

Shanghai Liangxin Electrical Co., Ltd.
(NDG3-315/400 Disconnecting Switch)
Product Specification
(IPD-ENG-DEV-T20 A1 2016-11-15)

Prepared by	Ding Yingying	Date	2023.12.12
Reviewed by	Liu Donghui	Date	2023.12.13
Countersigned by	Fan Cong	Date	2023.12.20
Approved by	Hu Qi	Date	2024.01.03



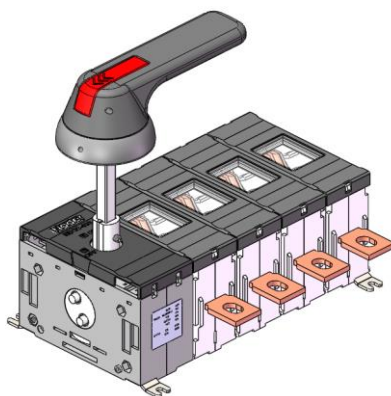
Revision History					
Version	Revision Reason/Content	Implementati on Date	Prepared by	Reviewe d by	Approve d by
0	New addition	20231212	Ding Yingying	Liu Donghui	Hu Qi



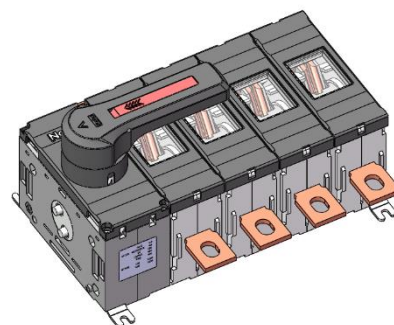
1. Applicable Scope and Purpose

The NDG3-315/400 disconnecting switch is applicable to the electric system with the rated current of 315/400A and the rated voltage of AC380/400/415V, AC500V, AC660/690V/1000V (50/60Hz) or DC500V (3 poles in series), DC 1000V (4 poles in series) and below. The product can be used for infrequent making and breaking, to isolate and break the circuit at the voltage up to 1000V. It can be widely used in the main switch of various equipment and machine's motor control center, and has an excellent performance in solving the DC breaking problem for the current solar photovoltaic system.

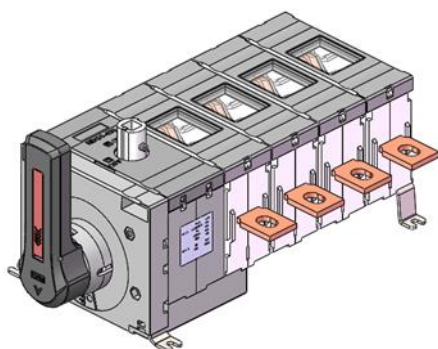
2. Picture of the Product (The picture below is for reference only; please subject to the kind)



Front cabinet outside a cabinet operation

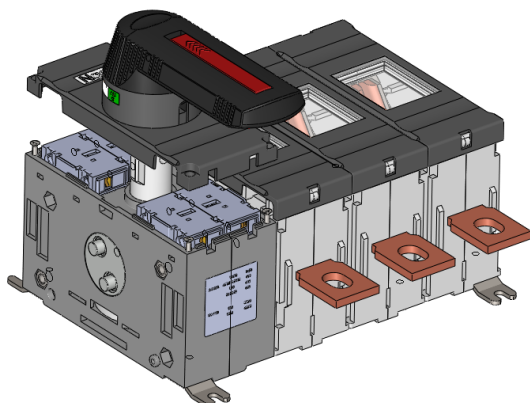


Front inside-cabinet operation

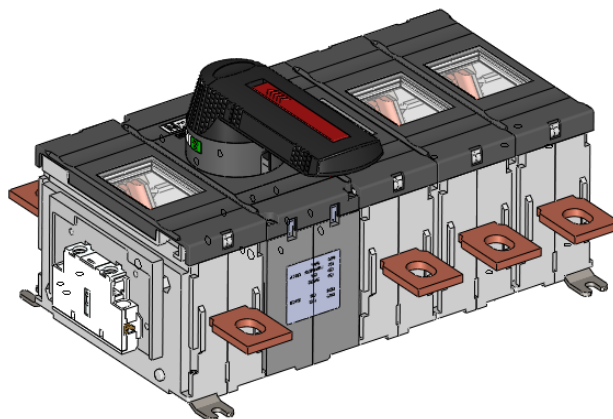


Side operation





Internal auxiliary accessory



External auxiliary accessory

Note: The above picture is for structural reference, the specific appearance is subject to the actual.

