

# HYD1

## Series Molded Case Circuit Breaker (Motor Circuit Breaker)



### I. Scope of Application

The HYD1 Series Molded Case Circuit Breaker (hereinafter referred to as “circuit breaker”) is suitable for the circuits with AC voltage up to 690 V, rated frequency of 50 Hz and rated current of 0.1 A to 80 A. It is used for overload, phase failure, short circuit protection and infrequent starting control of three-phase squirrel-cage motors, distribution line protection and infrequent load conversion, and isolation.

This product complies with the requirements of GB/T 14048.2, GB/T14048.4, IEC 60947-2, and IEC60947-4-1.

### II. Model Description

HYD1 25 7-12A



The setting current is shown in the following table

Shell frame current: 25, 80

Model code of Molded Case Circuit Breaker

### III. Normal Operating Conditions

1. The altitude of the installation location shall not exceed 2,000 m in general.
2. The ambient air temperature shall not be lower than -5°C or higher than +40°C.
3. The relative air humidity shall not exceed 50% at the temperature of +40°C. The average minimum temperature of the wettest month shall not exceed +25°C, and the average maximum relative humidity of that month shall not exceed 90%.
4. The contamination grade of the surrounding environment is Grade 3.
5. The installation categories are II and III (load level and power distribution level).
6. The inclination between the installation surface and the vertical plane shall not be more than ±5°.
7. Rated working system: uninterrupted working system.

### IV. Main Technical Parameters

Operating environment	~5°C~+40°C				
Rated impact withstand voltage (kV)	6				
Rated insulation voltage $U_i$ (V)	690				
Rated working voltage (V)	230(240)	400(415)	440	500	690
Rated frequency (Hz)	50				
Shell frame level current (A)	25, 80				
IP level	IP20				
Short circuit protection	Provided				
Isolation function	Provided				
Temperature compensation function	Provided				
Phase failure protection function	Provided				

# HYD1

## Series Molded Case Circuit Breaker (Motor Circuit Breaker)

### V. Circuit Breaker Specifications and Short-circuit Breaking Capacity

Serial number	Release rated current InA	Adjusting range A of the thermal element setting current	Rated ultimate short-circuit breaking capacity Icu Rated operating short-circuit breaking capacity Ics										Flashover distance mm
			230/240V		400/415V		440V		500V		690V		
			Icu kA	Ics kA	Icu kA	Ics kA	Icu kA	Ics kA	Icu kA	Ics kA	Icu kA	Ics kA	
1	0.16	0.1 - 0.16	100	100	100	100	100	100	100	100	100	100	50
2	0.25	0.16 - 0.25	100	100	100	100	100	100	100	100	100	100	
3	0.4	0.25 - 0.4	100	100	100	100	100	100	100	100	100	100	
4	0.63	0.4 - 0.63	100	100	100	100	100	100	100	100	100	100	
5	1	0.63 - 1	100	100	100	100	100	100	100	100	100	100	
6	1.6	1 - 1.6	100	100	100	100	100	100	100	100	100	100	
7	2.5	1.6 - 2.5	100	100	100	100	100	100	100	100	3	2	
8	4	2.5 - 4	100	100	100	100	100	100	100	100	3	2	
9	6.3	4 - 6.3	100	100	100	100	50	50	50	50	3	2	
10	10	6 - 10	100	100	100	100	15	10	10	10	3	2	
11	14	9 - 14	100	100	6	2	6	2	6	2	3	2	
12	18	13 - 18	100	100	6	2	6	2	6	2	3	2	
13	23	17 - 23	50	50	6	2	6	2	6	2	3	2	
14	25	20 - 25	50	50	6	2	6	2	6	2	3	2	
15	32	24 - 32	50	50	6	2	6	2	6	2	3	2	
16	25	16 - 25			15	7.5					4	2	
17	40	25 - 40			15	7.5					4	2	
18	63	40 - 63			15	7.5					4	2	
19	80	56 - 80			15	7.5					4	2	

### VI. Operating Performance of the Circuit Breaker

1	2	3	4	5
Shell frame level	Number of operation cycles per hour	Number of operation cycles		
		Energizing	De-energizing	Total times
25	120	2,000	10,000	12,000
80	80	1,500	8,500	10,000

# HYD1

## Series Molded Case Circuit Breaker

### VII. Rated Power of the Motor Controlled by the Circuit Breaker

Serial number	Release rated current InA	Adjusting range A of thermal element setting current	Standard rated power KW of the three-phase motor		
			AC-3,50Hz		
			230V	400V	690V
1	0.16	0.1 - 0.16	—	—	—
2	0.25	0.16 - 0.25	—	—	—
3	0.4	0.25 - 0.4	—	—	—
4	0.63	0.4 - 0.63	—	—	0.37
5	1	0.63 - 1	—	—	0.55
6	1.6	1 - 1.6	—	0.37	1.1
7	2.5	1.6 - 2.5	0.37	0.75	1.5
8	4	2.5 - 4	0.75	1.5	3
9	6.3	4 - 6.3	1.1	2.2	4
10	10	6 - 10	2.2	4	7.5
11	14	9 - 14	3	5.5	9
12	18	13 - 18	4	7.5	11
13	23	17 - 23	5.5	11	15
14	25	20 - 25	5.5	11	18.5
15	32	24 - 32	7.5	15	22
16	25	16 - 25	—	11	18
17	40	25 - 40	—	18.5	30
18	63	40 - 63	—	30	45
19	80	56 - 80	—	37	55

