

Shanghai Liangxin Electrical Co., Ltd.
(P03016-NDG3A-2000 Disconnecting Switch)

Product Specification

(IPD-ENG-DEV-T20 A1 2016-09-23)

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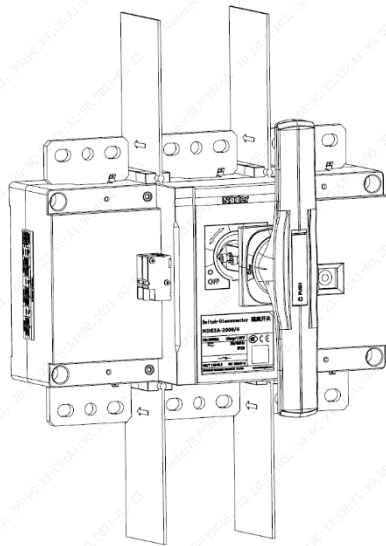
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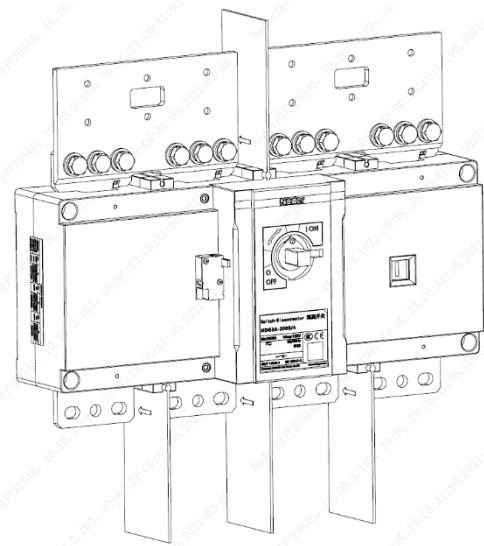
1. Application Scope and Purpose

NDG3A-2000 disconnecting switches are applicable to the AC/DC power system and mainly installed in the low-voltage distribution circuit. The products can be used for infrequent making and breaking as well as to isolate and break the circuit in the energy storage, power, construction and other industries. With the rated current of 2000A, the products are used in the power line with the rated voltage of AC690V (50/60Hz) and below, or DC500V and below.

2. Picture of the Product



NDG3A-2000/3/P



NDG3A-2000/4Z/P

3. Specifications and Models Description

ND G 3A - □/□ □/□/□
1 2 3 4 5 6 7 8

SN	Code name	Code description
1	Enterprise code	ND “Nader” low-voltage apparatus
2	Product code	G Disconnecting switch
3	Design code	3A
4	Rated current (A)	In: 1600, 1800, 2000
5	Number of poles	3: 3P; 4: 4P
6	Current Type	Uncoded: Normal product; Z: DC product
7	Handle type	P: Handle outside a cabinet ¹
8	Terminal protection	No code: Phase partition; Z3: 3P terminal guard; Z4: 4P terminal guard

4. Main Technical Parameters

Disconnecting switch			NDG3A-2000		
Agreed thermal current I _{th} (A)			2000		
Number of poles			3, 4		
Rated insulation voltage U _i (V)			1000		
Rated impulse withstand voltage U _{imp} (kV)			12		
No protection device for the rated short time withstand current I _{cw} (1s.kA effective value)			AC: 50; DC: 15		
Rated short circuit making capacity I _{cm} (kA peak value)			AC: 75 ² ; DC: 15		
Rated current I _n (A) (at +40°C)			1600(A/B)	1800(A/B)	2000(A/B)
	380VAC	AC-21A/AC-21B	1600/1600	1800/1800	2000/2000
		AC-22A/AC-22B	1600/1600	1800/1800	1800/1800
		AC-23A/AC-23B	1250/1250		
	500VAC	AC-21A/AC-21B	1600/1600		
		AC-22A/AC-22B	1250/1250		
		AC-23A/AC-23B	1000/1000		
	690VAC	AC-21A/AC-21B	1000/1000		
		AC-22A/AC-22B	1000/1000		
		AC-23A/AC-23B	500/500		
	220VDC	DC-21A/DC-21B	1250/1250		
		DC-22A/DC-22B			
		DC-23A/DC-23B			
	400VDC	DC-21A/DC-21B	1250/1250		
		DC-22A/DC-22B			
		DC-23A/DC-23B			
	500VDC	DC-21A/DC-21B	1250/1250		
		DC-22A/DC-22B			
		DC-23A/DC-23B			
Mechanical life (times)			4000		
Electrical life (times)			500		
Operating torque (N.m)			56 ³		
Installation Mode			Screw mounting		
External dimensions 4P (length×width×height, mm)			492×288×165.5		
Weight 4P (kg)			18.5		
External dimensions 3P (length×width×height, mm)			372×288×165.5		
Weight 3P (kg)			14.8		
Applicable standards			GB 14048.1, GBT 14048.3, IEC 60947-1, IEC		

