

Shanghai Liangxin Electrical Co., Ltd.

(NDG3-100H/125H/160H/200/250 Disconnecting Switch)

Product Specification

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

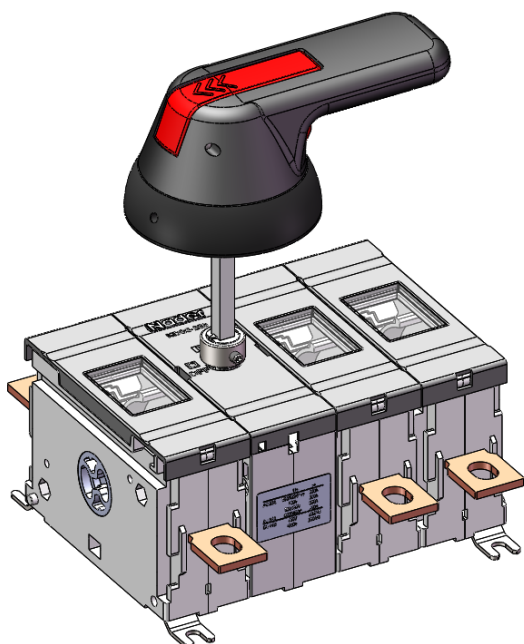
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Countersigned by	Jiang Zhaoyong	Date	2020.06.04
Approved by	Wang Jili	Date	2020.06.04

Revision History					
Version	Revision Reason/Content	Implementati on Date	Prepared by	Reviewe d by	Approve d by
0	New addition	20160325	Yao Wei	Liu Qinglu	Zhou Bo
1	Addition of AC1000V related parameters	20180413	Wang Jili	Zhang Jiazheng	Zhou Bo
2	Template update; update of the IP65 handle; update of dimension figure	20181123	Wang Jili	Zhang Jiazheng	Zhou Bo
3	Update of dimension figure	20200409	Zheng Lei	Fu Chuantao	Wang Jili
4	Update of dimension figure	20200520	Zheng Lei	Fu Chuantao	Wang Jili
5	Upgrade edition	20200603	Zheng Lei	Fu Chuantao	Wang Jili

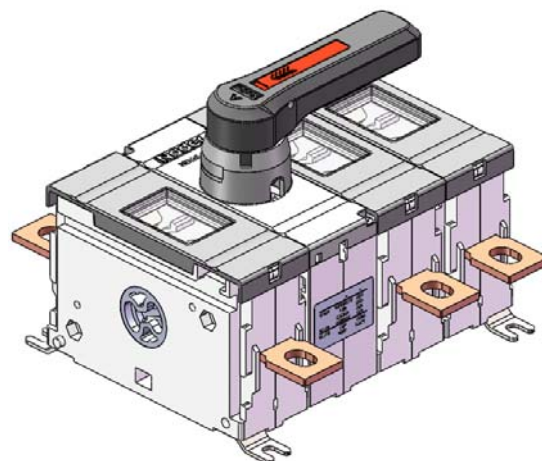
1. Applicable Scope and Purpose

The NDG3-100H/125H/160H/200/250 disconnecting switch is applicable to the electric system with the rated current of 100/125/160/200/250A and the rated voltage of AC380/400/415V, AC500V, AC660/690V, AC800/1000V (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.

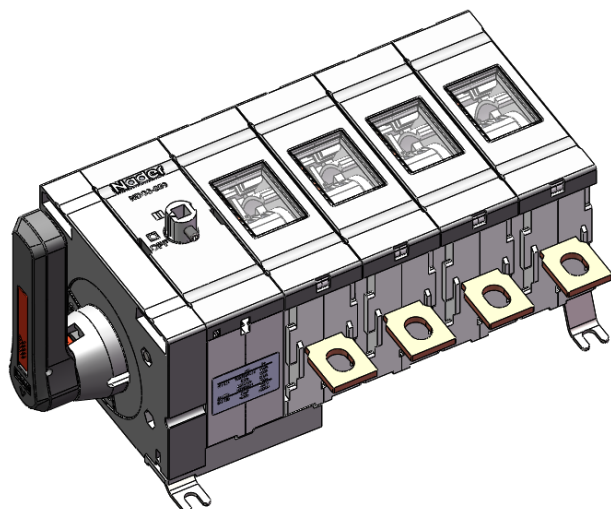
2. Picture of the Product (The picture below is for reference only; please subject to the kind)



