



### Scope of Application

CBRM 5 Series Moulded Case Circuit Breaker (hereinafter referred to as "Circuit Breaker") with rated insulation voltage of 1000V is suitable for infrequent switching and infrequent starting of motor in circuits with frequency of 50Hz AC, rated working voltage of 415V and rated working current of 800A. The circuit breaker has the functions of overload, short circuit and undervoltage protection, which can protect the circuit and power supply equipment from damage.

Circuit breaker can be installed vertically (i.e. vertically) or horizontally (i.e. transversely).

Circuit breaker has isolation function, and their corresponding symbols are: -\*-- Circuit breaker products shall comply with the following standards:

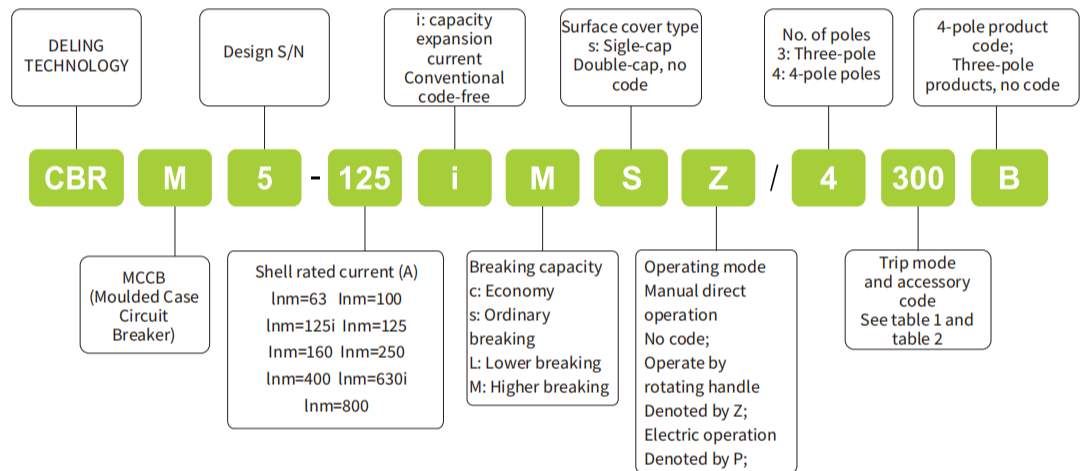
IEC60947-1 and GB/T14048.1 General

IEC60947-2 and GB/T14048.2 Low voltage circuit breaker

IEC60947-4-1 and GB/T14048.4 Electromechanical Contactors and Motor Starters

IEC60947-5-1 and GBT14048.5 Electromechanical Control Circuit Electrical Appliance

### Model and Meaning



#### 4-pole product code

Type A: Overcurrent tripping element is not installed at N pole, and N pole is always ON and not combined with other three poles.

Type B: Overcurrent tripping element is not installed at N pole, and N pole is combined with other three poles (N pole is combined first and then separated).

### Normal use and installation conditions

Normal use conditions:

- ◆ The upper limit of ambient temperature should not exceed +40°C; and the 24h average temperature should not exceed +35°C; Note: Circuit breakers used at ambient air temperatures above +40°C or below -5°C shall be negotiated with the manufacturer.

The altitude of the installation site should not exceed 2000m;

- ◆ The relative humidity of the atmosphere does not exceed 50% when the maximum ambient temperature is +40°C; Higher relative humidity can be achieved at lower temperatures (e.g. 90% at 20°C), taking into account the condensation on the product surface due to temperature changes.

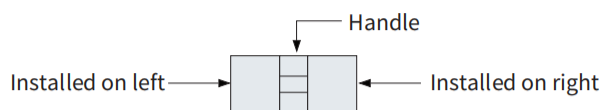
Normal installation conditions

- ◆ Installation category: the main circuit of circuit breaker is of class III, and the control circuit and auxiliary circuit are of class I;
- ◆ Installation conditions: Generally, it could be installed vertically or horizontally (transversely);
- ◆ Pollution level: 3;
- ◆ External magnetic field: the external magnetic field near the installation site shall not exceed 5 times of the geomagnetic field anywhere.