	60947-3
Product certification	CCC, CE, TUV
Single-phase internal resistance (mΩ)	0.8
Minimum copper cable cross section (mm ²)	1600A: 1000; 1800A: 1500; 2000A: 1500
Minimum tightening torque of copper cable connection (N.m)	40

Note: 1) Inside-cabinet handle is not available.
 2) The rated working voltage U_e is 415V.
 3) The operating torque varies from 0 to 15%.
 4) For 4P, DC products are used in series with positive and negative polarities per 2 poles.
 5) Refer to GB/T 14048.3 for other unspecified parameter requirements.

5. Normal Working Environment

- Altitude: Below 2000m; when the altitude exceeds 2000m, the user should negotiate with the manufacturer

NDG3(A)/NDG3V Altitude Derating Factor Table					
Altitude	2000m	2500m	3000m	3500m	4000m
Power frequency withstand voltage	2200V	2200V	2200V	2000V	1800V
Correction factor of the working current	1	0.925	0.85	0.75	0.655
Correction factor of the working voltage	1	0.96	0.90	0.85	0.75

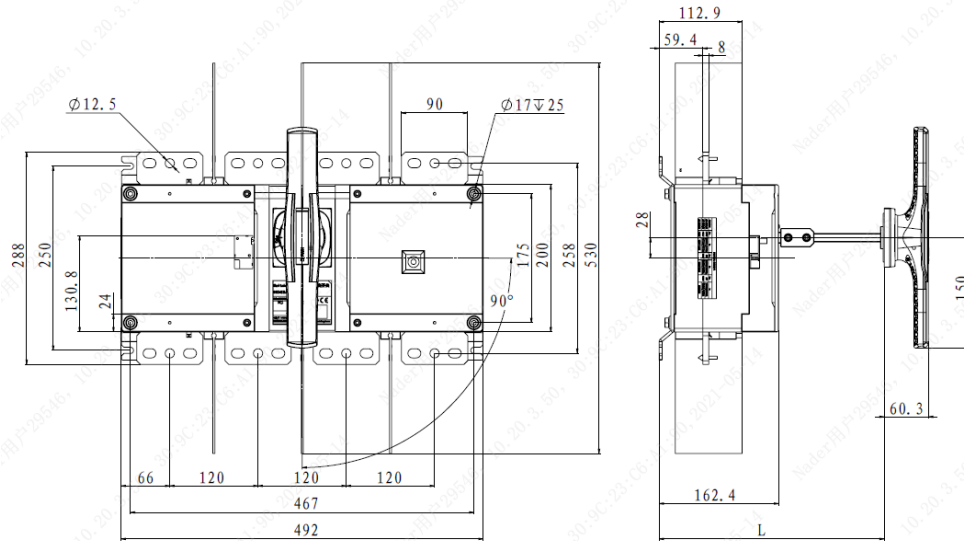
- Operating ambient temperature: -40°C~75°C (the testing ambient temperature of UPS is 40°C); when the ambient air temperature is above +70°C, the user should negotiate with the manufacturer

NDG3(A)/NDG3V Ambient Temperature Derating Factor Table					
Ambient temperature	70°C	75°C	80°C	85°C	90°C
Power frequency withstand voltage	2200V	2200V	2200V	2200V	2200V
Correction factor of the working current	1	0.95	0.9	0.8	0.7
Correction factor of the working voltage	1	1	1	1	1

