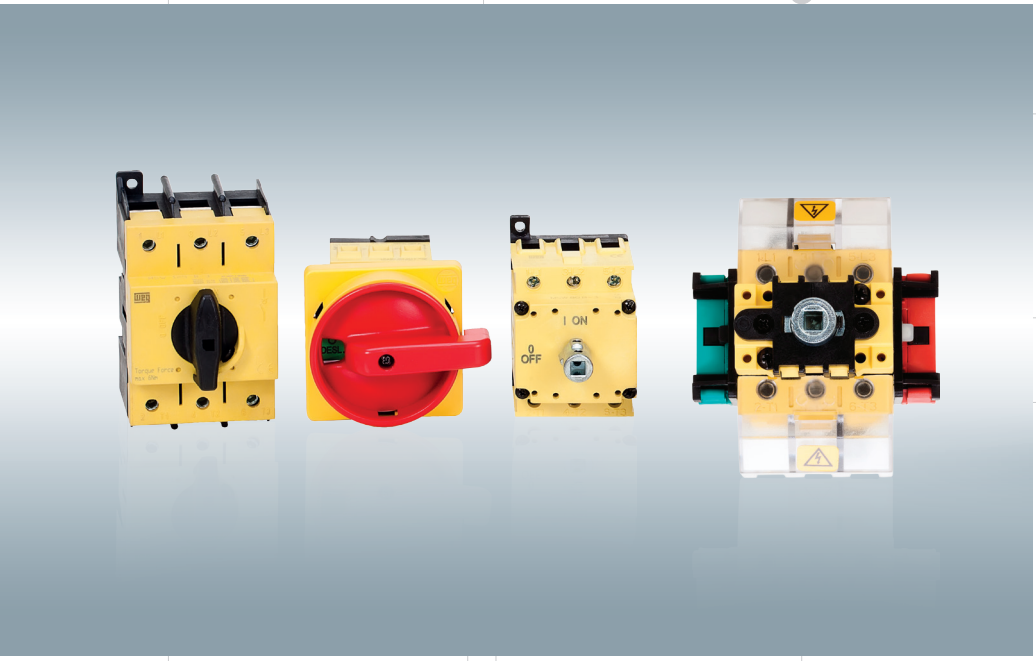
MSW

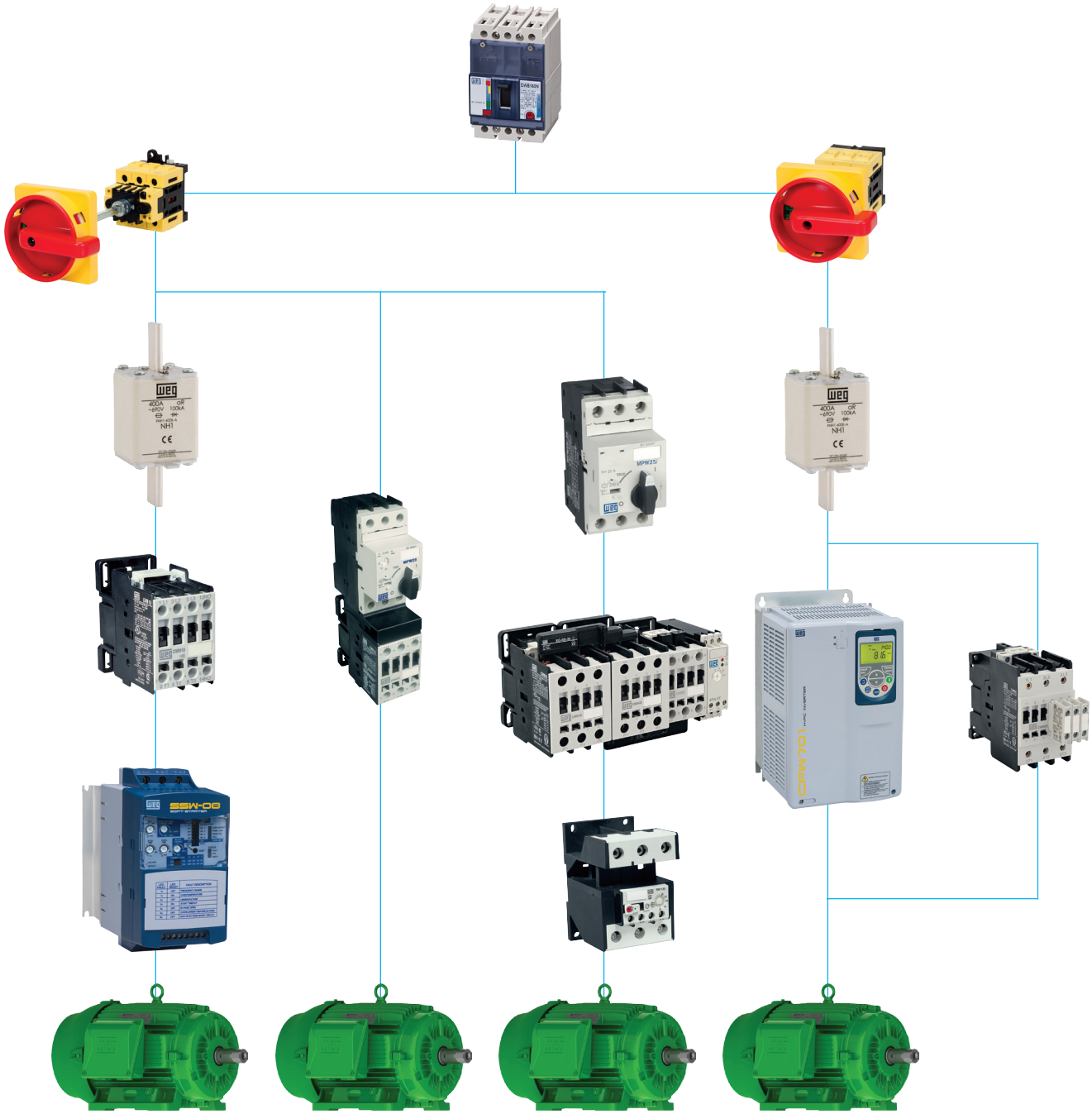
Disconnect Switches



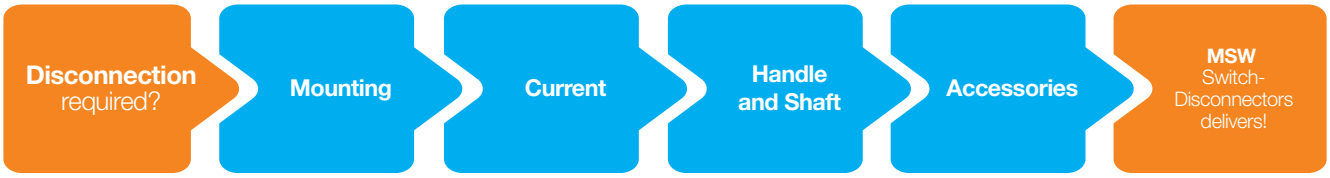
Disconnect Switches

The MSW Disconnect Switches were developed according to IEC 60947-3/UL 508, and enable the manual drive of motors, machines and other equipment. Besides carrying and interrupting electric currents under normal or overload conditions, the design of the MSW Disconnect Switches provides complete physical insulation between the circuit and the power supply when in the OFF position.
In this position, it is possible to use three padlocks in order to prevent inadvertent actuation, increasing the safety of operators and maintenance personnel.

The MSW Disconnect Switches are CE and UL certified, and can be used as the supply disconnecting device, meeting the requirements of IEC 60204-1, and as the emergency switching off device.



How to Select a MSW Disconnect Switch for your Application



The MSW line presents a series of accessories and configurations. WEG offers the full set with a standard configuration. The customer can select the Disconnect Switches and accessories according to the requirements of each application. Below are described the four steps necessary for the proper selection of the MSW Disconnect Switch.