3. Specification and Model Description

3.1 Product model description of disconnecting switch body:

ND G 3 - 400 / 04 A Z P
 1 2 3 4 5 6 7 8

SN	Code name	Code description
1	Enterprise code	ND
2	Product code	G Isolating switch
3	Design SN	3
4	Rated current (A)	315 400
5	Number of poles	03: 3P (mechanism is located on the left side of the switch) 12: 3P (mechanism is between the switch poles, applicable to the front operation) 04: 4P (mechanism is located on the left side of the switch) 22: 4P (mechanism is between the switch poles, applicable to the front operation)
6	pole type	No code: Without the neutral pole product A: N pole (neutral pole) product and other products with the same phase pole B: N-pole feed-through neutral pole product
7	Operation mode	Z: Front operation C: Side operation
8	Handle type	P: Handle and shaft to be installed outside the cabinet (the product is not provided with a handle, which shall be ordered separately, see “Common Handle Specifications” for details) K: Handle to be installed inside the cabinet (direct operation handle)

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Note: 1) only 3 poles 03 and 4 poles 04 are available for the NDG3-□/□□CK product;

2) For the pole type with Type A or B, only 4 poles are available for the product with the neutral pole;

3) Side operation products only support inside handle operation, not outside the cabinet operation products.

4) Common specifications and models.

SN	Type	Specification	Product number (ordering code)
1	Front cabinet outside a cabinet operation	NDG3-400/03ZP	30001696
2		NDG3-400/12ZP	30001697
3		NDG3-400/04ZP	30001698
4		NDG3-400/22ZP	30001699
5	With n-pole neutral pole	NDG3-400/04AZP	30001702
6		NDG3-400/04BZP	30001703
7	Front inside-cabinet operation	NDG3-400/03ZK	30001704
8		NDG3-400/04ZK	30001705
9	Side operation	NDG3-400/03CK	30001706
10		NDG3-400/04CK	30001707

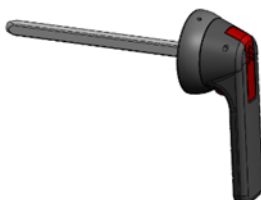
3.2 Model description of disconnecting switch accessories:

3.2.1 Selection of IP65 handle outside a cabinet

SB 1 -130/G3-400

1 2 3 4

SN	Code name	Code description
1	Accessory code	SB
2	Design SN	1
3	Square shaft length	166: Shaft length 166mm; 185: Shaft length 185mm; 250: Shaft length 250mm; 280: Shaft length 280mm; 325: Shaft length 325mm; 395: Shaft length 395mm; 465: Shaft length 465mm; 535: Shaft length 535mm.
4	Body model	G3-400, suitable for NDG3-315/400/500/630/800 products.



3.2.2 Auxiliary switch selection

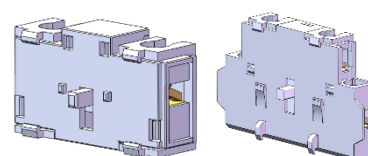
N G F 1 - 01

1 2 3 4 5

SN	Code name	Code description
1	Accessory code	N
2	Supporting product code	G Isolating switch
3	Auxiliary code	F
4	Design SN	1
5	Mechanism form	01: NC structure form 10: NO structure form 11: NO-NC structure form. (When the model is selected, the mounting base must be selected at the same time)

Note: General auxiliary specifications

SN	Type	Specification	Product number (ordering code)
1	01 NC structure	NGF1-01	30000961
2	10 NO structure	NGF1-10	30000962
3	11 NO-NC structure	NGF1-11	30000396



3.2.3 Selection of mounting base model (Borrow NDG3-250)

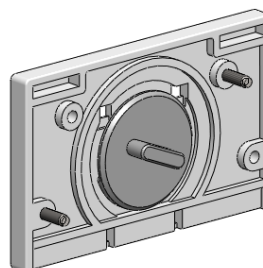
N G A 1 - 1 / 250

1 2 3 4 5 6

SN	Code name	Code description
1	Accessory code	N
2	Supporting product code	G Isolating switch
3	Mounting base code	A
4	Design SN	1
5	Installation type	1: Side-hang mounting base
6	Specification	250: NDG3-250

Note: Mounting base specifications

SN	Specification	Product number (ordering code)
1	NGA1-1/250	30001510



3.2.4 Terminal cover selection

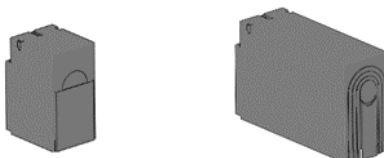
N G Z 1 - 400 / 1 L

1 2 3 4 5 6 7

SN	Code name	Code description
1	Accessory code	N
2	Supporting product code	G Isolating switch
3	Terminal cover code	Z
4	Design SN	1
5	Specification	400: suitable for NDG3-400
6	Pole usage type	1: For the single pole
7	Terminal cover type	S: Short terminal cover L: Long terminal cover

Note: Terminal cover specifications

SN	Type	Specification	Product number (ordering code)
1	Short terminal cover	NGZ1-400/1S	30001682
2	Long terminal cover	NGZ1-400/1L	30001683



Note: Each terminal cover is equipped with 1, the above product number includes 1 set of 6, for a 3-pole product.