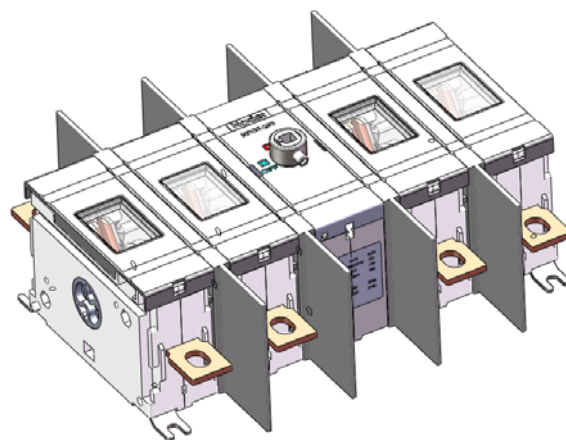
Front cabinet outside a cabinet operation



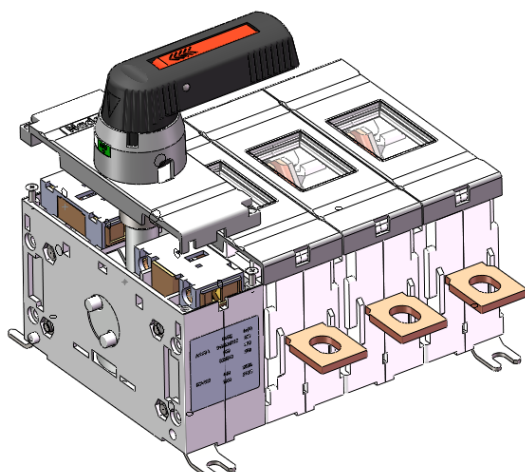
Front inside-cabinet operation



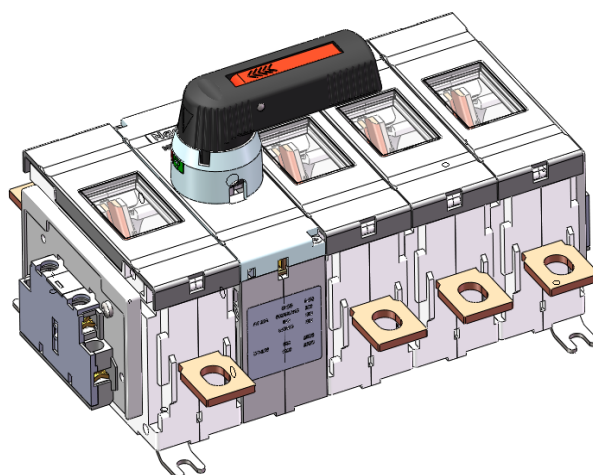
Side operation



Wide phase spacing operation



Internal auxiliary accessory



External auxiliary accessory

3. Specification and Model Description

3.1 Product model description of disconnecting switch body:

ND G 3 - 250 / 04 W Z P
1 2 3 4 5 6 7 8

SN	Code name	Code description
1	Enterprise code	ND "Nader" brand low-voltage electrical device
2	Product code	G Isolating switch
3	Design SN	3
4	Rated current (A)	100H: 100A 125H: 125A 160H: 160A 200: 200A 250: 250A
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 W: Wide phase spacing 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 (the product is provided with the direct inside-cabinet operation short handle)

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; only 3 and 4 poles are available for the wide phase spacing product;

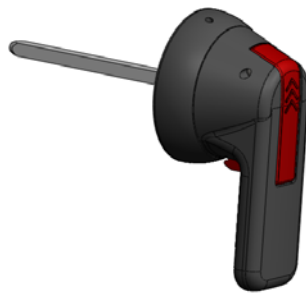
3.2 Model description of disconnecting switch accessories:

3.2.1 Selection of IP65 handle outside a cabinet

SB 1 -130/G3-125

1 2 3 4

SN	Code name	Code description
1	Accessory code	SB
2	Design SN	1
3	Square shaft length	130: Shaft length 130mm; 150: Shaft length 150mm; 161: Shaft length 161mm; 185: Shaft length 185mm; 210: Shaft length 210mm; 260: Shaft length 260mm; 290: Shaft length 290mm.
4	Body model	G3-125, suitable for NDG3-100/125/160/200/250 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 NGA1-1/250 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

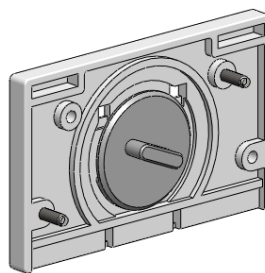
N G A 1 - 1 / 250

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, suitable for NDG3-200/250/315/400.

