

Air circuit breakers DMX³ 2500 and 4000

from 800 to 4000 A



0 286 56 + 0 288 02 (p. 153)



0 286 74 + 0 288 02 (p. 153)







0 287 56 + 0 288 02 (p. 153)





Dimensions **see e-catalogue**
 Electrical characteristics **see e-catalogue**

Automatic air circuit breakers must be equipped with electronic protection unit (p. 153), imperatively ordered together for factory assembly
 Please ask for DMX³ order form

Pack	Cat.Nos		Fixed version	Pack	Cat.Nos		Draw-out version
			Supplied with - 4 auxiliary contacts: NO/NC - rear terminals for horizontal connection with bars - door sealing				Supplied with: - 4 auxiliary contacts: NO/NC - draw-out base and kit - flat rear terminals for connection with bars - door sealing
	Frame 2500		DMX³ - N 2500 Breaking capacity Icu 50 kA (415 V _~)		Frame 2500		DMX³ - N 2500 Breaking capacity Icu 50 kA (415 V _~)
	3P	4P	In(A)		3P	4P	In(A)
1	0 286 21	0 286 31	800	1	0 287 21	0 287 31	800
1	0 286 22	0 286 32	1000	1	0 287 22	0 287 32	1000
1	0 286 23	0 286 33	1250	1	0 287 23	0 287 33	1250
1	0 286 24	0 286 34	1600	1	0 287 24	0 287 34	1600
1	0 286 25	0 286 35	2000	1	0 287 25	0 287 35	2000
1	0 286 26	0 286 36	2500	1	0 287 26	0 287 36	2500
	Frame 2500		DMX³ - H 2500 Breaking capacity Icu 65 kA (415 V _~)		Frame 2500		DMX³ - H 2500 Breaking capacity Icu 65 kA (415 V _~)
	3P	4P	In(A)		3P	4P	In(A)
1	0 286 41	0 286 51	800	1	0 287 41	0 287 51	800
1	0 286 42	0 286 52	1000	1	0 287 42	0 287 52	1000
1	0 286 43	0 286 53	1250	1	0 287 43	0 287 53	1250
1	0 286 44	0 286 54	1600	1	0 287 44	0 287 54	1600
1	0 286 45	0 286 55	2000	1	0 287 45	0 287 55	2000
1	0 286 46	0 286 56	2500	1	0 287 46	0 287 56	2500
	Frame 4000		DMX³ - L 2500 Breaking capacity Icu 100 kA (415 V _~)		Frame 4000		DMX³ - L 2500 Breaking capacity Icu 100 kA (415 V _~)
	3P	4P	In(A)		3P	4P	In(A)
1	0 286 61	0 286 71	800	1	0 287 61	0 287 71	800
1	0 286 62	0 286 72	1000	1	0 287 62	0 287 72	1000
1	0 286 63	0 286 73	1250	1	0 287 63	0 287 73	1250
1	0 286 64	0 286 74	1600	1	0 287 64	0 287 74	1600
1	0 286 65	0 286 75	2000	1	0 287 65	0 287 75	2000
1	0 286 66	0 286 76	2500	1	0 287 66	0 287 76	2500
	Frame 4000		DMX³ - N 4000 Breaking capacity Icu 50 kA (415 V _~)		Frame 4000		DMX³ - N 4000 Breaking capacity Icu 50 kA (415 V _~)
	3P	4P	In(A)		3P	4P	In(A)
1	0 286 27	0 286 37	3200	1	0 287 27	0 287 37	3200
1	0 286 28	0 286 38	4000	1	0 287 28	0 287 38	4000
	Frame 4000		DMX³ - H 4000 Breaking capacity Icu 65 kA (415 V _~)		Frame 4000		DMX³ - H 4000 Breaking capacity Icu 65 kA (415 V _~)
	3P	4P	In(A)		3P	4P	In(A)
1	0 286 47	0 286 57	3200	1	0 287 47	0 287 57	3200
1	0 286 48	0 286 58	4000	1	0 287 48	0 287 58	4000
	Frame 4000		DMX³ - L 4000 Breaking capacity Icu 100 kA (415 V _~)		Frame 4000		DMX³ - L 4000 Breaking capacity Icu 100 kA (415 V _~)
	3P	4P	In(A)		3P	4P	In(A)
1	0 286 67	0 286 77	3200	1	0 287 67	0 287 77	3200
1	0 286 68	0 286 78	4000	1	0 287 68	0 287 78	4000

DMX ³ according to IEC 60947-2	AIR CIRCUIT BREAKERS							TRIP FREE SWITCHES		
	 0286 56 + 0288 02			 0286 74 + 0288 02			 0289 51 + 0288 02	 0286 96		
	DMX ³ 2500			DMX ³ 4000			DMX ³ 6300	DMX ³ -I		
Devices	50 kA	65 kA	100 kA	50 kA	65 kA	100 kA	100 kA	2500	4000	6300
Frames	1	1	2	2	2	2	3	1	2	3
No. of poles	3P - 4P			3P - 4P			3P - 4P	3P - 4P	3P - 4P	3P - 4P
Version	Fixed Drawout			Fixed Drawout			Fixed Drawout	Fixed Drawout		
Operating characteristics										
In rated current at 40 °C (A)	630-800-1000-1250-1600-2500			3200-4000			5000-6300	1250-1600-2000-2500	3200-4000	6300
Rated insulation voltage	1000			1000			1000	1000	1000	1000
Rated impulse withstand voltage U _{imp} (kV)	12			12			12	12	12	12
Rated operational voltage (50/60 Hz) U _e (V)	690			690			690	690	690	690
Neutral protection (% I _r)	OFF-50-100			OFF-50-100			OFF-50-100	-	-	-
Utilization category	B			B			B	-	-	-
Isolation behavior	Yes			Yes			Yes	Yes	Yes	Yes
Ultimate breaking capacity I _{cu} (kA)										
230 VA	50	65	100	50	65	100	100	-	-	-
415 VA	50	65	100	50	65	100	100	-	-	-
500 VA	50	65	100	50	65	100	100	-	-	-
600 VA	50	60	75	50	65	75	75	-	-	-
690 VA	50	55	65	50	65	65	65	-	-	-
Service breaking capacity I _{cs} (% I _{cu})	100			100			100	-	-	-
Short circuit making capacity I _{cm} (kA)										
230 VA	105	143	220	105	143	220	220	143	220	220
415 VA	105	143	220	105	143	220	220	143	220	220
500 VA	105	143	220	105	143	220	220	143	220	220
600 VA	105	132	165	105	143	165	165	132	165	165
690 VA	105	121	143	105	143	143	143	121	143	143
Short time withstand current I _{cw} (kA) for t = 1 s										
230 VA	50	65	85	50	65	85	100	65	85	100
415 VA	50	65	85	50	65	85	100	65	85	100
500 VA	50	65	85	50	65	85	100	65	85	100
600 VA	50	60	75	50	65	75	75	60	75	75
690 VA	50	55	65	50	65	65	65	55	65	65
Response time										
Opening time*	15 ms			15 ms			15 ms	-	-	-
Closing time*	30 ms			30 ms			30 ms	-	-	-
Endurance (cycles)										
Mechanical	10000			10000			5000	10000	10000	5000
Electrical	10000			10000			2500	5000	5000	2500
Temperature										
Operating	-5 °C to +70 °C			-5 °C to +70 °C			-5 °C to +70 °C	-5 °C to +70 °C	-5 °C to +70 °C	-5 °C to +70 °C
Storage	-25 °C to +85 °C			-25 °C to +85 °C			-25 °C to +85 °C	-25 °C to +85 °C	-25 °C to +85 °C	-25 °C to +85 °C

*Sensing time shall be additional.

	PROTECTION UNITS			
				
	0288 03	0288 04	0288 01	0288 02
Microprocessor based protection unit	Touch screen LCD		Monochrome LCD	
	LSI	LSIg	LSI	LSIg
Long time delayed overload protection				
I_r adjustable from 0.4 to 1.0 x I_n in steps of 0.02 ⁽³⁾	•	•	•	•
t_r adjustable 5-10-20-30 s	•	•	•	•
Short time delayed short circuit protection				
I_m adjustable from 1.5, 2, 2.5, 3, 4, 5, 6, 8, 10 x I_r	•	•	•	•
t_m adjustable : 0-0,1-0,2-0,3-1 ⁽¹⁾ s	•	•	•	•
Instantaneous protection				
I_i adjustable : OFF- 2, 3, 4, 6, 8, 10, 12, 15 x I_n	•	•	•	•
Earthfault protection				
I_g adjustable : OFF- 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 1 x I_n	•	•	•	•
t_g adjustable : 0.1, 0.2, 0.5, 1 s	•	•	•	•
Display				
Touchscreen LCD	•	•	•	•
monochrome LCD	•	•	•	•
Measures and displays (Instantaneous, maximum and average, adjustable delay)				
Current	•	•	•	•
Voltage Ph/N and Ph/Ph	•	•	•	•
Power (P, Q, A) total and per phase	•	•	•	•
Frequency	•	•	•	•
Total power factor and per phase	•	•	•	•
Energy (active and reactive)	•	•	•	•
Total harmonic distortion	•	•	•	•
Position ON/OFF/Default	•	•	•	•
Date, time and cause of last trip	•	•	•	•
Protection required	•	•	•	•
Memory				
Trip counter	•	•	•	•
Last trip	•	•	•	•
Date, time and cause of last trip	•	•	•	•
Date of last 20 alarms	•	•	•	•
External link				
USB port for diagnostic software	•	•	•	•
Terminal block for auxilliary	•	•	•	•
Supervision (port RS 485 / Modbus) ⁽³⁾	option	option	option	option
Signalling and Alarms				
Overheating > 75 °C	•	•	•	•
Logical Selectivity	•	•	•	•
Non priority load management ⁽³⁾	•	•	•	•
Reverse power 0.1 to 20s - 5 to 100 % I_r ⁽³⁾	•	•	•	•
Unbalance current 1 to 3600s - 100 to 600 V ⁽³⁾	•	•	•	•
Voltage Ph/N max : 0.1 to 20s - 60 to 400 V ⁽³⁾	•	•	•	•
Voltage Ph/N min : 0.1 to 20s - 10 to 400 V ⁽³⁾	•	•	•	•
Unbalance voltage Ph/N : 0.1 to 20s - Instant ⁽³⁾	•	•	•	•
Reversing phase rotations	•	•	•	•
Max & Min frequency: 45 to 500 Hz - 0.1s to 20s ⁽³⁾	•	•	•	•

(1) Only for touchscreen protection unit

(2) For DMX³ 3P, 4 wire system add Cat.No 0288 11(3) For touchscreens : I_r adjustable from 0.1 to 10 x I_n in steps of 0.01

DMX3



October 16

 **legrand**[®]
Y2958H

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DMX³

1. Weights

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

Circuit breakers

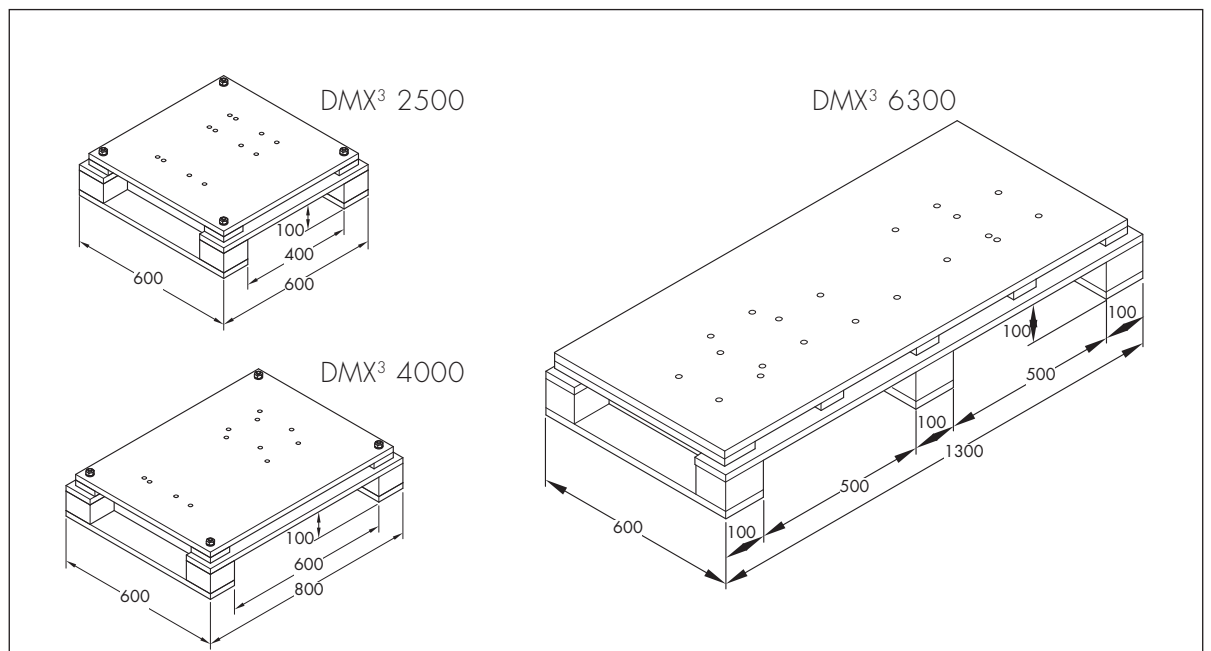
	Type	DMX ³ 2500		DMX ³ 4000	DMX ³ 6300
	Rating (A)	630/800/1000/ 1250/1600 (version 42kA)	630/800/1000/ 1250/1600/ 2000/2500	630/800/1000/ 1250/1600/2000 2500/3200/4000	5000/6300
Fixed	3P	39 kg	41 kg	59 kg	118 kg
	4P	46 kg	48 kg	76 kg	152 kg
Draw-out	3P	73 kg	77 kg	108 kg	225 kg
	4P	90 kg	94 kg	137 kg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

Switch disconnectors

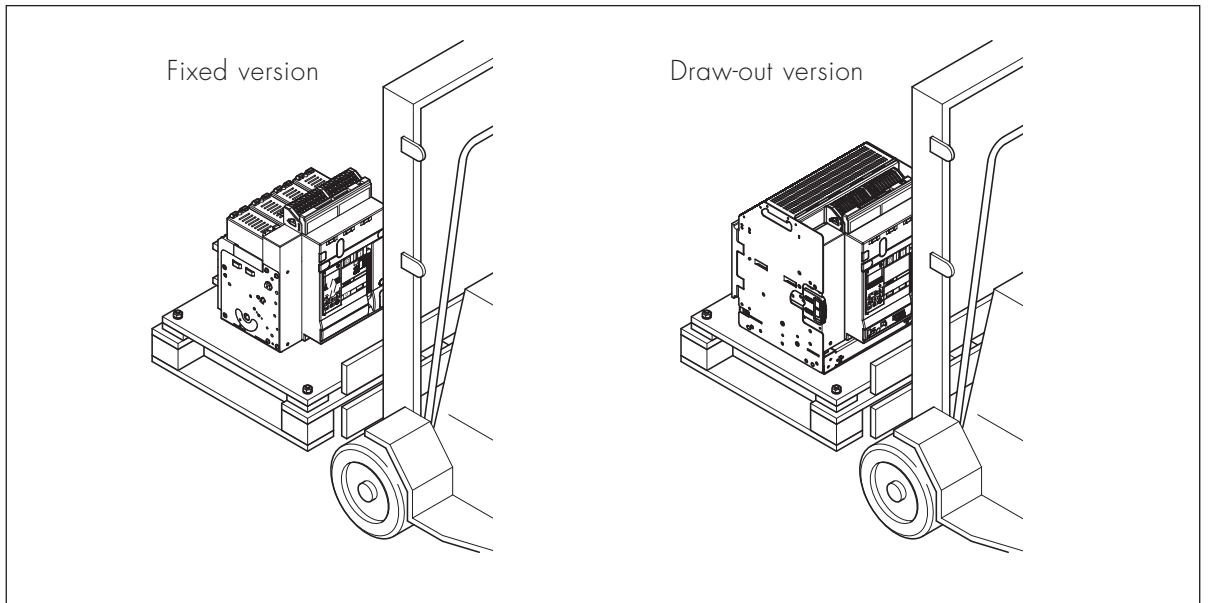
	Type	DMX ³ 2500	DMX ³ 4000	DMX ³ 6300
	Rating (A)	1250/1600/ 2000/2500	1250/1600/2000/ 2500/3200/4000	6300
Fixed	3P	39 kg	57 kg	114 kg
	4P	45 kg	73 kg	146 kg
Draw-out	3P	75 kg	106 kg	212 kg
	4P	91 kg	134 kg	268 kg

2. Handling and unpacking

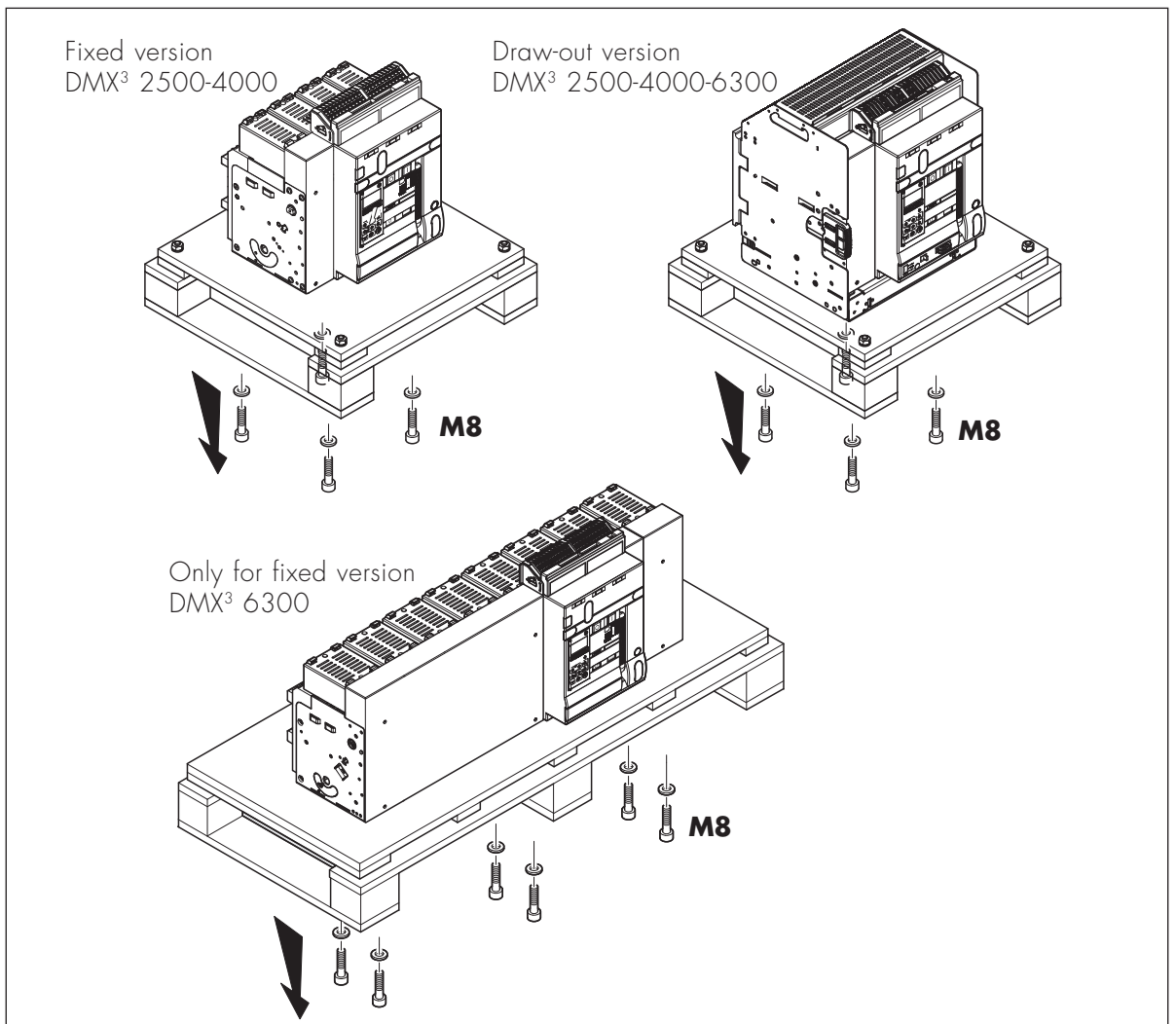
The breaker can be transported using a fork lift.



DMX³

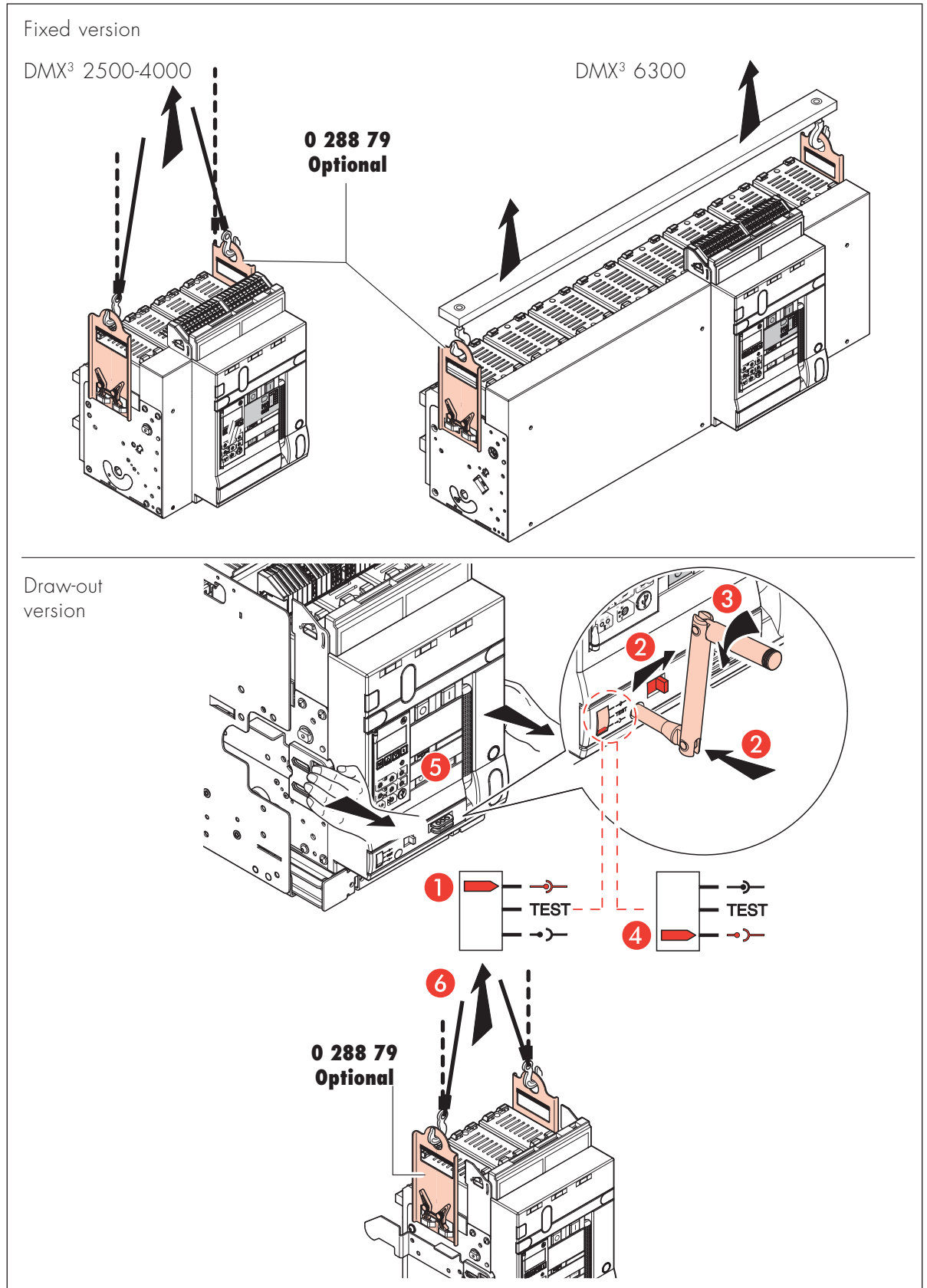


Remove breaker mounting screws.

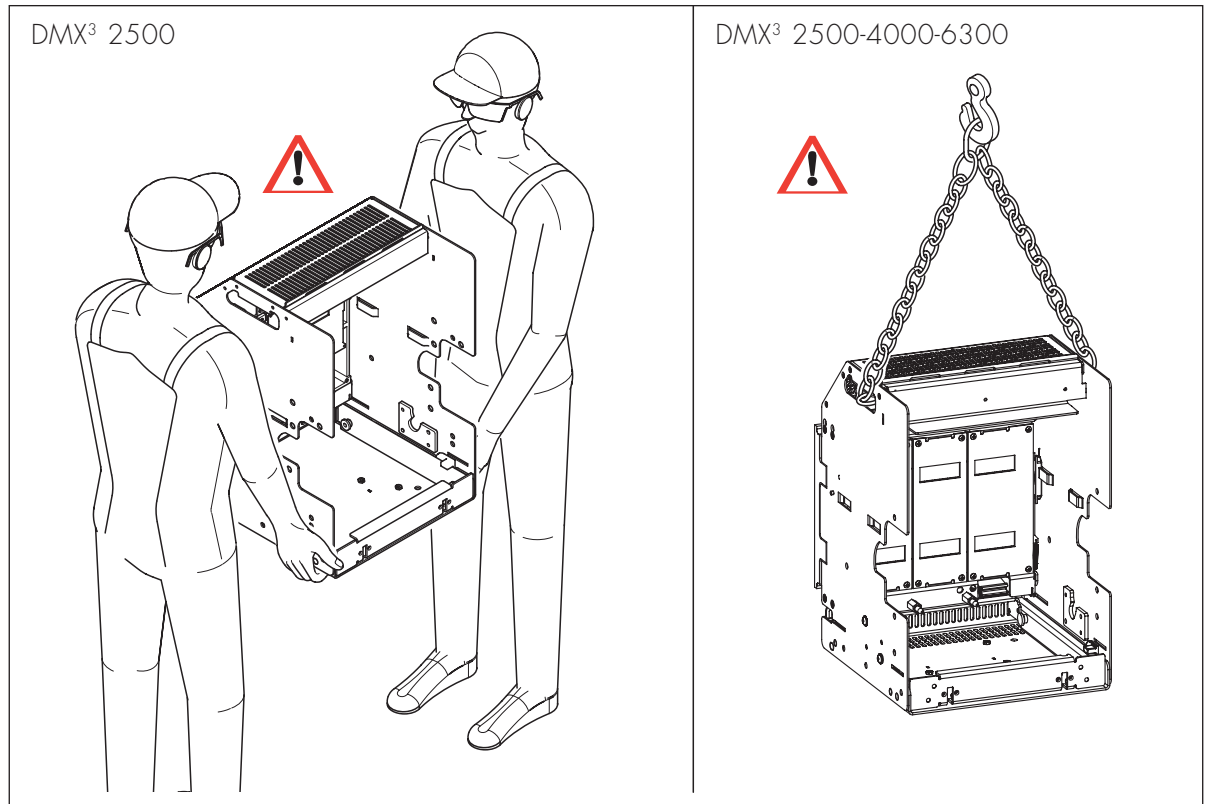


DMX³

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



DMX³



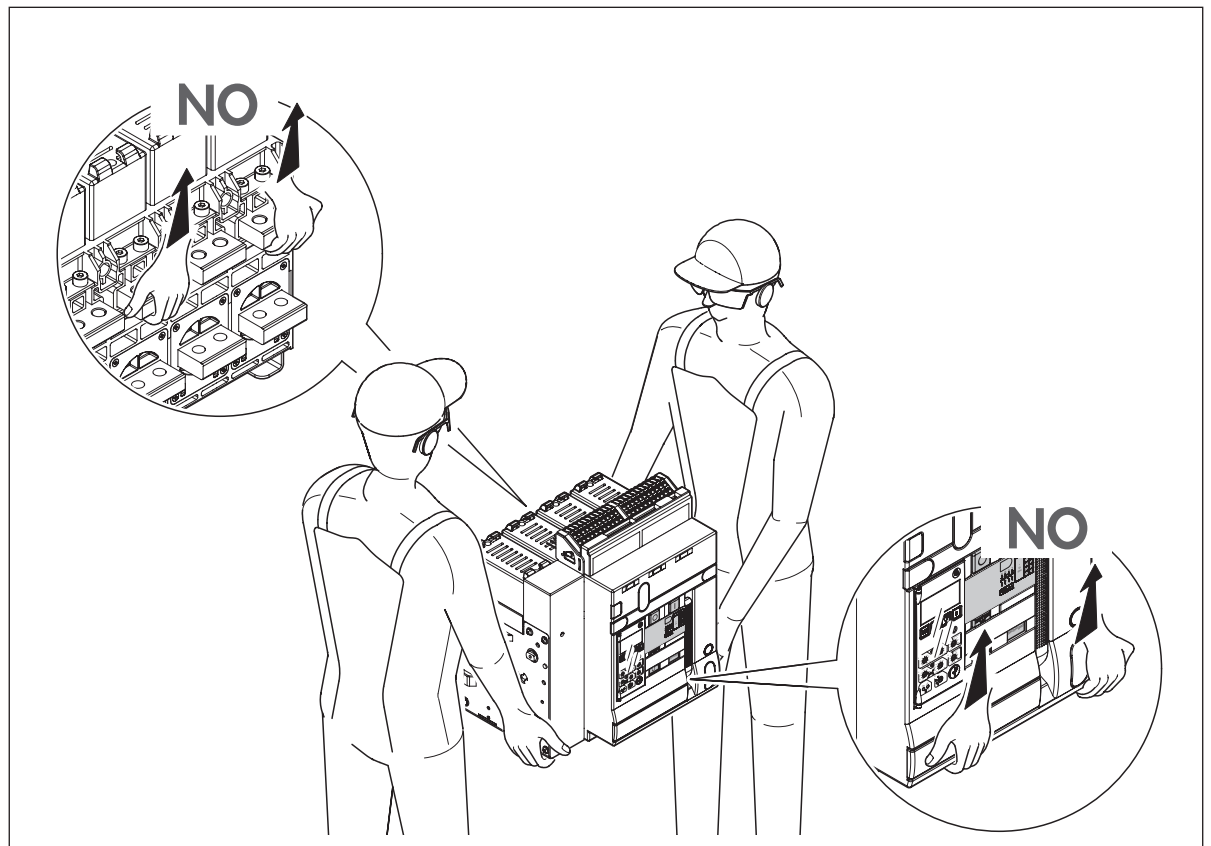
DMX³ 2500-4000 breakers (fixed and draw-out version) can also be transported by 2 persons.



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



Do not lift the breaker using front face or Terminals



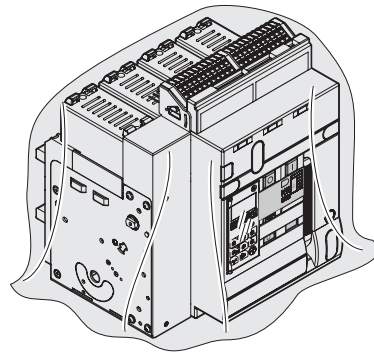
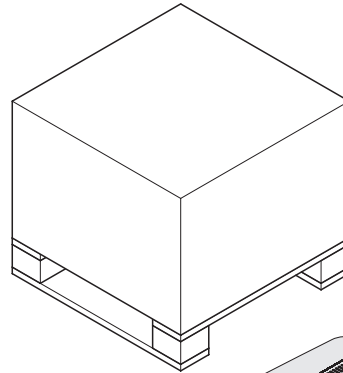
DMX³

3. Storage for fixed and draw-out breakers

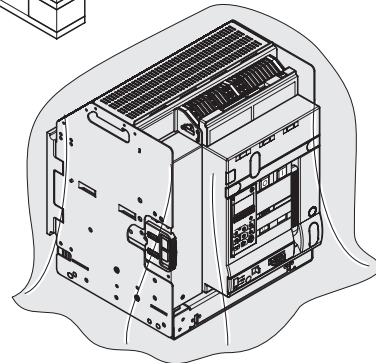
When Base and Breaker are not being used for a long time, pack them.