1 - Mounting

The MSW Disconnect Switches are mounted on panel doors or bases according to the selected model.

- **Mounting on door:** in this system, the Disconnect Switch is mounted on panel doors by means of screws. The Disconnect Switch and the handle are always coupled.
- **Mounting on base:** the Disconnect Switch is mounted on a base, like panel plates, by screws or DIN rail. There is a shaft to couple the Disconnect Switch to the handle. The uncoupling of the Disconnect Switch and of the handle is only possible when the Disconnect Switch is in the OFF position.

The user must define the Disconnect Switch considering the wiring, access, simple mounting or any other criteria which may be deemed necessary.

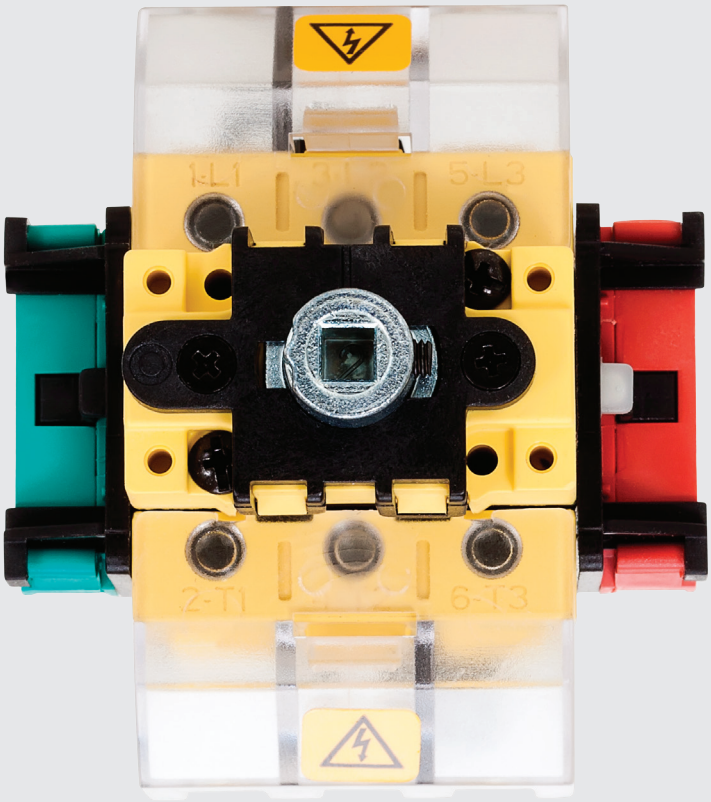
2 - Current

The Disconnect Switch must present a rated current capacity equal to or above the rated current of the circuit/load.
The MSW Disconnect Switches stand currents (Ith) up to 160 A for base mounting and up to 100 A for door mounting, according to the selected model. In order to select the Disconnect Switch, some currents are presented in the references according to the load characteristics. Other current values are presented in the table of technical data (page 8).

