

Shanghai Liangxin Electrical Co., Ltd.

P02083-NDM3G-250V Disconnecting Switch

Product Specification

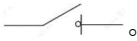
(IPD-ENG-DEV-T20 A1 2016-09-23)

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Revision History					
Version	Revision Reason/Content	Implementati on Date	Prepared by	Reviewe d by	Approve d by
0	New addition	20200819	Xie Wei	Zhang Ying	Cao Jian
1	Ith instead le	20210221	Xie Wei	Zhang Ying	Wu Ya Li
2	Model explanation changed to samle	20210225	Xie Wei	Zhang Ying	Wu Ya Li
3	Update capacity reduction factor	20210225	Xie Wei	Zhang Ying	Wu Ya Li
4	Update product vector diagram	20211008	Sun Lanping	Xu Fuping	Ding Fei

1. Application Scope and Purpose of Disconnecting Switch

The NDM3G-250V series of molded case disconnecting switches with the rated insulation voltage of 1250V, the rated working voltage of AC 1140V and the Rated working current of 250A are applicable to the distribution circuit and motor circuit, which are used as power switches, disconnecting switches and emergency switches. The product can also be used for the accidental on-off of the motor as well as infrequent making and breaking.

With isolation function, the corresponding symbol is: .

Applicable Standards: IEC 60947-3, GB/T 14048.3.

The disconnecter can be connected with the lower incoming line

2. Picture of the Disconnecting Switch Product (The picture is for reference only; the specific kind prevail)



Picture of the Product

3. Specification and Model Description of Disconnecting Switch

<u>ND</u> 1	<u>M</u> 2	<u>3</u> 3	<u>G</u> - <u>□</u> 4 5	<u>□</u> 6	<u>□</u> / <u>□</u> 7 8	<u>□</u> 9	<u>□</u> 10	<u>□</u> 11
SN	SN name		NDM3G					
1	Enterprise code		ND: "Nader" brand low-voltage apparatus					
2	Product code		M: Molded case disconnecting switch					
3	Design SN		3					
4	Derived code of		G: Disconnecting switch					
5	Shell frame level		250					
6	Derived code of		V: High voltage					
7	Operation mode		No code: Direct handle-operated					
			P: Motor-operated					
			Z: Rotation handle					
8	Number of poles		3					
9	Accessory code		See Table 1					
10	Rated working		See Table 2					
11	Connection mode		No code: Conventional products P: Connection row					

Table 1: Comparison Table of Accessory Code


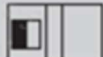
Handle

Left installation

Right installation

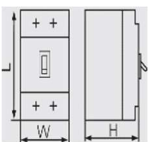
Legend

- Single auxiliary contact
- Dual-auxiliary contact

<div> <div>Accessory code</div> <div>Accessory name</div> </div>	<div> <div>Installation Position</div> <div>Model</div> <div>Number of poles</div> </div>	NDM3G-250 V			
			3		
00	None				—
20	Dual-auxiliary contact				
21	Single auxiliary contact				

4. Main Technical Parameters of Disconnecting Switch

Table 2 Main Technical Parameters of Disconnecting Switch

Model		NDM3G-250V	
Rated working current I_e (A)		250	
Rated voltage U_e (AC V)		1140	
Rated insulation voltage U_i (V)		1250	
Rated impulse withstand voltage U_{imp} (V)		8000	
Power frequency withstand voltage U (1min) (V)		3500	
Rated short-time withstand current I_{cw} (kA)		3/1s	
Rated short circuit making capacity I_{cm} (kA)		3	
Utilization category		AC-21B	
Number of poles		3	
Operating performance (times)	Electrical life		1000
	Mechanical life	Maintenance free life	10000
		Maintenance life	20000
Boundary dimension		L (mm)	165
		W (mm)	107
		H (mm)	105

4.1 Selection of the disconnecting switch connecting bus or cable cross-section area:

Table 3 Selection of the NDM3G-250V Connecting Bus or Cable Cross-section Area

Rated current (A)	250
Wire cross-section area (mm ²)	120

4.2 Tightening Torque of the Disconnecting Switch Terminal and Mounting Screw

Table 4 Tightening Torque of the Disconnecting Switch Terminal and Mounting Screw

Model	Thread diameter (mm)	Torque (N·m)
NDM3G-250V	M8	12
	M4	2.4

4.3 Derating factor of temperature change for the disconnecting switch

Table 5 Derating Factor Table of Temperature Change for the Disconnecting Switch

Model	Derating factor of product temperature change							
NDM3G-250V	Temperature (°C)	40	45	50	55	60	65	70
	Derating factor	1	1	1	0.95	0.93	0.91	0.88

Note: 1) When the operating ambient temperature is below 50°C, the product can be used normally without derating capacity.

