CCC, CQC, CB, CE, TUV, UL1077, UKCA

Miniature Circuit Breakers

NDB3-50 series

QUISURE
Keep quick, Make sure
ISO9001:2015
QUALITY GUARANTEED

1 Application

NDB3-50 series circuit breaker for equipment (hydraulic-magnetic circuit breaker) is used in the power system with rated current from 1A to 50A, rated voltage up to AC250V、AC415V (50/60Hz) or DC80V. It provides overload, short circuit protection. It can also be used for infrequent close or open. The application fields are computer and peripheral equipment, industrial automatic control system, telecom equipment, power supply system, UPS, railroad, marine, spacecraft, elevator, portable power supply and so on.

2 Model and Implication

ND B 3 - 50 Z4 40 / 1 L L A1 A 0 - L

1 2 3 4 5 6 7 8 9 10 11 12 13

XXXXX

14

No.	Implication	NDB3-50
1	Brand code	**ND**
2	Product code	**B** Circuit Breaker for Equipment
3	Design code	**3**
4	Frame size	**50**
5	Tripping curve	**Z2** DC short delay **J2** AC short delay **Z4** DC medium delay **J4** AC medium delay **Z6** DC long delay **J6** AC long delay
6	Rated current (A)	0.5, 1, 2, 2.5, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 20, 24, 25, 30, 32, 35, 40, 45, 50
7	Number of poles	**1** One pole **2** Two poles **3** Three poles (AC only)
8	Mounting method	**L** M3 screw mounting **Q** Snap-in mounting **M** 6-32UNC screw mounting
9	Wiring method	**L** M5 screw (≤50A) **H** Solder-in/Q.C. tab (normal ≤30A, UL489≤20A) **C** Push-in stud (normal≤50A, UL489≤30A) **F** M5 screw with upturned lugs (normal≤50A, UL489≤30A) **E** 8-32UNC screw (normal≤30A, UL489≤20A) **G** 10-32UNFscrew (normal≤50A, UL489≤30A) **J** 8-32UNC screw with upturned lugs (normal≤30A, UL489≤20A) **K** 10-32UNF screw with upturned lugs (normal≤50A, UL489≤30A) **P** M4 screw (normal≤30A, UL489≤20A) **R** M4 screw with upturned lugs (normal≤30A, UL489≤20A)

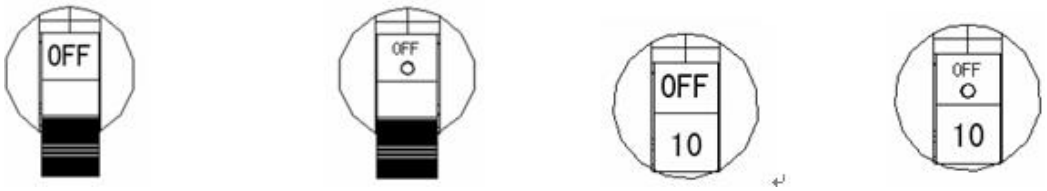
10	Actuator code (Note)	**S1** Black long handle, white legend, ON/OFF with current rating **S2** Black long handle, white legend, ON/OFF, I/O with current rating **S3** White long handle, black legend, ON/OFF, with current rating **S4** White long handle, black legend, ON/OFF, I/O, with current rating **S5** Yellow long handle, black legend, ON/OFF, with current rating **S6** Yellow long handle, black legend, ON/OFF, I/O, with current rating **D1** Black short handle, white legend, ON/OFF, with current rating **D2** Black short handle, white legend, ON/OFF, I/O, with current rating **D3** White short handle, black legend, ON/OFF, with current rating **D4** White short handle, black legend, ON/OFF, I/O , with current rating **D5** Yellow short handle, black legend, ON/OFF , with current rating **D6** Yellow short handle, black legend, ON/OFF, I/O , with current rating **Y1** Black rocker, vertical white legend, ON/OFF, I/O , with current rating **Y2** Black rocker, horizontal white legend, ON/OFF, I/O , with current rating **Y3** Black rocker, vertical white legend, ON/OFF, I/O **Y4** Black rocker, horizontal white legend, ON/OFF, I/O **Y5** Black rocker, vertical white legend, ON/OFF, I/O, with current rating , indication ON **Y6** Black rocker, horizontal white legend, ON/OFF, I/O, with current rating, indication ON **Y7** Black rocker, vertical white legend, ON/OFF, I/O, with current rating, indication OFF **Y8** Black rocker, horizontal white legend, ON/OFF, I/O, with current rating, indication OFF **A1** Black flat rocker, vertical white legend, ON/OFF, I/O, with current rating, indication OFF, handle position ”OFF” with guard **A2** Black flat rocker, vertical white legend, ON/OFF, I/O, with current rating, indication OFF **A4** Black flat rocker, horizontal white legend, ON/OFF, I/O, with current rating, indication OFF
11	Actuator number	**A** One per pole **B** One per multi-pole (for 2-pole or 3-pole products)
12	Accessory code	**0** No accessory **1** With auxiliary contact (in the left side as viewed from front of breaker)
13	Certificate code	**No** code CCC, TUV, CE **R** CCC, TUV, CE, UL1077 **L** CCC, TUV, CE, UL489A (for DC product only) **I** UL1500 certificate **K** CCC, TUV, CE, UL489 (for AC product only)
14	Customer code	Customer code (Additional option)

Notes: 1.