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 - 250 / 1 L

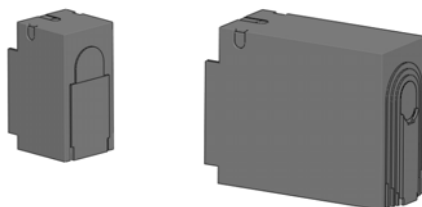
1 2 3 4 5 6 7

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	250: suitable for NDG3-200/250
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)	Remarks
1	Short terminal cover	NGZ1-250/1S	30001506	Including 6 terminal covers
2	Long terminal cover	NGZ1-250/1L	30001507	Including 6 terminal covers



4. Main Technical Parameters

4.1 Main parameters of the disconnecting switch

Product model			NDG3-100 H	NDG3-125 H	NDG3-160 H	NDG3-200 0	NDG3-250
Agreed thermal current I _{th} (A)			250				
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)	NDG3-100 H	NDG3-125 H	NDG3-160 H	NDG3-200 0	NDG3-250
	AC-22A	800/1000	100	125	160	200	250
	AC-23A	380/400/415	100	125	160	200	250
		500	100	125	160	200	250
		660/690	100	125	160	200	250
	DC-21B poles in series	500	100/3	125/3	160/3	200/3	250/3
		1000	100/4	125/4	160/4	200/4	250/4

Rated short-time withstand current I _{cw} (kA)	8/1s	
Rated short circuit making capacity I _{cm} (kA peak value)	30	
Electrical life	1500 times	1000 times
Mechanical life	20000 times	
Minimum copper cable cross section (mm ²)	100A: 50; 125A: 50; 160A: 95; 200A: 120; 250A: 150	
Terminal screw specifications (metric system: diameter×length mm)	Main product: M8×25; Auxiliary: M3.5×9.5	
Terminal tightening torque (locking torque Nm)	Main product: 15-22Nm; Auxiliary: 0.8Nm;	
Operating torque (N.m)	7	
Weight (Kg) (guide rail and screw installation without accessories)	1.2	
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
- 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 220A;

With the ambient temperature of 80° , the maximum rated current is derated to 200A;

With the ambient temperature of 80° , the maximum rated current is derated to 180A. Other current is not derated.