2). The above derating factors are measured at the Rated working current.

4.4 High-altitude derating factor of disconnecting switch

Table 6 High-altitude Derating Factor Table of Disconnecting Switch

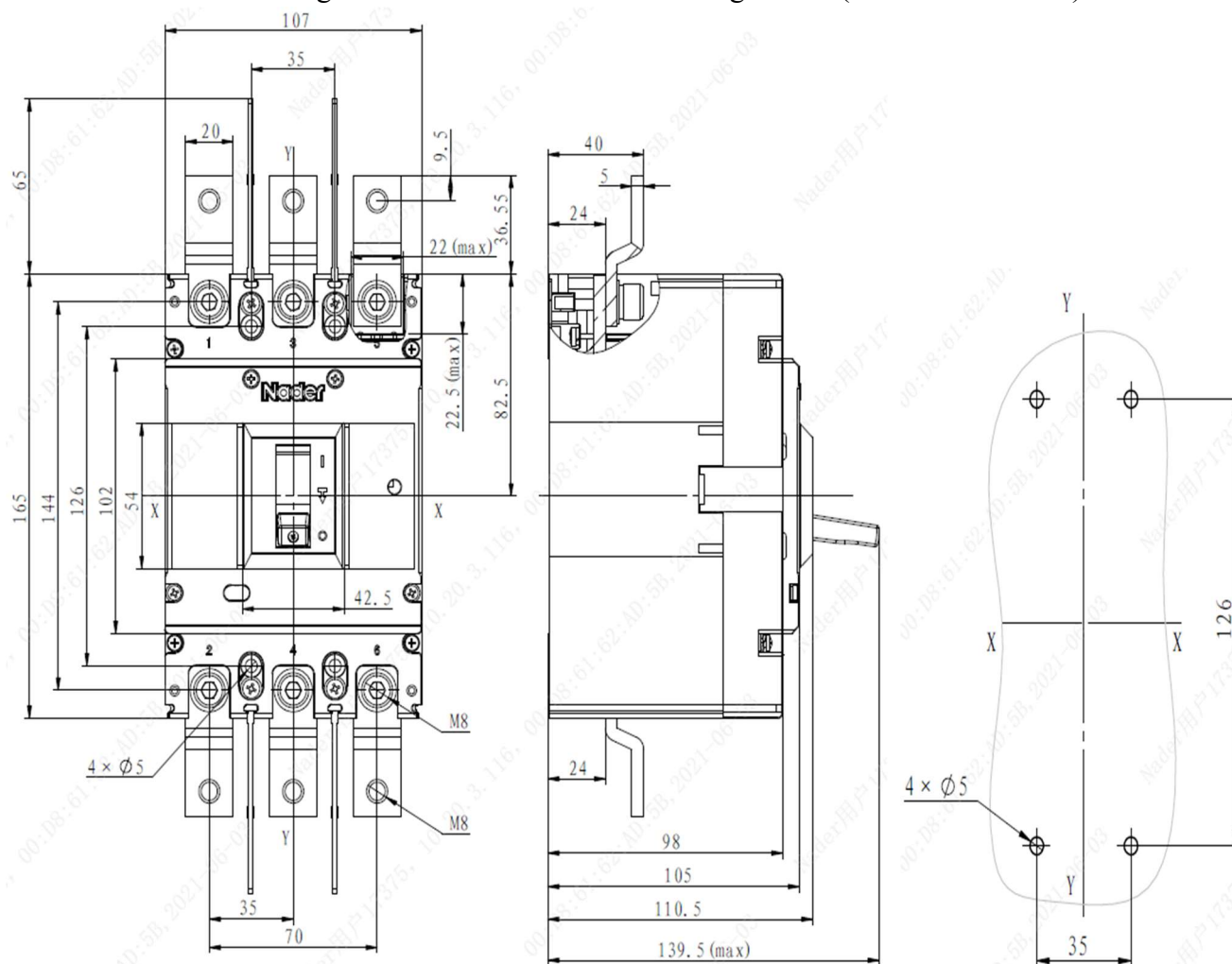
Altitude (m)	Correction factor of the working current	Correction factor of the working voltage	Power frequency withstand voltage(V)	Correction factor of the power frequency withstand voltage (V)
2000	1	1140	3500	1250
2500	1	1140	3500	1250
3000	0.98	1140	3500	1250
3500	0.97	1140	3500	1250
4000	0.95	1140	3500	1250
4500	0.94	877	2650	962
5000	0.93	832	2500	912