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



Fixed version



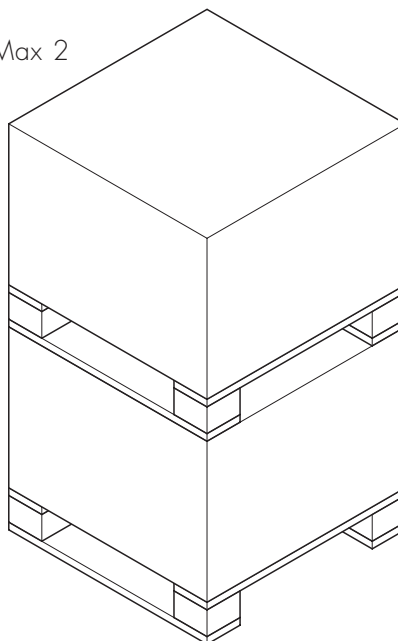
Draw-out version



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

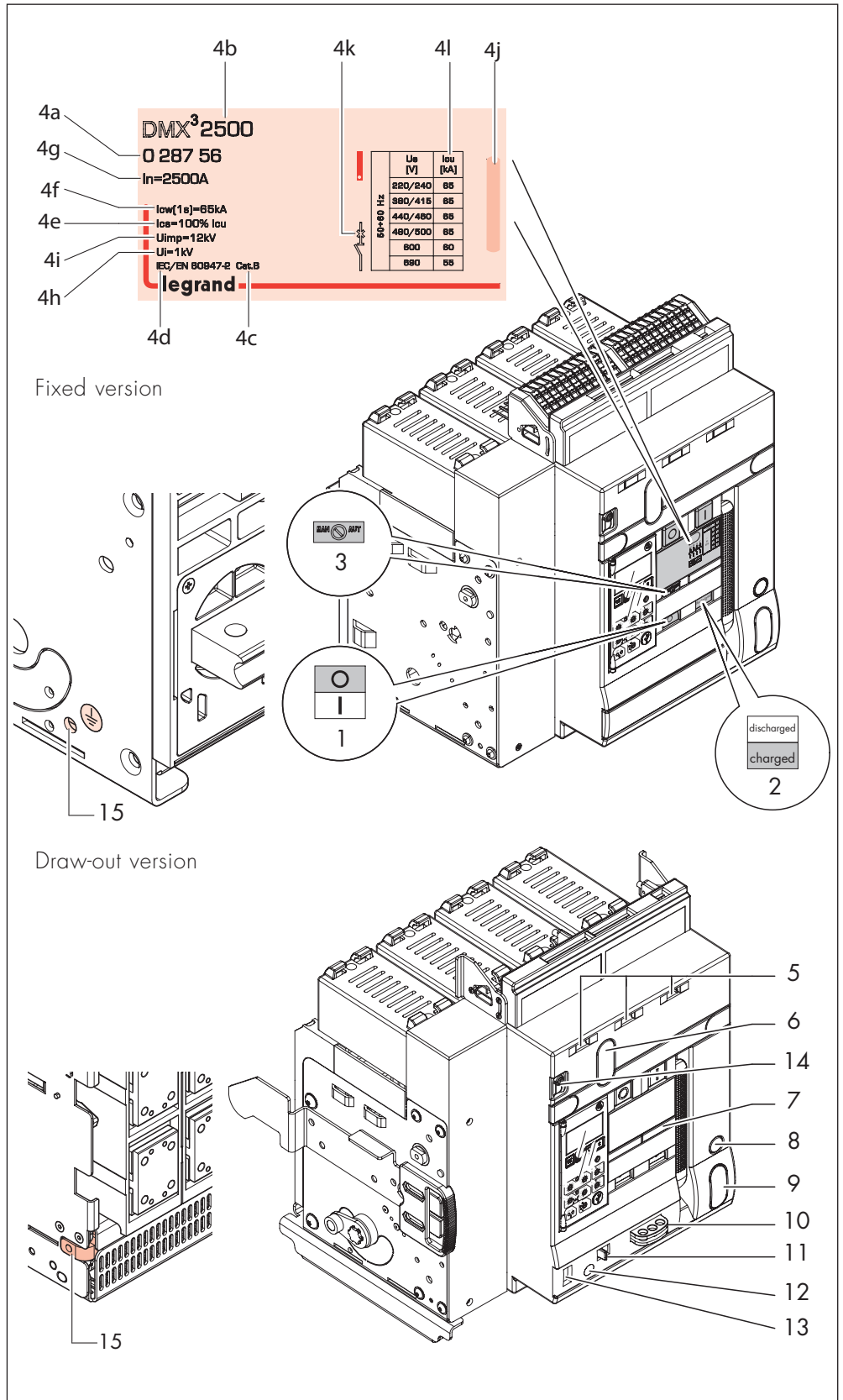
DMX³ 2500-4000-6300

Max 2



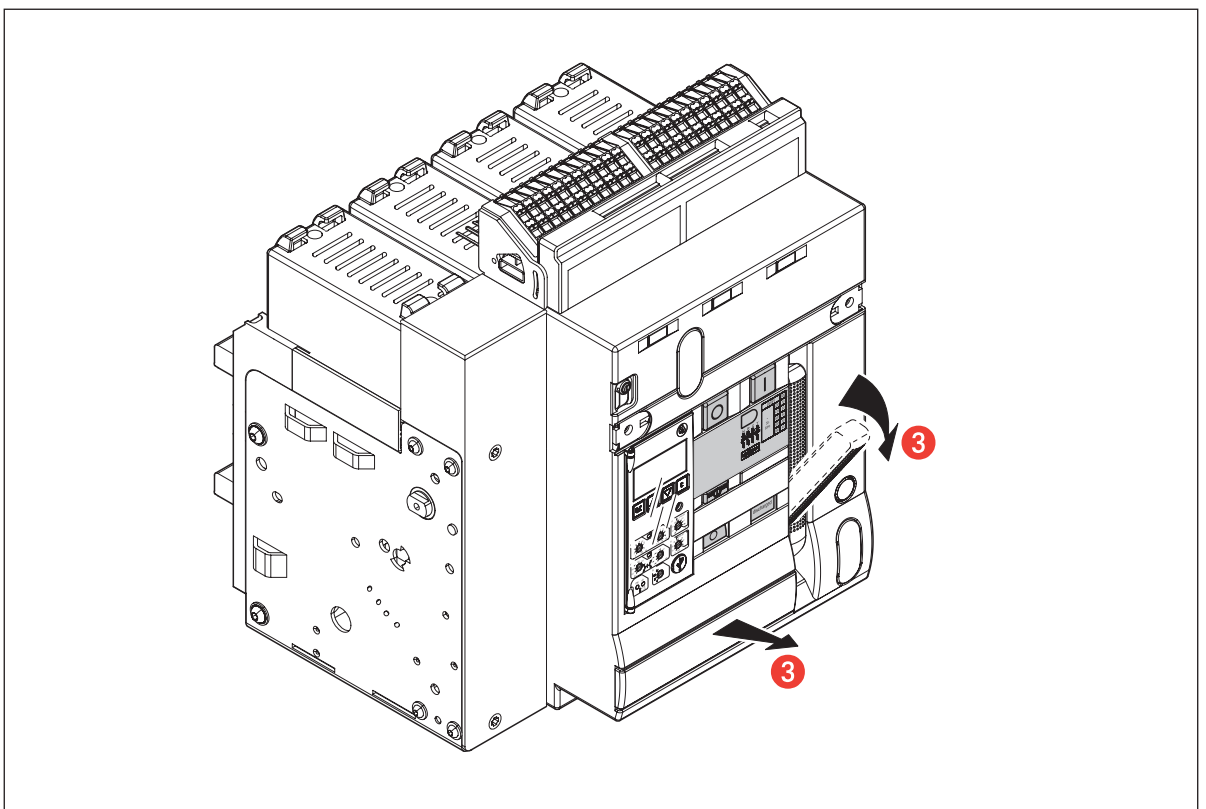
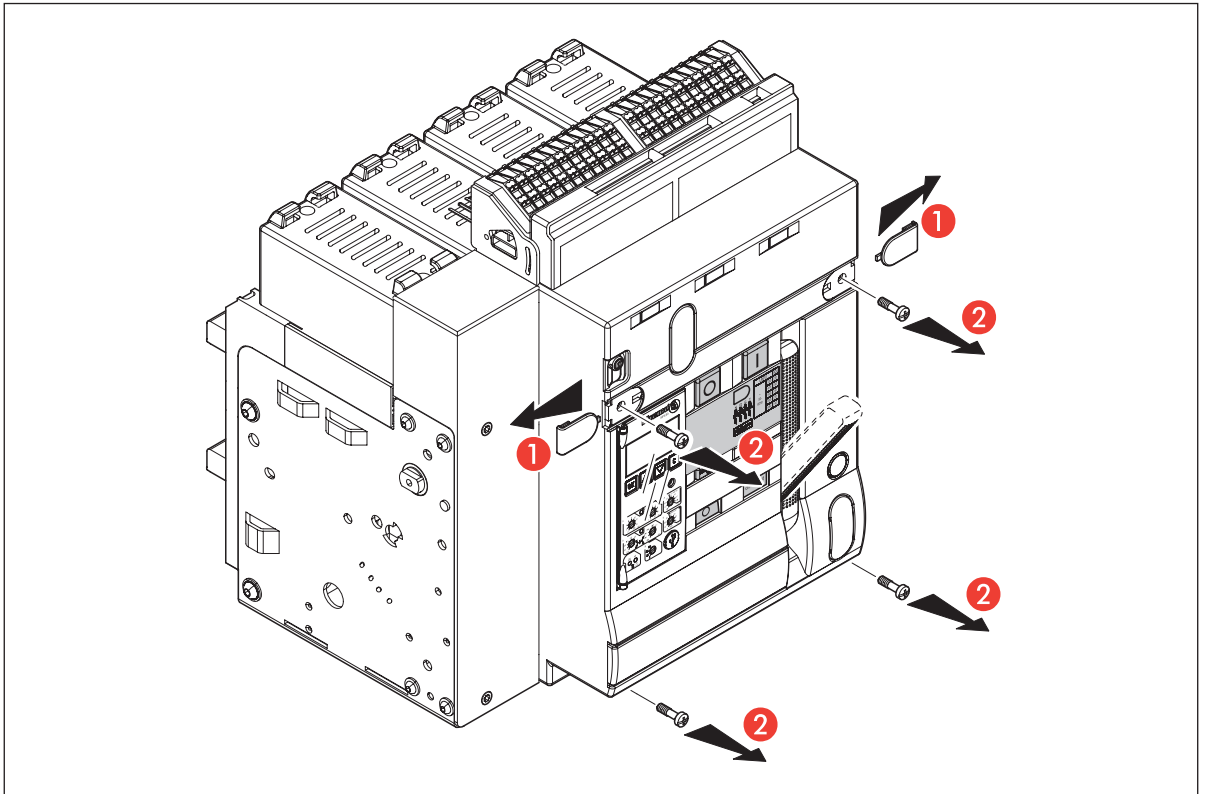
4. Identification

- 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

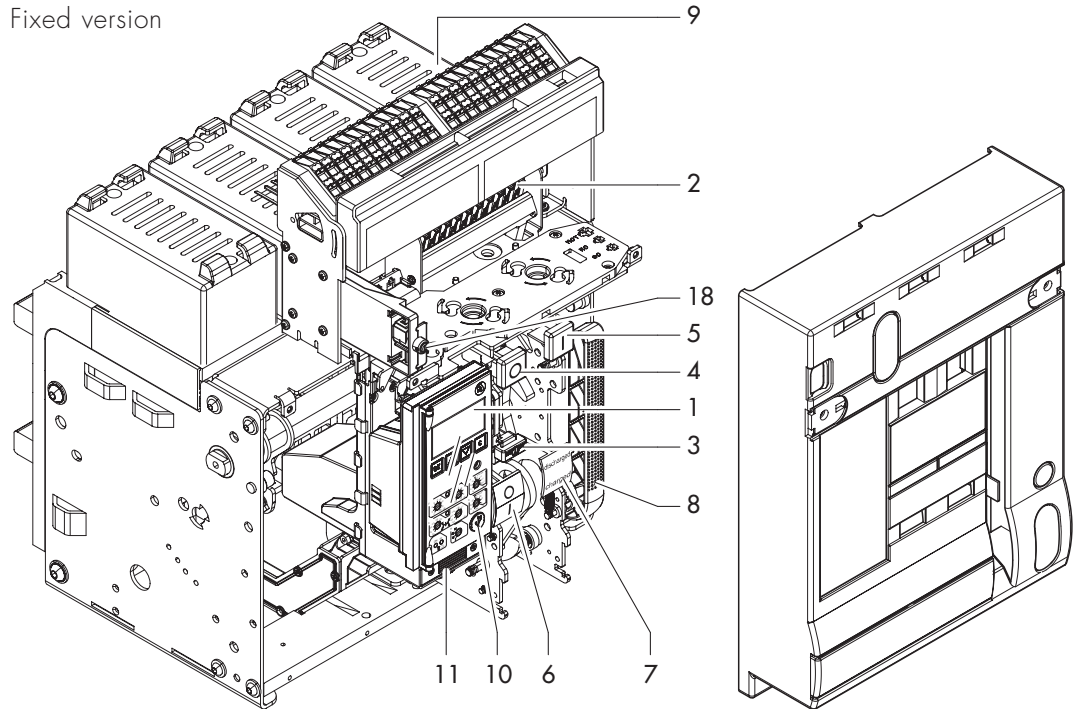
For fix and draw-out breakers.



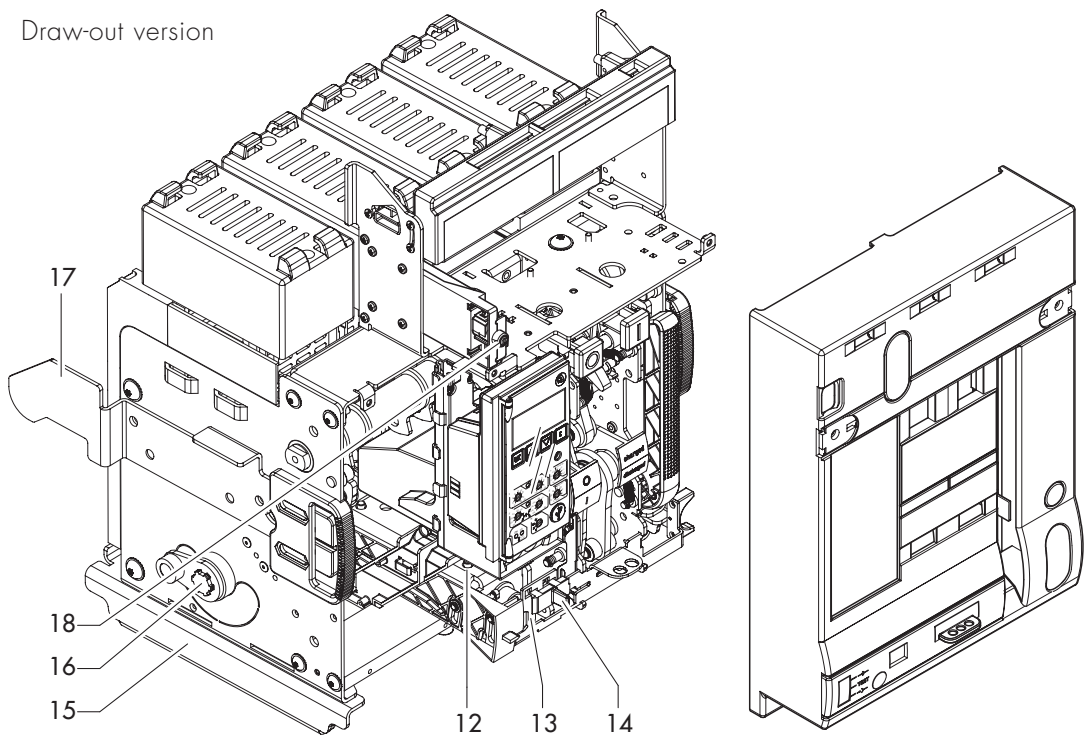
6. Exploring

- 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



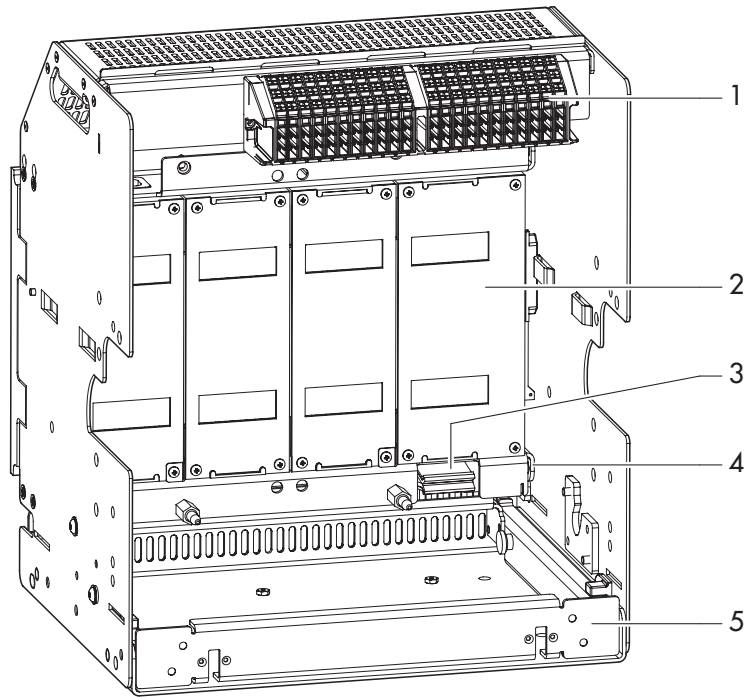
Draw-out version



DMX³

- 1 Aux terminal block
- 2 Safety shutter
- 3 DMX³ Automatic Breaker Earth connection
- 4 Earth terminal
- 5 Removable cassette

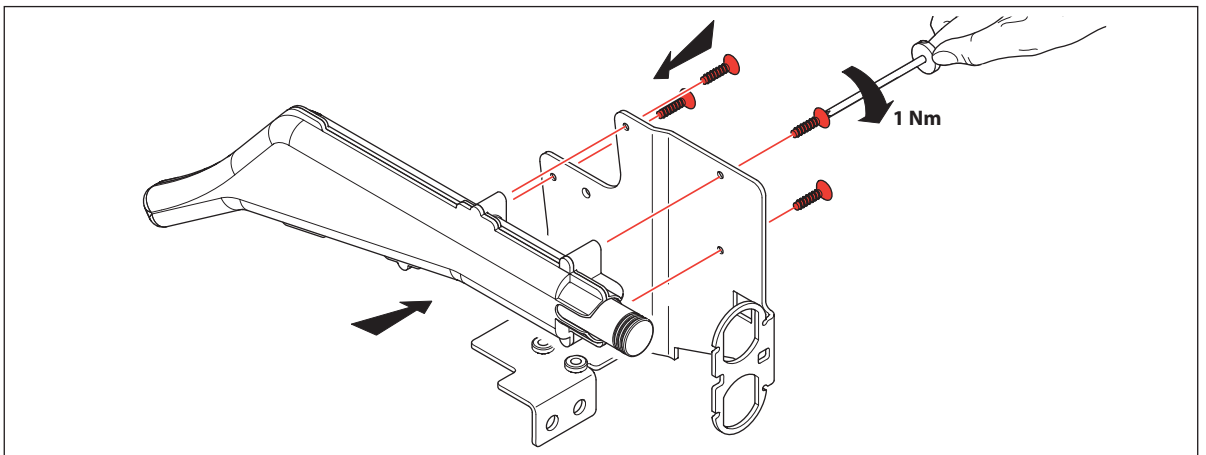
Base
Draw-out version



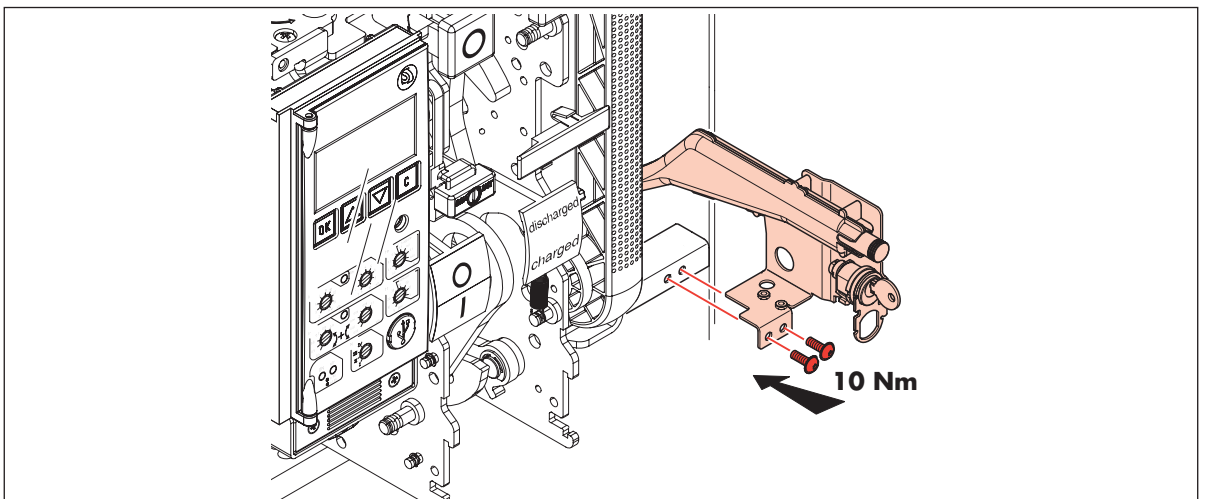
DMX³

Only for draw-out breaker

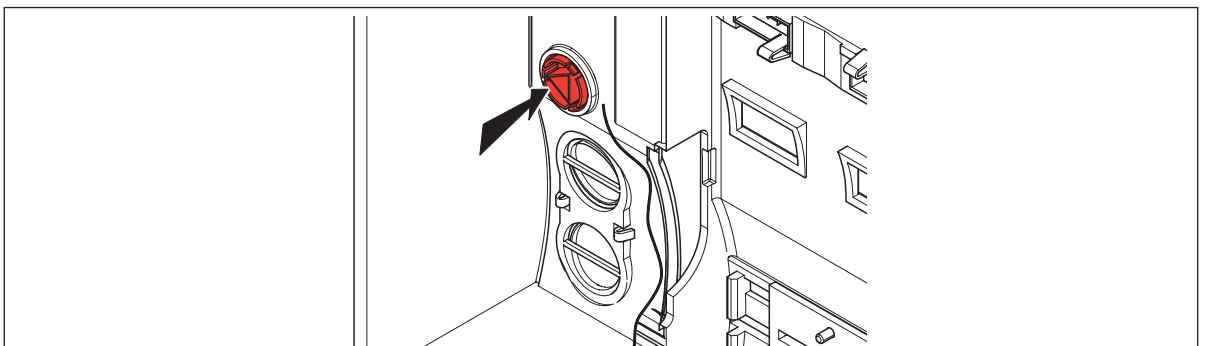
- 1 Remove frontal cover
- 2 If necessary install the mechanical interlock
- 3 If necessary install the ready to close contact
- 4 If necessary install the motor operator
- 5 If necessary install the keylock (optional) for draw-out version
- 6 Screw the case of the draw-out bar on the delivered support



- 7 Screw the support on the bottom crossbar



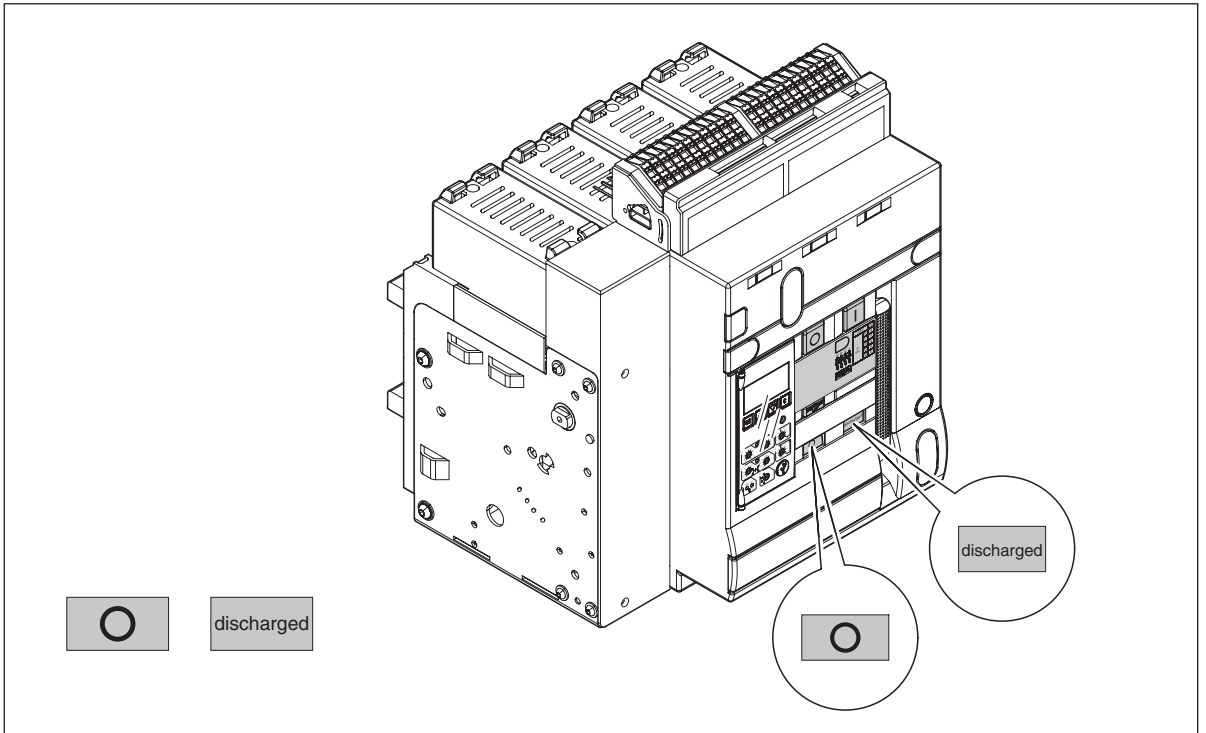
- 8 Remove the cap from the frontal cover





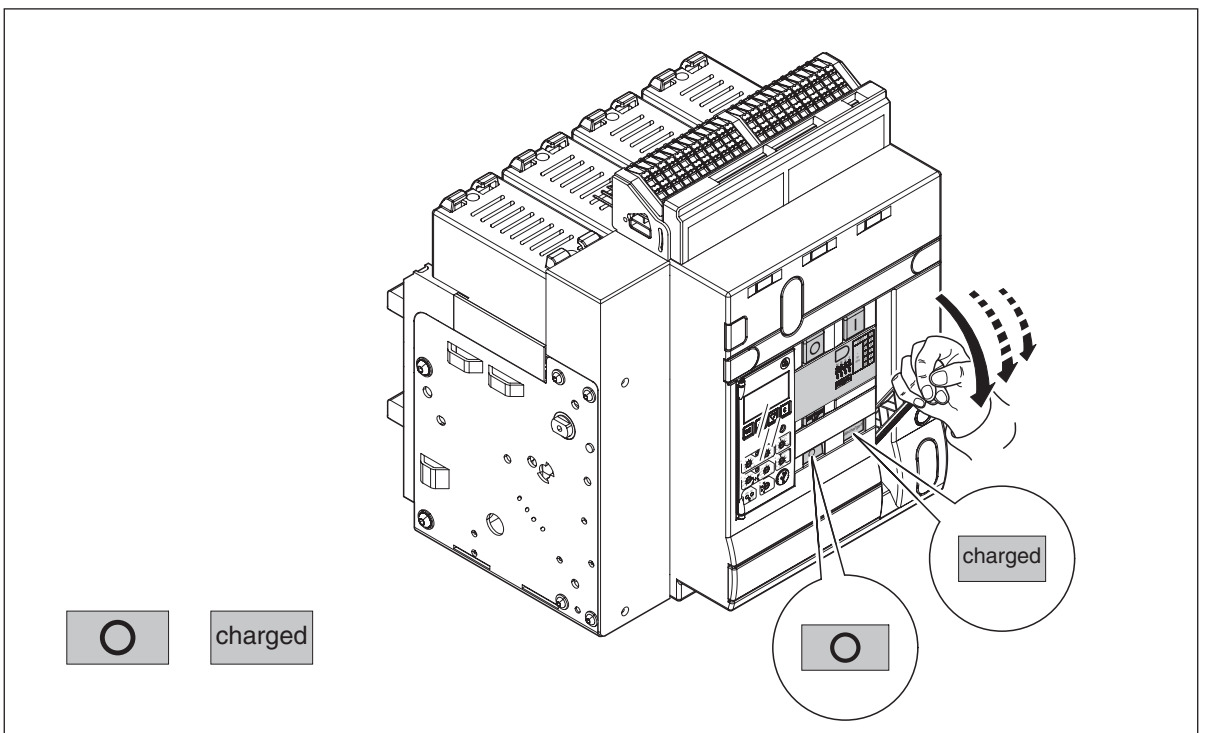
DMX³

7. Operating


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



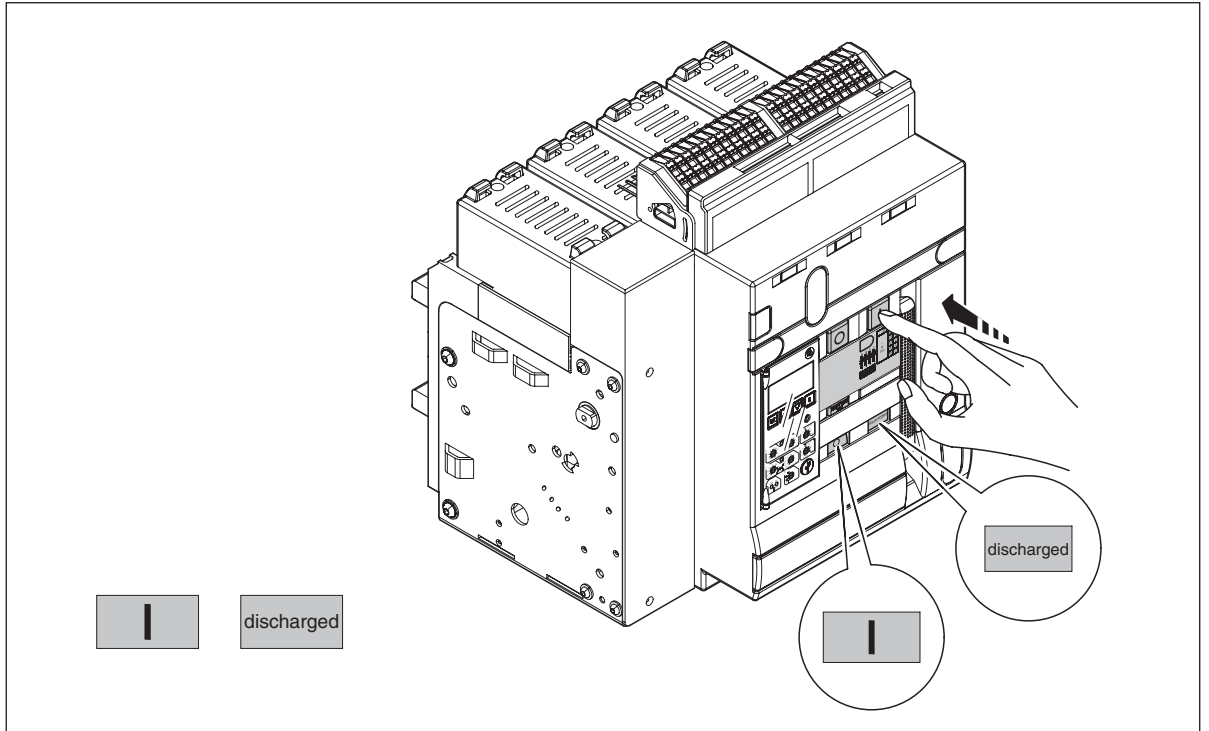
Charge the Main spring through multiple strokes of charging handle.
Now the breaker is  and spring is .