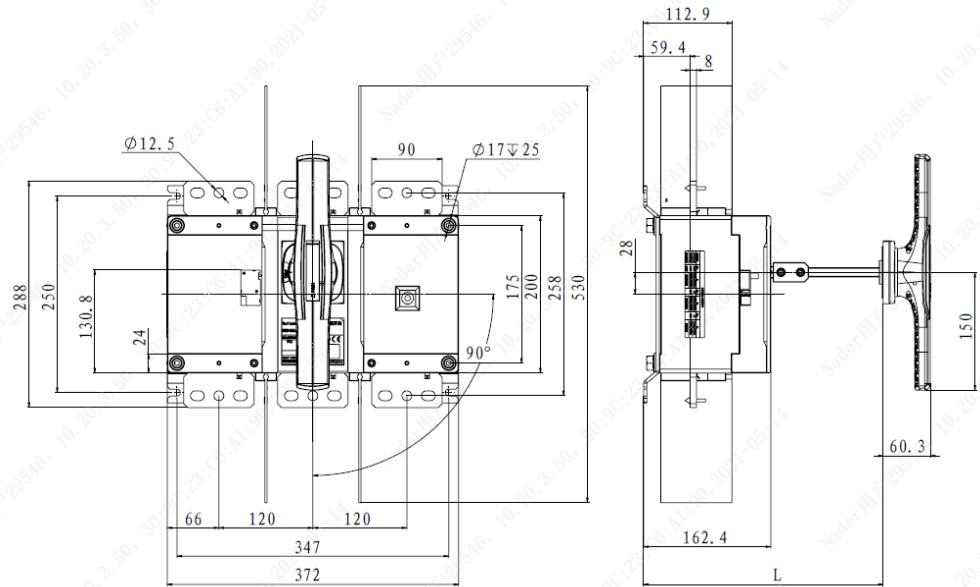
- Operating/storage relative humidity: The relative humidity at an ambient temperature of +40 should not exceed 50%. A higher relative humidity is allowed at a lower humidity
- The product can be disposed in places that are free from explosive media, media corrosive to metal, insulation damaging gas, and conductive dust; the product should be avoided from snow and rain
- Protection class: IP20 for the complete appliance, handle outside a cabinet: IP65
- Storage environment: -50°C~+80°C
- Pollution level: Level 3
- Installation category: III and IV
- Environmental requirements comply with RoHS2.0 directives

6. Outline and Installation Dimensions

Body+phase partition+handle outside a cabinet



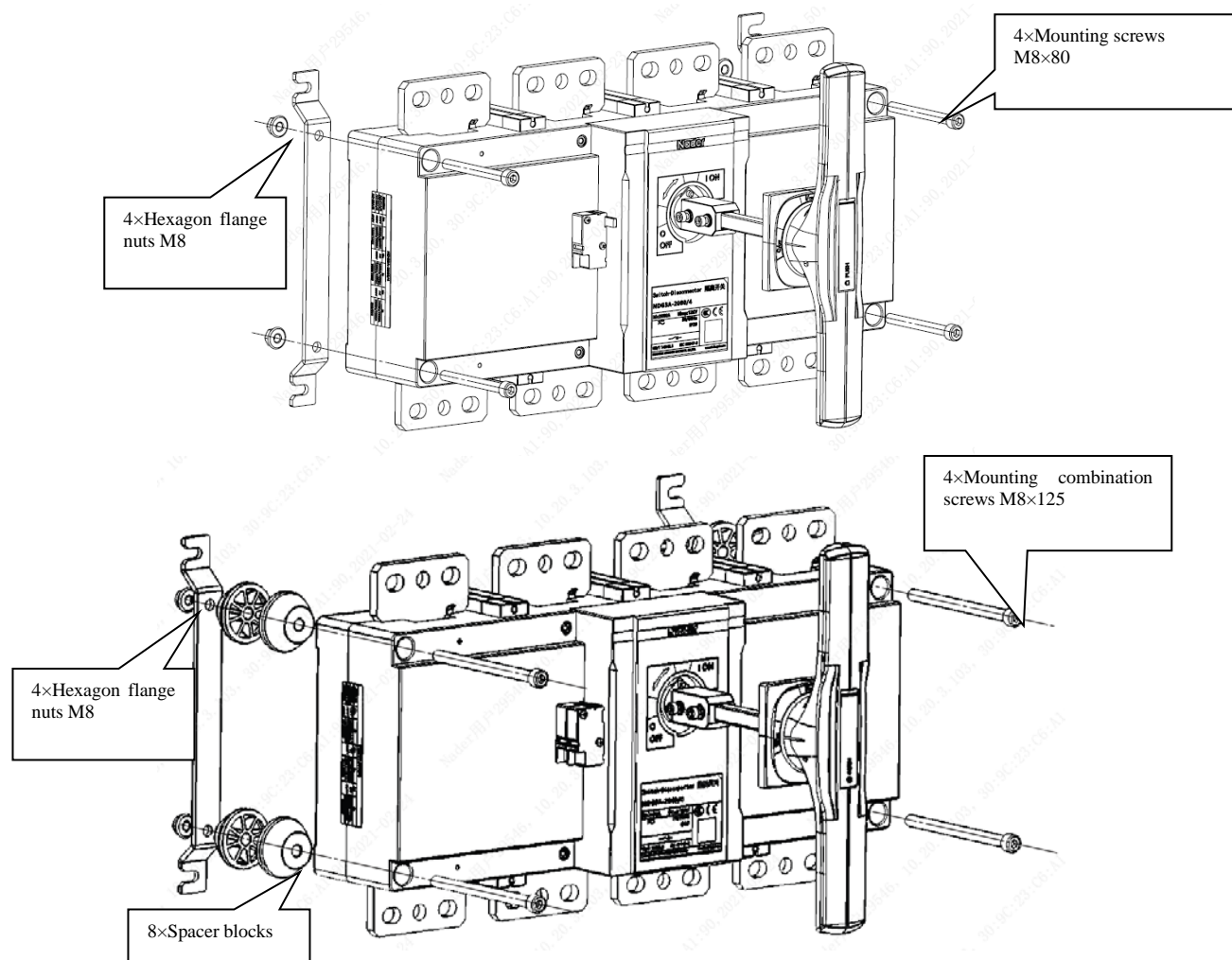
$L = "A" + 156$ (unit: mm, A: Square shaft length of handle outside a cabinet)



