

Product Specification

Product name: Molded Case Circuit Breaker (MCCB)

Product Model: NDM3A-630M Series

Date: 20170413

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| Prepared by | Reviewed by | Approved by |
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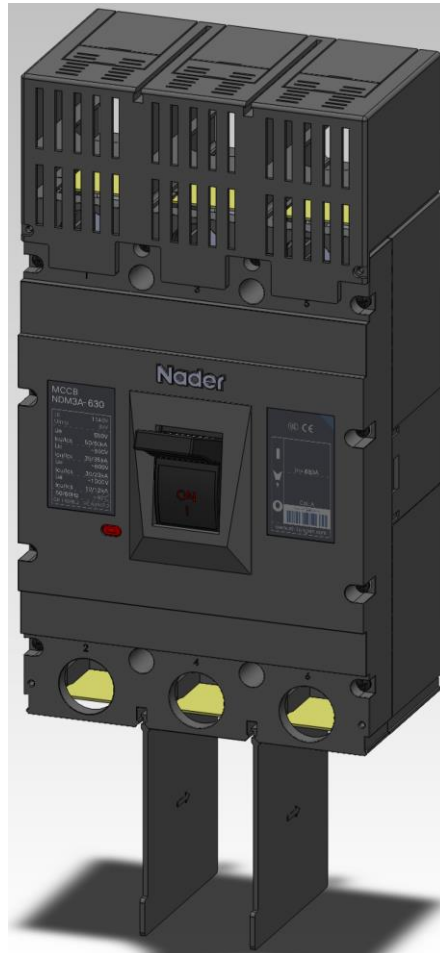
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1. Applicable Scope and Purpose

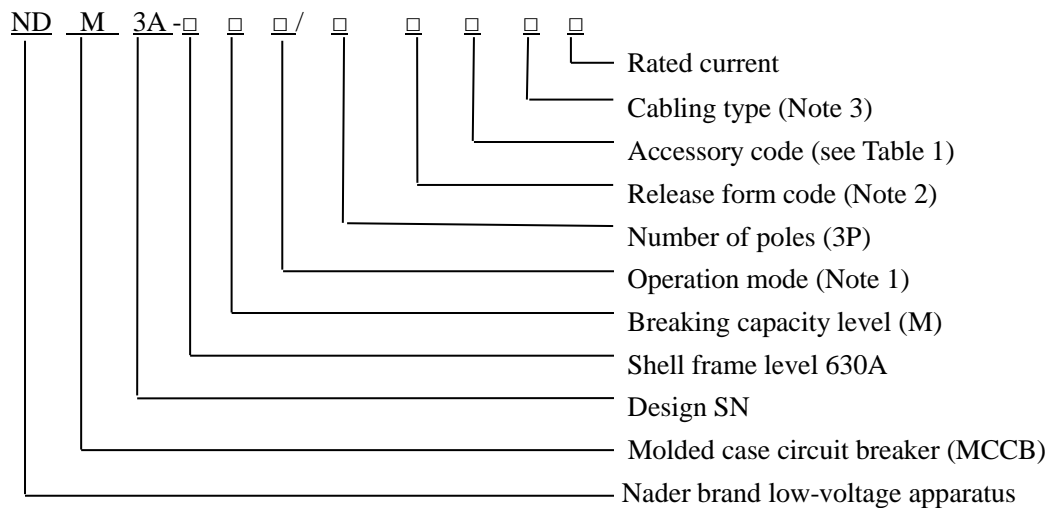
NDM3A series of molded case products apply to infrequent switching of circuits with the AC 50Hz (or 60Hz), the rated working voltage of 1000V and rated working current of 630A. With the overload, short circuit and undervoltage protection functions, the circuit breaker can protect lines and power equipment from damage.

The molded case circuit breaker is widely used in new energy industry, plant, building, household and other occasions.

