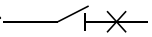
1 Applicable scope and purpose

The NDM5Z-400 molded case circuit breakers (referred to as circuit breakers) have a rated insulation voltage of 1500V and apply to circuits with the rated working voltage of DC750V (3P in series), DC1000V (4P in series) and DC1200V (4P in series) and DC1500V (4P in series) as well as the rated working current 250A, 320A, 400A. The circuit breakers are used for distributing power while protect the overload, short circuit and under-voltage (with an under-voltage release) of lines and power units.

The NDM5Z-630 molded case circuit breakers have a rated insulation voltage of 1200V and apply to circuits with the rated working voltage of DC750V (2P in series), DC750V (3P in series) and DC1000V (4P in series) and DC1200V (4P in series) as well as the rated working current 400A,550A(3P/4P),630(2P). The circuit breakers are used for distributing power while protect the overload, short circuit and under-voltage (with an under-voltage release) of lines and power units.

The NDM5Z-630 molded case circuit breakers with dual-pole paralleled have a rated insulation voltage of 1200V and apply to circuits with the rated working voltage of DC600V (4P in parallel), DC750V (4P in parallel) and DC1250V (4P in parallel). The circuit breakers are used for distributing power while protect the overload, short circuit and under-voltage (with an under-voltage release) of lines and power units.

The circuit breaker has an isolating function with the corresponding symbol of  ;

Comply with standards: IEC60947-2, GB/T 14048.2.

The circuit breaker can be connected in the main circuit reversely in any of the voltages or levels of breaking.

2 Picture of the product

Figure 1 Product picture

3 Specification and model description

ND	M	5	□	-	□	□	□	/	□	/	□	/	□	□	□	□
1	2	3	4		5	6	7		8		9		10	11	12	13

SN	Item	NDM5
1	Enterprise code	ND: “Nader” low-voltage apparatus
2	Product code	M: Molded case circuit breaker (MCCB)
3	Design SN	5
4	Series derived code	Z:thermal-magnetic for DC

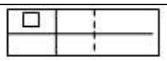
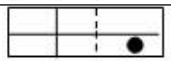
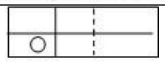
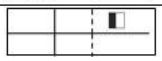
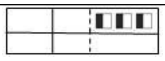
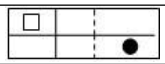
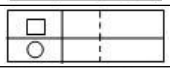
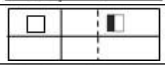
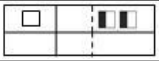
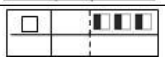
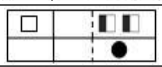
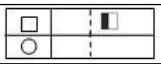
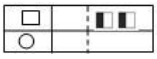
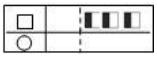
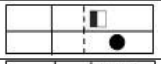
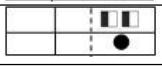
5	Current of the frame size	400/630
6	Breaking capacity level	L:standard
		M:medium-high
		H:high
7	Rated current	See table 2
8	Number of poles	3:3 poles
		4:4 poles
9	Release code	TMDC：power distribution protection for DC
10	Installation + wiring method	null：fixed + front panel
		ES：fixed + front panel extended
		R1：fixed + rare terminal horizontal
		P0FH：plug-in without secondary terminal+ front panel parallel
		P0RH:plug-in without secondary terminal+ rare panel parallel
		P1FH:plug-in with secondary terminal+ front panel parallel
		P1RH:plug-in with secondary terminal+ rare panel parallel
		W0FH:drawer without secondary terminal + front panel parallel
		W0RH：drawer without secondary terminal+ rare panel parallel
		W1FH：drawer with secondary terminal+ front panel parallel
		W1RH：drawer with secondary terminal+ rare panel parallel
11	Operation	Null: directly handle operation
		Z1A150:rotary handle with round center hole and square shaft length 150mm
		Z1A200: rotary handle with round center hole and square shaft length 200mm
		Z1A300:rotary handle with round center hole and square shaft length 300mm
		Z1A350:rotary handle with round center hole and square shaft length 350mm
		Z1A650:rotary handle with square center hole and square shaft length 650mm

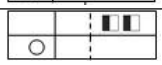
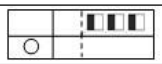
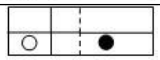
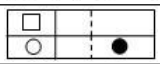
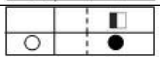
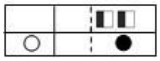
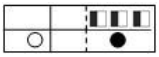
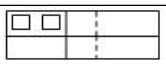
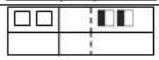
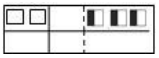
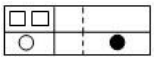
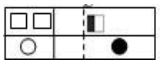
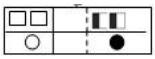
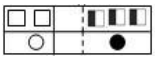
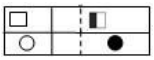
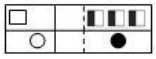
		Z1F150:rotary handle with square center hole and square shaft length 150mm
		Z1F200:rotary handle with square center hole and square shaft length 200mm
		Z1F300:rotary handle with square center hole and square shaft length 300mm
		Z1F350:rotary handle with square center hole and square shaft length 350 mm
		Z1F650:rotary handle with square center hole and square shaft length 650mm
		Z2A150：rotary handle with round eccentric hole and square shaft length 150mm
		Z2A200：rotary handle with round eccentric hole and square shaft length 200mm
		Z2A300：rotary handle with round eccentric hole and square shaft length 300mm
		Z2A350：rotary handle with round eccentric hole and square shaft length 350mm
		Z2A650：rotary handle with round eccentric hole and square shaft length 650mm
		Z2F150：rotary handle with square eccentric hole and square shaft length 150mm
		Z2F200：rotary handle with square eccentric hole and square shaft length 200mm
		Z2F300：rotary handle with square eccentric hole and square shaft length 300mm
		Z2F350：rotary handle with square eccentric hole and square shaft length 350mm
		Z2F650：rotary handle with square eccentric hole and square shaft length 650mm
		M02：motor operation DC24V
		M11：motor operation AC110V/DC110V
		M22：motor operation AC230V/DC220V
		M40：motor operation AC400V
12	Accessory code	See table 1

13	Other code	J: mechanical interlock
		MS2：MS2 lock
		BL：4P parallel
		J0: No short connection bar
		J0DJ: With short connection bar

Note：2Pproduct（630 shell rack only）

Table 1 accessory code for NDM5Z-400/630

Accessory code	Accessory name	Installation position
		3P、4P
00	None	——
08	Alarm contact	
10	Shunt release	
30	Under-voltage release	
21	Single auxiliary contact	
61	Two sets of single auxiliary contacts	
23	Three sets of single auxiliary contacts	
18	Shunt release, alarm contact	
38	Under-voltage release, alarm contact	
22	Single auxiliary contact, alarm contact	
88	Two sets of single auxiliary contacts, alarm contact	
26	Three sets of single auxiliary contacts, alarm contact	
42	Shunt release, single auxiliary contact, alarm contact	
44	Shunt release, two sets of single auxiliary contacts, alarm contact	
46	Shunt release, three sets of single auxiliary contacts, alarm contact	
75	Under-voltage release, single auxiliary contact, alarm contact	
77	Under-voltage release, two sets of single auxiliary contacts, alarm contact	
81	Under-voltage release, three sets of single auxiliary contacts, alarm contact	
41	Shunt release, single auxiliary contact	
11	Shunt release, two sets of single auxiliary contacts	
12	Shunt release, three sets of single auxiliary contacts	

71	Under-voltage release, single auxiliary contact	
72	Under-voltage release, two sets of single auxiliary contacts	
73	Under-voltage release, three sets of single auxiliary contacts	
50	Shunt release, Under-voltage release	
31	Alarm contact, Shunt release, Under-voltage release	
51	Shunt release, Under-voltage release, Single auxiliary contact	
52	Shunt release, Under-voltage release, two sets of single auxiliary contacts	
53	Shunt release, Under-voltage release, three sets of single auxiliary contacts	
98	Two sets of single alarm contact	
63	Two sets of single alarm contact, single auxiliary contact	
64	Two sets of single alarm contact, two sets of single auxiliary contacts	
65	Two sets of single alarm contact, three sets of single auxiliary contacts	
37	Two sets of single alarm contact, Shunt release, Under-voltage release	
39	Two sets of single alarm contact, Shunt release, Under-voltage release, single auxiliary contact	
55	Two sets of single alarm contact, Shunt release, Under-voltage release ， two sets of single auxiliary contacts	
56	Two sets of single alarm contact, Shunt release, Under-voltage release , three sets of single auxiliary contacts	
32	Alarm contact, Shunt release, Under-voltage release, single auxiliary contact	
33	Alarm contact, Shunt release, Under-voltage release, two sets of single auxiliary contacts	
34	Alarm contact, Shunt release, Under-voltage release, three sets of single auxiliary contacts	

Note: ◧ single auxiliary contacts； □ Alarm contact； ● Shunt release； ○ Under-voltage release

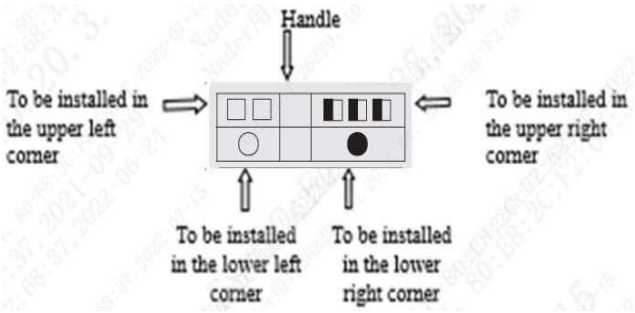


Figure 2 diagram for accessories installation

4 Main technical parameters

Table 2 Main technical parameters for NDM5Z-400

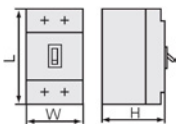
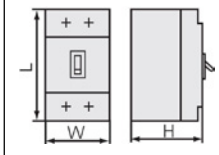
Model type			NDM5Z-400					
Frame size Inm(A)			400					
Rated current In(A)			250、320、400					
Rated insulation voltage Ui(V)			1500					
Power frequency withstand voltage U(V)			4000					
Rated impulse withstand voltage Uimp(kV)			8					
Number of poles			3			4		
Breaking capacity level			L	M	H	L	M	H
Rated ultimate breaking capacity Icu (kA)		DC750V	50	85	100	/	/	/
		DC1000V	/	/	/	50	85	100
		DC1200V	/	/	/	/	/	50
		DC1500V	/	/	/	/	/	20
Rated running breaking capacity Ics(kA)		DC750V	50	85	100	/	/	/
		DC1000V	/	/	/	50	85	100
		DC1200V	/	/	/	/	/	50
		DC1500V	/	/	/	/	/	20
Utilization category			A					
Operating performance (times)	Electrical life	DC750V	5000					
		DC1000V	/			5000		
		DC1200V	/			3000		
		DC1500V	/			2000		
	Mechanical life	Without maintenance	20000					
		With maintenance	40000					
Outline dimensions		L(mm)	250			250		
		W(mm)	140			185		
		H(mm)	110			110		
Flashover distance(mm)			≤100					

Table 3 Main technical parameters for NDM5Z-630

Model type			NDM5Z-630							
Frame size Inm(A)			630							
Rated current In(A)			400、500、630*							1250(parallel)
Rated insulation voltage Ui(V)			1200							
Power frequency withstand voltage U(V)			4000							
Rated impulse withstand voltage Uimp(kV)			8							
Number of poles			2	3			4			4P parallel
Breaking capacity level			H	L	M	H	L	M	H	H
Rated ultimate breaking capacity Icu (kA)	DC750V		30	50	85	100	/	/	/	25
	DC1000V		/	/	/	/	50	85	100	/
	DC1200V		/	/	/	/	/	/	50	/
	DC600V		/	/	/	/	/	/	/	50
Rated running breaking capacity Ics(kA)	DC750V		30	50	85	100	/	/	/	25
	DC1000V		/	/	/	/	50	85	100	/
	DC1200V		/	/	/	/	/	/	50	/
	DC600V		/	/	/	/	/	/	/	50
Utilization category			A							
Operating performance (times)	Electrical life	DC750V	3000	3000			/			/
		DC1000V	/	/			3000			/
		DC1200V	/	/			2000			/
		DC600V	/	/			/			2000
		DC750V	/	/			/			1000
	Mechanical life	Maintenance free	20000							
		Maintenance	40000							
Outline dimensions		L (mm)	250	250			250			250
		W (mm)	140	140			185			185
		H (mm)	110	110			110			110
Flashover distance(mm)			≤100							

Note *: when products with rated current of 630A are selected and products with short-circuit bar / radiator wiring are selected, the capacity shall be reduced to 550A for use.

