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# CHNT

Empower the World



## NM1 Moulded Case Circuit Breakers

# ABOUT CHINT



## CHINT A leading global provider of smart energy solutions

CHINT was established 38 years ago in 1984 and built from the capital of approximately 8,000 US dollars. With our rapid development these years, CHINT has become the world's leading intelligent energy solutions provider for the whole industrial chain with the most complete product ranges. In 2021, our annual sales revenue exceeded 16.1 billion dollars and total assets of more than 16.2 billion.

Over two decades of global expansion, our business network covers more than 140 countries and regions worldwide in business industries of low-voltage electric, power transmission and distribution, smart technology, energy instruments and meters, green energy, solar and more. CHINT has more than 40,000 employees worldwide, creating more than 200,000 jobs in the industrial chains.

As the market localization progresses steadily, CHINT Global further establishes its supply chain through business integration and industrial upgrade. Optimizing the service system and project financing, providing innovatively integrated technical services for the global energy market, and a flexible working business model. energy, intelligent manufacturing and digital technology, CHINT has adopted "One Cloud & Two Nets" as the business strategy, takes "CHINT Cloud" as the carrier of intelligent technology and data application, and takes the lead in building the energy Internet of things (EIoT) and industrial Internet of things platforms (IIoT).

Focusing on the energy system of supply, storage, transmission, distribution and consumption, CHINT has core businesses of clean energy, energy distribution, big data and energy value-added services. Furthermore, CHINT's pillar businesses include photovoltaic equipment, energy storage, power transmission & distribution, low-voltage apparatuses, intelligent terminals, software development and control automation. By developing into a platform-based enterprise, CHINT provides a package of energy solutions for public institutions, industrial & commercial users and end-users, by building a regional smart energy operation ecosphere.

### Main Businesses



Clean Energy



Low-voltage Apparatus



Power Transmission and Distribution



Instrumentation and Apparatus



Smart Home



Intelligent Building



Intelligent Manufacturing



Industry Automation



Smart Heating



Smart Water



Home Electrical Apparatus



Energy Efficiency Management



# ABOUT CHINT LOW VOLTAGE

Zhejiang CHINT Electrics Co., Ltd. is a wholly owned subsidiary of CHINT Group. Cultivating R&D, manufacturing and sales of low-voltage products, we provide system solutions for building, power supply, hoisting, HVAC, telecommunication and other industrial customers. For nearly 40 years since its founding, CHINT Electrics has provided reliable products and services to over 140 countries and regions. Today, CHINT has grown to be one of the world's renowned low-voltage brands.

## CHINT Honors

2022

- "AAAAA" standardized good behavior certificate
- "Global Partnership" and "Countries along the Belt and Road" in the "2021 Best Practices for Realizing the Sustainable Development Goals".
- CSR Impact Leading Enterprise

2021

- No. 1 in "China's Top 100 Private Enterprises with Social Responsibility" in 2021
- For 8 consecutive years, CHINT has won the sales champion of Tmall double 11 in electrical and hardware industry
- No. 92 in "2021 China's Top 500 Private Enterprises".
- No. 244 in "2021 Top 500 Chinese Enterprises"
- The intelligent manufacturing factory of low-voltage electrical appliances was selected as the national "2021 Intelligent Manufacturing Demonstration Factory".

2020

- CHINT was selected in the 2020 Zhejiang Province "Future Factory" recognized list, and was rated as the leading "Leading Goose Factory".
- The key inverter technology of CHINT won the second prize of China Electric Power Science and Technology.
- CHINT Astrometry was selected as the smart PV demonstration enterprise list of the Ministry of Industry and Information Technology and won the honor of "Influential PV cell/module brand", "Influential PV EPC / End User", "Influential PV power station operation and maintenance brand".

2019

- National Green Factory
- National Industrial Design Center of the MIIT
- Global Top 20 PV Enterprise
- China's Top 10 Successful PV Enterprise
- Top 100 Innovative Enterprises in Zhejiang Province
- Technology innovation system was awarded the 2018 Science and Technology Progress Award in Zhejiang

## Qualification Certification

The products have been accredited through China Compulsory Certification (CCC) as well as UL of US, CE of EU, VDE and TÜV of Germany, KEMA of Netherlands, RCM of Australia, RCC of South Africa and other international product certifications.





# GLOBAL FOOTPRINT



**4** National R&D Centers: North America, Europe, Asia Pacific, North Africa

**6** International Marketing Territories: Asia Pacific, Western Asia and Africa, Europe, Latin America, North America, China

**14** Manufacturing Bases: China (Wenzhou, Hangzhou, Shanghai, Jiaxing, Xianyang, Jinan, Yancheng), Thailand, Singapore, Vietnam, Malaysia, Egypt, Algeria and Cambodia

**20+** International Logistics Centers

**2300+** Sales Companies

## GLOBAL CAPACITY LAYOUT

The industrial manufacturing bases are mainly located in Wenzhou, Hangzhou, Shanghai, Jiaxiang, Xianyang and Yancheng. Additionally, CHINT has set up factories in Thailand, Singapore, Vietnam, Malaysia, Egypt, Cambodia etc.



# R&D, QUALITY, SALES, LOGISTICS

## Main Advantages

### Global R&D System

CHINT has established national R&D centers in North America, Europe, Asia Pacific, North Africa and other areas. We have explored the mode of Industry-University Research Institute Collaboration and Integration together with the universities and research institutions worldwide so as to integrate the global innovation resources and promote corporate R&D innovation and talent cultivation.



24 research institutes



The average annual R&D investment accounts for 4-12% of the revenue



Over 6000 patents in total

## Global Certification

The products have passed the standards and specifications in various regions around the world and obtained numerous international certifications



## Honors

- No. 1 in China's Top 100 Private Enterprises with Social Responsibility in 2021
- No. 92 in 2021 China's Top 500 Private Enterprises
- No. 244 in 2021 Top 500 Chinese Enterprises
- The intelligent manufacturing factory of low-voltage electrical appliances was selected as the national 2021 Intelligent Manufacturing Demonstration Factory



### Integrated Vertical R&D

By gathering the global industry elites to Provide safe and stable energy-saving green and advanced electric products.

### Great Quality System

Ensuring flaw-free and trouble-free products, the multi-dimensional and multilevel control is conducted through procurement, inspection, quality control and certification.

### One-stop Services

CHINT's concept is that it is not difficult to fulfill a high-quality logistics distribution at one time, while it is difficult to stay as accurate and prompt as the first-time. High-efficiency and high-precision accuracy are our requirement.

### 48-Hour Response

Providing end-to-end one-stop services for customers with complains, business consulting and technical support by solving problems immediately and including any possible problems in advance.

5%

At least 5% of revenue is invested in research and development



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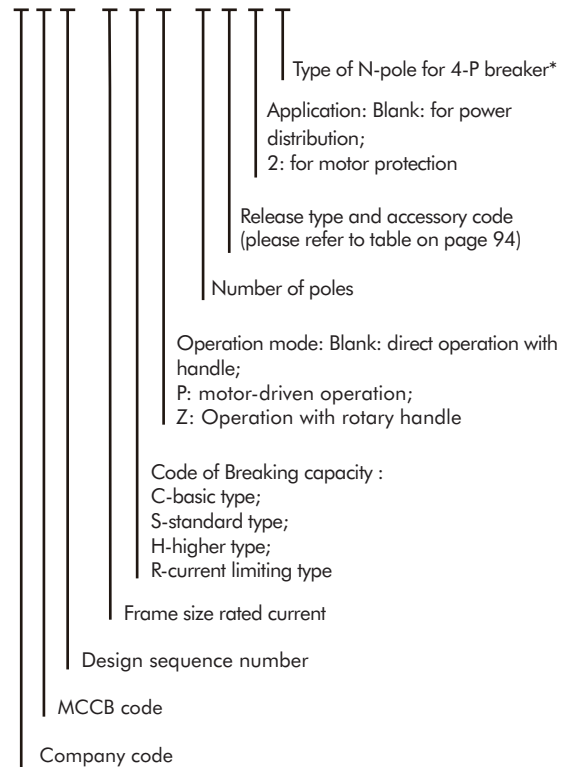
# NM1 Moulded Case Circuit Breaker

## 1.General

- 1.1 Certificates: KEMA, UKrSEPRO, EAC, RCC, EK;
- 1.2 Electric ratings: AC 690V/50/60HZ, 10~1250A;
- 1.3 Mounting mode: Vertical and horizontal;
- 1.4 Standard: IEC/EN60947-2.

## 2.Type designation

N M 1 - □ □ □ / □ □ □ □

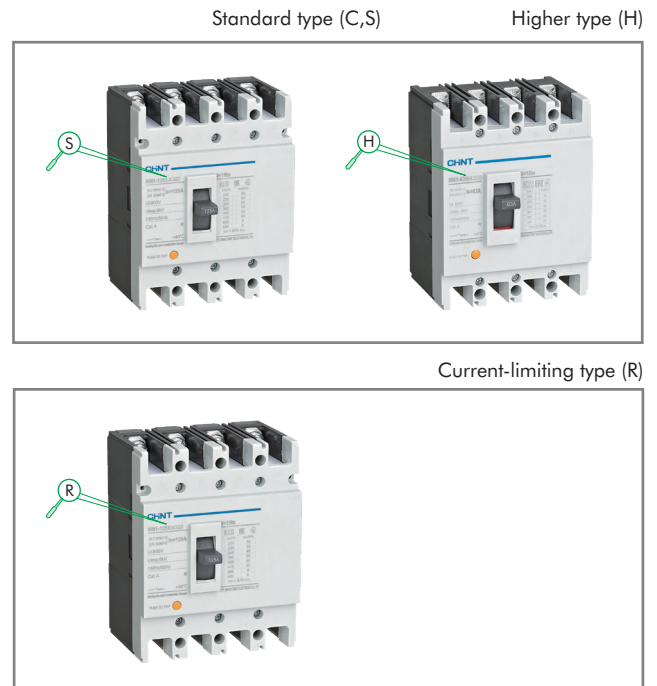


Note \*: There is types of N-pole for 4P breaker.