$L = "A" + 156$ (unit: mm, A: Square shaft length of handle outside a cabinet)

7. Installation Mode

7. 1. Installation of the product body and spacer block

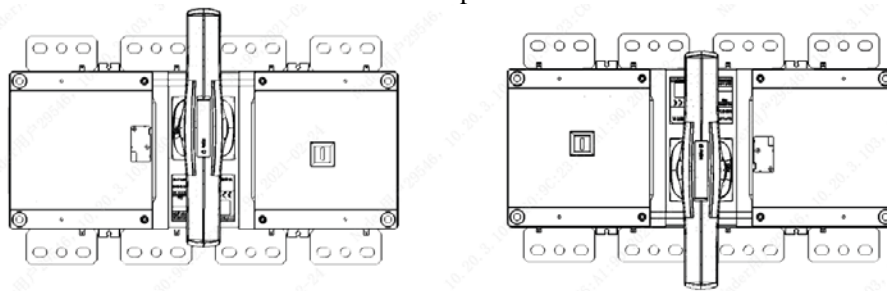


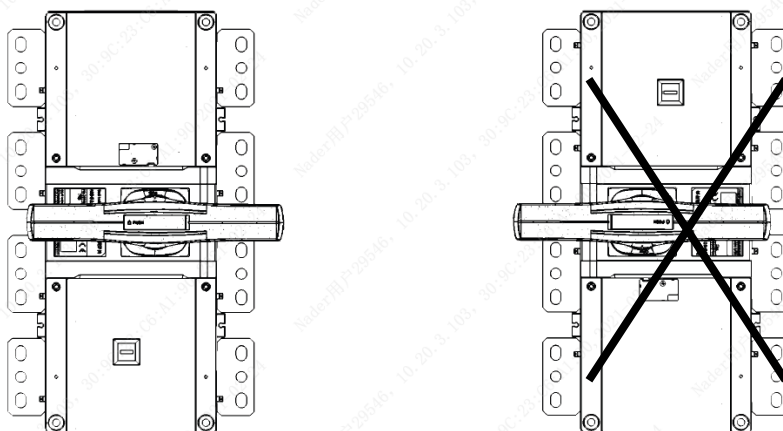
7. 2. Product installation position description

Products can be installed vertically and horizontally.

In case of vertical installation, the contact inspection window shall not position upward, as the 4th method shown in the figure below.

The inclination of the vertical installation plane shall not be more than 5°.





8. Packaging and Storage

To be packaged with wooden cases. With the terminal protected with an anti-oxidation sleeve, the product is covered with a moisture-proof bag and fixed in the box. Each box contains a single unit. Dropping test is in accordance with *LXW18.203-15 Product Drop Experiment Inspection Speculation A1*.

9. Environmental Compliance

The product complies with the RoHs2.0 environmental standards.