4. 1 Recommendations of cross-section area of cables or bars for the circuit breakers

Table 4 Choice of cross-section area of the conductors

Rated current (A)	250	320	400
Cross-section area (mm^2)	120	185	240

Table 5 Choice of cross-section area of the cables or size of bar

Rated current (A)	Cable		bar	
	Cross-section area (mm2)	Amount	Size (mm2)	Amount
500	150	2	30×5	2
630	185	2	32×6	2

4. 2 Tighten torques of connecting and installation screws for the circuit breakers

Table 6 tighten torques of connection and installation screws for the circuit breakers

Model type	Screw usage	Thread specification	Torque(N • m)
NDM5Z-400/630	Wire connection	M10	20
	Installation	M5	2

4. 3 Derating coefficient corresponding to ambient temperature for the circuit breakers

Table 7 Derating coefficient corresponding to ambient temperature for the circuit breakers

Model type	Ambient temperature and corresponding derating coefficient							
	temperature(℃)	40	45	50	55	60	65	70
NDM5Z-400	Derating coefficient	1	1	1	0. 91	0. 87	0. 83	0. 78
NDM5Z-630	Derating coefficient	1	1	1	0. 88	0. 84	0. 80	0. 75

Note 1. If the temperature is lower than 50℃, products can come into use normally without derating.

2. All the derating coefficients above are measured and derived under rated current.

4. 4 Derating coefficient at high elevation for the circuit breakers

Table 8 Derating coefficient at high elevation for the circuit breakers

Elevation (m)	Working current correction coefficient	Maximum working current correction coefficient	Power frequency withstand voltage correction coefficient	Isolation voltage correction coefficient
2000	1	1	1	1
2500	1	1	1	1
3000	0. 98	1	1	1

3500	0. 95	1	1	1
4000	0. 93	1	1	1
4500	0. 91	1	1	1
5000	0. 89	1	1	1

4. 5 Power dissipation of circuit breakers

Table 9 Current specification power dissipation at single phase of NDM5Z-400/630 products

Model type	Current specification(A)	Power dissipation at single phase(W)		
		Front/rare panel connection	Front/rare panel connection with plug-in	Extended bar
NDM5Z-400	400	19. 8	28. 8	/
NDM5Z-630	630	39. 5	49. 5	/
NDM5Z-630 (parallel)	1250	79	/	/
Note: the datum above is measured in 40℃ ambient temperature and in rated current for power dissipation at single phase.				

5 Normal working environments

1) Elevation of installation site should be no more than 2500m, see Table 6 Derating coefficient at high elevation for the circuit breakers for derating coefficient at high elevation

2) Ambient temperature should be within the range of -35℃～+70℃, meanwhile the mean temperature over 24hours should no more than 35℃. If the ambient temperature is higher than 40℃, the products should put into use with deration. See Table 5 Derating coefficient according to ambient temperature for the circuit breakers for Derating coefficient according to ambient temperature.

3) The relative humidity should no more than 50%, when the ambient temperature is 40℃. Somehow relatively high humidity is acceptable if the temperature is relatively low. For instance, 90% humidity is acceptable when temperature is 20℃. Actions should be taken to deal with the condensation result from the temperature changes.

4) The product can withstand the effects of wet air, salt mist, oil mist and mould.
5) Installation category if switch disconnectors connecting to the main circuit: III (power distribution and control level.). Installation category if switch disconnectors not connecting to the main circuit: II (load level)
6) Pollution level: 3;
7) Protection class: IP20;
8) The product can be disposed in places that are free from explosive media, metal-corrosive or insulation-damaging gas, or conductive dust. And should avoid using in places invaded by rain or snow.
9) If customers are intending to deploy the products in the harsher condition than mentioned above, please talk to manufacturer first.

6 Characteristics curves

6.1 Tripping characteristics curve under normal environment (ambient air temperature: +50℃)

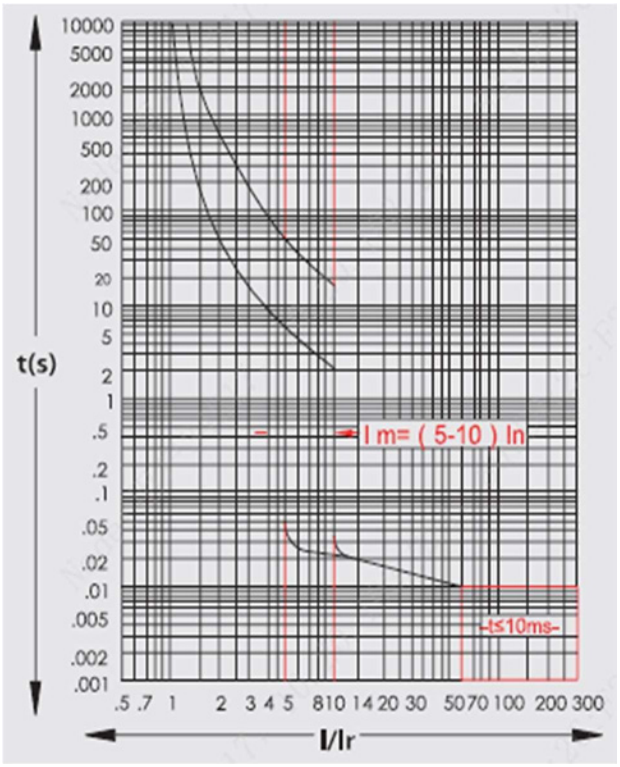


Fig 3 tripping curves of NDM5Z-400

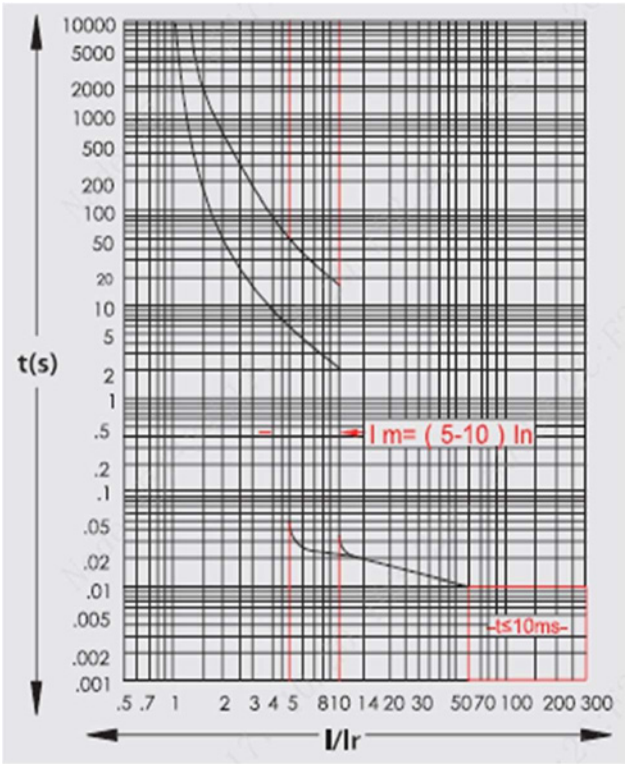


Fig 4 tripping curves of NDM5Z-630

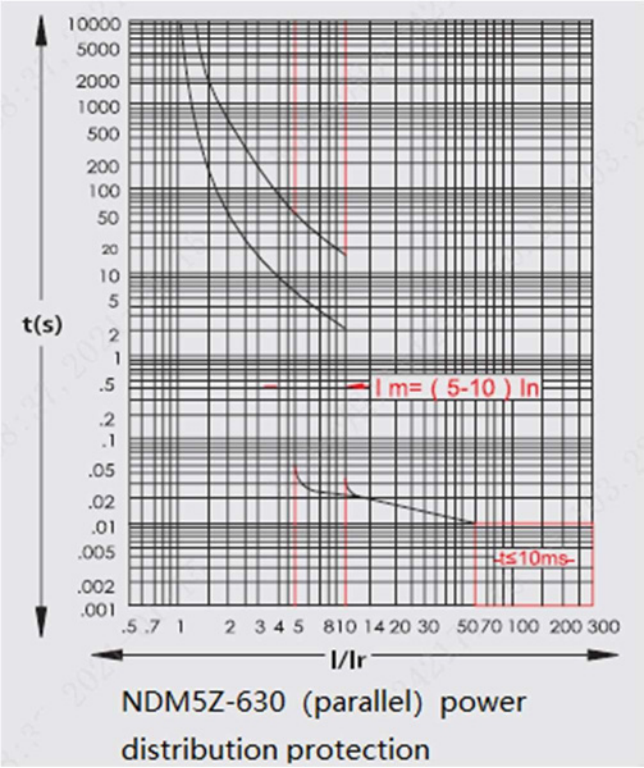


Fig 5 tripping curves

6.2 let through curves

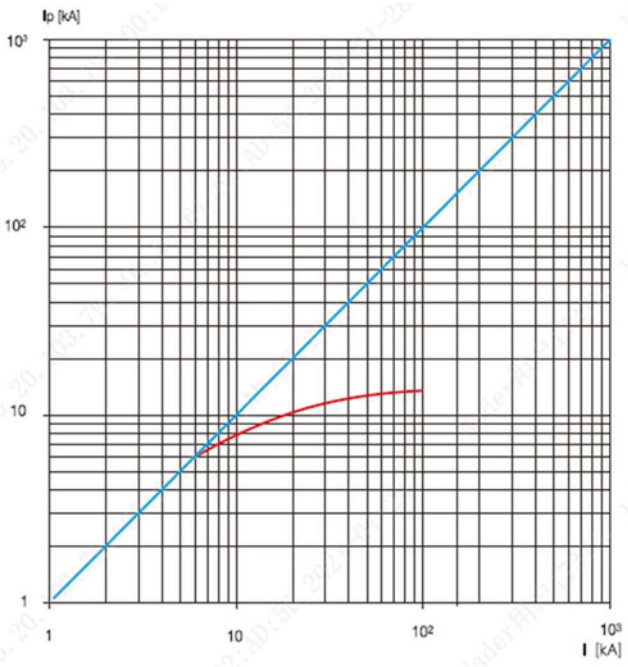


Fig 6 NDM5Z-400 current-limiting curves (DC1000V 4 poles in series)

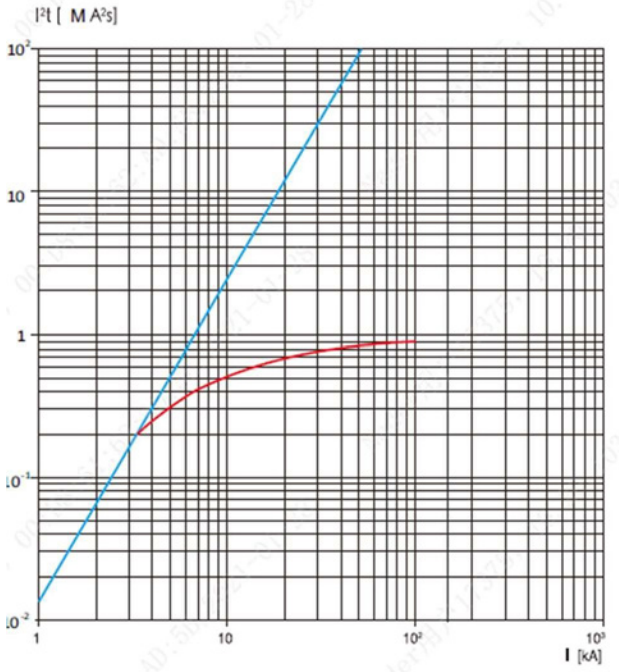


Fig 7 NDM5Z-400 let through curves (DC1000V 4 poles in series)