B: Without current release components, N-Pole makes with the other three poles(N-pole first makes then breaks);

## 3. Classification

According to breaking capacity of breaker:



According to wiring mode:

Front connection



According to operation mode:

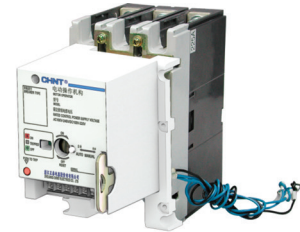
Direct operation with handle



Operation with rotary handle



Motor-driven operation



According to number of poles:

2P



3P



4P



## 4. Operating conditions

4.1 Temperature:  $-5^{\circ}\text{C} \sim +40^{\circ}\text{C}$  ; the average value within 24h shall not exceed  $+35^{\circ}\text{C}$  .(please refer to coefficients on P79 for temperature compensation correction); for the circuit breaker with thermo-magnetic release,  $+40^{\circ}\text{C}$  is set to be the standard temperature for ratings. For temperature not between  $-5^{\circ}\text{C} \sim +40^{\circ}\text{C}$  , please contact us for temperature compensation correction.

4.2 Altitude: not exceed 2000m (Please contact with us for reduction coefficient if altitude at the mounted site beyond 2000m).

4.3 Pollution grade: Grade 3

4.4 IP grade: IP30

4.5 Air conditions

At mounting site, relative humidity not exceed 50% at the max temperature of  $+40^{\circ}\text{C}$  , higher relative humidity is allowable under lower temperature. For example, RH could be 90% at  $+20^{\circ}\text{C}$  , special measures should be taken to occurrence of dews.

5. Technical data

According to wiring mode	63			125				250				400				630				800				1250															
Electric characteristics as per IEC 60947-2, EN 60947-2																																							
Rated current (A) In 40°C	10, 16, 20, 25, 30, 32, 40, 50, 63			25, 30, 32, 40, 50, 63, 80, 100, 125				100, 125, 140, 150, 160, 175, 180, 200, 225, 250				250, 300, 315, 350, 400				400, 450, 500, 630				630, 700, 800				800, 1000, 1250															
Rated insulation voltage (V) Ui	500			800				800				800				800				800				800															
Rated impulse withstand voltage(kV) Uimp	6			8				8				8				8				8				8															
Rated impulse withstand voltage(kV) Uimp	415			690				690				690				690				690				690															
Rated impulse withstand voltage(kV) Uimp	≤50			≤50				≤50				≤100				≤100				≤100				≤100															
Rated impulse withstand voltage(kV) Uimp	S	H		C	S	H		R	C	S	H		R	S	H	R		S	H	R		S	H	R		H													
Number of poles	3	3		3	3	2		3	4	3	2	3	4	1	3	4	2	3	4	3	3	4	3	3	4	3	3												
Rated ultimate short-circuit breaking capacity Icu (kA, rms)	AC 220/230/240V	20		42	42		25	42		65	65		65	85	25	25	25	20	42	42	65	65		65	85	50	50	85	100	50	50	85	100	65	65	85	85	100	85
Icu (kA, rms)	AC 380/400/415V	15		35	35		20	25		50	50		50	65	20	20	20	10	25	25	50	50		50	65	35	35	50	70	35	35	50	70	50	50	60	60	70	65
Test sequence: O-t-CO	AC 660/690V	-		-	-		3	3		-	8		8	10	-	5	5	-	5	5	-	8	8		10	10	10	12	15	12	12	15	15	12	12	20	20	20	20
Rated service short-circuit breaking capacity Ics (%Icu)	50%			50%				50%				50%				50%				50%				50%															
Test sequence: O-t-CO-t-CO																																							
Isolation function	■			■				■				■				■				■				■															
Utilization class	A			A				A				A				A				A				A															
Front connection	■			■				■				■				■				■				■															
Rear connection	■			■				■				■				■				■				■															
Plug in type	■			■				■				■				■				■				■															
Shunt release	■			■				■				■				■				■				■															
Under-voltage release	■			■				■				■				■				■				■															
Auxiliary contact	■			■				■				■				■				■				■															
Alarm contact	■			■				■				■				■				■				■															

Note:  
 The symbols O-t-Co, O-t-Co-t-Co are used for defining the sequence of operations.  
 O: breaking operation; t: the time interval between two successive short-circuit operations;  
 CO: a making operation followed, after the appropriate opening time, by a breaking operation.



### 6. Release

Inverse time breaking action property of the over current releasing of the breaker ( for power distribution) at the status that all poles are electrified simultaneously

No.	Test current	I/In	Conventional time	Initial status
1	Conventional non-trip current	1.05	2h(In > 63A), 1h(In≤63A)	Cold status
2	Conventional trip current	1.30	2h(In > 63A), 1h(In≤63A)	Right after test no. 1

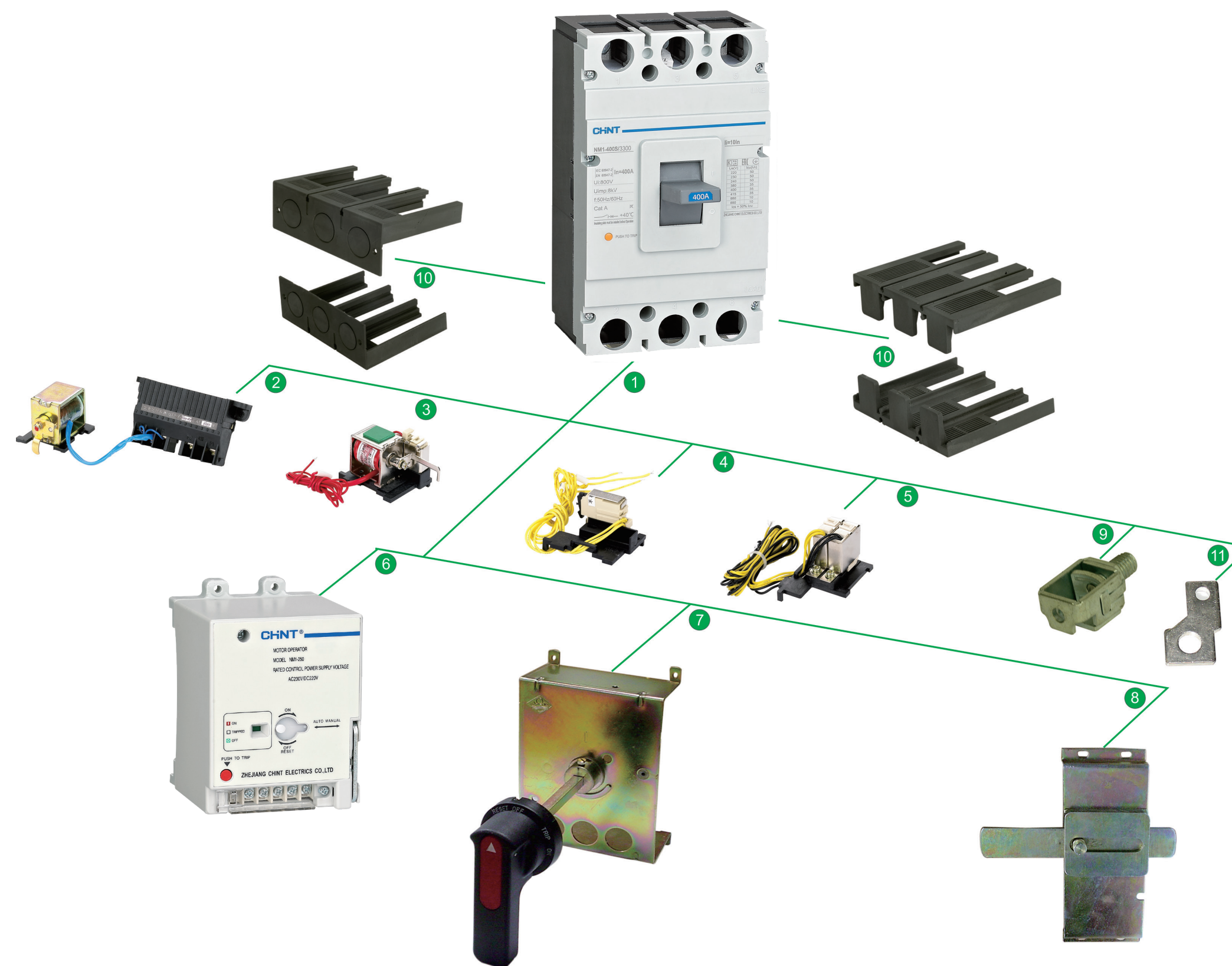
Inverse time-delay breaking operation property of the over current tripping of the breaker(for motor protection) at the status that all poles are electrified simultaneously(conforms to IEC60947-3)

Serial No.	Setting current	Conventional time	Start-up status	Remark
1	1.0In	> 2h	Cold status	
2	1.2In	≤2h	Right after test number 1	
3	1.5In	≤2min	Hot state	10A≤In≤25A
		≤4min	Hot state	25A≤In≤63A
		≤8min	Hot state	63A≤In≤125A
4	7.2In	0.5s≤Tp≤5s	Cold state	10A≤In≤25A
		2s≤Tp≤10s	Cold state	25A≤In≤63A
		4s≤Tp≤10s	Cold state	63A≤In≤125A
		6s≤Tp≤20s	Cold state	125A≤In≤800A

