

2

3SW8	Air Circuit Breaker	-----	1
3SM8	Moulded Case Circuit Breaker	-----	2~3
3SM8L	Moulded Case Circuit Breaker with Earth Leakage Protection	-----	4~6
3SM9	Moulded Case Circuit Breaker	-----	7~8
3SM28	Moulded Case Circuit Breaker	-----	9
3SM2	Moulded Case Circuit Breaker	-----	10~11



3SW8 Air Circuit Breaker

■ Protection for:



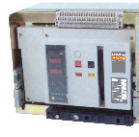
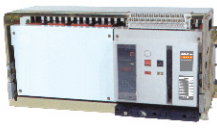
- Distribution systems supplied by transformers
- Distribution systems supplied by engine generator sets
- Long cables in IT and TN systems.

■ Installation :

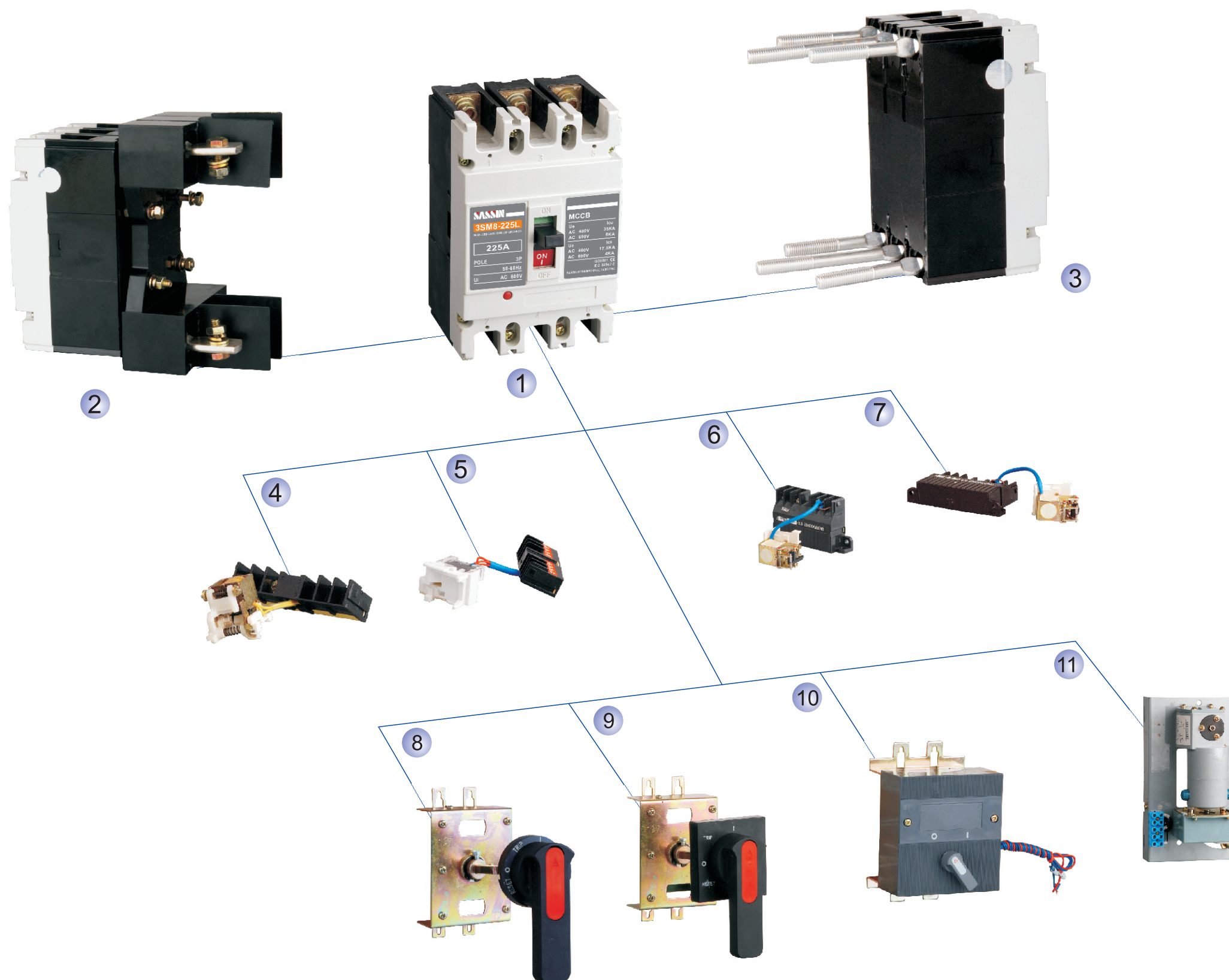
- In power switchboards
- Fixed type and drawer type