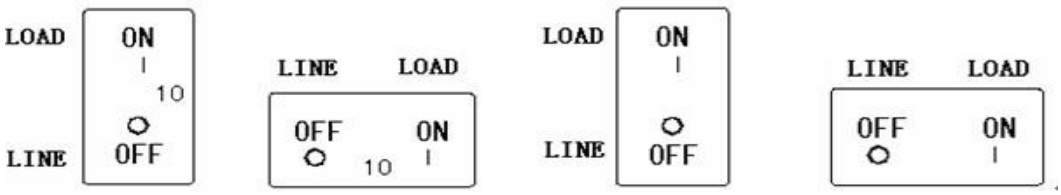
Certificates	3C /TUV/CE			UL1077			UL489A			UL489		
Rated current (A)	1-30		31-50	1-30		31-50	1-30		31-50	1-20		21-30
Wiring method	H, C, L, F, E, J, G, K, P, R		L, C, F G, K	H, C, L, F, E, J, G, K, P, R		L, C, F G, K	H, E, J, L, C, F		L, C, F	H, C, F, E, J, G, K, P, R		C, F, G, K
Actuator code	S	YA	D	S	YA	D	S	YA	D	S	YA	D
Actuator number	AB	AB	A	AB	AB	A	AB	AB	A	AB	AB	A
Mounting method	LMQ	LM	LMQ	LMQ	LM	LMQ	LMQ	LM	LMQ	LMQ	LM	LMQ
No. of poles	123	123	1	123	123	1	123	123	1	123	123	1

2 . Auxiliary contacts installed on the left-most pole.(In the left side as viewed from front of breaker)

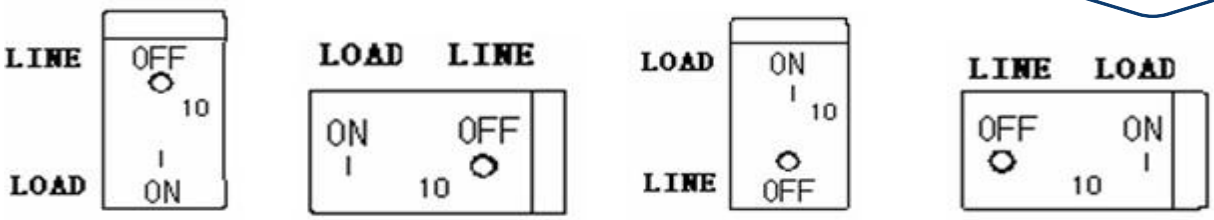
Note: Illustration of the actuator type



S1\S3\S5 S2\S4\S6 D1\D3\D5 D2\D4\D6

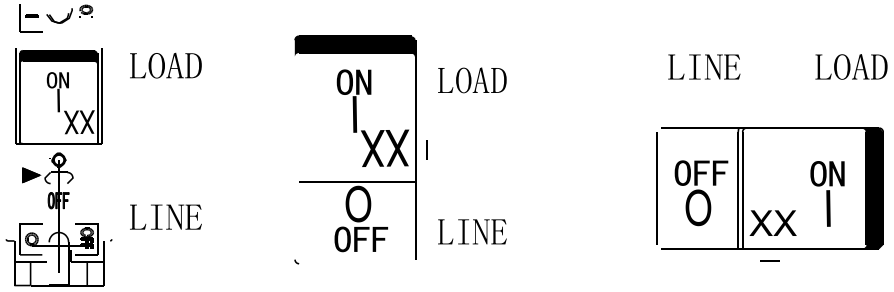


Y1 (Single color) Y2 (Single color) Y3 (Single color) Y4 (Single color)



Y5 Y6 Y7 Y8

(Dual colors, indicate “ON”) (Dual colors, indicate “OFF”)



A1(Dual colors, indicate “OFF”) A2(Dual colors, indicate “OFF”) A4(Dual colors, indicate “OFF”)

3 Specification

3.1 Standards: GB/T 17701, IEC 60934, EN60934, UL1077, UL489A, UL489

3.2 Rated working voltage(Ue): DC80V, AC250V, AC415V, AC125/250, AC120/240

3.3 Mechanical/Electrical endurance: 10000/6000 times

3.4 Power frequency withstand voltage: 3000V(Main circuit), 1000V(Auxiliary circuit)

3.5 Approvals: CCC, CE, TUV, UL1077, UL489A, UL489, CRCC

3.6 Parameter for auxiliary contact: AC250V 5A

3.8 Rated breaking capacity(Icn)

Mode	Voltage(V)	Rated current(A)	Number of poles	Breaking capacity(A)				
				3C (GB/T 17701)	UL1077	UL489A	UL489	TUV/CE (EN60934)
NDB3-50	DC80	1≤In≤30	1, 2	3000	3000, U1a	3000	/	3000
		30<In≤50		1500	1500, U1a			1500
	DC65	1≤In≤50	1, 2	/	3000, U1a	/	/	/
	DC32	1≤In≤50	1, 2	/	5000, U3	/	/	/
	AC240	1≤In≤30	1	4000(L, K) 3000(R, I)	/	/	/	/
		30<In≤50		3000(L, K) 1500(R, I)	/	/	/	/