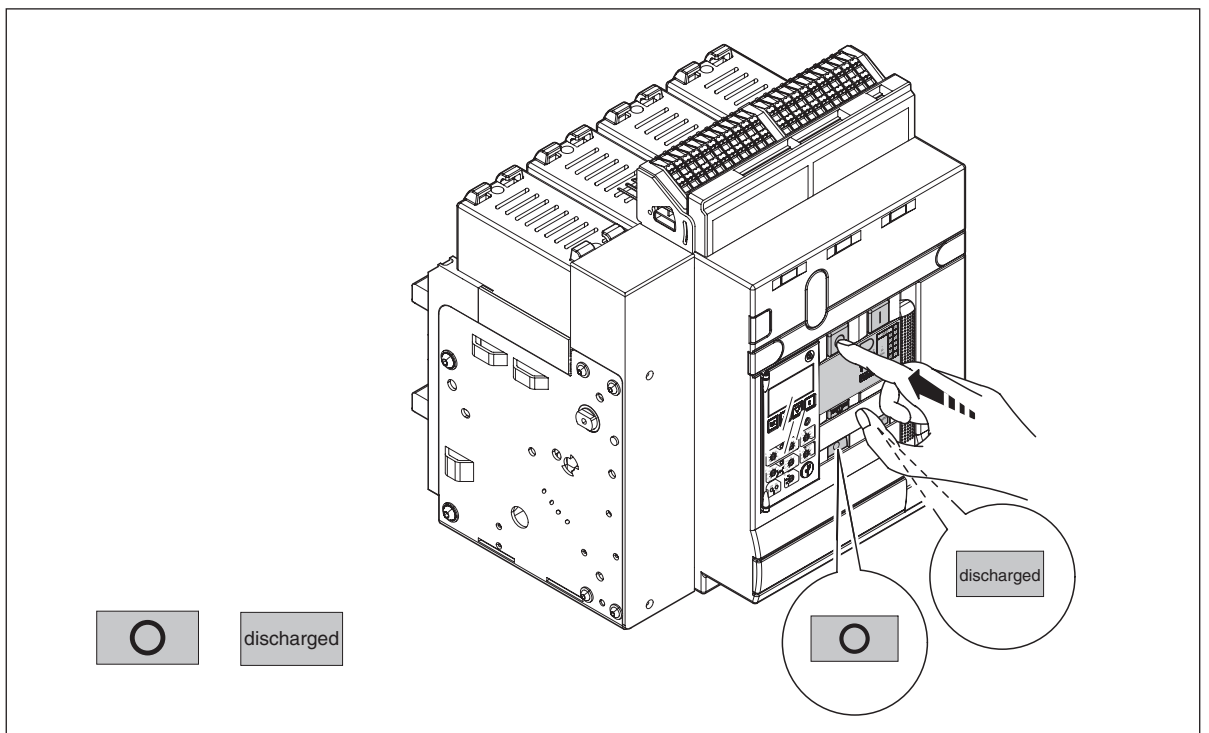
DMX³

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 ³			DMX ³ 2500 42kA	DMX ³ 2500			DMX ³ 4000			DMX ³ 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	N	H	L	N	H	L	L
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

DMX³

SWITCH DISCONNECTORS		DMX ³ -I 2500	DMX ³ -I 4000	DMX ³ -I 6300	
According to IEC 60947-3 DMX ³		DMX ³ -I 2500	DMX ³ -I 4000	DMX ³ -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	220	
	600Va.c.	132	165	165	
	690Va.c.	121	143	143	
Rated short-time withstand current Icw (kA) t=1s	220V÷500Va.c.	65	85	100	
	600Va.c.	60	75	75	
	690Va.c.	55	65	65	
Rated short-time withstand current Icw (kA) t=3s	220V÷500Va.c.	45	65	85	
	600Va.c.	45	65	75	
	690Va.c.	45	65	65	
Isolation capability		yes	yes	yes	
Endurance (cycles)	mechanical	without maintenance	10000	10000	5000
		with maintenance	20000	20000	10000
	electrical	without maintenance	10000	10000	5000
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

DMX³

8.2 Real dimensions of the device

	DMX ³ 2500	DMX ³ 4000	DMX ³ 6300
Dimensions - fixed version 3P			
Width	273 mm	408 mm	797 mm
Depth	354 mm	354 mm	354 mm
Height	419 mm	419 mm	419 mm
Dimensions - fixed version 4P			
Width	358 mm	538 mm	1057 mm
Depth	354 mm	354 mm	354 mm
Height	419 mm	419 mm	419 mm
Dimensions - draw-out version 3P			
Width	327 mm	425 mm	804 mm
Depth	433 mm	433 mm	433 mm
Height	473 mm	473 mm	473 mm
Dimensions - draw-out version 4P			
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

CIRCUIT BREAKERS					
	Type	DMX ³ 2500		DMX ³ 4000	DMX ³ 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

SWITCH DISCONNECTORS				
	Type	DMX ³ 2500	DMX ³ 4000	DMX ³ 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

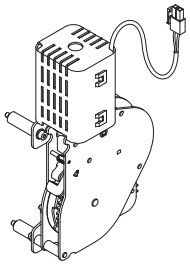
Voltage range (% V_n): 85÷110

Maximum power consumption (W/VA): 180/180 (DMX³ 2500), 240/240 (DMX³ 4000-6300)

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

Charging time (s): 5 (DMX³ 2500), 7 (DMX³ 4000-6300)

Operating frequency (n°/min): 2 (DMX³ 2500), 1 (DMX³ 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

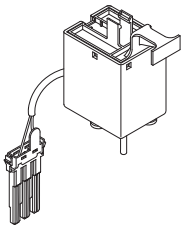
Pick-up consumption (W/VA): 500/500

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

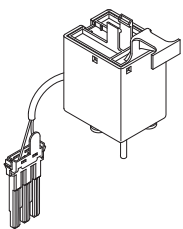
Pick-up consumption (W/VA): 500/500

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

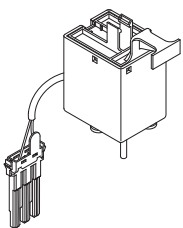
Pick-up consumption (W/VA): 500/500

Pick-up time (ms): 180

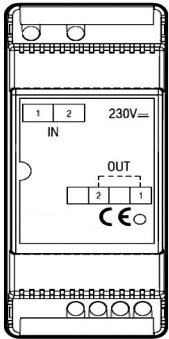
Hold consumption (W/VA): 5/5

Opening time (ms): 60

Isolation voltage (kV): 2,5



DMX³



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

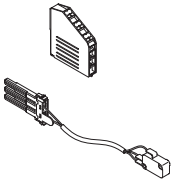
Hold consumption: 10 VA-W

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)

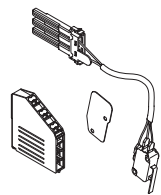
Operating temperature: (-10) - (+55) °C



Signal contact for auxiliaries

Technical features

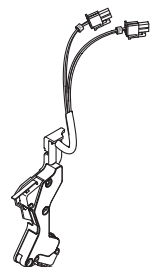
Rated operating voltage V_n (Va.c.): 250V 16A
(Vd.c.): 250V 0,3A



Additional signalling contact

Technical features

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

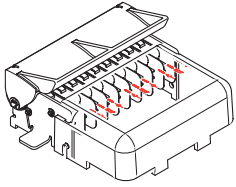


Contact ready to close with charged springs

Technical features

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

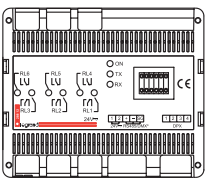
DMX³



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

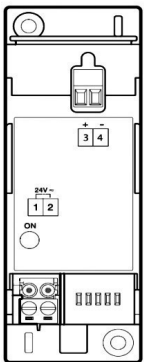
Input supply: 50– 60 Hz; 24 Va.c. +/- 10%; 24 Vd.c. +/- 10%

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) ≥ 5

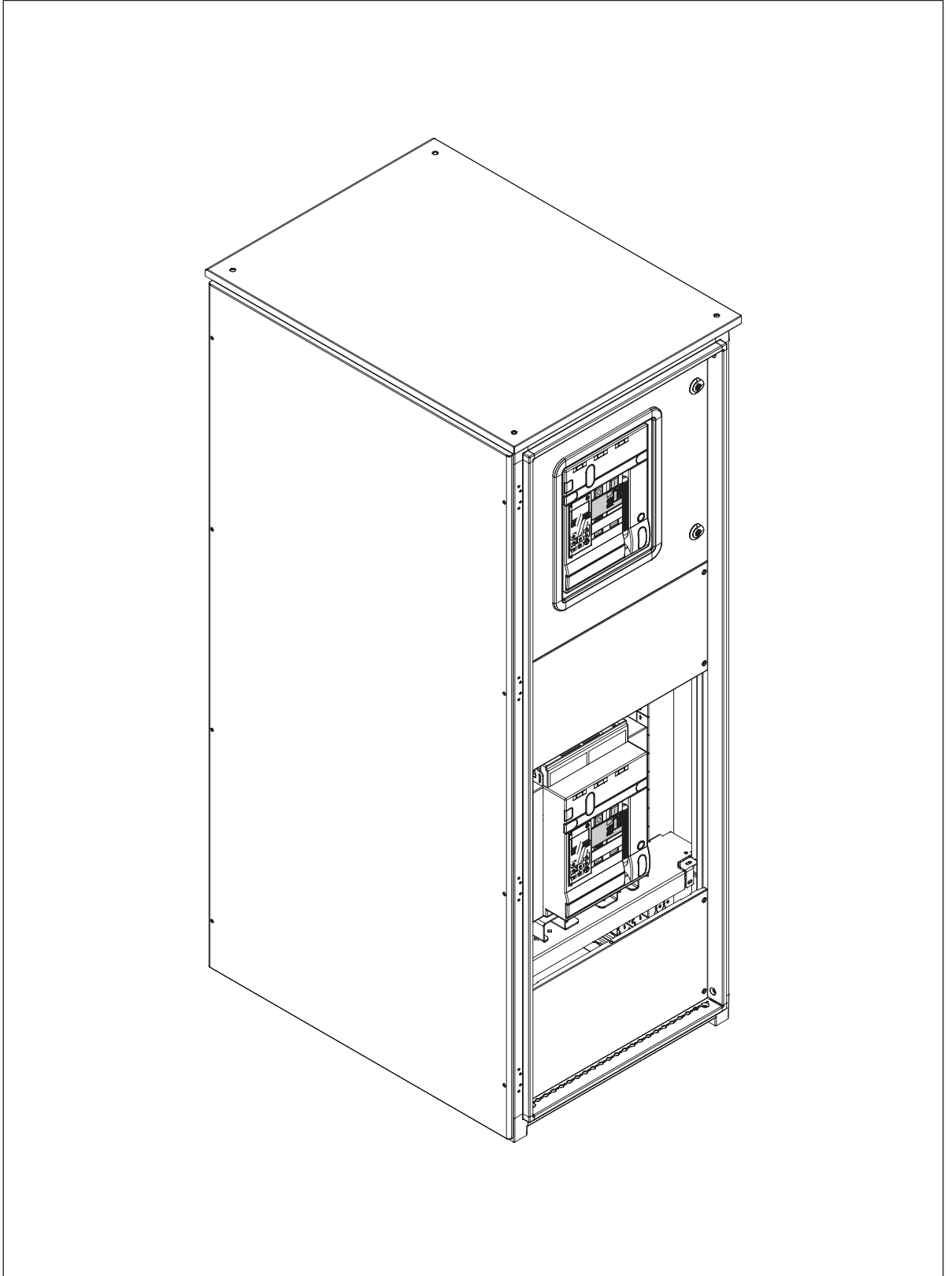
Operating temperature: (-10) – (+55) °C

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

DMX³

10. Installation and door cut-out

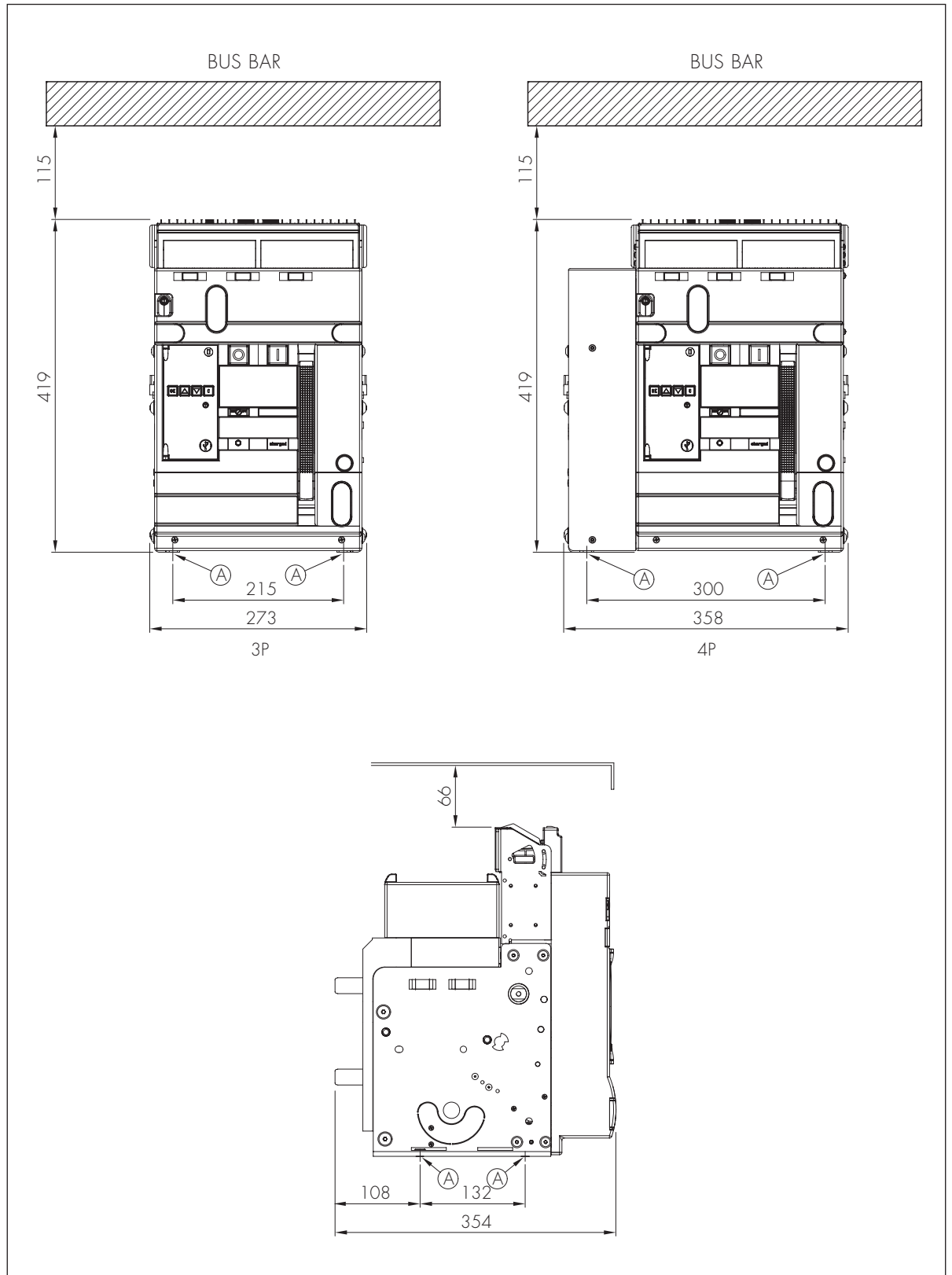
Typical installation of DMX³ breakers in an enclosure.



DMX³

10.1 Installation of breaker DMX³ fixed version

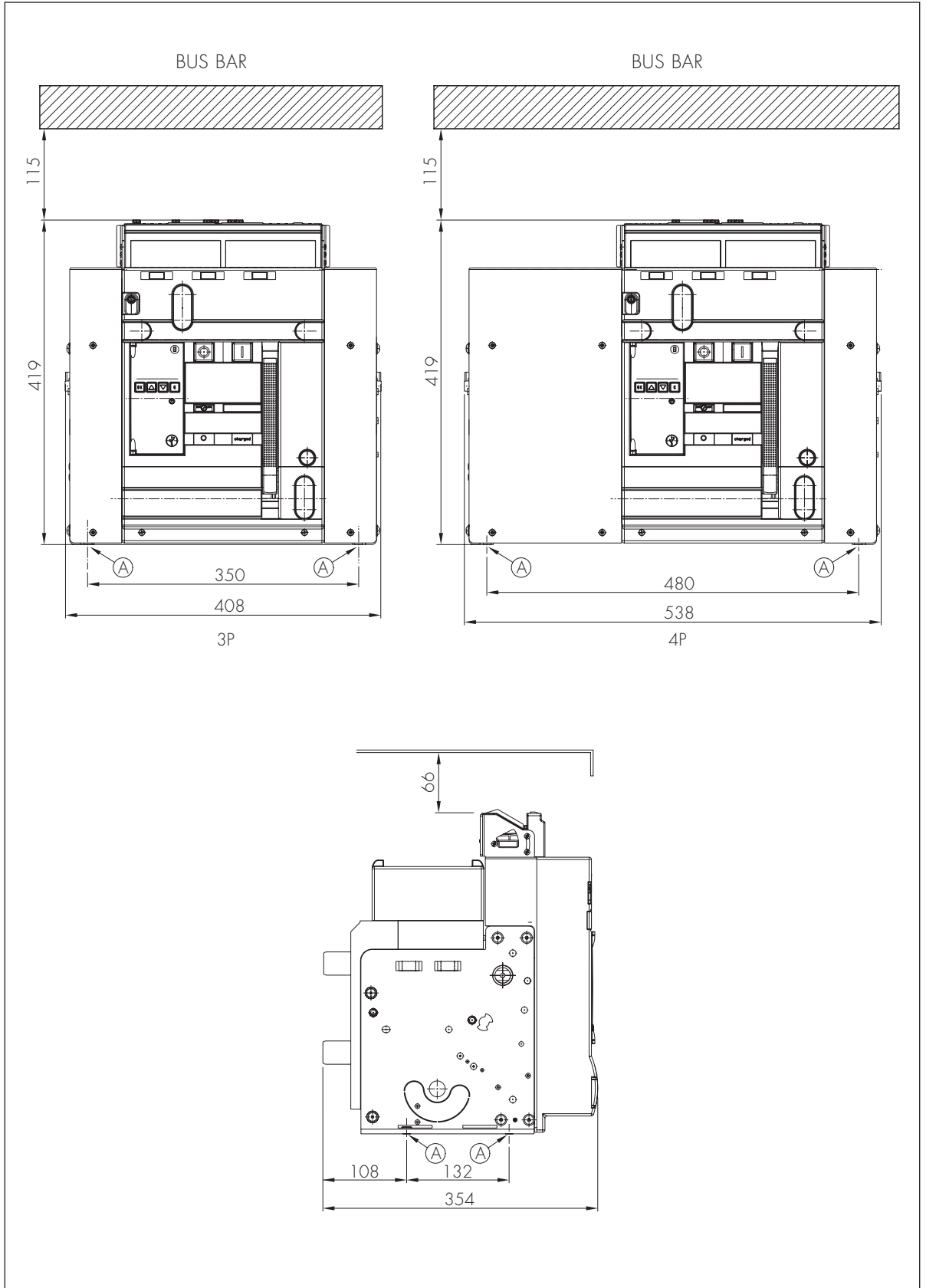
DMX³ 2500. Mounting details (also for 42kA version).



(A) = Fixing point on plate of enclosure

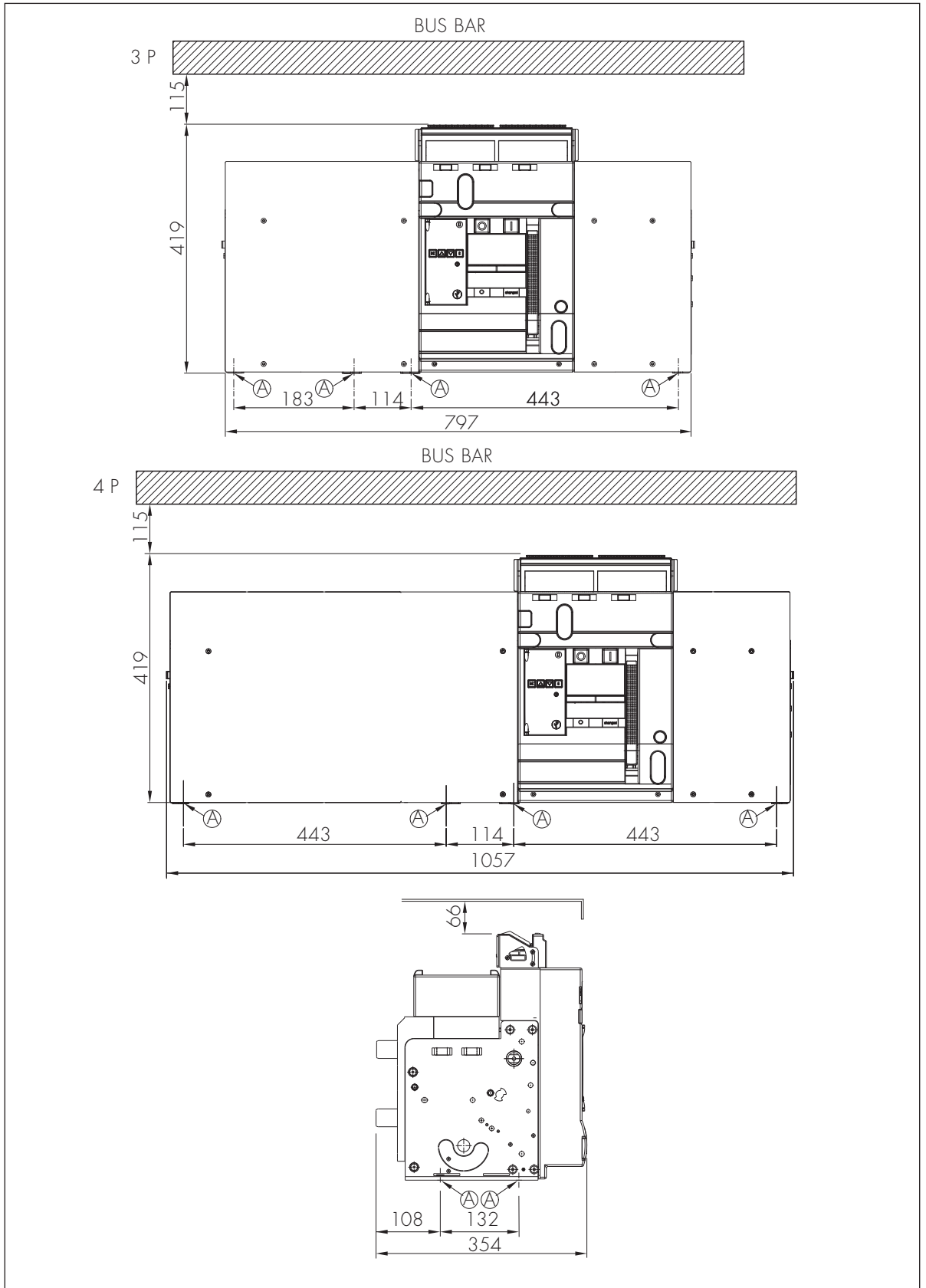
DMX³

DMX³ 4000. Mounting details.



DMX³

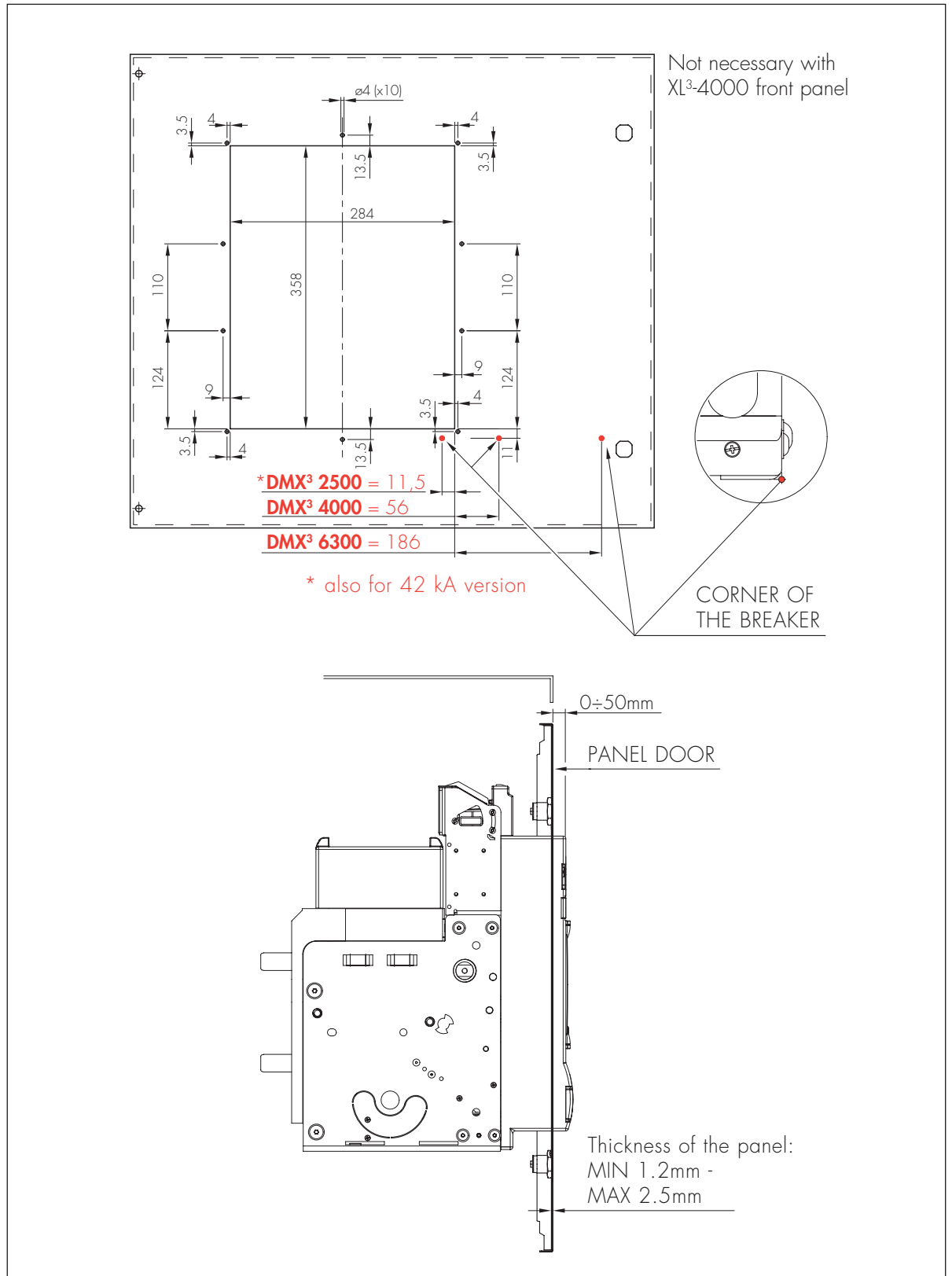
DMX³ 6300. Mounting details.



DMX³

10.2 Door cut-out for fixed version

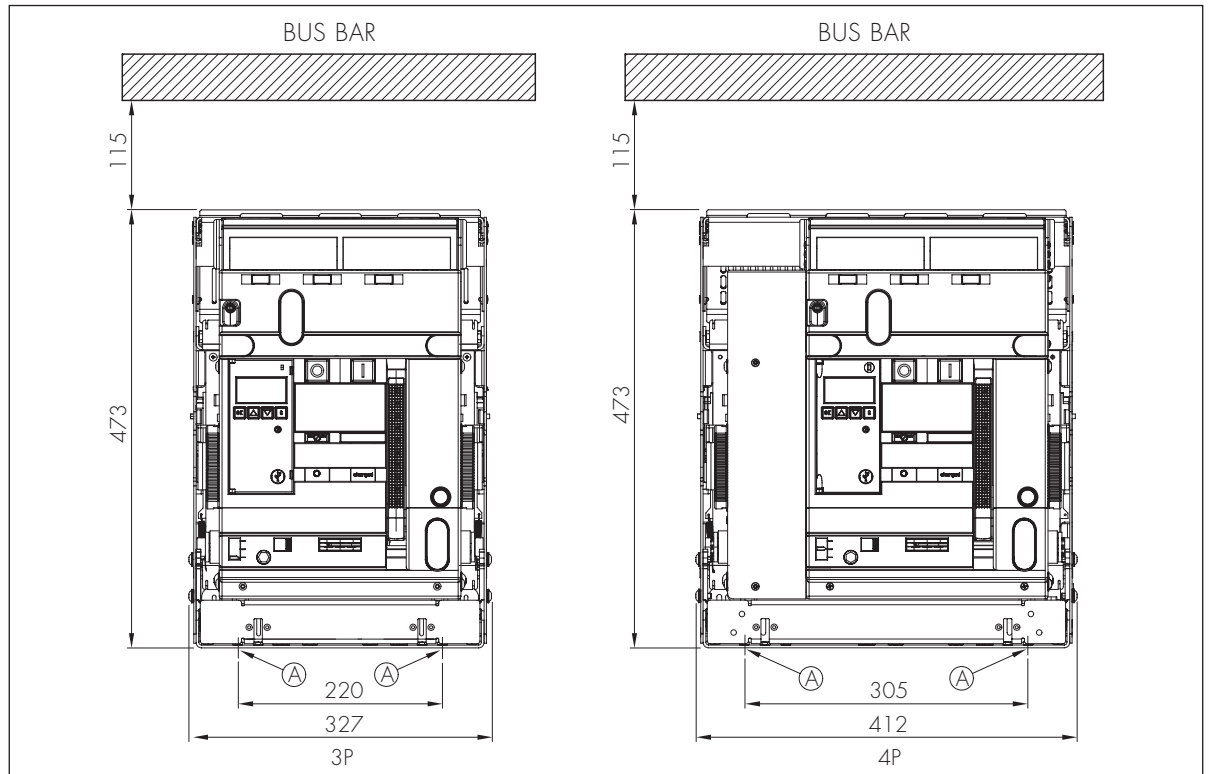
DMX³ 2500-4000-6300. Mounting details.



DMX³

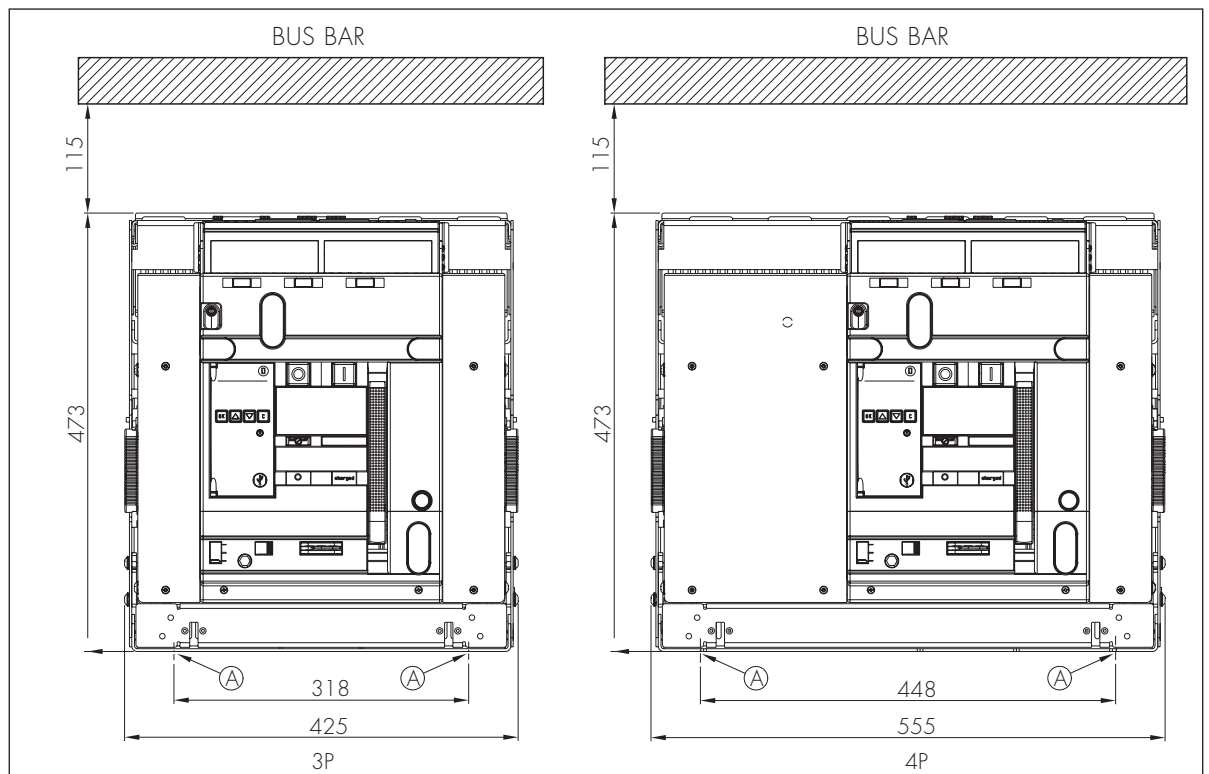
10.3 Installation of breaker DMX³ draw-out version

DMX³ 2500. Mounting details (also for 42kA version).



Ⓐ = Fixing point on plate of enclosure

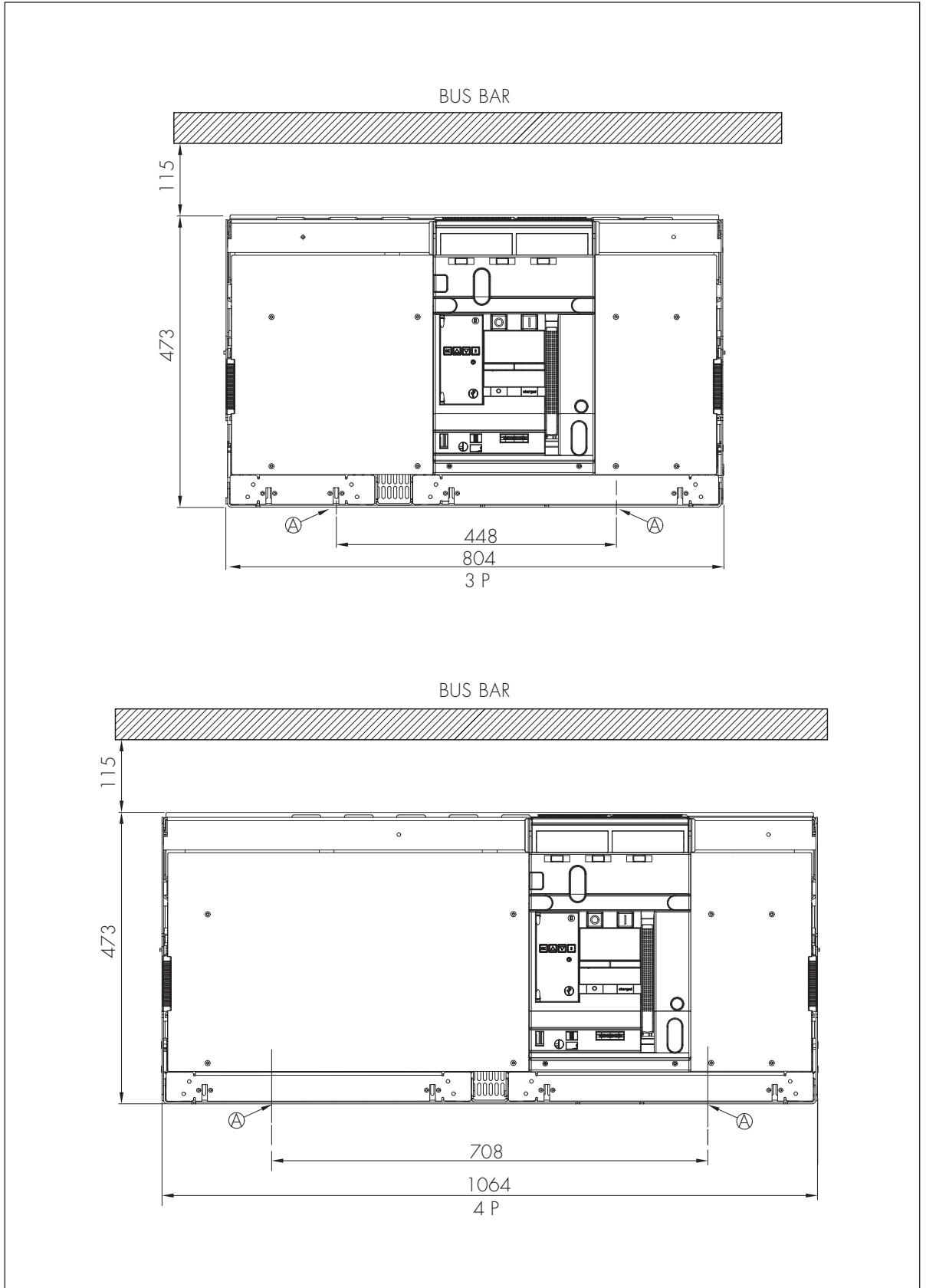
DMX³ 4000. Mounting details.



