



NB1 Miniature Circuit Breaker

1. General

1.1 Function

protection of circuits against short-circuit currents,
protection of circuits against overload currents,
switch,
isolation,

NB1 circuit-breakers are used in domestic installation,
as well as in commercial and industry electrical
distribution systems.

1.2 Selection

Technical data of the network at the point considered:
the earthing systems (TNS, TNC),
short-circuit current at the circuit-breaker installation point,
which must always be less than the breaking capacity of
this device,

Network normal voltage.

Tripping curves:

B curve (3-5I_n)

protection for people and big length cables in TN and IT
systems.

C curve (5-10I_n)

protection for resistive and inductive loads with low inrush
current.

D curve(10-14I_n)

protection for circuits which supply loads with high inrush
current at the circuit closing
(LV/LV transformers, breakdown lamps).

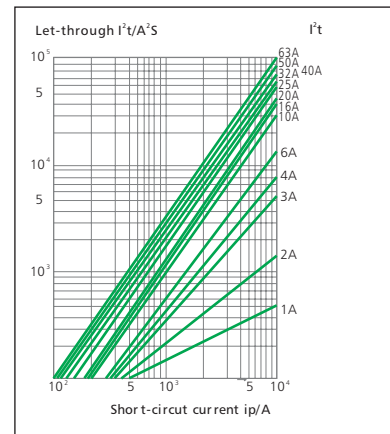
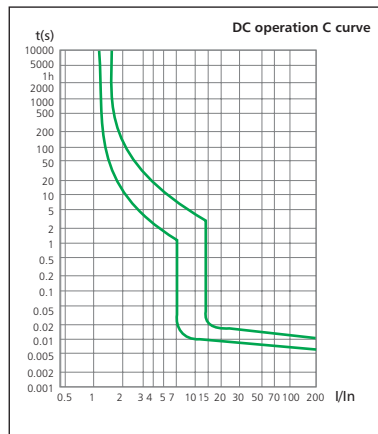
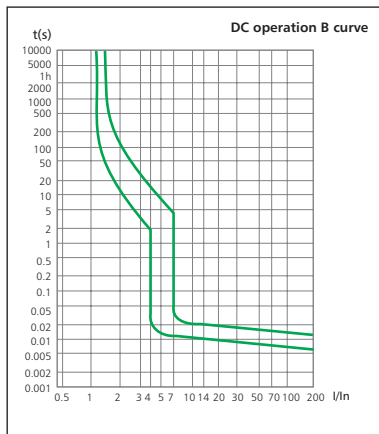
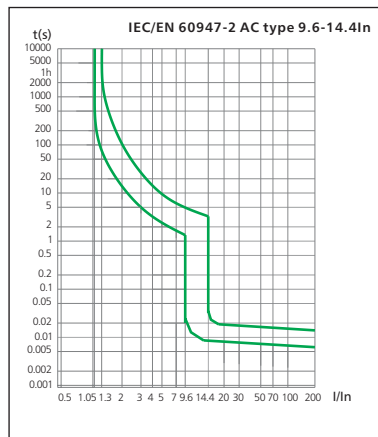
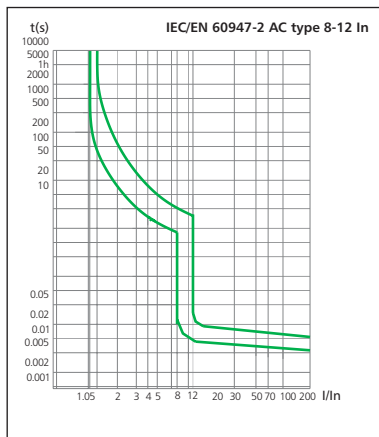
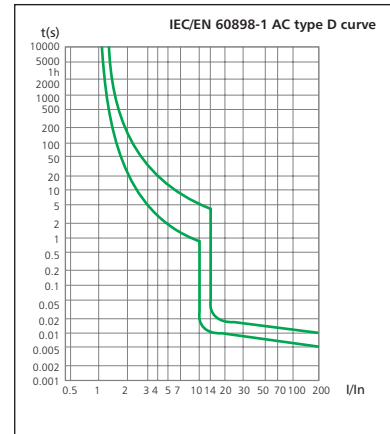
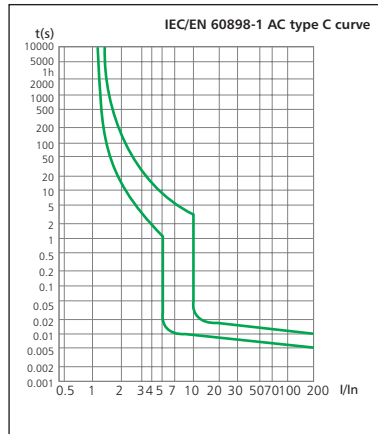
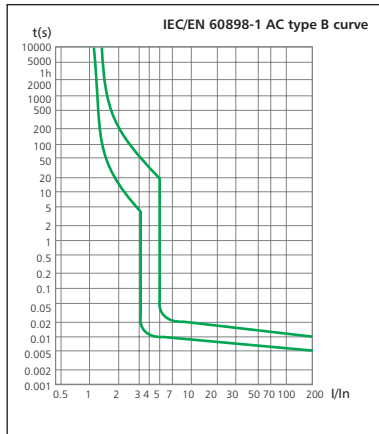
1.3 Approvals and certificates