4. Main Technical Parameters

4.1 Main parameters of the disconnecting switch

Product model	NDG3-315	NDG3-400
Agreed thermal current I _{th} (A)	400	
Number of poles	3, 4	
Rated insulation voltage (V)	1000	
Rated impulse withstand voltage U _{imp} (kV)	12	



Rated working current (A)	Utilization category	Rated voltage (V)	NDG3-315	NDG3-400	
	AC-23A	380/400/415	315	400	
		500	315	400	
		660/690	315	400	
		1000	315	400	
	DC-21B poles in series	500	315	400	
		1000	315	400	
Rated short-time withstand current I _{cw} (kA)			31/0.15s	20/0.5s	15/1s
Rated short circuit making capacity I _{cm} (kA peak value)			50		
Electrical life			1000 times		
Mechanical life			10000 times		
Minimum cross-sectional area of conductor (mm ²)			Main product :150 mm ² ; Auxiliary :0.75-2.5mm ²		
Terminal screw specifications (metric system: diameter×length mm)			Main product: M10×35; Auxiliary: M3.5×9.5		
Terminal tightening torque (locking torque Nm)			Main product: 30-44Nm; Auxiliary: 0.8Nm;		
Operating torque (N.m)			15		
Weight (Kg) (guide rail and screw installation without accessories)			2.2		
Installation mode			Baseplate screw installation		

- Comply with standards: IEC 60947-3, GB/T 14048.3;
- Frequency: 50/60Hz;
- Certificates: CCC, CE;

4.2 Main parameters of the auxiliary switch

- Electrical parameters

Rated working voltage:	AC230V	AC400V	AC690V	DC220V
Rated working current:	6A	4A	2 A	0.6 A

- Rated insulation voltage: AC690V



- Rated impulse withstand voltage U_{imp} : 4kV
- Agreed thermal current: I_{th} : 16A
- Rated frequency: 50/60Hz
- Minimum applicable load: DC24V/10mA
- Utilization category: AC-15, DC-13
- Protection class: IP20
- Electrical life: 20000 times
- Standard certification: GB/T 14048.5, comply with ROHS

5. Normal Working Environment

- 1) The ambient air temperature is $-40^{\circ}\text{C}\sim 70^{\circ}\text{C}$, and its average temperature within 24h shall not exceed $+35^{\circ}\text{C}$.

With the ambient temperature of 75° , the maximum rated current is derated to 350A;

With the ambient temperature of 80° , the maximum rated current is derated to 300A;

With the ambient temperature of 85° , the maximum rated current is derated to 280A. Other current is not derated.

- 2) See the table below for the high altitude derating:

Altitude (m)	2000	3000	3500	4000
Rated insulation voltage	1000V	1000V	1000V	1000V
Impulse withstand voltage	12kV	12kV	12kV	12kV
Power frequency withstand voltage	3500V	3000V	2600V	2200V
Rated working voltage	1000V	1000V	1000V	800V
Rated working current	Not derated			

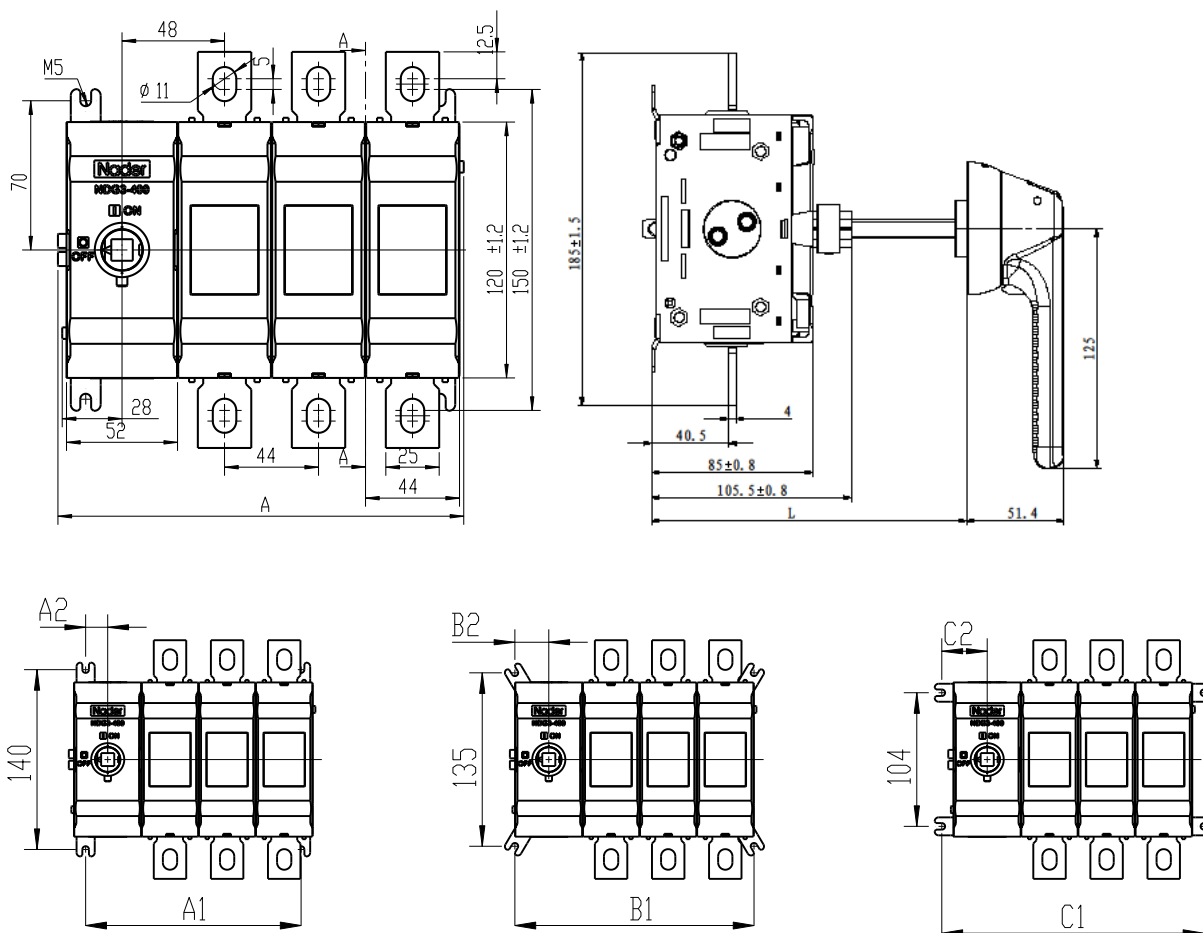
- 3) The relative humidity at an ambient temperature of $+40^{\circ}\text{C}$ should not exceed 50%. A higher relative humidity is allowed at a lower temperature. For example, it can be 95% at 20°C . Special measures should be taken to address occasional condensing due to temperature fluctuation.
- 4) 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.
- 5) The product is applicable in an environment with pollution class III.
- 6) Installation category of III and IV.