### 7. Product overview

NM1 Moulded Case Circuit Breaker

- 1 MCCB (fixed type)
- 2 Under-voltage release
- 3 Shunt release
- 4 Alarm contact
- 5 Auxiliary contact
- 6 Motor-driven operation mechanism
- 7 Extended manual operation handle
- 8 Mechanical interlock
- 9 Cage clamp terminal
- 10 Terminal cover
- 11 Front connection plate



8. Curves (for power distribution, calibrated at 40°C)

8.1 The characteristic curve of anti-time limit and the correcting curve of temperature see fig.

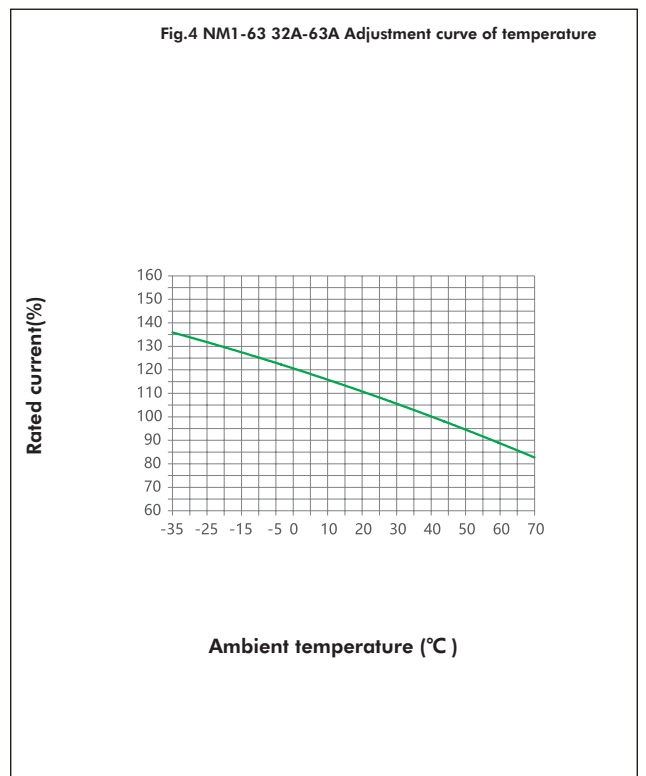
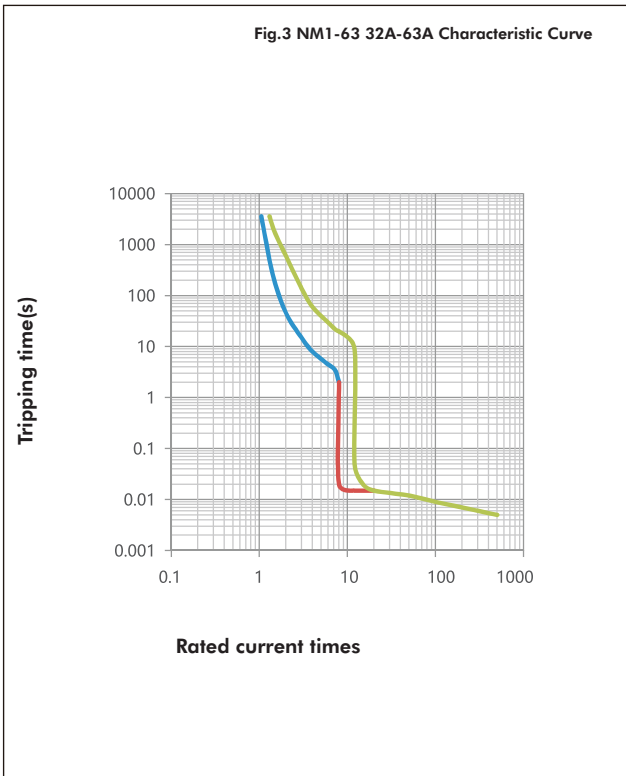
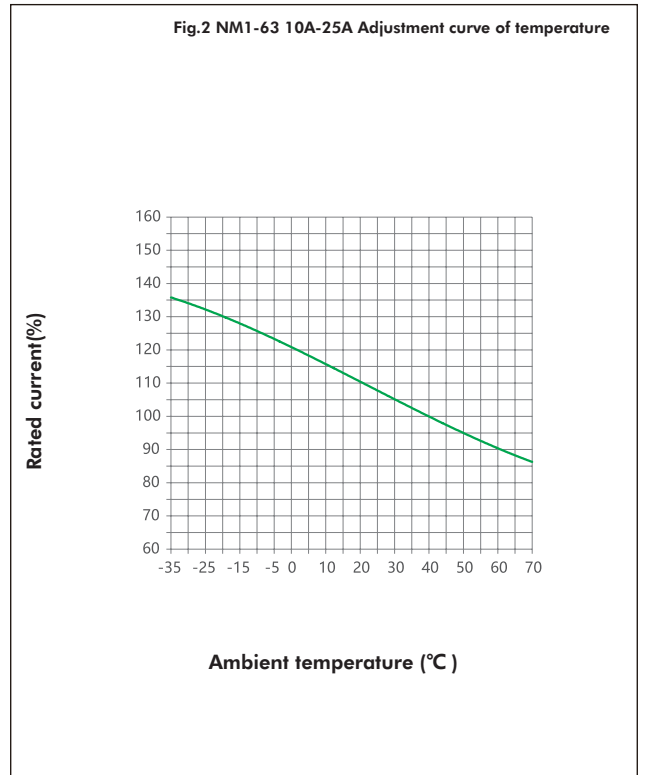
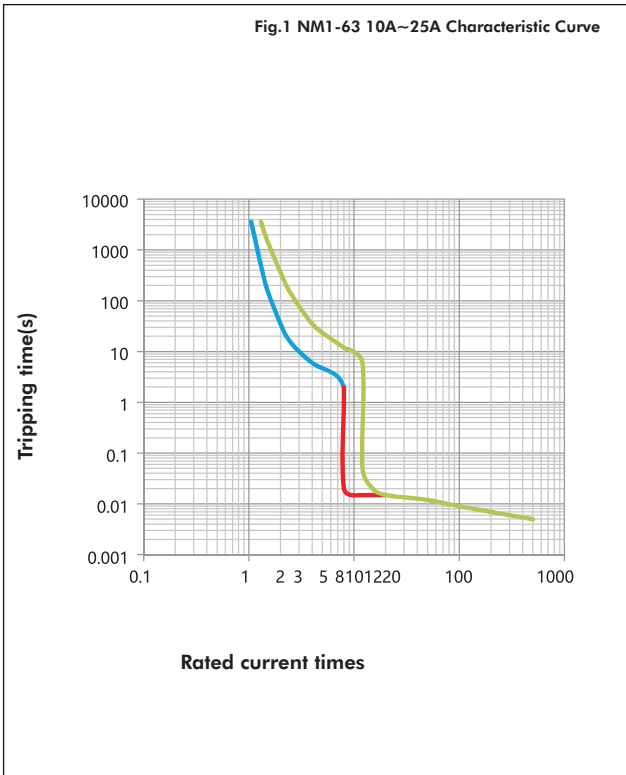


