CCC, CQC, CB, CE, TUV

Molded Case Circuit Breakers

NDM3Z-320V series

QUISURE
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ISO9001:2015
QUALITY GUARANTEED

1 Application scope and purpose

The NDM3Z-320V DC1500V molded case circuit breakers (referred to as circuit breakers) have a rated insulation voltage of DC1500V, the rated working voltage to DC1500V and rated working current 250A to 320A. The circuit breakers are used for distributing power while protect the overload and short circuit of lines and power units.

The circuit breaker has an isolating function with the corresponding symbol of  ;

Comply with standards: IEC60947-2, GB/T 14048.2.

2 Pictures of the product

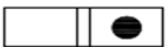
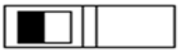
Product

3 Model and implication

ND	M	3	□	- 320	□	/ □	□	□	□	□	□
1	2	3	4	5	6	7	8	9	10	11	12

No.	Name	NDM3Z
1	Enterprise characteristic code	ND: Nader
2	Product code	M: MCCB
3	Design SN	3
4	Derivation code	Z: DC MCCB
5	Frame current Inm (A)	320A
6	High voltage level	V
7	Operation mode	No code：handle direct operation
8	Number of poles	3
9	Release code	3：Multiple release
10	Accessories	See Table 1
11	Rated current In (A)	See Table 2
12	Cabling mode	3P no code：general product

Table 1 Accessories

product / No. / Accessories		NDM3Z-320V
		3
00	None	—
10	Shunt release	
21	Single auxiliary contact	
41	Shunt release+ Single auxiliary contact	

4 Main technical parameters

Table 2 Main technical parameters

Type		NDM3Z-320V	
Frame current Inm		320	
Rated voltage Ue (V)		250A, 300A, 320A	
Rated insulation voltage Ui(V)		1500	
Rated impulse withstand voltage Uimp(kV)		12	
Power frequency withstand voltage (1min)		3820	
Usage category		A	
Poles		3	3
Rated insulation voltage Ui(V)		1500	1500 PV
Rated ultimate short-circuit breaking capacity Icu(kA)		10	20（τ=5ms）
Rated service short-circuit breaking capacity Ics(kA)		10	20（τ=5ms）
Life	Electrical life	1000	
	Mechanical life	10000	

4.1 Selection of sectional area of busbar and cable of the circuit breaker

Table 3 Selection of sectional area of busbar and cable of NDM3Z-320V

Rated current (A)	250	300	320
Wire cross-section area (mm^2)	120	185	185

4.2 Connecting terminal/Tightening torque value of mounting screw

Table 4 Connecting terminal/Tightening torque value of mounting screw

Type	Thread diameter (mm)	Torque value （N·m）
NDM3Z-320V	M8	12
	M4	2.4

4.3 Table of elevation reduction of circuit breaker

Table 5 Table of elevation reduction of circuit breaker

Frame current	Table of elevation reduction of products corresponding to temperature							
320	Temperature (℃)	40	45	50	55	60	65	70
	Correction factor	1	1	1	0.95	0.93	0.91	0.88

Note: 1) When the operating ambient temperature is below +50℃, the product can be used normally without derating capacity;