# CBRM5

## MCCB (Moulded Case Circuit Breaker)

### Trip mode and accessory code



- Alarm contact    ○ Undervoltage trip
- Auxiliary contact    → Lead direction
- Shunt trip

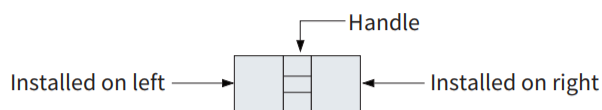
Table 1

Single-cap type	trip mode		Accessory installation side and lead direction				
	Internal	accessory					
Accessory name	Electromagnetic type Trip	Composite Trip	CBRM5-63, CBRM5-100 CBRM5-125i	CBRM5-125 CBRM5-160	CBRM5-250	CBRM5-400 CBRM5-630i	CBRM5-800
No accessories	200	300					
Alarm contact	208	308	—				
Shunt trip	210	310					
Auxiliary contact	220	320					
Undervoltage trip	230	330					
Shunt trip, auxiliary contact	240	340					
Shunt trip, undervoltage trip	250	350	—	—	—	—	
Two sets of auxiliary contacts	260	360	—				
Auxiliary contact, undervoltage trip	270	370	—				
Shunt trip, alarm contact	218	318	—				
Auxiliary contact, alarm contact	228	328	—				
Undervoltage trip, alarm contact	238	338	—				
Shunt trip, auxiliary contact, alarm contact	248	348	—				
Two sets of auxiliary contacts, alarm contact	268	368	—				
Auxiliary contact Undervoltage trip, alarm contact	278	378	—				

# CBRM5

## MCCB (Moulded Case Circuit Breaker)

### Trip mode and accessory code



- Alarm contact    ○ Undervoltage trip
- Auxiliary contact    → Lead direction
- Shunt trip

Table 2

Double-cap	trip mode		Accessory installation side and lead direction			
	Internal accessory code					
Accessory name	Electromagnetic type Trip	Composite Trip	CBRM5-63, 100 CBRM5-125i	CBRM5-125, 160	CBRM5-250	CBRM5-400, 630i
No accessories	200	300				
Alarm contact	208	308	—			
Shunt trip	210	310				
Auxiliary contact	220	320				
Undervoltage trip	230	330				
Shunt trip, auxiliary contact	240	340				
Shunt trip, undervoltage trip	250	350	—			
Two sets of auxiliary contacts	260	360	—			
Auxiliary contact, undervoltage trip	270	370	—			
Shunt trip, alarm contact	218	318	—			
Auxiliary contact, alarm contact	228	328	—			
Undervoltage trip, alarm contact	238	338	—			
Shunt trip Auxiliary contact Alarm contact	248	348	—			
Two sets of auxiliary contacts Alarm contact	268	368	—			
Auxiliary contact Undervoltage trip Alarm contact	278	378	—			

### Main Technical Parameters

Model	CBRM5-63、100、 CBRM5-125i			CBRM5-125、160		CBRM5-250		CBRM5-400 CBRM5-630i		CBRM5-800			
Shell current Inm(A)	63、100、125i			125、160		250		400、630		800			
Rated current In(A)	10、16、20、 25、32、40、 50、63、80、 100、125			16、20、25、32、 40、50、63、80、 100、125、140、 160		100、125、140、 160、180、200、 225、250		225、250、315、 350、400、500、 630		630,700, 800			
No. of poles	3	4		3	4	3	4	3	4	3	4		
Rated insulation voltage Ui(V)	800			1000									
Rated operating voltage Ue: (V)	AC400、AC415												
Rated impulse withstand voltage Uimp(kV)	8							12					
Flashing distance (mm)	50							100					
Breaking ability level		S	L	M		S	L	M		S	L	M	
Limit short circuit breaking capacity Icu(kA)		20	25	36		25	36	50		25	36	50	
Short circuit breaking capacity Ics(kA)		15	18	25		15	25	36		15	25	36	
Operational performance (times)	Powered	1500			1500			1000			1000		
	Not powered	8500			8500			7000			4000		
	Total	10000			10000			8000			5000		

### Protection features

#### Power distribution

Rated current (A)	Thermal trip (ambient temperature +40°C)		Operating current of electromagnetic trip (A)
	1.05 $I_n$ (cold) non-operating time (h)	1.3 $I_n$ (hot) operating time (h)	
$10 \leq I_n \leq 63$	Non-operating within 1 hour	$\leq 1$	10A-40A: 400A $\pm$ 20%
$63 < I_n \leq 800$	Non-operating within 2 hours	$\leq 2$	50A-800A: 10 $I_n \pm$ 20%