Fig.5 -125 16-25A Characteristic Curve

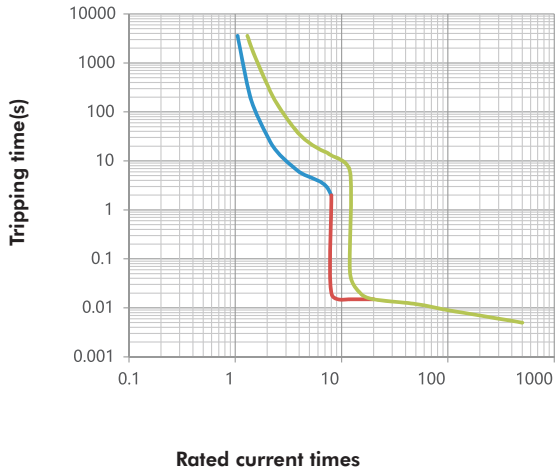


Fig.6 NM1-125 16-25A Adjustment curve of temperature

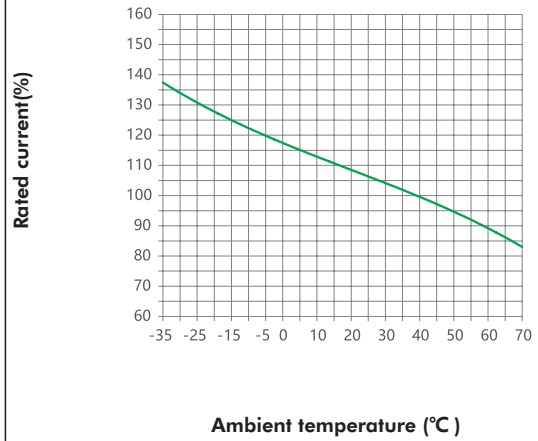


Fig.7 NM1-125 32A-63A Characteristic Curve

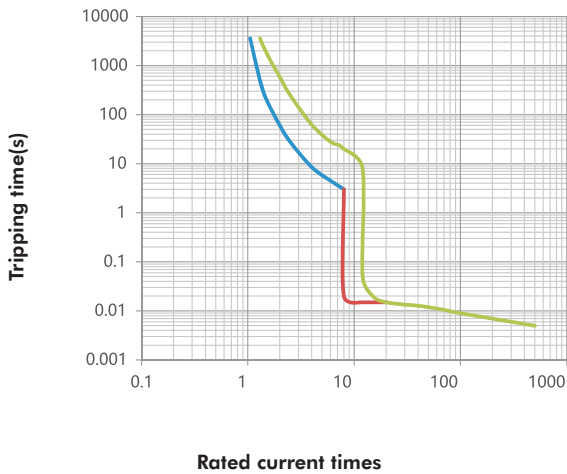


Fig.8 NM1-125 32A-63A Adjustment curve of temperature

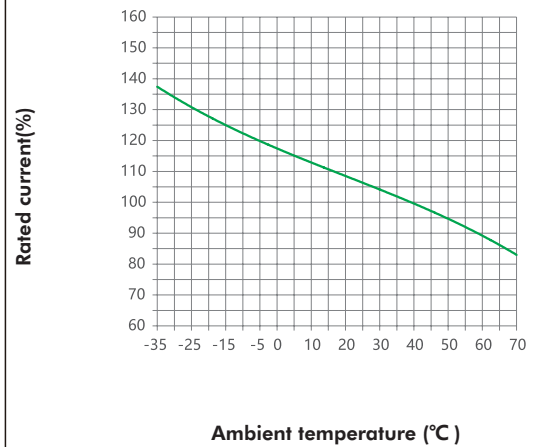




Fig.9 NM1-125 63A above Characteristic Curve

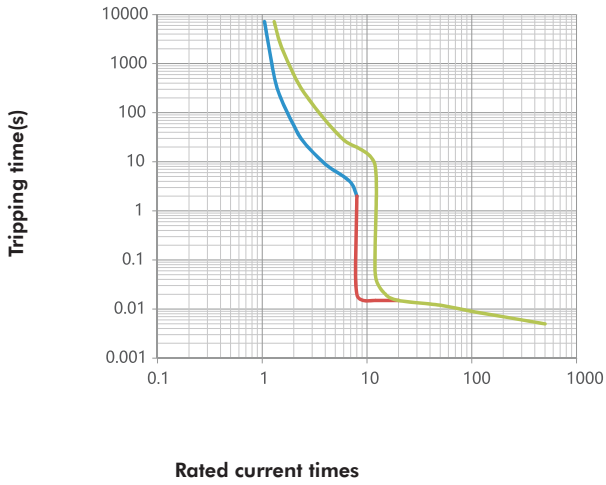


Fig.10 NM1-125 63A above Adjustment curve of temperature

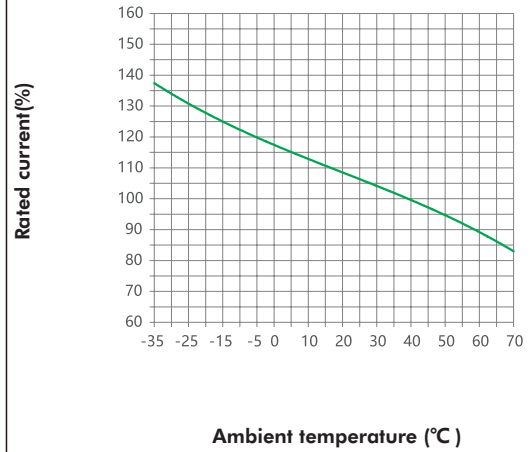


Fig.11 NM1-250 Characteristic Curve

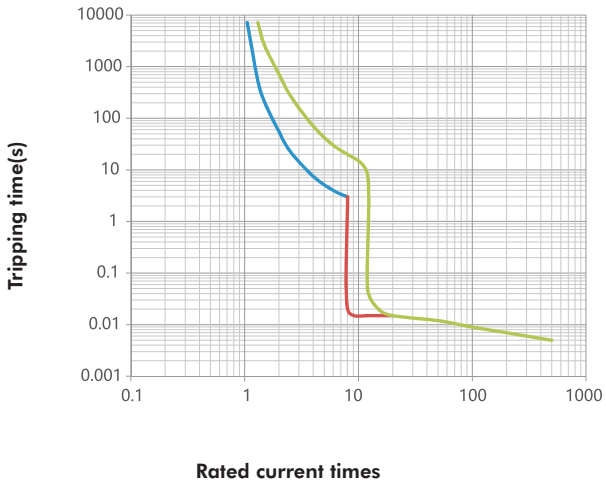


Fig.12 NM1-250 Adjustment curve of temperature

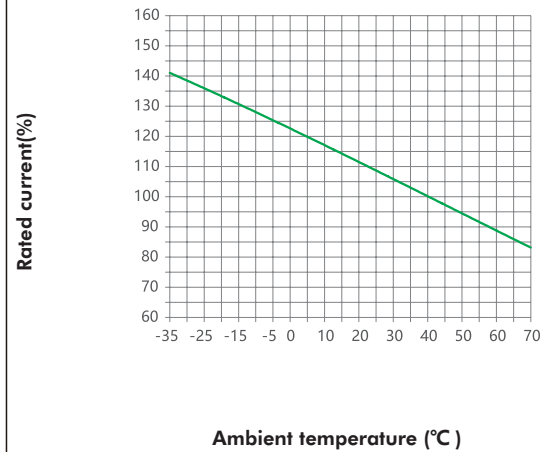


Fig.13 NM1-400 Characteristic Curve

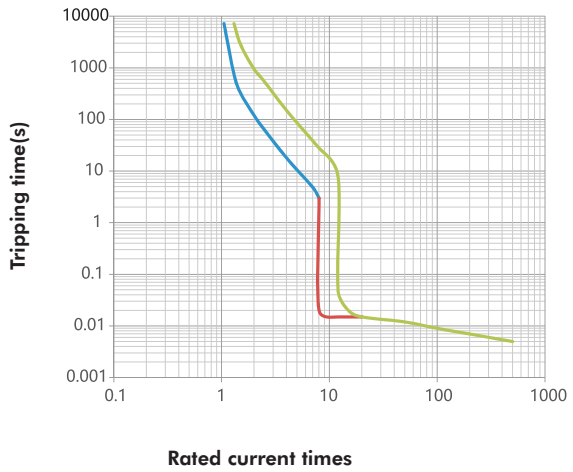


Fig.14 NM1-400 Adjustment curve of temperature

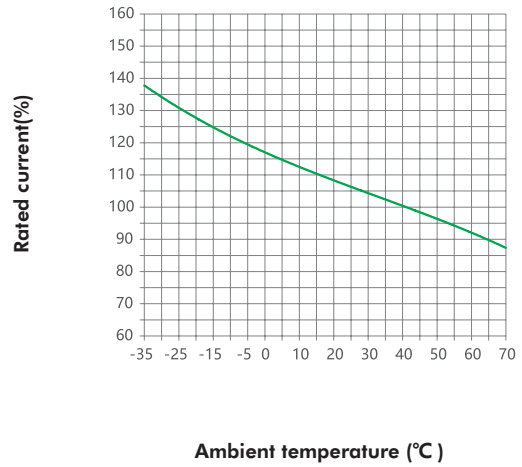


Fig.15 NM1-800 Characteristic Curve

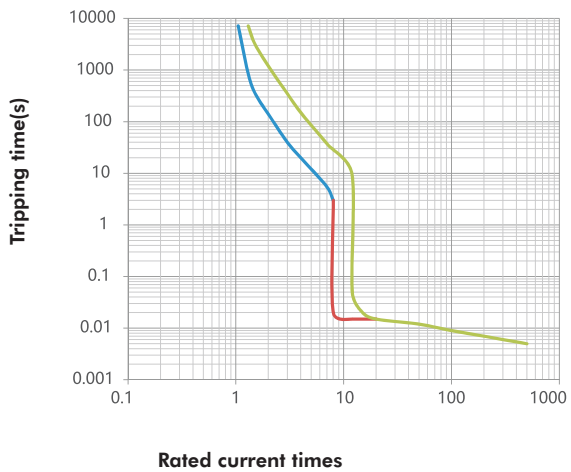


Fig.16 NM1-800 Adjustment curve of temperature

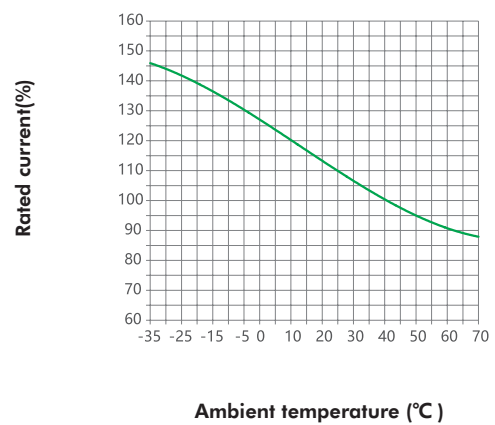


Fig.17 NM1-1250 Characteristic Curve

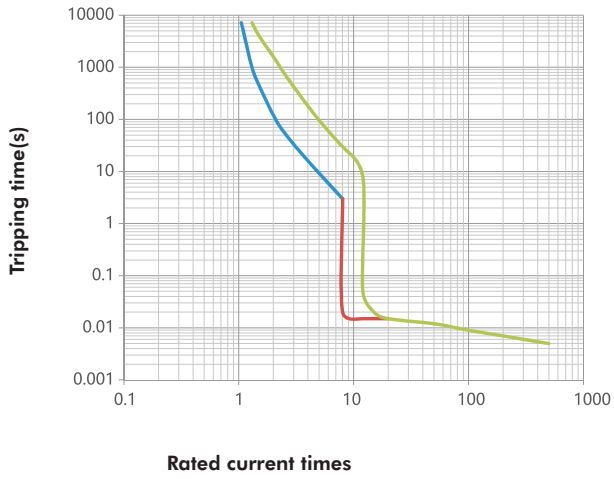
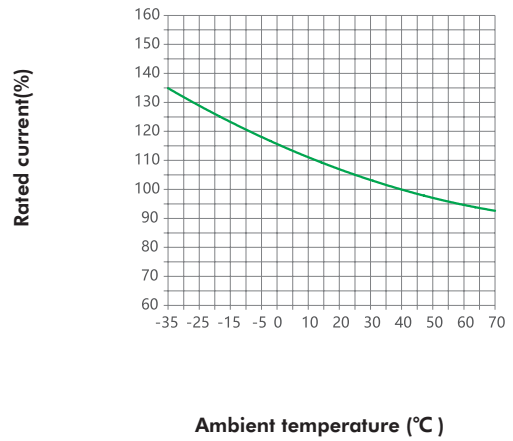