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

4.4 High altitude elevation reduction coefficient

Table 6 High altitude elevation reduction coefficient of circuit breaker

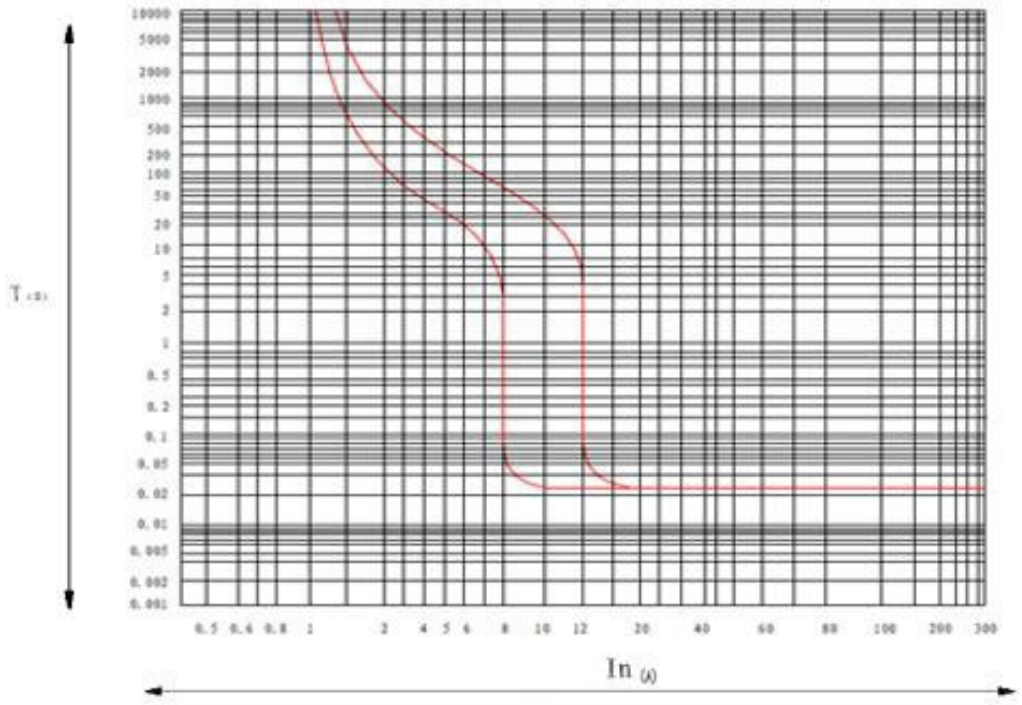
Altitude (km)	Average working current	Maximum working voltage	Average insulation class
2	In	1Ue	1U
3	0.97In	1Ue	1U
4	0.93In	1Ue	1U
5	0.89In	1Ue	1U

Note: If the altitude is more than 2000m, the electrical performance of the circuit breaker shall be corrected according to table 6, and the insulation plate shall be padded between the circuit breaker and the metal insulation plate when the NDM3Z-320V 3P is used for the altitude above 3000m（see7.3）.

5 Working conditions

1) Elevation: ≤2000m;
2) Ambient air temperature: -35℃～+70℃; the average value within 24 hours doesn't exceed +35℃;
3) Storage environment: -40℃ ～+75℃; Atmospheric conditions: ambient air temperature of +40℃, with a relative humidity of 90%;
4) The product can withstand the influence of humid air, salt mist, oil mist and mould;
5) Installation category: main circuit and under-voltage release: installation category Ⅲ; auxiliary circuit and control circuit: installation category Ⅱ;
6) Class of pollution: 3;
7) Protection class: IP20; The product is installed in the explosive dangerous medium, and the medium is not enough to corrode the metal and damage the insulating gas and conductive dust, so as to avoid the use in the place where rain and snow attack.