#### For protecting motors

Rated current (A)	Thermal trip (ambient temperature +40°C)					Operating current of electromagnetic trip (A)
	1.0 $I_n$ (cold) non-operating time (h)	1.2 $I_n$ (hot) operating time (h)	1.5 $I_n$ (hot) operating time (h)	7.2 $I_n$ (cold) operating time (h)	Trip Level	
$10 \leq I_n \leq 25$	Non-operating within 2 hours	$\leq 2$	$\leq 2min$	$0.5s < T_p \leq 5s$	5	10A-40A: 400A $\pm$ 20%
$25 < I_n \leq 250$			$\leq 4min$	$4s < T_p \leq 10s$	10	50A-800A: 12 $I_n \pm$ 20%
$250 < I_n \leq 800$			$\leq 8min$	$6s < T_p \leq 20s$	20	


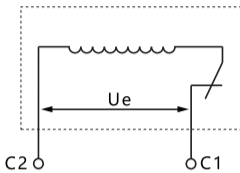
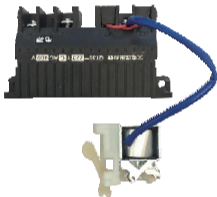
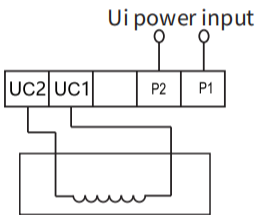

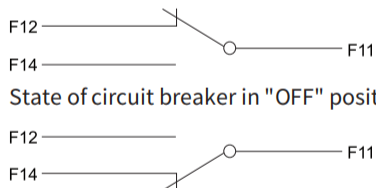

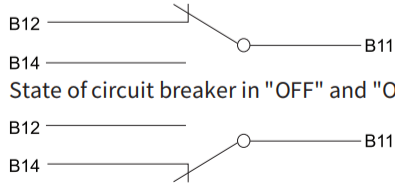
### Classification of circuit breakers

Classified according to the number of poles: triple-pole and 4-pole


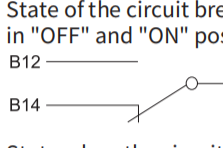
Classified according to the application: For power distribution and motor protection


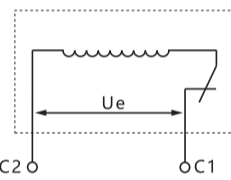
Classified according to the operation modes: Operated by handle, electric operation (denoted by P), operated by rotating handle (denoted by Z for switchgear)


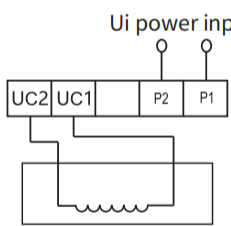
Circuit  
Breaker  
Accessories  
(single-cap)

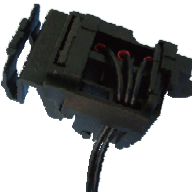
Rated control supply voltage $U_s(V)$	AC230V、AC400V; DC24V	
Operating voltage (V)	$(0.7 \sim 1.1)U_s$	
Shunt trip	  <p>Note: K - The normally closed contact of the microswitch connected with the coil in series inside the shunt trip is automatically disconnected when the circuit breaker is opened, the normally closed contact is closed when the circuit breaker is closed. The wiring diagram of internal accessories for the circuit breaker is in the dashed box.</p>	
Rated control supply voltage $U_s(v)$	AC230V、AC400V	
Operating voltage (V)	When the rated working voltage is at 35% ~ 70%, the circuit breaker can be reliably tripped; When the rated working voltage is at 85%-110%, the new circuit should be closed, and when it is lower than 35%, it should be prevented from closing.	
Undervoltage trip	  <p>Note: P1, P2 and UC2, UC1 are terminal numbers</p>	
Resistive current $I_{th}(A)$	3A	
Rated working current $I_e(A)$	0.26A when $I_n \leq 250A$ ; 0.3A when $I_n \geq 400A$	
Auxiliary contact	  <p>State of circuit breaker in "OFF" position</p> <p>State when the circuit breaker is in "ON" position</p>	
Resistive current $I_{th}(A)$	3A	
Rated working current $I_e(A)$	0.26A when $I_n \leq 250A$ ; 0.3A when $I_n \geq 400A$	
Alarm contact	  <p>State of circuit breaker in "OFF" and "ON" positions</p> <p>State of circuit breaker in free trip position (alarm)</p>	


