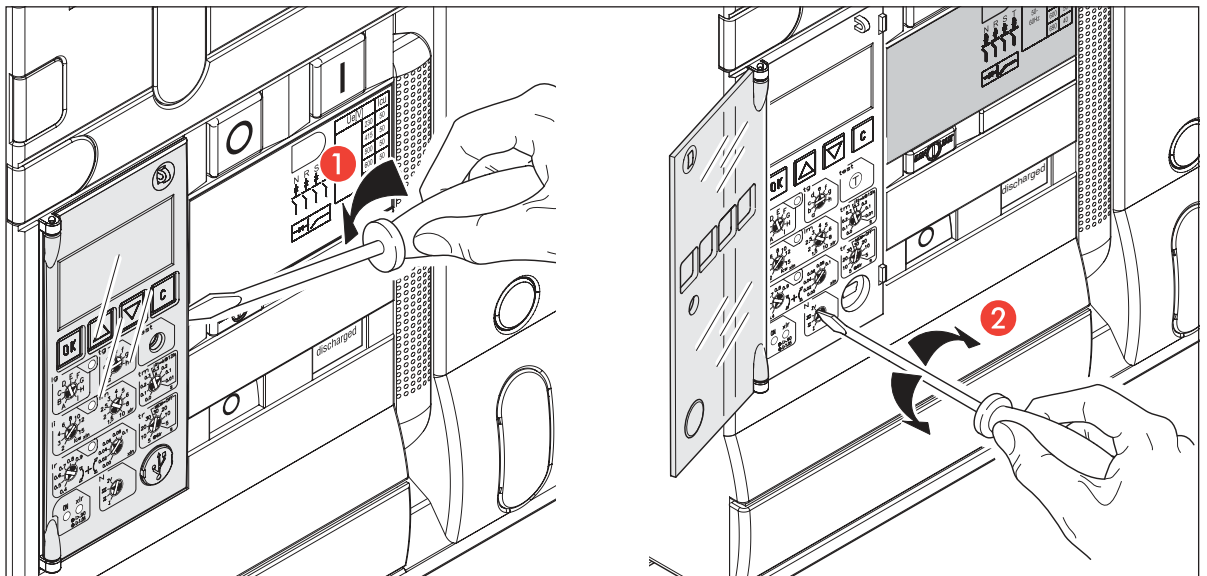
Remove frontal cover of the breaker. Insert the 4 batteries on the lower part of the protection unit keeping polarity and mounting order like shown on picture. Batteries are delivered outside the breaker.



### 21.2 Setting levels protection

Setting of levels protection is possible with rotary switches. Execute setting with a plate screwdriver.

For informations about setting protection unit see the related instruction sheet.



### 21.3 Setting data/time

Important: in order to archive data concerning possible faults, we suggest to set up the date/time