3 - Handle and Shaft

The handles of the MSW Disconnect Switches, developed with IP65 degree of protection, allow the use of up to three padlocks when in the OFF position, ensuring safety during maintenance. The handles of the MSW line are available in the colors red/yellow and black/gray.
For Disconnect Switches with base mounting, besides the handle, it is necessary to use a shaft. The shaft must have a length equal to or longer than the distance between the Disconnect Switch and the handle.

With those characteristics, it is possible to define a standard Disconnect Switch, but WEG offers other accessories that may be required for each application.



Disconnect Switch with 2 auxiliary contacts and 2 terminal covers.

Accessories

Neutral Pole
For applications that require neutral disconnection the MSW line has an additional pole with early make contact, that can be assembled on the side of the Disconnect Switch.

Auxiliary Contacts
The MSW line provides auxiliary contacts for mounting on the sides of the Disconnect Switch. On each side of the Disconnect Switch, it is possible to mount an auxiliary contact, or a neutral pole, as shown in the figure on the left.

Terminal Cover
Aiming at enhancing the safety of machinery and equipment, the MSW line provides terminal covers that reduce the risk of inadvertent contact with the terminals. The terminal covers must cover all the poles with live conductors.

Overview

Mounting	Current (A)	Handle		Shaft (mm)			Neutral pole	Auxiliary contact			Terminal cover
		Red/yellow	Black/gray	85	185	300		1NO	1NC	1NOC	
Panel door	32	●	■				■	■	■		■
	40	●	■				■	■	■		■
	63	●	■				■	■	■		■
	80	●	■				■	■	■		■
	100	●									■
Base	32	●	■	♦	■	■	■	■	■		■
	40	●	■	♦	■	■	■	■	■		■
	63	●	■	♦	■	■	■	■	■		■
	80	●	■	♦	■	■	■	■	■		■
	125	●			■	●				■	■
	160	●			■	●				■	■

Notes: ♦ - Only available as part of the standard configuration.
● - Available as part of the standard configuration or it can be supplied separately.
■ - Only available to be supplied separately.

Disconnect Switches for Panel Door Mounting

Standard Configuration (Disconnect Switch + Handle Red/Yellow)

Type	Ith (A)	Ie (A)			Poles
		AC21 (690 V)	AC22 (690 V)	AC23 (690 V)	
MSW 25 P-3 H	32	32	25	16	3
MSW 40 P-3 H	40	40	32	20	3
MSW 63 P-3 H	63	63	63	26	3
MSW 80 P-3 H	80	80	80	32	3
MSW 100 P-3 H	100	100	86	38	3

Disconnect Switches and Accessories

Disconnect Switch

Type	Ith (A)	Ie (A)			Poles
		AC21 (690 V)	AC22 (690 V)	AC23 (690 V)	
MSW 25 P-3	32	32	25	16	3
MSW 40 P-3	40	40	32	20	3
MSW 63 P-3	63	63	63	26	3
MSW 80 P-3	80	80	80	32	3
MSW 100 P-3	100	100	86	38	3

Rotary Handle

Type	Disconnect Switch	Color
MSW H 40 P	MSW25/MSW40	Red/Yellow
MSW H 100 P	MSW63/MSW80/MSW100	Red/Yellow
MSW H 40-P-B	MSW25/MSW40	Black/Gray
MSW H 100-P-B	MSW63/MSW80/MSW100	Black/Gray

Neutral Pole

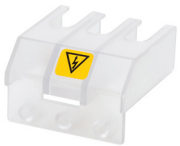
Type	Disconnect Switch	Contact
MSW AP 25-P-1 NA	MSW25	1 NO early make
MSW AP 40-P-1 NA	MSW40	1 NO early make
MSW AP 63-P-1 NA	MSW63	1 NO early make
MSW AP 80-P-1 NA	MSW80	1 NO early make

Auxiliary Contact

Type	Disconnect Switch	Contact
MSW AC-40 P 1NC	MSW25/MSW40	1NC
MSW AC-40 P 1NO	MSW25/MSW40	1NO
MSW AC-80 P 1NC	MSW63/MSW80	1NC
MSW AC-80 P 1NO	MSW63/MSW80	1NO

Terminal Cover

Type	Disconnect Switch	Poles
MSW TS-40 P	MSW25/MSW40	3
MSW TS-80 B/P	MSW63/MSW80	3
MSW TS-100 P [1)]	MSW100	2

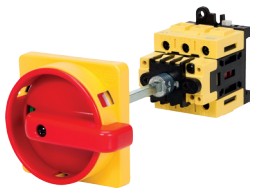


Note: 1) Necessary 2 pieces of MSW TS-100P to cover 3 poles.
Terminal cover to line or load side (1 piece supplied).