### Circuit Breaker Accessories (double-cap)


Resistive current Ith(A)	3A	
Rated working current Ie(A)	0.26A when $I_n \leq 250A$ ; 0.3A when $I_n \geq 400A$	
Auxiliary contact, alarm contact	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>F12 ———— / ———— F11 F14 ————</p> <p>State of circuit breaker in "OFF" and "ON" positions</p> <p>F12 ———— / ———— F11 F14 ————</p> <p>State of circuit breaker in free trip position (alarm)</p> </div> <div style="text-align: center;">  <p>B12 ———— / ———— B11 B14 ————</p> <p>State of the circuit breaker is in "OFF" and "ON" positions</p> <p>B12 ———— / ———— B11 B14 ————</p> <p>State when the circuit breaker trip is in "ON" position</p> </div> </div> <p style="text-align: center;">Wiring diagram</p>	


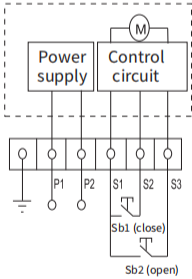
Rated control supply voltage Us(v)	AC230V、AC400V；DC24V	
Operating voltage (V)	(0.7~1.1)Us	
Shunt trip	<div style="display: flex; align-items: center;">  <div style="margin-left: 20px;">  <p style="font-size: small;">Note: K - The normally closed contact of the microswitch connected with the coil in series inside the shunt trip is automatically disconnected when the circuit breaker is opened, the normally closed contact is closed when the circuit breaker is closed. The wiring diagram of internal accessories for the circuit breaker is in the dashed box.</p> </div> </div>	

Rated control supply voltage Us(v)	AC230V、AC400V	
Operating voltage (V)	When the rated working voltage is at 35% ~ 70%, the circuit breaker can be reliably tripped; When the rated working voltage is at 85% ~ 110%, the circuit breaker should be closed, and when it is lower than 35%, it should be prevented from closing.	
Undervoltage trip	<div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p style="text-align: center;">Ui power input</p>  <p style="font-size: small;">Note: P1, P2 and UC2, UC1 are terminal numbers</p> </div> </div>	

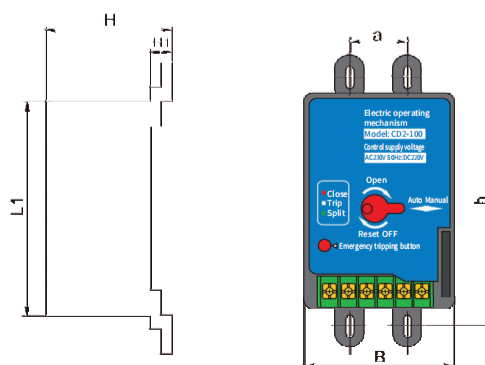
Resistive current Ith (A)	3A	
Rated working current Ie(A)	0.26A when $I_n \leq 250A$ ; 0.3A when $I_n \geq 400A$	
Auxiliary contact	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>F12 ———— / ———— F11 F14 ————</p> <p>State of circuit breaker in "OFF" position</p> <p>F12 ———— / ———— F11 F14 ————</p> <p>State when the circuit breaker is in "ON" position</p> </div> </div>	

Resistive current Ith (A)	3A
Rated working current Ie(A)	0.26A when $I_n \leq 250A$ ; 0.3A when $I_n \geq 400A$
Alarm contact	 <p>           B12 ———— / ———— B11            B14 ———— / ————            State of circuit breaker in "OFF" and "ON" positions            B12 ———— / ———— B11            B14 ———— / ————            State of circuit breaker in free trip position (alarm)         </p>

Resistive current Ith (A)	3A
Rated working current Ie(A)	0.26A when $I_n \leq 250A$ ; 0.3A when $I_n \geq 400A$
Auxiliary contact, alarm contact	 <p>           F12 ———— / ———— F11            F14 ———— / ————            State of circuit breaker in "OFF" position            F12 ———— / ———— F11            F14 ———— / ————            State when the circuit breaker is in "ON" position            B12 ———— / ———— B11            B14 ———— / ————            State of circuit breaker in "OFF" and "ON" positions            B12 ———— / ———— B11            B14 ———— / ————            State of circuit breaker in free trip position (alarm)         </p> <p style="text-align: center;">Wiring diagram</p>