All circuit breakers in the 3SW8 range are suitable for isolation in compliance with standards IEC 60947-2

■ Main Technical Parameters

Type			3SW8-2000	3SW8-3200	3SW8-4000	3SW8-6300
Short-circuit breaking capacity						
Rated ultimate short circuit breaking capacity Icu (KA)	400V		80	100		120
	690V		50	65		80
Rated operation short circuit breaking capacity Ics (KA)	400V		50	80		100
	690V		40	50		70
Rated short time withstand current Icw (KA) 1s			50	65		100
Rated current In (A)			400,630,800,1000,1250,1600,2000	2000, 2500, 2900, 3200	3200, 3900, 4000	4000, 5000, 6000,6300
Number of poles	3-pole		●			
	4-pole		●			
Rated insulation voltage Ui (V)			1000V			
Rated current of N-Pole IN (A)			50% In, 100% In			
Fix-disconnection time			23~32ms			
Intelligent controller	Standard type (M)		●			
	Communication type (H)		●			
Operation performance	Electric life time		500			
	Mechanical life time	Non-maintanance	2500		2000	
		Maintanance	10000		8000	
Installation type	Horizontal		●			
	Vertical		●			
Fixed			0			
Drawer						

3SM8 SERIES PRODUCT OVERVIEW



- ① Body
- ② Plug-in connection
- ③ Rear panel connection
- ④ Auxiliary contact
- ⑤ Alarm contact
- ⑥ Shunt release
- ⑦ Under-voltage release
- ⑧ Rotary handle operating mechanism
- ⑨ Rotary handle operating mechanism
- ⑩ Electromagnetic operating mechanism
- ⑪ Electric motor operating mechanism



3SM8 Moulded Case Circuit Breaker

■ Application

3SM8 series molded case circuit breakers are one of the new breakers designed and developed by our company by comprehensively adopting advanced technology.

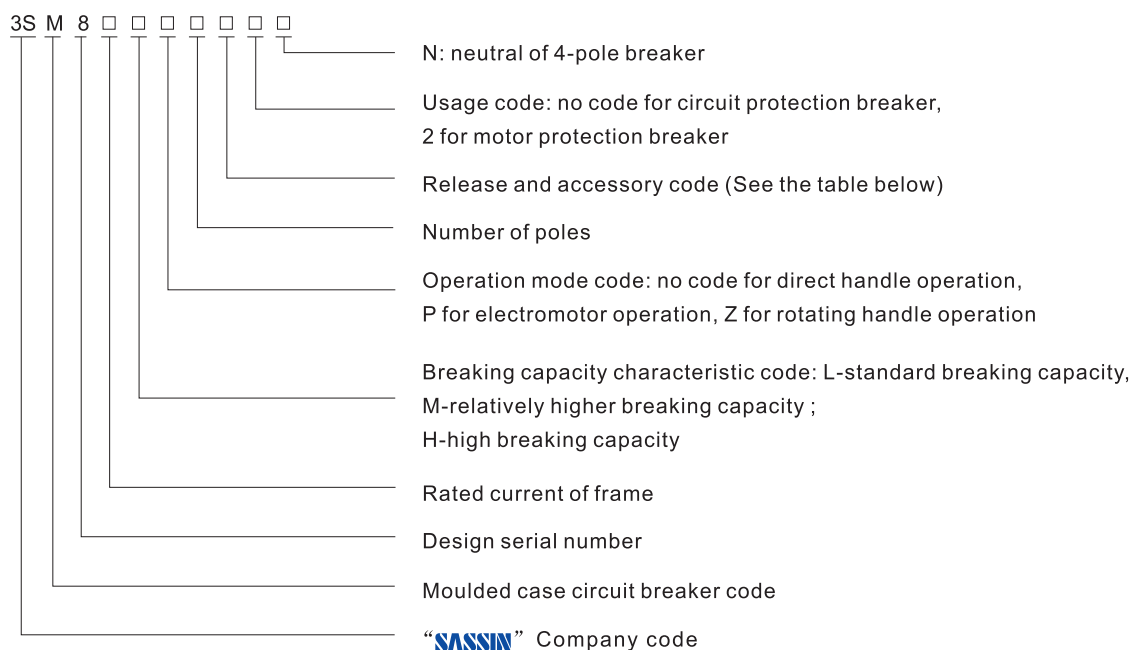
Rated insulation voltage of this series of breakers is up to 800V. It applies to distribution network circuit of AC 50Hz or 60Hz with rated operational voltage up to 690V and rated operational current up to 800A. It is used to protect circuits and power-supply equipment from damage of overload, under-voltage, short-circuit etc which can also be used for infrequent start of motor and to provide overload, short circuit and under-voltage protection for the motor.