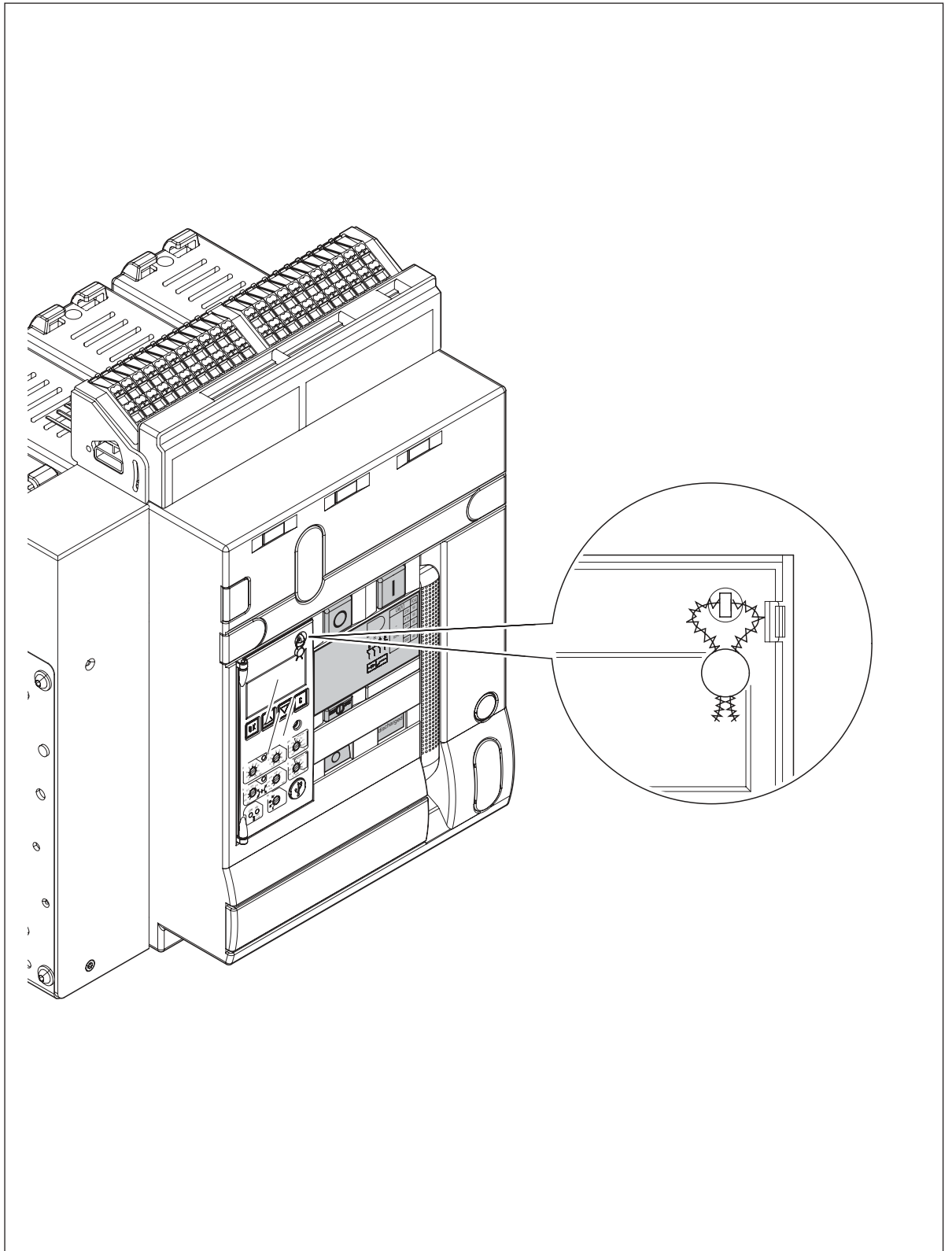
of protection unit. For setting, consult the protection unit manual.

# DMX<sup>3</sup>

## 21.4 Seal of protection unit

Check settings through the display menu.

Close the cover of the protection unit, this can be sealed through a normal plumbing.



## 22. Standard functions of the breaker



For use with automatic change over systems (with feedback function) set the reset button in MAN position.

### 22.1 Reset button

#### MAN position.

Default setting for a new product.

In this position it's possible to prevent the closing after a trip commanded by protection unit (button ejected).

When this function is selected, the operator must insert the button before to close again the breaker.

#### AUT position.

Mostly used in monitoring systems.