6. Product outline and Installation Dimensions (Unit: mm)

6.1 Outline and installation dimensions of front operation product outside a cabinet

6.1.1 Mechanism is located on the left side of the switch

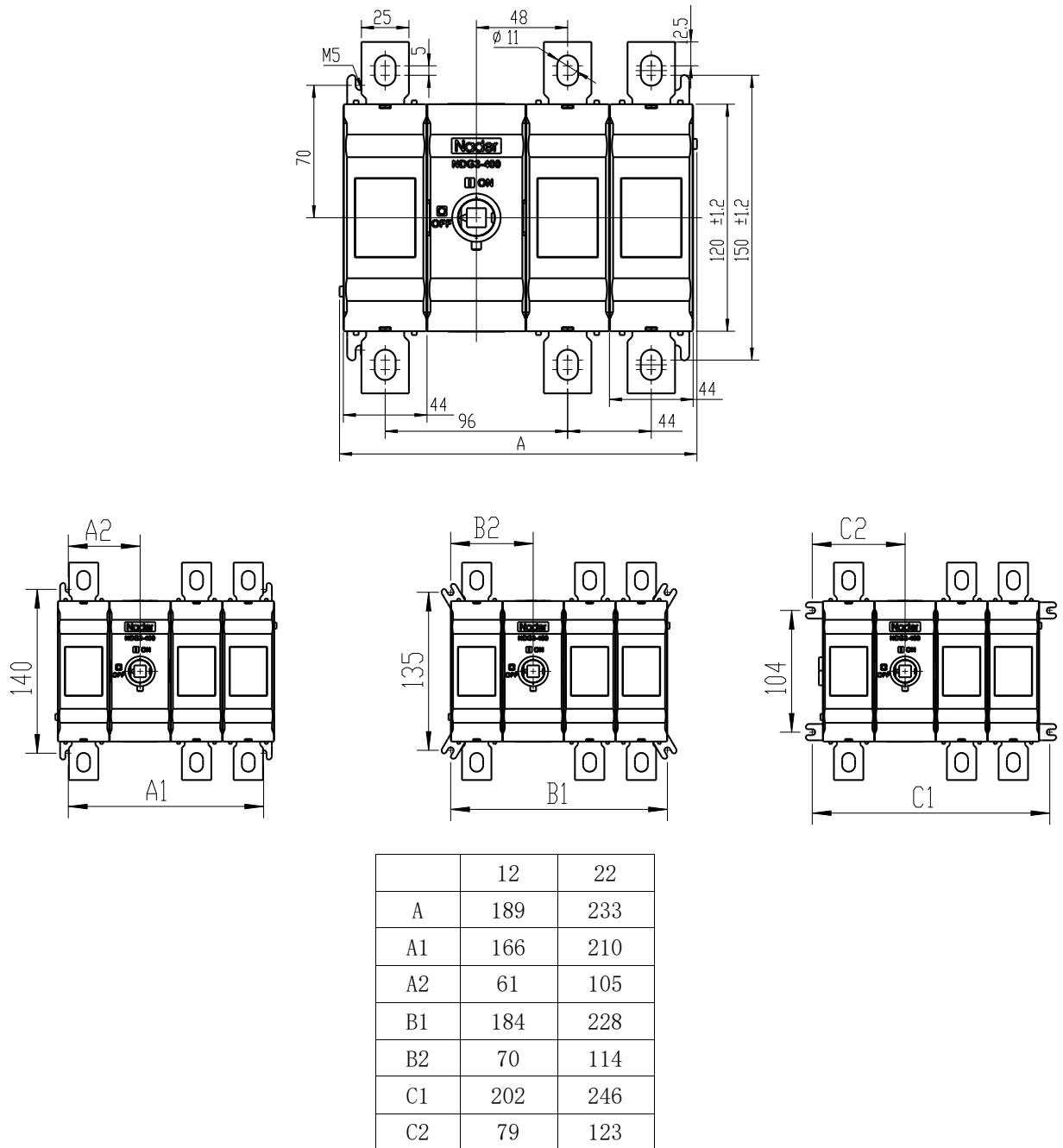