	AC415	1≤In≤30	2, 3	4000(L, K) 3000(R, I)	/	/	/	/
		30<In≤50		3000(L, K) 1500(R, I)	/	/	/	/
	AC250	1≤In≤30	1	/	5000, C1a 3000, U1a	/	/	/
		30<In≤50			1000, U1a			
	AC 125/250	1≤In≤30	2	/	3000, U1a	/	/	/
		30<In≤50			2000, U3			
	AC250 3Φ	1≤In≤30	3	/	5000, U1a	/	/	/
		30<In≤50			1000, U3			
	AC120	1≤In≤30	1	/	/	/	5000	/
	AC120/240	1≤In≤30	2, 3	/	/	/	5000	/

Note: “L, K, R, I” stand for certificate code. For details, please refer to No. 13 in “Mode and Implication” section.

4 Working conditions

4.1 Altitude: ≤2000m

4.2 Operation temperature: -40℃~+85℃

4.3 Humidity: ≤95%

4.4 Service place without explosive media, gas and dust which are corrosive and conductive.

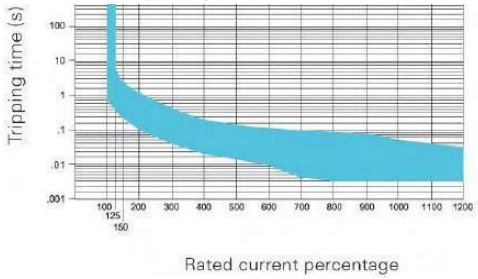
4.5 Be mounted free from rain and snow.

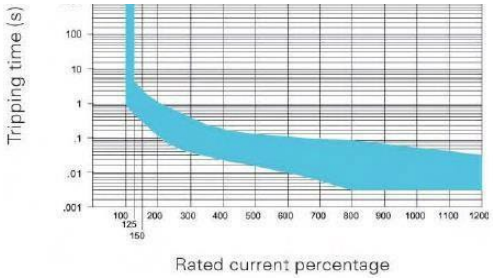
5 Tripping characteristic

5.1 Tripping timetable (in seconds)

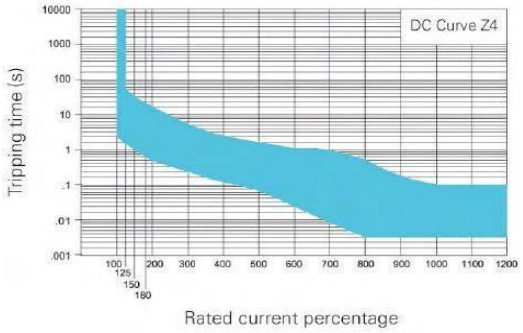
Current / Curve	In	1.25 In	2 In	6 In	10 In
Z2	No trip	0.5-6.5	0.13-1.2	0.008-0.12	0.004-0.06
Z4	No trip	2-60	0.6-20	0.011-1.3	0.004-0.1
Z6	No trip	45-345	9-60	0.15-5.8	0.005-1.7
J2	No trip	0.7-12	0.13-1.3	0.008-0.13	0.004-0.055
J4	No trip	10-160	2.2-20	0.02-1.3	0.005-0.065
J6	No trip	50-700	10-90	0.1-7	0.006-2