Ⓐ = Fixing point on plate of enclosure

DMX³

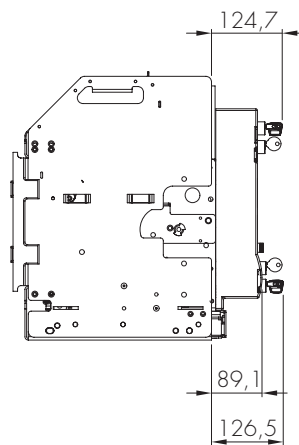
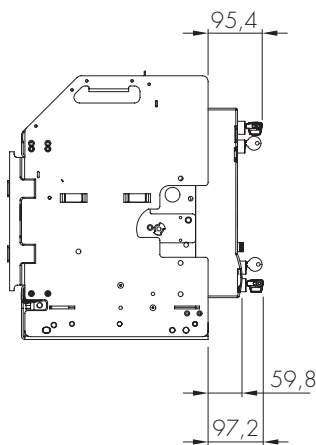
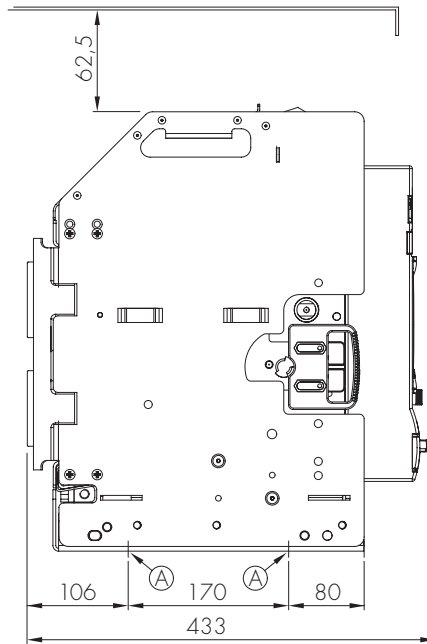
DMX³ 6300. Mounting details.



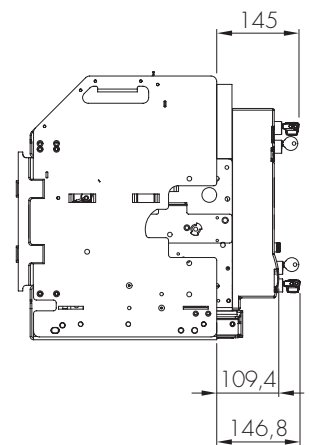
DMX³

DMX³ 2500-4000-6300. Mounting details.

Ⓐ = Fixing point on plate of enclosure



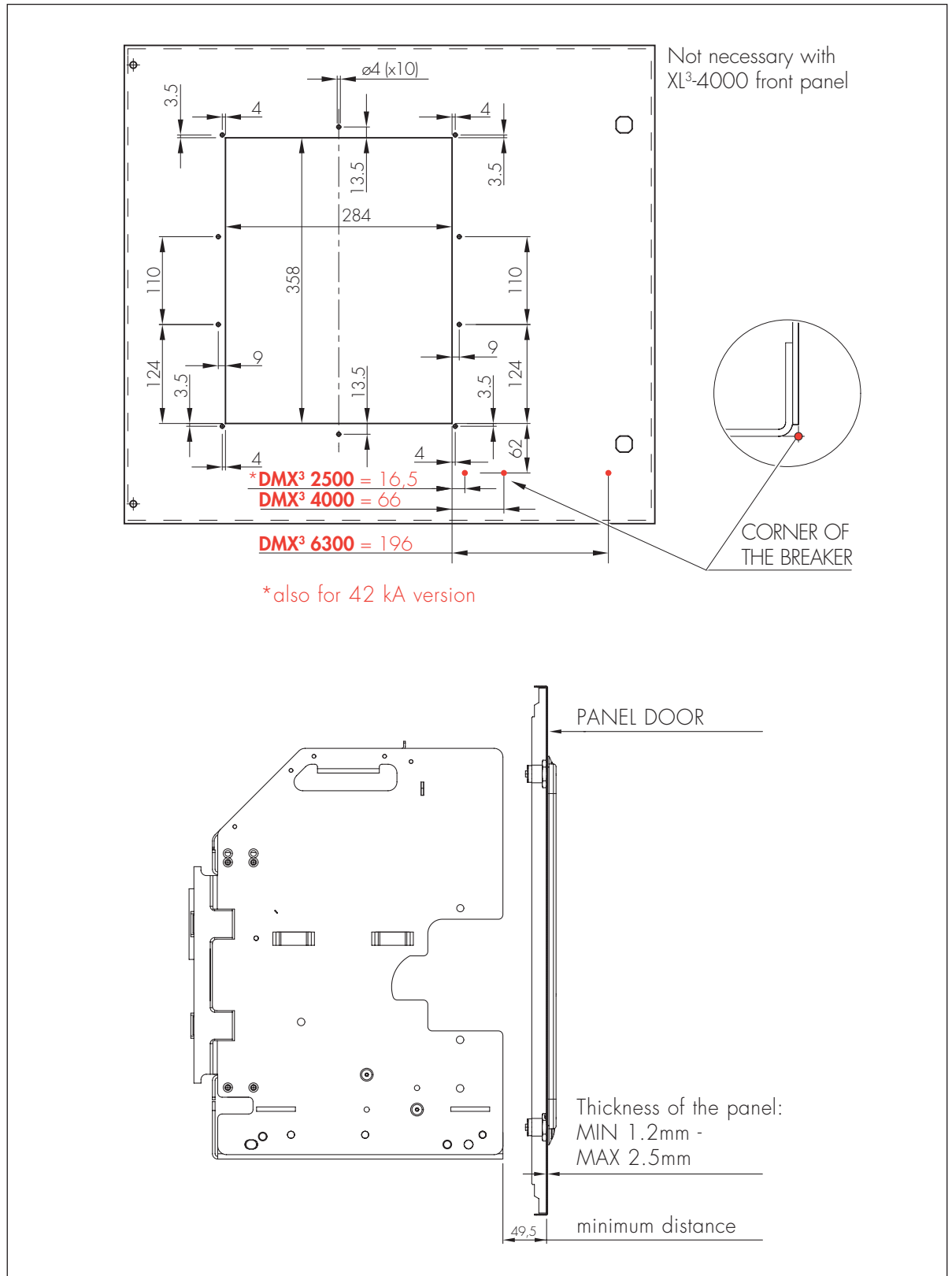
TEST



DMX³

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

DMX³ 2500-4000-6300. Mounting details.



DMX³

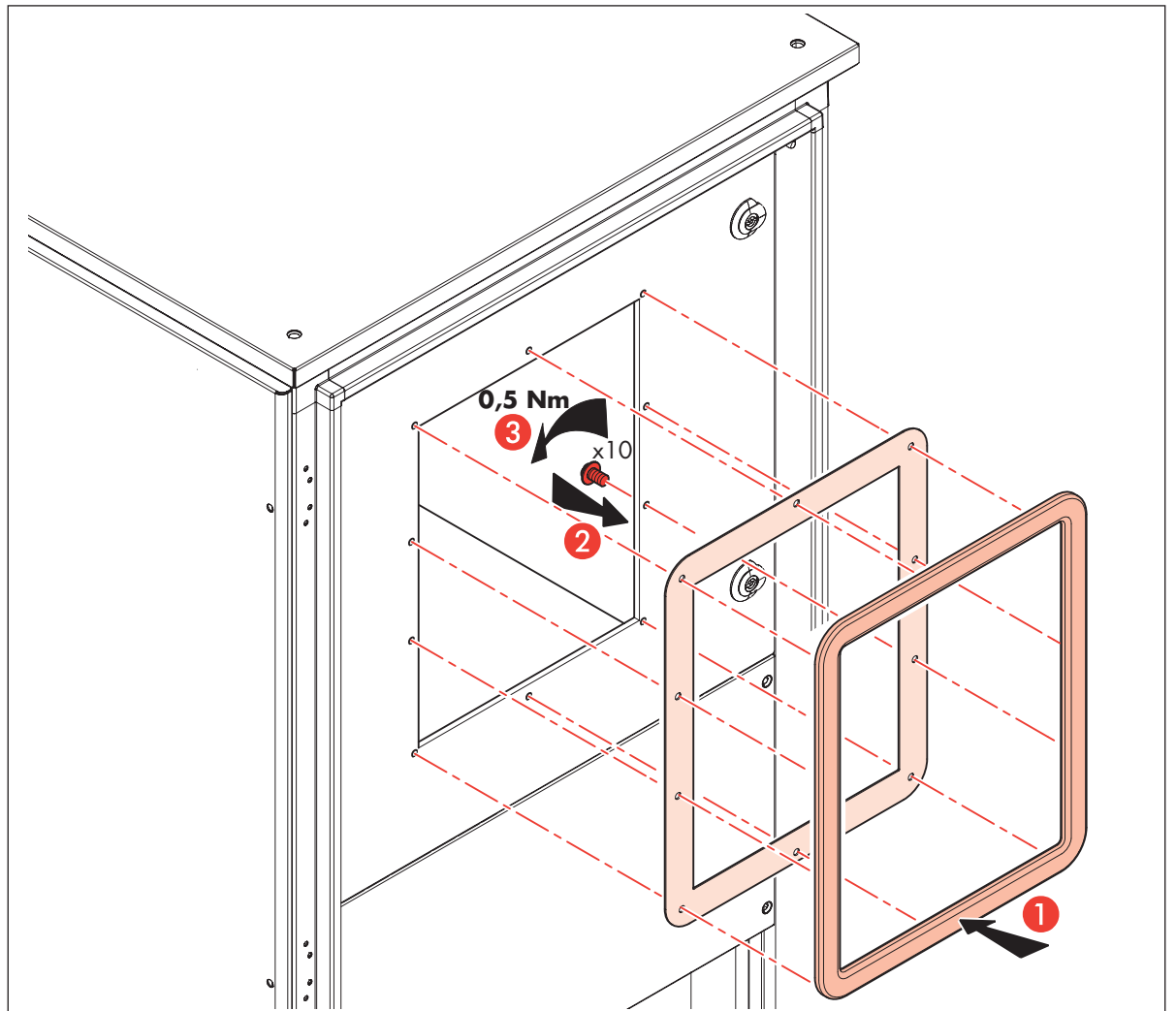
10.5 Fixing Door Sealing Frame

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.

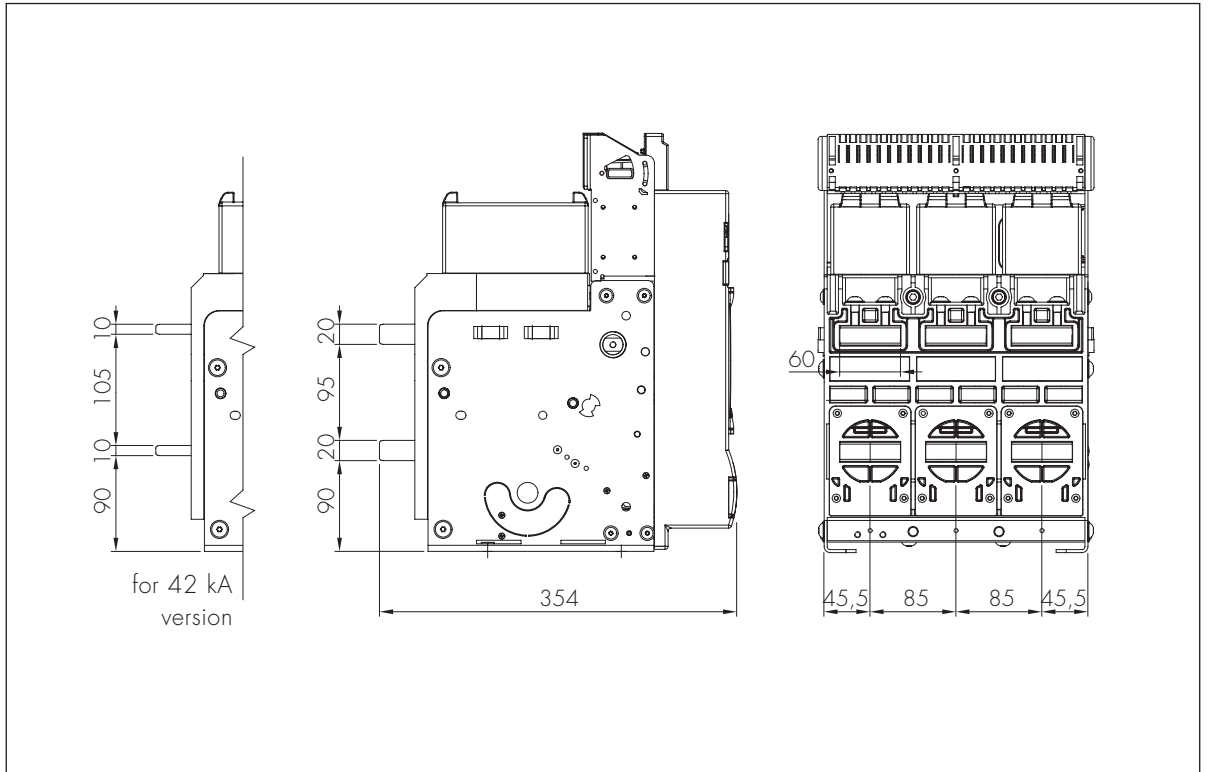
Srew the sealing frame.



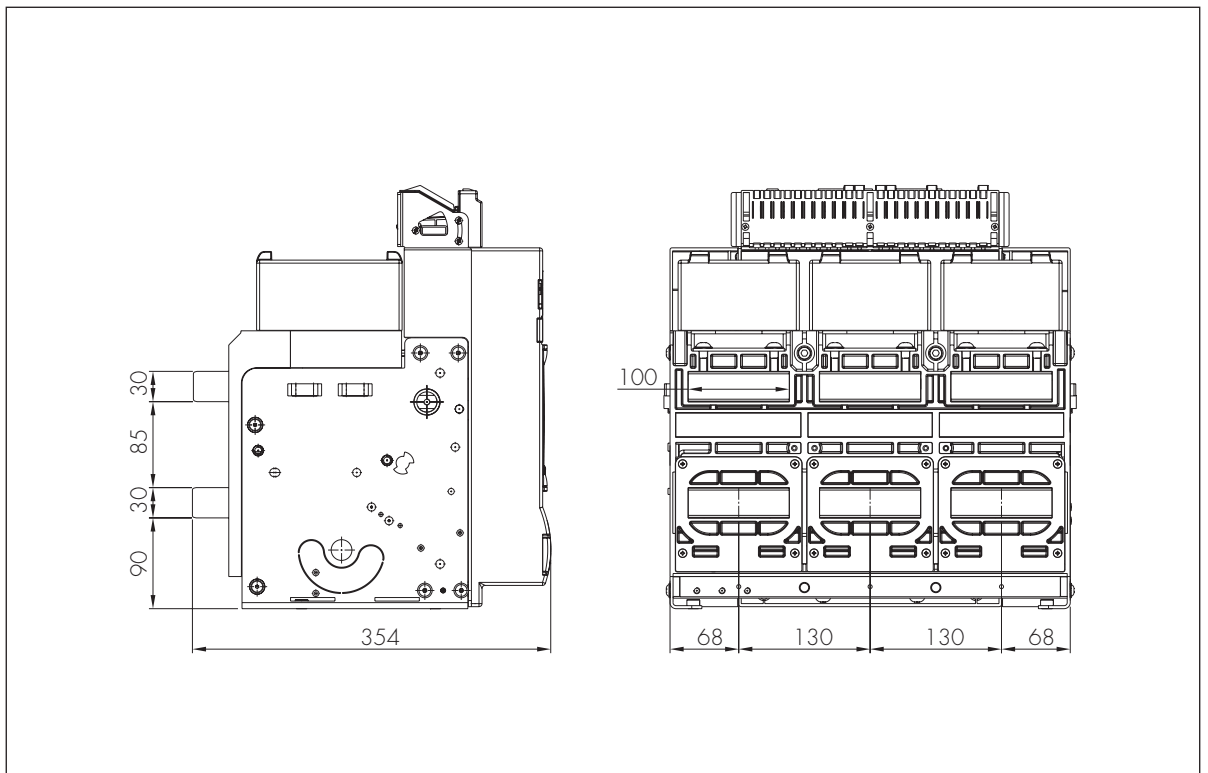
DMX³

11. Termination - Fixed Breakers

DMX³ 2500. 3 poles.

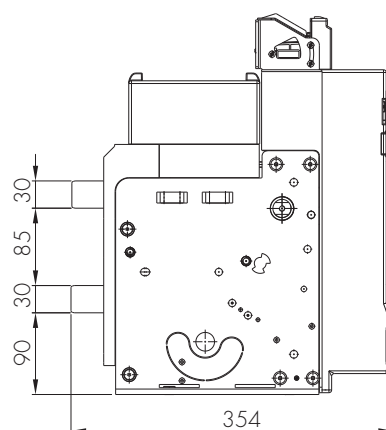
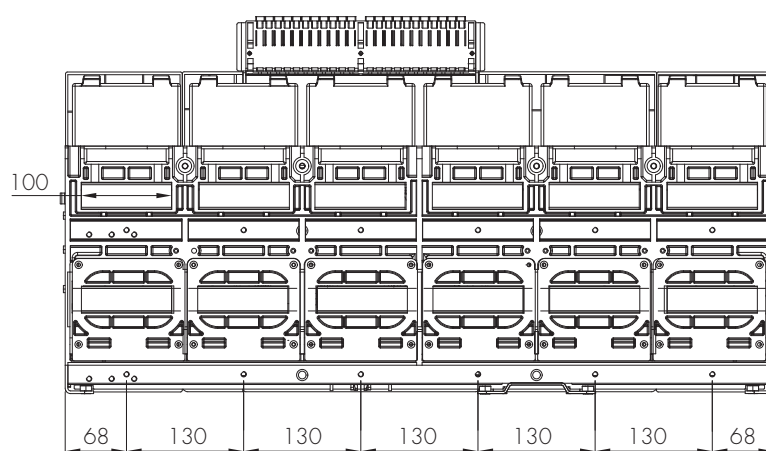


DMX³ 4000. 3 poles.



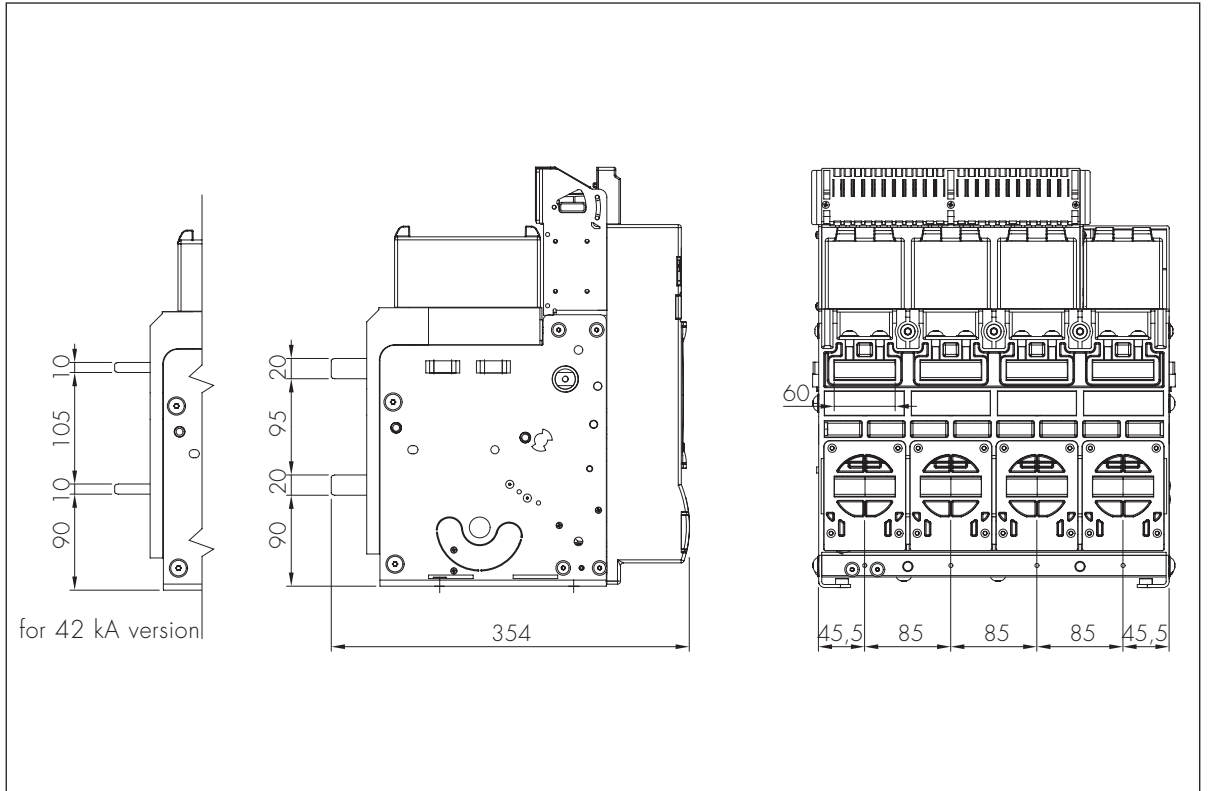
DMX³

DMX³ 6300. 3 pôles.

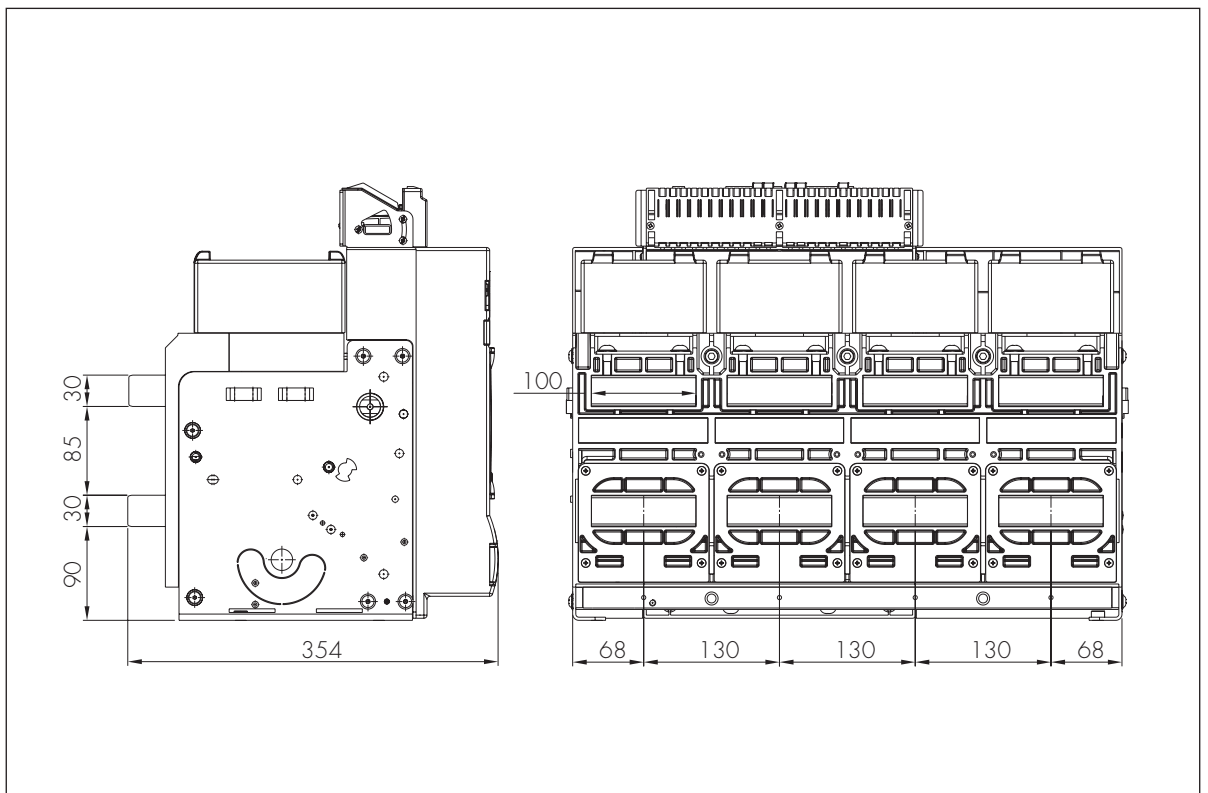


DMX³

DMX³ 2500. 4 poles.

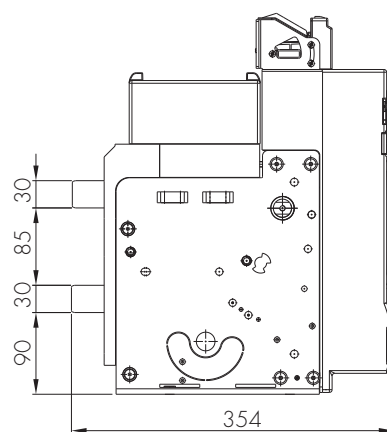
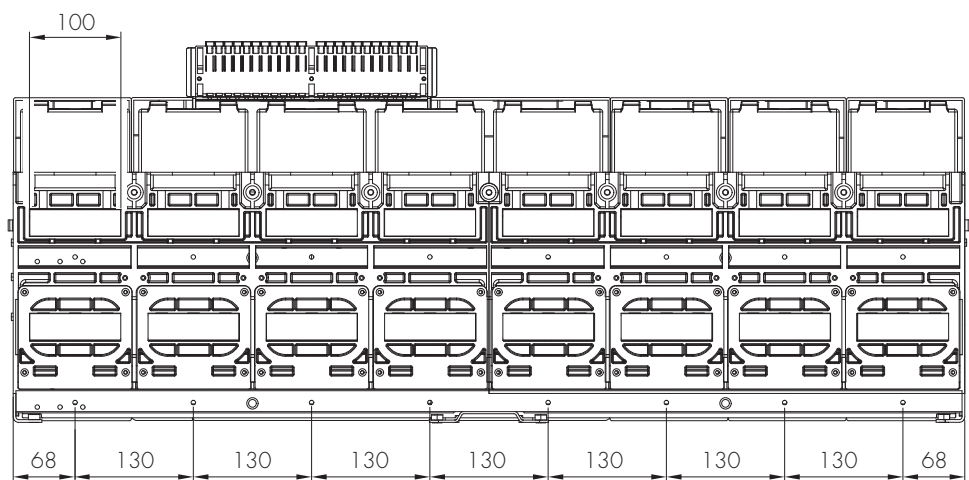


DMX³ 4000. 4 poles.



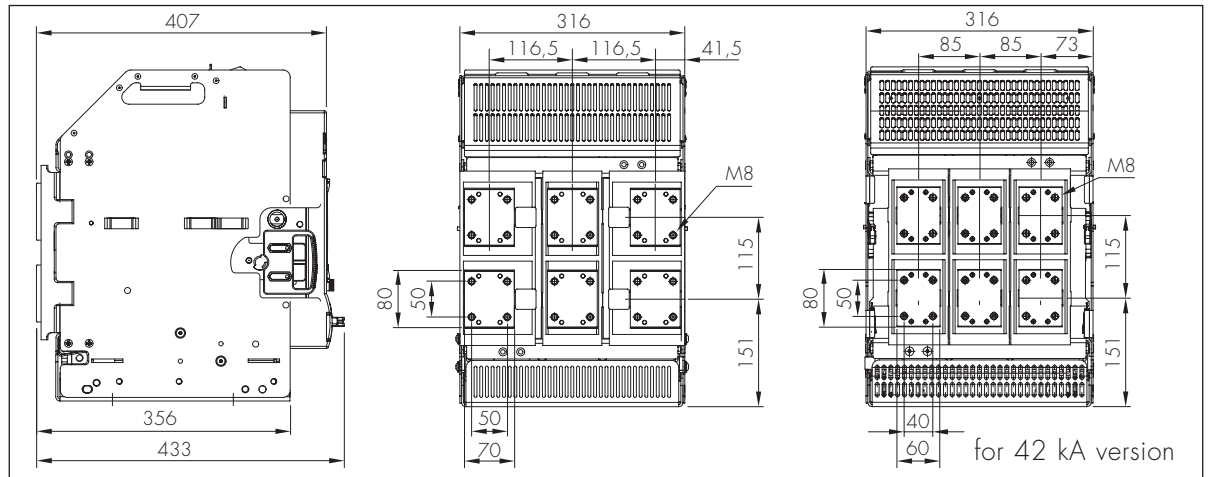
DMX³

DMX³ 6300. 4 pôles.

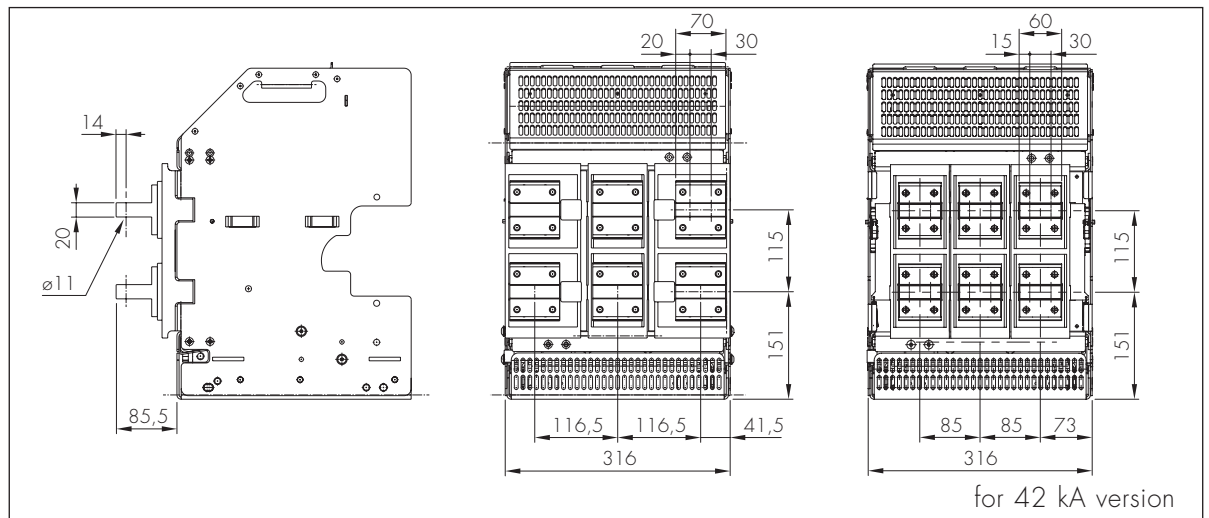


12. Termination - Draw-out breakers

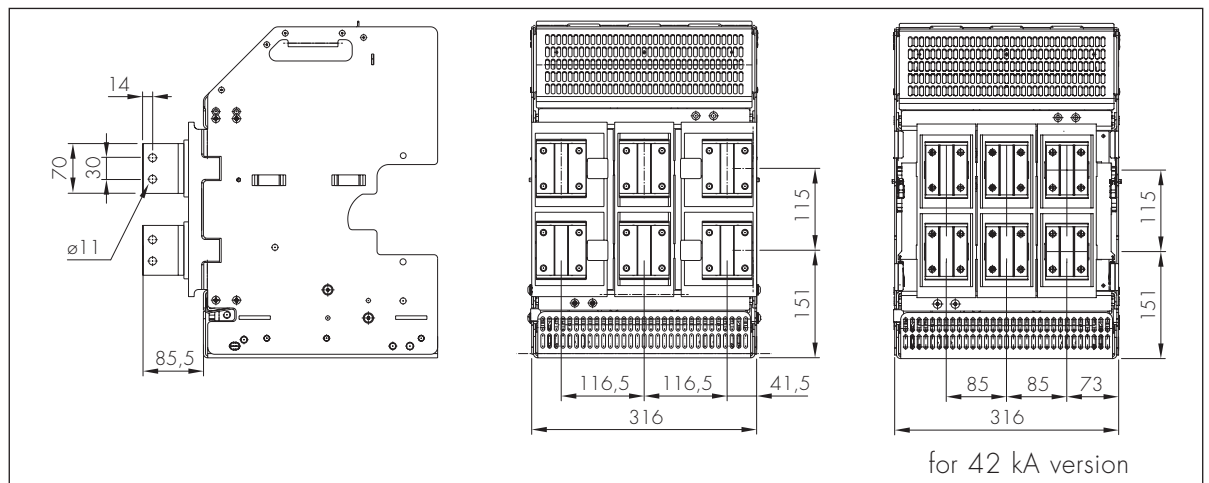
DMX³ 2500. 3 poles flat terminals.



