

Shanghai Liangxin Electrical Co., Ltd.

NDM3G-630 Product Specification

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

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Revision History					
Version	Revision Reason/Content	Implementation Date	Prepared by	Reviewed by	Approved by
0	Newly added	5/8/2020	Wang Hu	Peng Haorang	Hu Qi
1	Update the product appearance picture and product dimension outline drawing	30/9/2021	Sun Lanping	Chen Xinming	Ding Fei
2	Add the terminal pin to the accessory package	12/12/2022	Yang rongrong	Chen Xinming	Ding Fei

1. Applicable Scope and Purpose of Disconnecting Switch

The NDM3G-630 molded case disconnecting switch (hereinafter referred to as switch) applies to infrequent switching of circuits with the AC50/60Hz, the working voltage of AC690V and DC1000V, and the working current of 630A, with the load capacity. They can achieve effective isolation between the electric equipment and the power supply to guarantee the safe and reliable maintenance.

The Disconnecting Switch has an isolating function with the corresponding symbol of



Comply with standards: IEC60947-3, GB/T 14048.3.

Products comply with CCC、CE、TUV and CB certification.

Disconnecting Switch can be connected by lower incoming line.

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



Picture of the Product

3. Specification and Model Description of Disconnecting Switch

ND 1	M 2	3 3	G 4	- 630 5	☐ 6	/ ☐ 7	☐ 8	☐ 9	☐ 10	☐ 11
SN	SN name		NDM3G							
1	Enterprise code		ND: "Nader" low-voltage apparatus							
2	Product code		M: Molded case Disconnecting Switch (MCCB)							
3	Design SN		3							
4	Derived code of the series		G: Disconnecting switch							
5	Shell frame level		630							
6	Operation mode		No code: Direct handle-operated mode							
			P: Motor-operated							
			Z: Rotary operation							
7	Number of poles		20:2P							
			30:3P							
			40:4P							
8	Accessory code		See Table 1							
9	Rated current		See Table 2							
10	Cabling type		No code: Normal product							
			P: Connection busbar							
11	Other code		CS1-A/150: Circular center hole rotary handle + shaft length 150mm							
			CS1-A/200: Circular center hole rotary handle + shaft length 200mm							
			CS1-A/300: Circular center hole rotary handle + shaft length 300mm							
			CS1-A/350: Circular center hole rotary handle + shaft length 350mm							
			CS1-A/650: Circular center hole rotary handle + shaft length 650mm							
			CS1-F/150: Square center hole rotary handle + shaft length 150mm							
			CS1-F/200: Square center hole rotary handle + shaft length 200mm							
			CS1-F/300: Square center hole rotary handle + shaft length 300mm							
			CS1-F/350: Square center hole rotary handle + shaft length 350mm							
			CS1-F/650: Square center hole rotary handle + shaft length 650mm							
			CS2-A/150: Circular eccentric hole rotary handle + shaft length							

	150mm
	CS2-A/200: Circular eccentric hole rotary handle + shaft length 200mm
	CS2-A/300: Circular eccentric hole rotary handle + shaft length 300mm
	CS2-A/350: Circular eccentric hole rotary handle + shaft length 350mm
	CS2-A/650: Circular eccentric hole rotary handle + shaft length 650mm
	CS2-F/150: Square eccentric hole rotary handle + shaft length 150mm
	CS2-F/200: Square eccentric hole rotary handle + shaft length 200mm
	CS2-F/300: Square eccentric hole rotary handle + shaft length 300mm
	CS2-F/350: Square eccentric hole rotary handle + shaft length 350mm
	CS2-F/650: Square eccentric hole rotary handle + shaft length 650mm
	DC1 24V: Electric operation voltage DC24V
	DC1 110V: Electric operation voltage AC/DC110V
	DC1 220V: Electric operation voltage AC230V/DC220V
	DC1 380V: Electric operation voltage AC380/400/415V
	Z: Terminal housing
	MS2: MS2 lock

Table 1: Comparison Table of Accessory Code:

The diagram illustrates the mechanical components and installation of the NDM3G-630 circuit breaker. A central vertical rectangle represents the main body, divided into four horizontal sections. An arrow labeled 'Handle' points down to the top section. Two arrows, labeled 'Left installation' and 'Right installation', point horizontally towards the left and right sides of the main body, respectively.