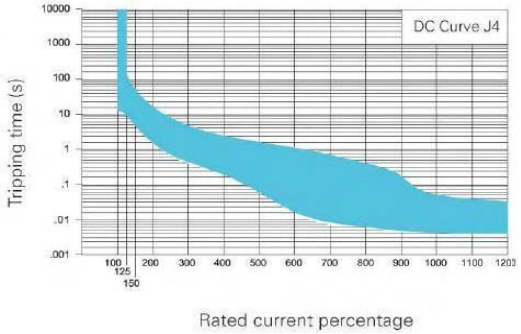
5.2 Tripping Curves



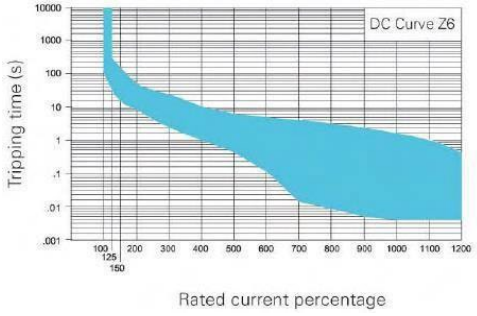


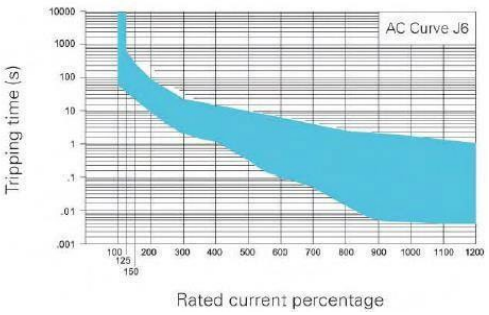
Z2 Curve J2 Curve





Z4 Curve J4 Curve



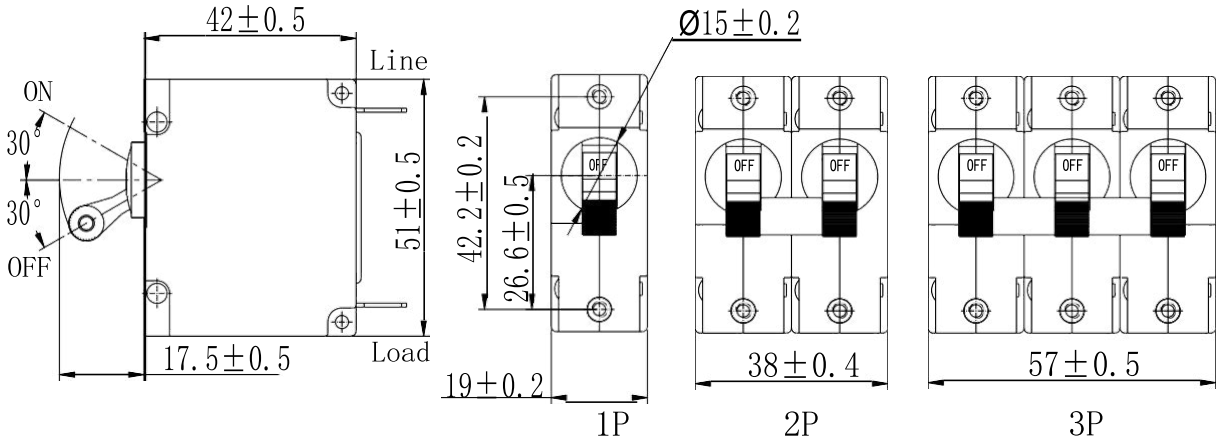


Z6 curve J6 curve

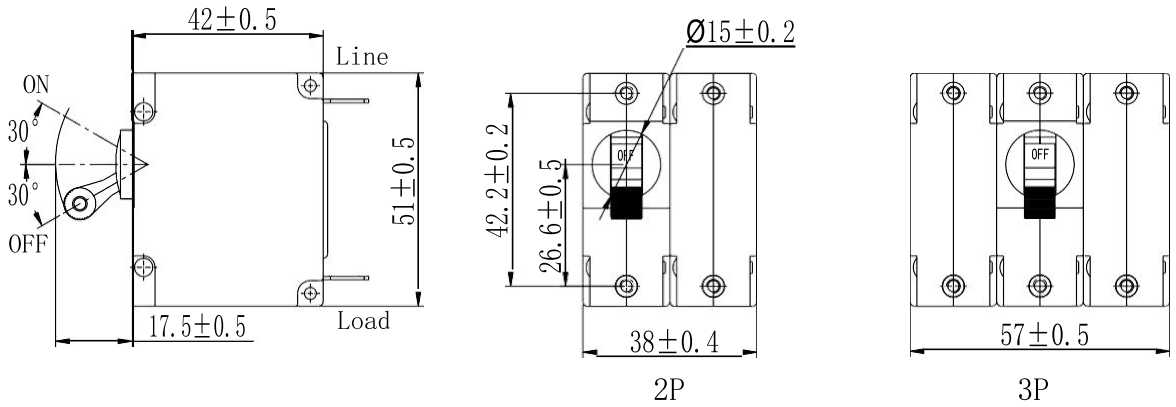
6 Dimensions and wiring method