Disconnect Switch for Base Mounting (Screw or Din Rail)

Standard Configuration (Disconnect Switch + Handle Red/Yellow + Shaft)

Type	Ith (A)	Ie (A)			Shaft length (mm)	Poles
		AC21 (690 V)	AC22 (690 V)	AC23 (690 V)		
MSW 25 B-3 H	32	32	25	16	85	3
MSW 40 B-3 H	40	40	32	20	85	3
MSW 63 B-3 H	63	63	63	26	85	3
MSW 80 B-3 H	80	80	80	32	85	3
MSW 125 B-3 H	125	125	125	80	300	3
MSW 160 B-3 H	160	160	160	100	300	3



Disconnect Switches and Accessories

Disconnect Switch

Type	Ith (A)	Ie (A)			Poles
		AC21 (690 V)	AC22 (690 V)	AC23 (690 V)	
MSW 25 B-3	32	32	25	16	3
MSW 40 B-3	40	40	32	20	3
MSW 63 B-3	63	63	63	26	3
MSW 80 B-3	80	80	80	32	3
MSW 125 B-3	125	125	125	80	3
MSW 160 B-3	160	160	160	100	3

Rotary Handle + Shaft

Type	Disconnect Switch	Color	Shaft (mm)
MSW H 40 B	MSW25/MSW40	Red/Yellow	85
MSW H 80 B	MSW63/MSW80	Red/Yellow	85
MSW H 160 B	MSW125/MSW160	Red/Yellow	300
MSW H 40-B-B	MSW25/MSW40	Black/Gray	85
MSW H 80-B-B	MSW63/MSW80	Black/Gray	85

Shaft

Type	Disconnect Switch	Length (mm)
MSW HS 185-40	MSW25/MSW40	185
MSW HS 300-40	MSW25/MSW40	300
MSW HS 185-160	MSW63/MSW80/ MSW125/MSW160	185
MSW HS 300-160	MSW63/MSW80/ MSW125/MSW160	300

Neutral Pole

Type	Disconnect Switch	Contact
MSW AP 25-B-1 NA	MSW25	1 NO early make
MSW AP 40-B-1 NA	MSW40	1 NO early make
MSW AP 63-B-1 NA	MSW63	1 NO early make
MSW AP 80-B-1 NA	MSW80	1 NO early make

Auxiliary Contact

Type	Disconnect Switch	Contact
MSW AC-40 B 1NC	MSW25/MSW40	1NC
MSW AC-40 B 1NO	MSW25/MSW40	1NO
MSW AC-80 B 1NC	MSW63/MSW80	1NC
MSW AC-80 B 1NO	MSW63/MSW80	1NO
MSW AC-160 B 1NONC	MSW125/MSW160	1NOC

Terminal Cover

Type	Disconnect Switch	Poles
MSW TS-40 B	MSW25/MSW40	3
MSW TS-80 B/P	MSW63/MSW80	3
MSW TS-160 B	MSW125/MSW160	3

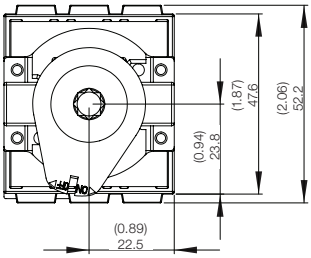
Note: Terminal cover to line or load side (1 piece supplied).