Horizontal Terminals.

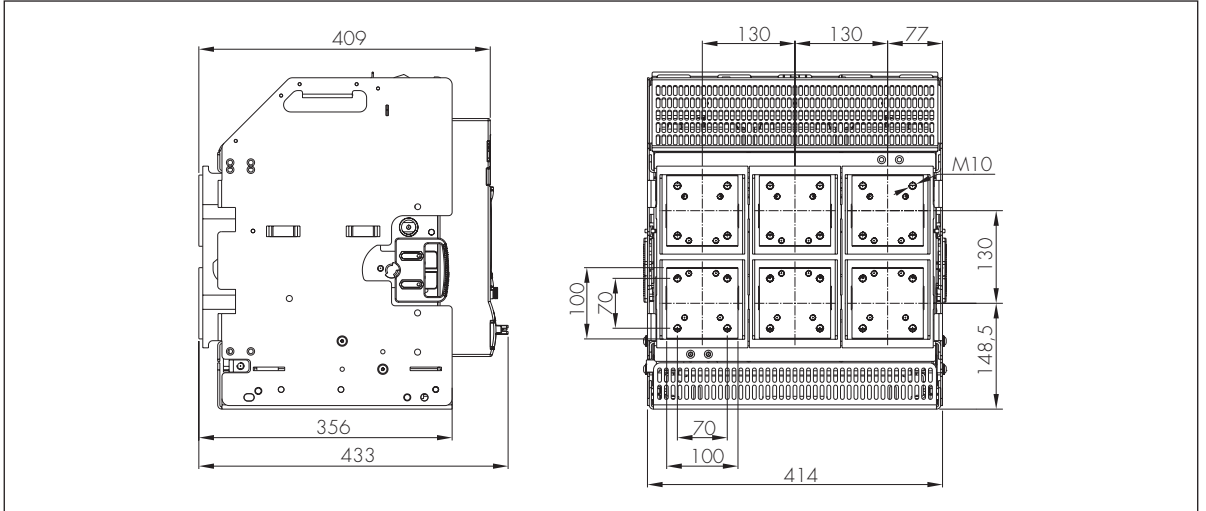


Vertical Terminals.

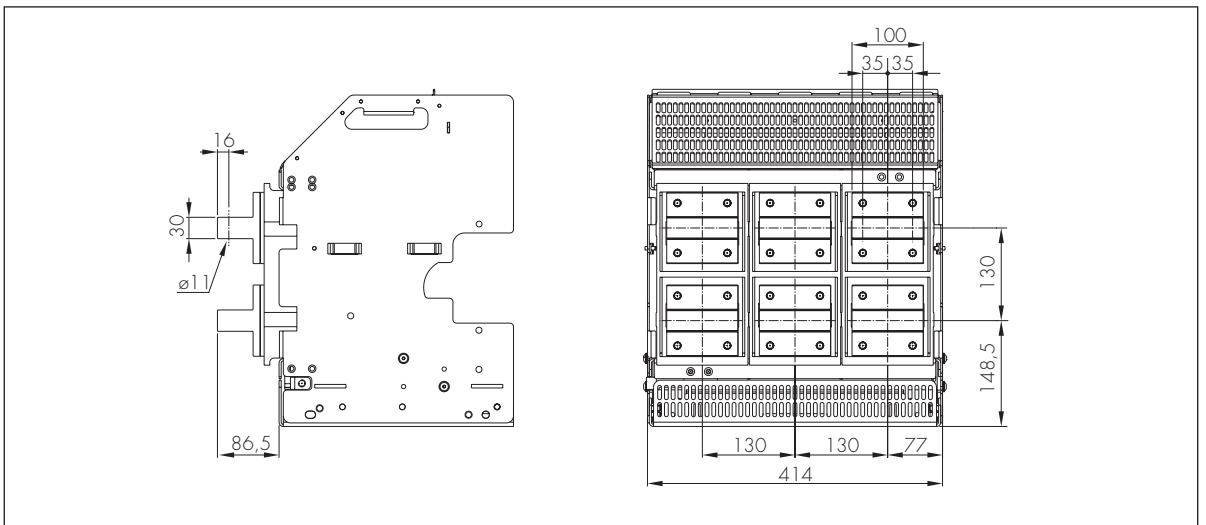


DMX³

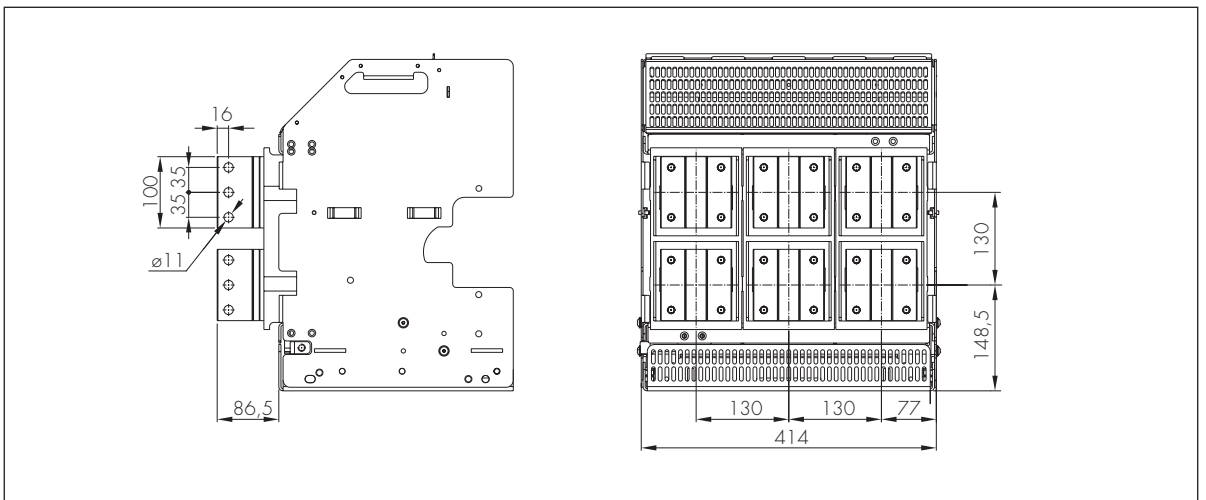
DMX³ 4000. 3 poles flat terminals.



Horizontal Terminals.

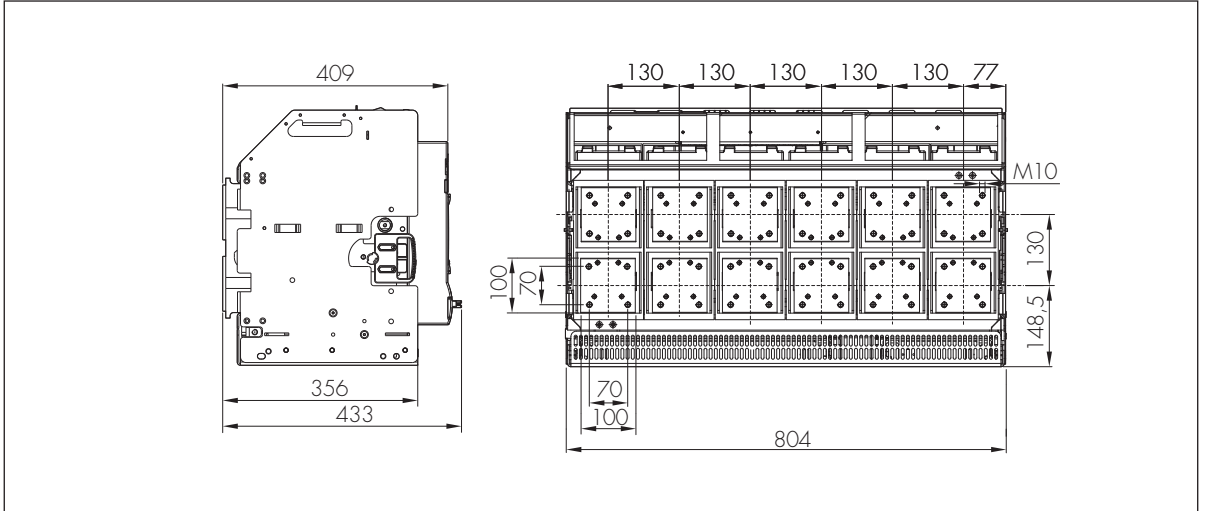


Vertical Terminals.

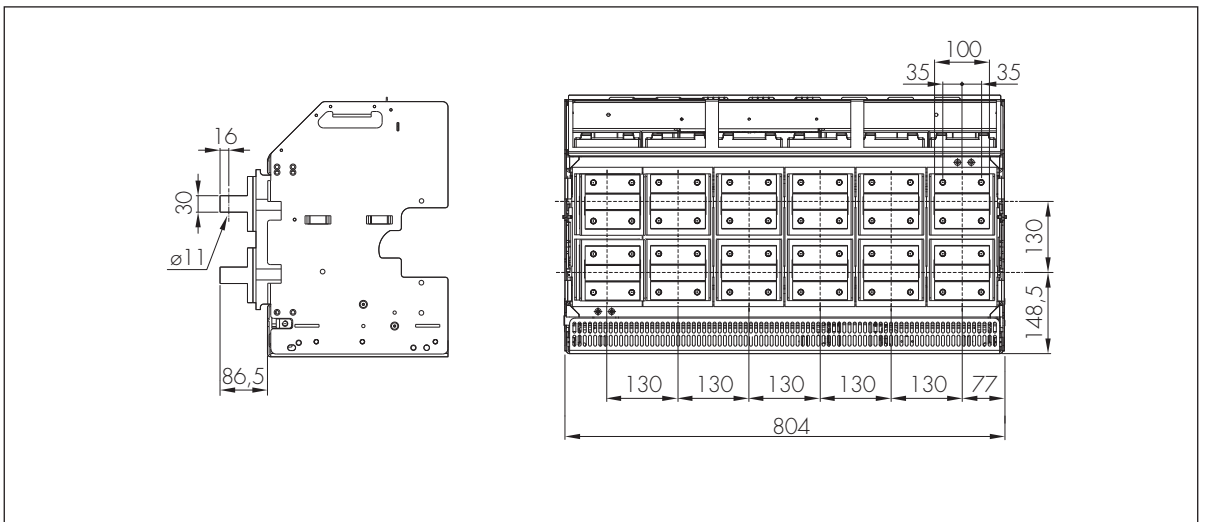


DMX³

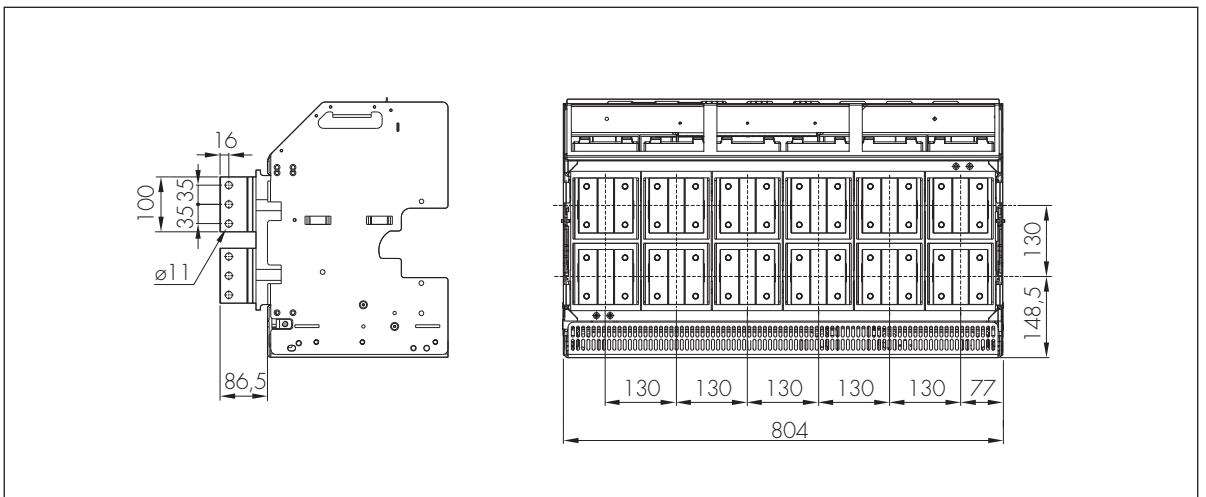
DMX³ 6300. 3 poles flat terminals.



Horizontal Terminals.

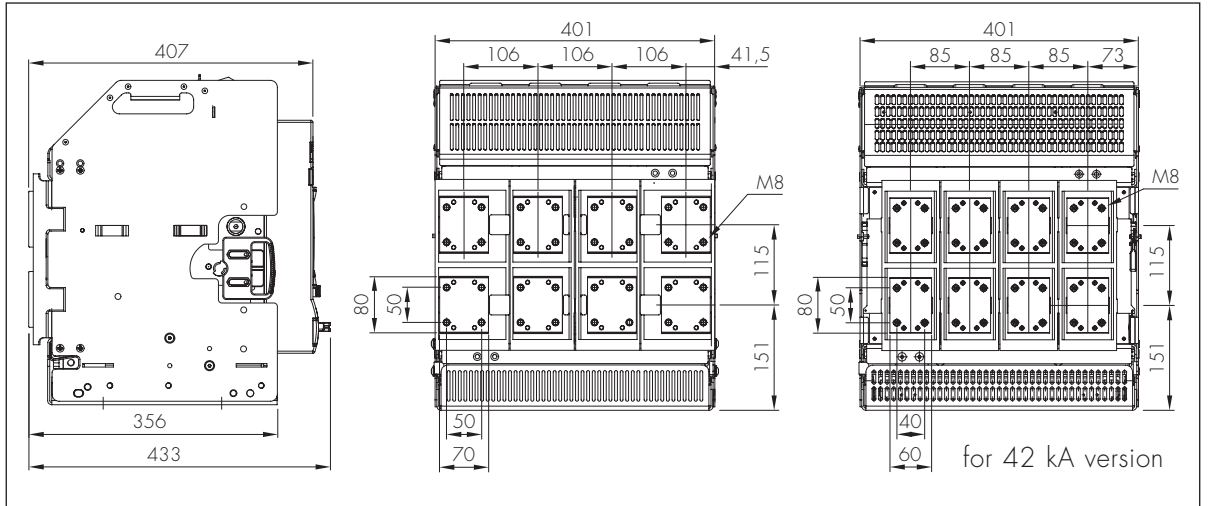


Vertical Terminals.

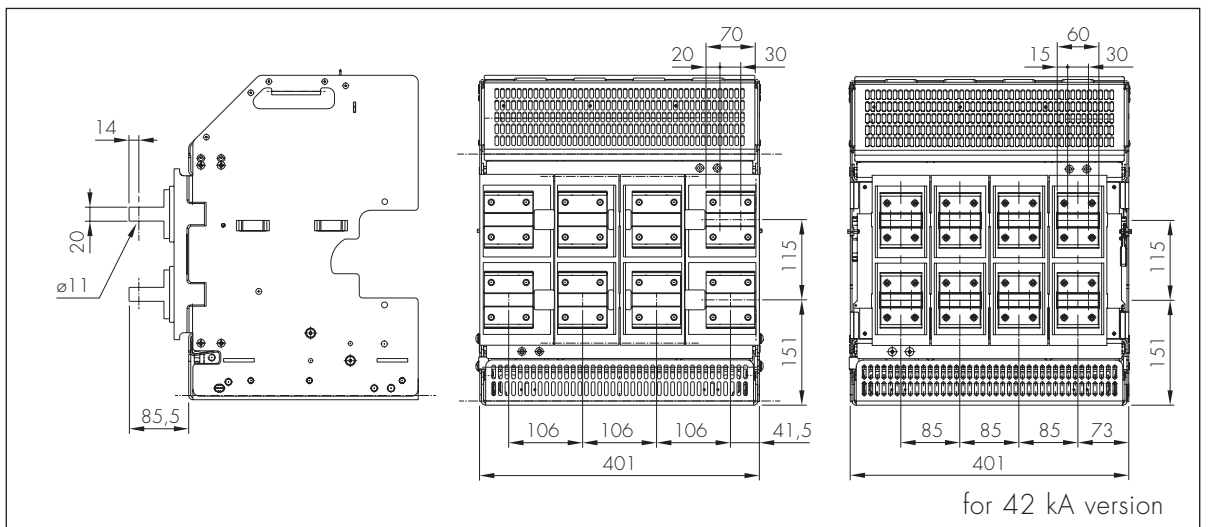


DMX³

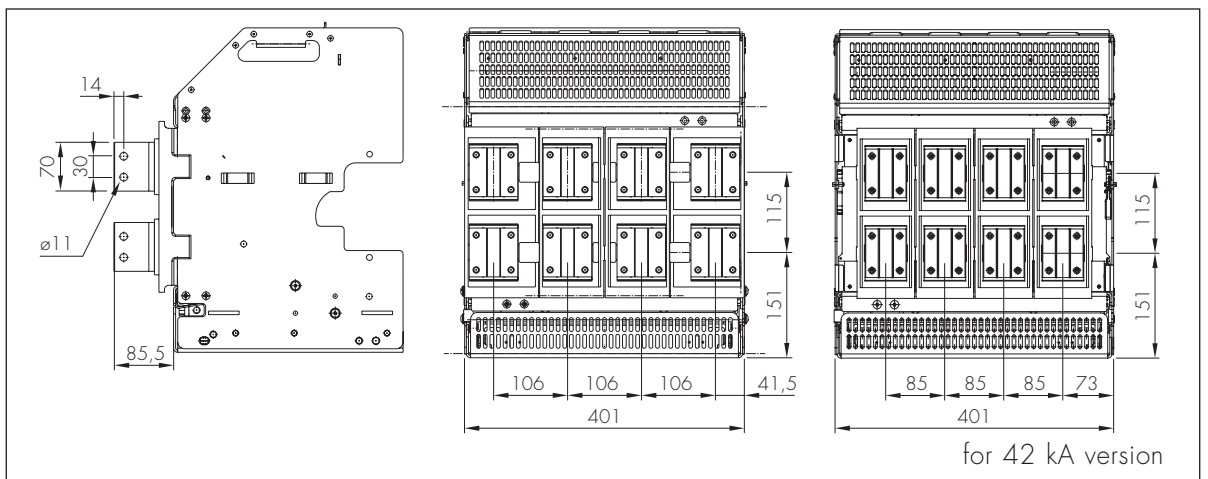
DMX³ 2500. 4 poles flat terminals.



Horizontal Terminals.

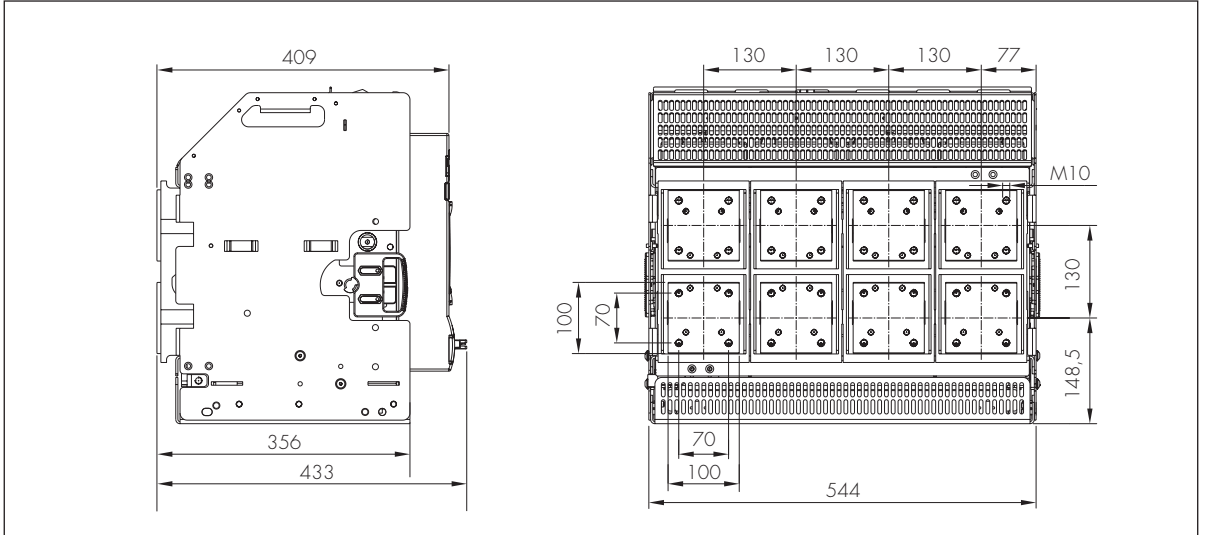


Vertical Terminals.

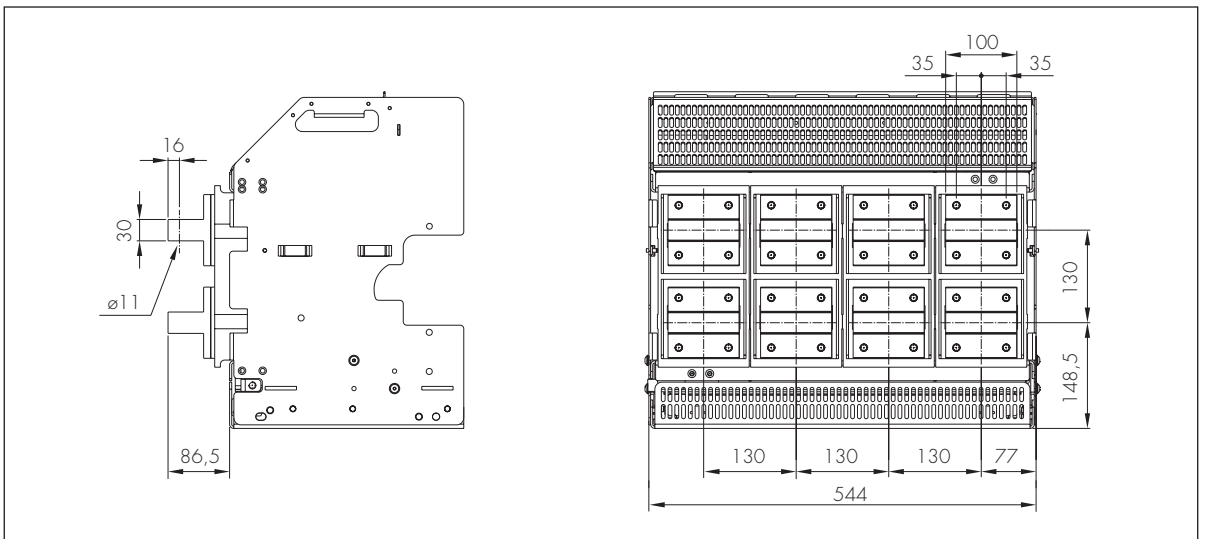


DMX³

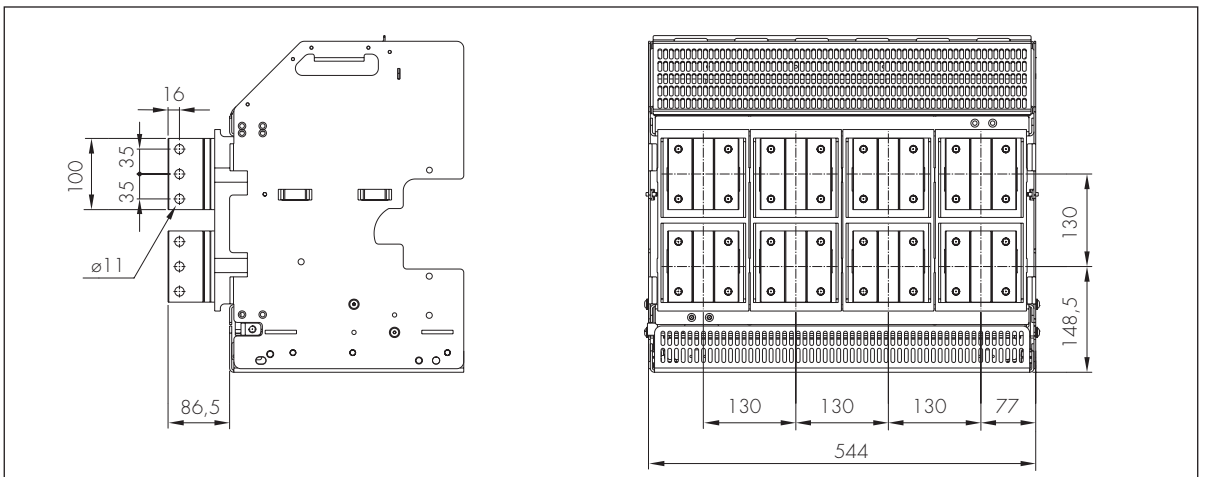
DMX³ 4000. 4 poles flat terminals.



Horizontal Terminals.

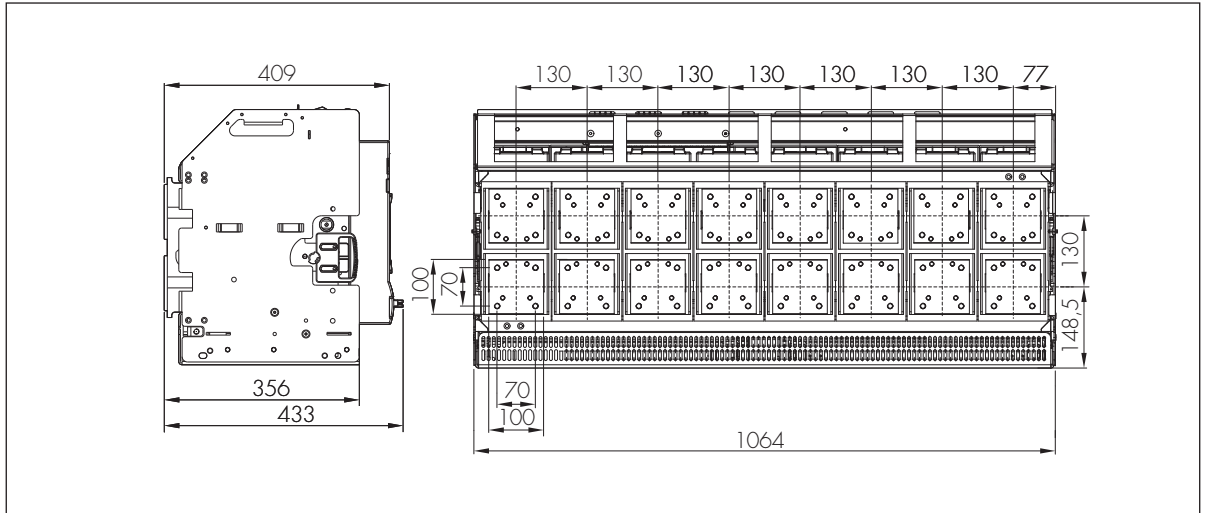


Vertical Terminals.

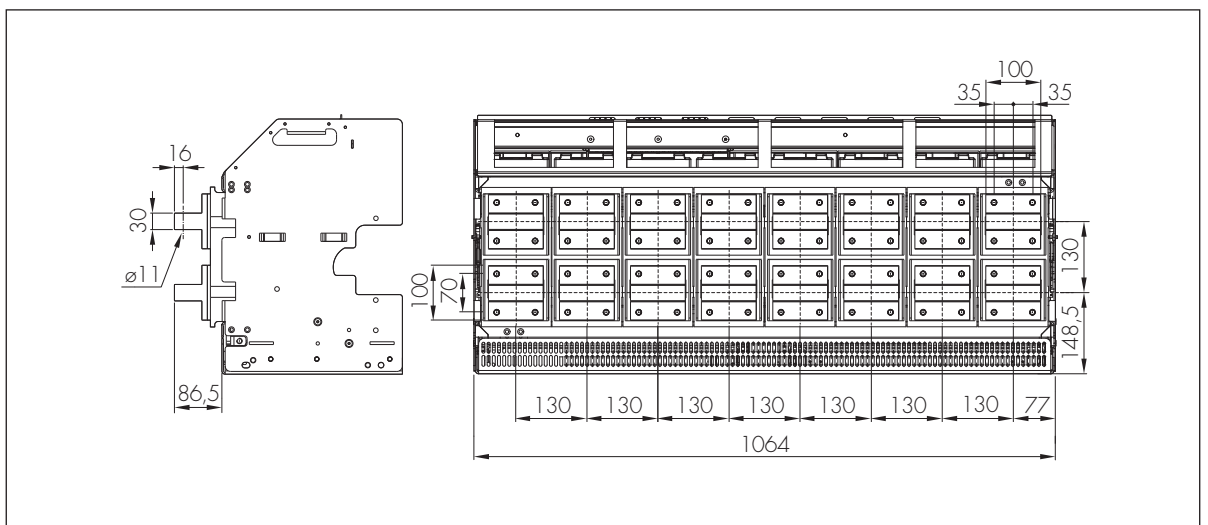


DMX³

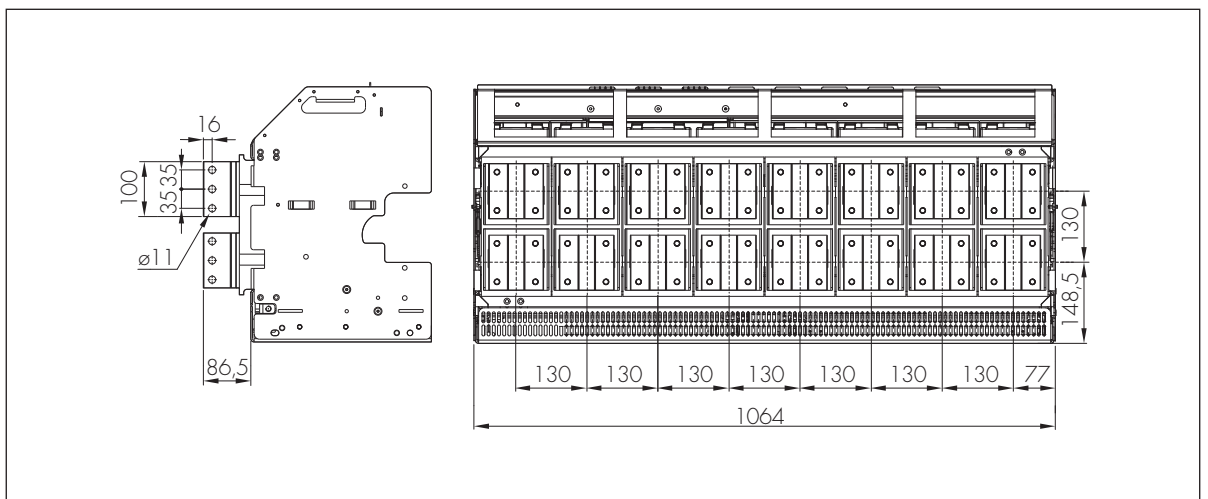
DMX³ 6300. 4 poles flat terminals.



Horizontal Terminals.



Vertical Terminals.