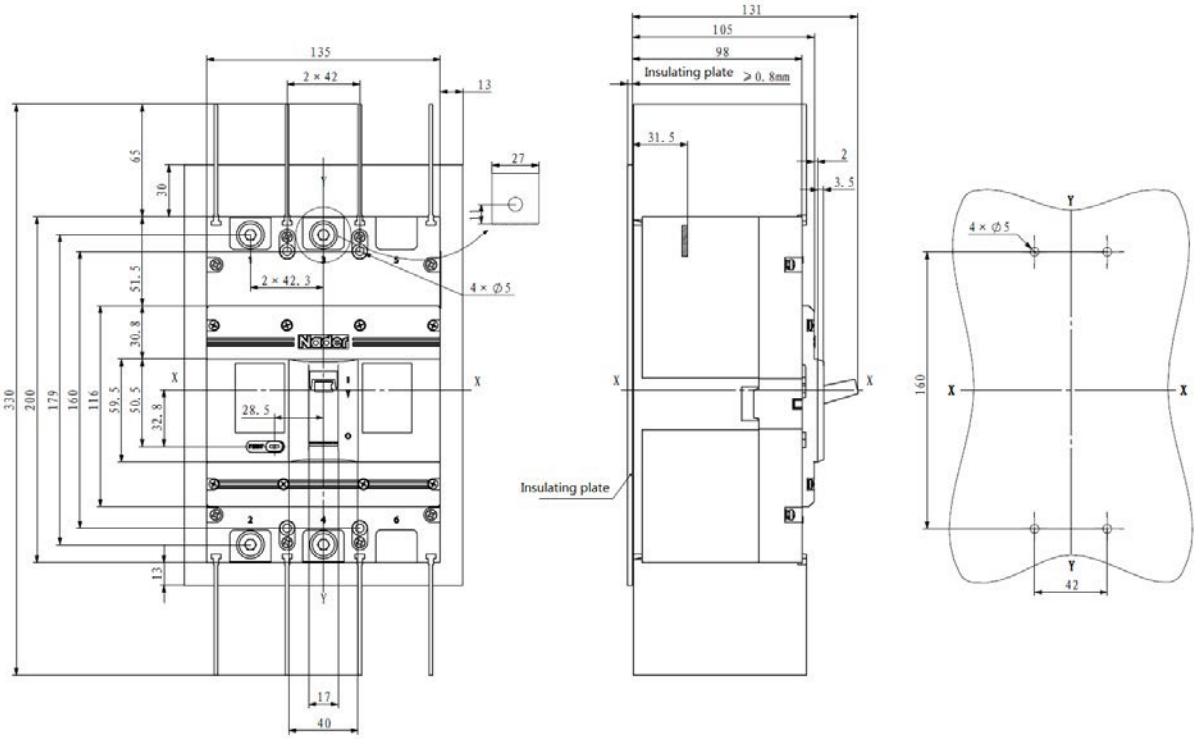
6 Time-Current curves



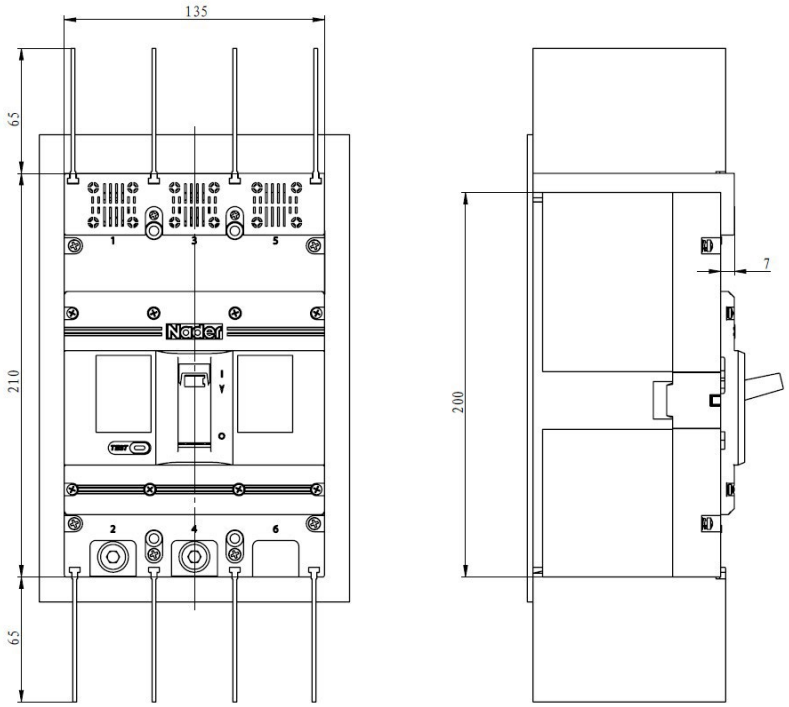
7 Outline and installation dimensions

7.1 External dimensions of products

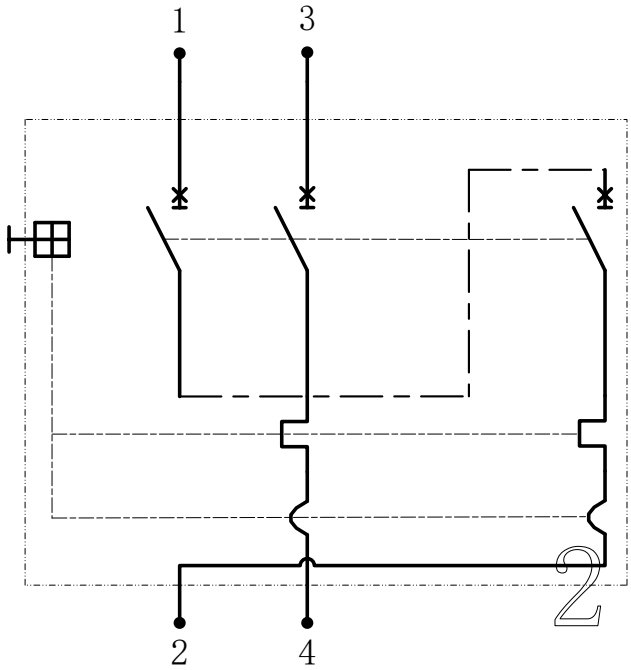
7.1.1 3P（X-X、Y-Y is the center of the circuit breaker）



7.1.2 3P（with terminal cover）

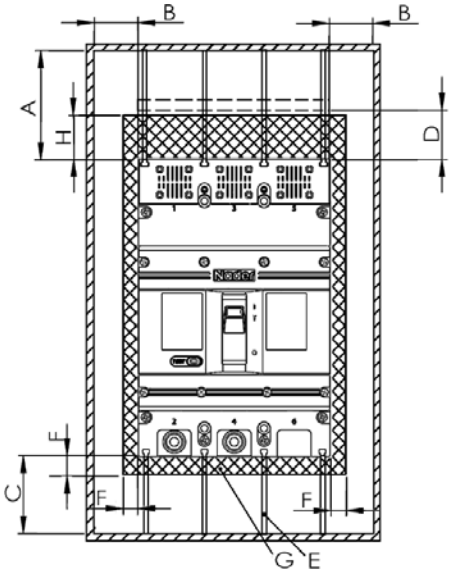


7.2 Wiring diagrams of the product main circuit



NDM3Z-320V/3P

7.3 Safety spacing (mm)



A：Line to the cabinet
B：Side to the cabinet
C：Load to the cabinet