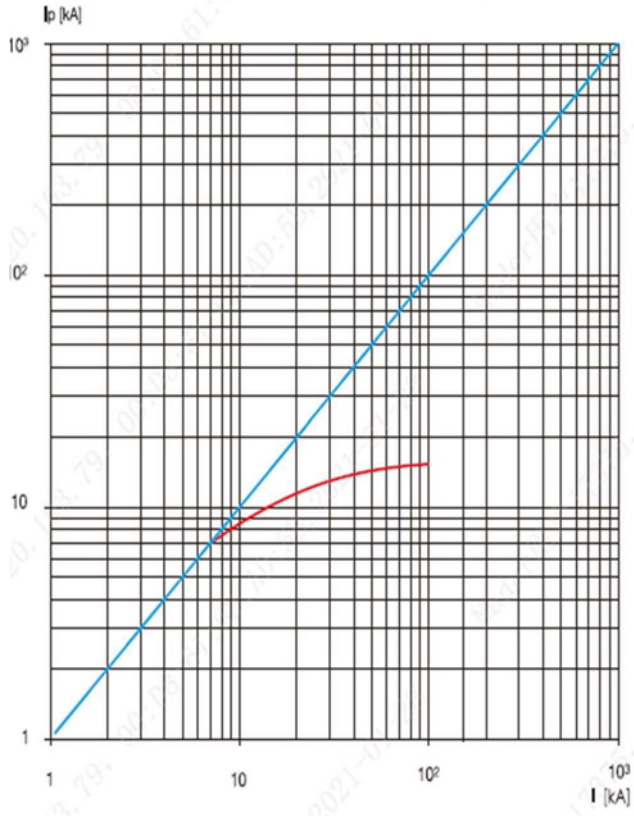


Fig 8 NDM5Z-630 current limiting curves
(DC1000V 4 poles in series)

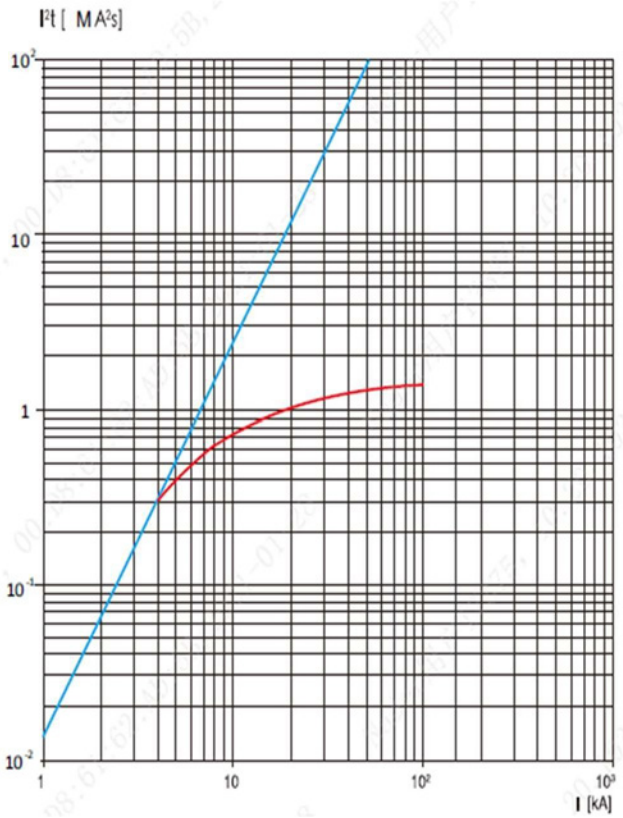


Fig 9 NDM5Z-630 let through curves
(DC1000V 4 poles in series)

7 Operation illustration and function introduction of controller

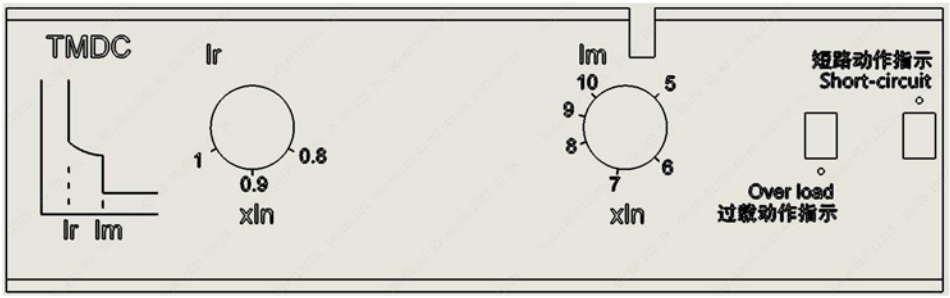


Fig 10 control panel picture

8 Outline and installation dimensions

8. 1 NDM5Z-400 outline and installation dimensions of 3-pole and 4-pole front panel products

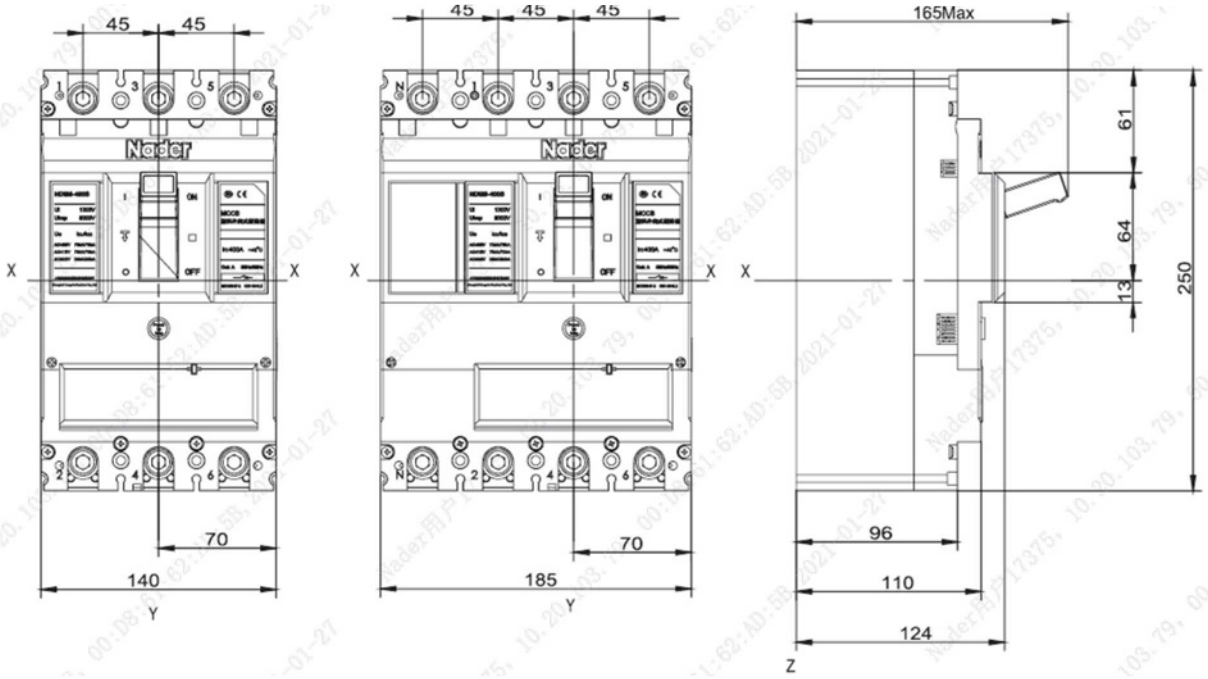


Fig 11 NDM5Z-400 outline dimensions of 3-pole and 4-pole front panel connection products

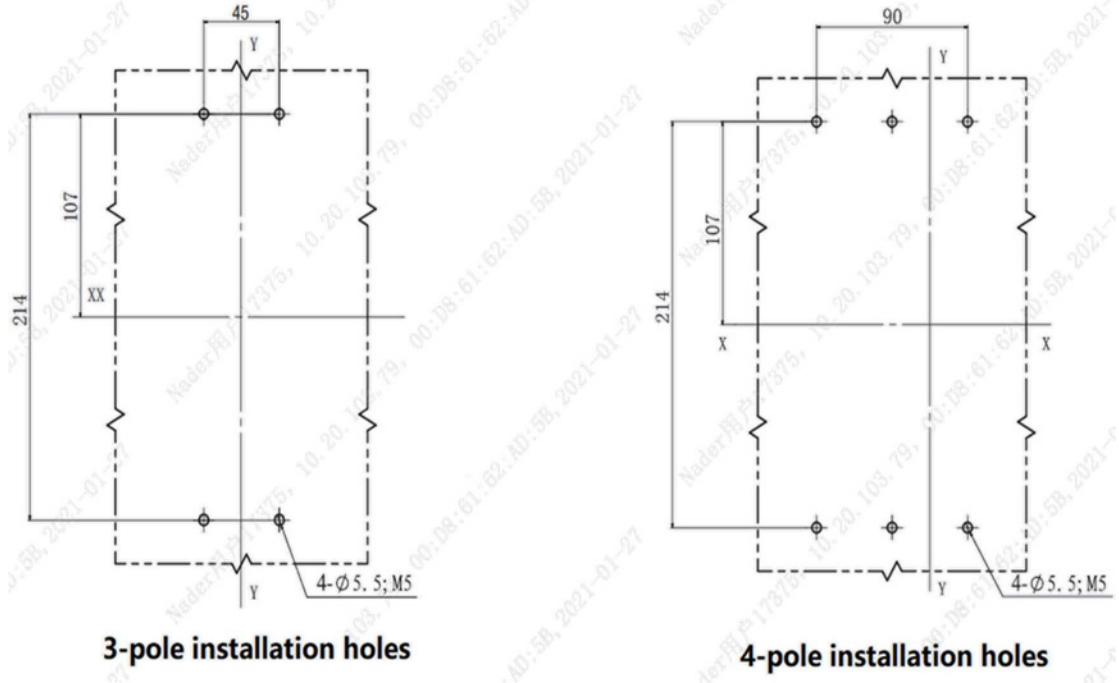


Fig 12 NDM5Z installation dimensions of 3-pole and 4-pole front panel connection products

Note：Unmarked tolerance level should follow GB/T 1804-c.

8. 2 NDM5Z-630 outline and installation dimensions of 2-pole 3-pole and 4-pole front panel products

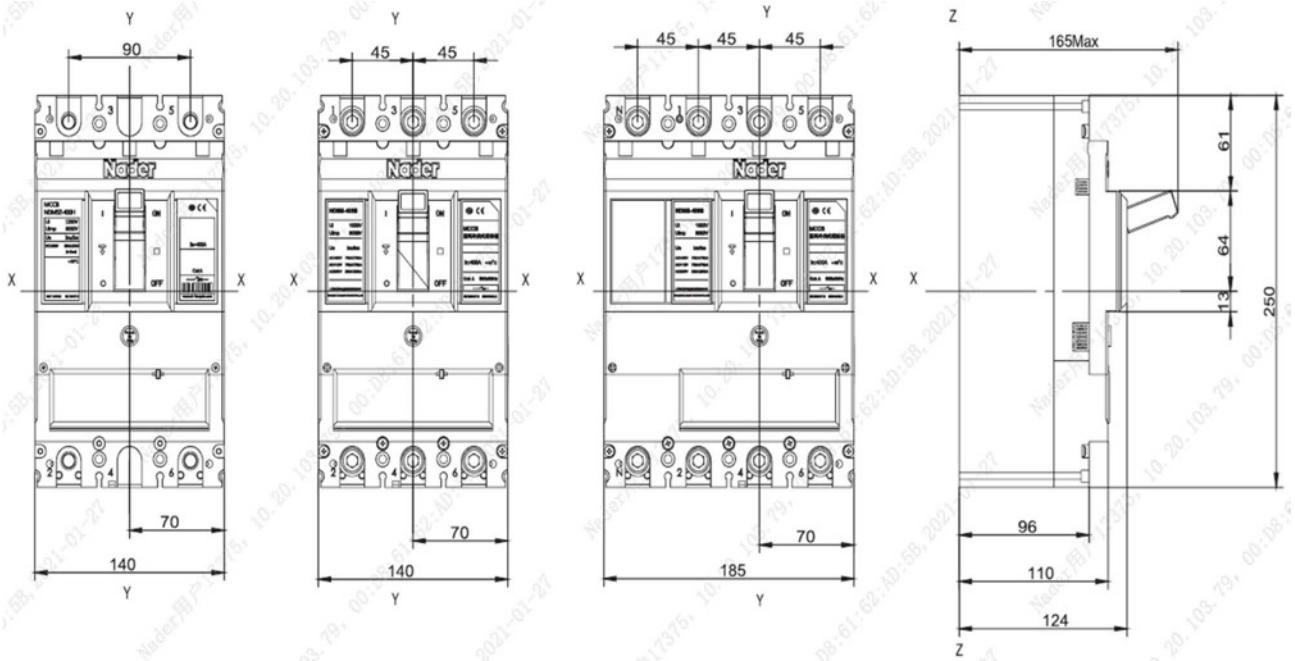


Fig 13 NDM5Z-630 outline dimensions of 2-pole, 3-pole and 4-pole front panel connection products