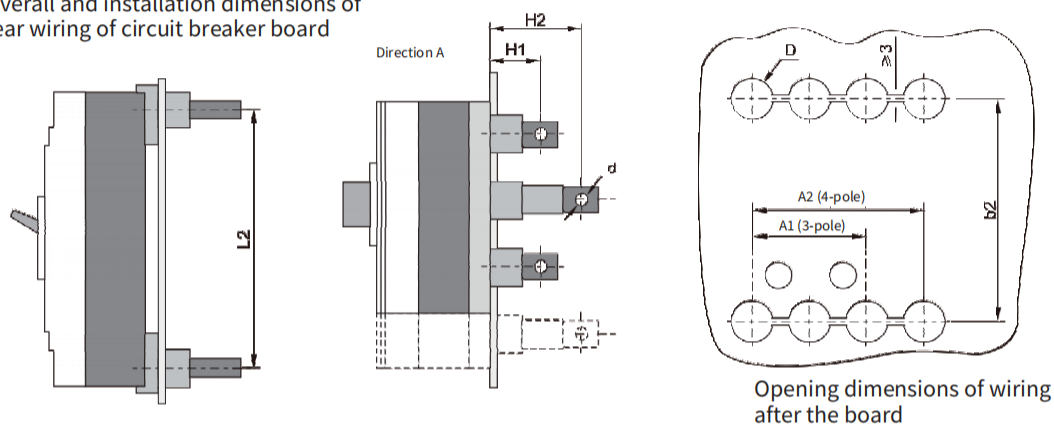
Input voltage (V)	AC230V、AC400V; DC110V、DC230V、DC24V
Electric operating mechanism	 <p>Be applicable to CBRM5</p> <div style="display: flex; align-items: flex-start;"> <div style="flex: 1;">  <p>           Power supply            Control circuit            P1 P2 S1 S2 S3            Sb1 (close)            Sb2 (open)         </p> </div> <div style="flex: 1; padding-left: 10px;"> <p>Instruction: P1-P2: Connected to external power input; SB1, SB2: Operation buttons (provided by the users).</p> <p>Note: The wiring diagram of internal accessories for the circuit breaker is in the dashed box.</p> </div> </div>

Overall and installation dimensions of electric operating mechanism



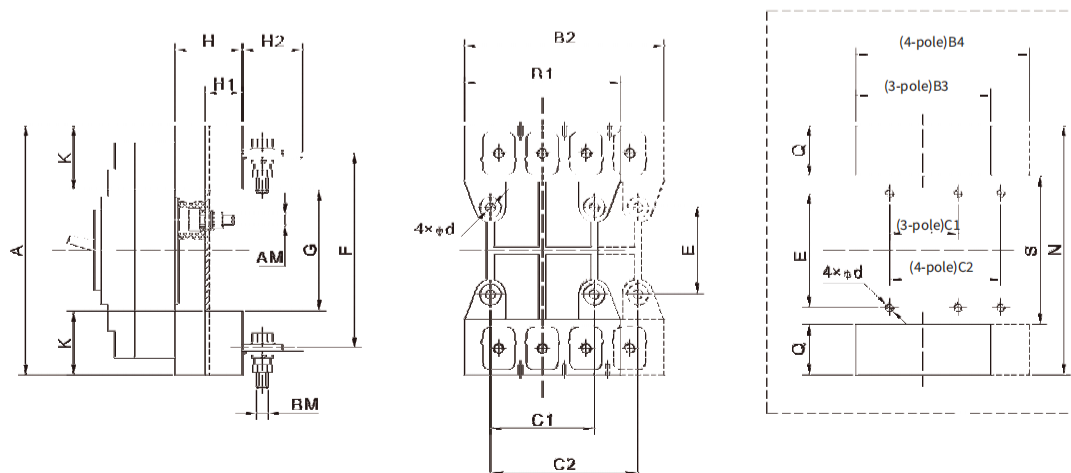
Model	Overall dimension (mm)				Installation size (mm)	
	L1	B	H	H1	a	b
63、100、125i	102	73	94	16	25	111
125、160	116	90	97	16	30	129
250	116	90	95	16	35	126
400、630i	176	130	151	34.5	44	194
800	176	130	146	31	70	243