5. Normal Working Environment of Disconnecting Switch

- 1) The altitude of the installation site doesn't exceed 2,500m. See the "High-altitude Derating Factor Table of Disconnecting Switch" for the derating factor at the altitude;
- 2) The ambient temperature is $-35^{\circ}\text{C} \sim +70^{\circ}\text{C}$; the average w in 24 h shall not be more than $+35^{\circ}\text{C}$. If the ambient temperature is higher than $+50^{\circ}\text{C}$, the user needs to reduce the capacity. See the "Derating Factor Table of Temperature Change for the Disconnecting Switch" for the derating factor;
- 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: The relative humidity at 20°C can reach 90%. For frost due to temperature change, the corresponding measures should be taken;
- 4) The product can withstand the effects of wet air, salt mist, oil mist and mould;
- 5) The installation category for disconnecting switch connected to the main circuit is: Category III (power distribution and control level), the installation category where the disconnecting switch is not connected to the main circuit is: Category II (load level);
- 6) The pollution level is Level 3;
- 7) The product should be installed in places that are free from explosive media, media corrosive to metal, insulation damaging gas, and conductive dust, which should be also avoided from snow and rain;
- 8) In case of stricter user conditions than the above description, negotiate with the manufacturer.

6. Outline, Mounting Hole Dimensions and Safety Distance of Disconnecting Switch

6.1 Outline and mounting hole dimensions of disconnecting switch (see 3P dimensions)



Note: The limit deviation not indicated wle the tolerance dimensions is as per GB/T 1804-c.

6.2 Safe mounting distance of disconnecting switch

Table 7 Insulation Distance Mounted in the Metal Cabinet (Unit:mm)

Mounting distance	A (inlet wire end to the cabinet face)	B (distance from side to the cabinet face)	C (outlet wire end to the cabinet face)
NDM3G-250 V	65	30	30

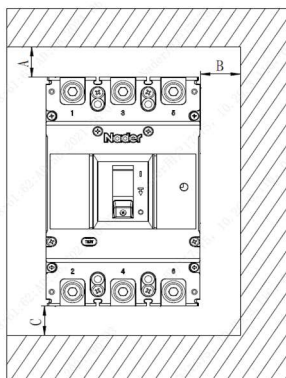


Table 8 Minimum Center Distance between Rowed Disconnecting Switches (Unit: mm)

Model	Disconnecting switch width	I Center distance
NDM3G-250 V	107	137

Note: Check the connected busbar or cable during rowing or stacking of the disconnecting switch to ensure that the air insulation distance won't be reduced.

Note: The limit deviation not indicated while the tolerance dimensions is as per GB/T 1804-c.

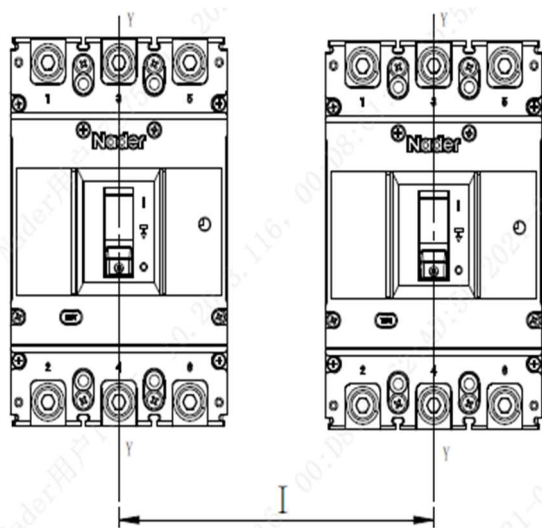


Table 9 Minimum Center Distance between Stacked Disconnecting Switches (Unit: mm)