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



3. Specification and Model Description



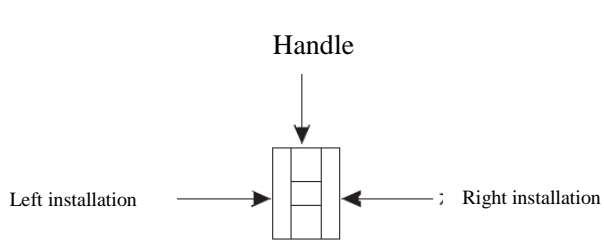
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Note 1: Handle operation is uncoded; P: Representing the electric operation; Z: Representing the manual operation

Note 2: 0: Release (none); 2: Instantaneous release only; 3: Complex release

Note 3: ① Normal products are uncoded; ② P: Extended connection busbar; ③ Z1: Rear-plate connection; ④ Z2H: Plug-in rear-plate connection; ⑤ Z2Q: Plug-in front-plate connection

Table 1: Comparison Table of Accessory Code:



Legend

- Single auxiliary contact
- Dual-auxiliary contact
- Alarm contact
- Shunt release
- Shunt release
- Under-voltage release

Table 1

Auxiliary contact (a single accessory integrates the auxiliary and alarm functions)

| | | | | | |
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| Accessory code | Accessory name | Model | | |
|----------------|--|-----------|-----------|-----------|
| | | NDM3A-250 | NDM3A-400 | NDM3A-630 |
| 00 | None | — | — | — |
| 10 | Shunt release | | | |
| 20 | Dual-auxiliary contact | | | |
| 21 | Single auxiliary contact | | | |
| 30 | Under-voltage release | | | |
| 40 | Shunt release, dual-auxiliary contact | | | |
| 41 | Shunt release, single auxiliary contact | | | |
| 50 | Shunt release, under-voltage release | | | |
| 60 | Two sets of dual auxiliary contacts | | | |
| 61 | Two sets of single auxiliary contacts | | | |
| 62 | Dual-auxiliary contact, single auxiliary contact | | | |
| 70 | Under-voltage release, dual-auxiliary contact | | | |
| 71 | Under-voltage release, single auxiliary contact | | | |
| 08 | Alarm contact | | | |
| 18 | Shunt release, alarm contact | | | |
| 28 | Dual-auxiliary contact, alarm contact | | | |
| 38 | Under-voltage release, alarm contact | | | |
| 48 | Shunt release, single auxiliary/alarm contact | | | |
| 58 | Single auxiliary/alarm contact | | | |
| 68 | Dual-auxiliary contact, single auxiliary/alarm contact | | | |
| 78 | Under-voltage release, single auxiliary/alarm contact | | | |

4. Main Technical Parameters

| | | | | | |
|---|----------------|-----|-----|-----|------|
| Model | NDM3A-630M | | | | |
| Rated current of frame I_{nm} (A) | 630 | | | | |
| Rated current I_n (A) | 400, 500, 630, | | | | |
| Rated insulation voltage U_i (AC V) | 1140 | | | | |
| Rated impulse withstand voltage U_{imp} (V) | 8000 | | | | |
| Power frequency withstand voltage U (V) | 3500 | | | | |
| Rated working voltage U_e (AC V) | 550 | 600 | 690 | 800 | 1000 |
| Rated limit short-circuit breaking capacity I_{cu} (kA) | 50 | 42 | 35 | 30 | 12 |

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|--|-----------------|---------------|------|------|------|------|
| Rated operating short-circuit breaking capacity I _{cs} (kA) | | 50 | 42 | 35 | 23 | 12 |
| Operating performance (times) | Electrical life | 4000 | 2500 | 2000 | 1500 | 1000 |
| | Mechanical life | 10000 | | | | |
| Boundary dimension | | 182×270×108.5 | | | | |

5. Derating Parameter Table of Temperature for the Circuit Breaker

| | Derating factor (I _n) | | | | | | |
|------------|-----------------------------------|-------|-------|-------|-------|-------|-------|
| | +40℃ | +45℃ | +50℃ | +55℃ | +60℃ | +65℃ | +70℃ |
| NDM3A-630M | 1 | 0.979 | 0.958 | 0.937 | 0.915 | 0.893 | 0.871 |