This breaker features small volume, high breaking capacity, short arc-quenching time, an ideal product to use.

This breaker can be installed both vertically or horizontally.

This product complies with standard of IEC 60947-2.

■ Type and its meaning



■ Main technical parameters

Type	Frame Rated Current (A)	Rated Current (A)	Rated operating voltage (V)	Rated insulation Voltage (V)	Rated ultimate Short circuit Breaking capacity(kA) 400V/690V	Rated service short circuit Breaking capacity(kA) 400V/690V	Number of poles	Flashover distance
3SM8-63L	63	(6), 10, 16, 20, 25, 32, 40, 50, 63	400	500	25	12.5	3	≤50
3SM8-63M	63				50	25	3、4	
3SM8-100L	100	16, 20, 25, 32, 40, 50, 63, 80, 100	690	800	35/8	17.5/4	3	≤50
3SM8-100M	100				50/10	25/5	3、4	
3SM8-100H	100				85/20	42.5/10	3	
3SM8-225L	225	100, 125, 160, 180, 200, 225	690	800	35/8	17.5/4	3	≤50
3SM8-225M	225				50/10	25/5	3、4	
3SM8-225H	225				85/20	42.5/10	3	
3SM8-400L	400	225, 250, 315, 350, 400	690	800	50/10	25/5	3	≤100
3SM8-400M	400				65/10	32.5/5	3、4	
3SM8-400H	400				100/20	50/10	3	
3SM8-630L	630	400, 500, 630	690	800	50/10	25/5	3	≤100
3SM8-630M	630				65/10	32.5/5	3、4	
3SM8-630H	630				100/20	50/10	3	
3SM8-800M	800	630, 700, 800	690	800	75	37.5	3	≤100
3SM8-800H	800				100	50	3	

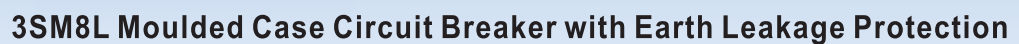
Note: no overload protection in 6A type

■ Classifications

1. According to breaking capacity of MCCB: L (standard type), M (relatively higher breaking type) H (high breaking type)
2. According to connection mode of MCCB: front panel connection (basic connection mode), rear panel connection, plug-in connection
3. According to operation mode: direct handle operation (basic operation mode), rotary handle operation, motor operation
4. According to number of poles: 3 poles, 4 poles

■ Normal working environment

- Ambient air temperature: -5℃~ +40℃;
- Altitude: ≤2000m.
- Resistance to moisture
- Resistance to salt spray and oil spray
- Gradient ≤22.5°
- Ambient environment/medium free from explosive danger and air or conductive dust which may cause corrosion of metal or weakness of insulation
- Places free from erosion of rain and snow



The value of residual current is selectable.

2-4

■ Main features

Normal sample for earth leakage protection modular working power supply of breaker is on two phases. Breaker of this series is 3-phase and earth leakage protection modular can still work properly if one phase failed.