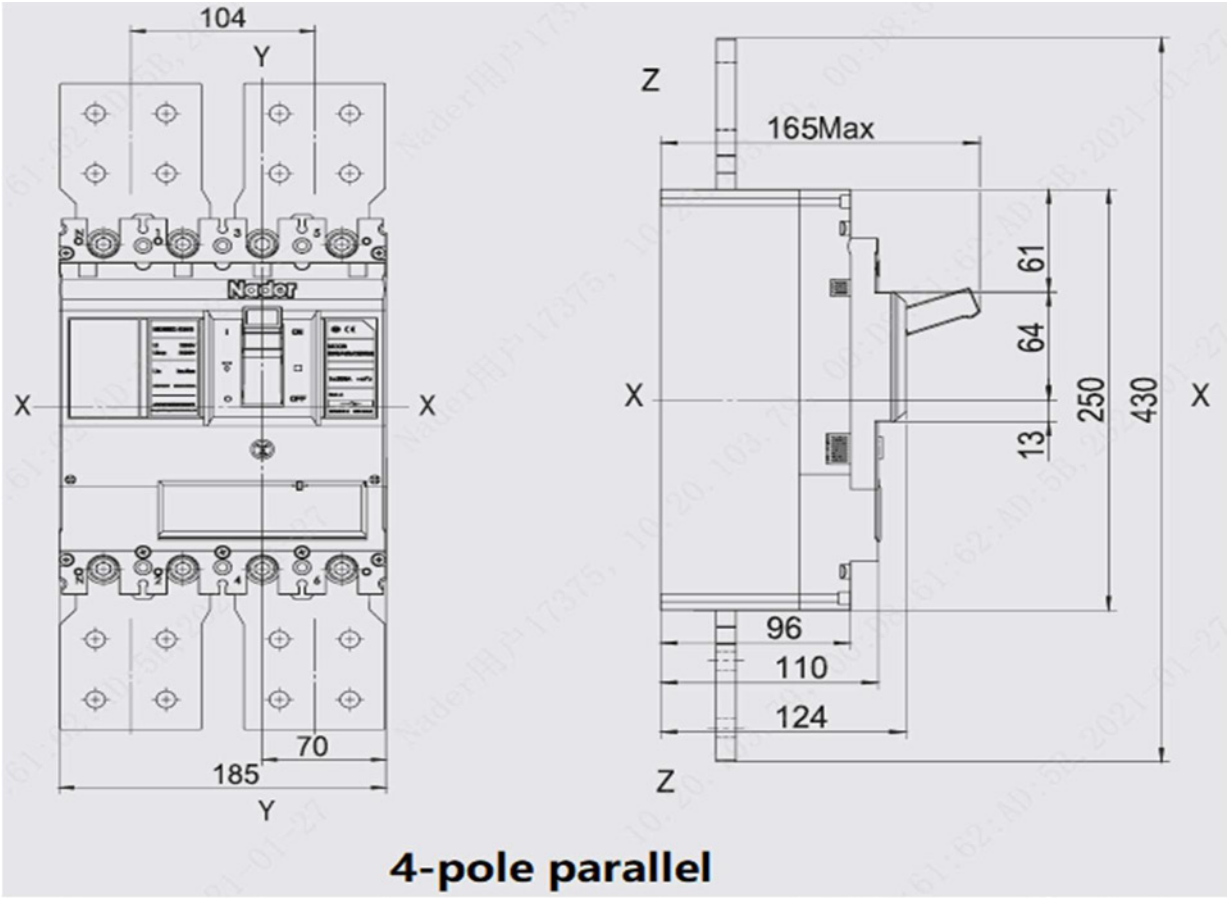


Fig 14 NDM5Z-630 outline dimensions of 4-pole in parallel

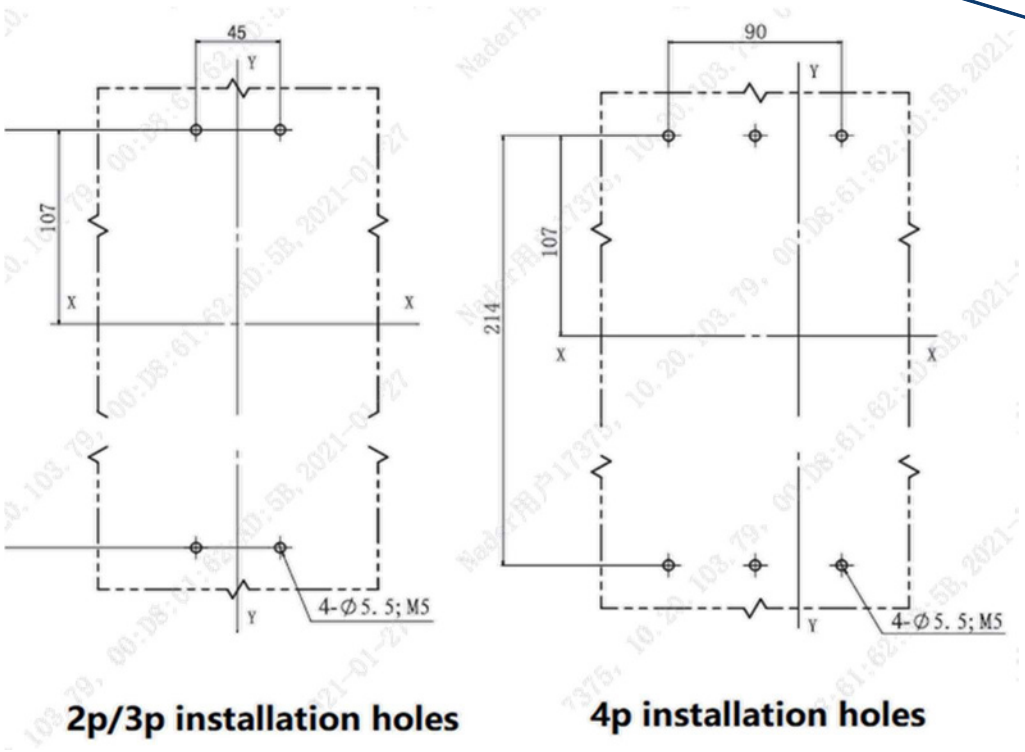


Fig 15 NDM5Z-630 installation dimensions of 2-pole 3-pole and 4-pole front panel connection products

Note：Unmarked tolerance level should follow GB/T 1804-c.

8.3 NDM5Z-400/630 outline dimensions of front panel products with extended bars.

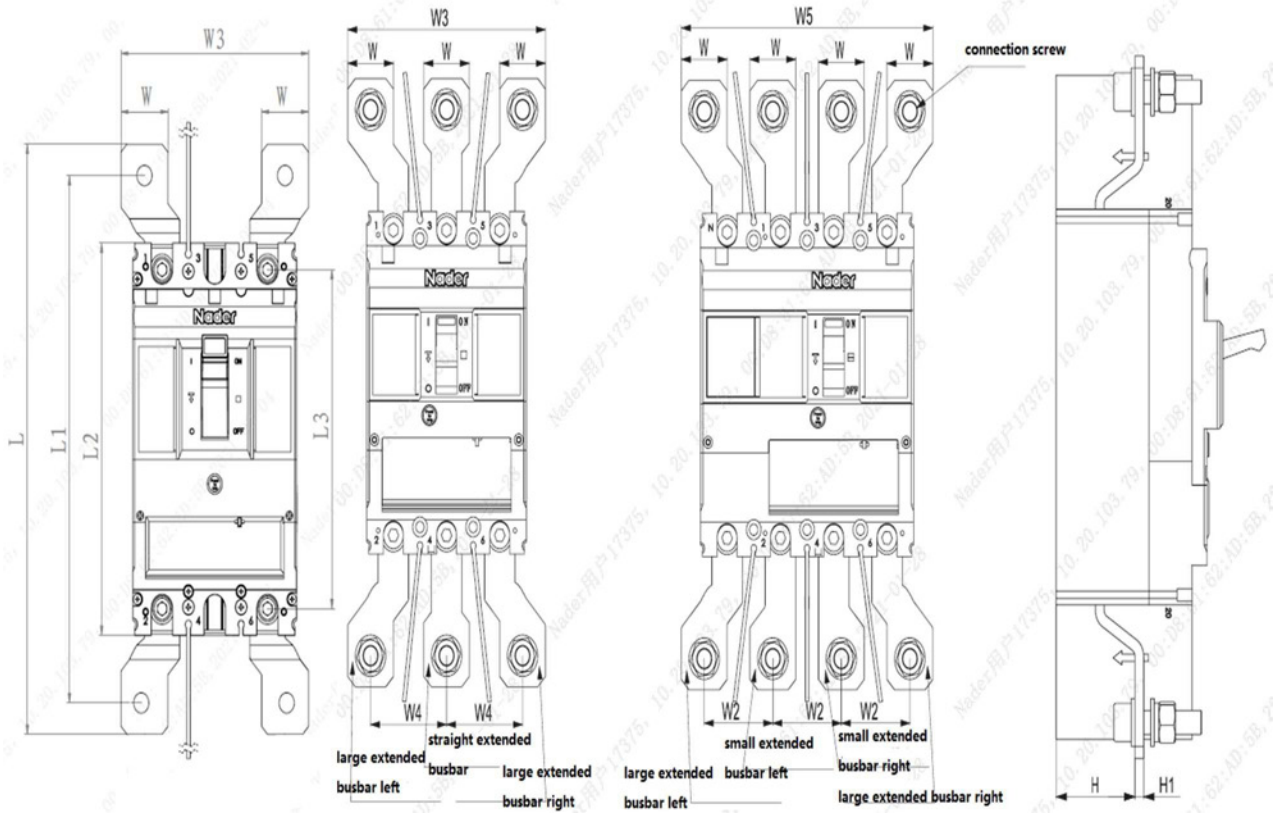


Fig 16 NDM5Z-400/630 installation dimensions of 3-pole and 4-pole front panel extended bar connection products

Table 10 NDM5Z-400/630 installation dimensions of 3-pole and 4-pole front panel extended bar connection products

Plug-in specification	Applicative circuit breaker	L	L1	L2	L3	W		Connection screws(prepared by customers)	Poles
KM1/M5-400	NDM5Z-400	376	336	250	216	40		M12×50	3、4
		W2	W3	W4	W5	H	H1		
		55	160	60	205	42	6		
Plug-in specification	Applicative circuit breaker	L	L1	L2	L3	W		Connection screws(prepared by customers)	Poles
KM1/M5-630	NDM5Z-630	376	336	250	216	40		M12×50	2
		W2	W3	W4	W5	H	H1		
		110	160	/	/	40	10		
Plug-in specification	Applicative circuit breaker	L	L1	L2	L3	W		Connection screws(prepared by customers)	Poles
KM1/M5-630	NDM5Z-630	376	336	250	216	40		M12×50	3、4
		W2	W3	W4	W5	H	H1		
		55	160	60	205	40	10		

Note 1：figure 16 shows the integrity of the extended bar connections. Users can replace the extended bars with their own connection bars according to their own needs.

Note 2：Unmarked tolerance level should follow GB/T 1804-c.

Table 11 list of extended bars

Model type	poles	Amount
		Connection bars
NDM5Z-400	3	4
	4	4
NDM5Z-630	2	4
	3	4
	4	4
	4(parallel)	0

8.4 Outline dimensions of products with accessory radiators

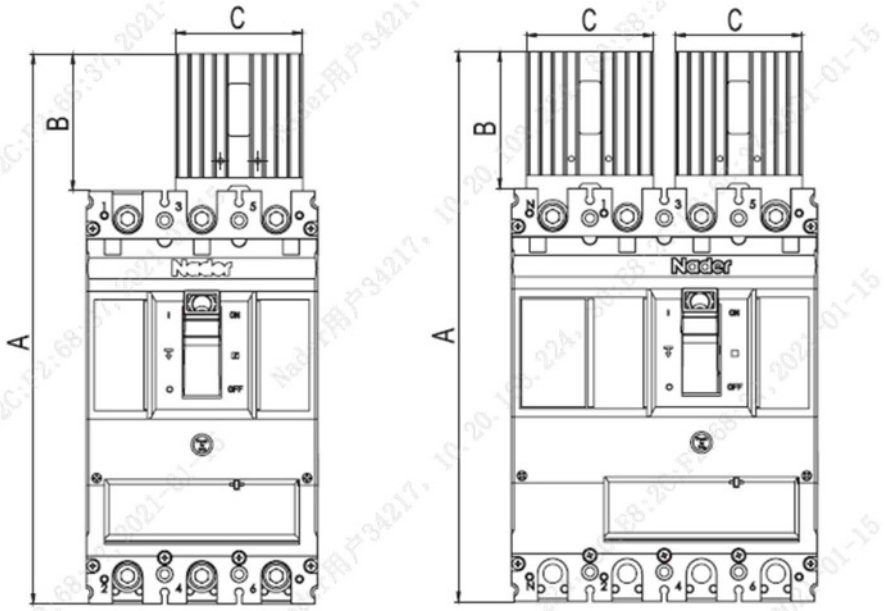


Fig 17 outline dimensions of products with accessory radiators

Table 12 outline dimensions of products with accessory radiators

Specfication of circuit breaker	A	B	C
NDM5Z-400	333	83	77
NDM5Z-630	353	103	77

Note 1：The cooling row is an optional part；

2：Unmarked tolerance level should follow GB/T 1804-c.