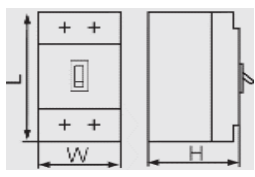
Legend

-  Single auxiliary contact
-  Dual-auxiliary contact
-  Alarm contact
-  Shunt release
-  Under-voltage release
-  Auxiliary alarm contact (a single accessory features the auxiliary and alarm functions)

Accessory code	Accessory name	Model		
		Number of poles		
Installation Position		NDM3G-630		
		2	3	4
00	N/A			
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-630		
Rated current of frame Inm (A)			630		
Rated current In (A)			630		
Rated insulation voltage Ui (AC V)			1000		
Rated impulse withstand voltage Uimp (V)			8000		
Rated working voltage Ue (V)			AC380/400/415 AC500, AC660/690 DC500	AC380/400/415 AC500, AC660/690 DC750	AC380/400/415 AC500, AC660/690 DC1000
Power frequency withstand voltage U (1min) (V)			3500		
Utilization category			AC-21A/22A/23A, DC-21A/22A/23A		
Number of poles			2	3	4
Rated short circuit making capacity Icm (kA)			8	8	8
Rated short-time withstand current Icw (kA/1s)			8	8	8
Operating performance (times)	Electrical life		7500		
	Mechanical life	Maintainable free life	10000		
		Maintainable life	20000		
Boundary dimension			L(mm)	270	270
			W(mm)	182	240
			H(mm)	111	111
Flashover distance(mm)			≤50		

Note :The overall dimension does not include the dimension of terminal cover .

4.1 Selection of the Disconnecting Switch connecting bus or cable cross-section area:

Table 3 Selection of the NDM3G-630 Connecting Bus or Cable Cross-section Area

Rated current (A)	630
Wire cross-section area (mm ²)	185×2

4.2 Tightening Torque of the Disconnecting Switch Terminal and Mounting Screw

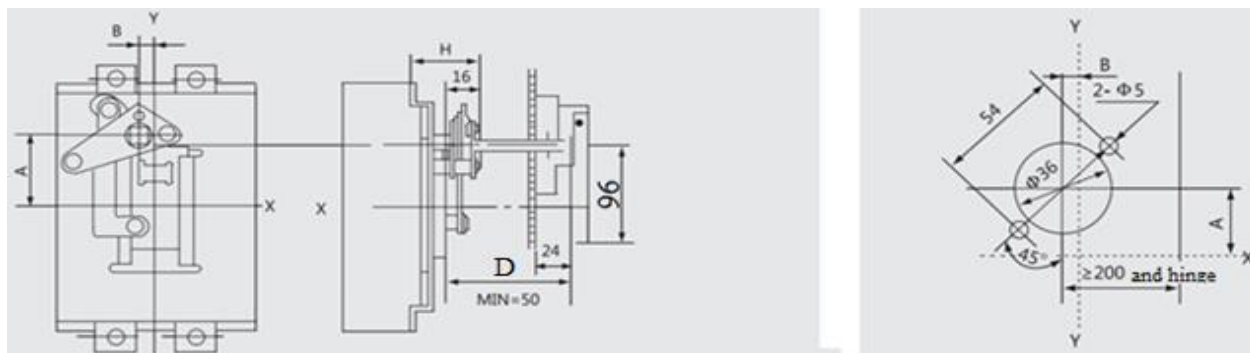
Table 4 Tightening Torque of the Disconnecting Switch Terminal and Mounting Screw

Model	Thread specification	Torque (N·m)
NDM3G-630	M12	28
	M6	6

5. Normal Working Environment of Disconnecting Switch

- 1) The altitude of the installation site doesn't exceed 2,500m;
- 2) The ambient temperature is $-35^{\circ}\text{C} \sim +70^{\circ}\text{C}$; the average within 24 h shall not be more than $+35^{\circ}\text{C}$.
- 3) Its 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 of the Disconnecting Switch connected to the main loop is: Category III (power distribution and control level), The installation category of the Disconnecting Switch not connected to the main loop 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.