Fig.18 NM1-1250 Adjustment curve of temperature





8.2 Temperature compensation correction

NM1 series temperature compensation coefficient table (calibration at 40°C , for the calibration at other temperature standards please contact with us)

Type	Current range	Compensation coefficient													
		-5°C	0°C	5°C	10°C	15°C	20°C	25°C	30°C	35°C	40°C	45°C	50°C	55°C	60°C
NM1-63S, H	10~32A	1.18	1.17	1.16	1.14	1.12	1.09	1.07	1.05	1.03	1	0.97	0.95	0.92	0.87
NM1-63S, H	40~63A	1.16	1.16	1.15	1.14	1.12	1.10	1.08	1.06	1.03	1	0.97	0.94	0.87	0.82
NM1-125C, S, H, R	25~32A	1.18	1.17	1.16	1.14	1.12	1.09	1.07	1.05	1.03	1	0.97	0.95	0.92	0.87
NM1-125C, S, H, R	40~125A	1.16	1.16	1.15	1.14	1.12	1.10	1.08	1.06	1.03	1	0.97	0.94	0.87	0.82
NM1-250 S, H, R	100~250A	1.14	1.13	1.13	1.12	1.10	1.08	1.07	1.05	1.03	1	0.97	0.93	0.86	0.76
NM1-400S, H, R	225~400A	1.13	1.12	1.12	1.11	1.10	1.08	1.06	1.05	1.03	1	0.97	0.93	0.85	0.75
NM1-630S, H, R	400~630A	1.13	1.12	1.12	1.11	1.10	1.08	1.07	1.05	1.03	1	0.97	0.93	0.85	0.75
NM1-800S,H, R	630~800A	1.13	1.12	1.12	1.11	1.10	1.08	1.07	1.05	1.03	1	0.97	0.93	0.85	0.75
NM1-1250H	700~1250A	1.14	1.13	1.12	1.11	1.10	1.09	1.07	1.05	1.03	1	0.97	0.92	0.85	0.76

9. Wiring

Front connection(Fixed connection)

Extended connection terminals (for products 10~1250A, extended terminals are available)

Connection screws



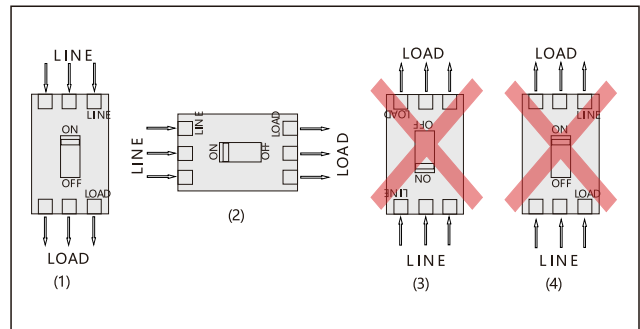
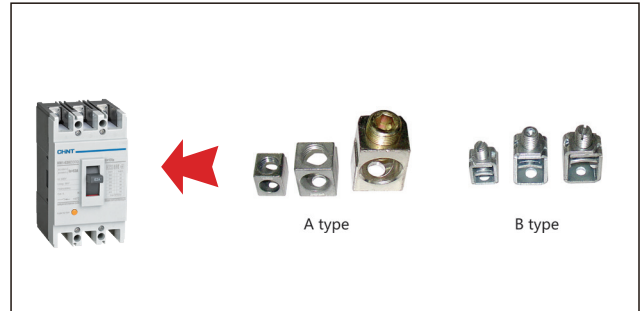


Frame level	Current (A)	Breaking capacity code	Front connection screw		
			Hexagonal head screw (A)	Hexagonal socket screw (B)	Cross screw (C)
63	10	S		■	
		H		■	
	16	S		■	
		H		■	
	20	S		■	
		H		■	
	25	S		■	
		H		■	
	30	S		■	
		H		■	
	32	S		■	
		H		■	
	40	S		■	
		H		■	
	50	S		■	
		H		■	
	60	S		■	
		H		■	
63	S		■		
	H		■		
125	25	C		■	■
		S		■	■
		H		■	■
		R		■	■
	30	C		■	■
		S		■	■
		H		■	■
		R		■	■
	32	C		■	■
		S		■	■
		H		■	■
		R		■	■
	40	C		■	■
		S		■	■
		H		■	■
		R		■	■
	50	C		■	■
		S		■	■
		H		■	■
		R		■	■
	60	C		■	■
		S		■	■
		H		■	■
		R		■	■
	63	C		■	■
		S		■	■
		H		■	■
		R		■	■
	75	C		■	■
		S		■	■
		H		■	■
		R		■	■

Frame level	Current (A)	Breaking capacity code	Front connection screw		
			Hexagonal head screw (A)	Hexagonal socket screw (B)	Cross screw (C)
125	80	C		■	■
		S		■	■
		H		■	■
	100	R		■	■
		C		■	■
		S		■	■
		H		■	■
		R		■	■
		C		■	■
	125	S		■	■
		H		■	■
		R		■	■
250	100	S		■	
		H		■	
		R		■	
	125	S		■	
		H		■	
		R		■	
	140	S		■	
		H		■	
		R		■	
	150	S		■	
		H		■	
		R		■	
160	S		■		
	H		■		
	R		■		
175	S		■		
	H		■		
	R		■		
180	S		■		
	H		■		
	R		■		
200	S		■		
	H		■		
	R		■		
225	S		■		
	H		■		
	R		■		
250	S		■		
	H		■		
	R		■		
400	225	S	■	■	
		H	■	■	
		R	■	■	
	250	S	■	■	
		H	■	■	
		R	■	■	
	300	S	■	■	
		H	■	■	
		R	■	■	

Frame level	Current (A)	Breaking capacity code	Front connection screw		
			Hexagonal head screw (A)	Hexagonal socket screw (B)	Cross screw (C)
400	315	S	■	■	
		H	■	■	
		R	■	■	
	350	S	■	■	
		H	■	■	
		R	■	■	
	400	S	■	■	
		H	■	■	
		R	■	■	
630	400	S		■	
		H		■	
		R		■	
	450	S		■	
		H		■	
		R		■	
	500	S		■	
		H		■	
		R		■	
630	S		■		
	H		■		
	R		■		
800	630	S		■	
		H		■	
	700	R		■	
		S		■	
	800	H		■	
		R		■	

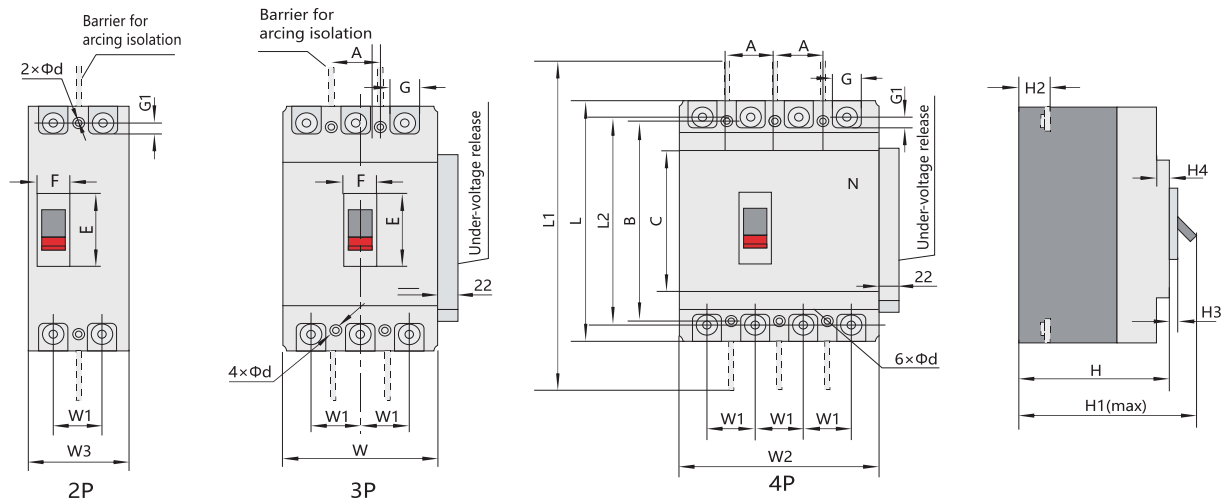
Cage clamp terminals (for products 16~400A, cage clamp terminals are available)



Modes of down-lead (1) and (2) illustrated in the figure are available for your wiring operation. For its breaking capacity may be affected, mode of down-lead (3) is not recommended, before reception of any authorized announcement from the manufacturer; the mode of down-lead (4) is prohibited for your wiring.