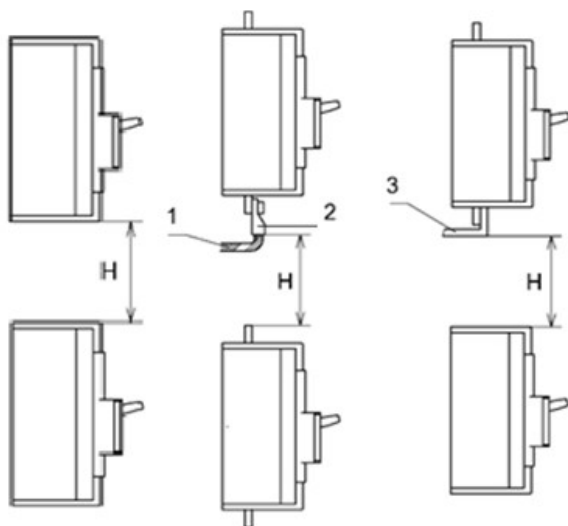
Model	H (distance of disconnecting switch from bottom)
NDM3G-250V	93

Note: 1) Bare cable connection

2) Cable insulating connection

3) Connection without insulation

Requirements: Check whether the phase partition is assembled properly before products are energized.

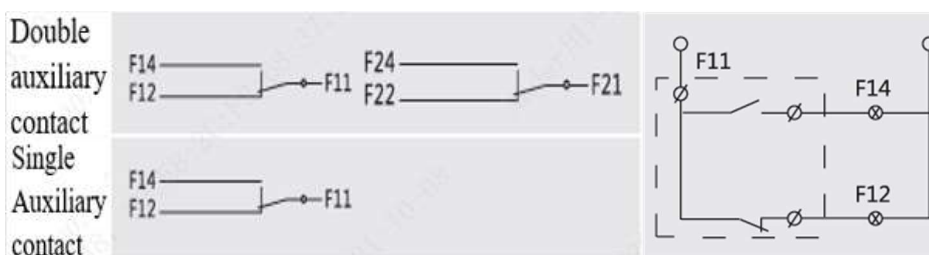


7. Attachment function description

7.1 Rating parameters of auxiliary contacts

Table 10 Rating parameters of auxiliary contacts

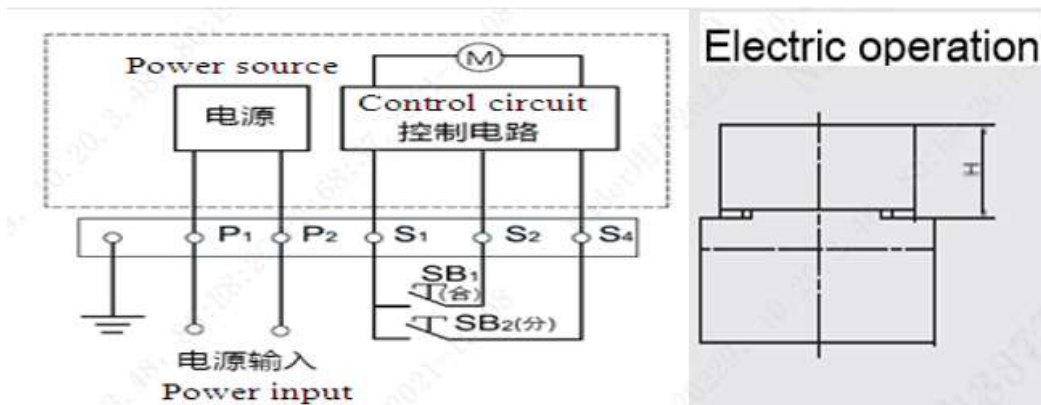
Model	Ith(A)	rated operational current(A)	
		AC400V	DC220V
NDM3G-250V	3	0.3	0.15



