



Specifications and technical data are subject to change without notice.  
Please contact to confirm relevant information on ordering.

📍 No.18, Gutang Rd, Shanghai 201209, China  
 ☎️ +86 21 5032 0898  
 📠 +86 21 5032 0828  
 ✉️ info@ebasee.com  
 🌐 www.ebasee.com



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**Ebasee**  
Smart Living Green Ebasee



**CIRCUIT BREAKER**



# COMPANY PROFILE

As a leading supplier in the low voltage electrics industry, Shanghai Ebasee Electric Co., Ltd. products have been used for residential, commercial and industrial applications with its quality and service. EBASEE brand is recognized for its quality and reliability in an ever-increasing number of markets worldwide. So far EBASEE products have been approved by international labs including BV, TUV, Intertek, with KEMA, CB, SEMKO, RoHS, CE, and CCC etc.

With qualified raw materials and components supply, all products are manufactured by EBASEE's defined international specifications. We have 4 semi-auto production lines, up-to-date quality control facilities, well-trained and experienced workers. Moreover, with a technical R & D team and fully equipped in-house laboratory, EBASEE factory can carry out efficient new products development, daily production and QC.

EBASEE have a wide range of cooperations with world leading companies in new products development, OEM and ODM cooperation. Meanwhile, we process the idea of green and smart energy, working with universities such as Xi'an Jiao Tong University to get more intelligent and environmental electric solutions.

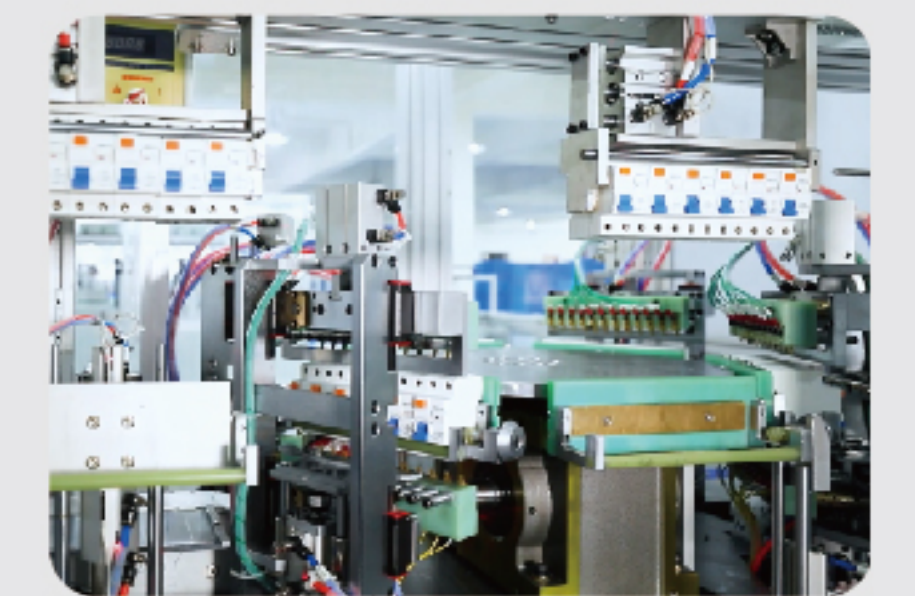
EBASEE focused on achieving growth through the success of worldwide partners. Guided by the philosophy of "market-oriented", powered by the idea of "Quick response and flexible supply", EBASEE support our worldwide partners to compete against established global players, to deliver the most systematic and cost-effective products and service in the market.

"Smart life, Green EBASEE"



Quality is our culture!