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

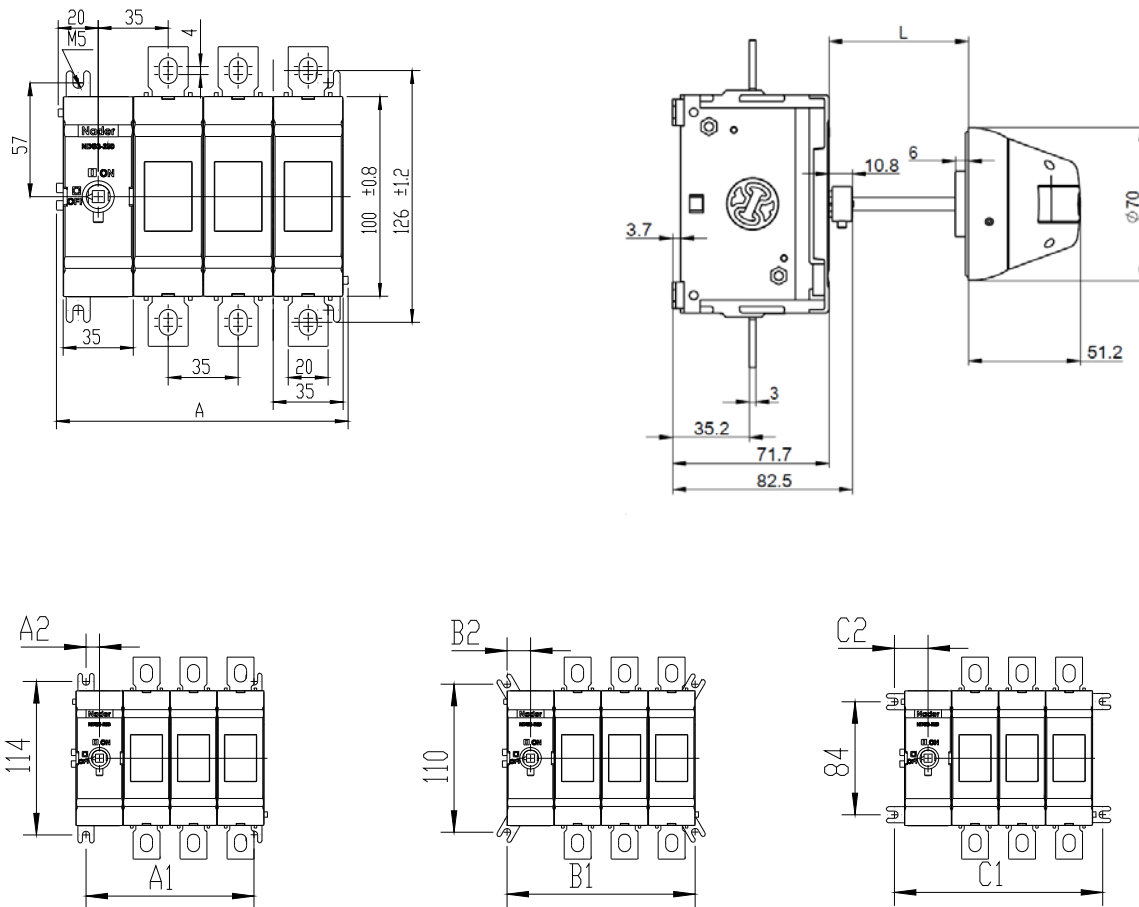
Altitude (m)	2000	3000	3500	4000
Rated insulation voltage	1000V	1000V	1000V	1000V
Impulse withstand voltage	12kV	12kV	12kV	12kV
Power frequency withstand voltage	3500V	3000V	2600V	2200V
Rated working voltage	1000V	1000V	1000V	800V
Rated working current	Not derated			

- 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. Outline and Installation Dimensions of NDG3-100H/125H/160H/200/250 Products

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



Outline and installation dimensions:

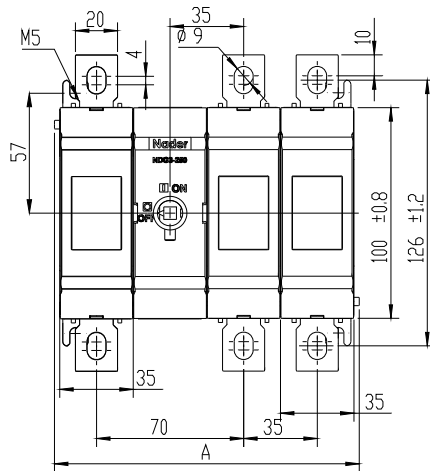
Unit: mm

Number of poles	03	04
A	145	180
A1	125	160
A2	10	10
B1	140	175
B2	17.5	17.5
C1	155	190
C2	25	25

Insertion dimension of handle outside a cabinet:

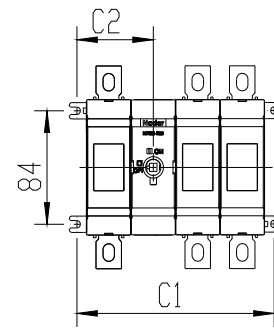
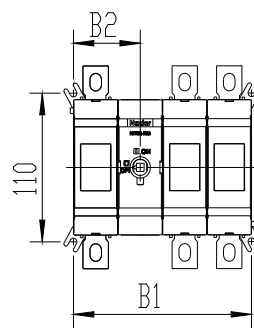
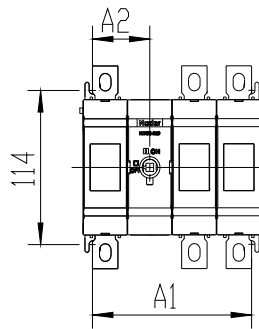
SN	Square shaft length of handle(mm)	Dimension "L" (mm)
1	130	28~90
2	150	48~110
3	161	59~121
4	185	83~145
5	210	108~170
6	290	188~250