10. Overall and mounting dimensions

Fig. 15a NM1-63, 125, 250 fixed connection

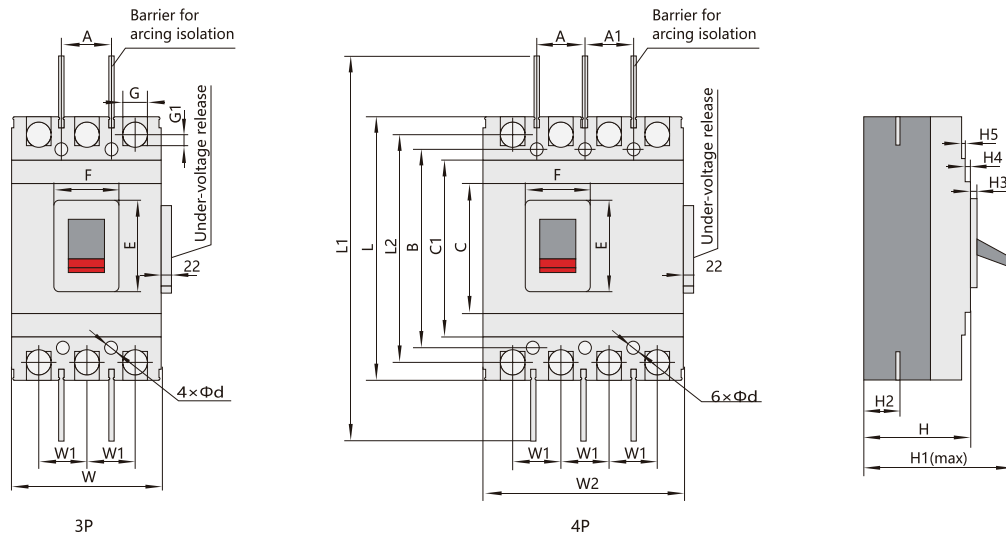


(mm)

Dimension		NM1-63S	NM1-63H	NM1-125S	NM1-125H NM1-125R	NM1-125H/2P	NM1-250S	NM1-250H NM1-250R	NM1-250S/2P
Overall dimensions	C	85	85	85	85	85	102	102	102
	E	48	48	51	51	51	51	51	51
	F	23	23	23/22	23	23	23	23	23
	G	14	14	17.5	17.5	17.5	23	23	23
	G1	6.5	6.5	7.5	7.5	7.5	11.5	11.5	11.5
	H	71	80	68	86	86	87	103.5	85.5
	H1	91	100	86	104	102	110	127	109
	H2	18.5	27.5	24	24	24	24	24	23
	H3	6	6	4	4	4	3.5	3.5	3.5
	H4	5	5	7	7	7	5.5	5.5	5.5
	L	135	135	155	155	150	165	165	165
	L1	235	235	255	255	250	362	362	362
	L2	117	117	136	136	130	144	144	144
	W	76	76	90	90	—	105	105	—
W1	25	25	30	30	30	35	35	35	
W2	—	103	120	120	—	140	140	—	
W3	—	—	65	—	65	—	75	75	
Mounting dimensions	A	25	25	30	30	—	35	35	—
	B	117	117	130.5	130.5	129	126	126	126
	Φd	4.5	4.5	4.5×6	4.5×6	4.5	5	5	5



Overall and mounting dimensions of NM1-400, 630, 800, 1250(Fixed type)



(mm)

Dimension	NM1-400S/3P NM1-400H/3P NM1-400R/3P	NM1-400S/4P NM1-400H/4P	NM1-630S/3P NM1-630H/3P NM1-630R/3P	NM1-630S/4P NM1-630H/4P	NM1-800S/4P NM1-800H/4P NM1-800R/3P	NM1-800S/4P NM1-800H/4P	NM1-1250S/3P	NM1-1250H/3P	
Overall dimensions	C	128	128	136	136	135.5	135.5	204	204
	C1	174	174	184.5	184.5	204	204	316	345.5
	E	89	89	89	89	81	81	100	100
	F	66	66	66	66	66	66	78	78
	G	30	30	40.5	40.5	45	45	—	—
	G1	11.5	11.5	15.5	15.5	12	12	—	—
	H	107.5	107.5	112	112	118	118	141	141
	H1	162	162	164.5	164.5	168	168	202	202
	H2	40	40	42	42	42	42	55/57	55/57
	H3	6	6	6.5	6.5	4.5	4.5	19	19
	H4	5	5	3.5	3.5	4.5	4.5	2	2
	H5	4.5	4.5	4.5	4.5	8	8	4.5	4.5
	L	257	257	270	270	280	280	406	406*
	L1	466	466	472	472	490	490	710	715
	L2	224	224	234	234	243	243	—	—
W	150	—	182	—	210	—	210	210	
W1	48	48	58	58	70	70	70	70	
W2	—	198	—	240.5	—	280	—	—	
Mounting dimensions	A	44	44	58	58	70	70	70	70
	A1	—	50	—	58	—	70	—	—
	B	194	194	200	200	243	243	375	375
	Φd	8	8	7	7	7	7	10	10

\*Note: Length of NM1-1250H with the connection board, is 545mm

11. Accessories

Inner accessories



Accessory	Accessory code		Mounting and wiring mode			
	Magnetic only release	Compound release	NM1-125H,R NM1-250H,R	NM1-63S,H NM1-125C,S,H,R NM1-250S,H NM1-400S,H,R NM1-630S,H,R NM1-800H, R		NM1-1250H
				2P	3P 4P	
No accessory	200	300				
Alarm contact	208	308				
Shunt release	210	310				
Auxiliary contact	220	320				
Under-voltage release	230	330				
Shunt release, auxiliary contact	240	340				
Shunt release, under-voltage release	250	350				
Two groups of auxiliary contacts	260	360				
Auxiliary contact, under-voltage release	270	370				
Shunt release, alarm contact	218	318				
Auxiliary alarm contact	228	328				
Under-voltage release, auxiliary alarm contact	238	338				
Shunt release, auxiliary alarm contact	248	348				
Two groups auxiliary contact of auxiliary alarm contact	268	368				
Under-voltage release auxiliary alarm contact	278	378				

Note: ■ Shunt release ▲ Under-voltage release ○ Auxiliary contact ● Alarm contact

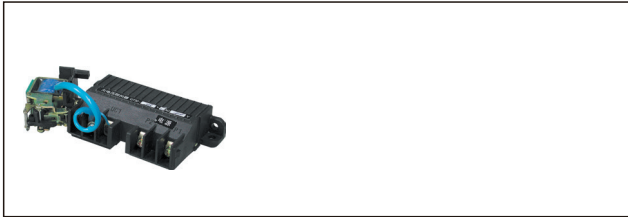
11.1 Under-voltage release

- a.  $U_n = 70\sim 35\% U_s$ , reliable operation
- b.  $U_n = < 35\% U_s$ , prevent breaker from making
- c.  $U_n = > 85\% U_s$ , guarantee the breaker making

The rated voltage of the under-voltage release is 50Hz, 230V and 400V.

Code of under-voltage release

code	A2	A4
voltage	AC 230V	AC 400V
rated frequency	50Hz	50Hz



11.2 Shunt release

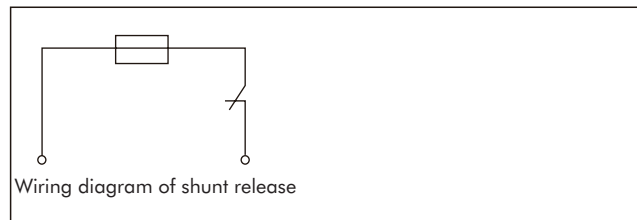
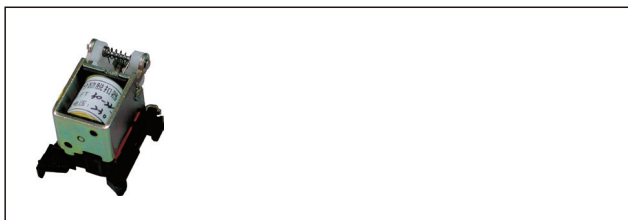
The rated control voltage of shunt release is 50Hz, 230V and 400V.

$U_n = 70\% \sim 110\% U_s$ , reliable operation

Code of shunt release

code	A2	A4	D3
voltage	AC 230V	AC 400V	DC 24V
rated frequency	50Hz/ 60Hz	50Hz/ 60Hz	-

Note: when voltage is DC 24V, rated current should be up to  $5A \pm 10\%$



11.3 Auxiliary contact and alarm contact

Rated parameter of auxiliary contact

Frame size	Conventional heating current $I_{th}$ (A)	Rated current $I_e$ (A) at AC 400 V	Rated current $I_e$ (A) at DC 230 V
$I_{nm} \leq 250A$	3	0.26	0.14
$I_{nm} \geq 400A$	6	3	0.2



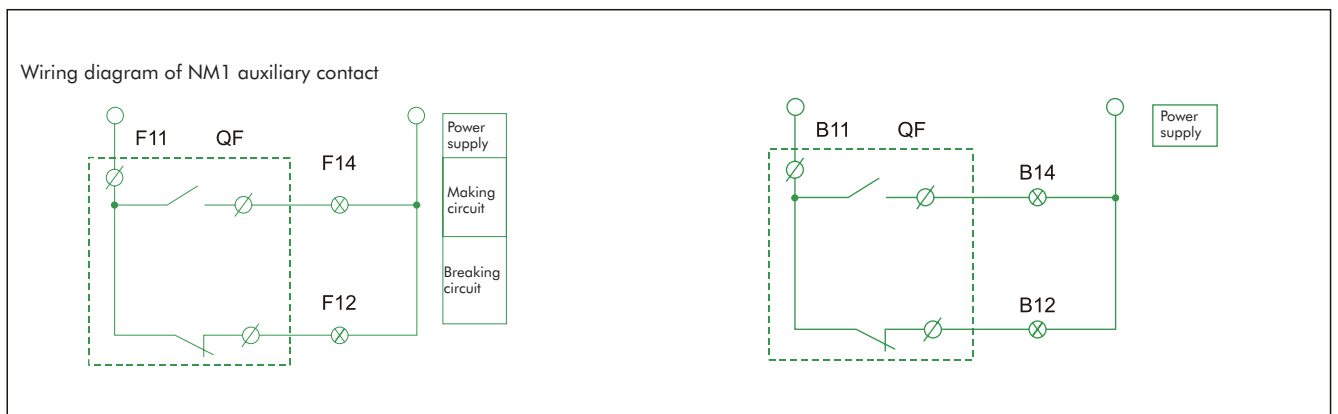
a. Auxiliary contact

Circuit breaker is at "breaking" status	
Circuit breaker is at "making" status	

b. Alarm contact

When circuit breaker normally makes and breaks, alarm contact doesn't operate. After free release (or release due to failure) alarm contact operate; and after the circuit breaker operates again, alarm contact returns to the original status.