6.2.3 Electric operating mechanism and CS2-A handle



6.2.4 Electric operating mechanism and CS2-F handle

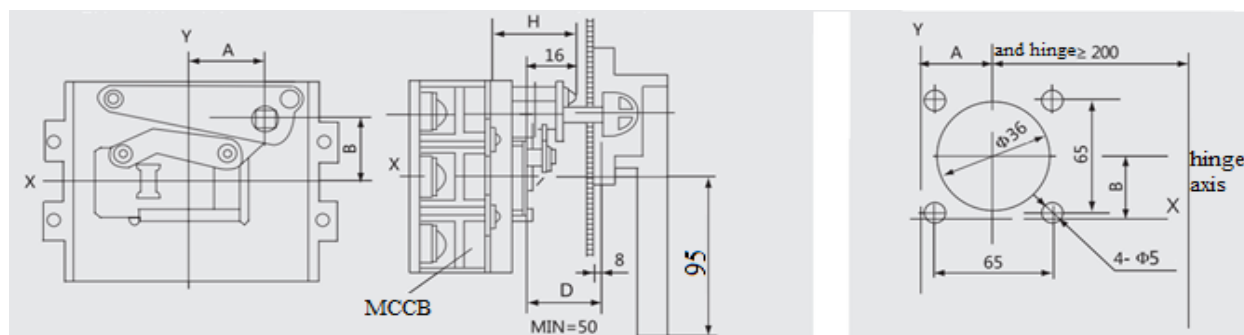


Table 5 Installation dimension of manual operating mechanism (Unit: mm)

Manual operation type	Equipped with Disconnecting Switch	Installation dimension of manual operating mechanism				Installation mode
		H	A	B		
				2P/3P	4P	
CS1	NDM3G-630	84	200	171	229	Vertical installation
CS2		61	67.5	15		

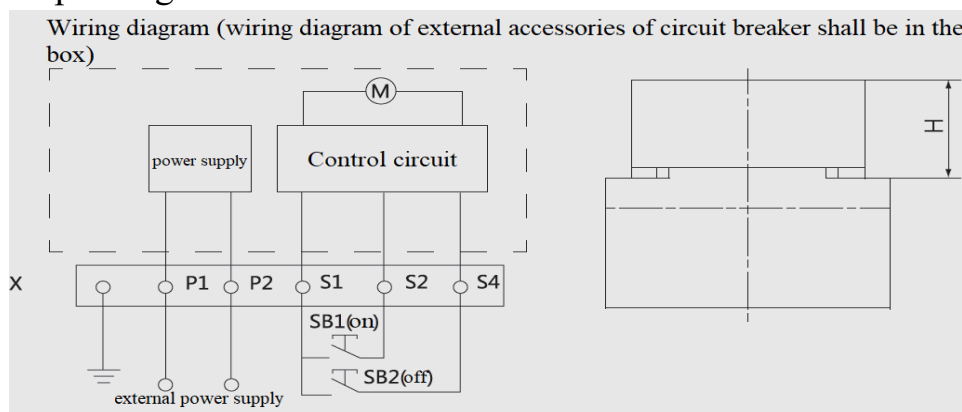
Note : 1) A type is round handle, F type is square handle;

2) The length of A-type handle is 96mm and that of F-type handle is 95mm;

3) The D dimension in the drawing is 150mm by default, and the customizable length is 200 / 300 / 350 / 650mm;

4) The limit deviation not indicated with the tolerance dimensions is as per GB/T 1804-c.