Detailed information, please refer to Certificates Table
on the last page.



2. Technical data

2.1 Curves



2.2

	Standard		IEC/EN 60898-1	IEC/EN 60947-2	UL1077		
Electrical features	Rated current In	A	1, 2, 3, 4, 6, 10, 13, 16, 20, 25, 32, 40, 50, 63		1, 2, 3, 4, 6, 10, 13, 16, 20, 25, 32, 40, 50, 63		
	Poles		1P, 1P+N, 2P, 3P, 3P+N, 4P	1P, 2P, 3P, 4P	1P, 2P, 3P, 4P	1P, 2P	
	Rated voltage Ue	V	230/400~240/415		277/480	110/125	
	Insulation voltage Ui	V	500				
	Rated frequency		50/60Hz				DC
	Rated breaking capacity	A	6000/10000	6000	5000	10000	
	Energy limiting class		3				
	Rated impulse withstand voltage(1.2/50) Uimp	V	4000				
	Dielectric test voltage at ind. Freq. for 1 min	kV	2	1.890	2		
	Pollution degree		2				
	Power loss per pole			Rated current (A)		Max power loss per pole (W)	
				1, 2, 3, 4, 6, 10		2	
				16, 20, 25, 32		3.5	
			40, 50, 63		5		
Thermo-magnetic release characteristic		B, C, D	(8-12)In	B, C, D	(4-7)In, (7-15)In		
Mechanical features	Electrical life		4, 000				
	Mechanical life		20, 000				
	Contact position indicator		Yes				
	Protection degree		IP20				
	Reference temperature for setting of thermal element	°C	30				
	Ambient temperature (with daily average ≤35°C)	°C	-5...+40				
	Storage temperature	°C	-25...+70				
Installation	Terminal connection type		Cable/U-type busbar/Pin-type busbar				
	Terminal size top/bottom for cable	mm ²	25				
		AWG	18-4				
	Terminal size top/bottom for busbar	mm ²	10				
		AWG	18-8				
	Tightening torque	N·m	2.5				
		In-lbs.	22				
Mounting		On DIN rail EN 60715 (35mm) by means of fast clip device					
Connection		From top and bottom					
Combination with accessories	Auxiliary contact		Yes				
	Shunt release		Yes				
	Under voltage release		Yes				
	Alarm contact		Yes				

2.3 Selectivity

In (A)	Power supply side: RT36-00 (fuse)								
	20	25	36	50	63	80	100	125	160
	Is (kA)								
≤2	1.2	4	>12	>12	>12	>12	>12	>12	>12
3	0.7	1.2	3.8	5.3	6	6	6	6	6
4	0.6	0.9	2.5	3.8	6	6	6	6	6
6	0.5	0.8	1.9	2.5	4.5	5	6	6	6
10		0.7	1.4	2.2	3.2	3.6	6	6	6
16			1.2	1.8	2.6	3	5.6	6	6
20				1.5	2.2	2.5	4.6	6	6
25				1.3	2	2.2	4.1	5.5	6
32					1.7	1.9	3.8	4.5	6
40						1.7	3	4	5
50						1.5	2.6	3.5	4.5
63							2.4	3.3	4.5