	03	04
A	189	233
A1	166	210
A2	17	17
B1	184	228
B2	26	26
C1	202	246
C2	35	35

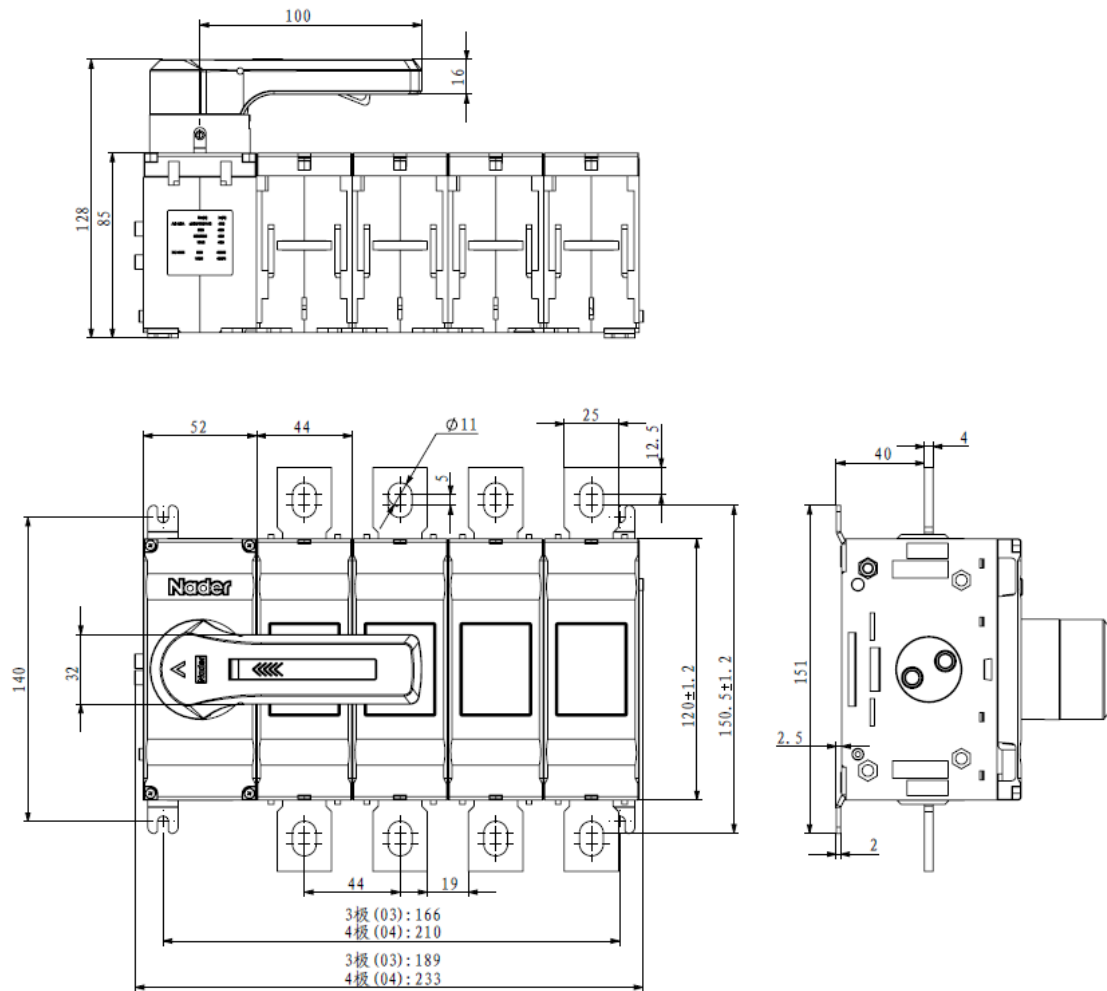
X	L
166	136-201
185	155-220
250	220-285
280	250-315
325	295-360
395	365-430
465	435-500
535	505-570