6.1 Outline dimensions

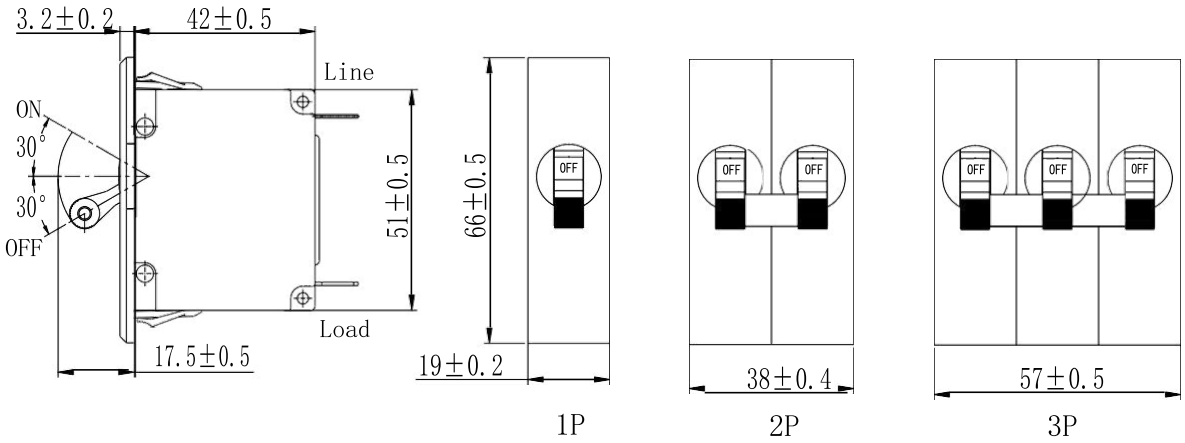
6.1.1 Actuator code S*, actuator number A, L/M mounting method



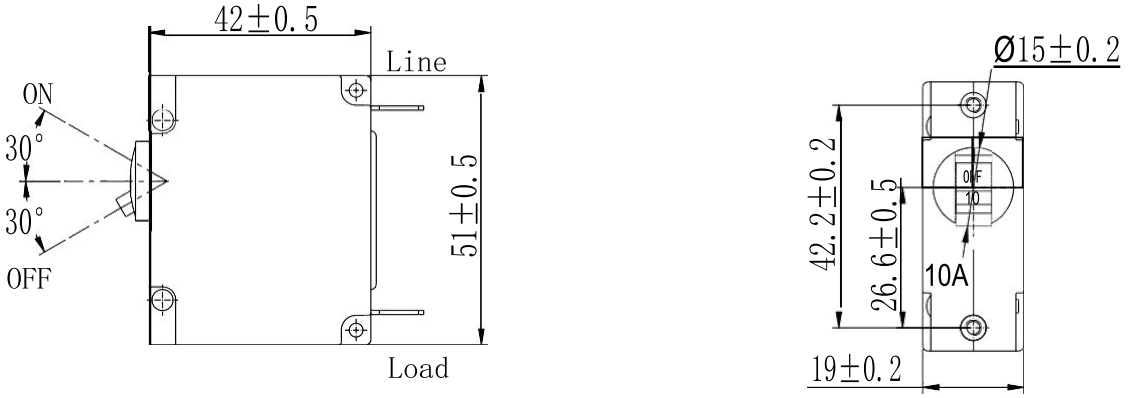
6.1.2 Actuator code S*, actuator number B, L/M mounting method



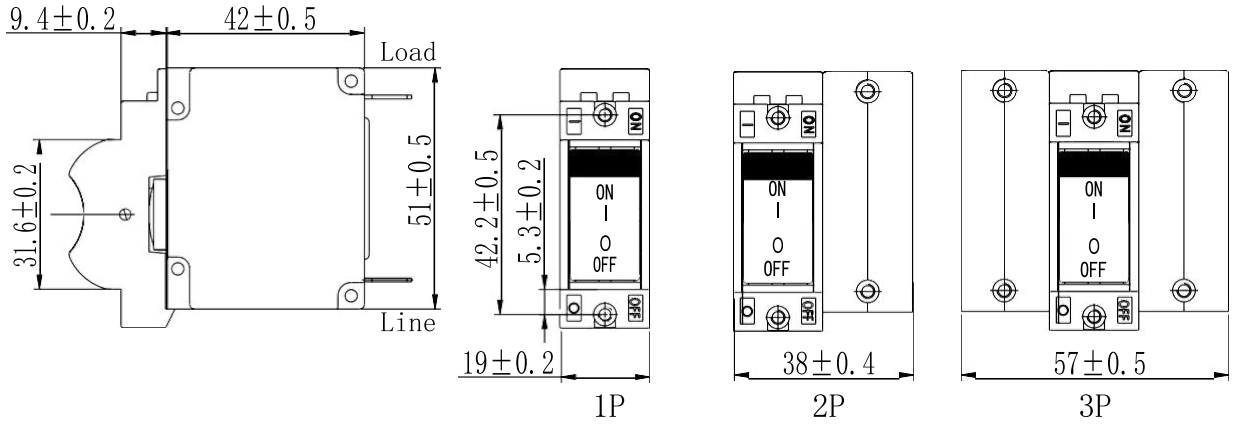
6.1.3 Actuator code S*, actuator number A, Q mounting method