6.3 Electric operating mechanism



Symbol description: SB1、SB2: Operation button (provided by the customer)

X: Terminal block

P1、P2: External power supply

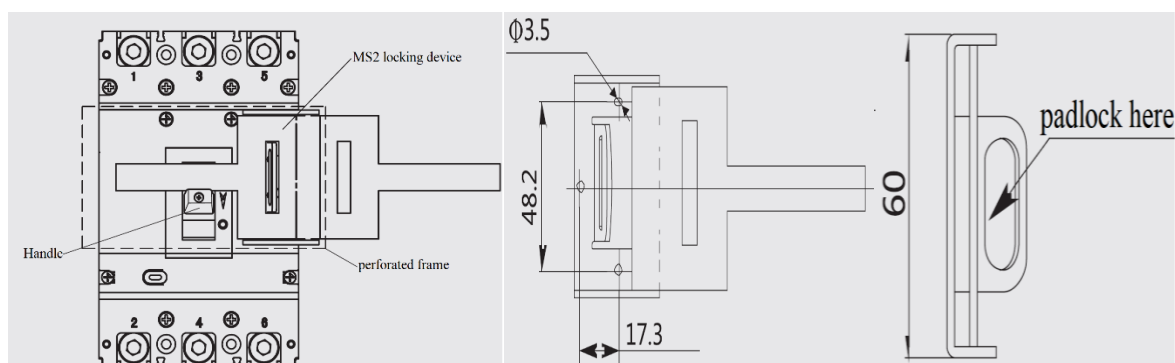
Voltage specification: AC 50Hz AC110V、AC220V、AC380V、DC24V、DC110V、DC220V

Table 6 Main technical parameters of electric operating mechanism

Equipped with Disconnecting Switch	Action current(A)	Electric power(W)				service life / time	Operating mechanism height H(mm)
		AC/DC220V	AC/DC110V	AC380V	DC24V		
NDM3G-630	≤ 2	≤ 350	≤ 250	≤ 600	160	10000	147

6.4 MS2 locking device

MS2 is a split locking device (i.e. the device is installed on the left or right side of the Disconnecting Switch cover, and the default is installed on the right side if there are no special requirements). It is used for NDM3G series products to prevent manual closing and opening (the dotted line part is the Disconnecting Switch part).



Installation diagram of MS2 lock mechanism (Unit: mm)

Note 1: After MS2 accessories are selected, other internal and external accessories cannot be installed on the same side;

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

6.5 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)
Model	With a terminal cover	Without a terminal cover		
NDM3G-630	25	120	35	35

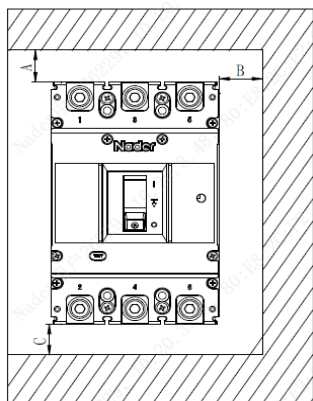


Table 8 Minimum Center Distance between Rowed Disconnecting Switchs (Unit: mm)

Model	Width of Disconnecting Switch		I Center distance	
	2, 3 poles	4 poles	2, 3 poles	4 poles
NDM3G-630	182	240	222	280

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.

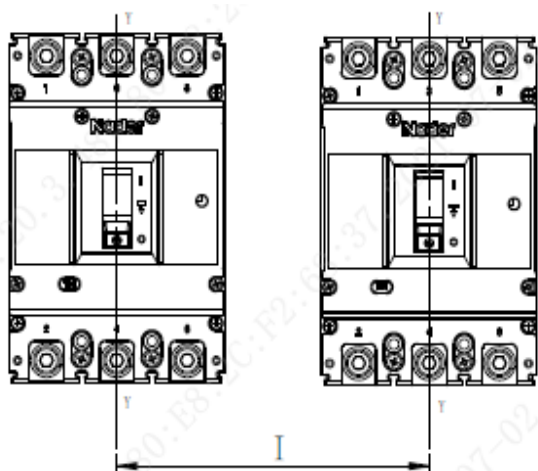


Table 9 Minimum Distance between Stacked Disconnecting Switchs (Unit: mm)