## PRODUCTION LINE

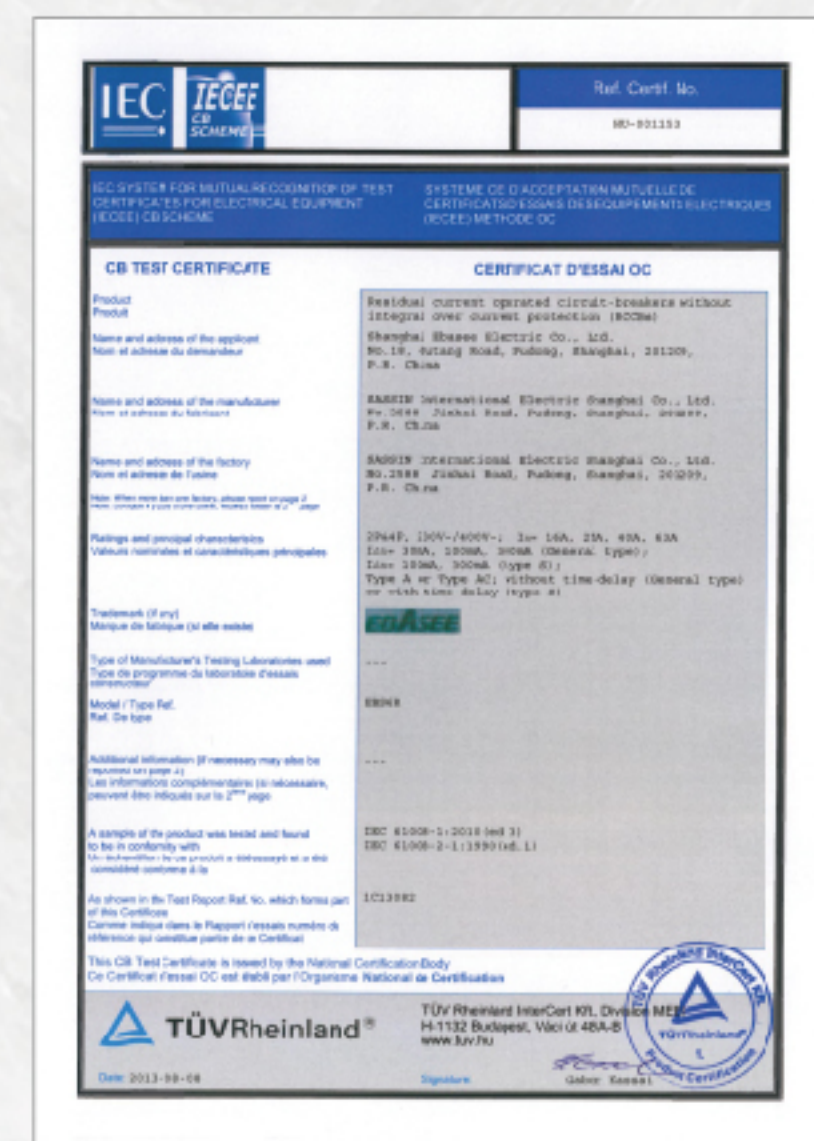