In (A)	Power supply side: NM8-100S/H/R								
	16	20	25	32	40	50	63	80	100
	Is (kA)								
≤10	0.19	0.19	0.3	0.4	0.5	0.5	0.5	0.63	0.8
16			0.3	0.4	0.5	0.5	0.5	0.63	0.8
20					0.5	0.5	0.5	0.63	0.8
25						0.5	0.5	0.63	0.8
32							0.5	0.63	0.8
40								0.63	0.8
50									0.8
63									

2.4 Backup protection

In (A)	Power supply side: RT16 series						
	40	50	63	80	100	125	160
	Is (kA)						
1~6	40	40	40	40	40	40	40
8~10	40	40	40	40	40	40	40
13	40	40	40	40	35	35	35
16	40	40	40	40	30	30	30
20	40	40	40	40	30	30	30
25	40	40	40	40	30	30	30
32	40	40	40	40	30	30	30
40	40	40	40	40	30	30	30
50	30	30	30	30	30	30	30
63	20	20	20	20	15	15	15

In (A)	Power supply side: NM8					
	NM8-125S	NM8-125H	NM8-125R	NM8-250S	NM8-250H	NM8-250R
	Is (kA)					
1~6	15	18	18	15	15	15
10~20	12	15	15	12	12	12
32~40	12	15	15	12	12	12
50~60	12	15	15	12	12	12

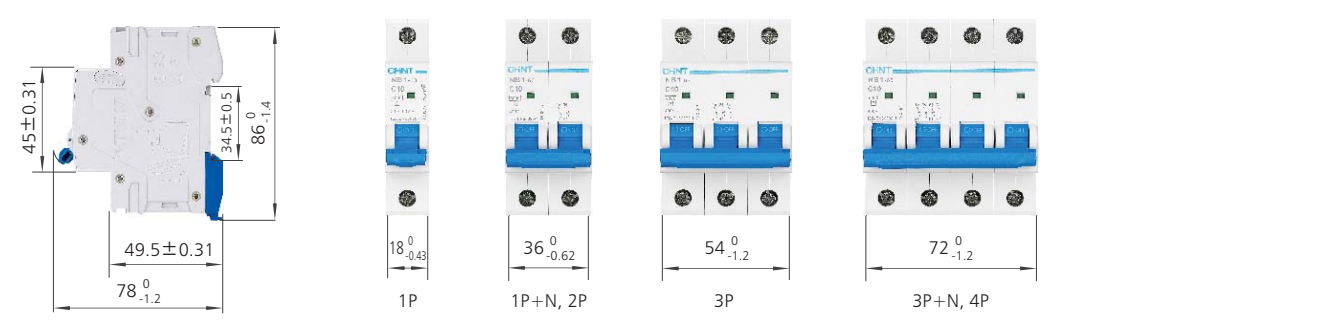
2.5 Temperature derating

The maximum permissible current in a circuit breaker depends on the ambient temperature where the circuit breaker is placed. Ambient temperature is the temperature inside the enclosure or switchboard in which the circuit breakers are installed.
The reference temperature is 30°C

Rated current(A)	Ambient temperature											
	-35°C	-30°C	-20°C	-10°C	0°C	10°C	20°C	30°C	40°C	50°C	60°C	70°C
1	1.30	1.26	1.23	1.19	1.15	1.11	1.05	1.00	0.96	0.93	0.88	0.83
2	2.60	2.52	2.46	2.38	2.28	2.20	2.08	2.00	1.92	1.86	1.76	1.66
3	3.90	3.78	3.69	3.57	3.42	3.30	3.12	3.00	2.88	2.79	2.64	2.49
4	5.20	5.04	4.92	4.76	4.56	4.40	4.16	4.00	3.84	3.76	3.52	3.32
6	7.80	7.56	7.38	7.14	6.84	6.60	6.24	6.00	5.76	5.64	5.28	4.98
10	13.20	12.70	12.50	12.00	11.50	11.10	10.60	10.00	9.60	9.30	8.90	8.40
16	21.12	20.48	20.00	19.20	18.40	17.76	16.96	16.00	15.36	14.88	14.24	13.44
20	26.40	25.60	25.00	24.00	23.00	22.20	21.20	20.00	19.20	18.60	17.80	16.8
25	33.00	32.00	31.25	30.00	28.75	27.75	26.50	25.00	24.00	23.25	22.25	21.00
32	42.56	41.28	40.00	38.72	37.12	35.52	33.92	32.00	30.72	29.76	28.16	26.88
40	53.20	51.20	50.00	48.00	46.40	44.80	42.40	40.00	38.40	37.20	35.60	33.6
50	67.00	65.50	63.00	60.50	58.00	56.00	53.00	50.00	48.00	46.50	44.00	41.50
63	83.79	81.90	80.01	76.86	73.71	70.56	66.78	63.00	60.48	58.90	55.44	52.29


When several simultaneously operating circuit breakers are mounted side by side in a small enclosure, the temperature rise inside the enclosure causes a reduction in current rating. You must then assign the rating (already derated if necessary according to ambient temperature) a downrating factor of 0.8.