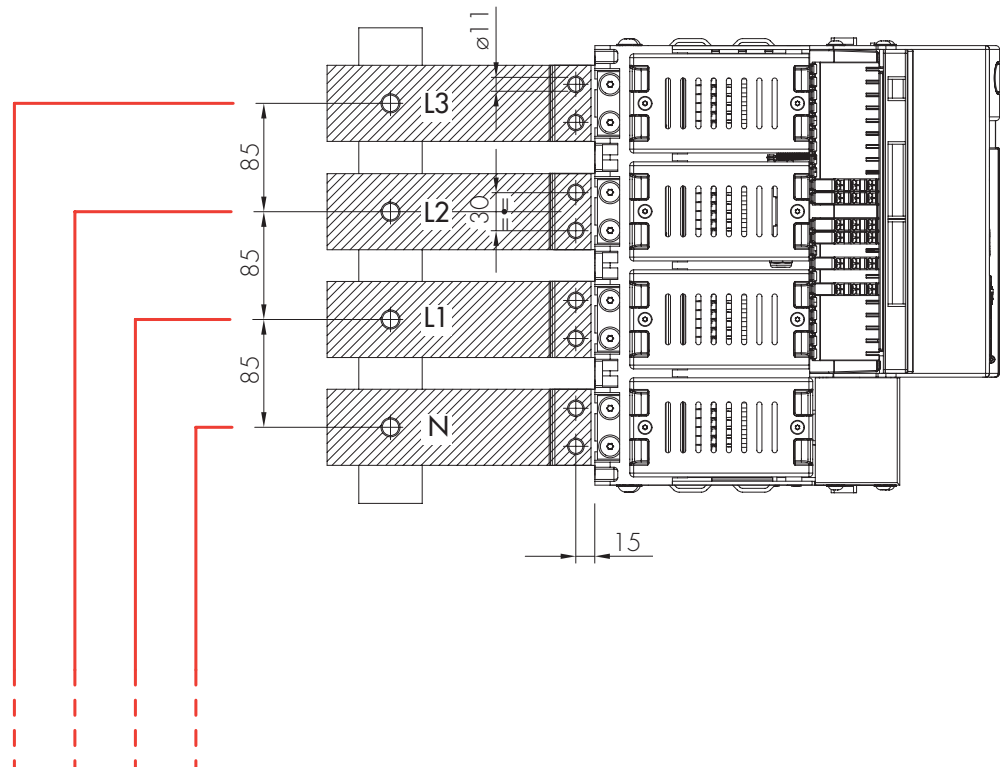
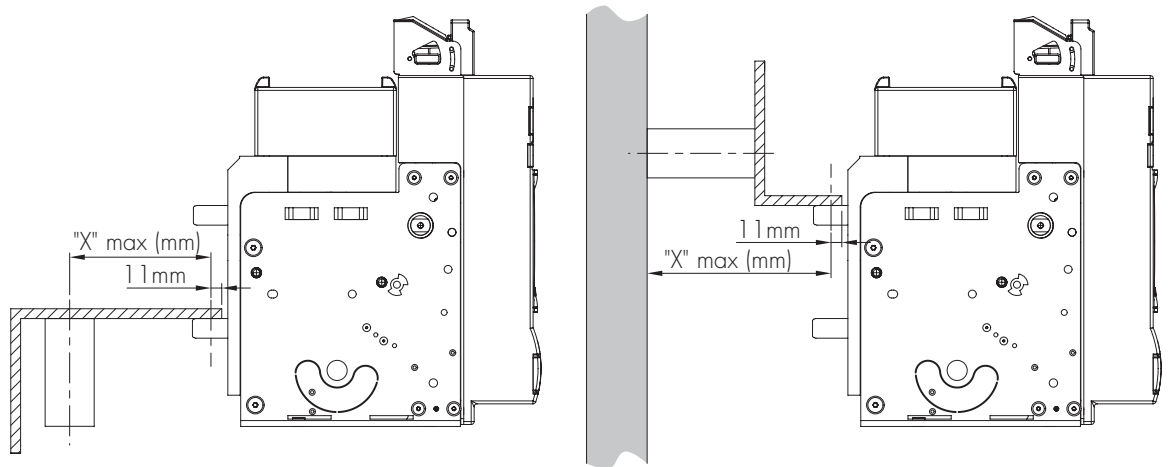
13. Connection for fixed version

DMX³ 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)	≤ 42	≤ 50	≤ 65	≤ 100
"X" max (mm)	350	300	250	150



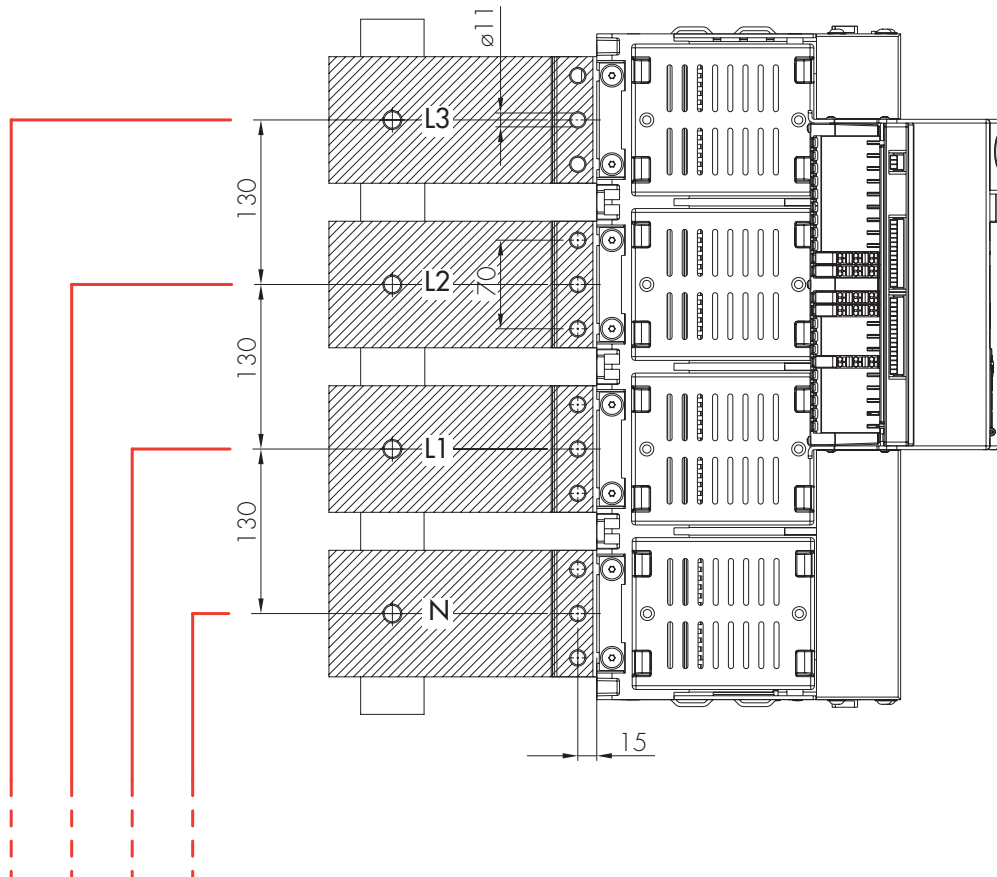
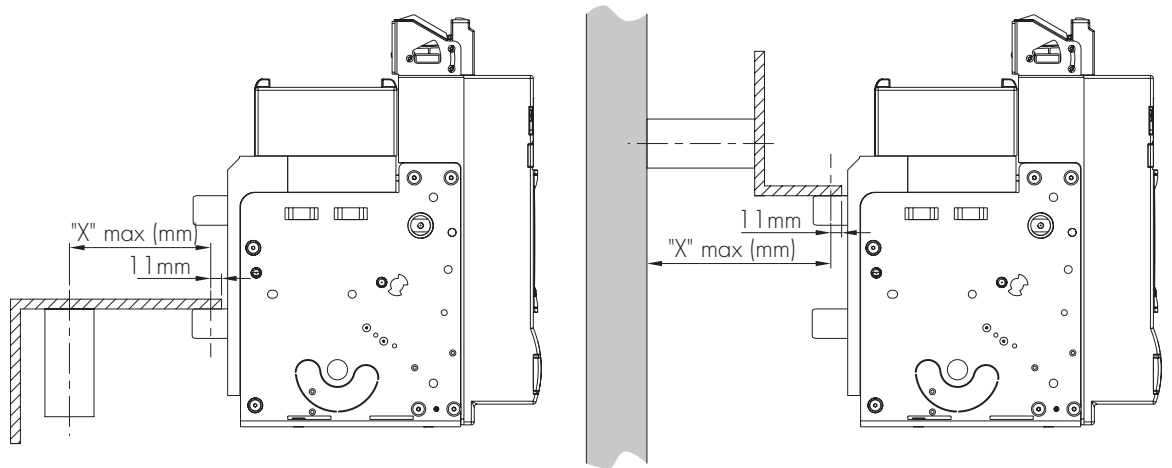
DMX³

DMX³ 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)	≤ 42	≤ 50	≤ 65	≤ 100
"X" max (mm)	350	300	250	150



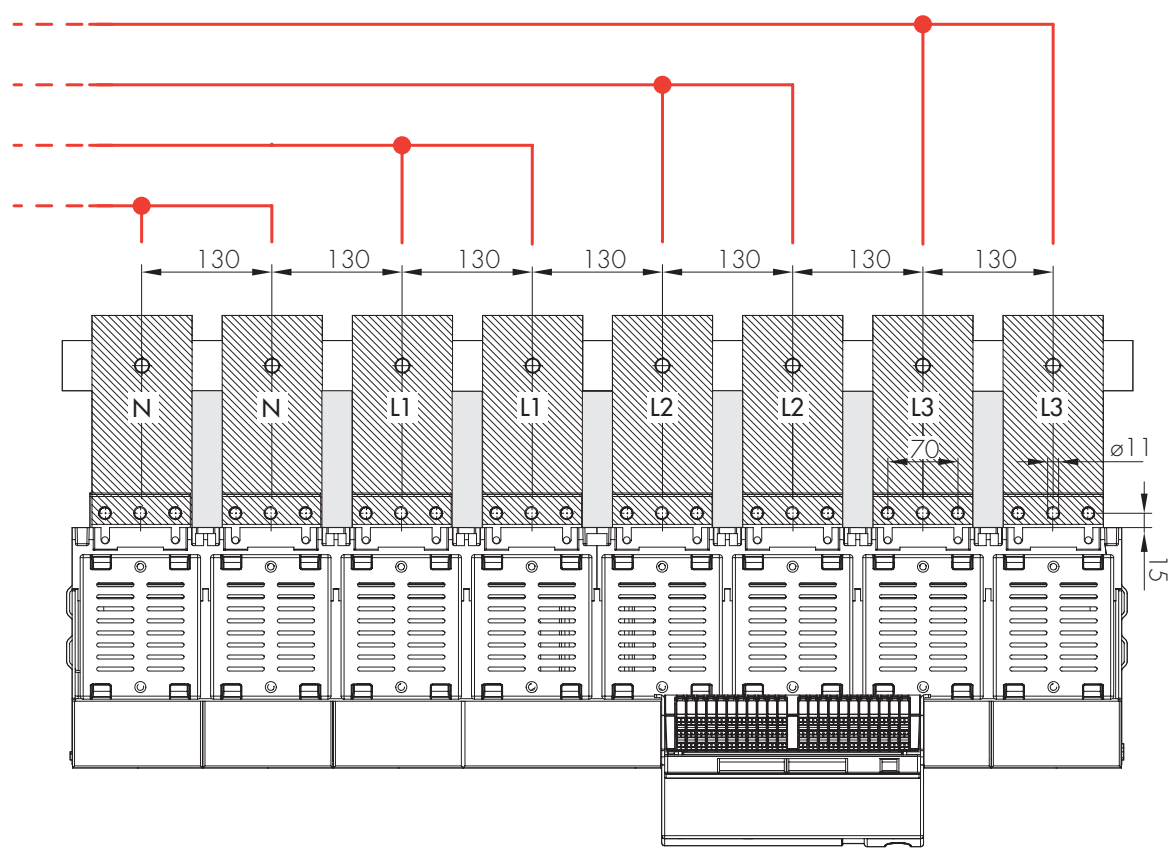
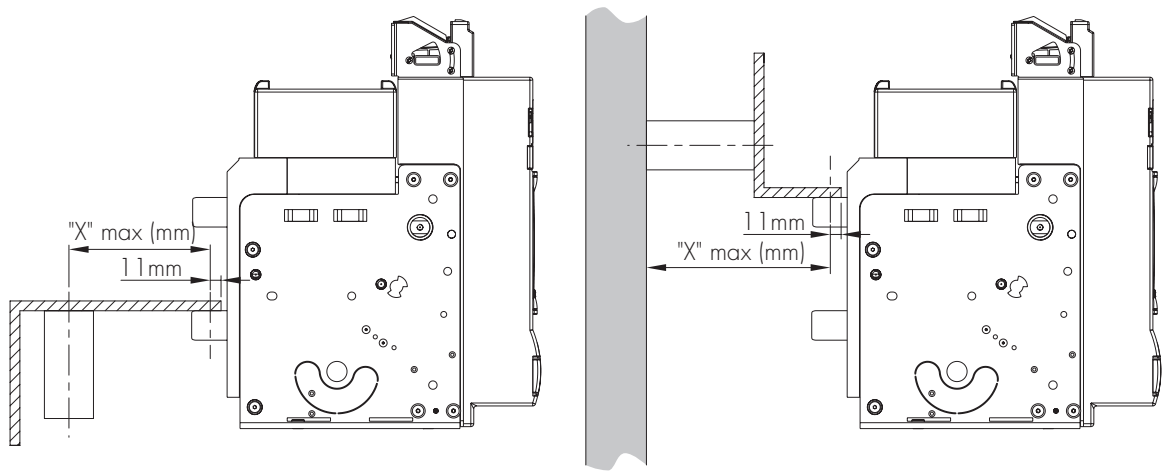
DMX³

DMX³ 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)	≤ 42	≤ 50	≤ 65	≤ 100
"X" max (mm)	350	300	250	150



14. Possible connections for draw-out version

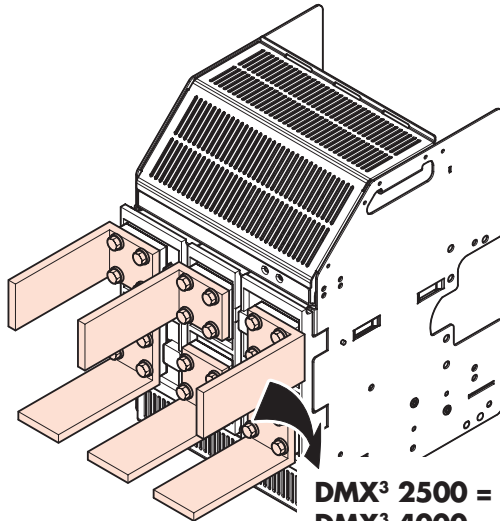
DMX³'s terminals offer more contact area to accept Aluminium links.

DMX³'s Universal Flat terminals greatly facilitate termination.

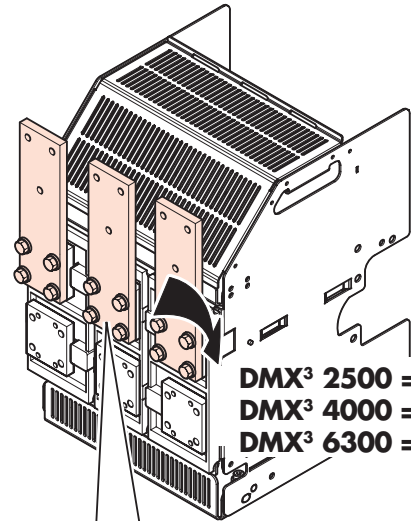
These terminals directly support all commonly used types of termination as shown in adjoining figure.



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

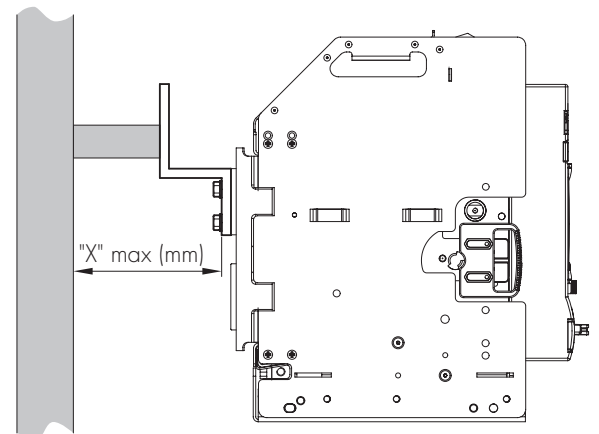
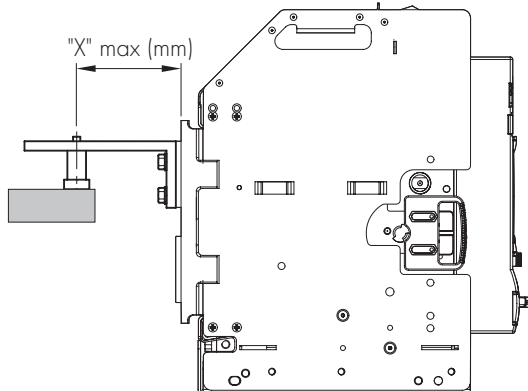
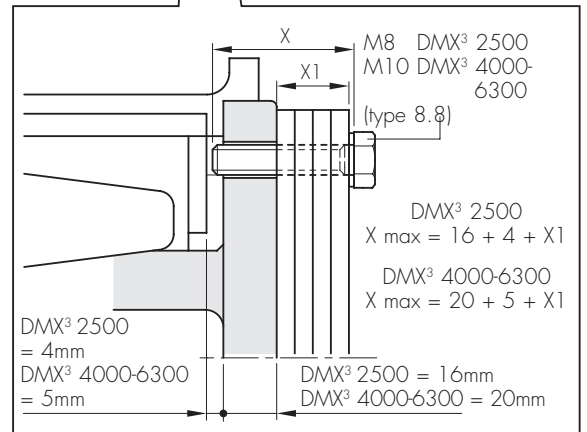
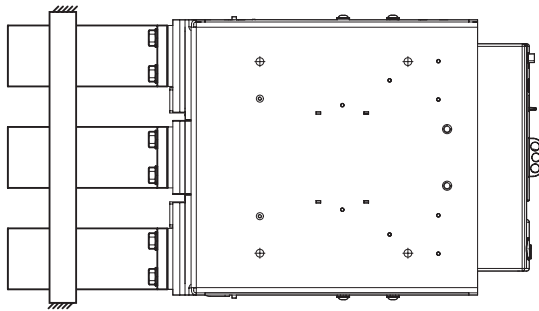


DMX³ 2500 = 25 Nm
DMX³ 4000 = 36 Nm
DMX³ 6300 = 36 Nm



DMX³ 2500 = 25 Nm
DMX³ 4000 = 36 Nm
DMX³ 6300 = 36 Nm

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



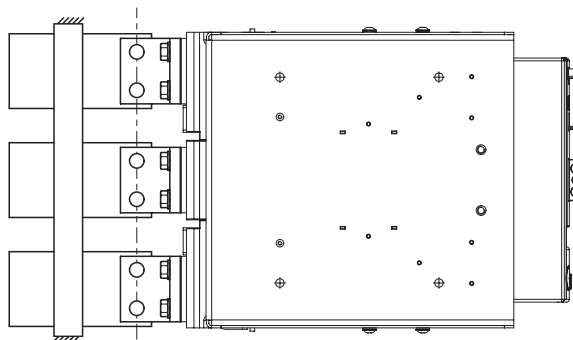
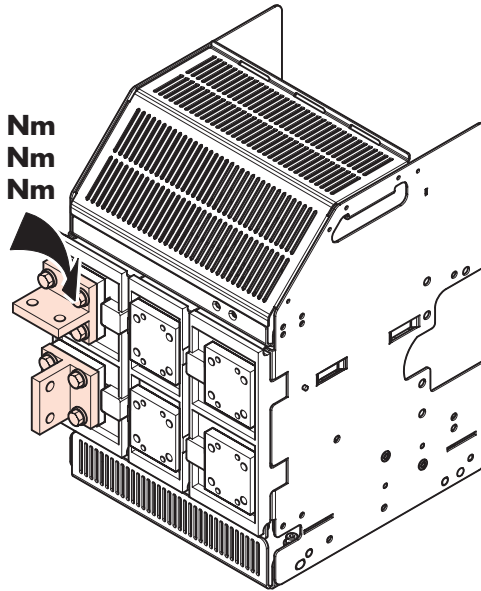
DMX³

Installation of Terminal Adaptor available as an accessory.

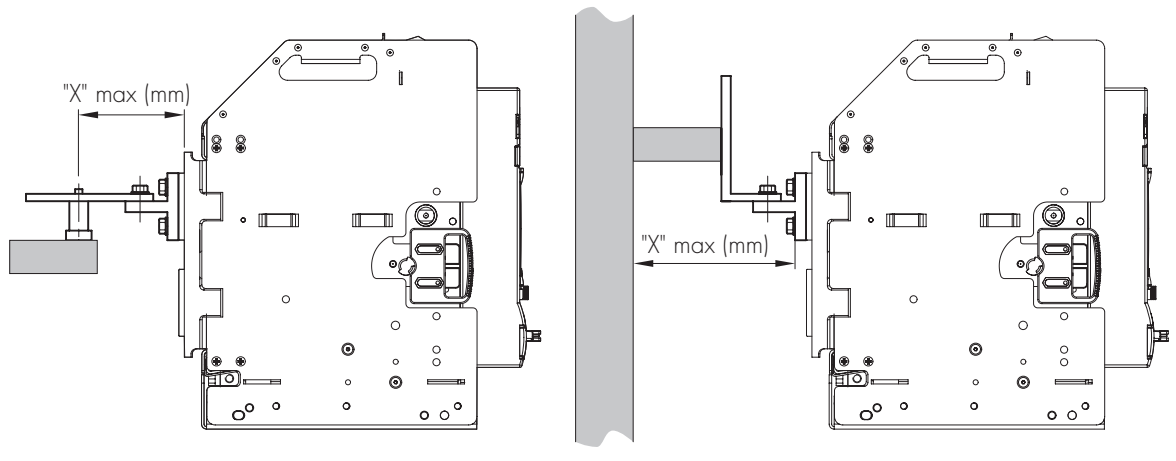


Termination support must be made of isolating material and sized according to the bars in order to avoid performances during short circuit conditions.

DMX³ 2500 = 25 Nm
DMX³ 4000 = 36 Nm
DMX³ 6300 = 36 Nm

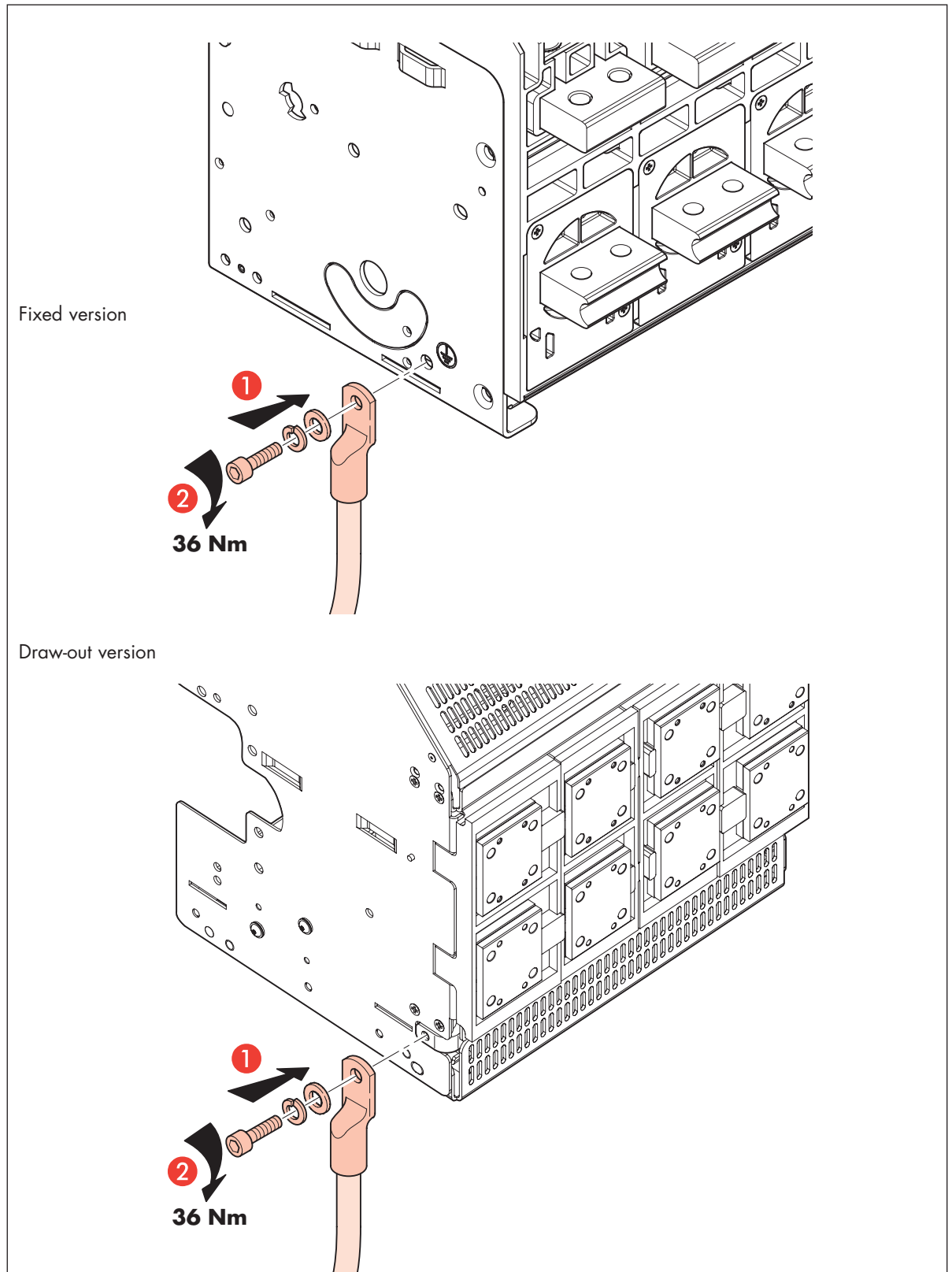


I_{cc} (kA)	≤ 42	≤ 50	≤ 65	≤ 100
"X" max (mm)	350	300	250	150



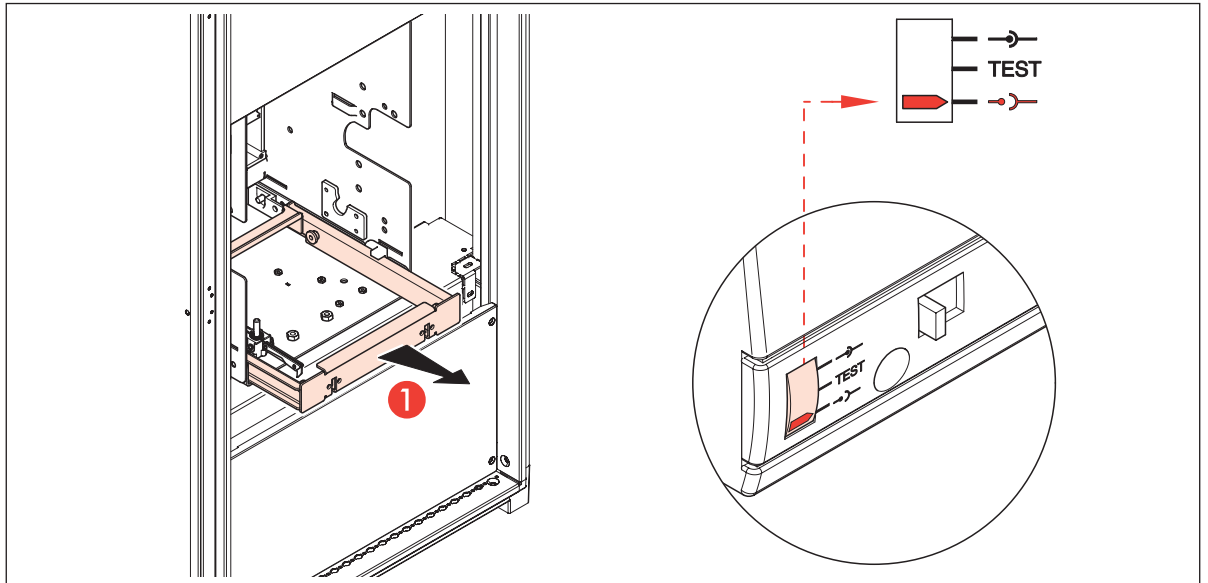
15. Ground connection

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



16. Insertion on switchboard

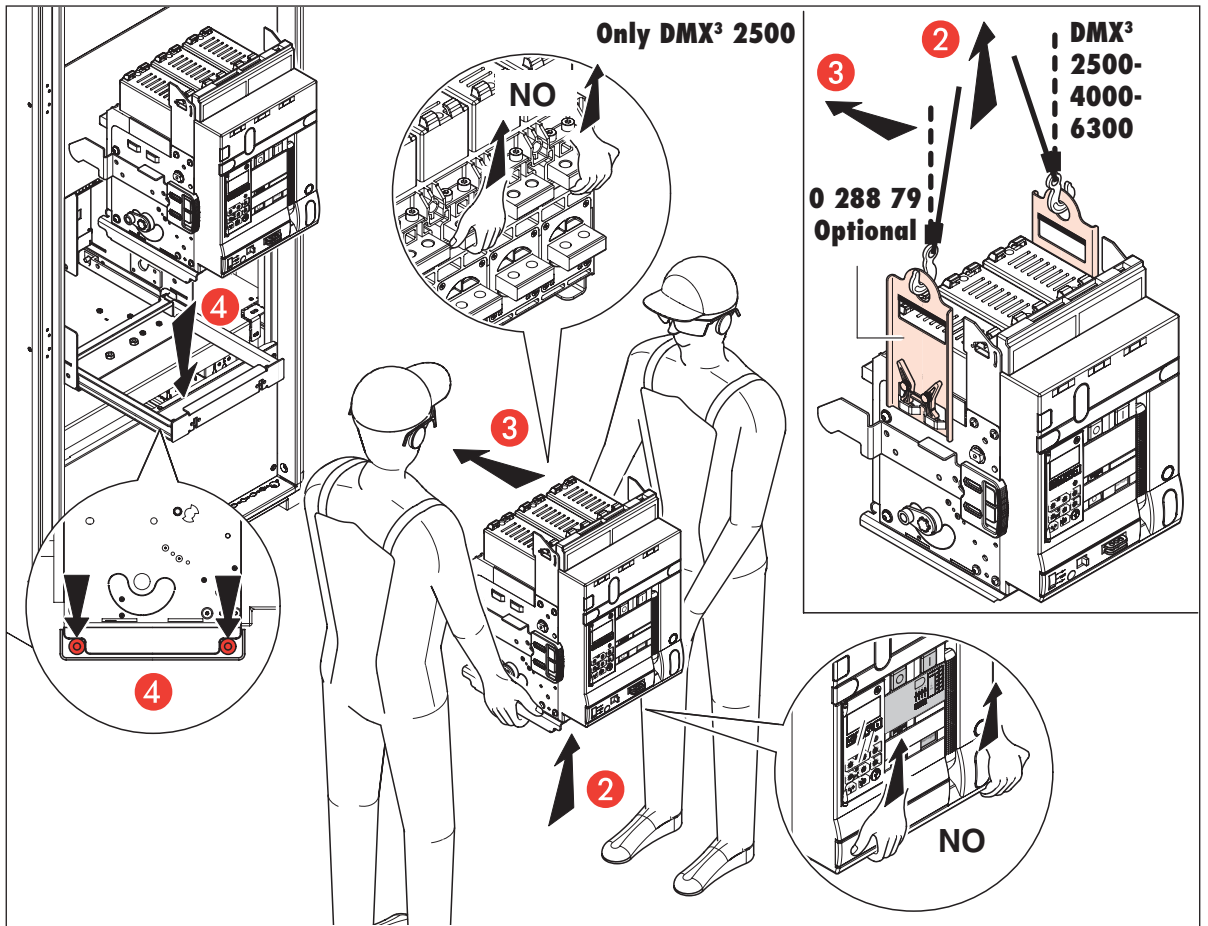
Pull-out the Base Rail and ensure that the breaker is in isolated position (see position indicator).



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.

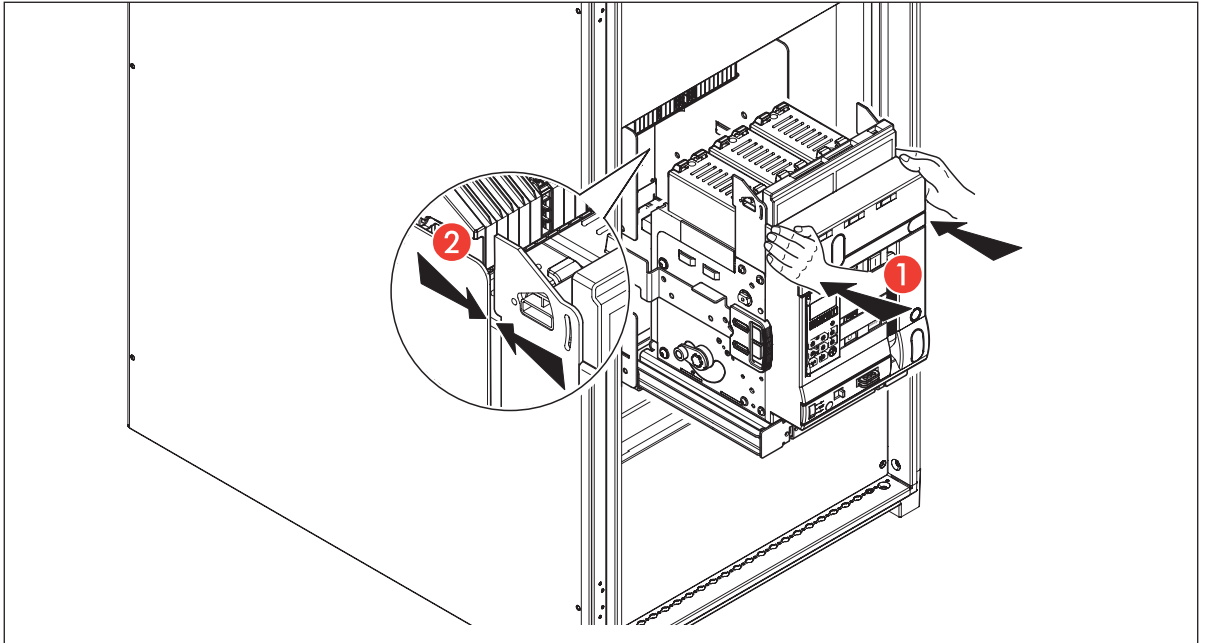


Improper loading of breaker may lead to personal injury and damage to product.



