

ESM1 Series Moulded Case Circuit Breaker



Product Overview

ESM1 series Moulded Case Circuit Breakers (hereinafter referred to as **Circuit Breakers**) are suitable for use in power distribution networks with AC 50Hz (or 60Hz), rated insulation voltage of 800V, rated working voltage of 690V and below, and rated current up to 1250A, and are used as electrical equipments for distribution of electric energy and protection of overload, under-voltage and short-circuit protection of wiring and power supply equipments.


The Circuit Breakers with 630A shell frame rating or below can also be used as overload, under-voltage and short-circuit protection of electric motor. The Circuit Breakers can also be used as overload, undervoltage and short-circuit protection for electric motors.

Under normal conditions, they can also be used for infrequent switching of lines and infrequent starting of motors.

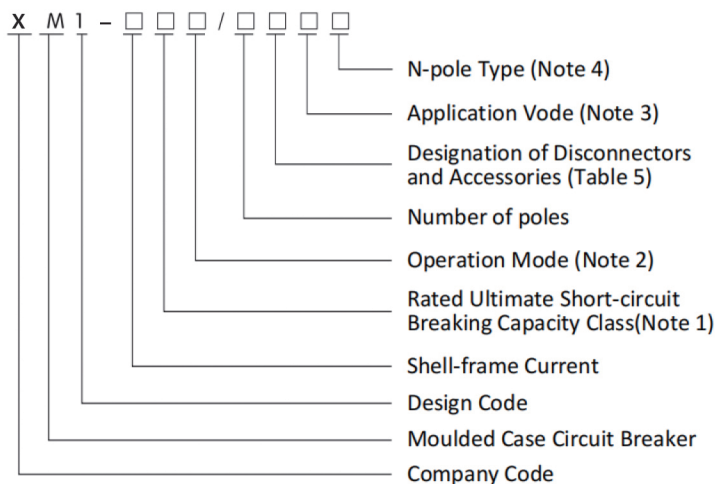
According to its rated ultimate short-circuit breaking capacity, the circuit breaker is divided into three types: **L-type** (standard type), **M-type** (higher breaking type) and **H-type** (high breaking capacity type).

The Circuit Breaker is characterized by **small size, high breaking capacity, short flying arc, anti-vibration and so on.**

The Circuit Breaker can be installed vertically (i.e. vertically mounted) or horizontally (i.e. horizontally mounted).

The symbol of the circuit breaker is: .

The Circuit Breaker conforms to: **IEFC60947-2, GB14048.2** standard.



Notes:

- According to the rated ultimate short-circuit breaking capacity of the product is divided into: L-type (standard), M-type (higher breaking type), H-type (high breaking type).
 - No code for handle direct operation; Electric operation is indicated by P; Rotating handle is indicated by Z.
 - No code for circuit breaker for power distribution; Motor protection is indicated by 2.
 - According to the number of poles of the product is divided into 3 pole and 4 pole
- There are four types of neutral pole (N pole) in four-pole products.
- Type A: N-pole is not installed with overcurrent tripter. and N-pole is always on, not split or closed with other three poles.
- Type B: N-pole is not installed with overcurrent tripter, N-pole and the other 3 poles split or closed together (N-pole first closed and then split).
- Type C: N pole is installed with overcurrent tripter, and N pole is split or closed with other 3 poles (N pole is closed first and then split).
- Type D: N-pole is installed with overcurrent tripter, and N-pole is always on, not split or closed with the other three poles.

Technical Datasheet

Model Number	ESM1-63	ESM1-125	ESM1-250	ESM1-400	ESM1-630	ESM1-800	ESM1-1250
Electric characteristics as per IEC 60947-2, EN 60947-2							
Rated current (A)In 40°C	10, 16, 20, 25, 30, 32, 40, 50, 63	25, 30, 32, 40, 50, 63, 80, 100, 125	100, 125, 140, 150, 160, 175, 180, 200, 225, 250	250, 300, 315, 320, 350, 400	400, 450, 500, 630	630, 700, 800	800, 1000, 1250
Rated insulation voltage (V)UI	500	800	1000	1000	1000	1000	1000
Rated impulse withstand voltage(kV)Uimp	8	8	10	10	10	10	10
	L M	L M H	L M H	L M H	L M H	L M H	H
Rated ultimate short circuit breaking capacity(kA)	25 50	25 50 85	36 50 85	36 50 85	50 65 100	50 65 100	65
Rated service short-circuit breaking capacity(kA) 400V/690V	25 50	25 50 85	36 50 85	36 50 85	50 65 100	50 65 100	65
Rated service short-circuit breaking capacity Ics (%Icu)	100%	100%	100%	100%	100%	100%	100%
Cat	A						
Poles number	3, 4	2, 3, 4	2, 3, 4	3, 4	3, 4	3, 4	3, 4
Mechanical life(times)	8500	8500	7000	4000	4000	2500	2500
Electrical life(times)	1500	1500	1000	1000	1000	500	500
Flying Arc Distance(mm)	≤50	≤50	≤50	≤100	≤50	≤50	≤50

