



## NB1L-20 Residual Current Circuit Breaker(ELM)

### 1. General

#### 1.1 Function

Personnel and fire protection: Cable and line protection against overload and short-circuits.

#### 1.2 Selection

##### Rated residual operating current

$I_{\Delta n} \leq 30$  mA: additional protection in the case of direct contact.

##### Tripping class

##### A and AC class

A class tripping is ensured for sinusoidal, alternating residual currents as well as for pulsed DC residual currents, whether they be quickly or slowly increase.

AC class tripping is ensured for sinusoidal, alternating residual currents, whether they be quickly or slowly increase

##### Tripping curve

B curve ( $I_1 = 1.13I_n$ ;  $I_2 = 1.45I_n$ ;  $I_4 = 3I_n$ ;  $I_5 = 5I_n$ ) protection and control of the circuits against overloads and shortcircuits; protection for people and big length cables in TN and IT systems.

C curve ( $I_1 = 1.13I_n$ ;  $I_2 = 1.45I_n$ ;  $I_4 = 5I_n$ ;  $I_5 = 10I_n$ ) protection and control of the circuits against overloads and short-circuits; protection for resistive and inductive loads with low inrush current.

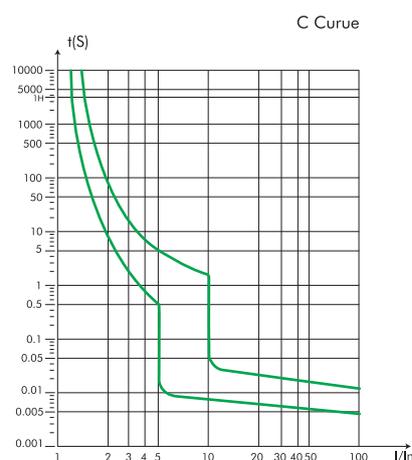
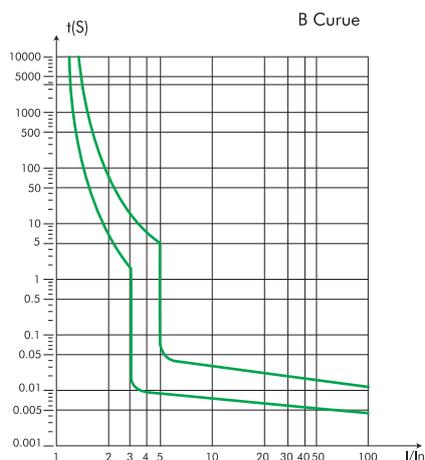
#### 1.3 Approvals and certificates

CE/CB



## 2. Technical data

### 2.1 Curves



## 2.2

	Standard		IEC/EN 61009-1
Electrical features	Type (wave form of the earth leakage sensed)		A, AC
	Thermo-magnetic release characteristic		B, C
	Rated current I <sub>n</sub>	A	6, 10, 13, 16, 20
	Poles		1P+N
	Rated voltage U <sub>e</sub>	V	230/240
	Rated sensitivity I <sub>Δn</sub>	A	0.03
	Voltage range of the test button T	V	195.5-253
	Rated short-circuit capacity I <sub>cn</sub>	A	6,000
	Time characteristic of RCD		No time delay
	Rated frequency	Hz	50/60
	Rated impulse withstand voltage (1.2/50) U <sub>imp</sub>	V	4,000
	Energy limited class		3
	Insulation voltage U <sub>i</sub>	V	500
	Pollution degree		2
Mechanical features	Electrical life		6,000
	Mechanical life		6,000
	Relative humidity		≤95%
	Protection degree		IP20
	Ambient temperature (with daily average ≤35°C)	°C	-35~+70
	Storage temperature	°C	-35~+70
Installation	Terminal connection type		Cable/U-type busbar
	Terminal capacity	mm <sup>2</sup>	1-10
	Terminals		Combined lift + open mouthed
	Tightening torque	N·m	0.8-1
	Mounting		Easy fastening onto 35 mm device rail (DIN)
	Connection		From top or bottom

## 2.3 Temperature derating

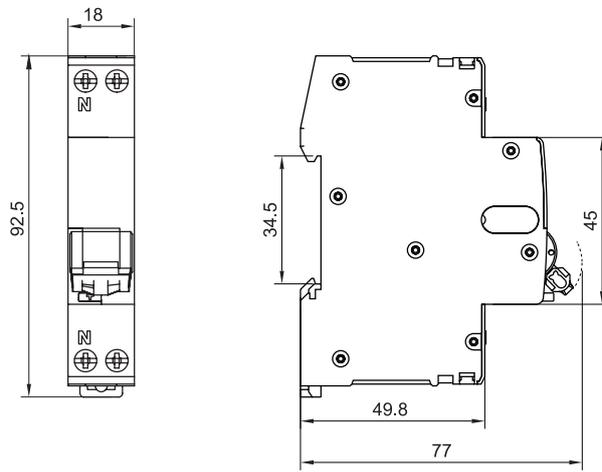
The maximum permissible current in a circuit breaker depends on the ambient temperature where the circuit breaker is placed. Ambient temperature is the temperature inside the enclosure or switchboard in which the circuit breakers are installed.