Note: The above derating factors are measured at the frame current

6 High-altitude derating factor

| Altitude (km) | Rated operating current | Maximum operating voltage | Rated power frequency withstand voltage |
|---------------|-------------------------|---------------------------|---|
| 2 | I _n | U _e | U |
| 2.5 | I _n | U _e | U |
| 3 | 0.980I _n | 0.870U _e | 0.909U |
| 3.5 | 0.972I _n | 0.846U _e | 0.858U |
| 4 | 0.963I _n | 0.813U _e | 0.820U |
| 4.5 | 0.951I _n | 0.781U _e | 0.784U |
| 5 | 0.938I _n | 0.743U _e | 0.752U |

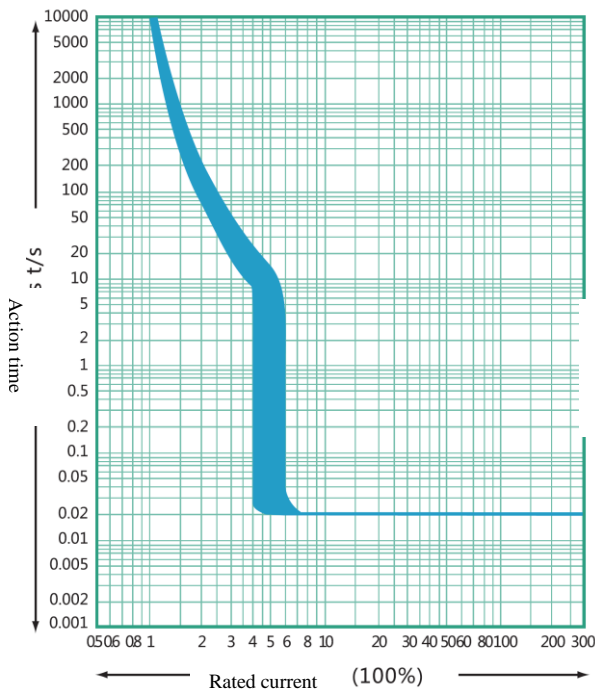
7. Normal Working Environment

- ▲ Altitude: ≤2000m.
- ▲ Ambient temperature: -40℃~+70℃.(Reduced capacity is not considered with the temperature below +40℃)
- ▲ Pollution level: 3.
- ▲ The product can withstand the effects of wet air, salt mist, oil mist and mould.
- ▲ The product should be installed free from snow and rain.
- ▲ The product can be disposed in places that are free from explosive media, media corrosive to metal, insulation damaging gas, and conductive dust.
- ▲ In case of stricter user conditions than the above description, negotiate with the manufacturer.

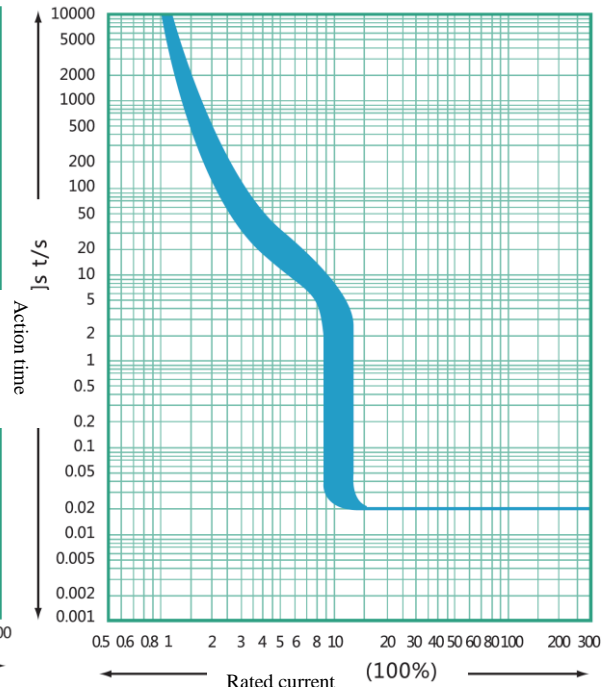
8. Characteristic Curve of Circuit Breaker

| Rated current of the release (A) | Thermal release (ambient temperature +40℃) | | Action current of the magnetic release (A) | |
|----------------------------------|---|--|--|----------------------------|
| | 1.05I _n (cold state) inaction time (h) | 1.3I _n (cold state) action time (h) | 5I _n | 10I _n (default) |
| 400≤I _n ≤630 | ≥ 2 | <2 | 5I _n (1±20%) | 10I _n (1±20%) |