Protective Properties

• For power distribution

Rated operating current of the disconnector (A)	Thermal cutoff (base temperature: 40°C)		Electromagnetic striker operating current(A)	Note
	1.05(Cold state) Inoperative time(h)	1.05(Hot state) Inoperative time(h)		
10<In≤63	≥1	<1	10In±20%	Distribution protection type Notes: 1250A: 7In +20%
63<In≤100	≥2	<2	10In±20%	
100<In≤1250	≥2	<2	5In±20%	
			7In±20%	
			10In±20%	

Note: Rated current less than 160A without 5In electromagnetic release.

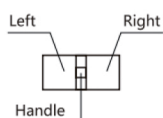
• For motor protection

Rated operating current of the disconnector (A)	Thermal cutoff (base temperature: 40℃)				Electromagnetic striker operating current(A)
	1.05(Cold state) Inoperative time(h)	1.20(Hot state) Inoperative time(h)	1.50(Hot state) Inoperative time(h)	7.20(Cold state) Inoperative time(h)	
10≤In≤630	≥2	≤2	8min	6S<Tp≤20s	12In±20%

The Normal Working Conditions And Installation Conditions

- Altitude: <2000m
- Maximum inclination is 22.5°
- Ambient temperature: -5℃~ +40℃
- In a medium with no danger of explosion, and the medium is not sufficiently corrosive
- Withstand the effects of humid air
- Metal and insulation-destroying gases and conductive dust places
- Withstand the effects of salt spray and oil mist
- Where there is no rain or snow intrusion
- Pollution class 3
- Installation category II

Accessories



Auxiliary contact



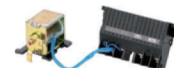
Shunt release



Alarm contact



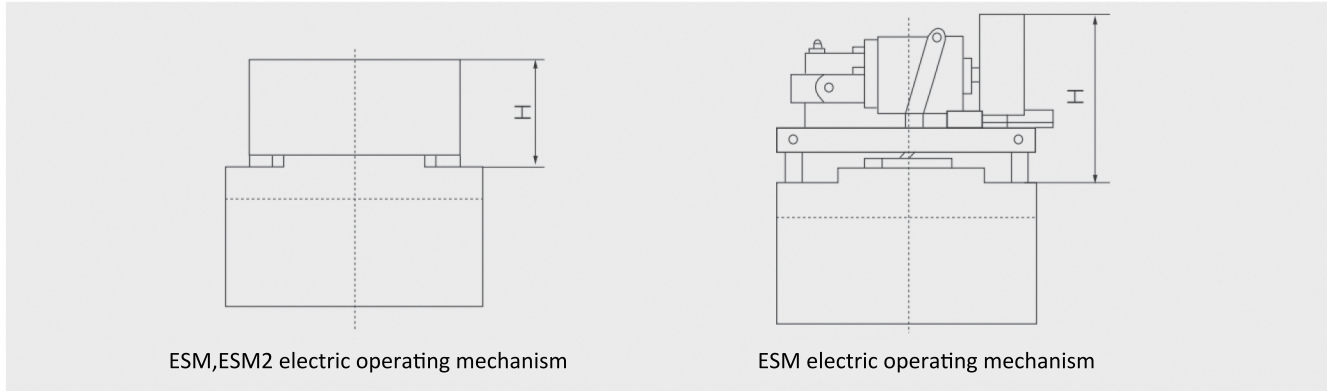
Under-voltage release



Accessory	Accessory code		Mounting and wiring mode		
	Magnetic only release	Compound release	ESM1-125M,H ESM1-250M,H	ESM1-63L,M ESM1-125C,L,M,H ESM1-250L,M ESM1-400L,M,H ESM1-630L,M,H ESM1-800M,H	ESM1-1250M
				2P 3P 4P	
No accessory	200	300			
Alarm contact	208	308			
Shunt release	210	310			
Auxiliary contact	220	320			
Under-voltage release	230	330			
Shunt release, auxiliary contact	240	340			
Shunt release, under-voltage release	250	350			
Two groups of auxiliary contacts	260	360			
Auxiliary contact, under-voltage release	270	370			
Shunt release, alarm contact	218	318			
Auxiliary alarm contact	228	328			
Under-voltage release, auxiliary alarm contact	238	338			
Shunt release, auxiliary alarm contact	248	348			
Two groups auxiliary contact of auxiliary alarm contact	268	368			
Under-voltage release auxiliary alarm contact	278	378			