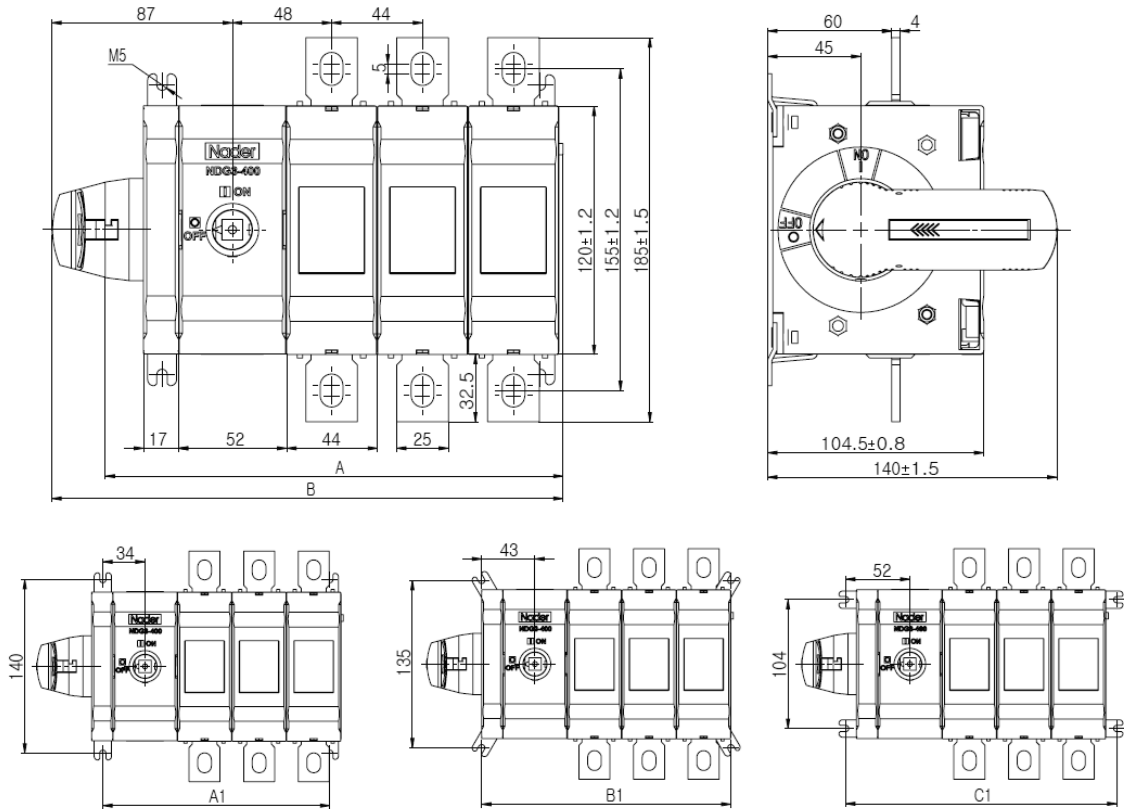
6.1.2 Mechanism is between the switch poles



6.2 Outline and installation dimensions of front inside-cabinet operation product



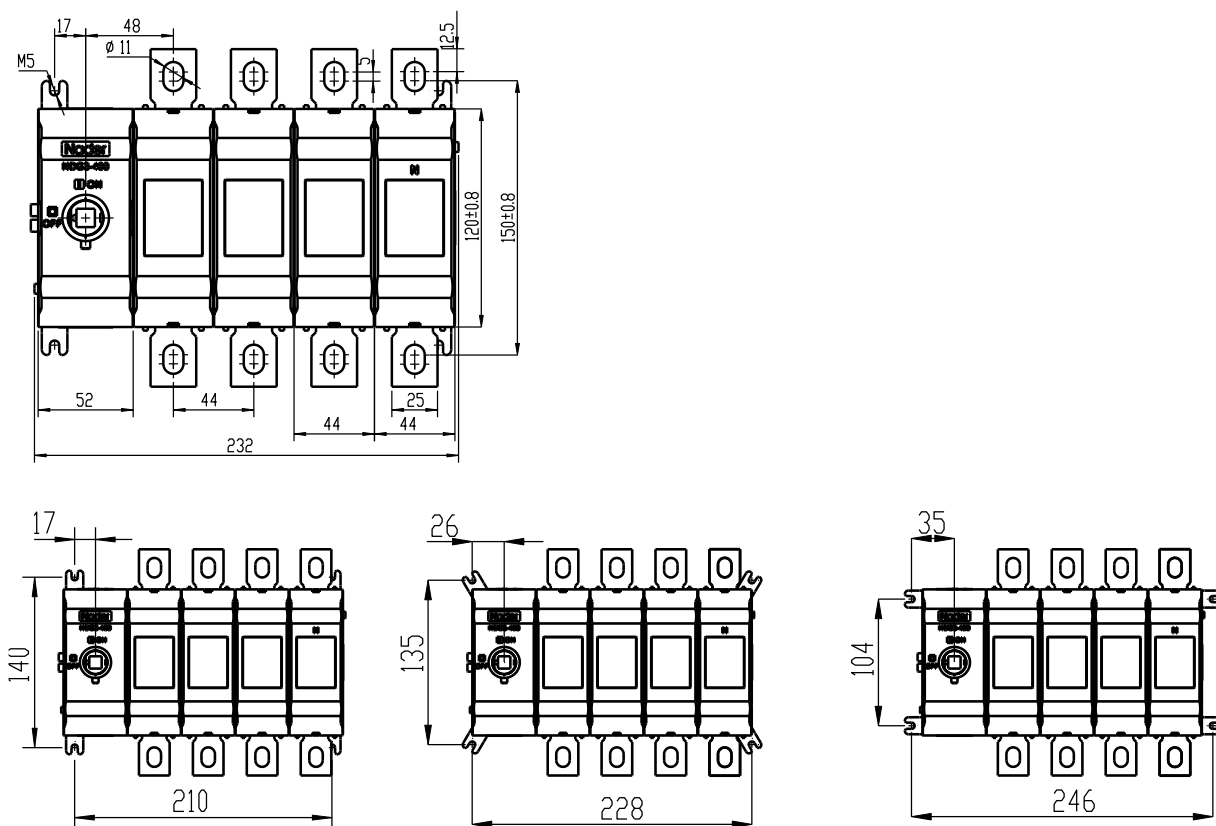
6.3 Outline and installation dimensions of side operation product