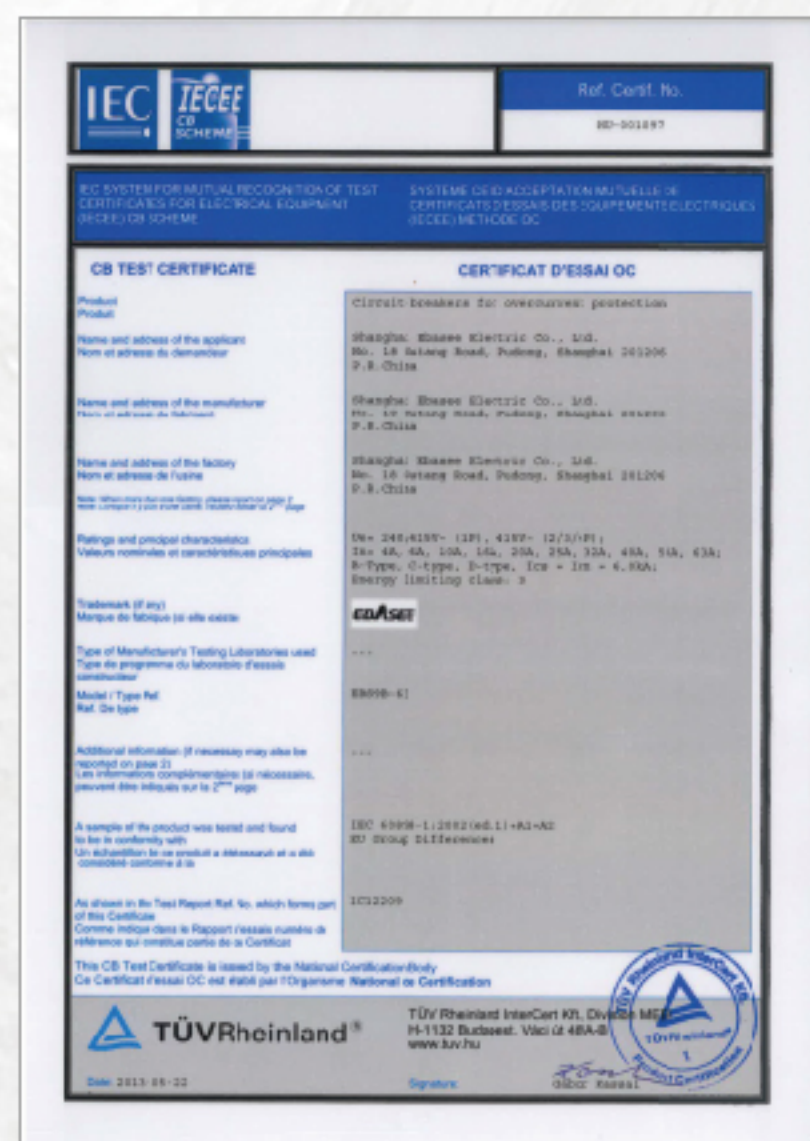
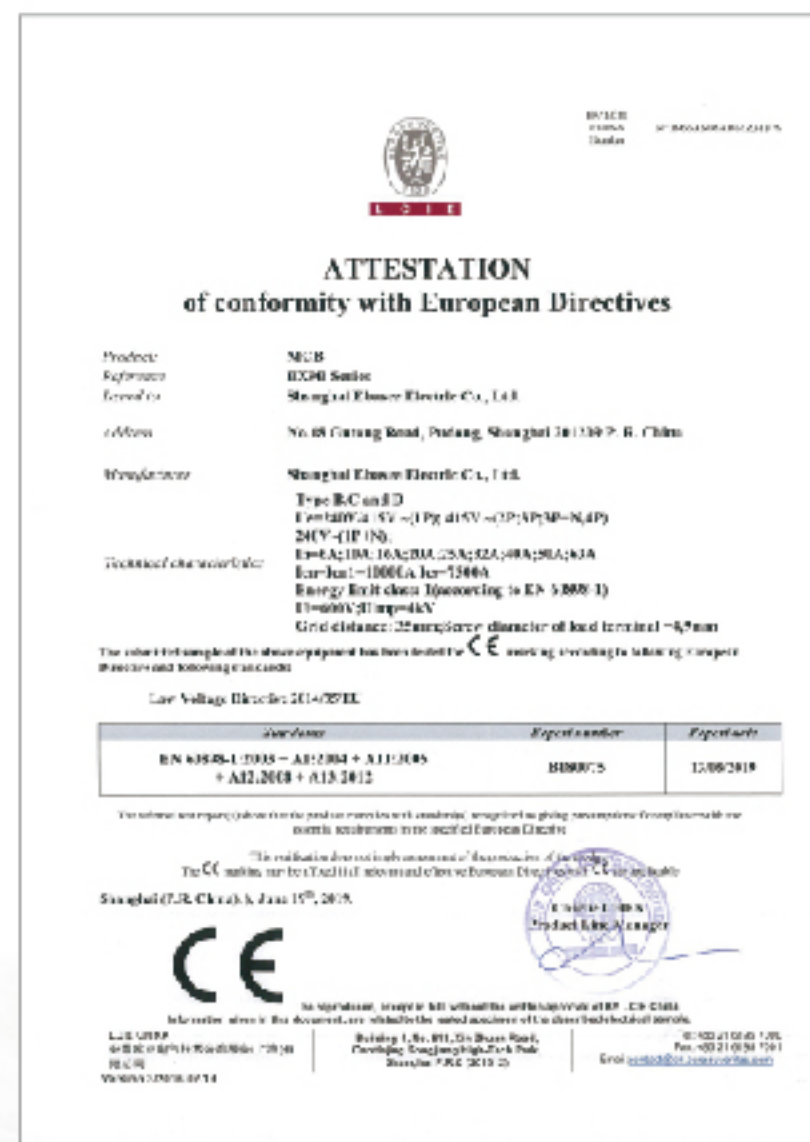