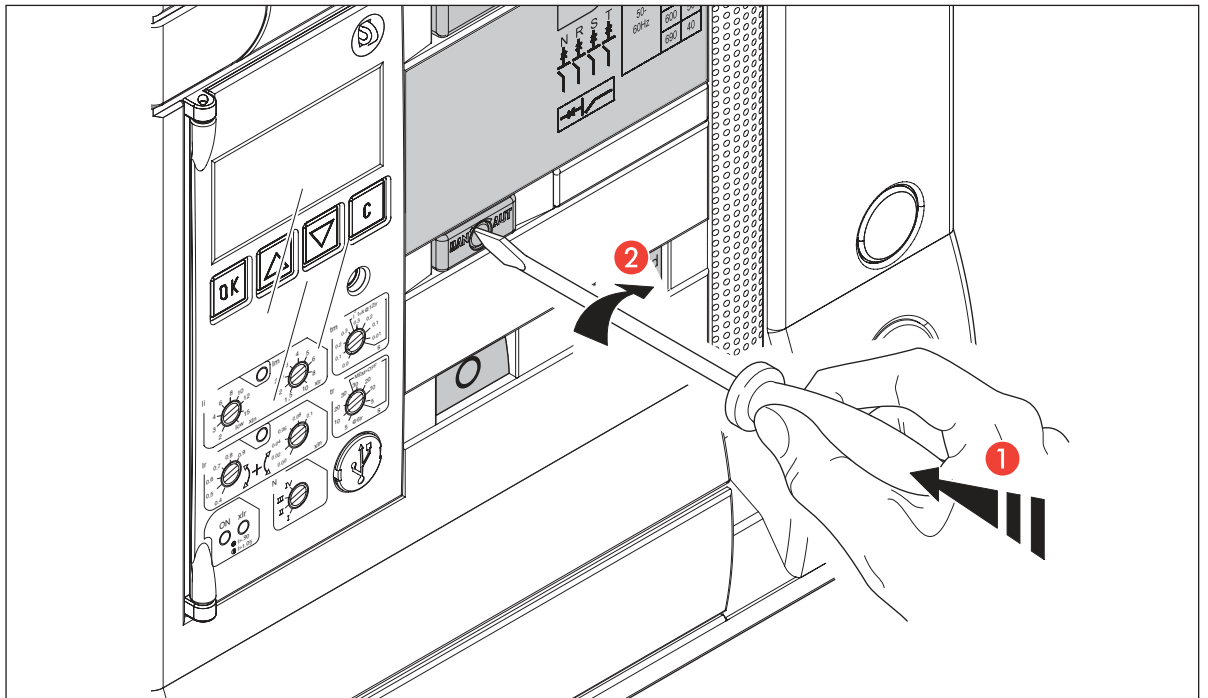
In this position the breaker can be always closed after a trip commanded by protection unit (button remains inserted).

Breaker will be always ready to close when its status is like this:



NB: In order to set the button in AUT position:

1. Push the button until the end with a flat screwdriver.
2. Pushing, turn the selector 90° in AUT position.

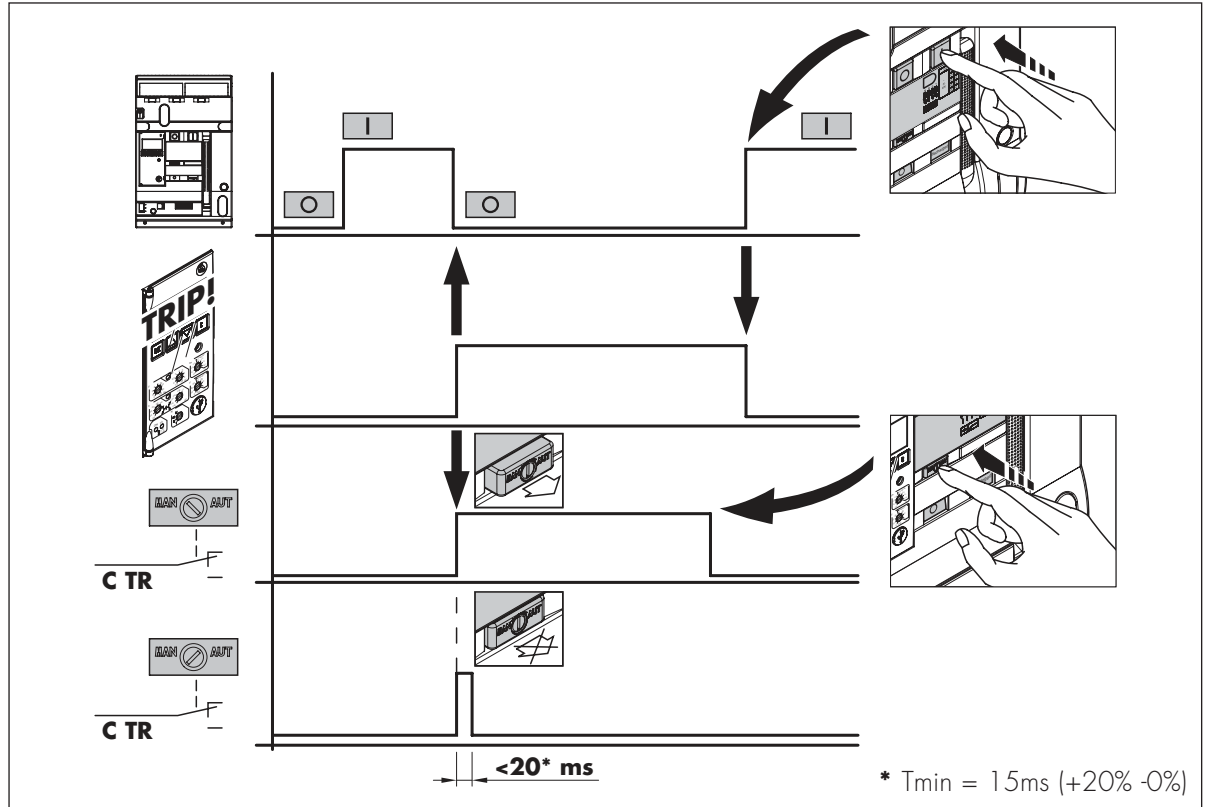


# DMX<sup>3</sup>

## 22.1.1 Trip contact

The trip contact ("C TR" in auxiliary terminals block) (AUT/MAN), as shown in the following diagram: working depends on reset button mode setting

C TR
51
54
52



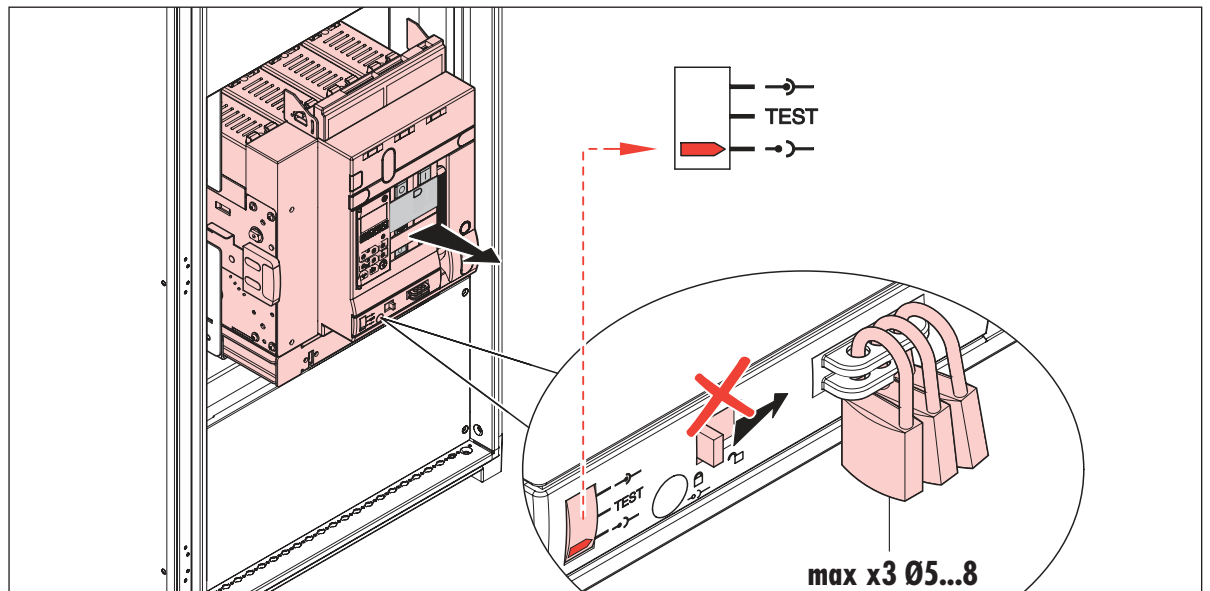
Technical features of trip contact: change over contact (C-NO-NC), 250V, 6A MAX.

## 22.2 Padlock for racking shutter

Only for draw-out version.

When is isolated position  $\rightarrow$  is possible to lock the

racking shutter with lock of 5/8  $\varnothing$  mm (up to three). This way it's impossible to insert the racking handle.



## 23. DMX<sup>3</sup> start up

### Operator checks

The operator must verify that the device has been properly installed inside the distribution cabinet and that all the installation conditions are correct without any mistake due to negligence or not proper objects inside, according to the current standards.