	03	04
A	221.5	265.5
B	247	291
A1	183	227
B1	201	245
C1	219	263



6. 4 Shape and mounting dimensions of N-pole neutral products (only 04 products)

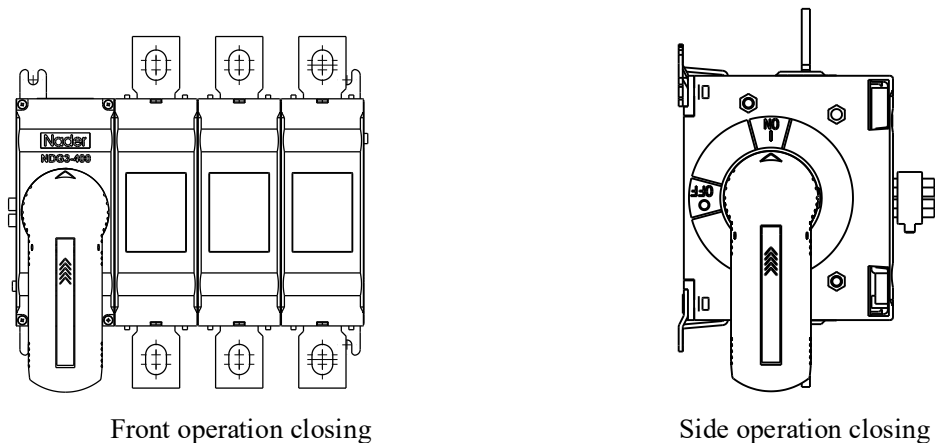


7. Installation Mode and Position

Installation mode: Baseplate installation;

Installation position: vertical installation and horizontal installation. In case of vertical installation, the inclination of the vertical installation plane shall not be more than 5°

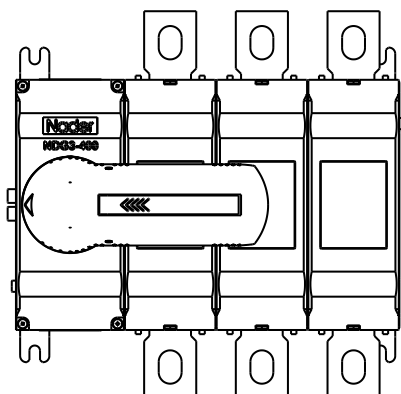
Status position: This product has two status positions, making position "I/ON" and breaking position "O/OFF", as shown in the figure below.



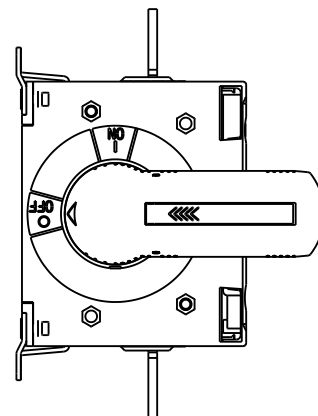
Front operation closing

Side operation closing





Front operation breaking



Side operation breaking

8. Packaging and Storage

8.1 Isolating switch packaging: (Maximum packaging quantity)

SN	Specification	Number of poles	Number of sets	Number of boxes
1	Front operation	3P	1 set/box	2 boxes/carton
		4P	1 set/box	2 boxes/carton
2	Side operation	3P	/	1 boxes/carton
	Wide phase spacing operation	4P	/	1 boxes/carton