# SMART LIVING GREEN EBASEE



## INTERNATIONAL QUALITY CERTIFICATE

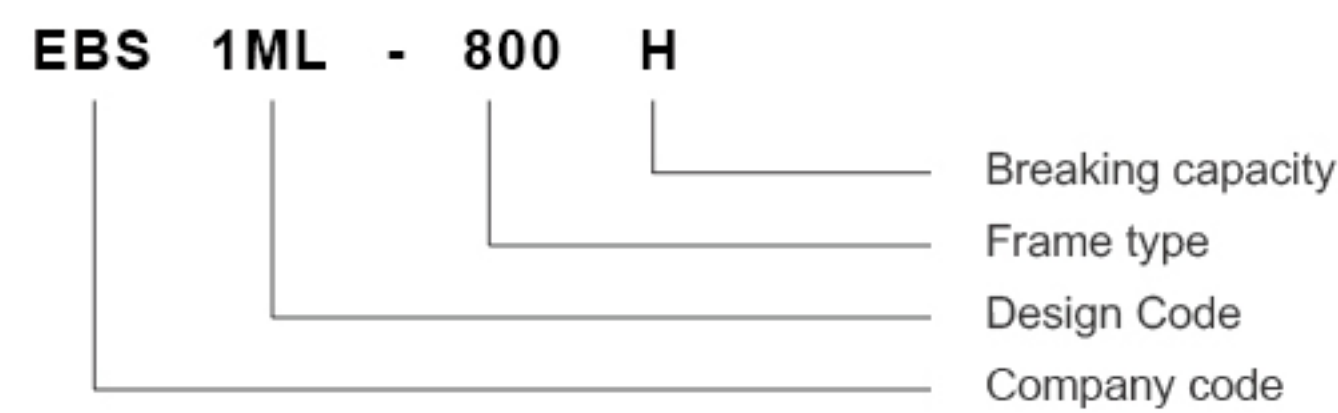
EBASEE products have been approved by international labs including BV, TUV, Intertek, with KEMA, CB, SEMKO, RoHS, CE, and CCC etc.



## 1.General

EBS1ML series earth leakage circuit breaker are of the new type earth leakage breakers which have been developed by the company using international advanced design and manufacturing technology. Suitable for a line of AC50/60Hz, rated voltage up to 400V, rated current 16A to 630A. And it is as infrequent changeover of circuit or infrequent starting of motor. The breaker has overload, short-circuit and under-voltage protective functions, which can protect the circuit and the power equipment against damage, meanwhile, it can provide protection against fire dangerous that caused by these long-time existed grounding fault that can not be detected by the over-current protection.

## 2.Nomenclature



### Note:

- 2.1 This breaker can be installed vertically (upright) or horizontally (transverse).
- 2.2 Wiring of the breaker can not be in adverse direction. That means power supply line must be connected to terminal 1, 3 and 5. and the load line connected to terminal 2, 4 and 6.
- 2.3 The rated residual operating current  $I_{\Delta n}$  and the maximum breaking time can be adjusted on site according to practical condition.
- 2.4 The leakage protection module still can work normally when the phase voltage reduce to 50V. It has the same overall size with the 2.5 EBS1M series breakers, which make the installation more exchangeable.
- 2.6 The breakers are suitable for isolation, its symbol are:
- 2.7 The breakers comply with the demands of the following standards:
  - IEC60947-1 General
  - IEC60947-2 Low voltage breakers
  - IEC60947-4 Contactors and motor starters
  - IEC60947-5.1 Electrical equipments of electromechanical control circuits.

## 3.Nomenclature

**Note:** According to the pole number of product, it classifies three and four poles. The neutral pole (N-Pole) of the four-poles products has four types:

- Type A: N-pole without over-current release unit, it has been connected all the time, not closing and opening with the other three poles.
- Type B: N-pole without over-current release unit, which closing and opening with the other three poles.
- Type C: N-pole fixed with over-current release unit, which closing and opening with the other three poles.
  - Type C: N-pole fixed with over-current release unit, it has been connected all the time, not closing and opening with the other three poles.
    - (1) The limiting breaker and arc-over distance includes horizontal and vertical installation.
    - (2) If the three-pole breaker of this series is connected with three phase load, the load can not have neutral line, otherwise the breaker will have fault action.
    - (3) If the three-pole breaker of this series is connected with single phase load, the phase line will be connected to the left pole, and the neutral line is connected to the right pole, the middle pole is blank.