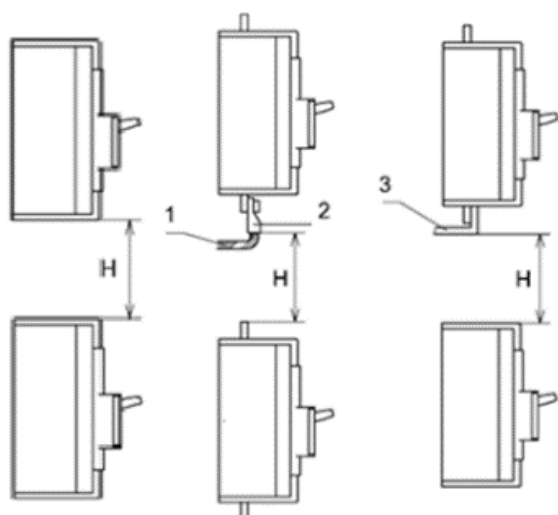
Model	H (distance of Disconnecting Switch from bottom)	
	With a terminal cover	Without a terminal cover
NDM3G-630	155	155

Note 1): Insulated cable

2) Cable terminal

3) Connection without insulation

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



7、Attachment function description

7.1 Auxiliary contact

The circuit breaker is in the "open" and "free tripping" positions	Dual-auxiliary contact	F14 F12	F11	F24 F22	F21
	Single auxiliary contact	F14 F12	F11		
the circuit breaker is in the "close" position	"close" to "open"、 " open " to " close "				

7.1.1 Current parameters of auxiliary contact

Table 10 Current parameters of auxiliary contact

Model	Conventional thermal current I_{th} (A)	Rated working current I_e (A)	
		AC400V (AC-15)	DC220V (DC-13)
NDM3G-630	3	1.5	0.15

7.1.2 Electrical life of auxiliary contact

Table 11 Electrical life of auxiliary contact

Usage category	On			Off			Times	Frequency	Power on time
	I/I _e	U/U _e	cosφ	I/I _e	U/U _e	cosφ			
AC-15	10	1	0.3	1	1	0.3	6050	360	≥0.05s
DC-13	1	1	6Pe	1	1	6Pe			≥T0.95ms

7.1.3 Making and breaking capacity of auxiliary contact

Table 12 Making and breaking capacity of auxiliary contact

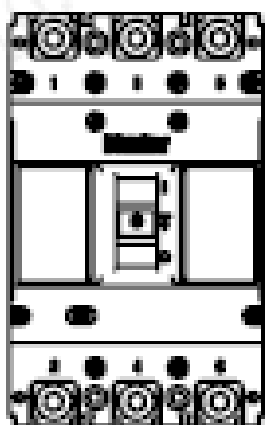
Usage category	On			Off			Times	Frequency	Power on time
	I/Ie	U/Ue	$\cos\varphi$	I/Ie	U/Ue	$\cos\varphi$			
AC-15	10	1.1	0.3	10	1.1	0.3	10	360	$\geq 0.05s$
DC-13	1.1	1.1	6Pe	1.1	1.1	6Pe			$\geq 0.95ms$

Note: Auxiliary contact wiring standard wire length is 0.7m, 1m、2m、4m can be customized according to demand.

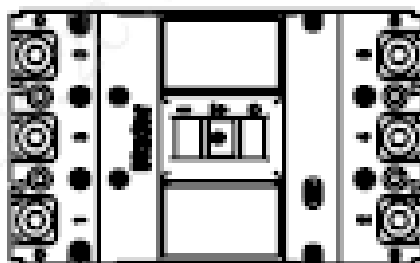
8. Installation Direction of Disconnecting Switch

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 with 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. Installation Direction of Disconnecting Switch

SN	Name	Specification	2P Quantity/Set	3P Quantity/Set	4P Quantity/Set
1	Cross small pan-head screw	M6×75	4	4	6
2	Hexagon nut	M6	4	4	6
3	Spring washer	6	4	4	6
4	Plain washer	6	8	8	12
5	Phase partition	——	4	4	6
6	Plug	——	6	6	8
7	Hexagon head combination bolt	M12×35	4	6	8

11. Disconnecting Switch Notes

- 1) Various characteristics and accessories of the Disconnecting Switch are set in the factory. The Disconnecting Switch, tripping unit 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.

“The storage life is three years”

Record number: LX4.203R-14B