8.2 Accessories packaging: (Maximum packaging quantity)

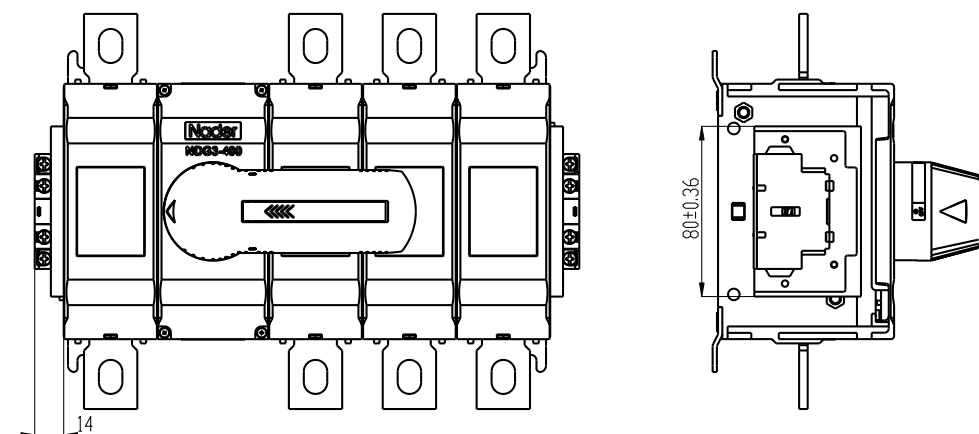
Name	Quantity
Short terminal cover packaging	6 piece/box, 12 boxes/carton
Long terminal cover packaging	4 piece/box, 12 boxes/carton
Radiator package	4 pieces/box, 12 boxes/carton
Handle	4 sets/box, 12 boxes/carton
Mounting base packaging	5 sets/box 18 boxes/carton



The transportation and storage temperature range of the disconnecting switch product and its accessories is between -35°C and $+70^{\circ}\text{C}$, which can reach 70°C within a very short time (24h). The disconnecting switch shall not suffer irreversible damage without operation under extreme temperature conditions. The storage period shall be no more than 18 months since the manufacturing date.

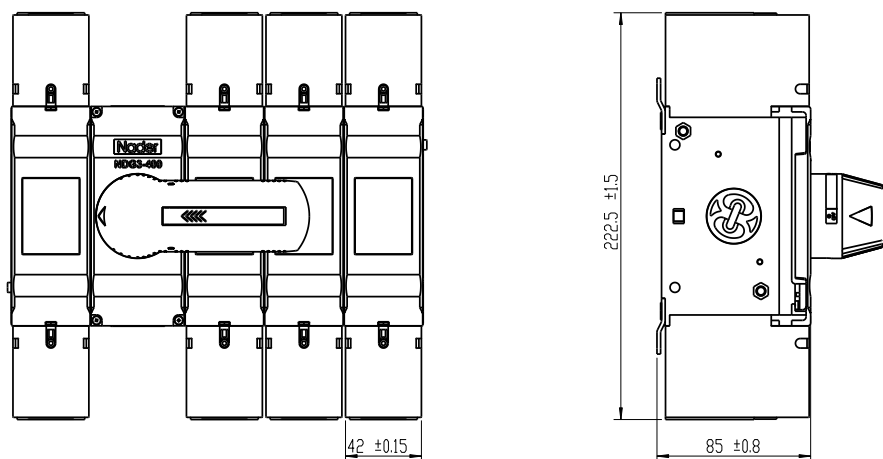
9. Optional Accessories List and Installation(Unit:mm)

9.1 Auxiliary switch NGF1-11 product outline and mounting dimensions

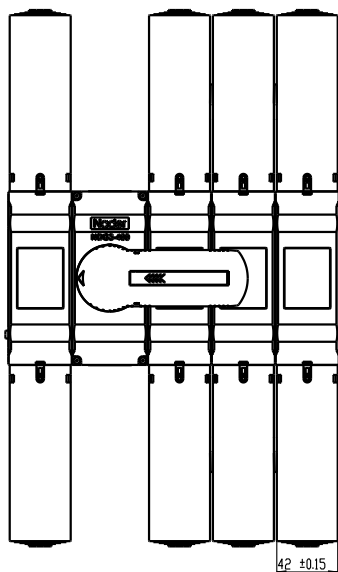


9.2 Outline and installation dimensions of the terminal cover product

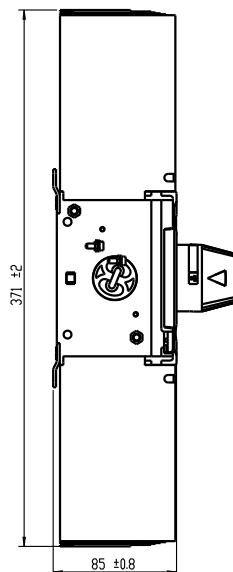
9.2.1 Short terminal cover product



9.2.2 Long terminal cover product

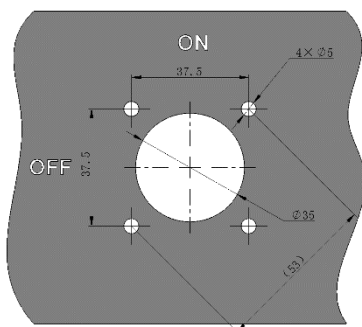


Conventional connection



Optional wiring

9.5 Cabinet door opening dimensions of handle outside a cabinet:



10. Precautions

- 1) Any quality problem due to disassembly without permission will be the liability of the user;
- 2) Do not touch the non-insulated exposed parts of the disconnecting switch when it is connected to a power supply;
- 3) Reliable cabling is required to prevent the terminals from being burnt out due to abnormal heat at the terminals;
- 4) 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.

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