### VIII. Overcurrent Protection Characteristics

Operation characteristics of the circuit breaker during load balance of each phase

#### 1. In power distribution load circuit

Serial number	Circuit breaker for power distribution			Ambient air temperature
	Set current multiple	Operating time	Initial state	
1	1.05 In	Non-operating within 1 hour	Cold state starting	+40°C±2°C
2	1.3 In	Operating within 1 hour	Proceeding in sequence 1	+40°C±2°C
3	10 In	Operating within 0.2 s	Cold state starting	Any suitable temperature

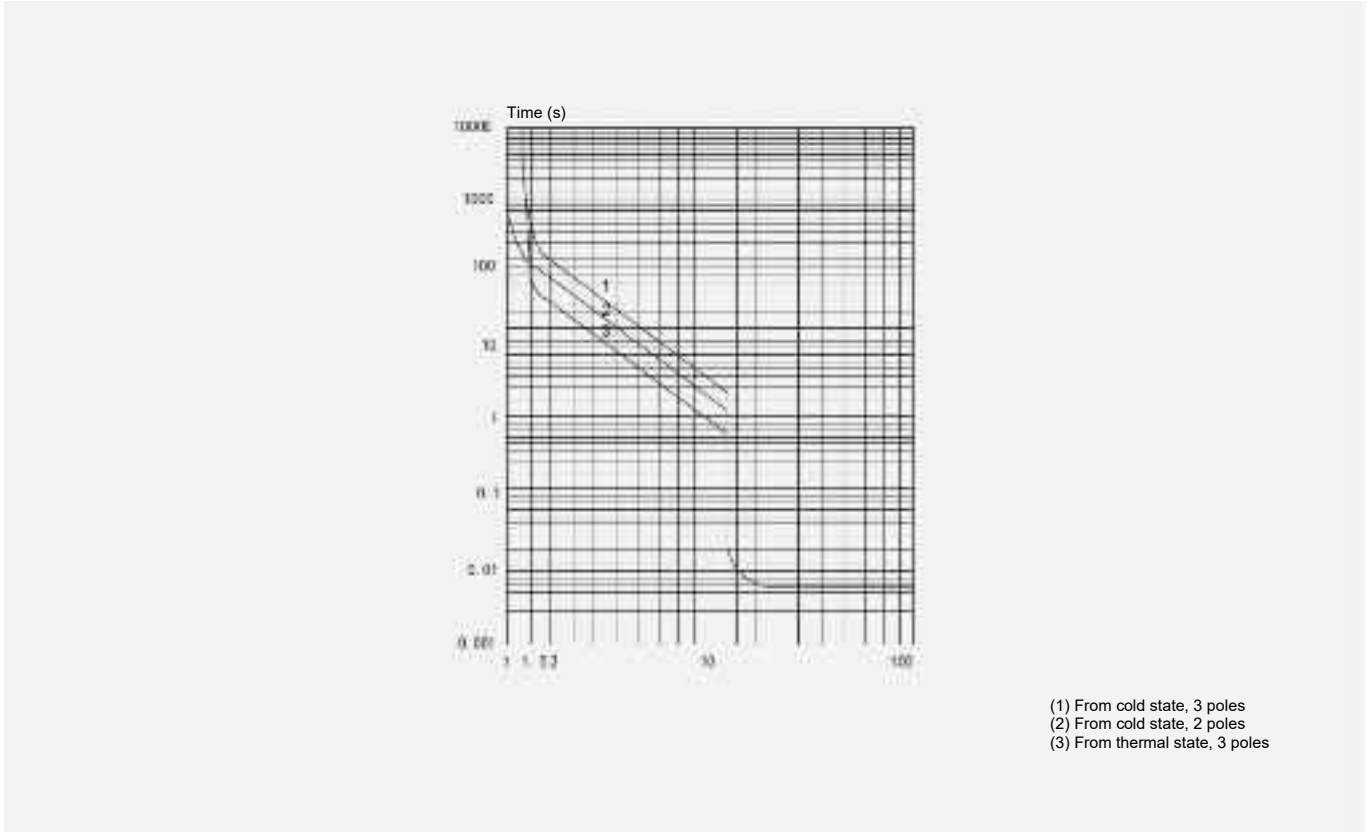
#### 2. In motor load circuit

Serial number	Circuit breaker for motor protection			Ambient air temperature
	Set current multiple	Operating time	Initial state	
1	1.05 In	Non-operating within 2 hours	Cold state starting	+40°C±2°C
2	1.2 In	Operating within 2 hours	Proceeding in sequence 1	+40°C±2°C
3	1.5 In	Operating within 3 minutes	Starting after the current in sequence 1 reaches thermal balance	+40°C±2°C
4	7.5 In	Operating within 2 ~ 10 s		Cold state starting
5	12 In	Operating within 0.2 s	Cold state starting	Any suitable temperature