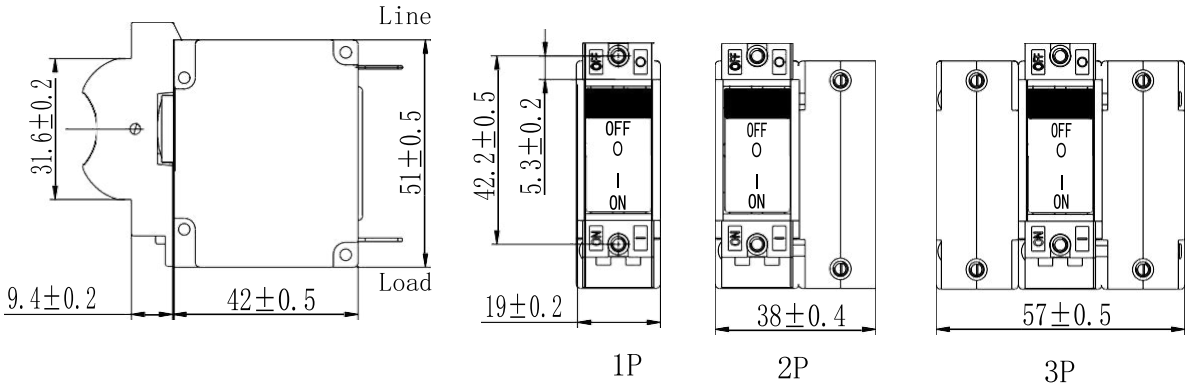
6.1.4 Actuator code D*, actuator number A, L/M mounting method



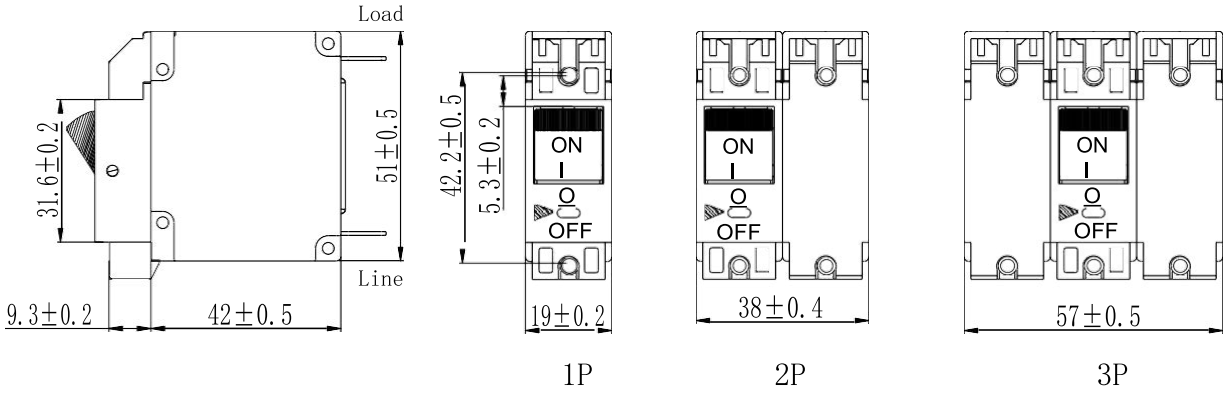
6.1.5 Actuator code Y1-Y4/Y7-Y8, actuator number B for multi-pole, L/M mounting method available



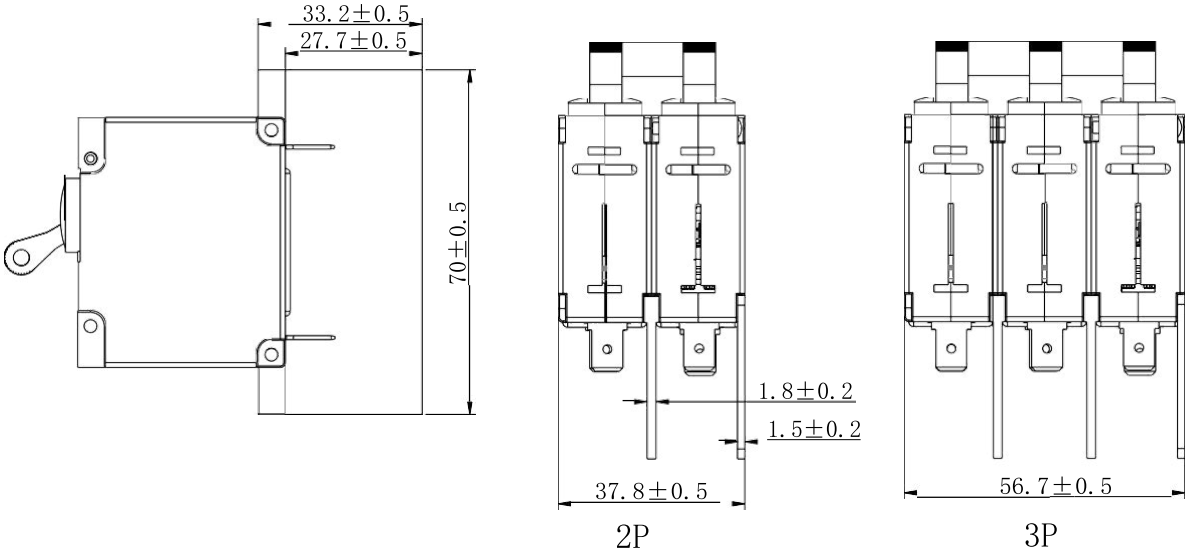
6.1.6 Actuator code Y5-Y6, actuator number B for multi-pole, L/M mounting method available