DMX³

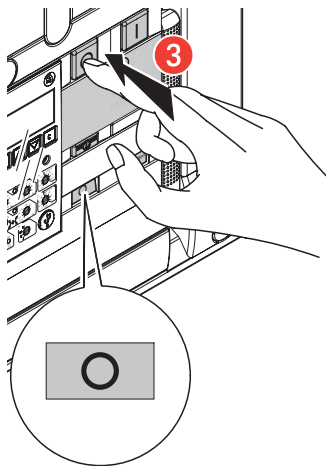
Gently push the breaker to Isolated position and close the Panel door. If equipped with Rating Mis insertion device (optional 0 288 25), base will not accept breaker of different rating.



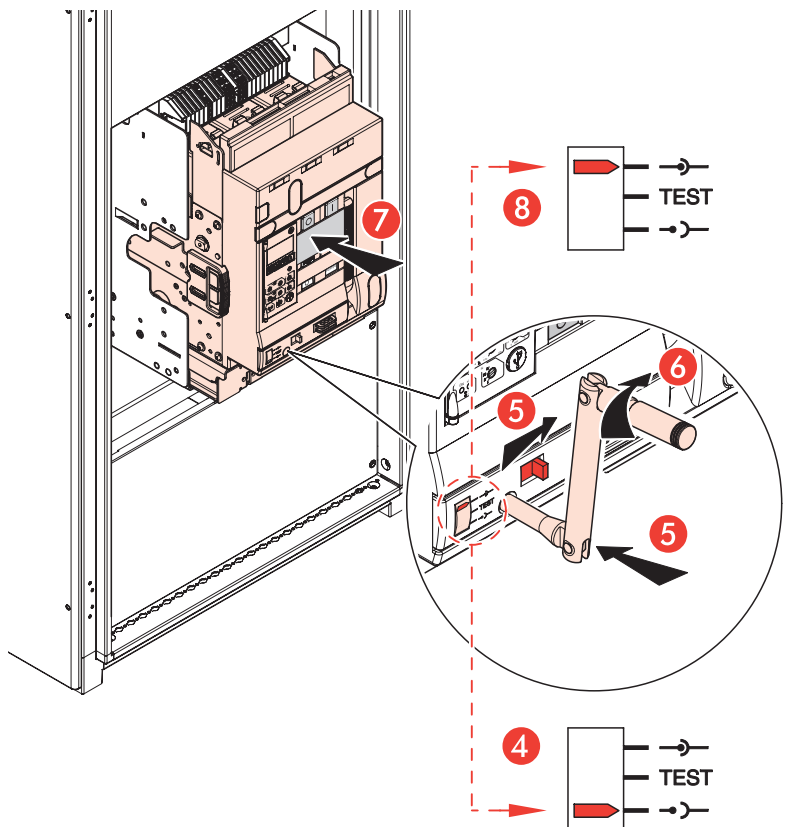
Press the OFF button and then open the Racking Shutter.



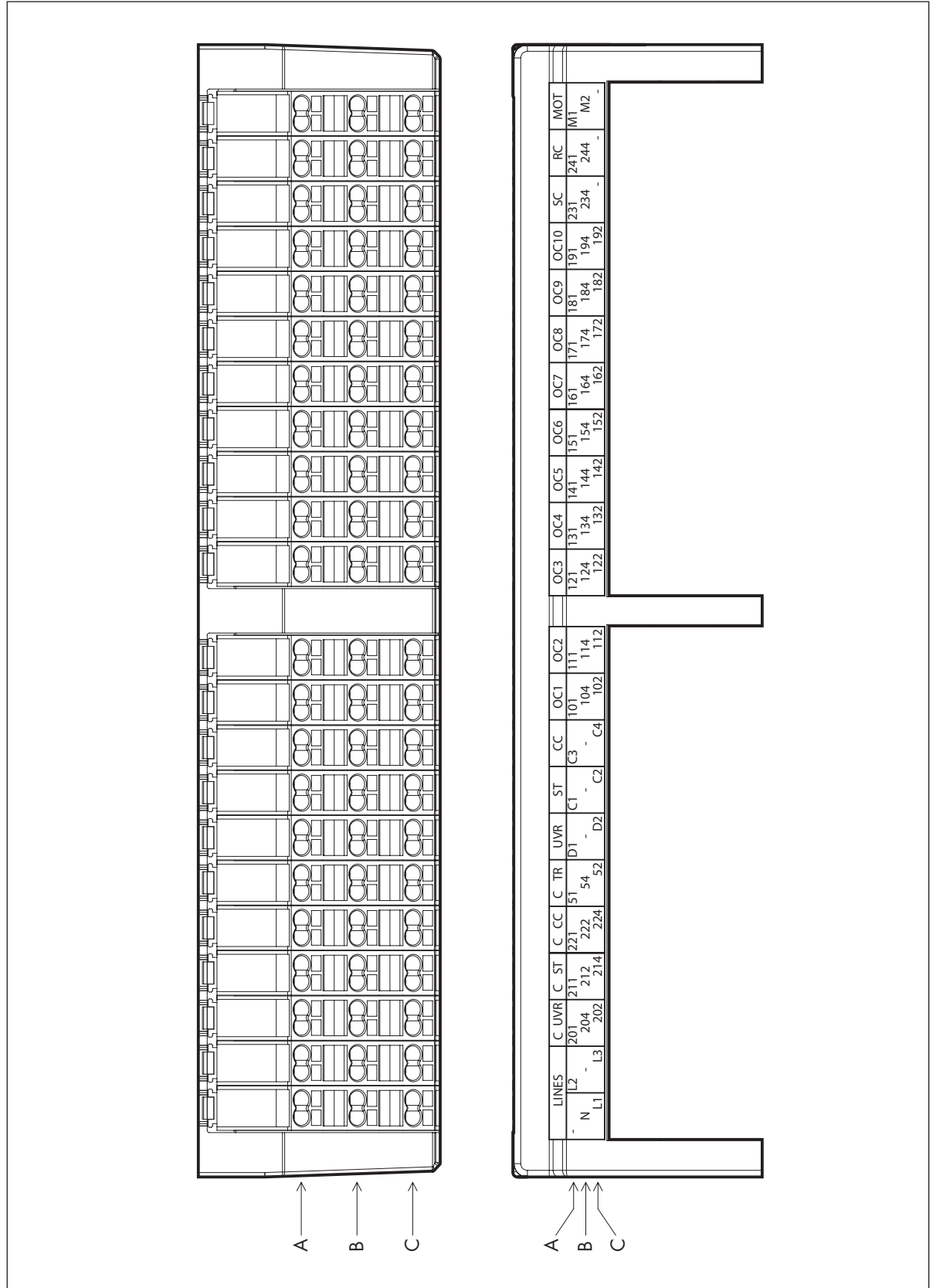
When the breaker is under current, the carry-out racking operation must be done only by specialized personnel.



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



17. Auxiliary terminals block



DMX³

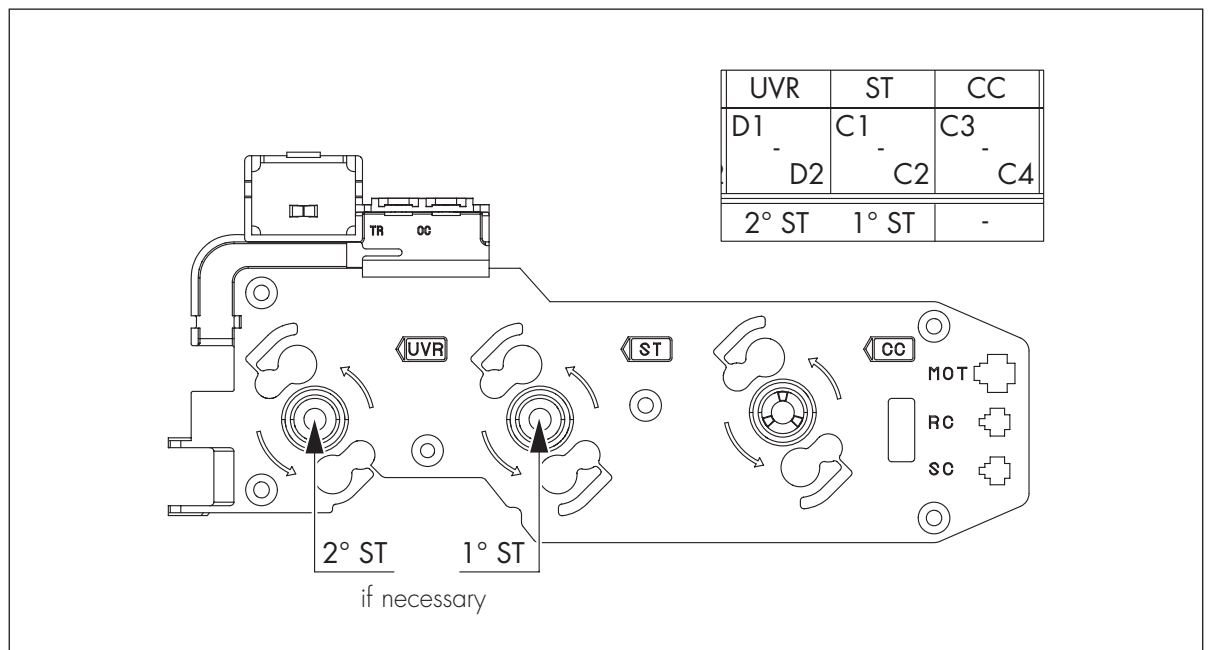
17.1 Shunt trip (ST)

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.

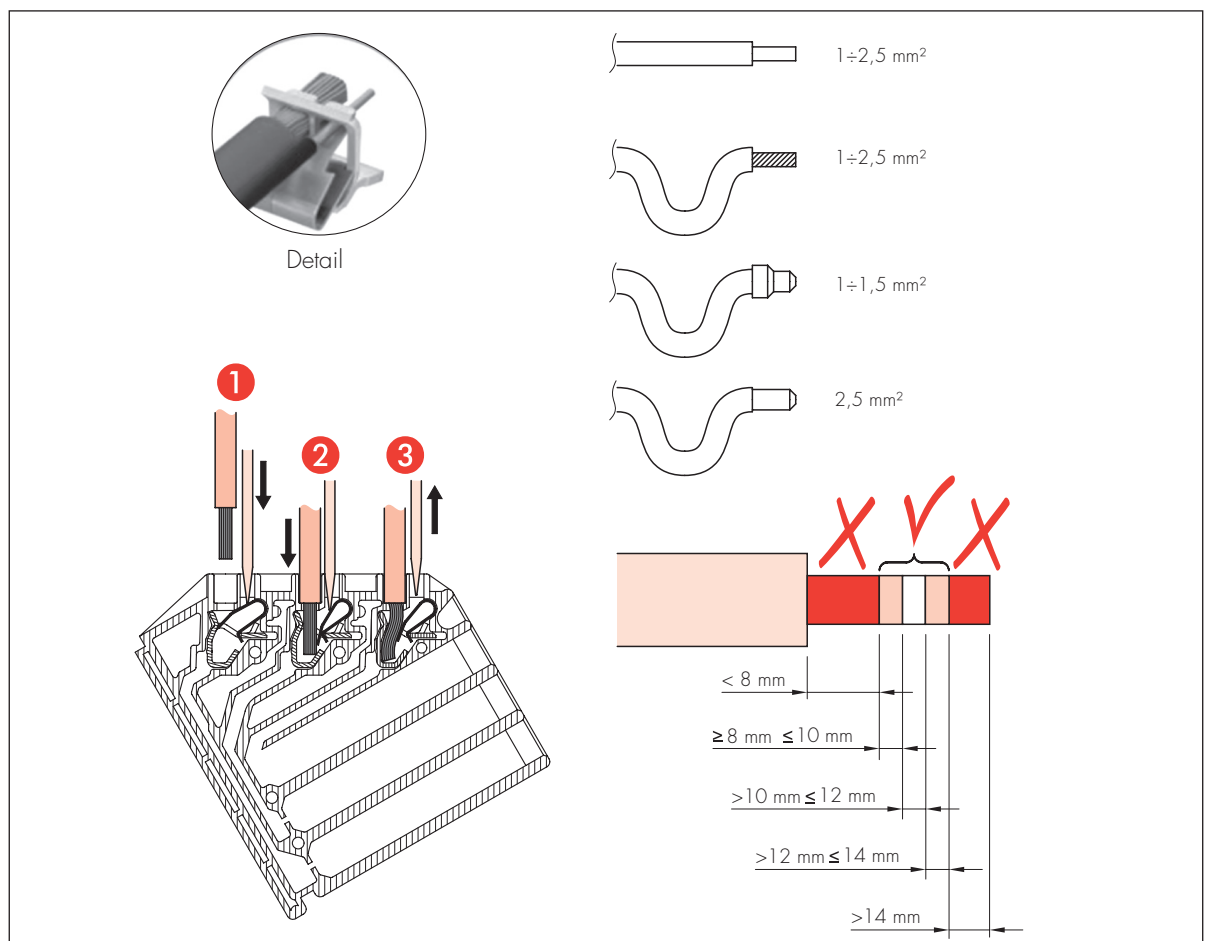
This is the solution to the problem of screw with 1/2 turn. Shape form of spring avoid the problem of incision of insulation.

1. Put the screw: the clamp open.

2. Put the cable.

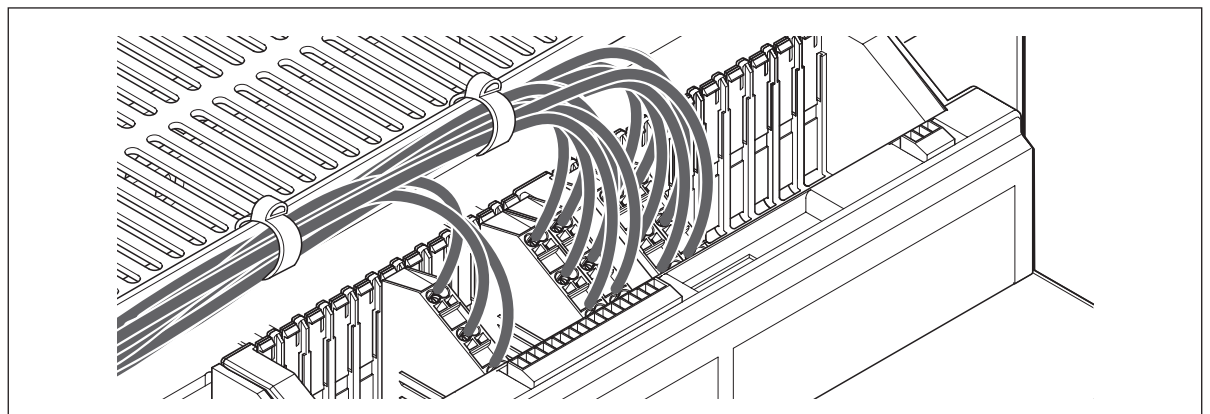
3. Extract the screw: clamp automatically lock the cable.

Detail: Electrical contact is guaranteed with max flexible cable diameter up to 2,5 mm², 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 DMX³

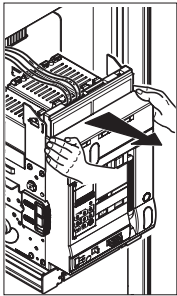
has several buttonholes useful to collect all the cables with cable ties as shown.



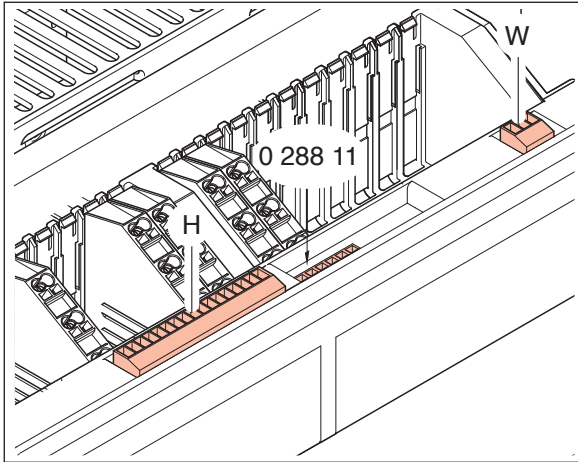
DMX³



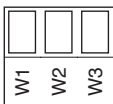
Only for draw-out version: cable the breaker in completely draw-out position.



Standard version



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



W1: Normal Open
W2: Normal Close
W3: Common

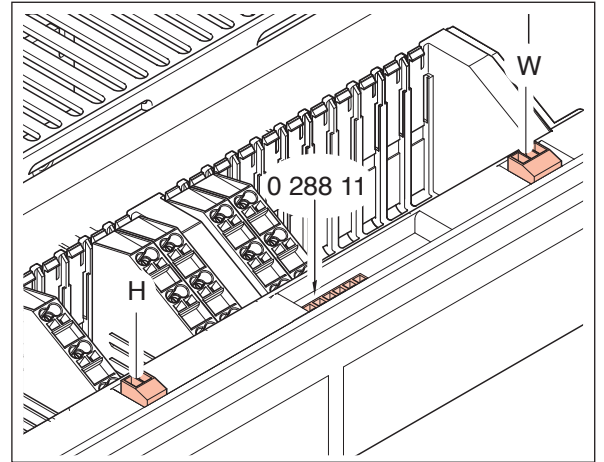
0 288 11) External neutral 6-way terminal

H)

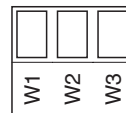


H1: } External auxiliary supply 0 288 06
H2: }
H3: "Programmable output module"
Serial Port - RS485 (-)
H4: "Programmable output module"
Serial Port - RS485 (+)
H5: GND RS485
H6: Supervision Serial port - RS485 (-)
H7: Supervision Serial port - RS485 (+)
H8: -
H9: -
H10: -
H11: Logic Selectivity Input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

Basic version (only for DMX³ 2500 42kA)



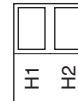
W) Local programmable output (4A-230V a.c. max)



W1: Normal Open
W2: Normal Close
W3: Common

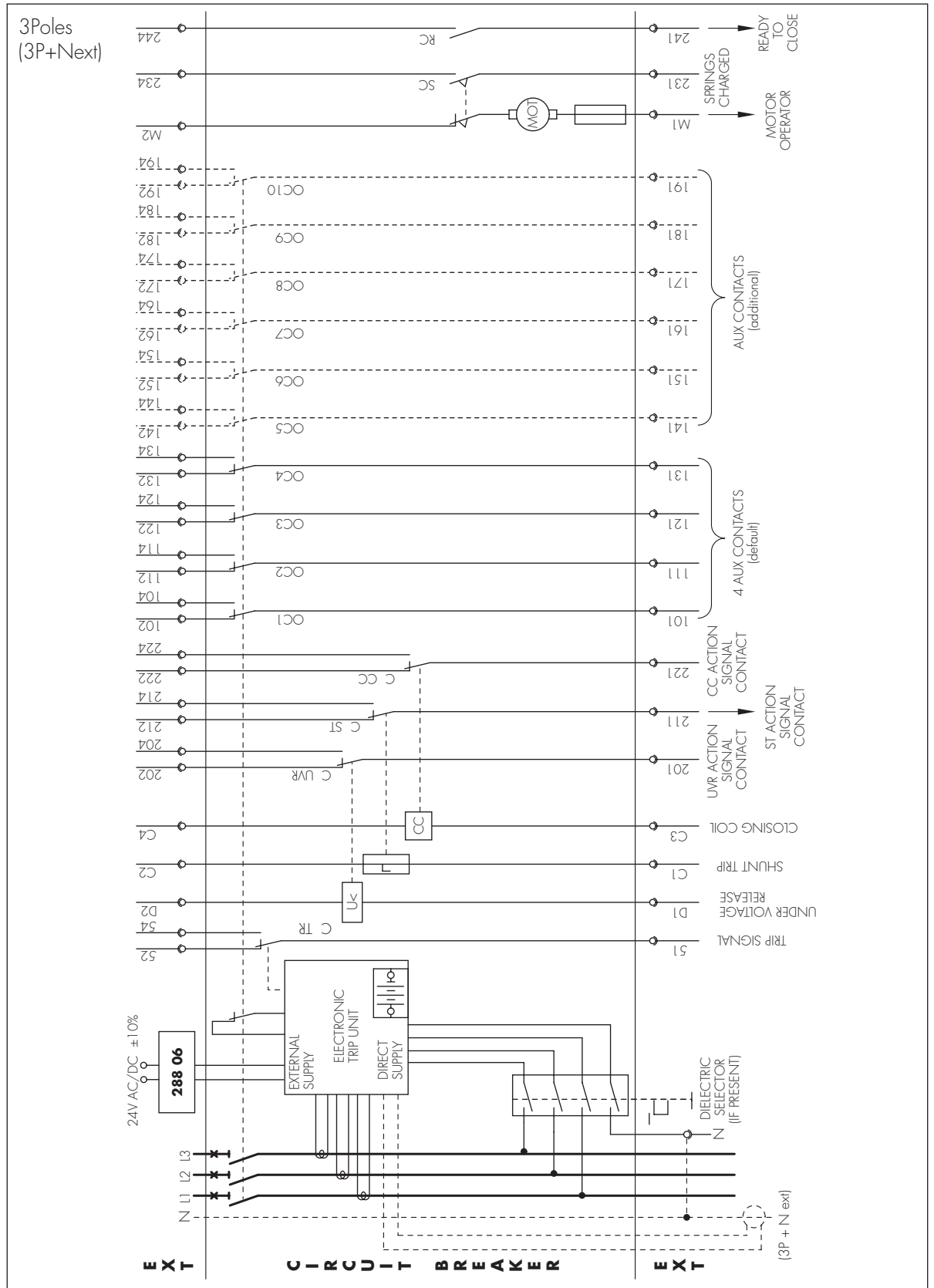
0 288 11) External neutral 6-way terminal

H)

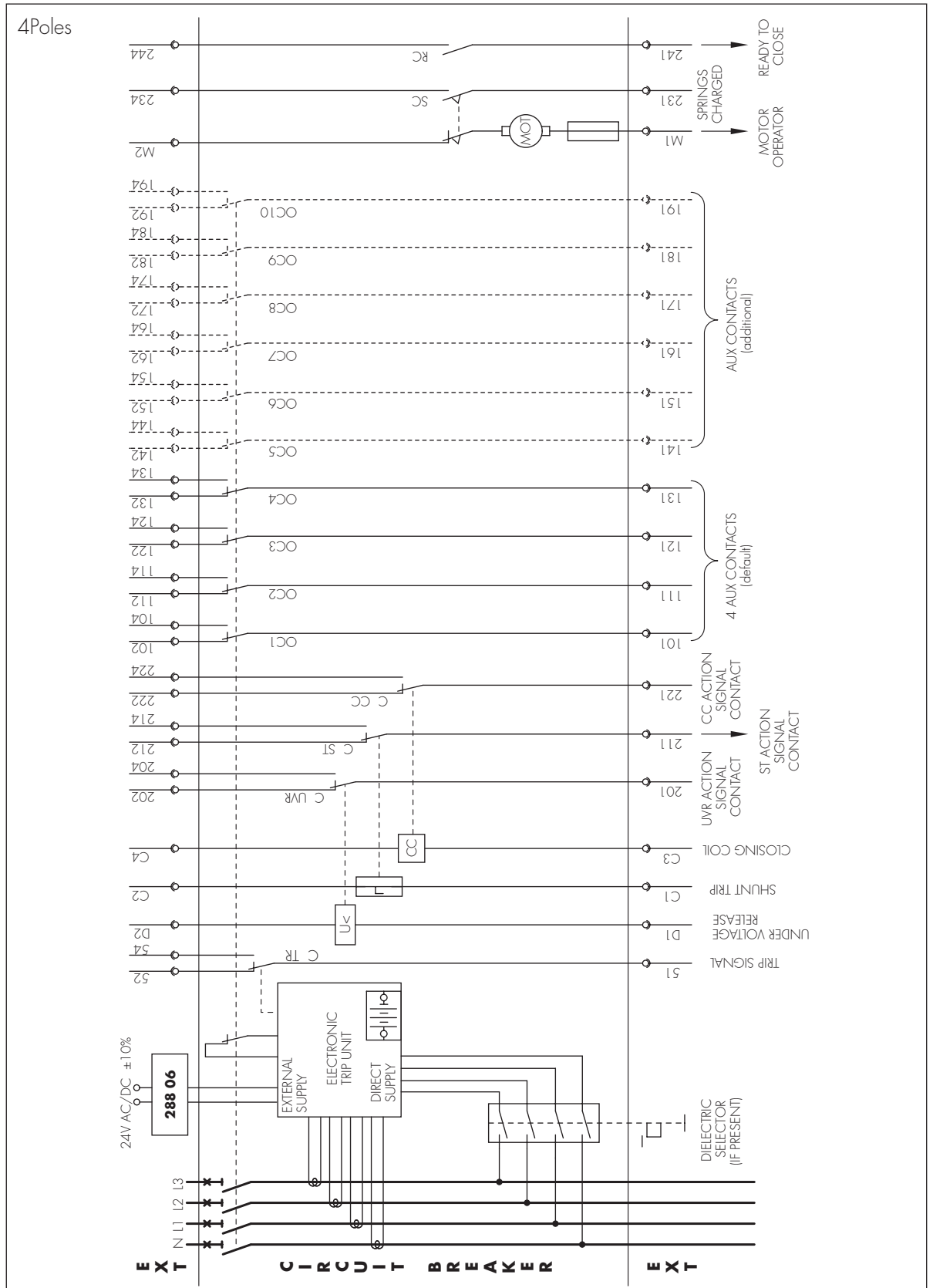


H1: } External auxiliary supply 0 288 06
H2: }

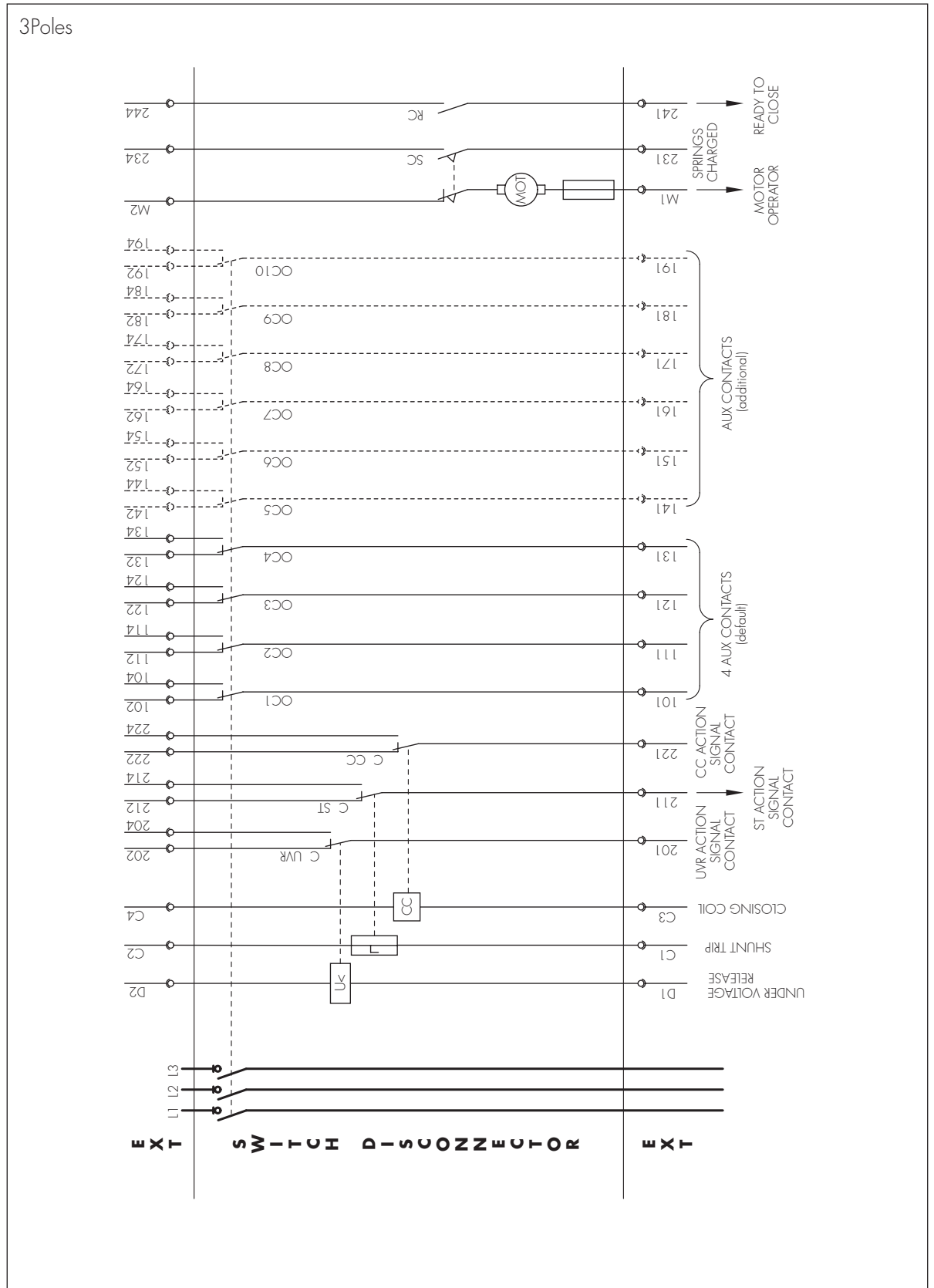
19. Electrical diagram



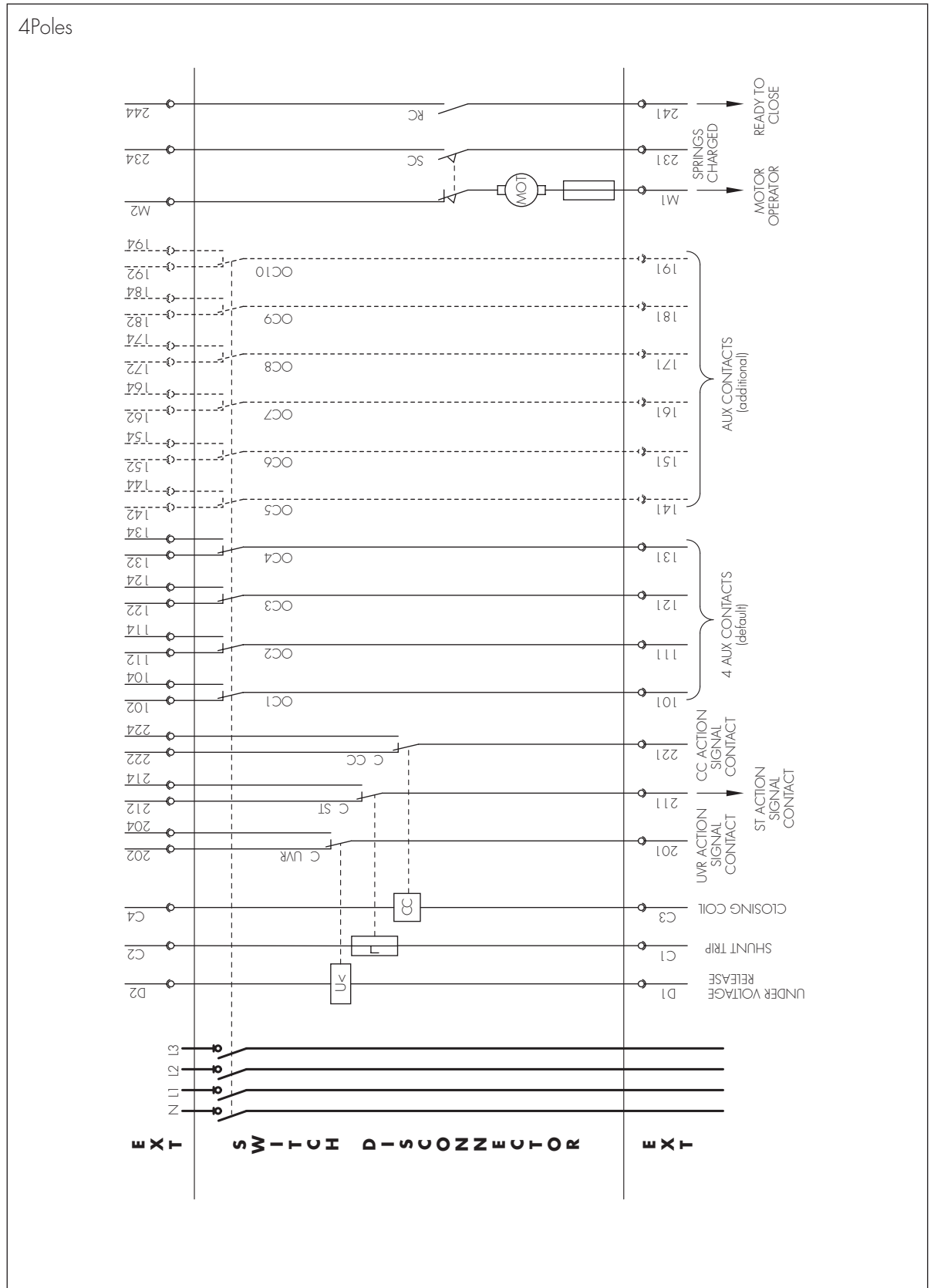
DMX3



DMX3



DMX3



20. Dielectric test (if present)

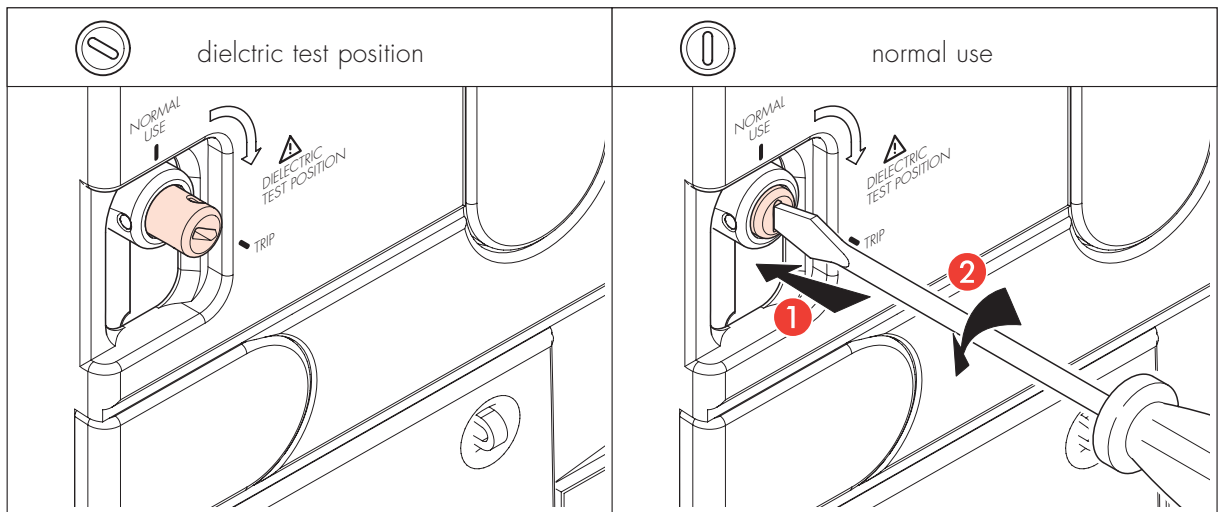
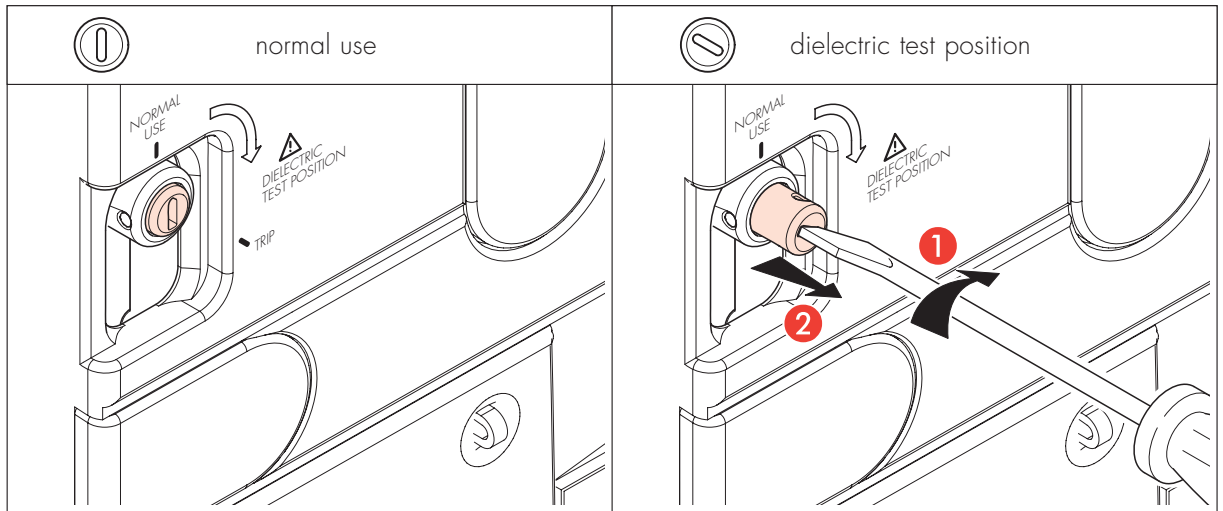
Before to realize a Dielectric test on the breaker, alone or fitted in an enclosure, it's mandatory to switch the selector from the position "normal use"

to the "Dielectric test position".