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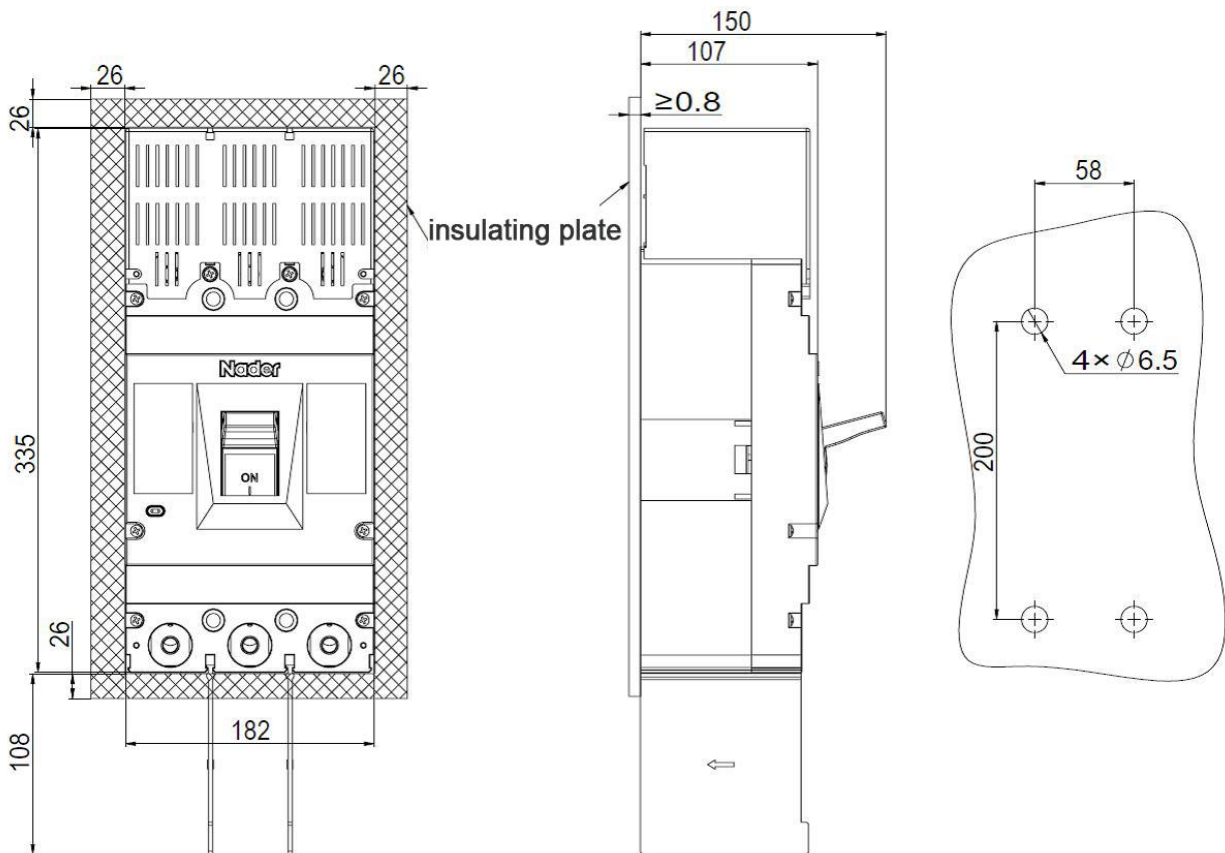