D：To non-conductive parts
E：Partition
F/H：Circuit breaker to the insulating plate
G：The thickness of the insulating plate≥0.8mm

Table 7 Insulation distance installed in metal cabinet（mm）

Type	A	B	C	D	F	H	I
NDM3Z-320V	65	30	65	25	3	20	13

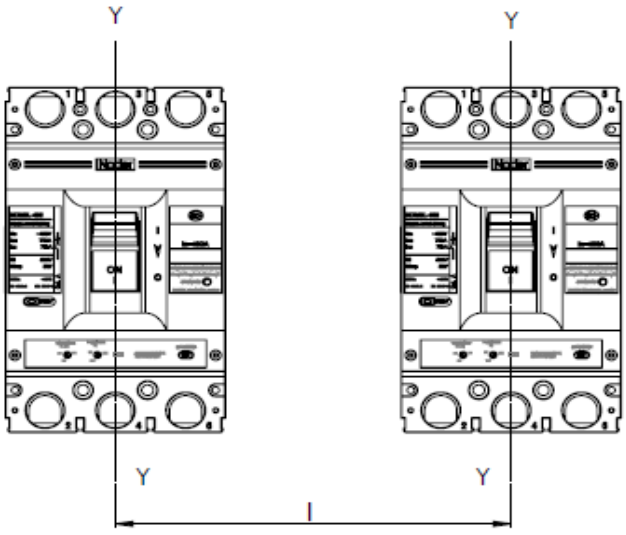


Table 8 Minimum distance between row of circuit breakers（mm）

Type	L
	3P
NDM3Z-320V	190

Note: When the circuit breaker is arranged of stacked, check the connecting busbar or cable to ensure that the air insulation distance will not be reduced.