6.1.2 Mechanism is between the switch poles

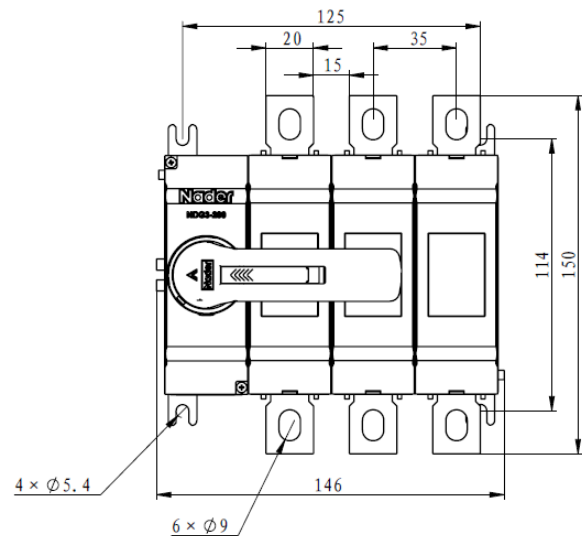
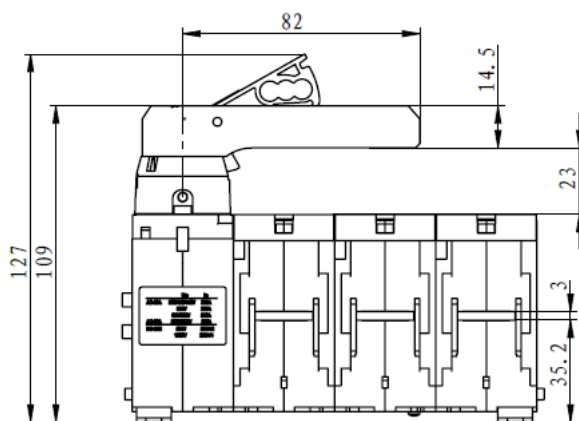


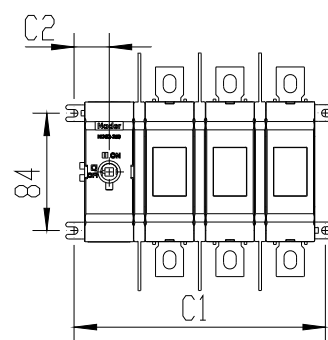
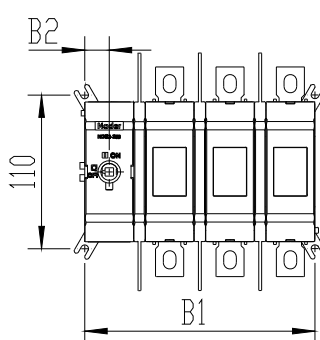
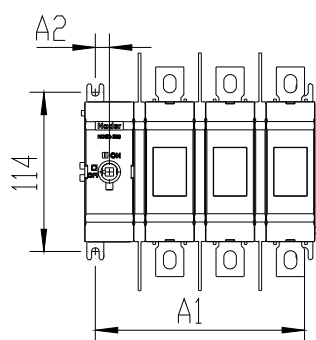
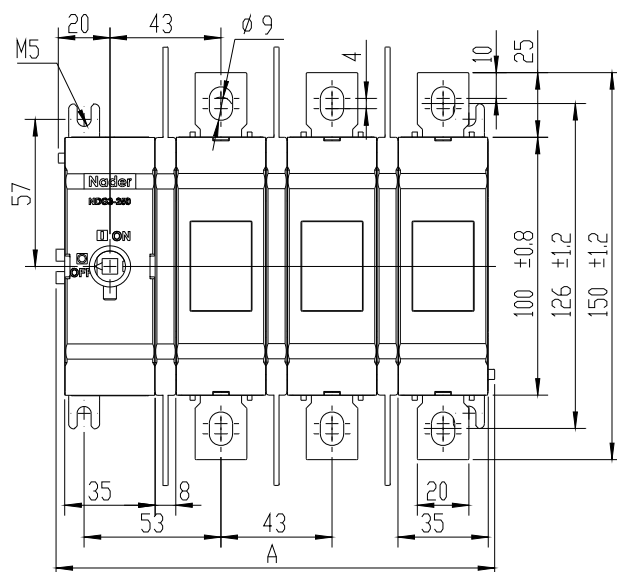
Outline and installation dimensions: Unit: mm