Rated residual action current, and maximum breaking time can be adjusted on-site according to practical condition.

Earth leakage protection modular can work properly even if the phase voltage drops to 50V.

Equipped with earth leakage alarm output function.

Outline volume is same as corresponding specifications of 3SM8 series breaker with good interchangeability while mounting.

Table 1

Names of Accessories	Release mode	
	Instantaneous release	Thermo-mag release
	Accessories codes	
No accessories	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 sets of auxiliary contacts	260	360
Auxiliary contact, under-voltage release	270	370
Shunt release, alarm contact	218	318
Auxiliary contact, alarm contact	228	328
Under-voltage release, alarm contact	238	338
Shunt release, auxiliary contact, alarm contact	248	348
Two sets of auxiliary contact, alarm contact	268	368
Auxiliary contact, under-voltage release, alarm contact	278	378

■ Main technical parameters

Rated values of breaker (see table 2)

Table 2

Type	Frame Rated Current Inm(A)	Rated Current In (A)	Rated ultimate Short circuit Breaking capacity Icu (kA)	Rated service short circuit breaking capacity Ics (kA)	Rated residual action current I Δ n (mA)	Rated residual non-action current I Δ no (mA)	Breaking time
3SM8L-100	100	16, 20, 32, 40, 50, 63, 80, 100	35	22	100/300/500	1/2I Δ n	See table 3
3SM8L-225	225	100, 125, 140, 160, 180, 200, 225	35	25			
3SM8L-400	400	225, 250, 315, 350, 400	50	35			
3SM8L-630	630	400, 500, 630	50	35	300/500/1000		

Table 3

Residual current		$I\Delta n$	$2I\Delta n$	$5I\Delta n$	$10I\Delta n$
Non time-delay type	Max. breaking time (s)	0.2	0.1	0.04	0.04
	Max. breaking time (s)	0.5/1.15/2.15	0.35/1/2	0.25/0.9/1.9	0.25/0.9/1.9
Time-delay type	Ultimate non-driving time t (s)	-	0.1/0.5/1	-	-

See table 4 for rated voltage of control circuit

Table 4

Type	Rated working voltage (V)	
	AC 50Hz	DC
Shunt release	Us 230, 400	110, 220
Under-voltage release	Ue 230, 400	-
Electrical mechanism	Us 230, 400	110, 220

See table 5 for rating of auxiliary contact (alarm contact)

Table 5

Conventional heat current Ith (A)	Rated insulating voltage Ui (V)	Rated working current Ie (A)		Rated current of frame In (mA)
		AC 400V	DC 220V	
1	400	0.3	0.15	Used as auxiliary contact
3	400	0.3	0.15	≤225
3	400	0.4	0.2	≥400

■ Outline and installation dimensions (see the diagram and table 6)

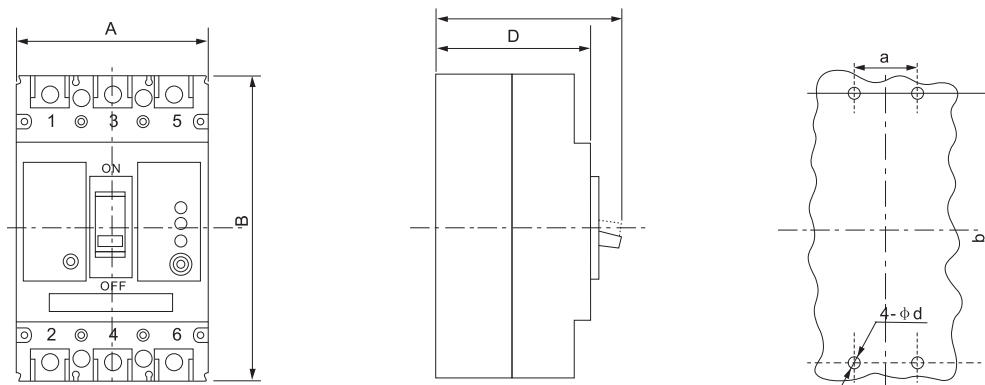


Table 6

Type	Number of poles	Outline dimensions(mm)				Installation dimensions(mm)		
		A	B	C	D	a	b	d
3SM8L-100	3	92	150	110	92	30	129	4.5
	4	122	150	110	92	60	129	4.5
3SM8L-225	3	107	165	110	90	35	126	4.5
	4	142	165	110	90	70	126	4.5
3SM8L-400	3	150	257	146.5	106.5	44	194	7
	4	198	257	146.5	106.5	88	194	7
3SM8L-630	3	210	280	155	115.5	70	243	7
	4	280	280	155	115.5	70	243	7