8.5 Outline and installation dimensions of 3-pole and 4-pole back panel connection products

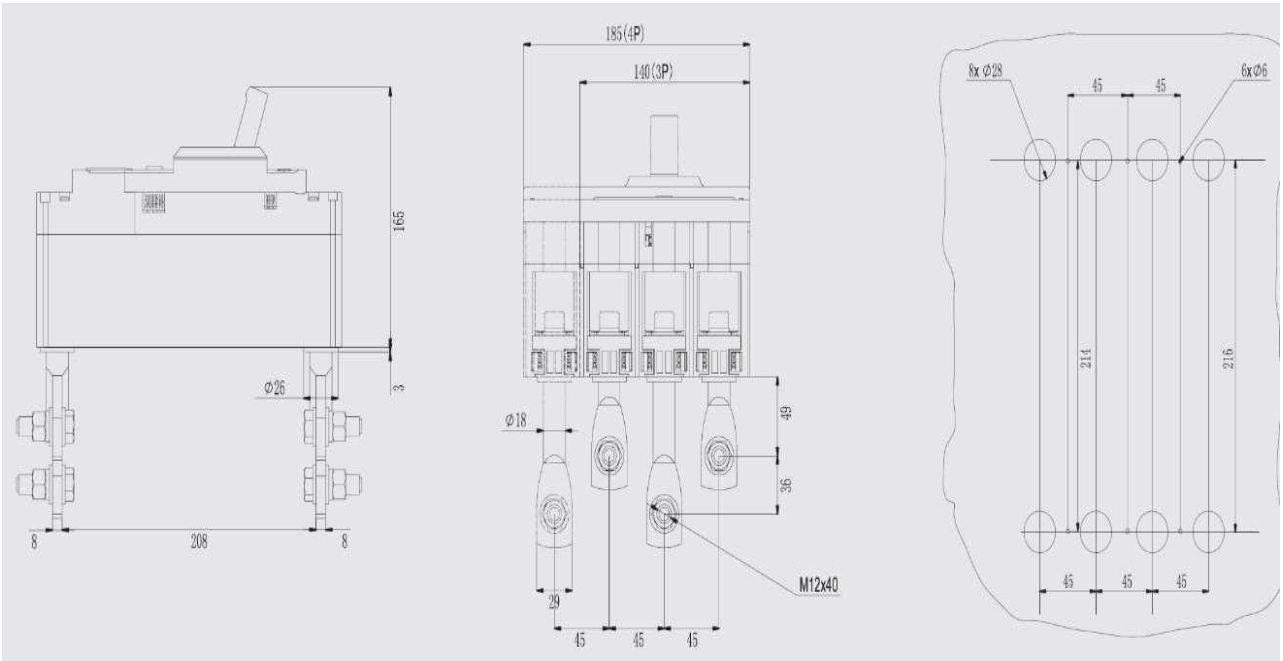


Fig 18 outline dimensions of 3-pole and 4-pole back panel connection products

Note：Unmarked tolerance level should follow GB/T 1804-c.

8. 6 Outline and installation dimensions of 3-pole and 4-pole front panel connection products with plug-in

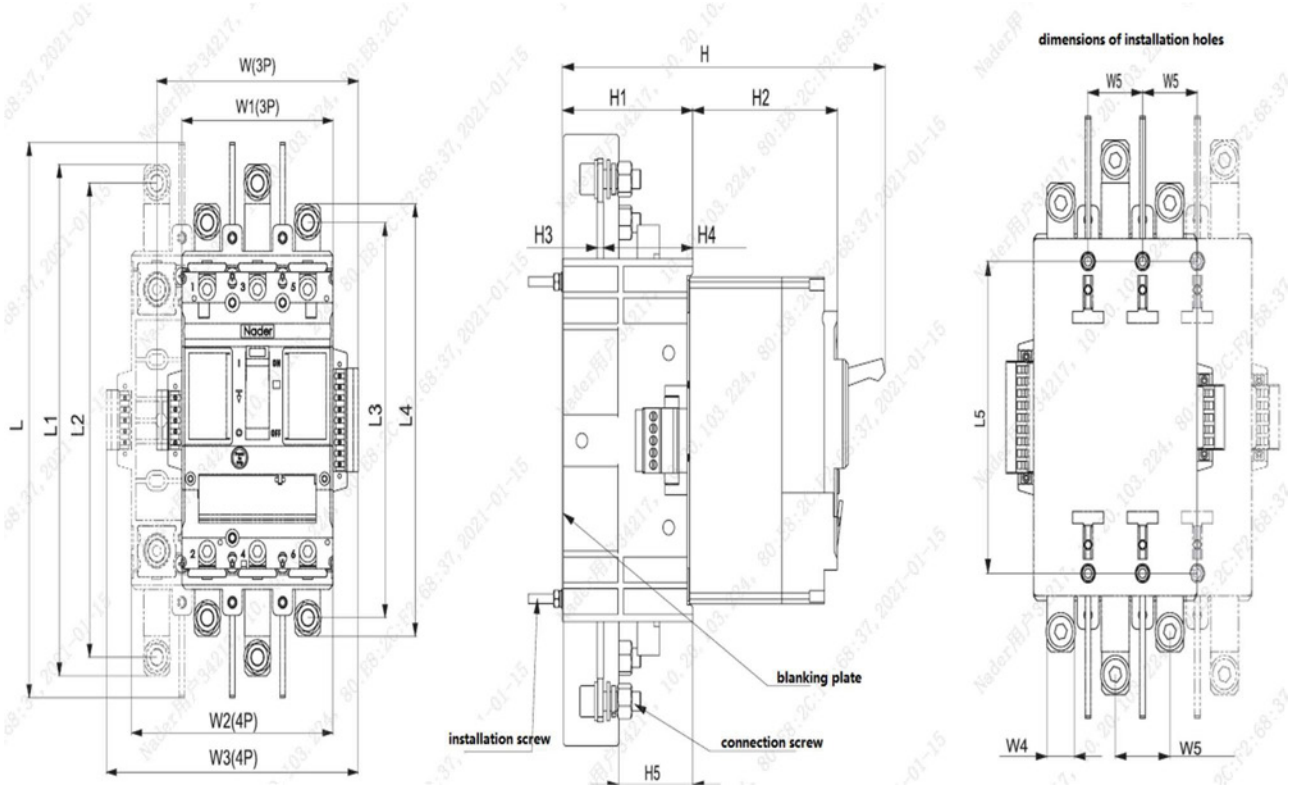


Fig 19 outline and installation dimensions of 3-pole and 4-pole front panel connection products with plug-in

Table 13 outline dimensions of front panel connection products with plug-in

Plug-in specification	Applicative circuit breaker	W	W1	W2	W3	W4	W5	L	L1	L2	Connection screw
CR1-Q/M5-630	NDM5Z-400/630	166	140	185	211	30	45	398	330	302	M10×40
Plug-in specification	Applicative circuit breaker	L3	L4	L5	H	H1	H2	H3	H4	H5	Installation screw
CR1-Q/M5-630	NDM5Z-400/630	/	/	240	267	104	107	8	66	50	M5×90

8. 7 Outline and installation dimensions of 3-pole and 4-pole back panel connection products with plug-in

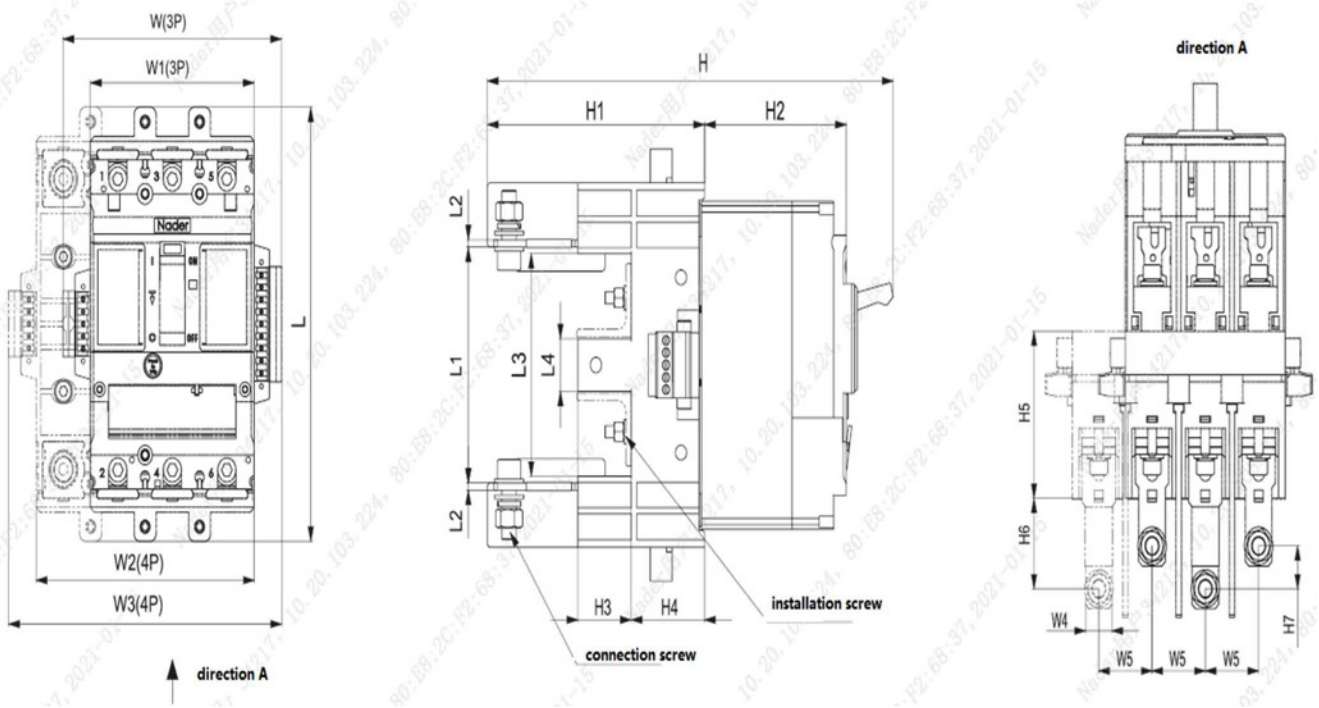


Fig 20. outline and installation dimensions of 3-pole and 4-pole back panel connection products with plug-in

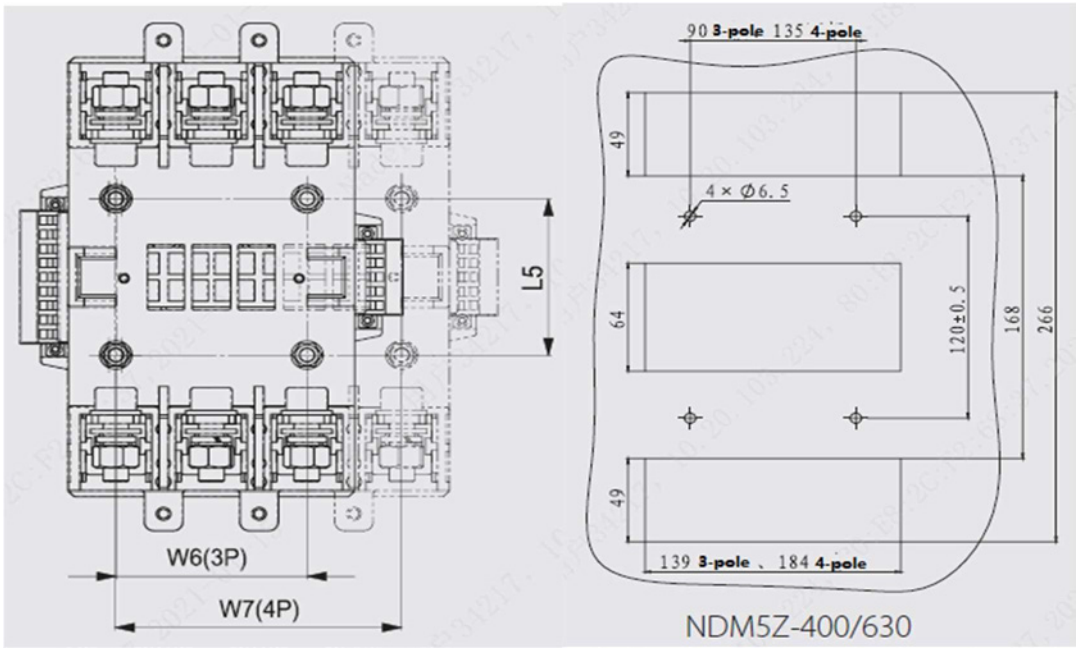


Fig 21 installation dimensions of 3-pole and 4-pole back panel connection products with plug-in, installation holes and plug-in base

Table 14 outline dimensions of 3-pole and 4-pole back panel connection products with plug-in

Plug-in specification	Applicative circuit breaker	W	W1	W2	W3	W4	W5	W6	W7	L	L1	L2	Connection screw
CR1-Q/M5-630	NDM5Z-400/630	166	140	185	211	30	45	90	135	291	182	8	M10×40
Plug-in specification	Applicative circuit breaker	L3	L4	L5	H	H1	H2	H3	H4	H5	H6	H7	Installation Screw
CR1-Q/M5-630	NDM5Z-400/630	172	60	120	311	148	108	52	52	102	23	0	M6×40

Note：Unmarked tolerance level should follow GB/T 1804-c.