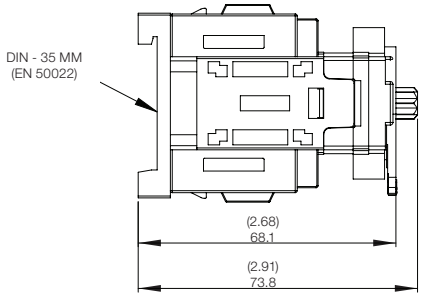
Technical Data

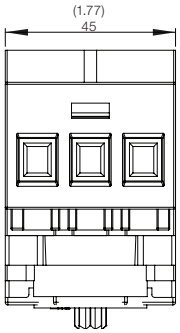
IEC 60947-3 characteristics				MSW 25	MSW 40	MSW 63	MSW 80	MSW 100	MSW 125	MSW 160	Auxiliary contact
Rated operating voltage U_e			V	690							
Rated insulation voltage U_i			V	690	690	690	690	690	800	800	690
Rated impulse withstand voltage U_{imp} (sectionable)			kV	8	8	8	8	8	8	8	4
Rated thermal current Ith			A	32	40	63	80	100	125	160	16
Rated thermal current in enclosed I_{the}			A	32	40	63	80	86	125	160	10
Frequency			Hz	50/60							
Rated operating current I_e: alternate current											
AC-21A switching resistive loads		690 V	A	32	40	63	80	100	125	160	AC-15 240 V-5 A
AC-22A switching mixed resistive and inductive loads		500 V	A	-	-	-	-	100	125	160	DC-13 250 V-0.44 A
		690 V	A	25	32	63	80	86	125	160	-
AC-23A periodic switching of motors	3 phase 3 poles	230 V	A/kW	25/7.5	32/10	63/20	80/25	70/22	125/30	160/45	-
		400 V	A/kW	25/15	32/18.5	50/28	75/42	67/37	125/55	160/75	-
		500 V	A/kW	22/15	27/18.5	50/35	75/52	67/45	100/63	125/80	-
		690 V	A/kW	16/15	20/18.5	26/25	32/31	38/37	80/75	100/90	-
AC3 starting of cage motors (interruption while running)	3 phase 3 poles	230 V	A/kW	22/5.5	27/7.5	45/14	60/19	60/18.5	-	-	-
		400 V	A/kW	22/11	27/15	40/22	55/30	55/30	-	-	-
		500 V	A/kW	22/11	22/15	35/24	45/31	55/37	-	-	-
		690 V	A/kW	16/11	16/15	22/21	25/24	32/30	-	-	-
Rated interruption current AC-23A (cosfi 0.45)		230 V	A	200	256	360	600	560	-	-	-
		400 V	A	200	256	320	536	536	1,000	1,280	-
		500 V	A	176	216	280	536	536	-	-	-
		690 V	A	128	160	176	256	304	800	800	-
Short circuit characteristics											
Rated short-time short circuit withstand current Icw (1s)			A	800	800	1,200	1,500	1,500	3,000	3,000	-
Rated short circuit making capacity Icm			A	1,500	1,500	2,200	2,800	2,840	4,500	4,500	-
Conditional rated short circuit withstand current			kA	10	10	10/5	10/5	10	15	15	1
Fuse rating gG		500 V	A	-	-	-	-	100	125	125	10
		690 V	A	40	40	63/80	63/80	-	-	-	-
UL 508 characteristics											
General use		600 V ac	A	32	40	60	80	100	125	160	HD A600 ac Q600 dc
Standard motors load	Single phase 2 poles	120 V ac	HP (FLA)	1.5 (20)	2 (24)	2	3	3 (34)	-	-	-
		240 V ac	HP (FLA)	3 (17)	5 (28)	5	7.5	10 (50)	-	-	-
	3 phase 3 poles	240 V ac	HP (FLA)	7.5 (22)	10 (28)	10	15	10 (28)	40 (104)	40 (104)	-
		480 V ac	HP (FLA)	10 (14)	15 (21)	25	30	25 (34)	100 (124)	100 (124)	-
		600 V ac	HP (FLA)	15 (17)	20 (22)	30	40	30 (32)	125 (125)	125 (125)	-
General characteristics											
Protection degree		Handle	EN 60529/UL 50	IP65 / Type 1-4-4X-NEMA 4X							
		Terminals	EN 60529	IP20							
Material group		EN 60947-1		II					IIIa	IIIa	II
Pollution grade		EN 60947-1		3							
Flammability		UL 94		V0							
Ambient temperature		Operation	°C	-25 +55							
		Storage	°C	-30 +70							
Climate withstand		IEC 68 part 2-3		Hot damp							
		IEC 68 part 2-30		Unsetted hot damp							
Switching force (3 poles)				0.8 Nm (7.1 lb.in.)		1 Nm (8.85 lb.in.)		1.5 Nm	2.6 (23 lb.in.)		-
Connections		EN 60947-1									
Terminal block caliber				A6		A8			-	-	A2
Terminal screw				M4		M5			M8	M8	M3.5
Tightening torque		EN 60947-1		1.2 Nm		3 Nm			6 Nm	6 Nm	0.8 Nm
		UL 508		10.6 lb.in. (1.2 Nm)		32 lb.in. (3.6 Nm)			53 lb.in. (6Nm)		7.1 lb.in.
Main terminal capacity			mm²	1.5-10		6-25			10-70	10-70	1-2.5
Flexible conductors			AWG	12-6		10-2			3/0-6	3/0-6	18-12
			mm²	1.5-16		10-35			10-70	10-70	1-2.5
Solid conductors			AWG	12-6		10-2			3/0-6	3/0-6	18-12
Opening angles				90°							-

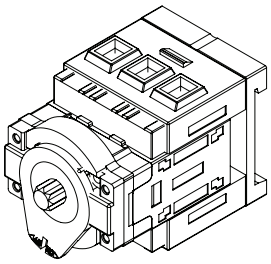
Disconnect Switches for Panel Door Mounting