3SM9 Moulded Case Circuit Breaker

■ Application

3SM9 moulded-case low-voltage circuit-breakers offer performance features that meet the full spectrum of application requirements, from small users to large industrial electricity distribution installations. Innovation, technology and quality have always been the principles guiding the development of 3SM9.

Through special technical solutions, such as two fixed contacts for each arcing chamber, it offers excellent performance in terms of breaking, fault current limiting and specific tripping current capacity. The MCCB meets standard of IEC60947-2.

■ Main Technical specifications

TYPE			3SM9		3SM9			3SM9		
Frame size In		(A)	125		160			250		
Number of poles		Nr	3-4		3-4			3-4		
Rated operating voltage, Ue		(AC) 50-60Hz	500		690			690		
		(DC)	250		500			750		
Rated impulse withstand voltage, Uimp		(kV)	6		6			8		
Rated insulating voltage, Ui		(V)	500		690			800		
Test voltage 1 minute		(V)	3000		3000			3000		
Rated ultimate short circuit breaking capacity, Icu			B	N	B	N	S	N	H	L
(AC) 50-60 Hz 220/230V		(kA)	25	40	25	50	65	65	100	170
(AC) 50-60 Hz 380/415V		(kA)	16	25	16	35(1)	50	35(1)	65	85
(AC) 50-60 Hz 440V		(kA)	10	16	10	20	25	30	50	65
(AC) 50-60 Hz 500V		(kA)	8	12	8	12	15	25	40	50
(AC) 50-60 Hz 690V		(kA)	-	-	6	8	10	14	18	20(5)
(DC) 250V - 2 pole series		(kA)	16	25	16	35	50	35	65	85
(DC) 500V - 2 pole series		(kA)	-	-	-	-	-	35	50	65
(DC) 500V - 3 pole series		(kA)	-	-	16	35	50	-	-	-
(DC) 750V 3 pole series		(kA)	-	-	-	-	-	20	35	50
Rated working short circuit breaking capacity, Ics (2)		(%Icu)	50%	50%	100%	75%	75%	100%	75%	75%
Rated short circuit closing capacity (415V)		(kA)	32	52.5	32	74	105	74	143	187
Tripping time (415V at Icu)		(ms)	8	6	8	7	6	8	7	6
Rated short time withstand current (1 second) Icw			(kA)							
Service rating (EN 60947-2)			A		A			A		
Isolation function			■		■			■		
IEC 60947-2 - EN 60947-2			■		■			■		
Release: thermomagnetic	T unadjustable M unadjustable 51th		■	■						
	T unadjustable M unadjustable 101th		■	■						
	T adjustable M unadjustable 31th							■	■	
	T adjustable M unadjustable 51th				■	■		■	■	■
	T adjustable M unadjustable 101th				■	■	■	■	■	■
	T adjustable M adjustable									
Electromagnetic	M unadjustable		■		■	■	■	■	■	
Micro-processor	PR211/P (I-LI)									
	PR212/P (LSI-LSIG)									
Interchangeability										
Type		F-P		F-P			F-P-W			
Terminal type	fixed type	FC-R		EF-FC-FC CuAl-R			F-EF-ES-FC FC CuAl-RC-R			
	Plug-in type	FC-R		FC-R			EF-FC-R			
	Withdrawable type (3)			-			EF-FC-R			