## 4.Specifications

Type	EBS1ML-100	EBS1ML-225		EBS1ML-400		EBS1ML-630			
Frame current $I_{nm}(A)$	100	225		400		630			
Rated current $I_n(A)$	(10)16, 20, 25, 32, 40, 50, 63, 80, 100	100, 125, 160, 180, 200, 225		225, 250, 315, 350, 400		400, 500, 630			
Pole number voltage	3 4	3	4	3	4	3	4		
Rated insulation voltage	AC800V								
Rated working	AC400V								
Rated impulse with stand voltage $U_{imp}(V)$	800V								
Arc-over distance (mm)	$\geq 50$								
Breaking capacity grade	M	H		M	H		M		
Limiting shortcircuit breaking capacity $I_{cu}(Ka)$	AC400V	50	85	50	50	85	50	65	65
Service short circuit breaking capacity $I_{cs}(Ka)$	AC401V	35	50	35	35	50	35	42	42
Rated residual operating current $I_{\Delta n}(mA)$	Non-delay type	100/300/500							
	Delay type	100/300/500						300/500/1000	
Rated residual non-operating current $I_{\Delta n}(mA)$	$1/2I_{\Delta n}$								
Operation performance (time)	Electrical	1500		1000		1000		1000	
	Mechanical	8500		7000		4000		4000	

## 5.Protection Characteristic

The thermal release of the breaker has again-time-limit property; the electromagnetic release is instantaneous. Operation, its property see table 2 (for distribution), table 3 (motor protection).

Rated current of release (A)	Thermal release (ambient temperature +40 °C)		Electromagnetic release tripping current (A)
	1.05 $I_n$ (cold state) non-trip time (h)	1.03 $I_n$ (hot state) trip time (h)	
10 ≤ $I_n$ ≤ 63	1	1	10 $I_n$ ± 20%
63 ≤ $I_n$ ≤ 125	2	2	
125 ≤ $I_n$ ≤ 630	2	2	5 $I_n$ ± 20%    10 $I_n$ ± 20%

Rated current of release	Thermal release (ambient temperature +40 °C)				Electromagnetic release tripping current (A)
	1.0 $I_n$ (cold state) non-trip time (h)	1.20 $I_n$ (hot state) trip time (h)	1.50 $I_n$ (thermal state) trip time (h)	7.2 $I_n$ (cold state) trip time (h)	
10 ≤ $I_n$ ≤ 400	2	2	8min	6s < $T_p$ ≤ 20s	12 $I_n$ ± 20%

## 6. Residual Current Operating Time of Earth Leakage Circuit Breaker

4.1 Non-delay type operation characteristics see table 4 ( $I\Delta n \leq 30mA$  should be non-delay type)

Rated current		$I\Delta n$	$2I\Delta n$	$5I\Delta n$	$10I\Delta n$
Non-delay type	Max breaking time(s)	0.3	0.15	0.04	0.04

**Note:** to  $I\Delta n \leq 30mA$  earth leakage circuit breaker, 0.25A can instead of  $5I\Delta n$  According to, adopt 0.25A, then  $10I\Delta n$  is 0.5A. 4.2 Delay type operation characteristics see table 5

Limiting non-driven time of delay type earth leakage circuit breaker according to  $2I\Delta n$ , operation characteristics see table 5.

Delay time(s)	Max breaking time(s) at $I\Delta n$	Limiting non-driven time(s) at $2I\Delta n$	Max. breaking time(s)	Max. breaking time(s) at $5I\Delta n$	Max. breaking time(s) at $10I\Delta n$
0.1	0.4	0.06	0.2	0.15	0.15
0.2	0.5	0.06	0.2	0.15	0.15
0.3	0.6	0.1	0.4	0.3	-
0.4	0.7	0.2	0.5	0.4	-
0.5	0.8	0.3	0.6	0.5	-
0.6	0.9	0.4	0.7	0.6	-
0.7	1.0	0.5	0.8	0.7	-

## 7. Tripping Characteristic

For power distribution

Test No.	Test current	$I/I_n$	Conventional time	Start status	Ambient temperature
1	Conventional non-action time	1.05	1h ( $I_n \leq 63A$ )	Cold status	+40°C
			2h ( $I_n > 63A$ )		
2	Conventional action time	1.30	1h ( $I_n \leq 63A$ )	Right after test No. 1	+40°C
			2h ( $I_n > 63A$ )		