Circuit breaker is at "breaking" or "making" status	
Circuit breaker is at free release (or alarming) status	



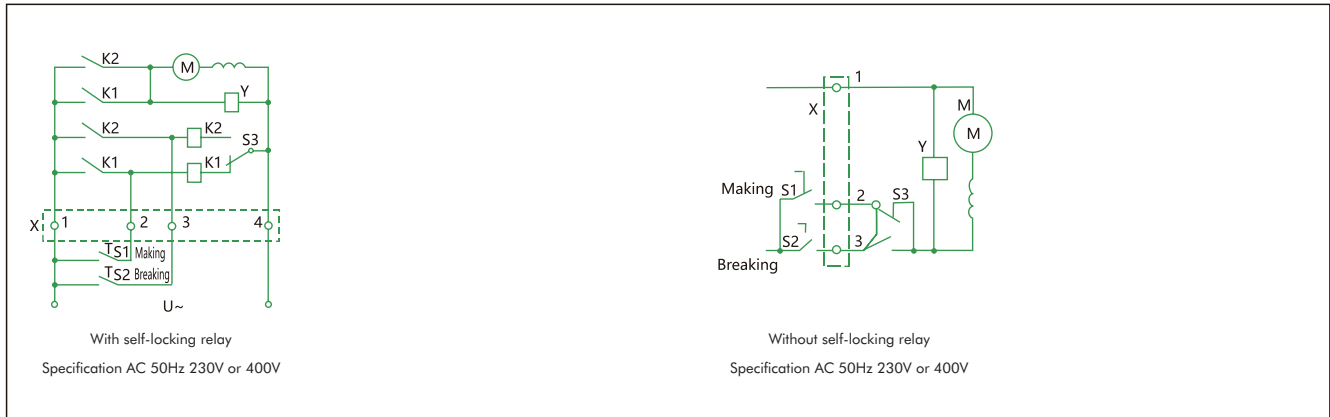
External accessories

11.4 Motor-driven operation mechanism

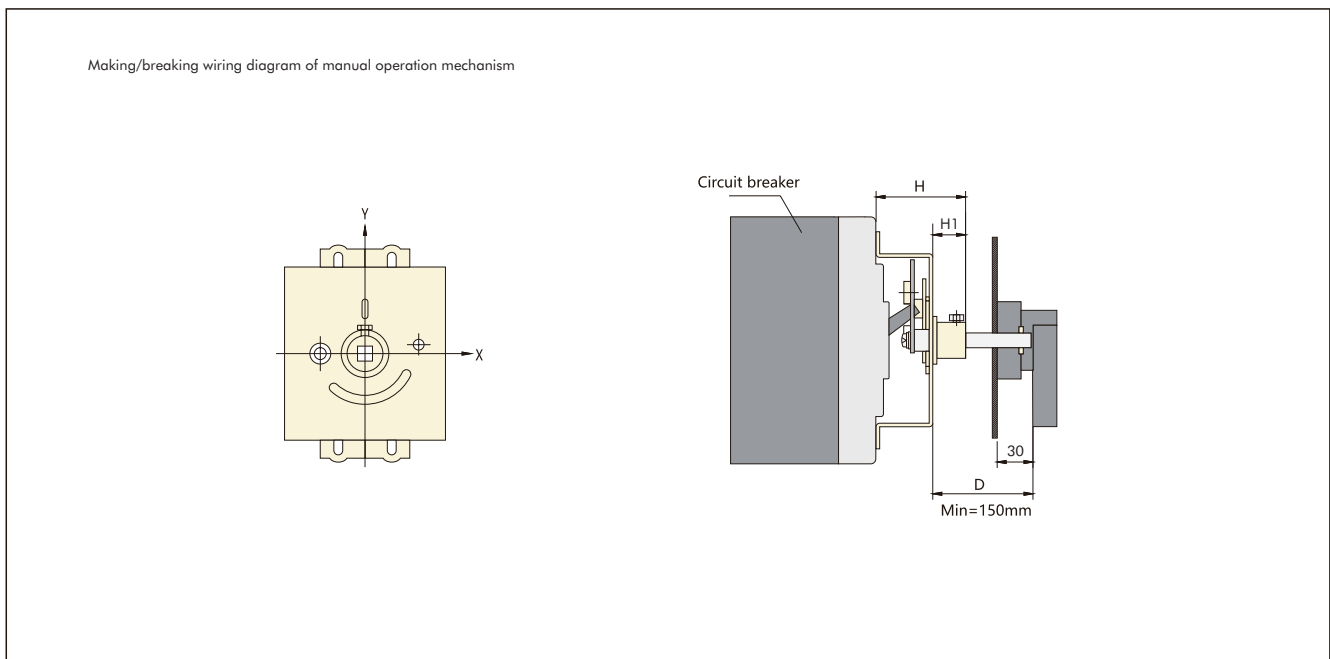
Items	Model
Structure form	Motor
Code of AC/DC voltage	A1/D1, A2/D2, A4

Note: A1 AC 110V, A2 AC 230V, A4 AC 400V, D1 DC 110V, D2 DC 230V

Making and breaking diagram of motor-driven operation mechanism(AC/DC)

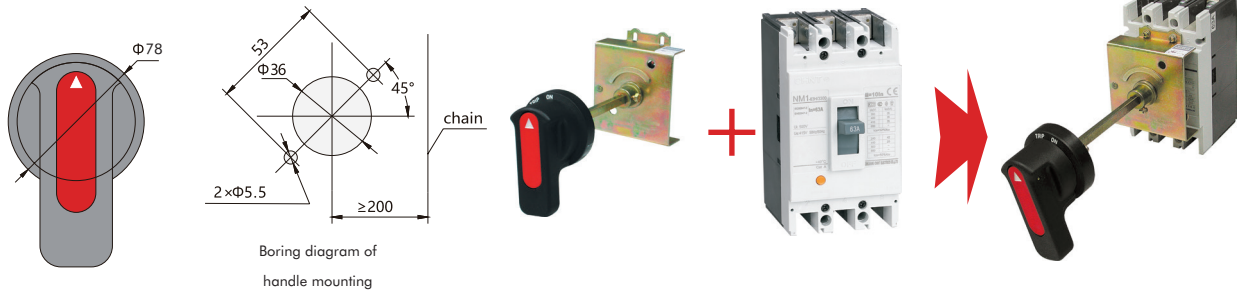


Rotary manual operation mechanism



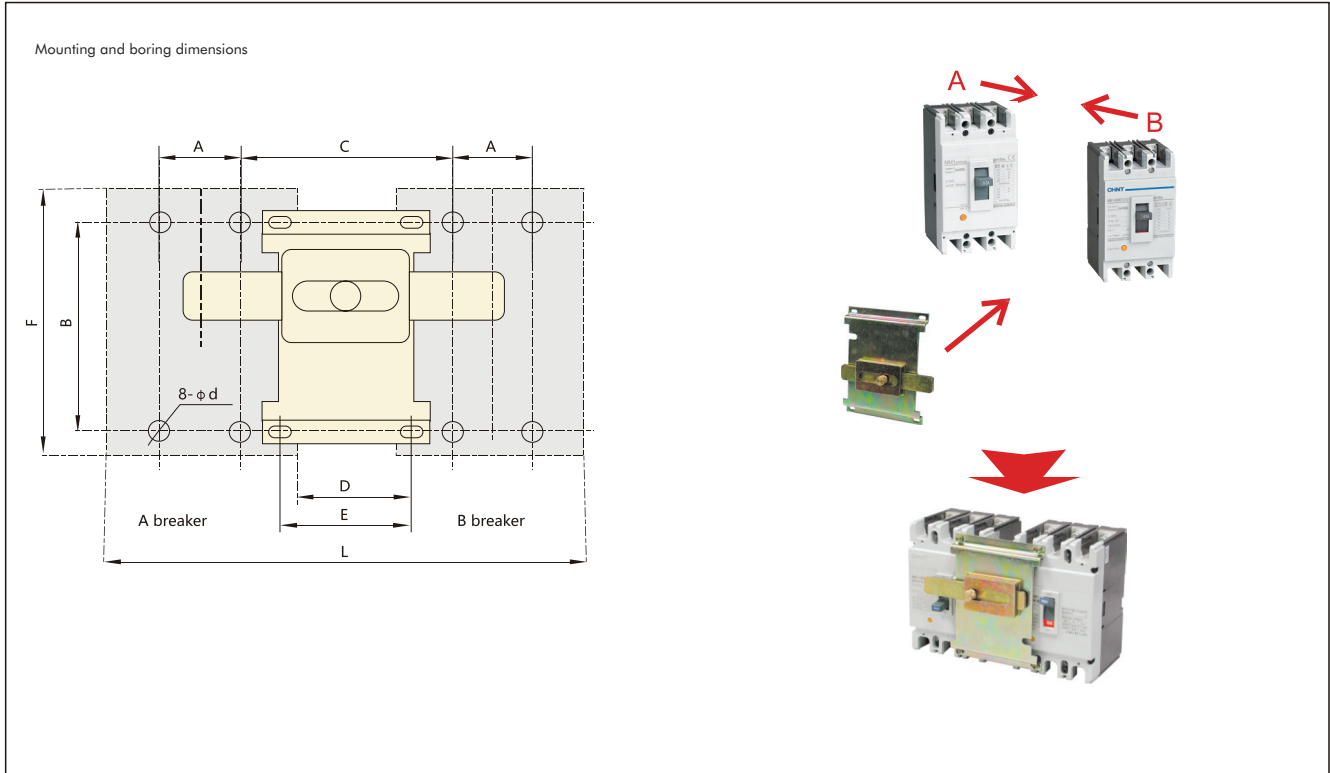


Mounting dimensions of manual operation mechanism



(mm)