# HYD1

## Series Molded Case Circuit Breaker (Motor Circuit Breaker)

### 3. Time-current operation characteristic curve of HYD1 (20°C)



**A** Primary power distribution

**B** Secondary distribution

**C** Terminal power distribution

**D** Industrial control and protection

**E** power device

**F** Power management

**G** High voltage components

## IX. Circuit Breaker Accessories

Auxiliary contact

Top hanging and side hanging, with the latter only for 80 A

2 NO (normally open)

2 NC (normally closed)

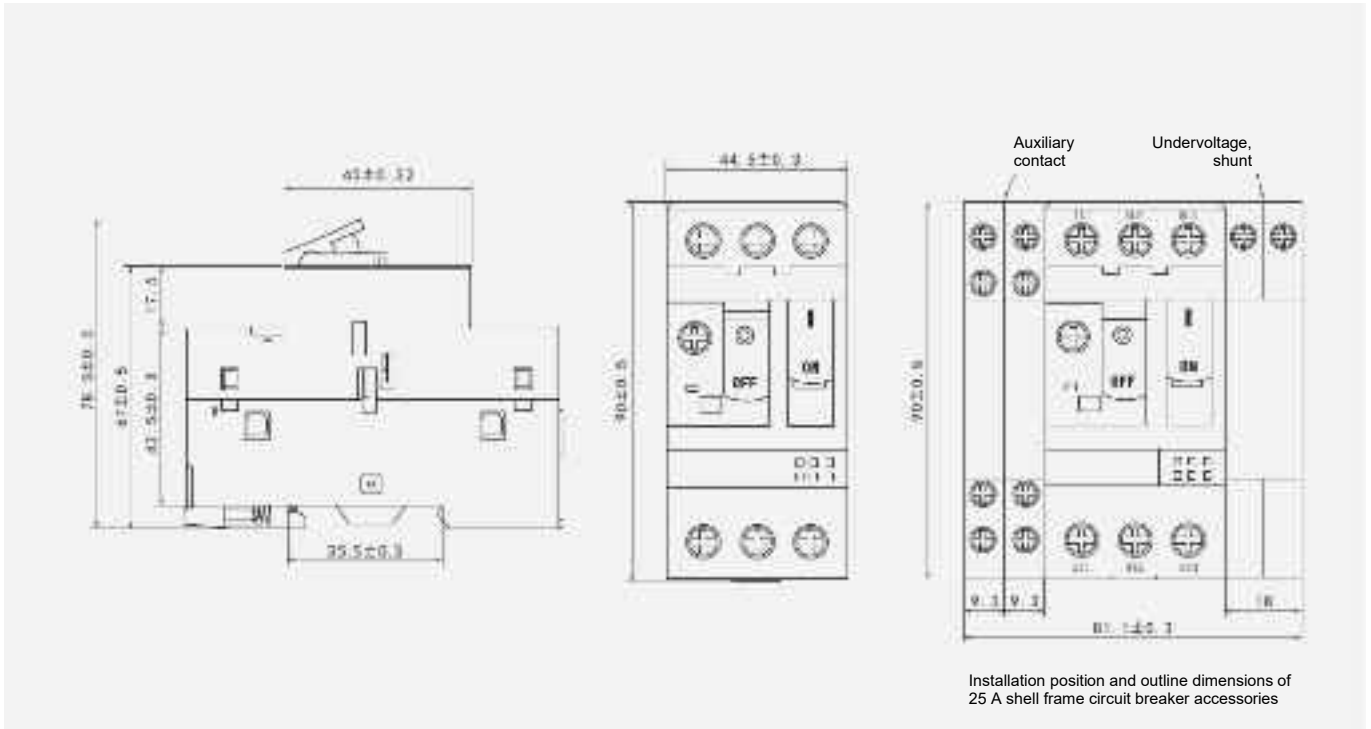
1 NO + 1 NC (normally open and normally closed)

# HYD1

Series Molded Case Circuit Breaker

## X. Outline and Installation Dimensions

### 1. HYD1-25



# HYD1

## Series Molded Case Circuit Breaker (Motor Circuit Breaker)

### 2. HYD1-80



Installation position and outline dimensions of 80 A shell frame circuit breaker accessories

**A** Primary power distribution

**B** Secondary distribution

**C** Terminal power distribution

**D** Industrial control and protection

**E** power device

**F** Power management

**G** High voltage components