Note: ■ Shunt release ▲ Under-voltage release ○ Auxiliary contact ● Alarm contact

Height of electric operating mechanism

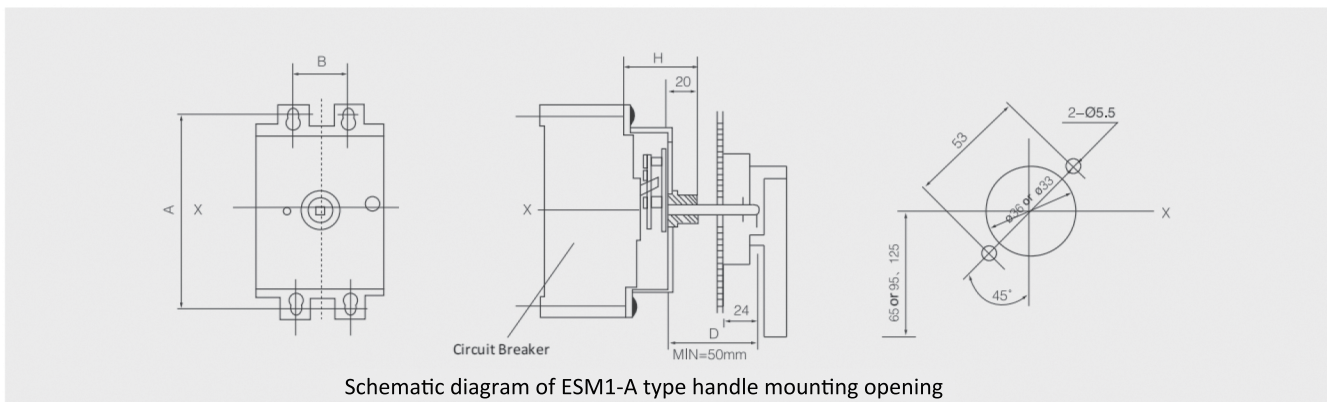


ESM,ESM2 electric operating mechanism

ESM electric operating mechanism

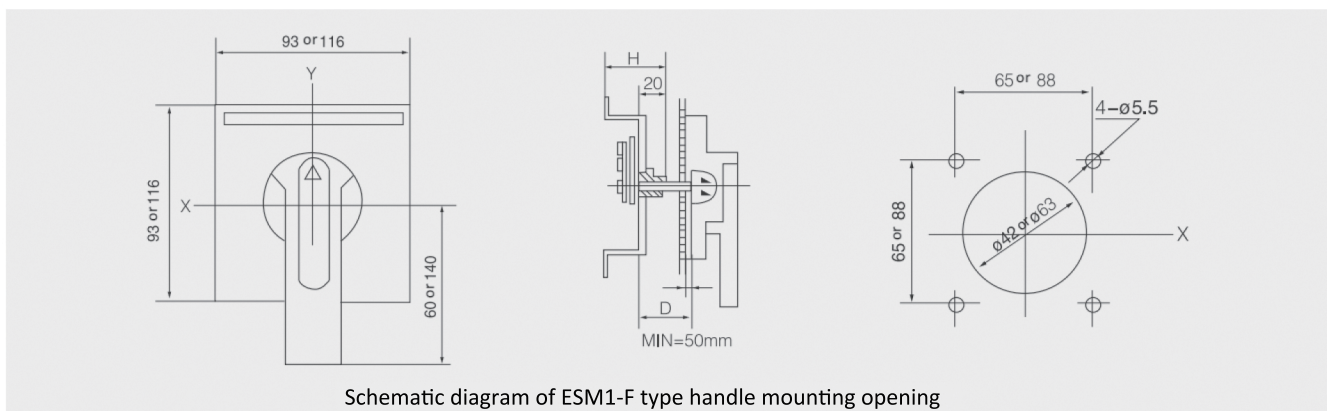
Model of circuit breaker for operating mechanism		ESM1-63 L、M	ESM1-100 L、M、H	ESM1-225 L、M、H	ESM1-400 L、M、H	ESM1-630 L、M、H	ESM1-800 M、H
Height (mm)	ESM2 motor type	90.5	89.5	93	142	153	146
	ESM solenoid type	91	91	101			
	ESM motor type				141	141	150