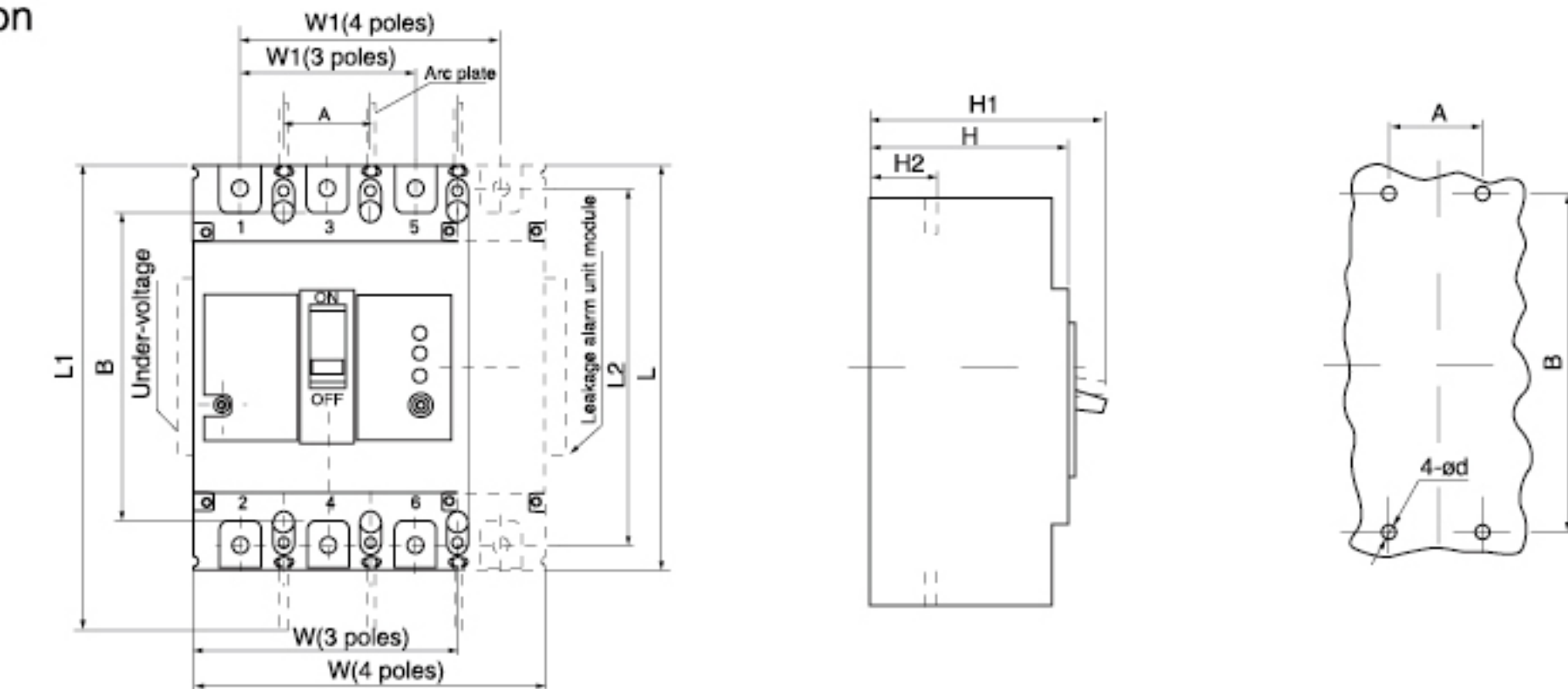
For Motor Protection

Test No.	Setting current	Conventional time		Start status	Ambient temperature
1	1.05 $I_n$	$I_{nm}=100A$	>2h no action	Cold status	+40°C
		$I_{nm}=225A/400A$	>2h no action		
		$I_{nm}=630A$	>2h no action		
2	1.2 $I_n$	$I_{nm}=100A$	$\leq 2h$ action	Right after test No. 1	+40°C
		$I_{nm}=225A/400A$	$\leq 2h$ action		
		$I_{nm}=630A$	$\leq 2h$ action		
3	1.5 $I_n$	$I_{nm}=100A$	$\leq 4min$ action	Heat status	+40°C
		$I_{nm}=225A/400A$	$\leq 4min$ action		
		$I_{nm}=630A$	$\leq 8min$ action		
4	7.2 $I_n$	$I_{nm}=100A$	$\geq 1s$ action	Cold status	+40°C
		$I_{nm}=225A/400A$	$4s < t \leq 10s$ action		
		$I_{nm}=630A$	$6s < T \leq 20s$ action		