7.2 Technical parameters of electric operating mechanism

Table 11 Technical parameters of electric operating mechanism

Model	Action current (A)	Electric power (W)	Service life / time	Operating mechanism height H(mm)
NDM3G-250V	≤ 0.5	14	20000	92

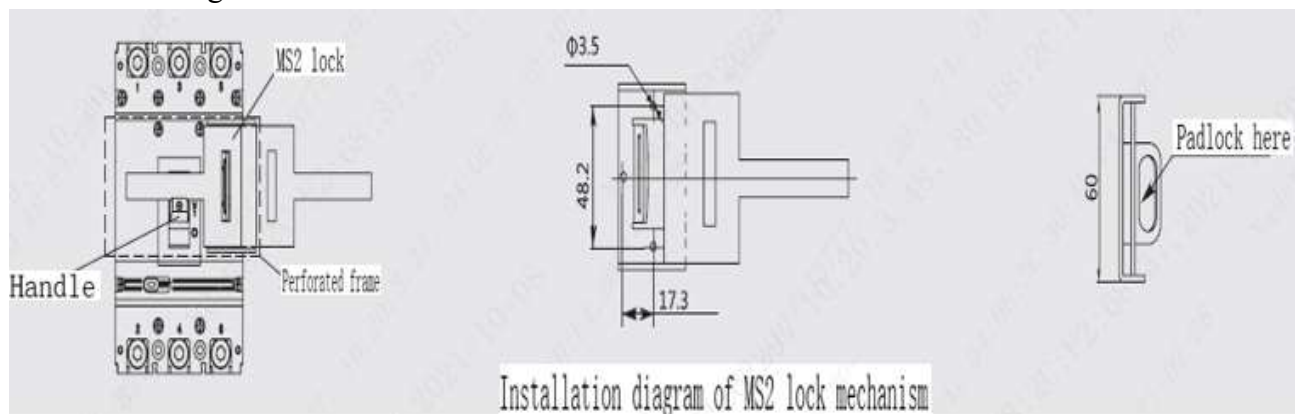


Symbol description: SB1、SB2: Operation button (provided by the user) X: Terminal block