External accessories installation method and its overall dimensions

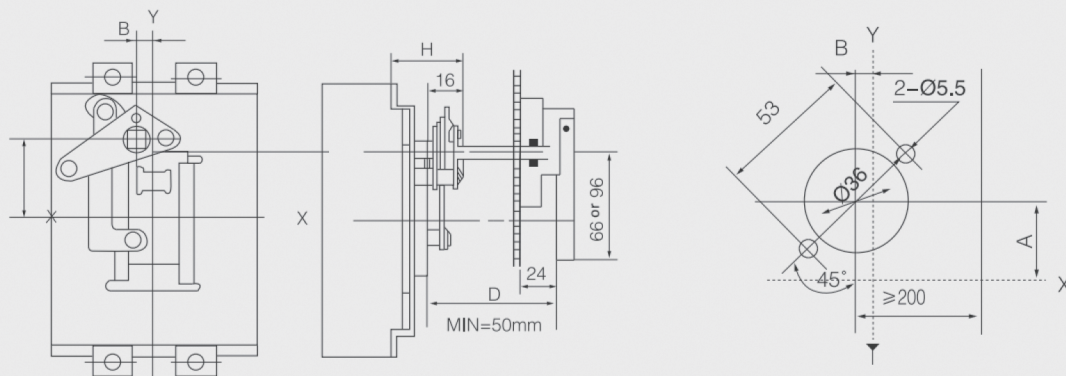


Schematic diagram of ESM1-A type handle mounting opening

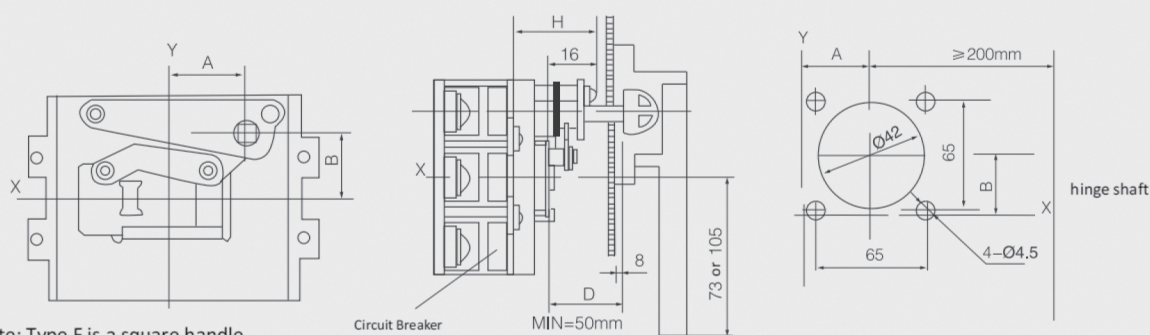
Note: A type is round handle



Schematic diagram of ESM1-F type handle mounting opening



Schematic diagram of ESM2-A type handle mounting opening



Note: Type F is a square handle

Schematic diagram of ESM2-F type handle mounting opening

Note:

It is recommended to purchase the manual operating mechanism from our company at the same time when ordering. If the user purchases by himself, due to the quality of other companies of the manual operating mechanism of all the adverse consequences arising from the quality of the company will not be responsible for the company.

Installation of external accessories and their external dimensions

External Accessories	Model of External Accessories	Matching Circuit Breakers	Manual Mounting Dimensions (mm)						Mounting Method
			H		A	B	A	B	
			Metal	Plastic			/	/	
Manual Operating Mechanism	ESM1-100/M	ESM1-100	49	69	104	30	/	/	Vertical Mounting
	ESM1-225/M	ESM1-225	55	72	143	35	/	/	
	ESM1-400/M	ESM1-400	76	110	194	138	/	/	
	ESM1-630/M	ESM1-630	83	110	200	168	/	/	
	ESM2-100/M	ESM1-100	46	/	35	30	/	/	Vertical Mounting
	ESM2-100/M	ESM1-100	46	/	37	30	/	/	Horizontal Mounting
	ESM2-225/M	ESM1-225	48	/	35	31	/	/	Vertical Mounting
	ESM2-225/M	ESM1-225	48	/	45	32	/	/	Horizontal Mounting
	ESM2-400/M	ESM1-400	61	/	65	15	/	/	Vertical Mounting
	ESM2-630/M	ESM1-630	61	/	60	15	/	/	
Solenoid	ESM3-100/M	ESM1-100	91	/	103.5	30	117.5	90	Vertical Mounting
	ESM3-225/M	ESM1-225	101	/	143	35	155	105	
Electric Motor	ESM-400/M	ESM1-400	141	/	226	132	/	/	Vertical Mounting
	ESM-630/M	ESM1-630	140	/	226	132	/	/	

Note: ESM1L-100~630 and DLM1E-100~630 are both universal ESM1-100~630 external accessories.