Main Technical specifications

Fixed on DIN track			DIN EN 50022	DIN EN 50022	DIN EN 50023
Mechanical life	(operation times/operation times per hour)		25000/240	25000/240	25000/120
Electrical life	(operation times/operation times per hour)		8000/120	8000/120	10000(160A)-8000(250A)/120
Fixed type circuit breaker	3/4 pole	L (mm)	78/103	90/120	105/140
		D (mm)	70	70	103.5
		H (mm)	120	120	170
Weight	fixed type	3/4 pole	(kg)	0.9/1.2	2.6/3.5
	Plug-in type	3/4 pole	(kg)	1.1/1.7	3.1/4.1
Withdrawable type			3/4 pole	(kg)	-
					3.5/4.5

(1) Icu=35Ka all with certifications under 36Ka
 (2) Ics of circuit breaker of S3 N/H/L, S4 N/H/L, S5 N/H and S6 N/S/H decrease 25% under 690V

(3) To facilitate installation, withdraw able switch is matched with handle operating mechanism or its substitute accessories (such as rotary handle or motor operating components), withdrawable front flange match

(4) Rated current of S5 plug-in type is only 400A
 S3 circuit breaker with breaking capacity at 690V can only be energized from upper terminal

Tripping Characteristics

Table 1

Rated Current of release (A)	Thermodynamic Release (ambient temp +40℃)		Operational Current of Magnetic Release (A)
	1.05In(cold state) inoperative time(h)	1.30In(heat state) inoperative time(h)	
In≤63	≥1	<1	10-50In±20%
63<In≤250	≥2	<2	10In±20%
25<In≤800	≥2	<2	5-10In±20%

Table 2

Rated Current of release (A)	Thermodynamic Release (ambient temp +40℃)				Operational Current of Magnetic Release (A)
	1.0In(cold state) inoperative time(h)	1.20In(heat state) inoperative time(h)	1.50In(heat state) inoperative time(h)	1.01In(heat state) inoperative time(h)	
12.5<In≤400	≥2	<2	<4min	2S<Tp≤10S	12In±20%

TYPE				3SM9			3SM9				3SM9		
Frame size In (A)				400			(630)800				(1250)1600		
Number of poles Nr				3-4			3-4				3-4		
Rated operating voltage, Ue (AC) 50-60Hz (V)				690			690				690		
(DC) (V)				750			750				-		
Rated impulse withstand voltage, Uimp (kV)				8			8				8		
Rated insulating voltage, Ui (V)				800			800				800		
Test voltage 1 minute (V)				3000			3000				3000		
Rated ultimate short circuit breaking capacity, Icu				N	H	L	N	S	H	L	S	H	L
(AC) 50-60 Hz 220/230V (kA)				65	100	200	65	85	100	200	85	100	200
(AC) 50-60 Hz 380/415V (kA)				35(1)	65	100	35(1)	50	65	100	50	65	100
(AC) 50-60 Hz 440V (kA)				30	50	80	30	45	50	80	45	55	80
(AC) 50-60 Hz 500V (kA)				25	40	65	25	35	40	65	35	45	70
(AC) 50-60 Hz 690V (kA)				20	25	30	20	22	25	30	20	25	35
(DC) 250V - 2 pole series (kA)				35	65	100	35	50	65	100	-	-	-
(DC) 500V - 2 pole series (kA)				35	50	65	20	35	50	65	-	-	-
(DC) 500V - 3 pole series (kA)				-	-	-	-	-	-	-	-	-	-
(DC) 750V 3 pole series (kA)				20	35	50	10	20	35	50	-	-	-
Rated working short circuit breaking capacity, Ics (2) (%Icu)				100%	100%	75%	100%	100%	100%	75%	100%	75%	50%
Rated short circuit closing capacity (415V) (kA)				74	143	220	74	105	143	220	105	143	220
Tripping time (415V at Icu) (ms)				8	7	6	10	9	8	7	22	22	22
Rated short time withstand current (1 second) Icw (kA)				5(400A)			7.6(630A)-10(800A)				15(1250A)-20(1600A)		
Service rating (EN 60947-2)				B(400A)-A(630A)			B				B		
Isolation function				■			■				■		
IEC 60947-2 . EN 60947-2				■			■				■		
Release: thermomagnetic				T unadjustable	M unadjustable	51th							
				T unadjustable	M unadjustable	101th							
				T adjustable	M unadjustable	31th							
				T adjustable	M unadjustable	51th							
				T adjustable	M unadjustable	101th							
				T adjustable	M adjustable		■	■	■	■	■	■	
Electromagnetic				M unadjustable									
Micro-processor				PR211/P (I-LI)			■	■	■	■	■	■	■
				PR212/P (LSI-LSIG)			■	■	■	■	■	■	■
Interchangeability				■			■				■		
Type				F-P(400)-W			F-W				F-W		
Terminal type				fixed type			F-EF(400A)-ES-FC FC CuAl(400A)-RC(400A)-R				F-EF-ES-FC CuAl RC-R		
				Plug-in type			EF-FC-R				-		
				Withdrawable type (3)			EF(400A)-ES-FC-(400A) R-VR(630A)				EF-HR-VR		
Fixed on DIN track				DIN EN 50023			-				-		
Mechanical life (operation times/operation times per hour)				20000/120			20000/120				20000/120		
Electrical life (operation times/operation times per hour)				7000(4000A)-5000(630A)/60			7000(630A)-5000(800A)/60				7000(1250A)-5000(1600A)/20		
Fixed type circuit breaker				3/4 pole	L (mm)	140/184	210/280				210/280		
					D (mm)	103.5	103.5				138.5		
					H (mm)	254	268				406		
Weight				fixed type	3/4 pole	(kg)	5/7				9.5/12		
				Plug-in type	3/4 pole	(kg)	6.1/8.4				-		
				Withdrawable type	3/4 pole	(kg)	6.4/8.7				12.1/15.1		
							12.8/29.2				12.8/29.2		