Overall and installation dimensions of rear wiring of circuit breaker board



Model	Overall dimension (mm)			Installation size (mm)				
	L2	H1	H2	A1	A2	b2	D	d
63、100、125i	117	45	65	50	75	117	Φ15	Φ8
125、160	132	42	75	60	90	132	Φ24	Φ8.5
250	144	39	73	70	105	144	Φ24	Φ8.5
400、630i	226	34	69	87	130.5	226	Φ32	Φ12.5
800	243	50	83	140	210	243	Φ40	Φ14

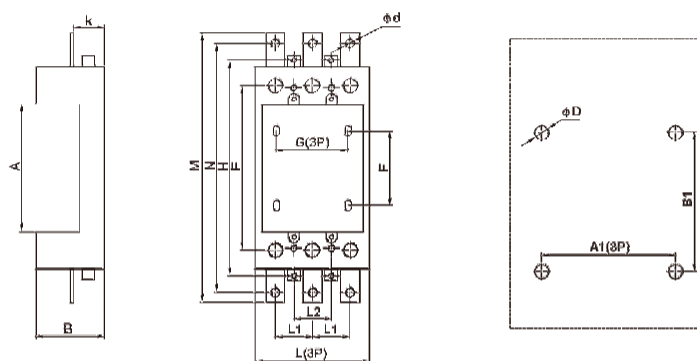
Overall and installation dimensions of rear wiring of circuit breaker plug-in board



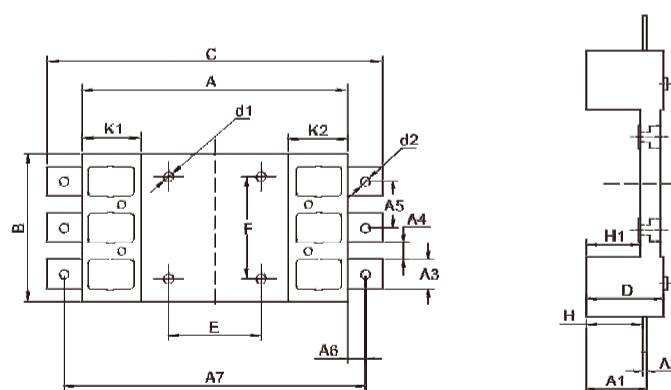


Model	A	B1	B2	C1	C2	E	F	G	K	H	H1	H2	N	S	Q	B3	B4	AM	BM	4-d
63、100、125i	132	76	101	50	75	57.5	117	97	17.5	27	16	15	142	87	27.5	86	111	M5	M5	Φ6.5
125、160	169	91	125	60	90	56	132	92	38	50	33	28	179	83	48	101	135	M6	M8	Φ6.5
250	186	107	145	70	105	54	145	94	46	50	33	37	196	84	56	117	155	M6	M8	Φ6.5
400、630i	280	144	188	88	132	145	224	180	50	60	38	46	290	170	60	154	198	M8	M12	Φ8.5
800	300	210	280	90	160	142	243	174	63	87	61	21	315	170	73	220	290	M10	M14	Φ10

Overall and installation dimensions of front wiring of circuit breaker plug-in board

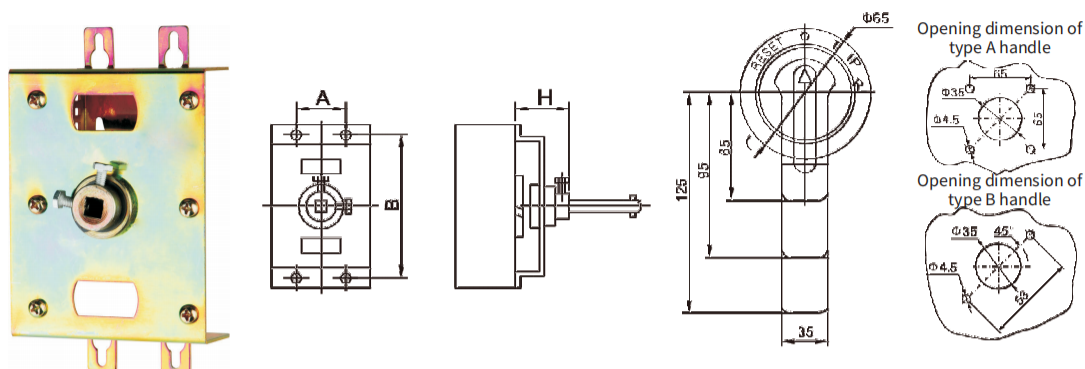


Model	Overall and installation dimensions (mm)															
	A	B	E	F	G(3P)	H	L(3P)	L1	L2	M	N	K	d	A1(3P)	B1	D
63、100、125i	91	48	116.5	55	50	145	75	25	25	190	173	23	Φ6	25	96	Φ3.5