10. List of Accessories and Installation

10. 1. Optional accessories list

SN	Name	Accessories installation and quantity
1	Handle	Mounted on the cabinet door, connected to the body with square shaft
2	Auxiliary contact	Mounted on the front left of the main switch, up to two units
3	Short bus bar	Mounted on the Terminal board of the main switch, to achieve the connection with the main pole
4	Terminal guard	Installed above the wiring terminal of the main switch for enhancing protection

10. 1. 1. Handle model interpretation:

SB 1 - □ / □
1 2 3 4

SN	SN description	Code description
1	Function code	SB handle
2	Design SN	1
3	Square Shaft Code	200: Shaft length 200mm 400: Shaft length 400mm
4	Applicable	Applicable switch model for the handle outside a cabinet:

	switch model	G3A-2000: Applicable to NDG3A-2000, 1800, 1600
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10. 1. 2. Auxiliary contact model interpretation

F 1 - 11 □ □ /G3A-2000
1 2 3 4 5 6

SN	SN description	Code description
1	Function code	Auxiliary contact
2	Design SN	1
3	Pairs of contacts	11: One NO, one NC
4	Specification	C: AC230V/16A, DC250V/0.3A, DC125V/0.6A
5	Installed quantity	A: One for each unit B: Two for each unit
6	Applicable switch model	G3A-2000: Applicable to NDG3A-2000, 1800, 1600

Note: Rated parameters of the auxiliary contact

Electrical parameters:

Rated working voltage	AC230V	DC250V	DC125V
Rated working current	16A	0.3A	0.6 A

Rated insulation voltage: AC1000V

Agreed thermal current: Ith: 16A

Rated frequency: 50/60Hz

Utilization category: AC-15, DC-13

Protection class: IP20

Electrical life: 20,000 times

Standard certification: GB/T 14048.5

Comply with ROHS 2.0

10. 1. 3. Short busbar (for DC product) model interpretation

MX 1 - □ / □
1 2 3 4

SN	SN description	Code description
1	Function code	Short busbar
2	Design SN	1
3	Number of poles	4
4	Applicable switch model	G3A-2000: Apply to NDG3A-2000, 1800, 1600

10.1.4. Terminal guard model interpretation

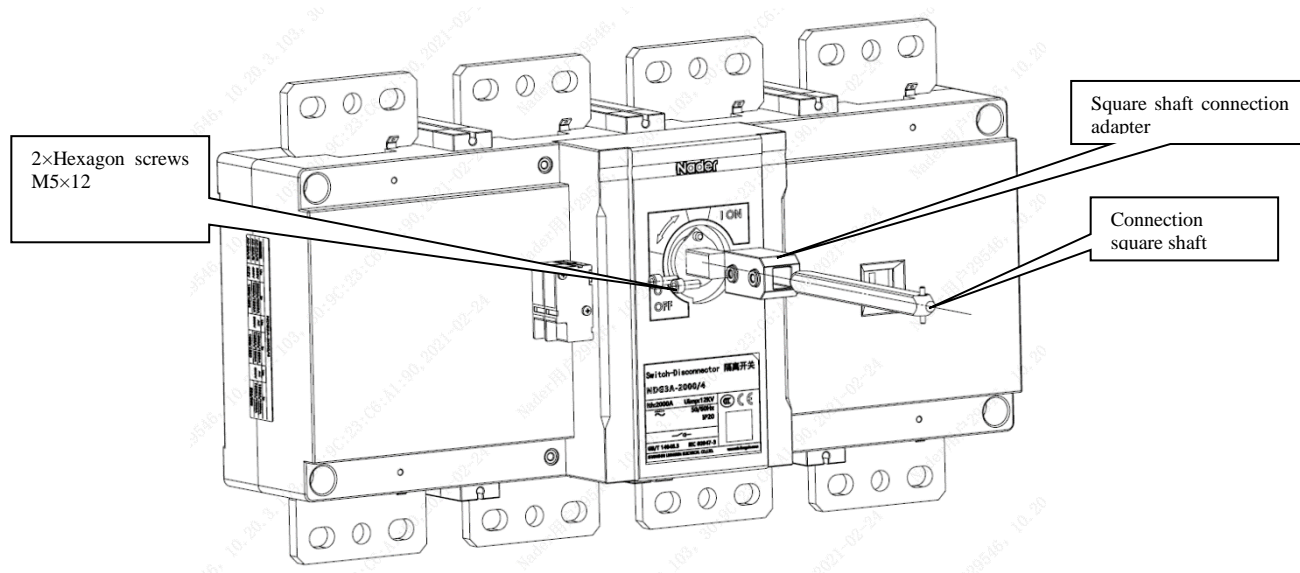
$\frac{Z}{1}$ $\frac{1}{2}$ - $\frac{\square}{3}$ / $\frac{\square}{4}$