Type code
 F=fixed type
 P=plug-in type
 W=withdrawable type

Terminal code
 F= front terminal
 EF=lengthened front terminal
 ES=extended front terminal

FC=copper cable front terminal
 FC CuAl= copper/aluminum front terminal
 R=bolt rear terminal

RC=copper/aluminum cable rear terminal
 HR=rear horizontal busbar terminal
 VR=rear vertical busbar terminal

3SM28 Moulded Case Circuit Breaker

■ Application

3SM28 series moulded case circuit breaker is one of the most advanced type breakers in the world. They are suitable for short circuit and overload protection for circuit of AC 690V 50/60Hz, rated current from 12.5A to 630A. Its rated insulation voltage is 690V. It can be used as switch to make and break the circuit infrequently in the normal conditions. It offers protection when squirrel cage motors infrequently start, stop and protecting overload, short circuit and under voltage.

■ Tripping Characteristics

Table1

Rated Current of release (A)	Thermodynamic Release (ambient temp +40℃)		Operational Current of Magnetic Release (A)
	1.05In(cold state) operative time(h)	1.30In(heat state) operative time(h)	
$I_n \leq 63$	≥ 1	< 1	$10I_n \pm 20\%$
$63 < I_n \leq 100$	≥ 2	< 2	$10I_n \pm 20\%$
$100 < I_n \leq 630$	≥ 2	< 2	$5-10I_n \pm 20\%$

Table2

Rated Current of release (A)	Thermodynamic Release (ambient temp +40℃)				Operational Current of Magnetic Release (A)
	1.0In(cold state) operative time(h)	1.20In(heat state) operative time(h)	1.50In(heat state) operative time(h)	1.01In(heat state) operative time(h)	
$12.5 \geq I_n \leq 400$	≥ 2	< 2	$\geq 4\text{min}$	$2S < T_p \leq 10S$	$12I_n \pm 20\%$