3. Overall and mounting dimensions (mm)



Test Verification of Conformity

On the basis of the referenced test report(s), sample(s) of the below product have been found to comply with the harmonized standards and Directives listed on this verification at the time the tests were carried out. Other standards and Directives may be relevant to the product.

Once all product relevant  mark directives are verified in compliance, the manufacturer may indicate compliance by signing a Declaration of Conformity themselves and applying the mark to product identical to the test sample(s) if the product complies with all relevant CE mark Directives requirements.

Applicant Name & Address : Zhejiang Chint Electrics Co., Ltd.
No.1 Chint Road, Chint Industrial Zone, North Baixiang,
Yueqing, Zhejiang Province, P.R. China.

Manufacturing site Name & Address : Same as applicant

Product(s) Tested : Circuit-breaker for overcurrent protection

Ratings and principal characteristics : $U_e = 240V/415V\text{~}(1P), 240V\text{~}(1P+N), 415V\text{~}(2P, 3P, 3P+N, 4P)$
 $I_n = 1, 2, 3, 4, 5, 6, 8, 10, 13, 16, 20, 25, 32, 40, 50, 63A$
B-, C- & D- Type
 $I_{cs} = 6000(NB1-63), 7500A(NB1-63H)$
 $I_{cn} = 6000(NB1-63), 10000A(NB1-63H)$
Energy limiting class 3

Model(s) : NB1-63, NB1-63H

Brand name : **CHINT**

Relevant Standard(s) / Specification(s) / Directive(s) : EN 60898-1:2003+A1:2004+A11:2005+A12:2008+A13:2012
the Low Voltage Directive 2006/95/EC

Verification Issuing Office Name & Address : Intertek Testing Services Shanghai
Building No.86, 1198 Qinzhou Road (North), Shanghai 200233,
China

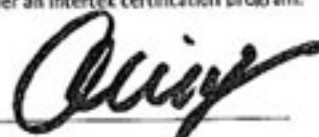
Verification Number : 140500458SHA-V1

Report Number(s) : 140500458SHA-001~005

NOTE 1: This verification is part of the full test report(s) and should be read in conjunction with it.

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Oliver Wei
Manager
June 12, 2014

Test Verification of Conformity

On the basis of the referenced test report(s), the sample(s) of the below product has been found to comply with the relevant harmonized standard(s) to the directive(s) listed on this verification at the time the tests were carried out.

The manufacturer may indicate compliance to said directive(s) by signing a DoC himself and applying the CE-marking to products identical to the tested sample(s). In addition, the manufacturer shall file and keep the documentation according to the rules of the applicable directive(s) and shall consider changes of the standard(s) if relevant. Additional requirements may be applicable such as additional directives or local laws.

Applicant Name & Address : Zhejiang Chint Electrics Co., Ltd.
No.1,Chint Road, Chint Industrial Zone, North Baixiang,
Yueqing, Zhejiang Province, P.R.China

Manufacturing site Name & Address : Same as applicant

Product(s) Tested : Moulded Case Circuit-breakers

Ratings and principal characteristics : $U_e = 240V(1P)\sim, 415V\sim(2, 3, 4P)$
 $I_n = 1, 2, 3, 4, 6, 8, 10, 13, 16, 20, 25, 32, 40, 50, 63A$
 $I_{cs} = I_{cu} = 6kA, U_i = 500V\sim, Utilization\ category: A$

Model(s) : NB1-63

Brand name : CHINT

Relevant Standard(s) / Specification(s) / Directive(s) : EN 60 947-2:2006 + A1:2009
the Low Voltage Directive 2006/95/EC

Verification Issuing Office Name & Address : Intertek Testing Services Shanghai
Building No.86, 1198 Qinzhou Road (North), Shanghai
200233, China

Verification Number : SH12021193-V1

Report Number(s) : SH12021193-001, -002, -003, -004

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Manager
April 5, 2012