8.8 Outline and installation dimensions of 3-pole and 4-pole front panel connection products with drawer

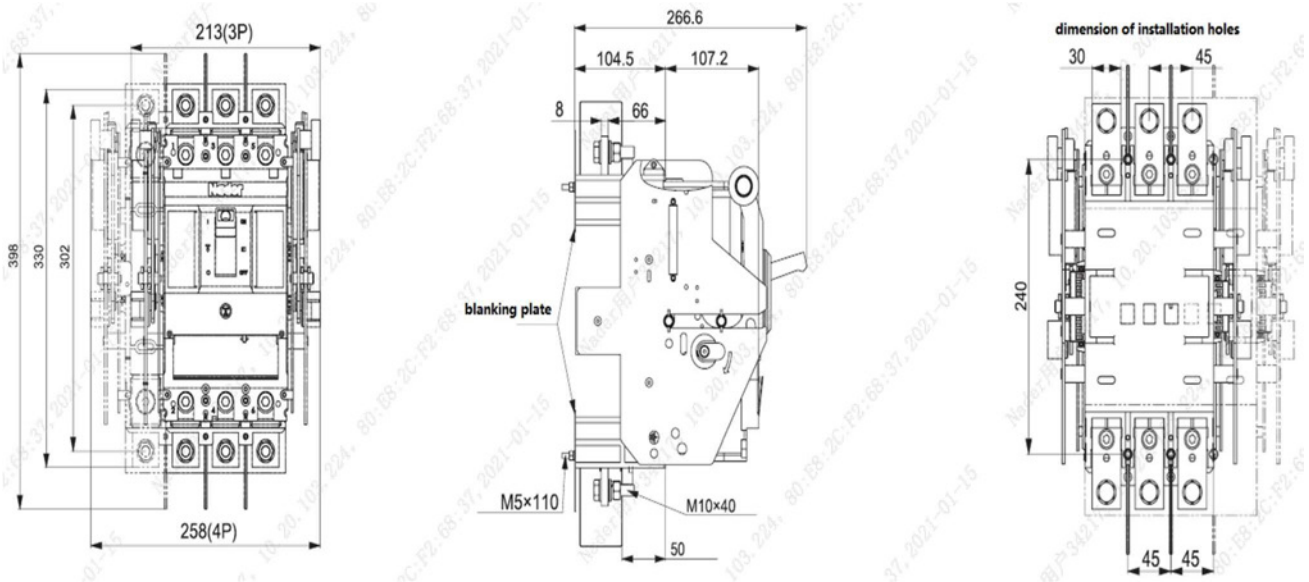


Fig 22 Outline and installation dimensions of 3-pole and 4-pole front panel connection products with drawer

Note：Unmarked tolerance level should follow GB/T 1804-c.

8. 9 Outline and installation dimensions of 3-pole and 4-pole back panel connection products with drawer

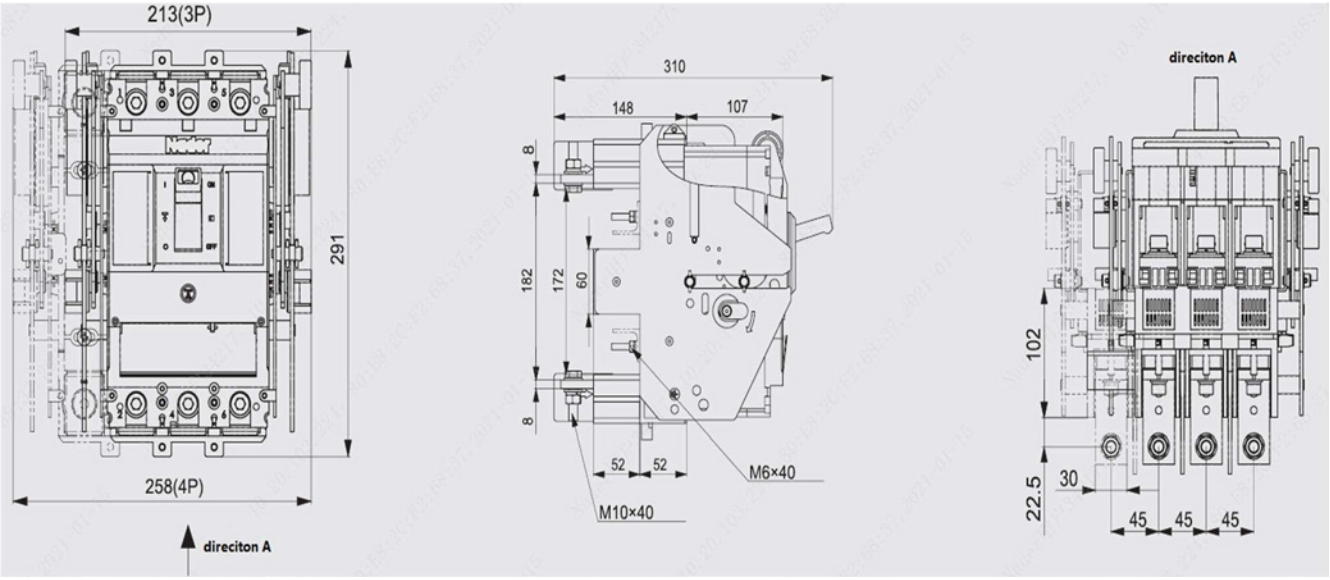


Fig 23 outline and installation dimensions of 3-pole and 4-pole back panel connection products with drawer

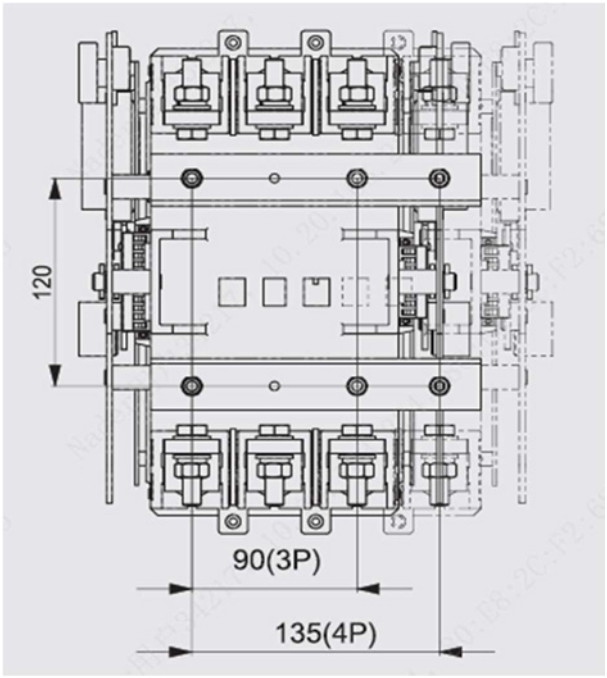


Fig 24 dimensions of installation holes on back panel connection plug

Note：Unmarked tolerance level should follow GB/T 1804-c.

8.10 Manual operation mechanism rotary handle

Installation holes of manual operation - rotary handle and outline dimensions of manual operation mechanism are shown as below.

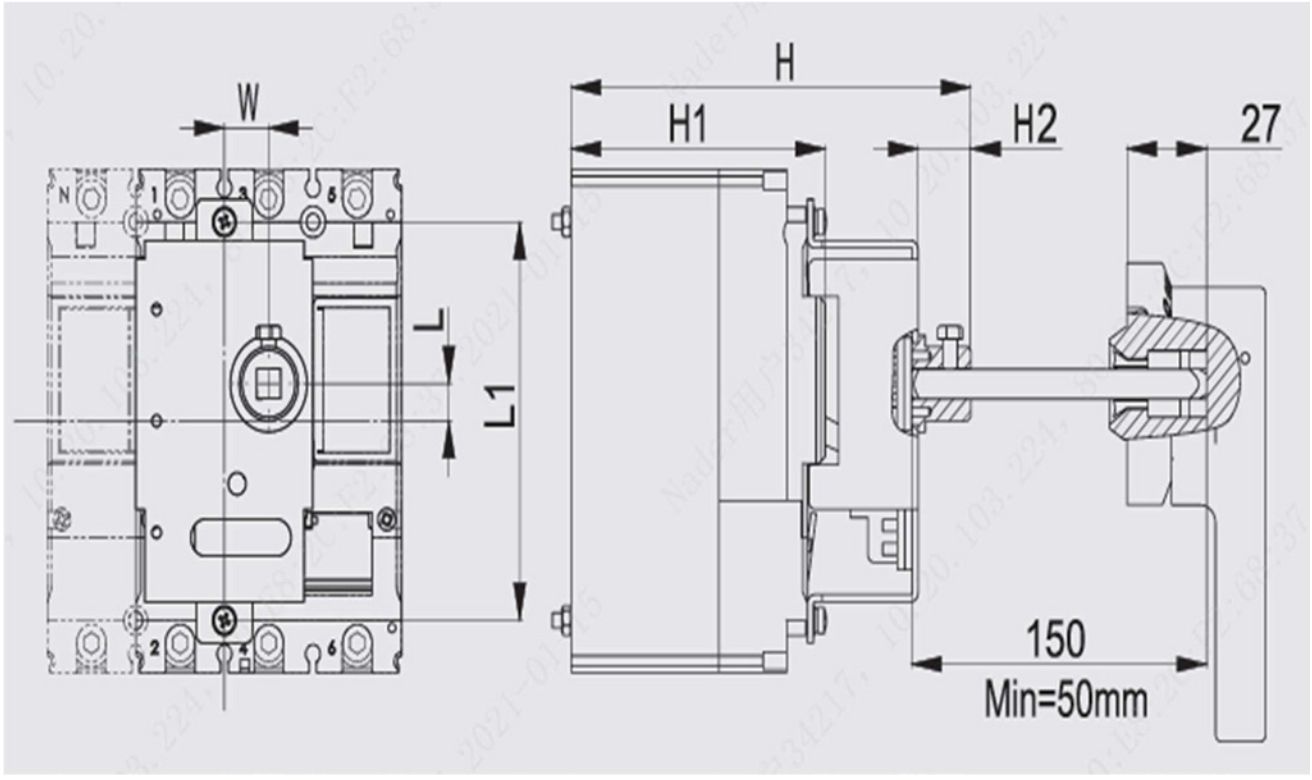


Fig 25 outline dimensions of manual operation mechanism

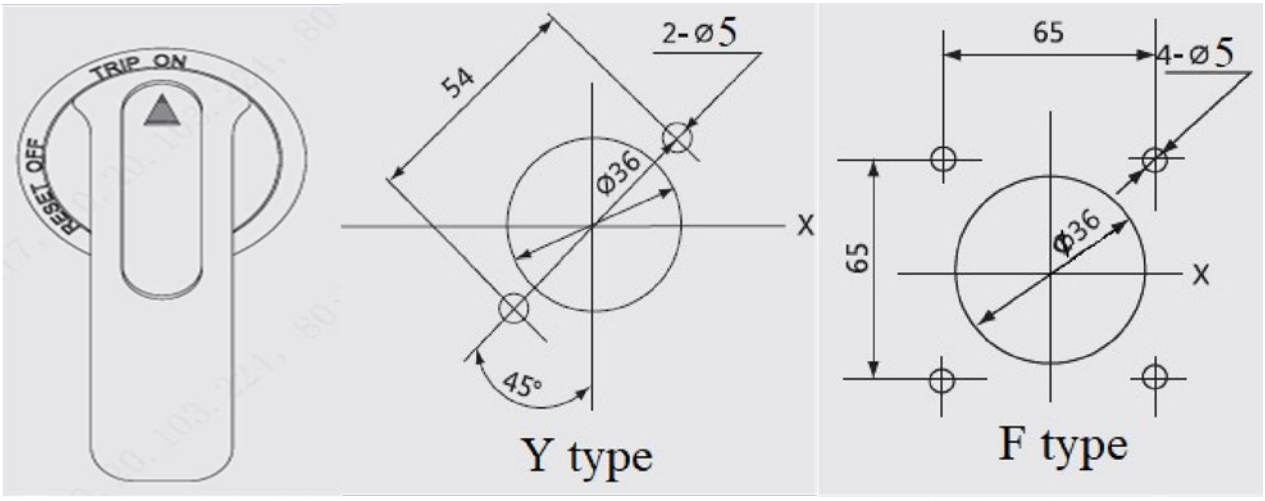


Fig 26 Installation holes of rotary handle

Table 15 outline dimensions of manual operation mechanism

manual operation mechanism	Applicative circuit breaker	W	L	L1	H	H1	H2	Specification of square shaft
SC1-Y/M5-630	NDM5Z-400/630	22. 5	19	214	203	124	18	10×10

Note：Unmarked tolerance level should follow GB/T 1804-c.