Start up checks are classified in:

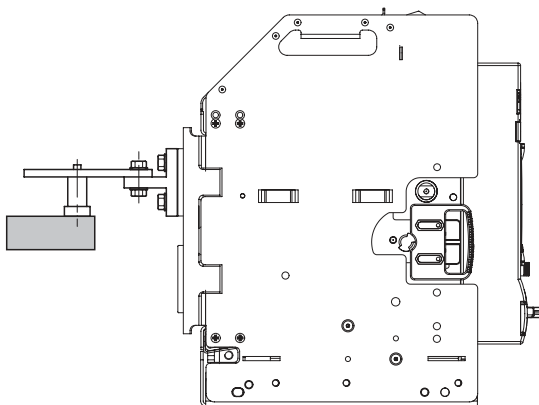
- Without voltage checks
- Under voltage checks

### Without voltage checks

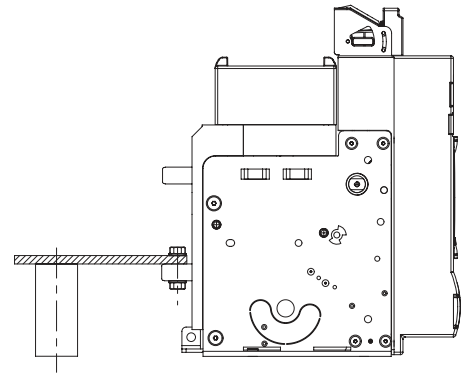
Distribution center inspection:

- To verify that the device installation is performed according to the instructions of this user manual.
- To verify the device wiring using proper screws and terminals.
- To verify that no metallic parts, tools and manufacturing scraps are close to the device.

Recommended tightening torque



Fastening torque of the terminals  
 Ø Nominal (mm): 10 (screw M10)  
 Ø Hole (mm): 11  
 Fastening torque (Nm) with plate or split washers: 37.5  
 Fastening torque (Nm) with contact washers: 50



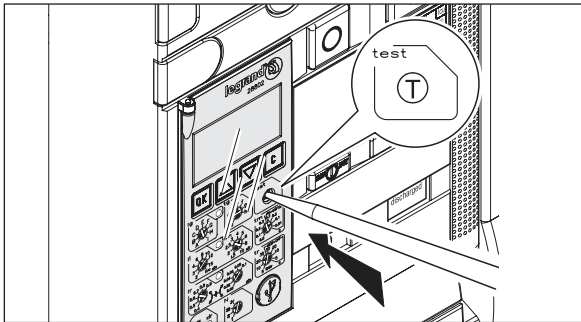
Fastening torque of the terminals  
 Ø Nominal (mm): 10 (screw M10)  
 Ø Hole (mm): 11  
 Fastening torque (Nm) with plate or split washers: 37.5  
 Fastening torque (Nm) with contact washers: 50

- To verify that the device is not damaged outside and there are not missing parts that can be the cause of wrong working.

### Check of installed components correspondence to the electric diagram:

- To verify that the device specifications are according to the technical requests.
- To verify that the protection unit specifications (where it is needed) are according to the technical requests and all the settings are correct. To check the protection unit setting parameters, please see the specific user manual.
  - Insert /verify the batteries and their level
  - Set the protection unit
  - Perform the TEST procedure through the T button on the protection unit
  - Set back the reset button in MAN position

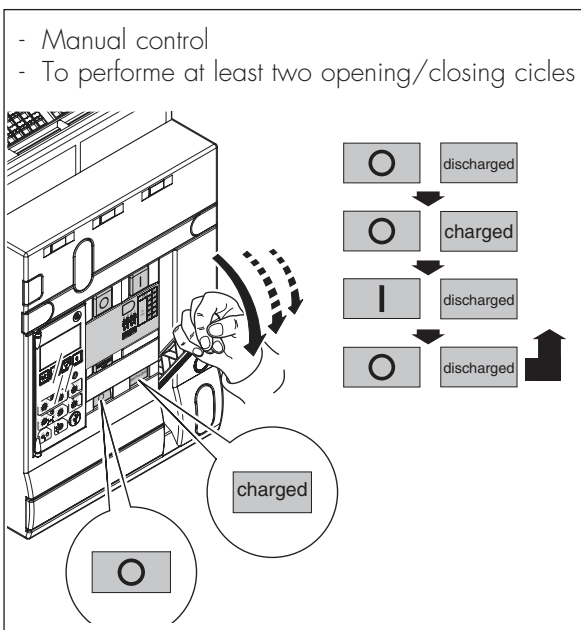




- Tripping test check
  - keep pushing T button longer than 2 sec and verify that:
    - all leds light on for 1 second (ON LED on orange, the others on red);
    - the device trips;
    - the display shows that the device has tripped;
    - RESET button has been released.
  - To reset the device, push RESET button and set it back (see protection unit user manual)
- To verify that all the accessories specifications are consistent with the auxiliary circuit voltage and the electric diagram