	12	22
A	145	180
A1	125	160
A2	45	80
B1	140	175
B2	52.5	87.5
C1	155	190
C2	60	95



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





Unit: mm

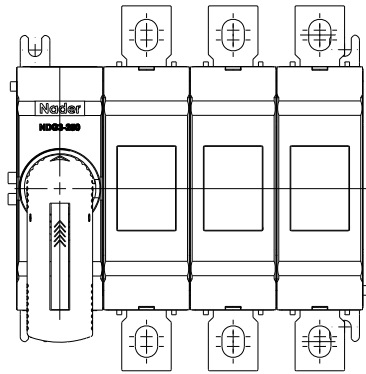
	03	04
A	169	204
A1	149	184
A2	10	10
B1	164	199
B2	17.5	17.5
C1	179	214
C2	25	25

7. Installation Mode and Position

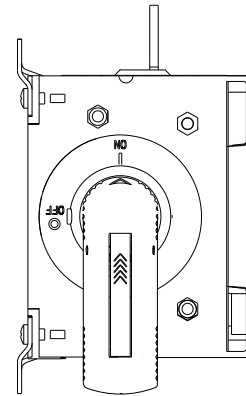
Installation mode: Baseplate installation;

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°

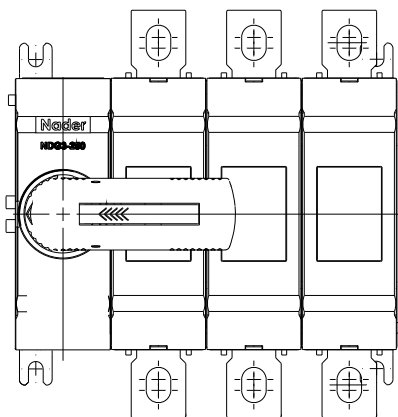
Status position: This product has two status positions, making position "I/ON" and breaking position "O/OFF", as shown in the figure below.



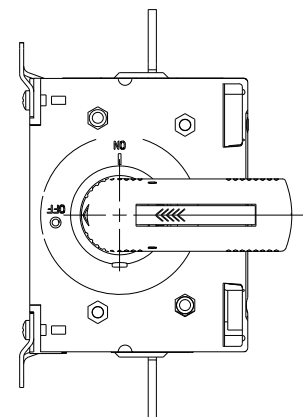
Front operation closing



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	4 boxes/carton
		4P	1 set/box	4 boxes/carton
2	Side operation Wide phase	3P	1 set/box	2 boxes/carton
		4P	1	2

	spacing operation		set/box	boxes/carton
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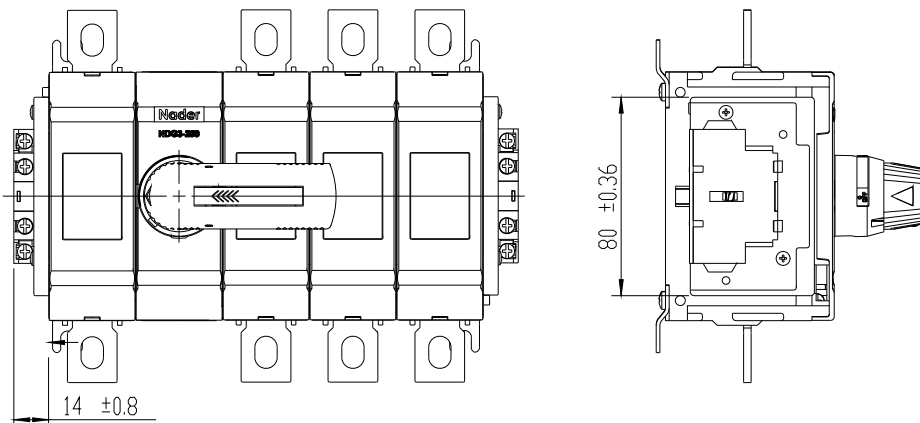
8.2 Accessories packaging: (Maximum packaging quantity)

Name	Quantity
Terminal cover packaging	10 piece/box, 4 boxes/carton
Busbar packaging	10 pieces/box, 18 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.