**The reference temperature is 30°C**

Dependence of tripping characteristics on ambient temperature					
T [°C]	I <sub>n</sub> (T) [A]				
	6A	10A	13A	16A	20A
-35	7.8	11.9	15.6	19.2	24
-20	7.5	11.6	15.21	18.56	23.2
-10	7.14	11.3	14.69	18.08	22.6
0	6.84	11	14.3	17.6	22
10	6.48	10.6	13.78	16.96	21.2
20	6.18	10.2	13.26	16.32	20.4
30	6	10	13	16	20
40	5.76	9.6	12.48	15.52	19.4
50	5.4	9.3	11.96	14.88	18.6
60	5.04	8.9	11.44	14.24	17.8
70	4.74	8.5	10.92	13.6	17

### 3. Overall and mounting dimensions (mm)

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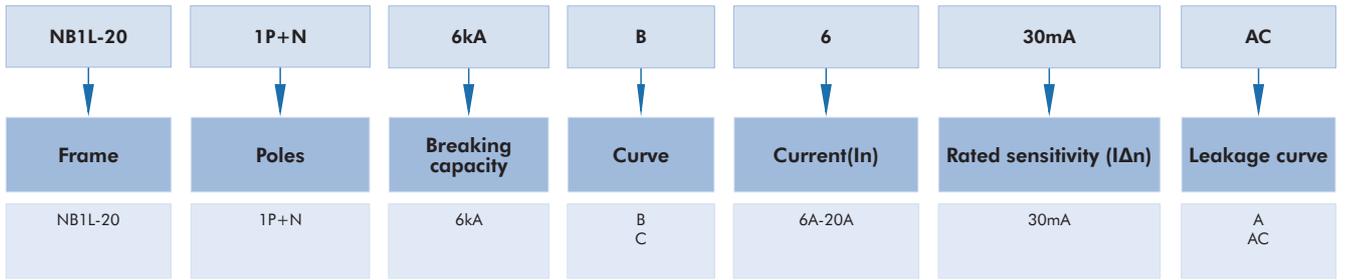


Diagram	Curve	Poles	I <sub>n</sub> (A)	I <sub>cu</sub> (kA)	U <sub>e</sub> (V)	I <sub>Δn</sub> (mA)	Leakage type	Description	Code
	B	1P+N	6	6	AC230/240	30	AC	NB1L-20 1P+N B6 30mA 6kA	586772
	B	1P+N	10	6	AC230/240	30	AC	NB1L-20 1P+N B10 30mA 6kA	586773
	B	1P+N	13	6	AC230/240	30	AC	NB1L-20 1P+N B13 30mA 6kA	586774
	B	1P+N	16	6	AC230/240	30	AC	NB1L-20 1P+N B16 30mA 6kA	586775
	B	1P+N	20	6	AC230/240	30	AC	NB1L-20 1P+N B20 30mA 6kA	586776
	C	1P+N	6	6	AC230/240	30	AC	NB1L-20 1P+N C6 30mA 6kA	586777
	C	1P+N	10	6	AC230/240	30	AC	NB1L-20 1P+N C10 30mA 6kA	586778
	C	1P+N	13	6	AC230/240	30	AC	NB1L-20 1P+N C13 30mA 6kA	586779
	C	1P+N	16	6	AC230/240	30	AC	NB1L-20 1P+N C16 30mA 6kA	586780
	C	1P+N	20	6	AC230/240	30	AC	NB1L-20 1P+N C20 30mA 6kA	586781
	B	1P+N	6	6	AC230/240	30	A	NB1L-20 1P+N B6 30mA A 6kA	586782
	B	1P+N	10	6	AC230/240	30	A	NB1L-20 1P+N B10 30mA A 6kA	586783
	B	1P+N	13	6	AC230/240	30	A	NB1L-20 1P+N B13 30mA A 6kA	586784
	B	1P+N	16	6	AC230/240	30	A	NB1L-20 1P+N B16 30mA A 6kA	586785
	B	1P+N	20	6	AC230/240	30	A	NB1L-20 1P+N B20 30mA A 6kA	586786
	C	1P+N	6	6	AC230/240	30	A	NB1L-20 1P+N C6 30mA A 6kA	586787
	C	1P+N	10	6	AC230/240	30	A	NB1L-20 1P+N C10 30mA A 6kA	586788
	C	1P+N	13	6	AC230/240	30	A	NB1L-20 1P+N C13 30mA A 6kA	586789
	C	1P+N	16	6	AC230/240	30	A	NB1L-20 1P+N C16 30mA A 6kA	586790
	C	1P+N	20	6	AC230/240	30	A	NB1L-20 1P+N C20 30mA A 6kA	586791