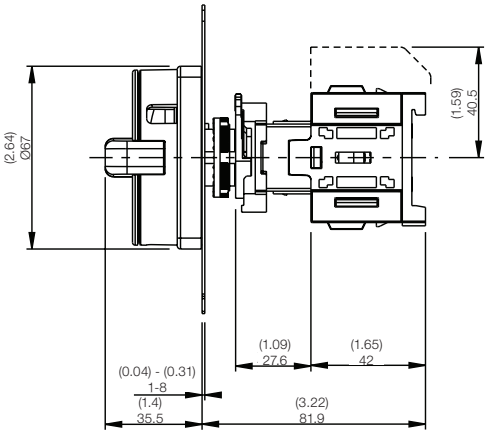
MSW25...40P-3

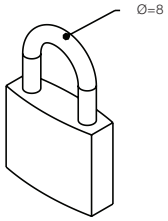


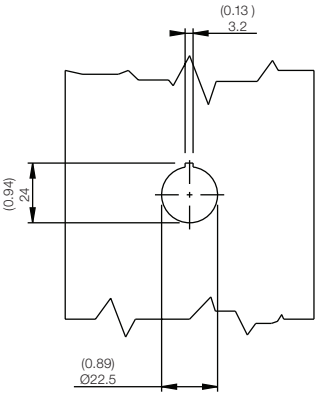


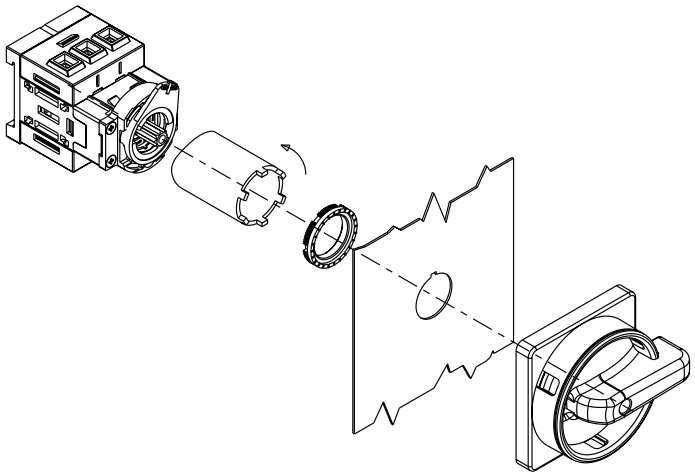






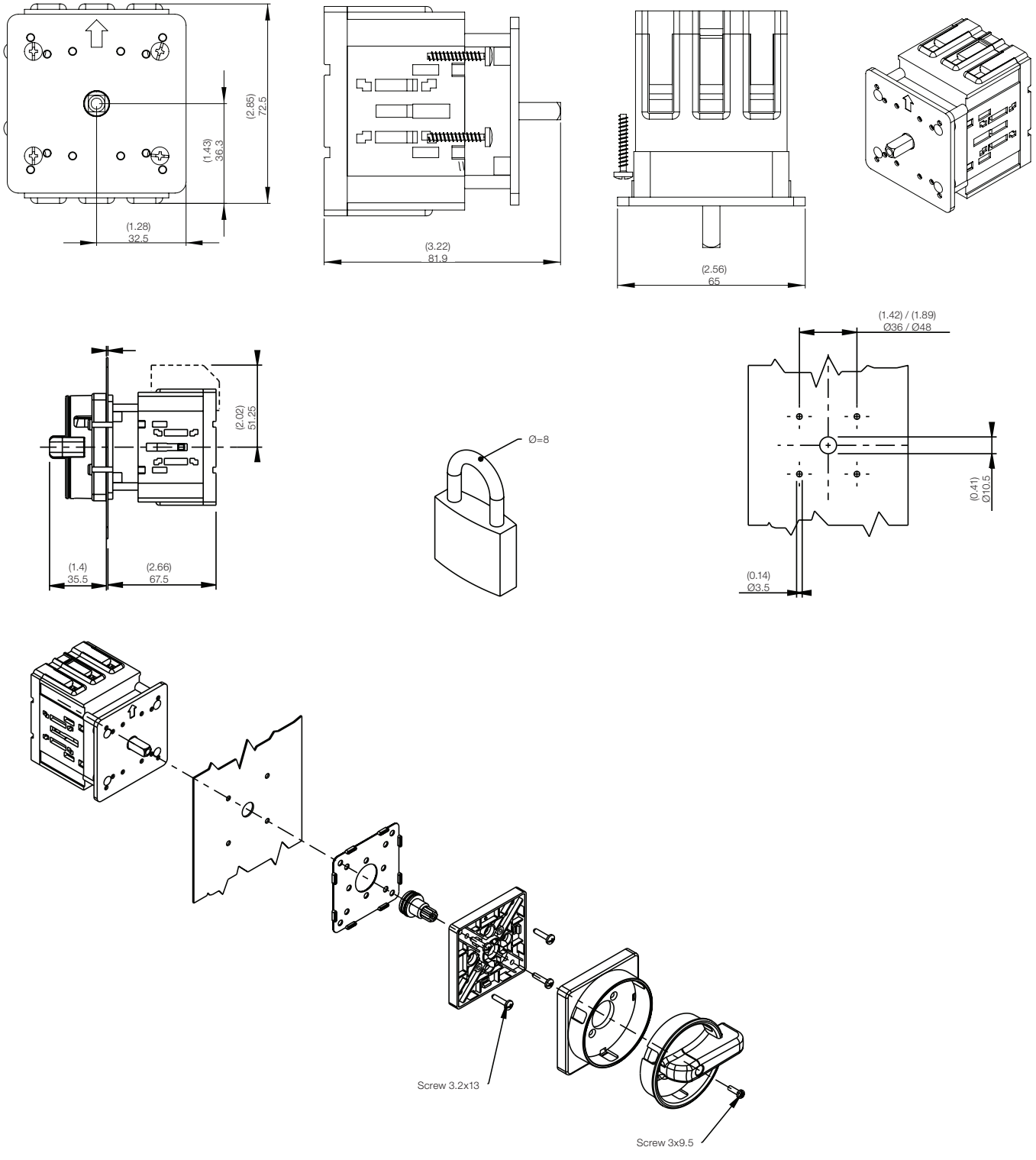