8.11 Motor operation mechanisms

Outline dimension of motor operation mechanisms-circuit breaker and its operation mechanism after installation

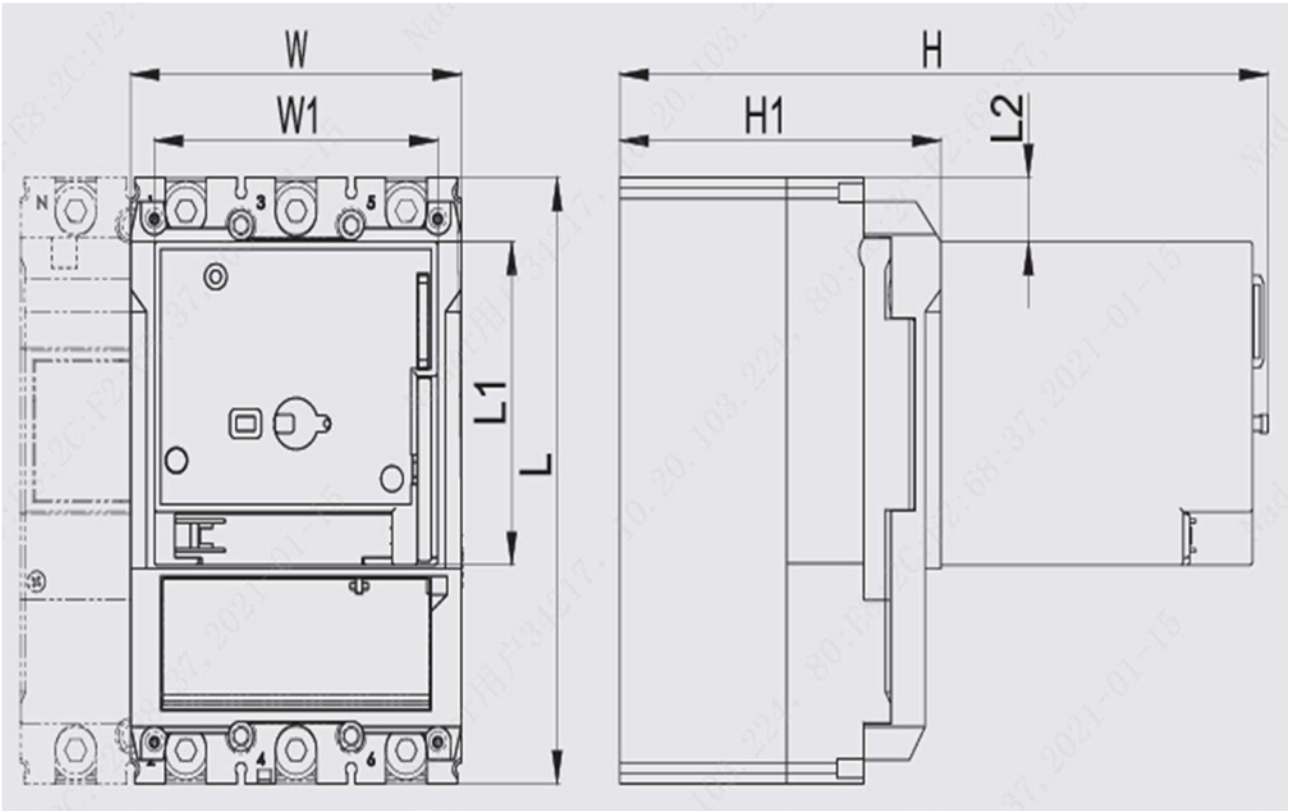


Fig 27 Outline dimension of motor operation mechanisms

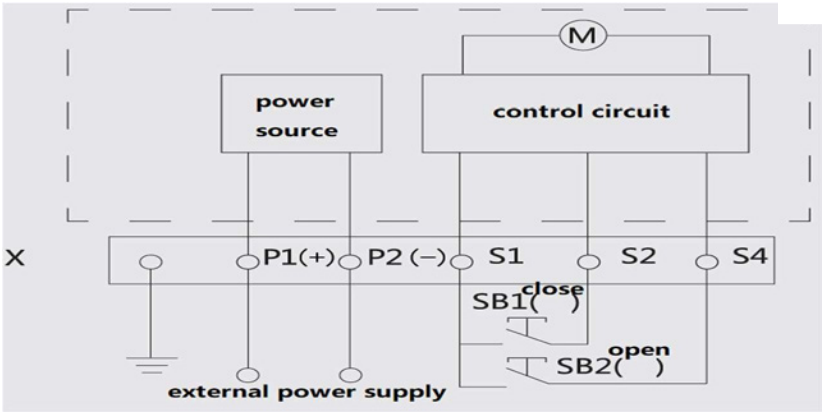


Fig 28 motor operation wiring diagram

Table 16 Outline dimension of motor operation mechanisms-circuit breaker and its operation mechanism after installation

Motor operation mechanism	Applicative circuit breaker	W	W1	L	L1	L2	H	H1
DC1-□/M5-630	NDM5Z-400/630	140	130	250	140	30	265	124

Note 1： when manual operating, the mechanism should go clockwise 180° .

2： When wiring P1 and P2 is prohibited to connect with anyone among S1 S2 S4.

3： Unmarked tolerance level should follow GB/T 1804-c.

Table 17 voltage specification and power of motor operation

Accessory name	motor operation mechanism			
voltage specification	DC24V	AC110V/DC110V	AC230V/DC220V	AC400V
power（W）	160	300	300	300

8.12 Copper bars or terminals front panel connection

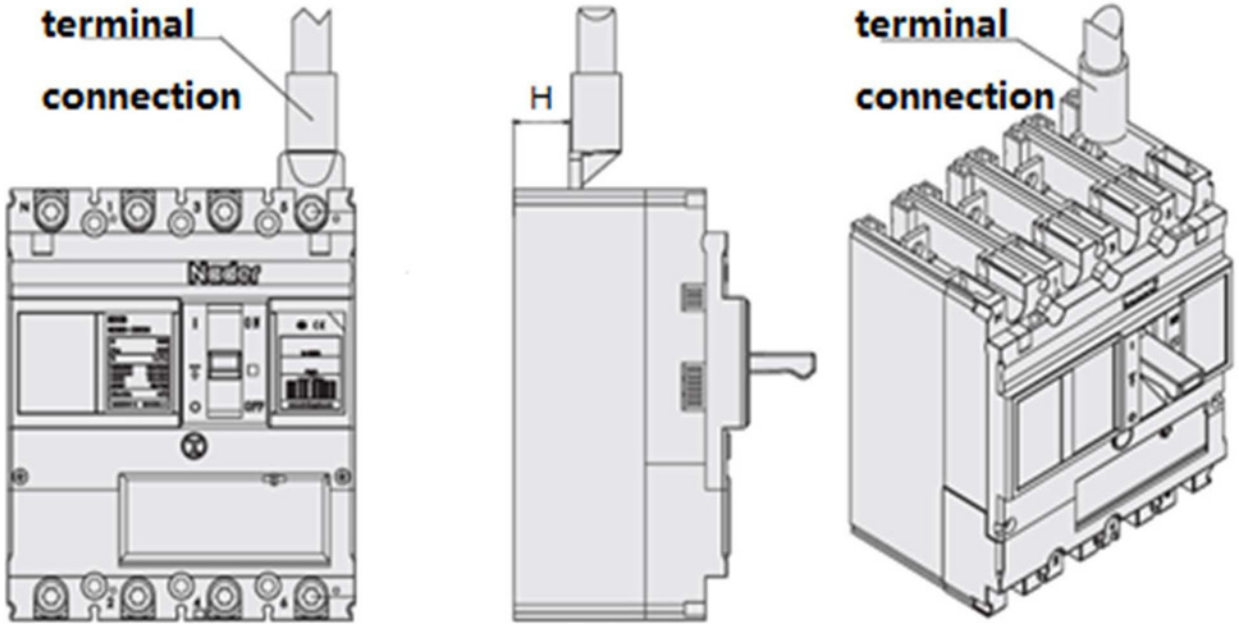


Fig 29 wiring diagram of copper bars or terminals front panel connection

Table 18 copper bars or terminals front panel connection

Model type	A(mm)	B(mm)	ΦC(mm)	H(mm)
NDM5Z-400	≤36	≤14	11	26
NDM5Z-630	≤36	≤14	11	28

Note : Unmarked tolerance level should follow GB/T 1804-c.

8.13 Safety spacing

When circuit breaker installation, see table 19 and figure30 for minimum spacing of upper, bottom flank and front plate.

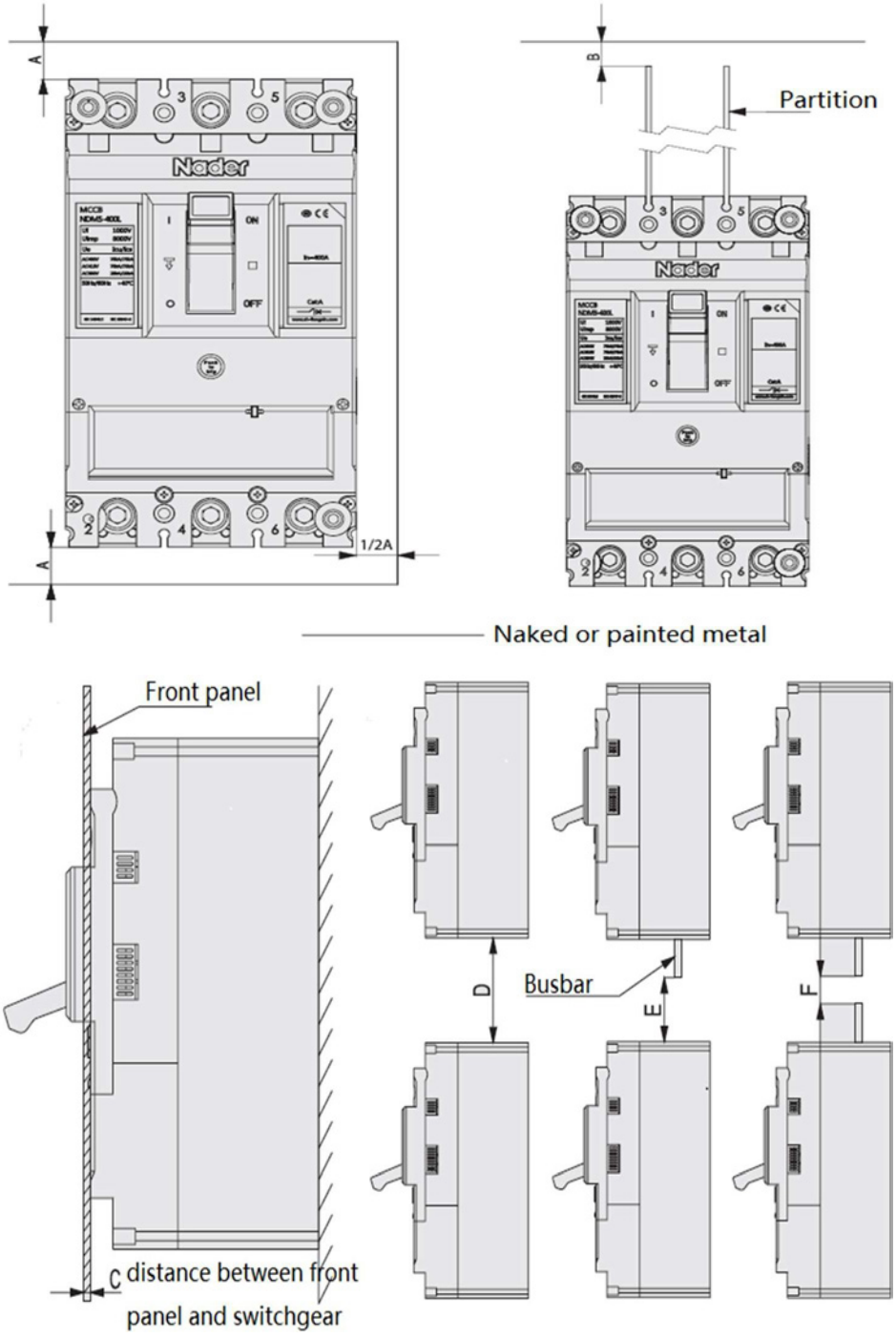


Figure 30 diagram when circuit breaker installation;

see table 19 and figure30 for minimum spacing of upper, bottom flank and front plate.