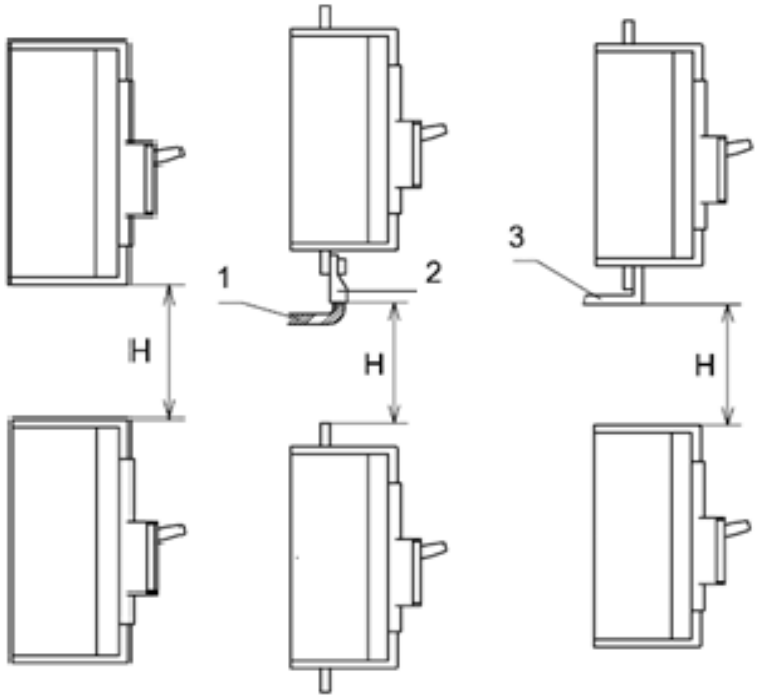


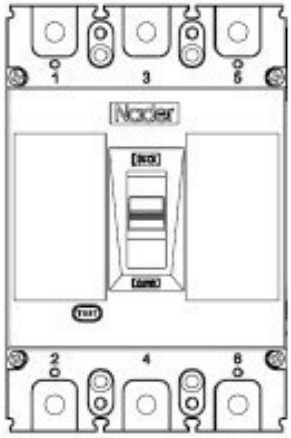
Table 9 Minimum center distance between circuit breaker stacks（mm）

Type	H
	with terminal cover
NDM3Z-320V	95

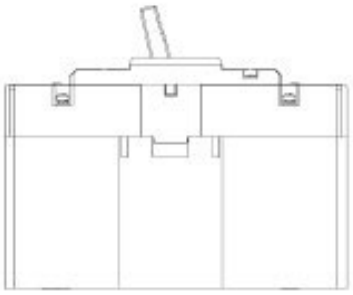
Note：1：Bare cable connection；2：Cable insulation connection； 3：Connection without insulation；4：Check that the terminal cover is assembled in place through the interphase partition before the product is powered on.

8 Installation method

The product allowable installation mode is shown as the figure below. Inclination of mounting surface and vertical surface≤±22.5°



Vertical installation



Horizontal installation

9 Packaging and storage

Minimum packaging quantity: 1 piece/box. The packaged products should be stored in a warehouse with air circulation and relative humidity no more than +80℃, ambient temperature no more than +75℃ and no less than -35℃ and without acidic, alkali or other corrosive gas in the surrounding air.

Users shall obey the storage and use conditions. In case of product damage or abnormal use due to manufacturing quality issues within 36 months from the date of factory delivery, the factory shall be responsible for free maintenance or replacement.

10 Accessory list and installation

SN	Name	Specifications	Quantity / Set (3P)
1	Cross small pan-head screw(s)	M4×45	4
2	Hexagon nut(s)	M4	4
3	Partition	——	8

11 Notices

1) The circuit breaker, tripping unit or other accessories can only be installed and maintained by the trained or qualified professionals;
2) Ensure that the power supply is off before installing or removing any device;
3) The handle of the circuit breaker can be in 3 positions, respectively indicating the 3 states of closing, opening and free tripping. When the handle is in the state of free tripping, pull the handle towards the opening direction, and then the circuit breaker can be buckled before closing.