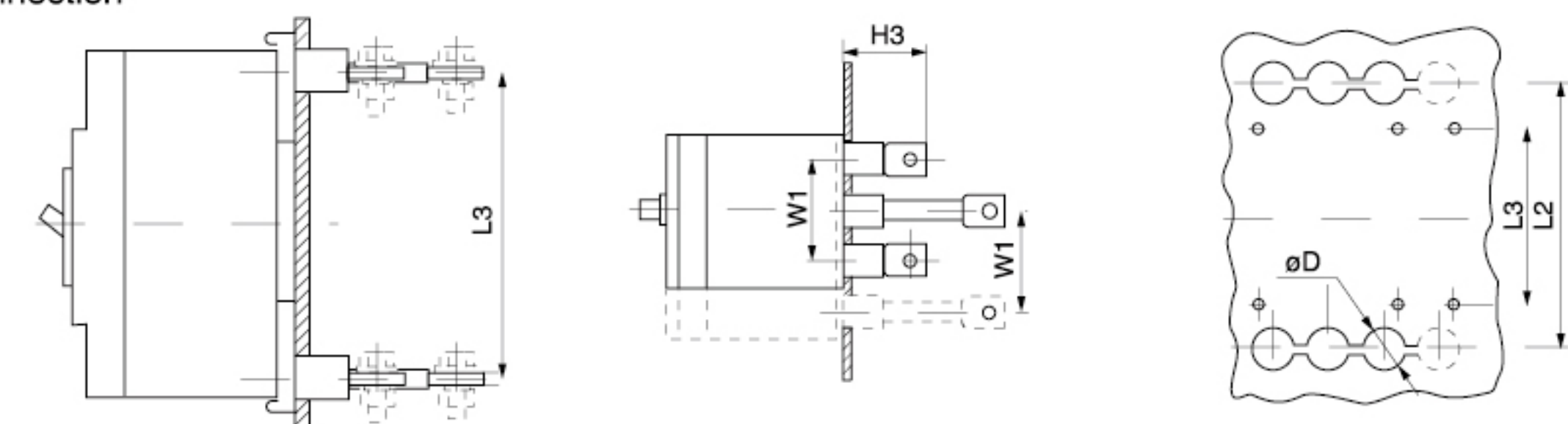
## 8. Dimensions

Type	Outline dimensions																			Installation dimensions		
	Front panel connection								Back panel connection			Plug-in connection										
	W	L	H	W1	L1	L2	H1	H2	L3	H3	D	L4	L5	H4	H5	H6	C	D	D1	A	B	d
EBS1L-100M,H/3P	92	150	92	60	200	200	132	110	28.5	90	93	168	92	50	64	76	60	56	6.5	30	129	4.5
EBS1L-100M,H/4P	122	150	92	90	200	200	132	104	28.5	90	93	168	92	50	64	76	60	56	6.5	30	129	4.5
EBS1L-225M,H/3P	107	165	90	70	265	265	144	110	24	93	100	183	94	50	71.5	86.5	90	54	6.5	35	126	5.5
EBS1L-225M,H/4P	142	165	103	105	265	265	144	127	24	93	100	183	94	50	710.5	86.5	70	54	6.5	35	126	5.5
EBS1L-400M,H/3P	150	257	106.5	96	441	441	224	146.5	38	164	108.5	279	-	60	83.5	106.5	105	129	8.5	44	194	7
EBS1L-400M,H/4P	198	257	106.5	144	441	441	224	146.5	38	164	108.5	279	-	60	83.5	106.5	70	129	8.5	44	194	7
EBS1L-630M,H/3P	210	280	115.5	145	480	480	243	155	45.3	158	84	296	-	61	97	148	140	143	10	70	243	7
EBS1L-630M,H/4P	280	280	115.5	210	480	480	243	155	45.5	158	84	296	-	61	97	148	210	143	10	70	243	7

Front panel connection



Back panel connection



Plug-in connection