Table 19 minimum safety clearance (unit：mm)

Model type	Distance A	Distance B	Distance C	Distance D	Distance E	Distance F
NDM5Z-400/630	⩾100	⩾0	⩾0	⩾160	⩾120	⩾80
NDM5Z-630parallel	⩾100	⩾0	⩾0	⩾220	⩾150	⩾80

Note unlabeled tolerance level should follow GB/T 1804-c.

8.14 main circuit wiring options for DC products

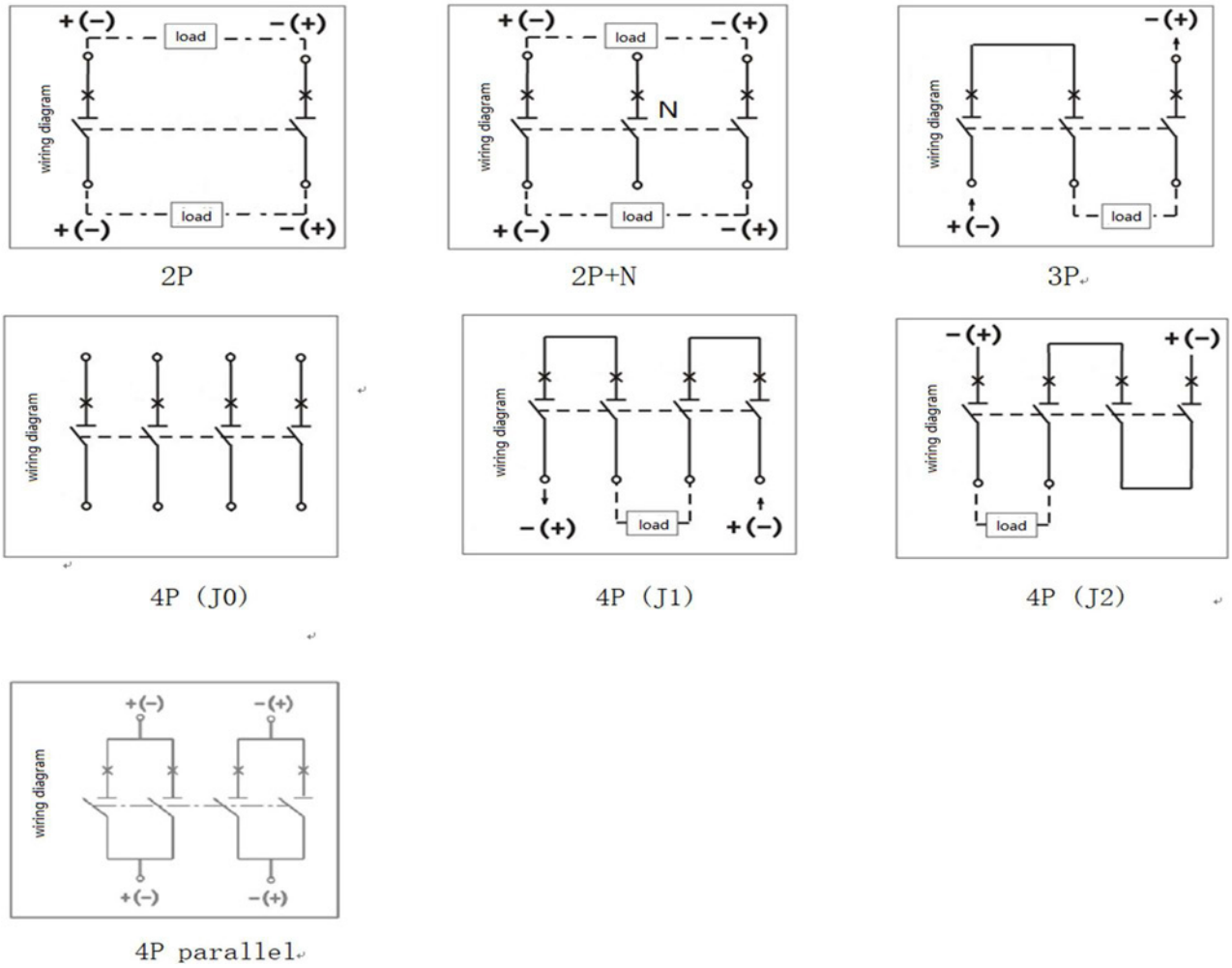


Fig 31 main circuit wiring diagrams for DC products

9、Illustration of accessory function

9.1 Under-voltage release

When the voltage is between the range of 35%～70% of the under-voltage release, it can trip the circuit breaker reliably.

When the voltage is lower than 35% of the under-voltage release, it can prevent the circuit breaker from being close.

When the voltage is higher than 85% of the under-voltage release, it can guarantee circuit breaker

make or break reliably.

Table 20 voltage specification and power dissipations of under-voltage release

Under-voltage release	power dissipations of Q1 under-voltage release（W）			Tighten torque of connecting screw
	Q11	Q22	Q40	
	AC110/DC110	AC230/DC250	AC400	
Q-□/M5- 400	0.5	1.5	2.2	1.2N.m

Fig 32 wiring diagram of undervoltage release

9.2 Shunt release

When the external voltage of the shunt release is between 70% and 110% of the rated control power voltage, the release can break the disconnecting switch reliably.

Table 21 voltage specification and power dissipation of shunt release

Shunt release	Power dissipation of FT1 shunt release（W）				Tighten torque of connecting screw
	FT02	FT04	FT11	FT22	
	AC24/DC24	AC48/DC48	AC110/DC110	AC230/DC250	
FT-□/M5- 400	20	9.5	8	20	1.2N.m

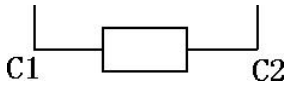


Fig 33 wiring diagram of shunt release

Note：shunt tripper is working principle：it is a single pulse action。If it needs to act again, the shunt release must be power on before it can act again.

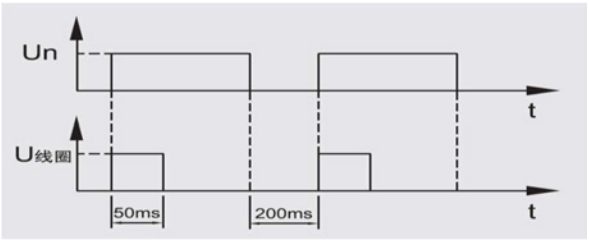


Fig.28 Working principle diagram of shunt tripper

If long-term power supply is required so that the circuit breaker cannot be closed normally, one auxiliary contact can be connected in series as shown in the figure below.

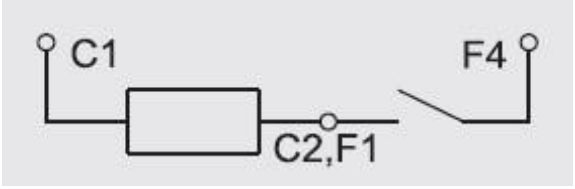
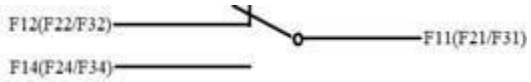
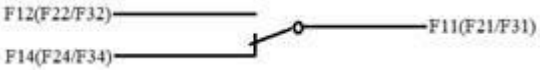


Table 23 Rated parameters of the auxiliary contact

Accessory name		Auxiliary contact (conventional)	Auxiliary contact(Low power consumption)
Voltage specifications (V)/conventional (Ith)		AC250V/10A、AC400V/3A、DC220V/0.2A	DC30V/0.1A
Wiring diagram	On, off		
	Free tripping		
Internal resistance		＜30mΩ	＜50mΩ

Note1)：If need DC30V/0.1A Auxiliary contact，please explain when ordering。

2): The first auxiliary harness is identified as F11 (red), F12 (white), F14 (yellow), and the second auxiliary harness is identified as F21 (red), F22 (white), F24 (yellow), and so on. At most three groups of auxiliary harness are installed.

9.4 Rated parameters of the alarm contact

Table 24 Rated parameters of the alarm contact

Accessory name		Alarm contact (conventional)	Alarm contact(Low power consumption)
Voltage specifications (V)/conventional (Ith)		AC250V/10A、AC400V/3A、DC220V/0.2A	DC30V/0.1A
Wiring diagram	On, off		
	Free tripping		
Internal resistance		＜30mΩ	＜50mΩ

Note 1)：If need DC30V/0.1A Auxiliary contact，please explain when ordering。

2) The first alarm harness is identified as B11 (red), B12 (white), B14 (yellow), and the second auxiliary harness is identified as B21 (red), B22 (white), B24 (yellow), and so on. At most two groups of alarms are installed.

Unless customized the default length of connection wires is 0.7 meters on under-voltage release, shunt release, auxiliary contact and alarm contact.

10、Installation direction

For vertically installed product (upright)，inclination of installation plane and perpendicular plane should no more than±22.5°/±5°.

Horizontally installed product (level)

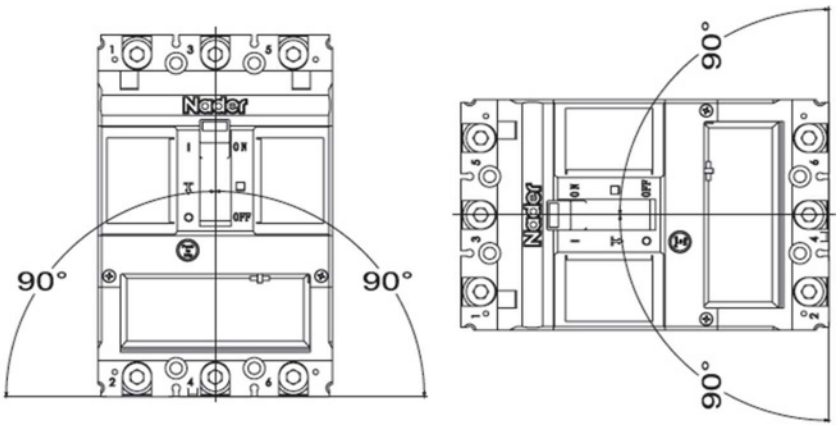


Fig 34 diagram of installation direction

Vertical installation (upright) Horizontal installation (level)

11、Packaging and Storage

Minimum packaging quantity: 1 piece/box. The packaged products should be stored in a warehouse with the ambient temperature of -40℃~75℃ and relative humidity below 80% without acidic, alkali or other corrosive gas in the surrounding air. Under the conditions above, the storage period shall be no more than 36 months since the manufacturing date.

12、Environment conformances

The environment that comply with RoHS instruction.

13、Accessory list and installation

Table 24 accessory list

SN	Name	Specification	Quantity for 2P	Quantity for 3P	Quantity for 4P
1	Cross recessed small pan head screw	M5×110	4	4	4
2	Hexagon nut	M5	4	4	4
3	Spring washer	5	4	4	4
4	Plain washer	5	4	4	4
5	Short connection bar(apolegamy)	-	-	1	2
6	NDM5Z-400 partition	-	-	3	4
	NDM5Z-630 partition	-	2	3	4
7	Hexagon socket cylindrical head combination	M10×30	4	6	8

14、Precautions

1) The performance parameters of this specification are set by the manufacturer. Only trained or certified professional personnel can adjust, install or maintain the switch disconnectors, release units and other accessories according to the wring design parameter.
2) Ensure that the power supply is off before installing or removing any device.
3) The handle of the switch disconnector can be at one of the three positions, which indicate the situation of ON OFF and TRIPPED respectively. When at the TRIPPED position, to close the switchgear, handle should be drawn toward OFF position to re-latch the switchgear and then close it.