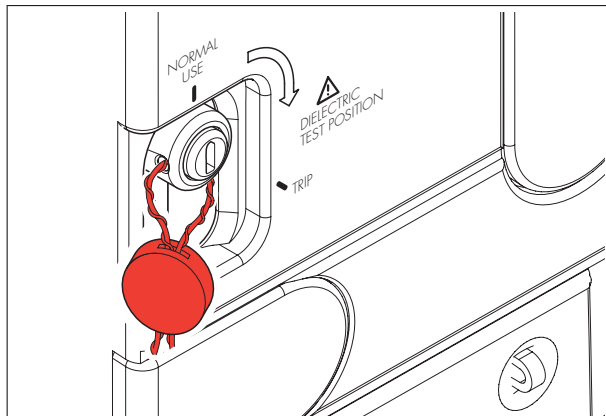
When test are end, set the selector (X) on "normal use" position.



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.

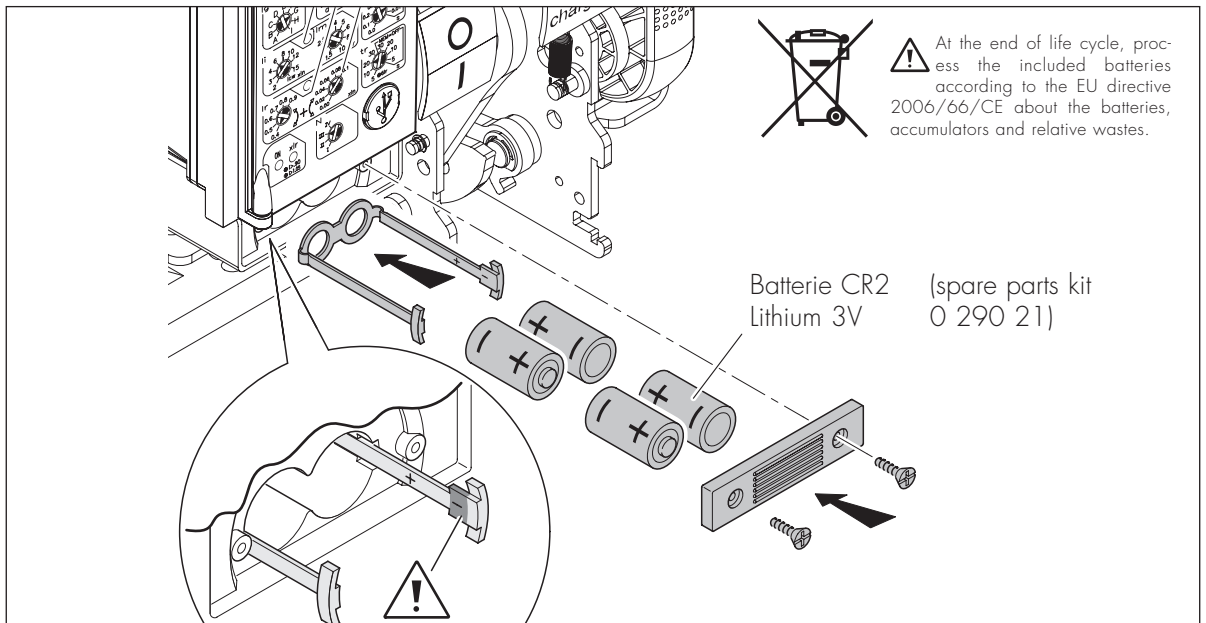


In this position, the selector can be sealed through a normal plumbing.

21. Setting protection unit

21.1 Insertion/substitution battery

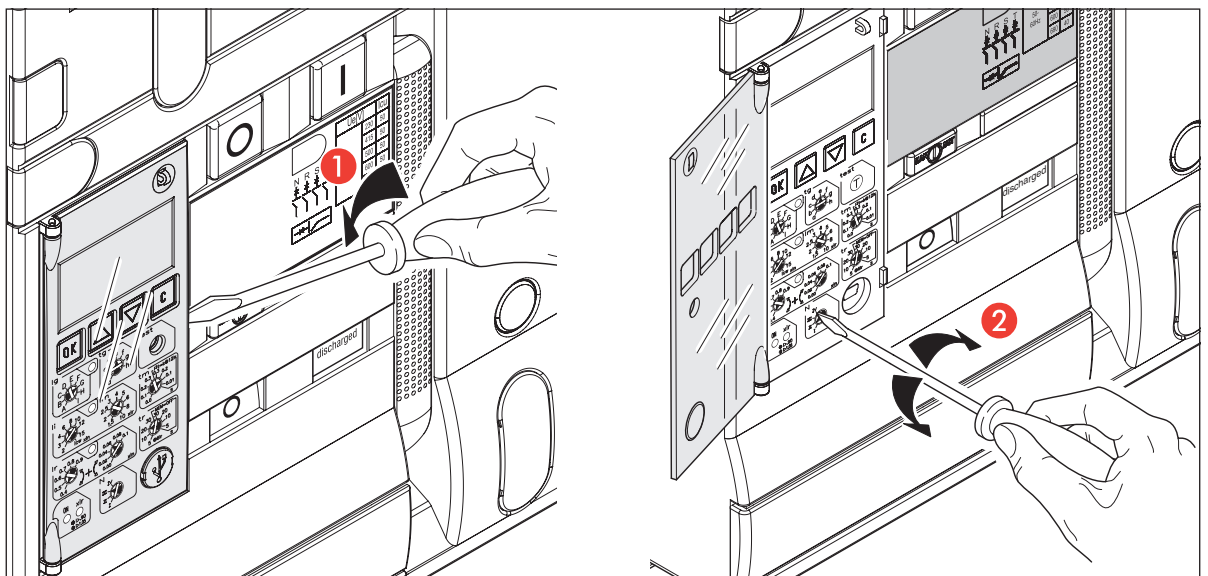
Remove frontal cover of the breaker. Insert the 4 batteries on the lower part of the protection unit keeping polarity and mounting order like shown on picture. Batteries are delivered outside the breaker.



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

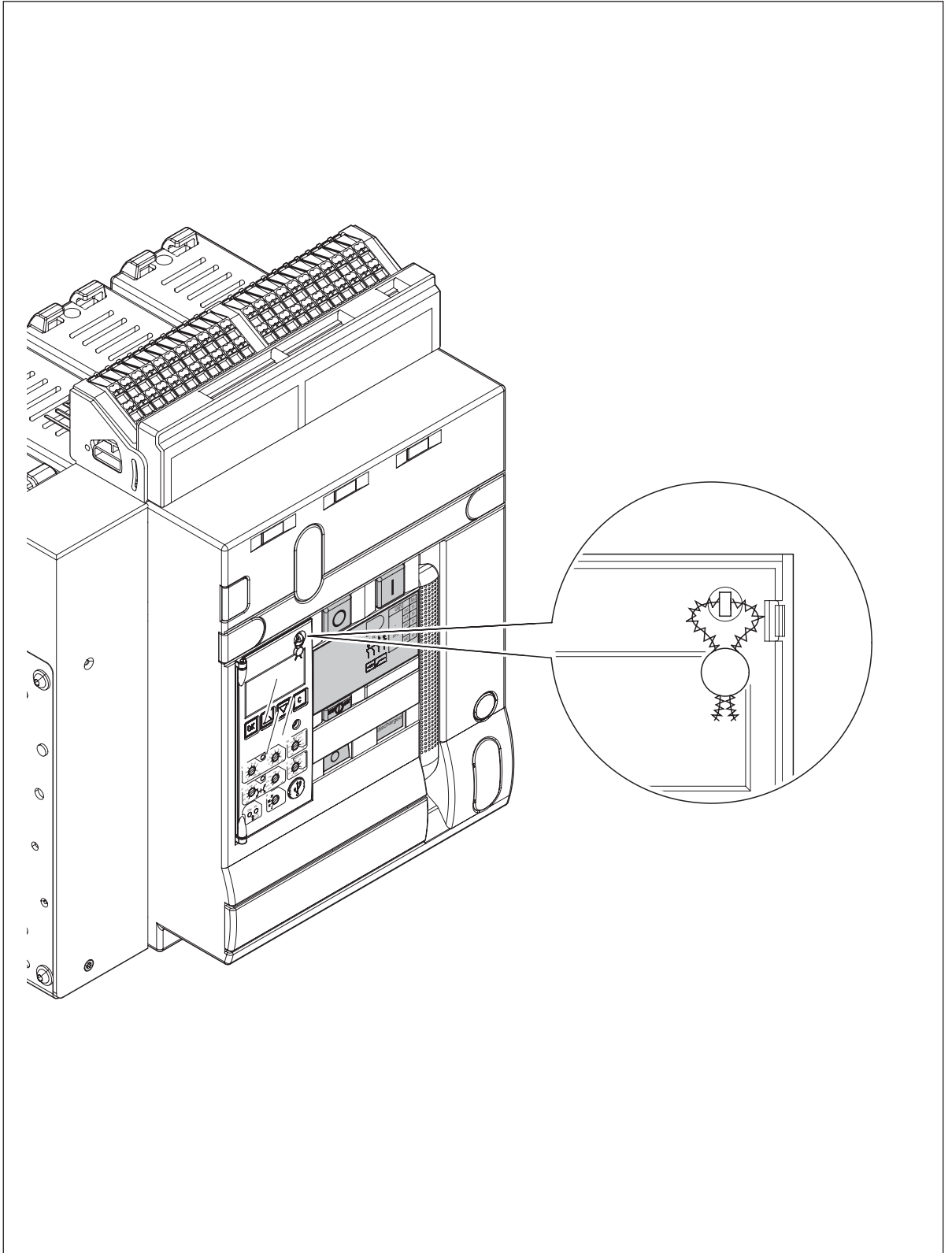
of protection unit. For setting, consult the protection unit manual.

DMX³

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.

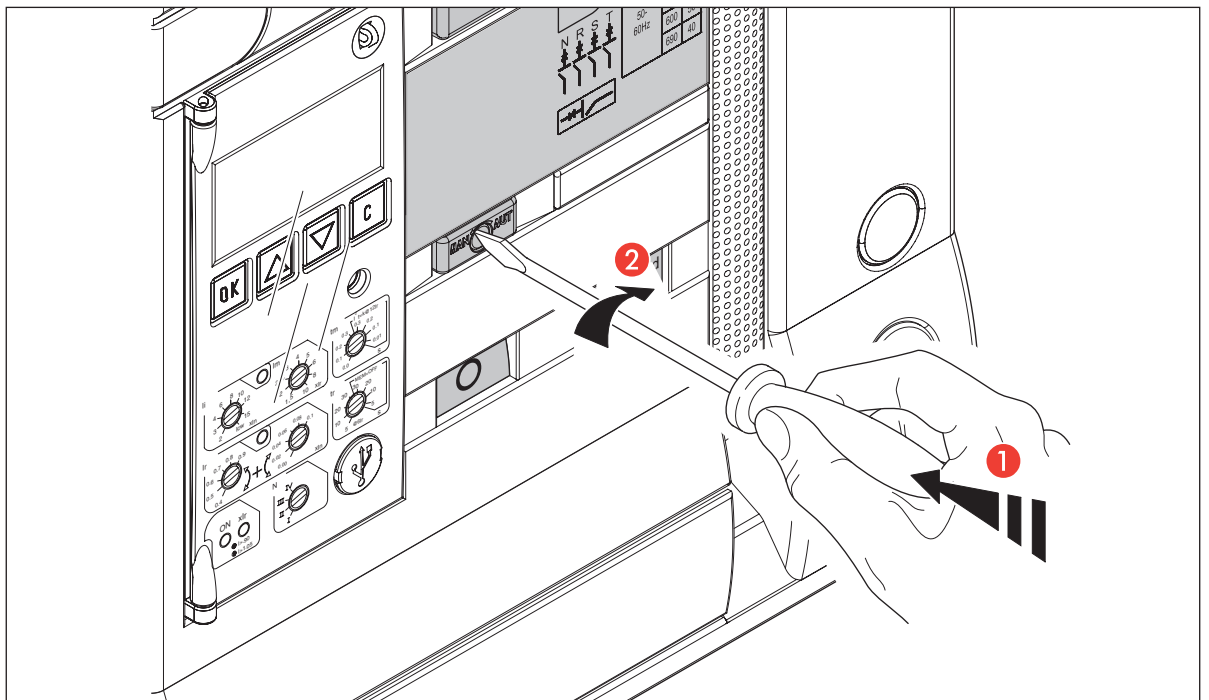
In this position the breaker can be always closed after a trip commanded by protection unit (button remains inserted).

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.

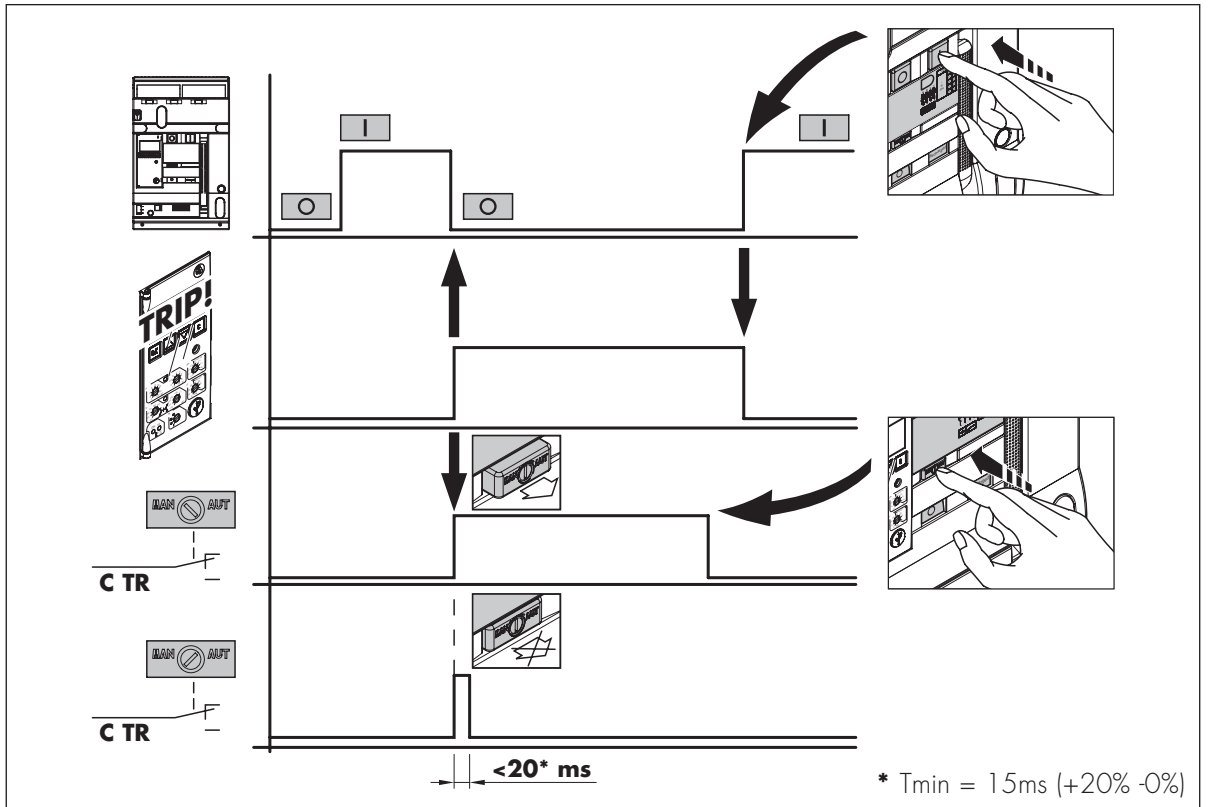


DMX³

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



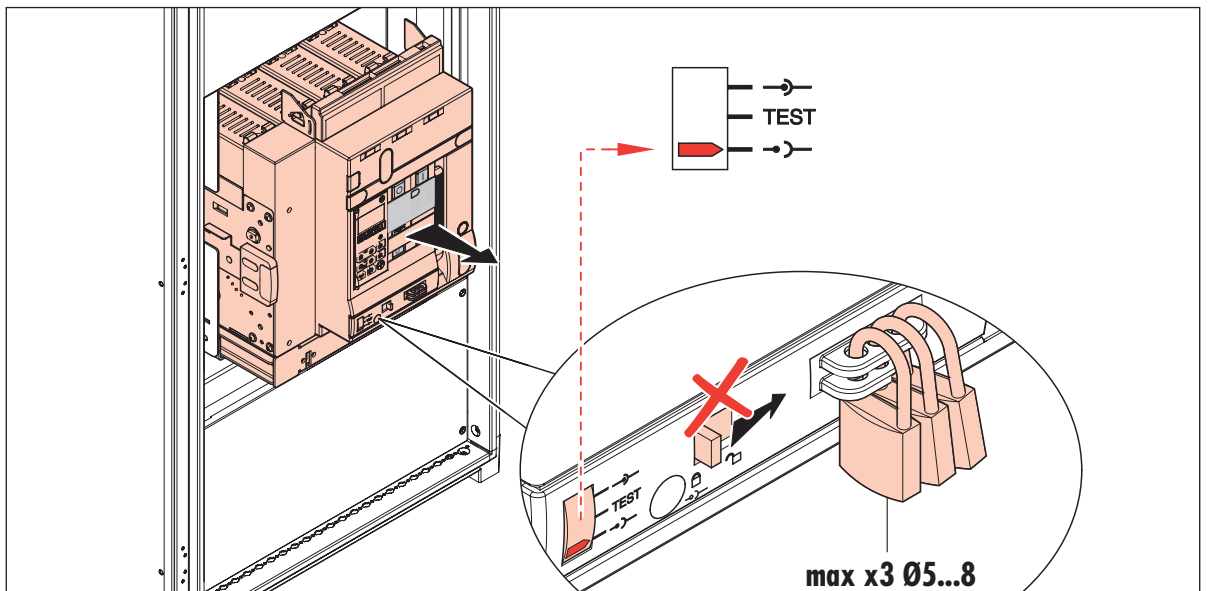
Technical features of trip contact: change over contact (C-NO-NC), 250V, 6A MAX.

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. DMX³ 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.

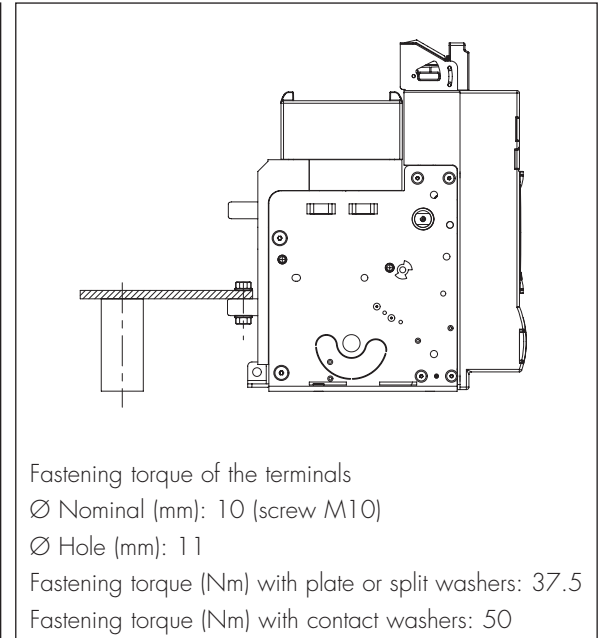
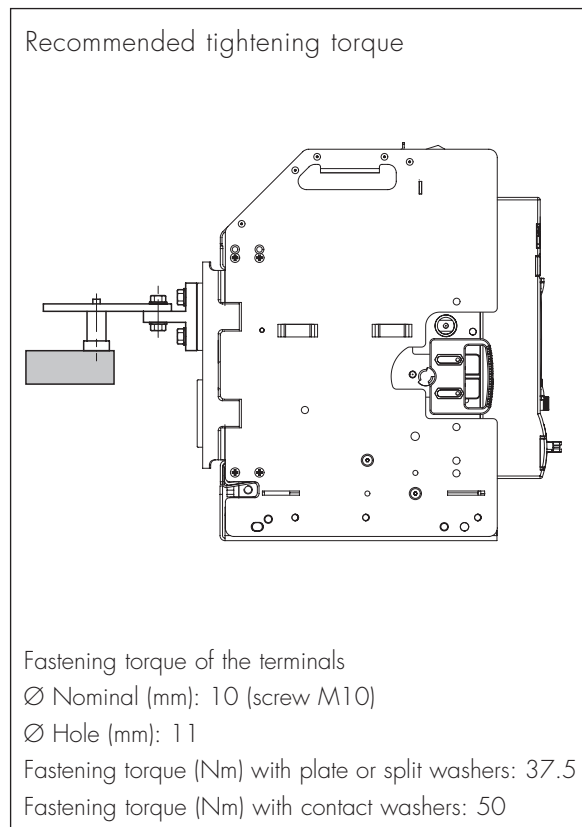
Start up checks are classified in:

- 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.

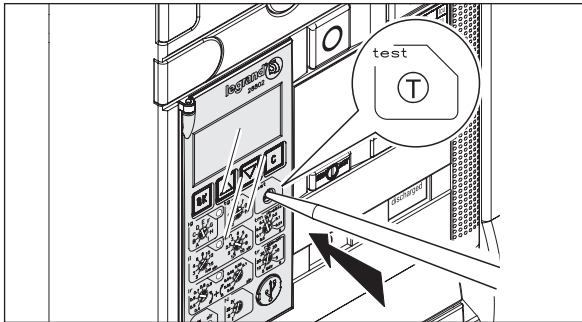


- To verify that the device is not damaged outside and there are not missing parts that can be the cause of wrong working.

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

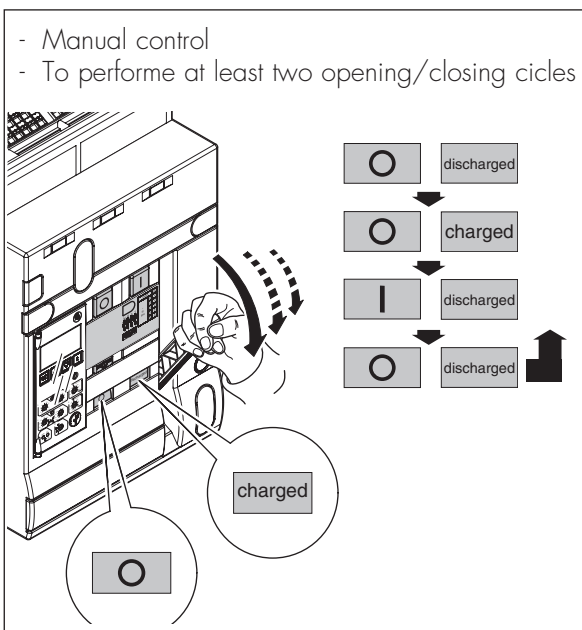




- Tripping test check
 - keep pushing T button longer than 2 sec and verify that:
 - all leds light on for 1 second (ON LED on orange, the others on red);
 - the device trips;
 - the display shows that the device has tripped;
 - RESET button has been released.
 - To reset the device, push RESET button 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

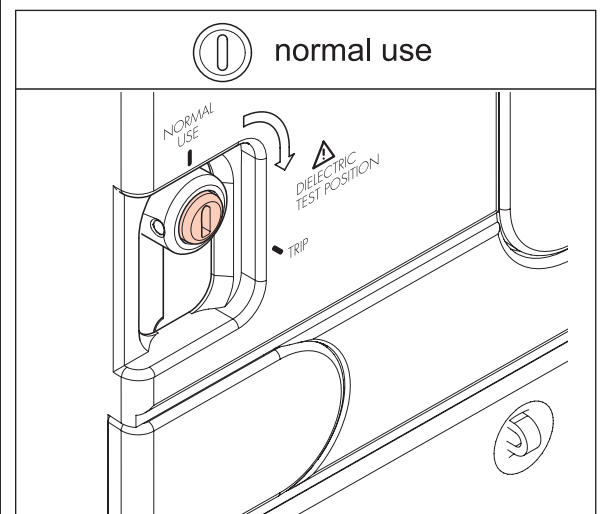
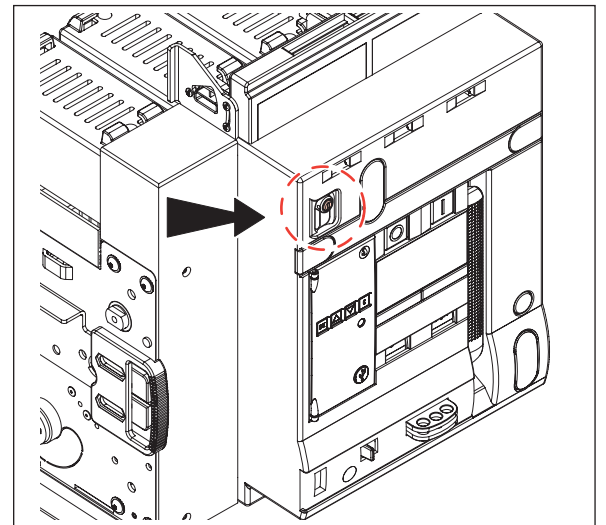
- To verify the auxiliary circuits proper installation
- To verify the correspondence of the terminals wiring
- To verify the correspondence of the auxiliary circuit wiring.

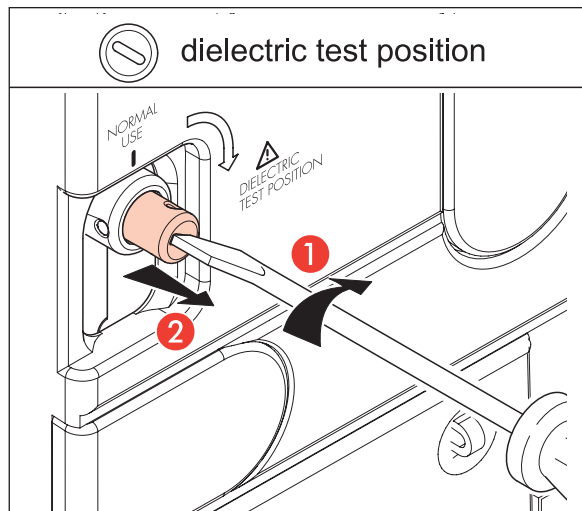
Under voltage checks

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

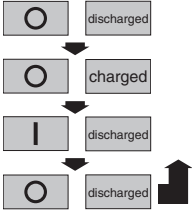
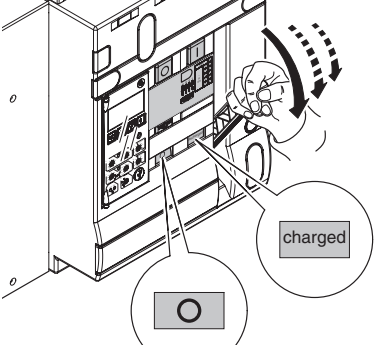
In case of short circuit protection, go to Maintenance guide and check the following conditions:

- 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

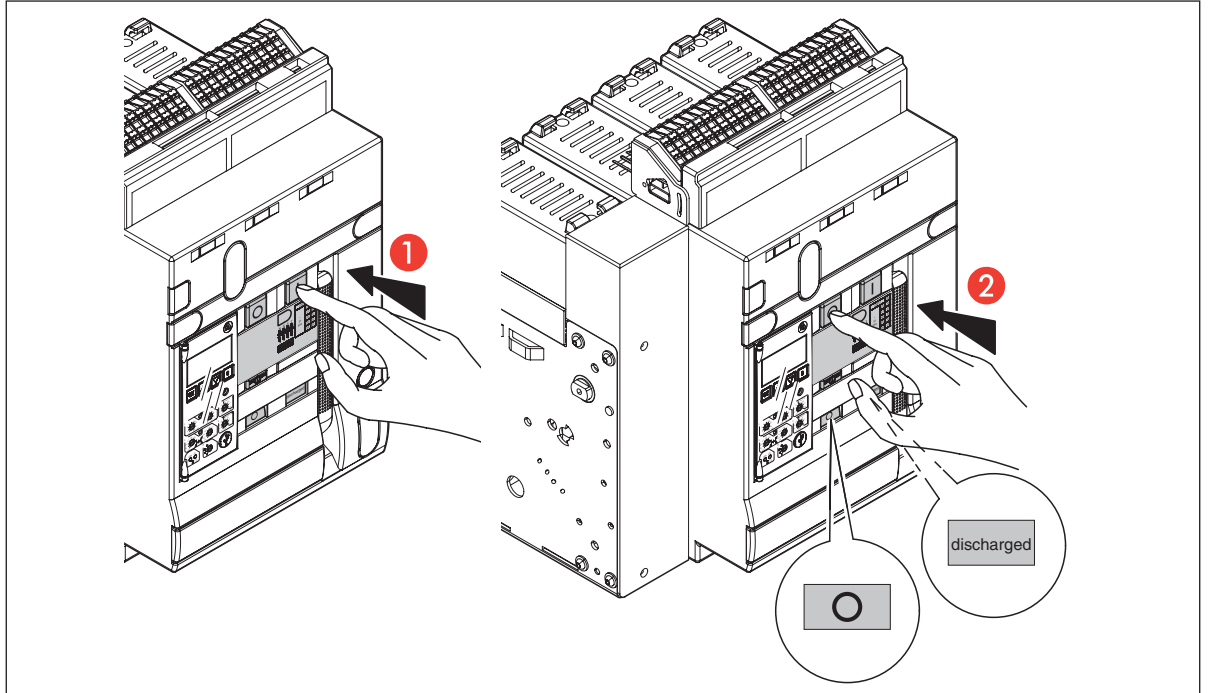
Device closing

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.

DMX³

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 DMX³ 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 DMX³ maintenance guide