Model	Overall and installation dimensions (mm)																		
	A	B	C	D	E	F	H	H1	K1	K2	d1	d2	A1	A2	A3	A4	A5	A6	A7
125、160	172	96	216	50	61	66	15	35	38	38	Φ6.5	M8	18	3	19	10.5	30	10.5	196
250	183	110	261	51.5	64	70	42.5	35	44	44	Φ6.5	M8	49	3	22	13.5	35	22	227
400、630i	282	144	362	82	146	88	20	59	50	50	Φ8.5	Φ11	26	6	30	14.5	44	25	331
800	305	210	409	87	144	90	16	61	62	62	Φ11	Φ13	24	8	35	35	70	36	377

Overall and installation dimensions of rotating handle operating mechanism

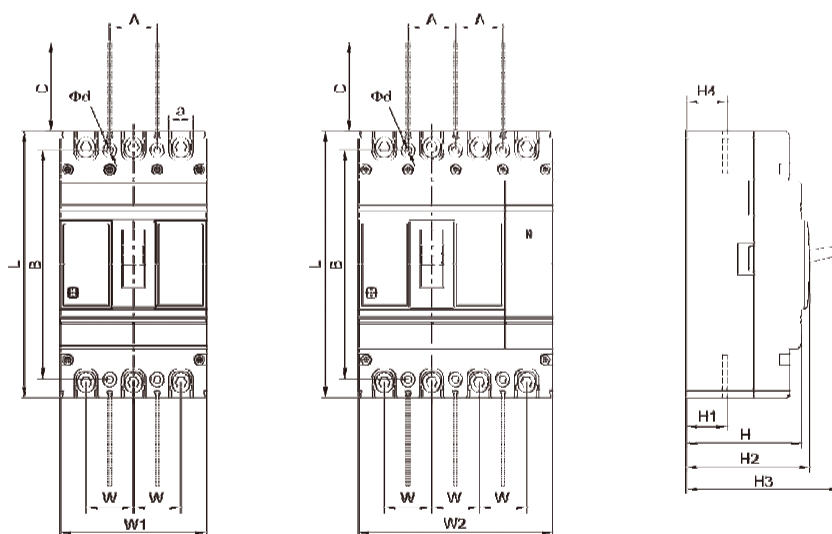


Model	63、100、125i	125、160	250	400、630i	800
Installation dimension H(mm)	58	60	60	97	90
A	25	30	35	44	70
B	111	120	142	195	243

Note: The standard is 150mm for the connecting rod when delivery.

## Overall and installation dimensions - single-cap

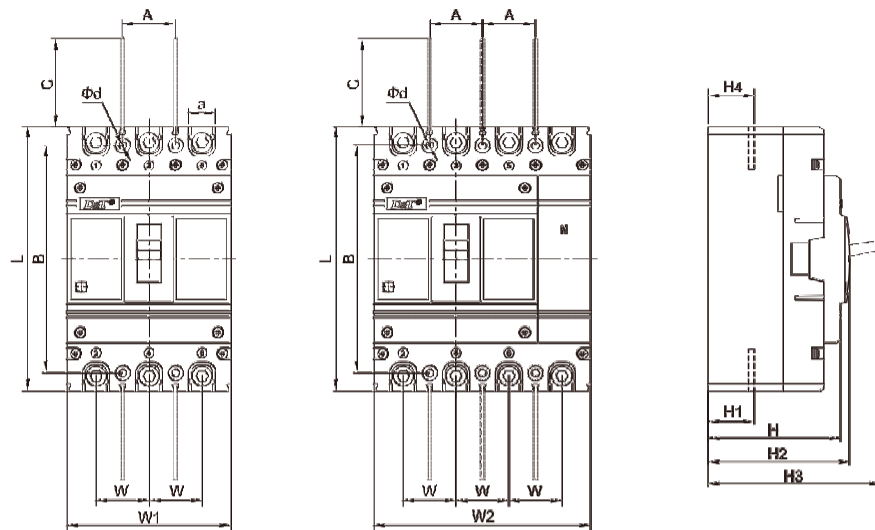
Shape and installation dimensions of front wiring of circuit breaker board