## Functioning check

- To verify the device mechanical functioning, contacts opening and closing
- In case of devices with mechanical interlock, to verify that the functioning logic is according to the needs based on the interlock diagram



- To verify the lock systems, if any (open position, draw-out position...)

## Auxialiries wiring and installation check

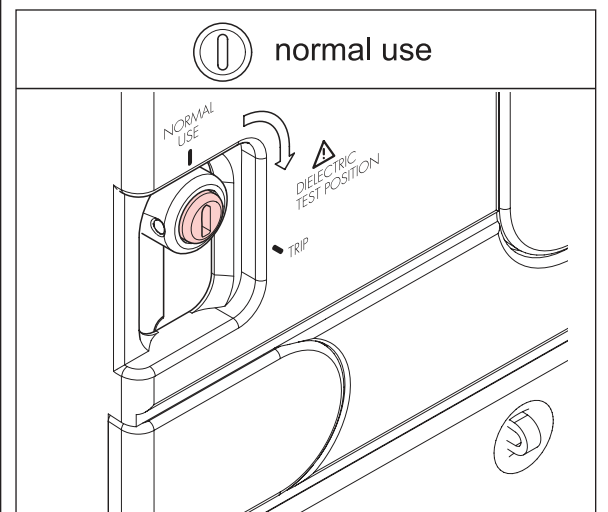
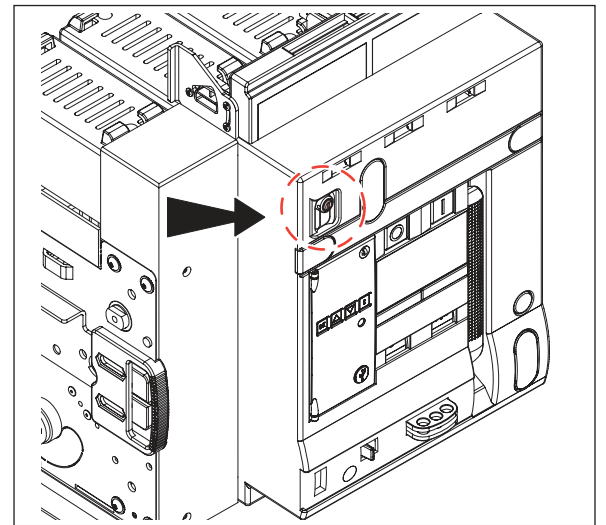
- To verify the auxiliary circuits proper installation
- To verify the correspondence of the terminals wiring
- To verify the correspondence of the auxiliary circuit wiring.

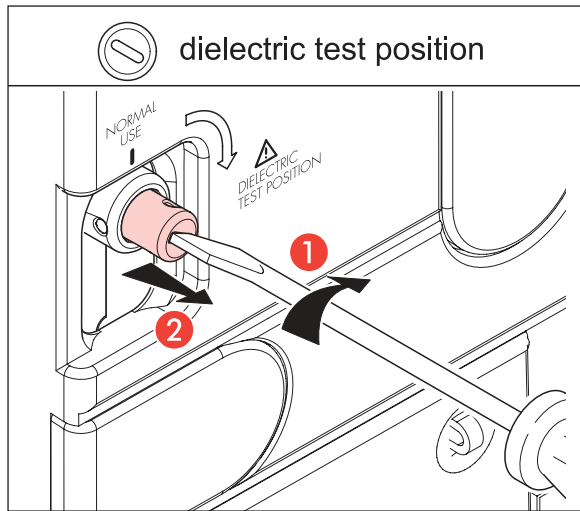
## Under voltage checks

Dielectric checks must be performed in the distribution center according to the international standards by qualified personnel with suitable machineries.