P1、P2: External power supply

Voltage specification: AC 50Hz 110V、230V、400V DC 24V、110V、220V

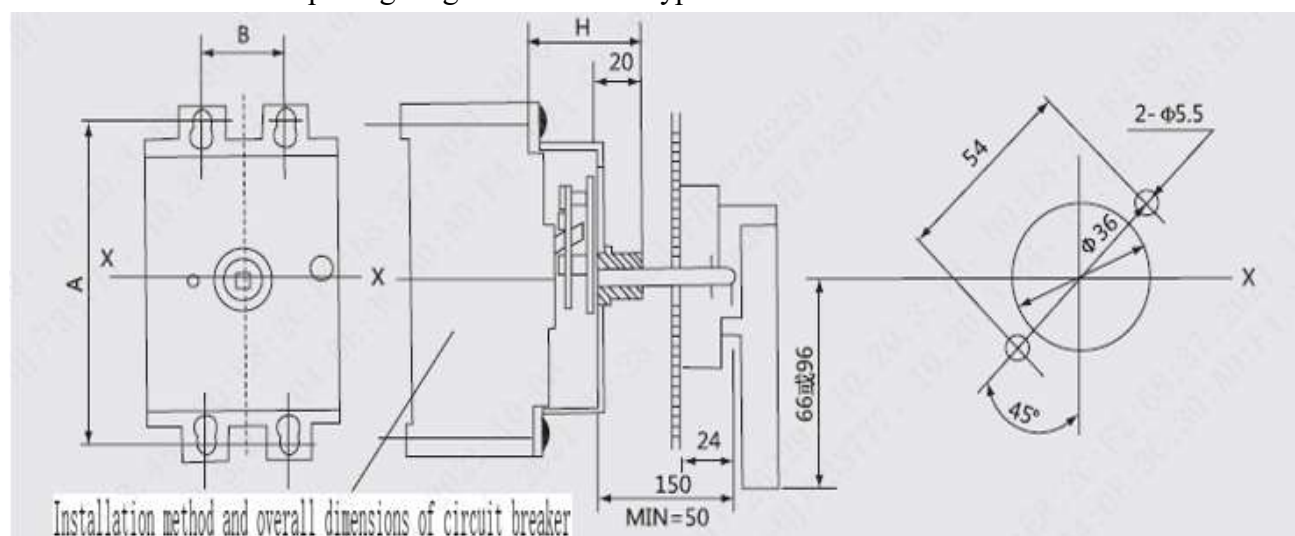
7.3 MS2 locking device



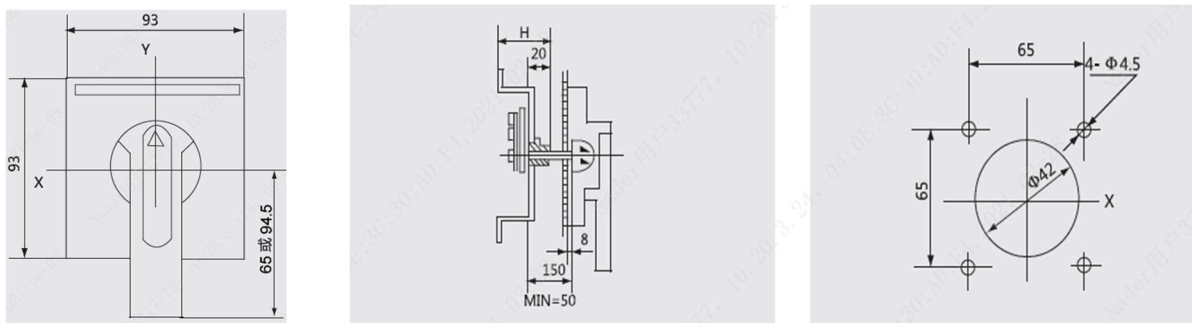
Note: After MS2 lock accessories are selected, other internal and external accessories cannot be installed on the same side.

7.4 Rotary handle operating mechanism

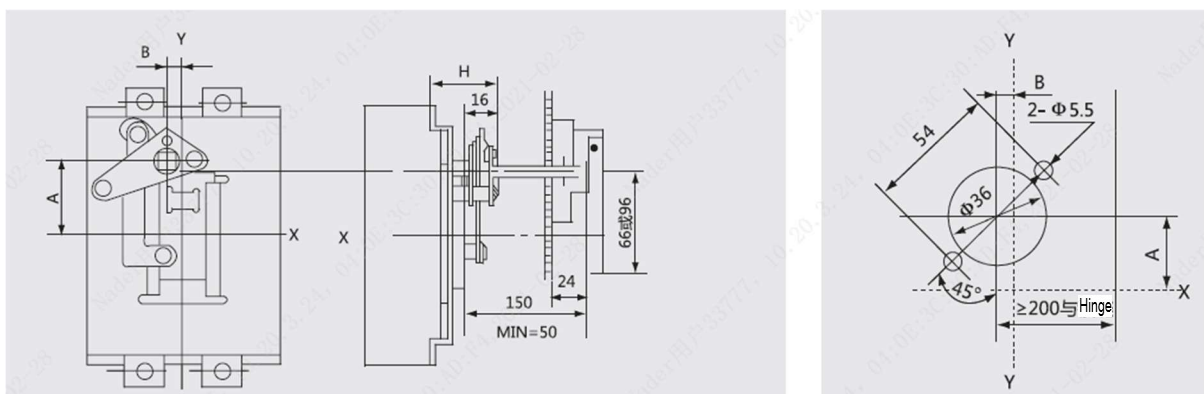
7.4.1 And installation opening diagram of CS1-A-type handle