Frame size	NM1-63	NM1-125	NM1-250	NM1-400	NM1-630	NM1-800	NM1-1250H
Mounting size H	51	53	56.5	100	3P : 90 4P : 96.5	3P : 100 4P : 90	103
Mounting size H1	20	20	20	20	20	3P : 18 4P : 20	18
Y value of the handle related to the center of the breaker	0	0	0	0	0	0	15



(mm)

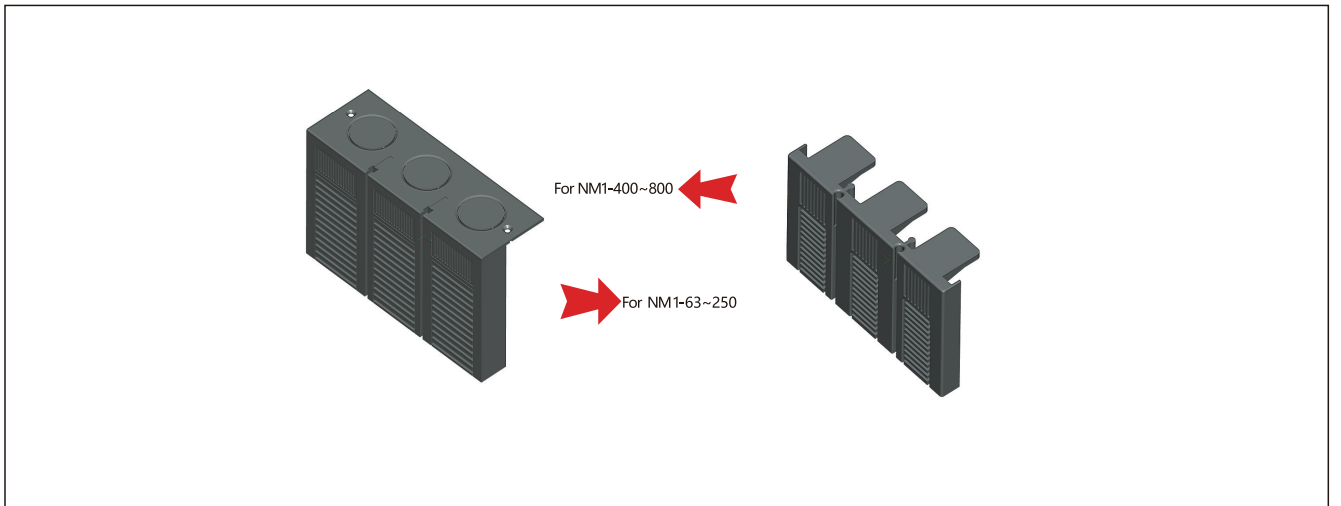
Model	A	B	C	D	E	F	L	Φd
NM1-63	25	117	80	30	80	135	182	4.5
NM1-125	30	130.5	90	30	90	155	210	4.5×6*
NM1-250	35	126	100	30	100	165	240	5.5
NM1-400	44	194	136	30	40	257	330	7
NM1-630	58	200	172	48	62	270	412	7
NM1-800	70	243	167	28	40	280	448	7

Note:

- \* stands for length of boring.
- Install the breaker on the frame first, then install the mechanical interlock on the breaker.

## 12. Complementary technical information

- 12.1 The customized products of NM1-250, of which the capacity can be enriched to 250A is available.
- 12.2 NM1-1250 products are equipped with connection plate when they are sold; if you need connection plate for products of other model, the connection plate should be ordered separately.
- 12.3 Only H type breaker is applicable to manufacture NM1 series switch disconnecter.
- 12.4 Terminal covers of the whole series NM1 products are available, and the protection degree can be up to IP40 after the breaker is equipped with terminal cover.
- 12.5 Safe distance between other electric apparatuses for mounting.



(mm)

Type \ Distance(min)	NM1-63	NM1-125	NM1-250	NM1-400	NM1-630	NM1-800	NM1-1250
Line side	50	50	50	100	100	100	100
Load side	20	20	20	20	20	20	20
Right side	25	25	25	25	25	25	25
Left side	25	25	25	25	25	25	25

12.6 Tightening torque table

Wire size(copper)		Rated current (A)	Tightening torque(N·m)	
AWG/MCM	mm <sup>2</sup>		Front connection plate	Boxing terminal
16-6	1.5-16	10 ≤ In ≤ 63	5	3
4-3	25-50	63 < In ≤ 125	10	8
1-250	50-120	100 < In ≤ 250	12	10
250-500	120-240	250 < In ≤ 400	22	16
300×2	150×2	400 < In ≤ 500	28	18
350×2	185×2	500 < In ≤ 630	28	20
500×2	240×2	630 < In ≤ 800	30	-
350×4	185×4	800 < In ≤ 1250	30	-

12.7 Technical Data of NM1 series

Frame current (A)	Model	Number of poles	Ui (V)	Icu/Ics(kA)			
				220V 230V 240V	380V 400V 415V	660V 690V	
63	NM1-63S	3	500	20/10	15/7.5	-	
	NM1-63H	3/4	500	42/21	35/17.5	-	
125	NM1-125C	3	800	25/12.5	20/10	3/1.5	
	NM1-125S	3	800	42/21	25/12.5	3/1.5	
	NM1-125H	2	800	65/32.5	50/25	-	
		3/4	800	65/32.5	50/25	8/4	
	NM1-125R	3	800	85/42.5	65/32.5	10/5	
250	NM1-250S	1	800	20/10	10/5	-	
		3/4	800	42/21	25/12.5	5/2.5	
	NM1-250R	3	800	85/42.5	65/32.5	-	
		2	800	65/32.5	50/25	8/4	
NM1-250H	3/4	800	65/32.5	50/25	10/5		
400	NM1-400S	3/4	800	50/25	35/17.5	10/5	
	NM1-400H	3	800	85/42.5	50/25	12/6	
	NM1-400R	3	800	100/50	70/35	15/7.5	
630	NM1-630S	3/4	800	50/25	35/17.5	12/6	
	NM1-630H	3	800	85/42.5	50/25	15/7.5	
	NM1-630R	3	800	100/50	70/35	20/10	
800	NM1-800H	3/4	800	85/42.5	60/30	20/10	
	NM1-800R	3	800	100/50	70/35	20/10	
1250	NM1-1250H	3	800	85/42.5	65/32.5	20/10	



Frame current (A)	Model	Number of poles	Ui (V)	Icu/Ics(kA)			
				220V 230V 240V	380V 400V 415V	660V 690V	
63	NM1-63S	3	500	20/40	15/30	-	
	NM1-63H	3/4	500	42/88.2	35/73.5	-	
125	NM1-125C	3	800	25/52.5	20/40	-	
	NM1-125S	3	800	42/88.2	25/52.5	-	
	NM1-125H	2	800	65/43	50/105	-	
		3/4	800	65/43	50/105	-	
	NM1-125R	3	800	85/187	65/143	-	
250	NM1-250S	1	800	20/40	-	-	
		2/ 3/4	800	42/88.2	25/52.5	-	
	NM1-250H	2/ 3/4	800	65/136.5	50/105	-	
	NM1-250R	3	800	85/187	65/143	-	
400	NM1-400S	3/4	800	50/105	35/73.5	-	
	NM1-400H	3	800	85/187	50/105	-	
	NM1-400R	3	800	100/220	70/154	-	
630	NM1-630S	3/4	800	50/105	35/73.5	-	
	NM1-630H	3	800	85/187	50/105	-	
	NM1-630R	3	800	100/220	70/154	-	
800	NM1-800H	3/4	800	85/187	60/132	-	
	NM1-800R	3	800	100/220	70/154	-	
1250	NM1-1250H	3	800	85/187	65/143	-	

Note: Parameters in black are only for your reference.



12.8 Cascading

12.8.1 Cascading (220/230/240V)

Upstream: NM1-63~1250

Downstream: DZ47, eB, UB, DZ158, DZ267, NB1, NBH8, NM1-63~1250

Upstream Breaking capacity (kA RMS)	NM1-63S 20	NM1-63H 42	NM1-125S 25	NM1-125H 50	NM1-125R 65	NM1-250S 25	NM1-250H 50
Downstream	Breaking capacity (kA RMS)						
DZ267	20	40	20	35	50	20	25
DZ47, eB, UB	20	40	20	35	50	20	25
NBH8	20	40	20	35	50	20	25
NB1 (Icn=6000A)	20	42	25	35	50	25	35
NB1 (Icn=10000A)	20	42	25	40	50	25	35
DZ158			25	40	50	25	40
NM1-63S		42	25	50	65	25	50
NM1-63H					65		
NM1-125S				50	65		50
NM1-125H					65		
NM1-250S							50
NM1-250H							
NM1-400S							
NM1-400H							
NM1-630S							
NM1-630H							
NM1-800H							
NM1-1250H							

12.8.2 Cascading (380/400/415V)

Upstream: NM1-63~1250

Downstream: DZ47, eB, UB, DZ158, DZ267, NB1, NBH8, NM1-63~1250

Upstream Breaking capacity (kA RMS)	NM1-63S 15	NM1-63H 35	NM1-125S 25	NM1-125H 50	NM1-125R 65	NM1-250S 25	NM1-250H 50
Downstream	Breaking capacity (kA RMS)						
DZ47, eB, UB	10	15	10	15	15	10	15
NB1 (Icn=6000A)	15	20	15	20	20	15	20
NB1 (Icn=10000A)	15	20	20	25	25	20	25
DZ158			20	25	35	20	25
NM1-63S		35	25	50	65	25	50
NM1-63H					65		
NM1-125S				50	65		50
NM1-125H					65		
NM1-250S							50
NM1-250H							
NM1-400S							
NM1-400H							
NM1-630S							
NM1-630H							
NM1-800H							
NM1-1250H							





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