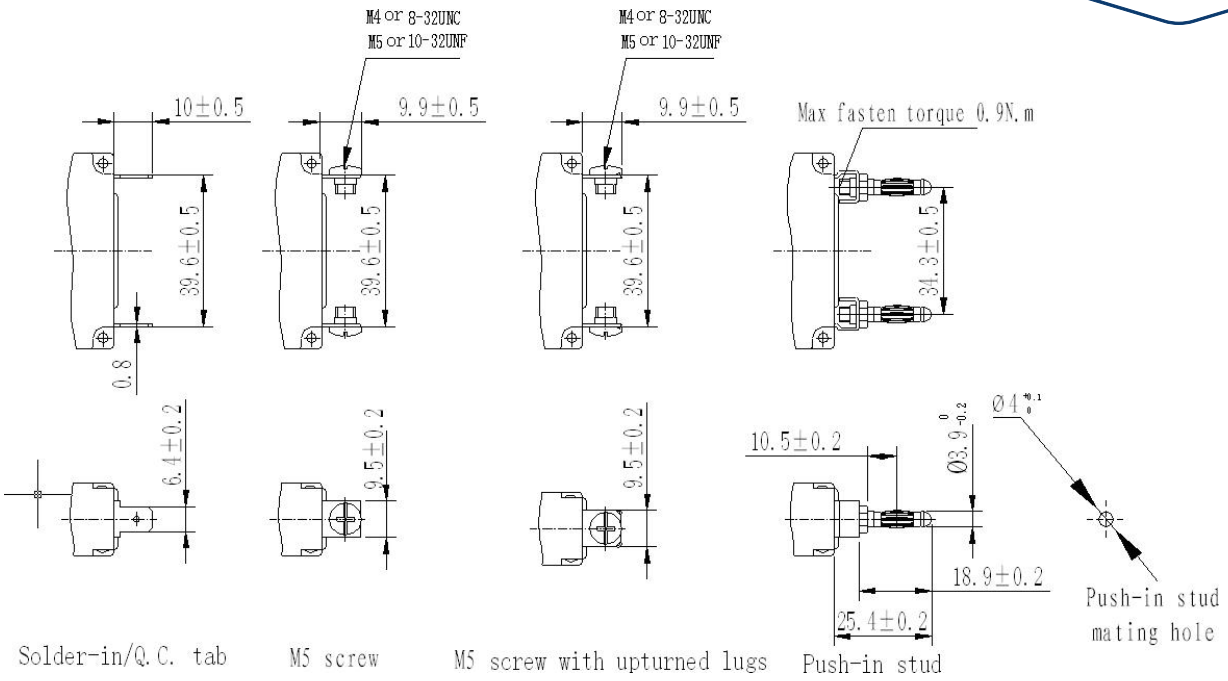
6.1.7 Actuator code A*, actuator number B for multi-pole, L/M mounting method available



6.1.8 UL-recognized multi-pole breakers with barrier



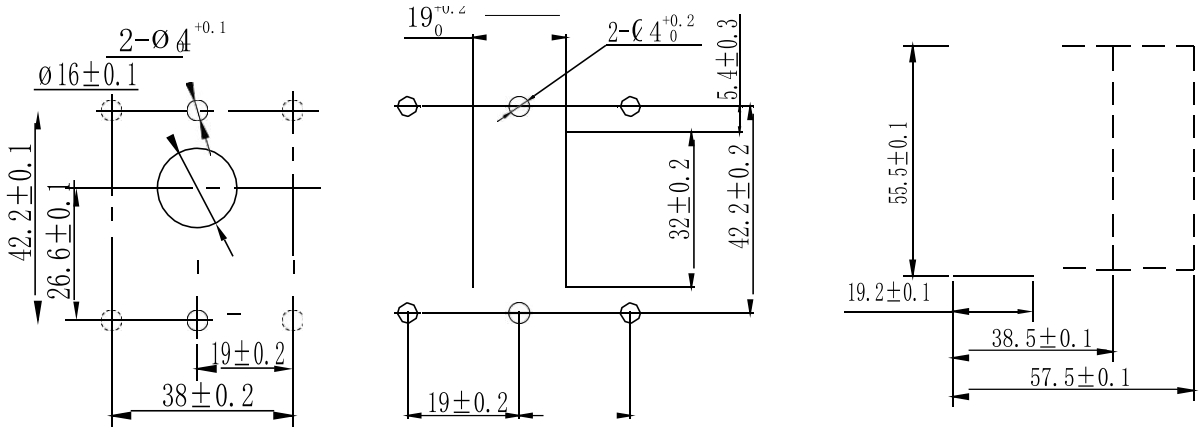
6.2 Terminal dimensions



Note: During wiring, applied torque on each type screw is shown in following table:

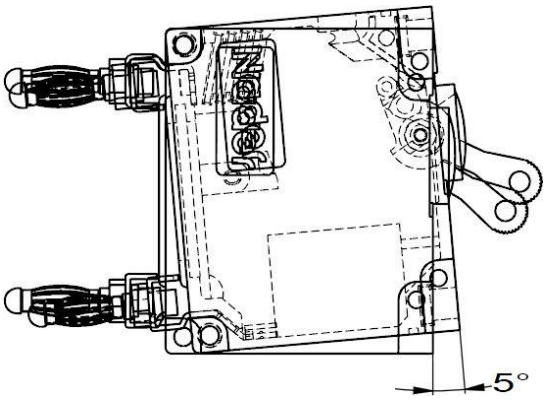
Diameter of screw (mm)	Applied torque (N.m)
M3 (6-32UNC) screw	0.5
M4 (8-32UNC) screw	1.2
M5 (10-32UNF) screw	2.0

6.3 Installation dimensions

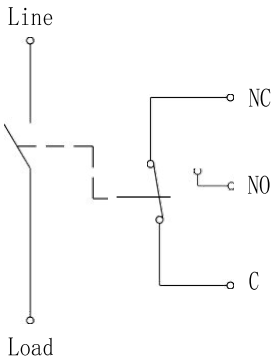


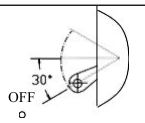
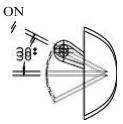
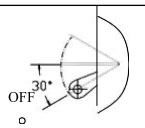
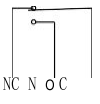
Handle type Snap-in type Rocker type

Note: The breaker should be mounted within 5° of the mounting plane in case the characters of the product are affected.



7 Circuit diagrams



Handle Position VS. Aux. Contact Mode		
Breaker Mode	Handle Position	Aux. Contact Mode
OFF		
ON		
Electrical Trip		

8 Packing and depositing

8.1 Maximum packing quantity:

1-pole: 30 pieces in a box, 3 boxes in an overwrap carton.

2-pole: 15 pieces in a box, 3 boxes in an overwrap carton.

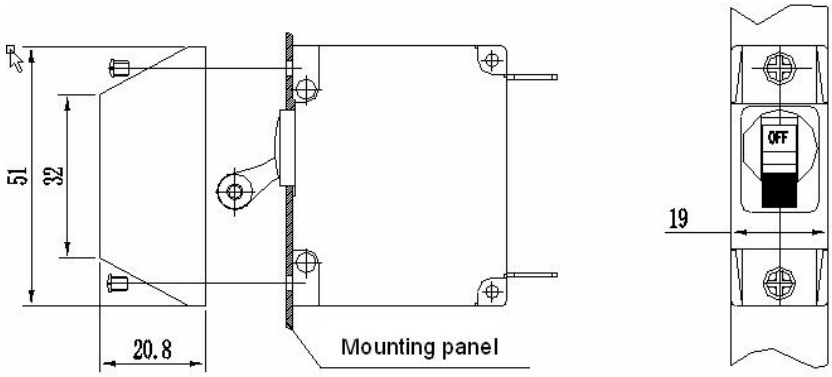
3-pole: 10 pieces in a box, 3 boxes in an overwrap carton

8.2 The products should be stored in the warehouse where there is ventilation. The relative humidity there should not exceed 80%, and the ambient temperature there is between -25℃ to +60℃. In addition, there should not be acidic, alkaline and corrosive gas in the air. The products should not be deposited more than 3 years in the above mentioned conditions since the producing date.

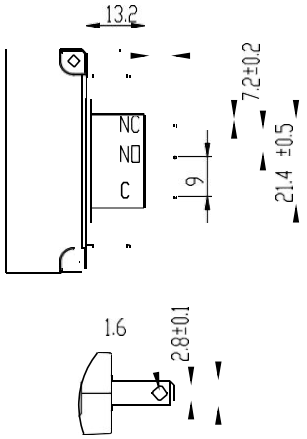
9 Accessories

9.1 NZ1 Handle guard

Work together with NDB3-50 (screw mounting, long handle actuator) to effectively avoid incorrect operation.



9.2 Auxiliary contact



10 Notices

10.1 Manufacturer will take no responsibility for problems caused by disassembly privately.

10.2 Attention to live part when the breaker is energized and avoid touching them.

10.3 Please make sure reliable connection to avoid fault tripping or damage of terminal caused by exceptional heat resulting from unsuitable connection.

10.4 Please maintain the distance of 45mm min. from the arc jet slot of the product (LINE side) during installation in case there is short circuit breaker due to arc jet.

10.5 The inclination angle between the product's installation surface and vertical installation surface should not exceed 5degree.

10.6 For screw mounting type breaker, applied torque on M3×5 or 6-32UNC screw is 0.5N.m

10.7 When manual operating breaker with actuator number B, the force should be applied in middle handle position. And the time between ON and OFF operation should be more than 1s.