7.4.2 And installation opening diagram of CS1-F-type handle



7.4.3 And installation opening diagram of CS2-A-type handle

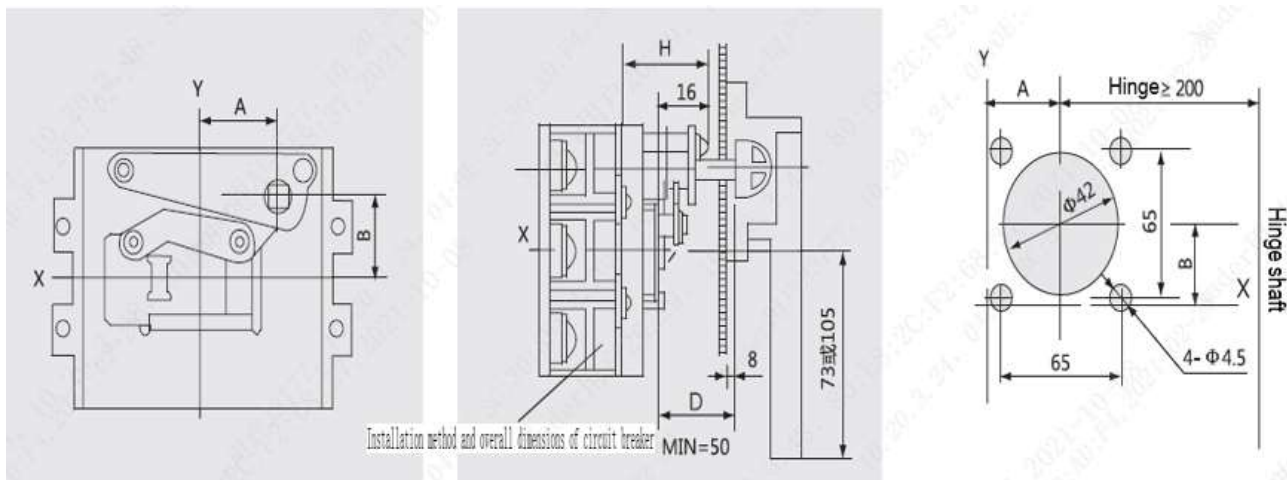


Note: Unmarked tolerance level should follow GB/T 1804-c.

7.4.4 Hinge shaft and manual operating mechanism

Table 12 The external dimensions of the manual operation mechanism

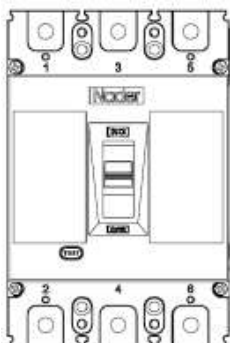
External attachments	Model	Disconnecter	Manual mounting dimension (mm)			Installation method
			H	A	B	
Hand operated mechanism	CS1-225	NDM3G-250V	55	143	35	Upstanding
	CS2-225	NDM3G-250V	48	35	31	



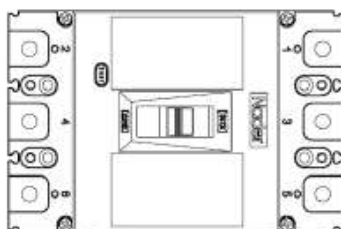
8. Installation Direction of Disconnecting Switch

For vertical installation of the product, the gradient between the installation surface and the vertical plane is no more than $\pm 22.5^\circ$.

Horizontal installation of the product.



Vertical Installation



Horizontal Installation

9. Packaging and Storage of Disconnecting Switch

Minimum packaging quantity: 1 piece/box. The packaged products should be stored in a warehouse where the air ventilation and the relative humidity no more than 80% when the ambient temperature is $-40^\circ\text{C} \sim +75^\circ\text{C}$. No acidic alkaline or other corrosive gas exists in the ambient air in the warehouse. Under the conditions above, the storage period shall be no more than three years since the manufacturing date.

10. Environmental compliance

The product meets ROHS standard.

11. Installation Accessory List of Disconnecting Switch

SN	Name	Specification	3P Quantity/Set
			Conventional
1	Cross small pan-head screw	M4×45	4
2	Hexagon nut	M4	4
3	Spring washer	4	4
4	Plain washer	4	4
5	Phase partition	—	4

12. Precautions for Disconnecting Switch

- 1) Various characteristics and accessories of the disconnecting switch are set in the factory. The disconnecting switch or other accessories can only be adjusted, installed and maintained by the trained or qualified professionals according to the parameter requirements of the line design;
- 2) Ensure that the power supply is off before installing or removing any device;
- 3) The disconnecting switch handle can be located in three positions, indicating three states: on, off and free tripping. When the handle is in the free tripping position, pull the handle in the off direction when the disconnecting switch is connected and on.