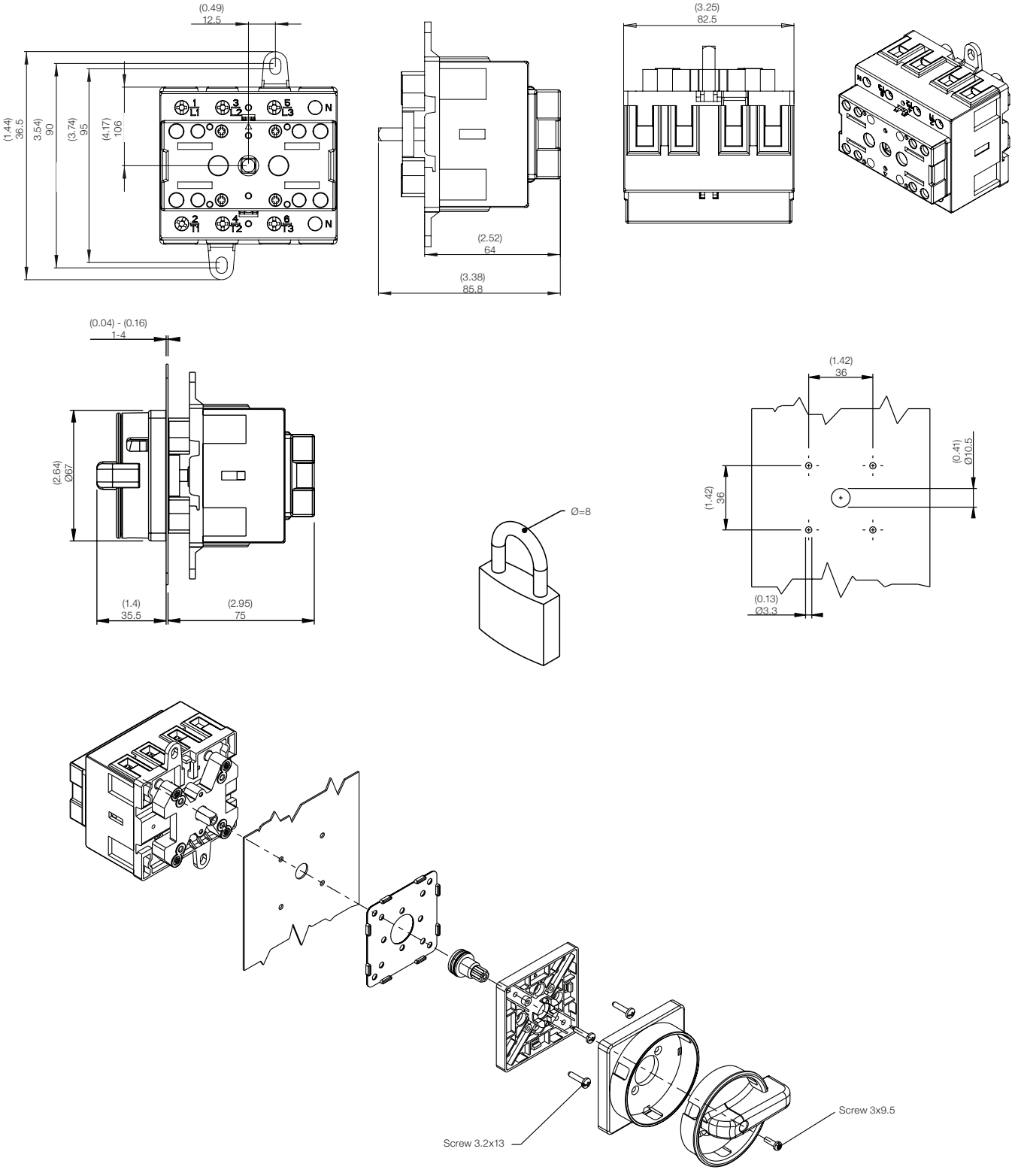
Note: Dimensions mm (in).

MSW63...80P-3



Note: Dimensions mm (in).

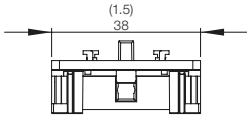
MSW100P-3

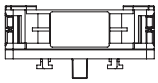


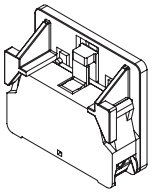
Note: Dimensions mm (in).