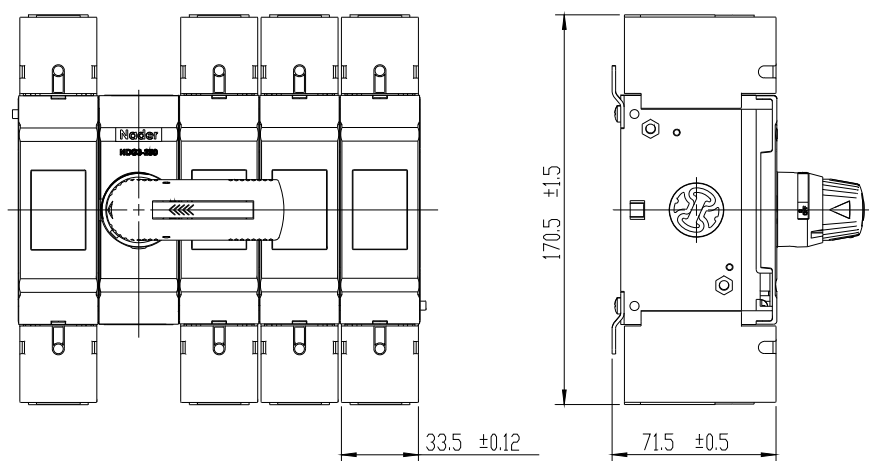
9. Optional Accessories List and Installation

9.1 Outline and installation dimensions of the mounting base product

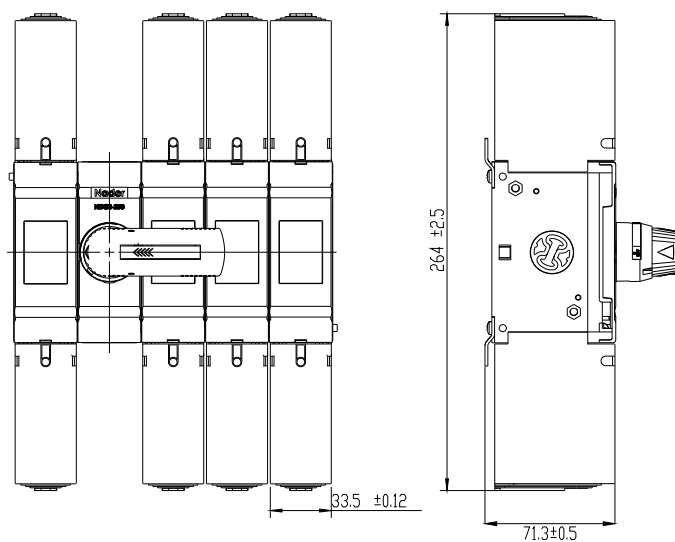


9.2 Outline and installation dimensions of the terminal cover product

9.2.1 Short terminal cover product

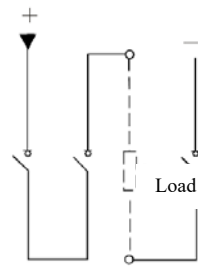


9.2.2 Long terminal cover product

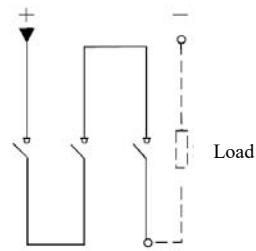


9.4 Wiring mode of the DC busbar product

9.4.1 Three-pole string connection mode

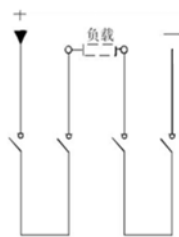


Normal wiring

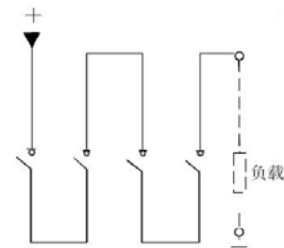


Optional wiring

9.4.2 Four-pole string connection mode

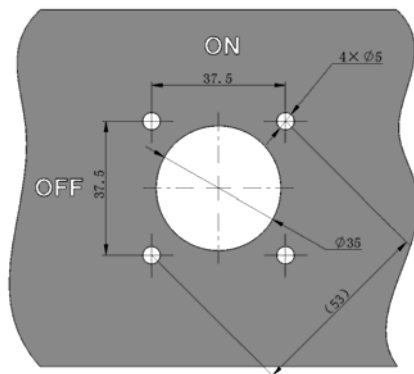


Normal wiring



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.