SN	SN description	Code description
1	Function code	Terminal guard
2	Design SN	1
3	Number of poles	3, 4
4	Applicable switch model	G3A-2000: Apply to NDG3A-2000, 1800, 1600

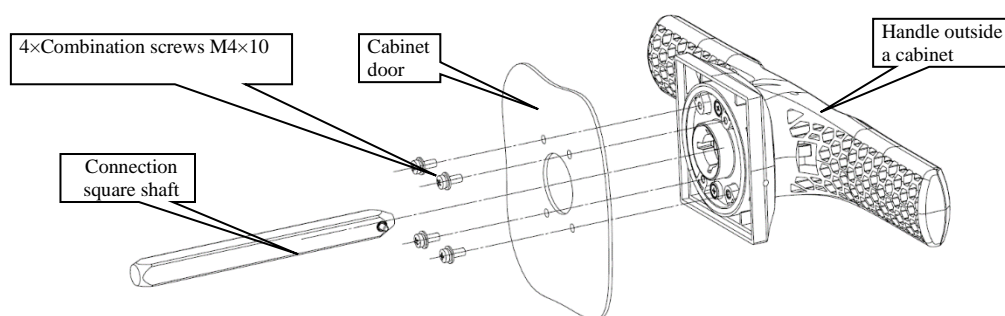
10.2. Installation mode

10.2.1. Installation of the handle outside a cabinet

10.2.1.1. Connection square shaft installation of the handle outside a cabinet

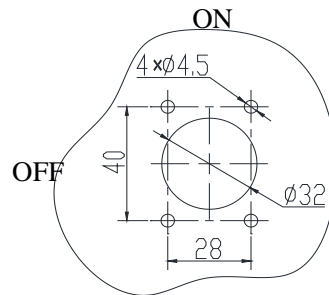


10.2.1.2. Cabinet door installation of the handle outside a cabinet

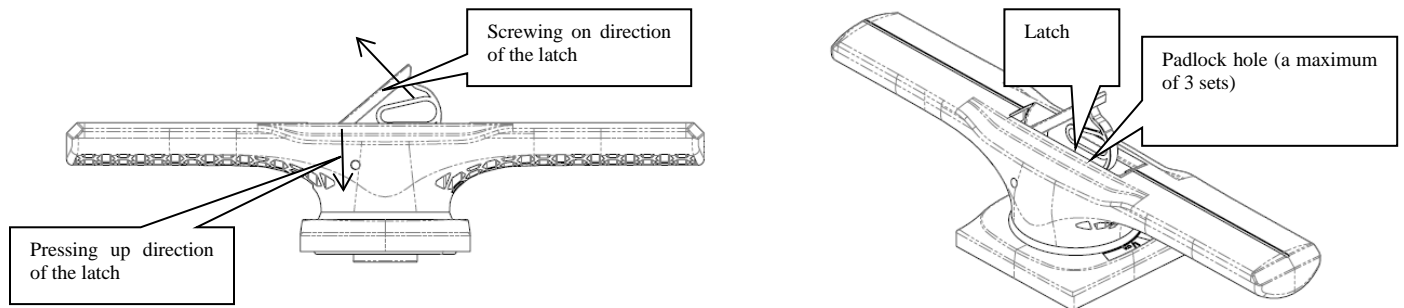


Note: Handle ON/OFF position corresponds to the product ON/OFF position.