■ Main Technical specifications

Table3

Type	Rated Current (A)	Ultimate Short Circuit Breaking Capacity (KA)	Services Short Circuit Breaking Capacity (KA)	Operating performance (times)	
				Elec.life	mec.life
3SM28-100	12.5, 16, 20, 25, 32, 40, 50, 63, 80, 100	18	18	1500	8500
3SM28-100N		25	25		
3SM28-100H		70	70		
3SM28-100L		150	150		
3SM28-160	16, 20, 25, 32, 40, 50, 63, 80, 100, 125, 160	25	25	1000	7000
3SM28-160N		36	36		
3SM28-160H		70	70		
3SM28-160L		150	150		
3SM28-250	160, 180, 200, 225, 250	25	25	1000	7000
3SM28-250N		36	36		
3SM28-250H		70	70		
3SM28-250L		150	150		
3SM28-400	200, 225, 250, 300, 315, 400	35	35	1000	4000
3SM28-400N		45	45		
3SM28-400H		70	70		
3SM28-400L		150	150		
3SM28-630	315, 350, 400, 500, 600, 630	35	35	1000	4000
3SM28-630N		45	45		
3SM28-630H		70	70		
3SM28-630L		150	150		
Poles:			3P, 4P		
Rated Insulating Voltage (V):			950		
Rated Operating Voltage (V):			690		
Arcing Over Distance (mm):			0		





■ Application

3SM2 MCCB features good structure, small volume and reliable performance. It can be used on the 50/60Hz, rated voltage to 600V supply. It can protect the cable and equipments from overload or short circuit. It can also be used as switch for infrequently making or breaking of the circuit.

■ Specifications

Model	3SM2-30CS	3SM2-50CS	3SM2-100CS	3SM2-250CS	3SM2-400CS	3SM2-630CS	3SM2-800CS	3SM2-1250CS
Rated insulation voltage(V)	600V							
Rated current(A)	3,5,10, 15,20,30	10,15,20 30,40,50	60,75,100	125,150 175,200 225,250	250,300, 350,400	500,600, 630	600,700, 800	630,700, 800,1000, 1250
Making & breaking capacity	AC380V/ 1.5kA 500V/1.5kA	AC380V/ 5kA 500V/2.5kA	AC380V/ 18kA 500V/7.5kA	AC380V/ 18kA 500V/10kA	AC380V/ 25kA 500V/15kA	AC380V/ 30kA 500V/22kA	AC380V/ 50kA	AC380V/ 50kA
No. of poles	2, 3	2, 3	2, 3	3	3	3	3	3



3SM2-SS Moulded Case Circuit Breaker

■ Specifications

Type	Pole number	Rated current (A)	Rated insulation voltage(V)	Circuit breaking capacity (kA)					
				AC (Icu/Ics)					
			AC	240	380	415	500	600	660
3SM2-30SS	2	3, 5, 10, 15, 20, 30	600	5/5	5/2.5	2.5/1.5	2.5/1.0	—	—
	3		600						
3SM2-50SS	3	10, 20, 30, 40, 50	600	5/10	10/7.5	7.5/5	7.5/5	2.5/1.5	—
3SM2-60SS	3	10, 20, 30, 40, 50, 60	600	5/10	10/7.5	7.5/5	7.5/5	2.5/1.5	—
3SM2-100SS	3	60, 75, 100	660	50/42	30/20	25/15	15/10	10/5	5/2.5
	4		660						
3SM2-250SS	3	125, 150, 175, 200, 225, 250	660	50/42	30/22	25/20	18/15	15/10	5/2.5
	4		660						
3SM2-400SS	3	250, 300, 350, 400	660	85/60	50/35	50/30	35/25	25/18	15/10
	4		660						
3SM2-630SS	3	500, 600, 630	660	85/60	50/35	50/30	35/25	25/18	15/10
	4		660						
3SM2-800SS	3	600, 700, 800	660	85/60	50/35	50/30	35/25	25/18	15/10
	4		660						

3SM2-CP Moulded Case Circuit Breaker

■ Specifications



3SM2-CP	Pole number	Rated current (A)	Rated insulation voltage(V)	Breaking capacity(kA)			
				Icu/Ics	Ica/Ics	230	400
50CP	3	5, 10, 15, 20, 30, 40, 50	600	5/2	5/2	2.5/1	2.5/1
60CP	3	60	600	5/2	5/2	2.5/1	2.5/1
100CP	3	60, 75, 100	600	25/13	10/5	10/5	7/4
250CP	3	125, 150, 175, 200, 225, 250	600	30/15	18/9	15/8	10/5
400CP	3	250, 300, 350, 400	600	50/25	36/18	25/13	15/8