It's mandatory to respect all the following indications in order to avoid damages for people and device.

- Dielectric checks
  - To set the DIELECTRIC TEST button on the front of the breaker (if any) in DIELECTRIC TEST position (see the dielectric checks clause)





- Disconnect all the device electric accessories from the auxiliary circuit
- To successfully complete all the dielectric checks, set back the button in working position and connect all the accessories
- To verify the presence and value of the voltage up-stream and down-stream the device

## How to resume the device after tripping

In case during the functioning the breaker trips, the assigned personnel must respect the following procedure:

- To identify the reason of the release and if it is related to a protection event or an external circuit
- To check the protection unit history log (see the protection unit user manual).
- To verify the position of MAN/AUT button. If it is in MAN position after the protection unit tripping, the RESET button is released and, to assure more safety, it's impossible to close the breaker. In this case the personnel must understand the reason of the fault and set back the RESET button before start working again.
- If the button is in AUT position the device is able to close even after a protection tripping, without any on site intervention of personnel, allowing the closing by remote if needed by the system manager. In this case an automatic and remote system is needed.

## Identification of the fault

The fault is shown locally on the protection unit and/or by the auxiliary contacts installed on the device. In case of fault it is strongly suggested to inspect the device (see Maintenance guide)

## Reasons fault

The device shouldn't be closed again before checking and solving the cause of the fault (locally or by remote).

The reasons may be various:

the reasons may be classified in two main types

- fault protection (see the history log of the protection unit)
- ST and UVR intervention

After checking the reason of the fault, before closing the device again, it's suggested to check the device conditions, and above all, to check the dielectric and insulation conditions of one part or the whole device depending on the nature of the tripping event.

Those checks and tests must be requested and managed by qualified personnel according to this user manual.

## In case of short circuit, device inspection

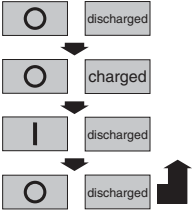
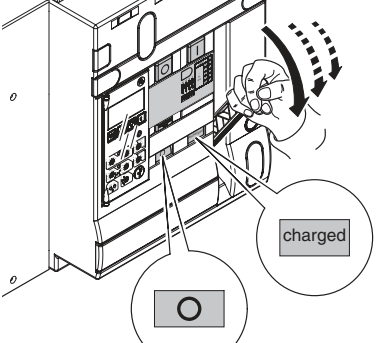
In case of short circuit protection, go to Maintenance guide and check the following conditions:

- to check the arc chamber conditions and the wear status
- to check the contacts status
- to check the clamping of the power connections and the auxiliary circuit connections as shown in the Start UP chapter
- in case of draw-out version device, take out the breaker and check the insertion clamps and the inside conditions