$I_i = 5 \times I_n$



$I_i = 10 \times I_n$

9. Outline and Mounting Hole Dimensions



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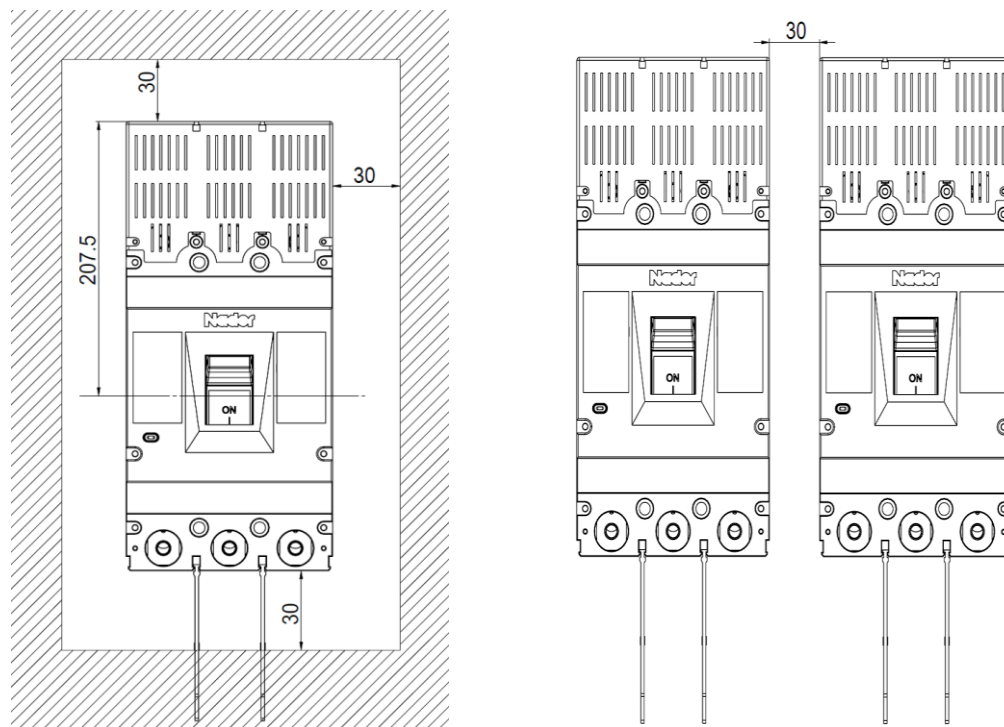
Note 1: The limit deviation not indicated with the tolerance dimensions is as per GB/T 1804-m.

2: During use, a terminal cover and phase partition shall be installed respectively on the terminal side of 1, 3, 5 as well as 2, 4, 6 as shown in the figure. Besides, an insulating plate shall be inserted between the circuit breaker and the metal mounting plate with the hole dimension of the insulating plate same as the mounting plate (to be prepared by users).

10. Installation Mode

Installation mode: The product can be installed horizontally or vertically. For vertical installation of the product, the gradient between the installation surface and the vertical plane is no more than $\pm 22.5^\circ$.

1) Insulation distance mounted in the metal cabinet (mm)



2) Minimum center distance between rowed circuit breakers (mm)

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

11. Packaging and Storage

Minimum packaging quantity: 1 piece/box. The packaged products should be stored in a warehouse with the ambient temperature condition of $-40^\circ\text{C}\sim 75^\circ\text{C}$ and the corresponding relative humidity below 80% to the temperature without acidic, alkali or other corrosive gas in the surrounding air. Under the conditions above, the storage period shall be no more than 36 months since the manufacturing date.

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12. List of Accessories and Installation

| SN | Name | Specification | Quantity/piece |
|----|---|---------------|----------------|
| 1 | Cross small pan-head combination screws | M6×75 | 4 |
| 2. | Washer | 6 | 4 |
| 3 | Spring washer | 6 | 4 |
| 4 | Hexagon nut | M6 | 4 |
| 5 | Phase partition | — | 2 |

13. Precautions

▲ Various characteristics and accessories of the circuit breaker are set in the factory, which shall not be adjusted randomly;

▲ The circuit breaker 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 circuit breaker is connected and on.

▲ Make sure to add a phase partition for product use.