Model	Overall dimension (mm)										Installation size (mm)			
	C	L	A	W1	W2	H	H1	H2	H3	H4	W	B	d	a
CBRM5-63 CBRM5-100 CBRM5-125i	50	130	25	75	100	63.5	23.5	69.2	83.5	23.5	25	111	Φ4.2	18
CBRM5-125 CBRM5-160	50	150	30	92	122	73	26	78.5	98	26	30	129	Φ4.2	20.5
CBRM5-250	65	165	35	107	142	76.6	27.6	82	103	29	35	126	Φ5	25
CBRM5-400 CBRM5-630i	107.5	257	44	140	184	108	35.5	115.2	157	37.5	44	194	Φ7	33
CBRM5-800	106	280	70	210	281	113	41	122	160	41	70	243	Φ7	45

## Overall and installation dimensions - double-cap type

Shape and installation dimensions of front wiring of circuit breaker board



Model	Overall dimension (mm)										Installation dimensions (mm)			
	C	L	A	W1	W2	H	H1	H2	H3	H4	W	B	d	a
CBRM5-63 CBRM5-100 CBRM5-125 i	50	130	25	75	100	63.5	23.5	69.2	83.5	23.5	25	111	Φ 4.2	18
CBRM5-125 CBRM5-160	50	150	30	92	122	75	26	80	98	26	30	129	Φ 4.2	20.5
CBRM5-250	65	165	35	107	142	79	27.6	83	103	29	35	126	Φ 5	25
CBRM5-400 CBRM5-630 i	107.5	257	44	140	184	108	35.5	115.2	157	37.5	44	194	Φ 7	33

## Operation and Maintenance

- ◆ When installing the circuit breaker, it is necessary to read the relevant contents of the overall and installation dimension in detail, and check whether the technical parameters listed on the circuit breaker label meet the service requirements.
- ◆ When installing the circuit breaker with electric operating mechanism, the electric operating mechanism should not be removed, otherwise the operating features of the electric mechanism will be affected. The operating methods are as follows: After the circuit breaker trips, the electric operation will automatically make the circuit breaker in the open position, that is, the circuit breaker will be re-closed. To close the circuit breaker, only the upper computer needs to send a closing command, and when opening, it will send an opening command. If it is required to manually open and close the circuit breaker, toggle the button on the electric operation to manual. If the circuit breaker is in a free tripping position, it must be closed manually first and then close and open the circuit.
- ◆ The internal and external accessories of the circuit breaker have been adjusted according to the technical requirements when leaving the factory. Users should not adjust them without authorization, and they can be installed directly without opening the cover.
- ◆ The phase lines on the circuit breaker should be connected reliably, otherwise the internal electronic circuit will not work normally, which will affect the protection function of the circuit breaker.
- ◆ For circuit breakers equipped with undervoltage trip, the undervoltage trip must be switched on to the corresponding rated working voltage first, otherwise the circuit breaker cannot be closed.

## Transportation and Storage

### Transposition

During the transportation of products, the invasion and mixed loading of harmful liquids such as water, rain, snow or other chemical solvents and corrosive liquids shall be prevented; Prevent strong impact and extrusion between objects; Stack them according to the direction indicated by packaging, and for the number of stacks, please refer to the outer identification of the package.

### Storage

- ◆ Storage environmental conditions: Ambient temperature: -10°C ~ + 45°C;
- ◆ Relative humidity: ≤ 90% (when the ambient temperature is +20°C);
- ◆ The storage site shall be free of dust and conductive dust;
- ◆ No corrosive, flammable and explosive gases, no rain and snow invasion;
- ◆ Good drying and ventilation;
- ◆ Stack according to the direction indicated by packaging, and the number of stacks shall not be higher than the number marked on the outer packaging box.

## Precautions

- ◆ We do not assume the responsibility of "Repair, Replacement or Compensation of Faulty Products" for non-quality problems caused by improper installation and use and burning of terminals caused by improper wiring.
- ◆ If there are any problems in the use of products, please contact the local distributor or our customer service centre.