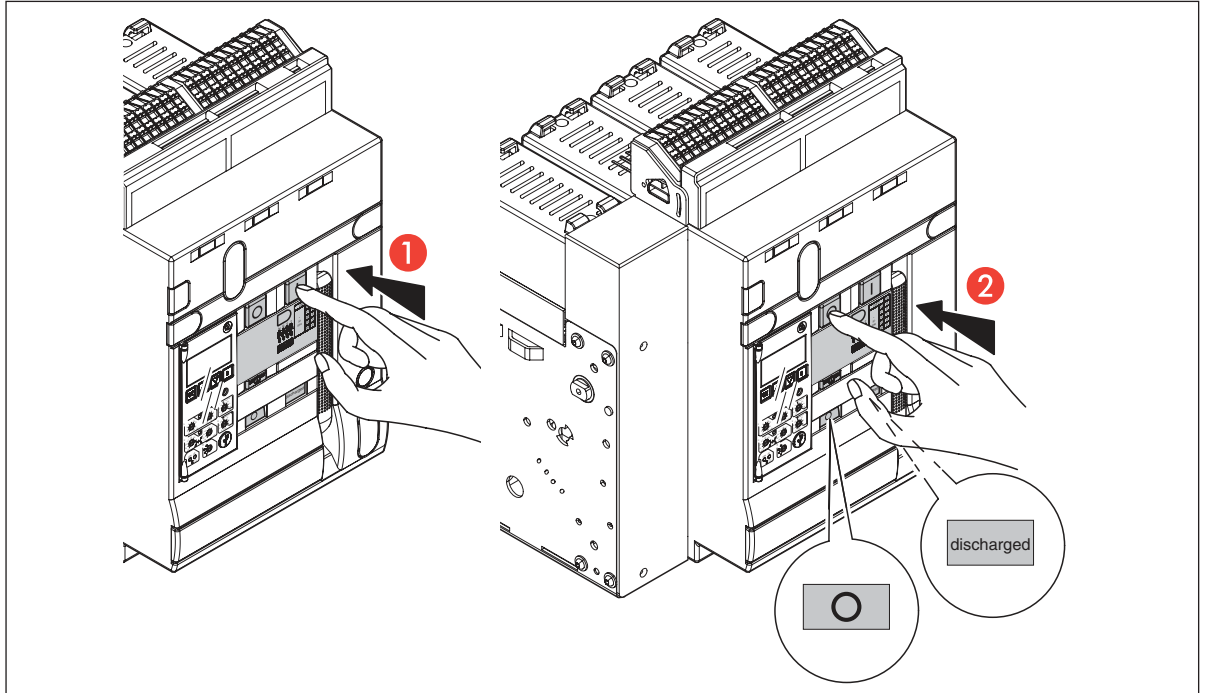
## Device closing

The closing of the breaker can be performed locally or by remote only after checking that the system and the device conditions are consistent with the safety procedure.

# DMX<sup>3</sup>

Objet	Check	Remark
Manual control	<p>To perform at least two opening/closing cycles</p> 	
Draw-out cell	To perform at least one cycle insert/test/draw out position	
Motor operator	Supply the motor operator and perform at least 2 cycles opening/closing. The motor operator must load the springs after each opening/closing event and stop when the springs are ready	
Aux contacts and alarms	To verify the correct signals	
Insert/draw-out contacts	To verify the correct signals	
Shunt trip coil	Close the breaker Supply the coil and verify the tripping	
Closing coil	Open the breaker Supply the coil and verify the closing	
UVR coil	Cut the UVR power and check the breaker tripping. To verify that it's impossible to close the breaker without UVR power.	
Key lock/pad lock	To verify the proper functioning	
Cable interlock	Adjust and verify the proper functioning	

## 24. Ordinary maintenance



An ordinary maintenance, performed with its respective frequency, is important in order to:

- check and maintain the efficiency of the product;
- identify parts/accessories damaged;
- prevent emergencies.

Periodical check and maintenance is recommended on the following parts:

- mechanism;
- anti-shock opening spring;
- arc chutes;

- main contacts;
- draw-out system (if present);
- terminals;
- auxiliary;
- mechanical accessories (if present);
- electrical accessories (if present);
- trip unit.

For more details concerning maintenance procedures and their frequencies, consult the DMX<sup>3</sup> maintenance guide.

## 25. Basic trouble shooting

Situation	Probability	Solution
ACB does not close on pressing "ON" button	Selector for dielectric test in "dielectric test position"	Set the selector in "normal use" position
	U/V release is present but not energized	Energize U/V release
	Mechanism spring is not charged	Charge the mechanism spring manually till a distinct sound is heard & indicator turns yellow
	Reset button ejected	Press reset button
	Racking Shutter is open	Close Racking Shutter
	Mechanical Interlock disables closing	Re-check before attempting to close the breaker
Racking shutter does not re-close automatically after racking handle is pulled out	Breaker is in-between Service/Test/Isolated position. Position indicator is not aligned with any of the positions	Rack in or out the breaker to any of the distinct positions
ACB cannot be pushed in to isolated position	Breaker & Miss insertion device ratings do not match	Put correct breaker
Racking Shutter does not open	ACB is closed	Keep on pushing the OFF button
ACB does not close electrically	Electrical antipumping is active	Interrupt 'OPEN' command once
	"Ready to close"(RTC) conditions are not met	Check all RTC conditions
ACB trips after closing	Overload fault exists if tripping is after several seconds or minutes. Other fault(s) exist if tripping is within a second	Check the unit protection and identify the fault then clear the cause
	Shunt Release is getting command continuously	Check the source of command

For a more detailed trouble shooting, consult the DMX<sup>3</sup> maintenance guide