10.2.1.3. Cabinet door mounting hole dimensions of the handle outside a cabinet

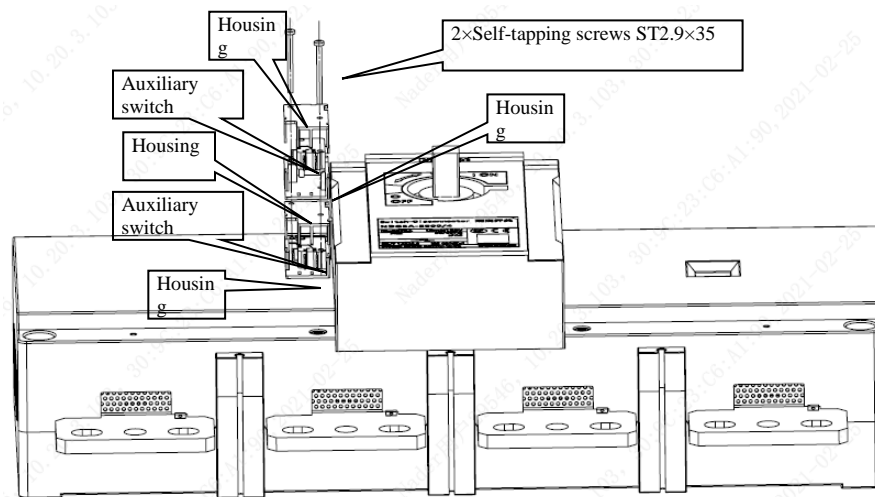


10.2.2. Handle's padlock

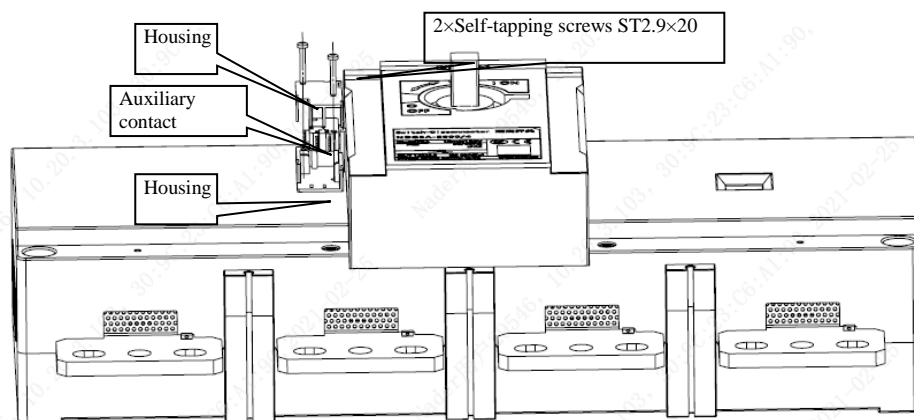


Note: Padlock is only available when the handle is in the OFF position

10.2.3. Auxiliary contact installation

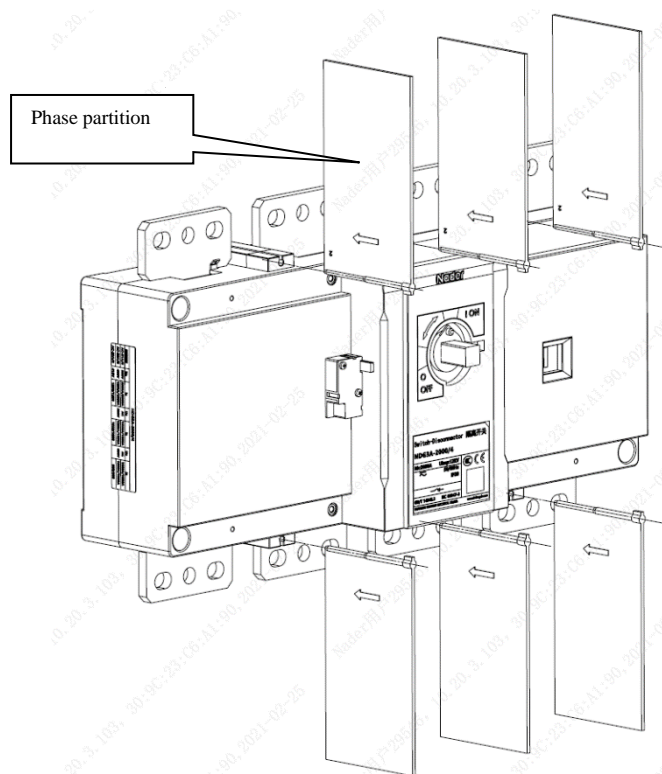


Dual-auxiliary contact installation

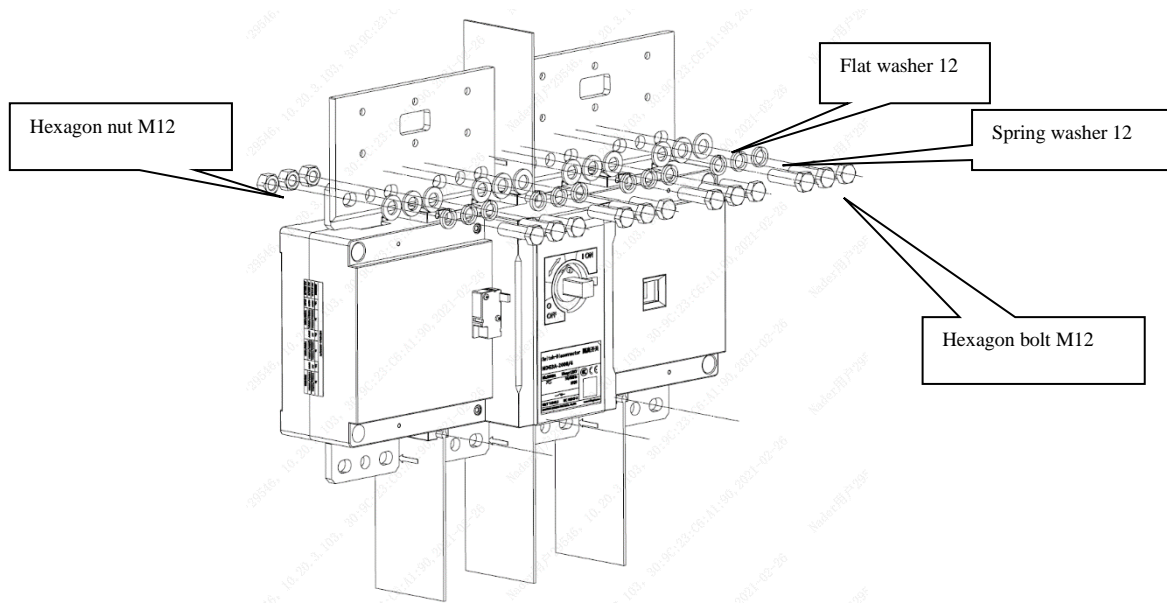


Single auxiliary contact installation

10. 2. 4. Installation of the phase partition and short busbar



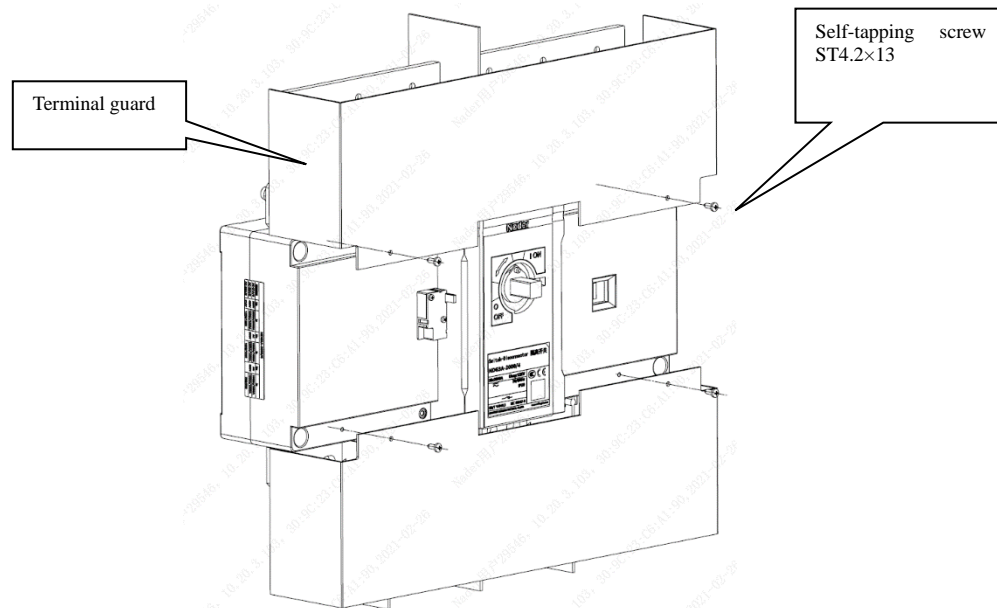
Installation of the phase partition for the basic product



Installation of the phase partition for the product with short busbar

Note: Insert the phase partition into the slot in the direction of arrow and press it evenly.

10.2.5. Terminal guard installation



Note: The terminal guard is folded at right angles along the bend and flattened, and then tightened with tapping screws.

11. Precautions

- 1) A user must be responsible for addressing a product issue that occurs because the user disassembles the product without approval
- 2) Do not touch the non-insulated exposed parts of the disconnecting switch when it is connected to a power supply

- 3) The connecting conductor shall be fastened onto the frame of the power distribution cabinet. The switch shall not undertake the weight of the conductor. Before fastening the conductor, it is required to make the plane of the busbar or cable terminal in parallel to that of the wiring terminal of the switch. After the conductor is connected with the wiring terminal of the switch by using the bolts, the switch shall not undertake any mechanical stress
- 4) Reliable cabling is required to prevent the terminals from being burnt out due to abnormal heat at the terminals