Auxiliary Contact

MSWAC-40...80P1NC / MSWAC-40...80P1NO

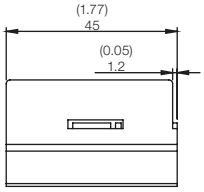


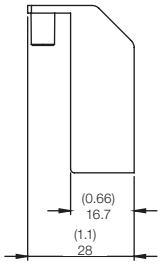


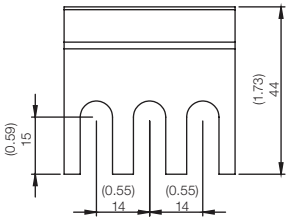


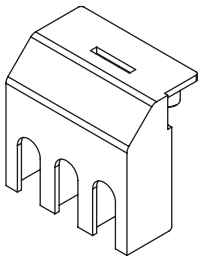
Terminal Cover

MSWTS-40P

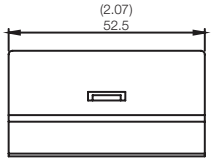


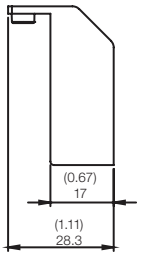


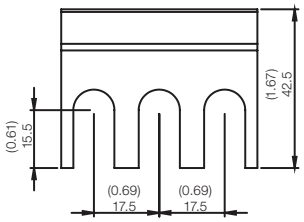


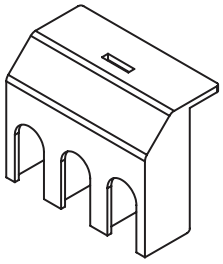


MSWTS-80B-P

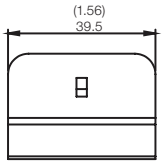


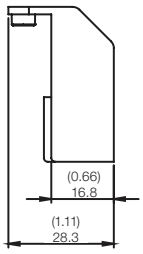


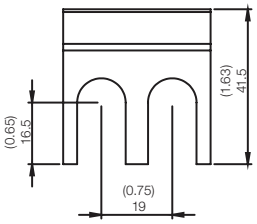


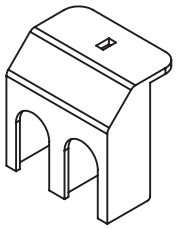


MSWTS-100P





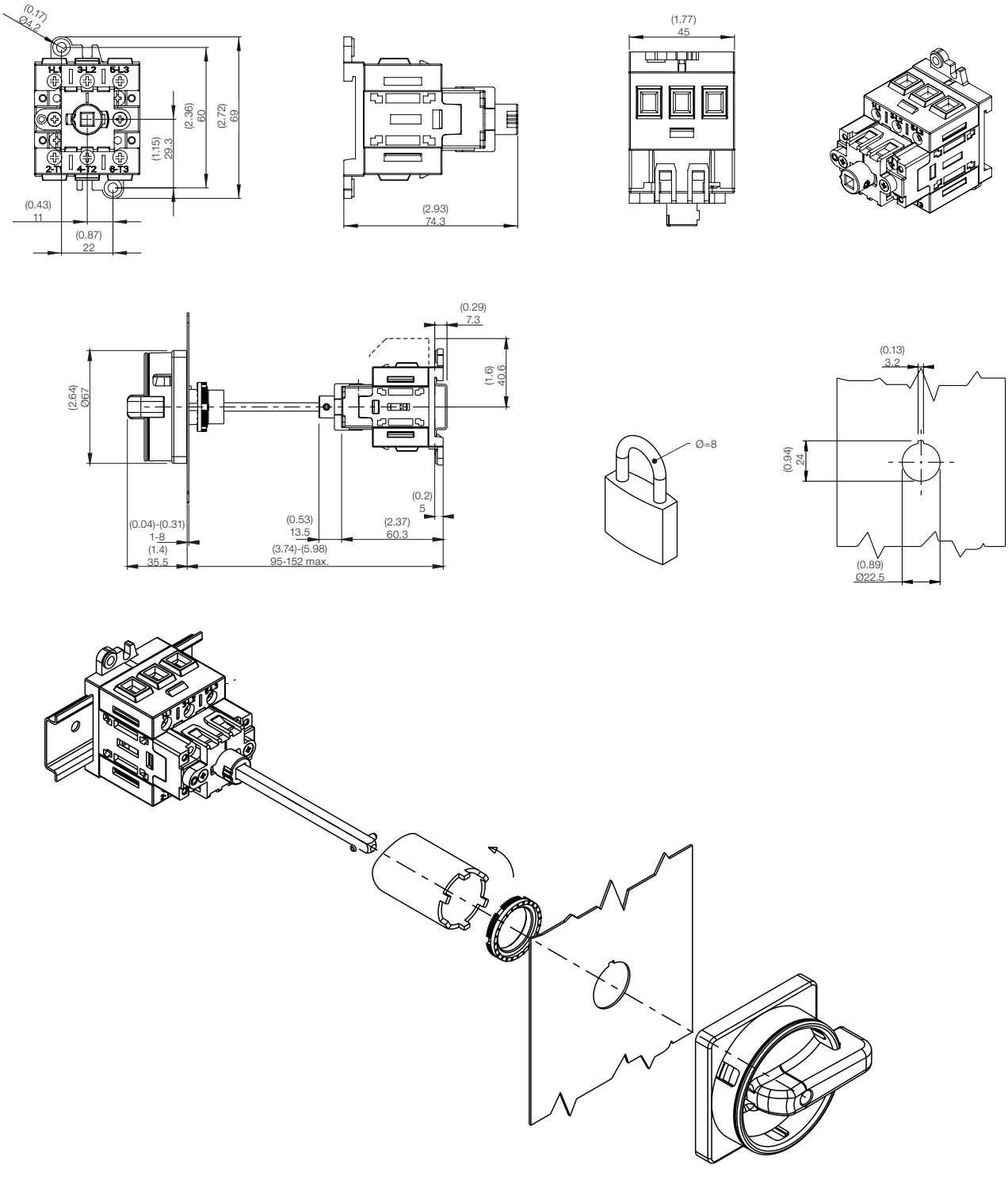




Note: Dimensions mm (in).

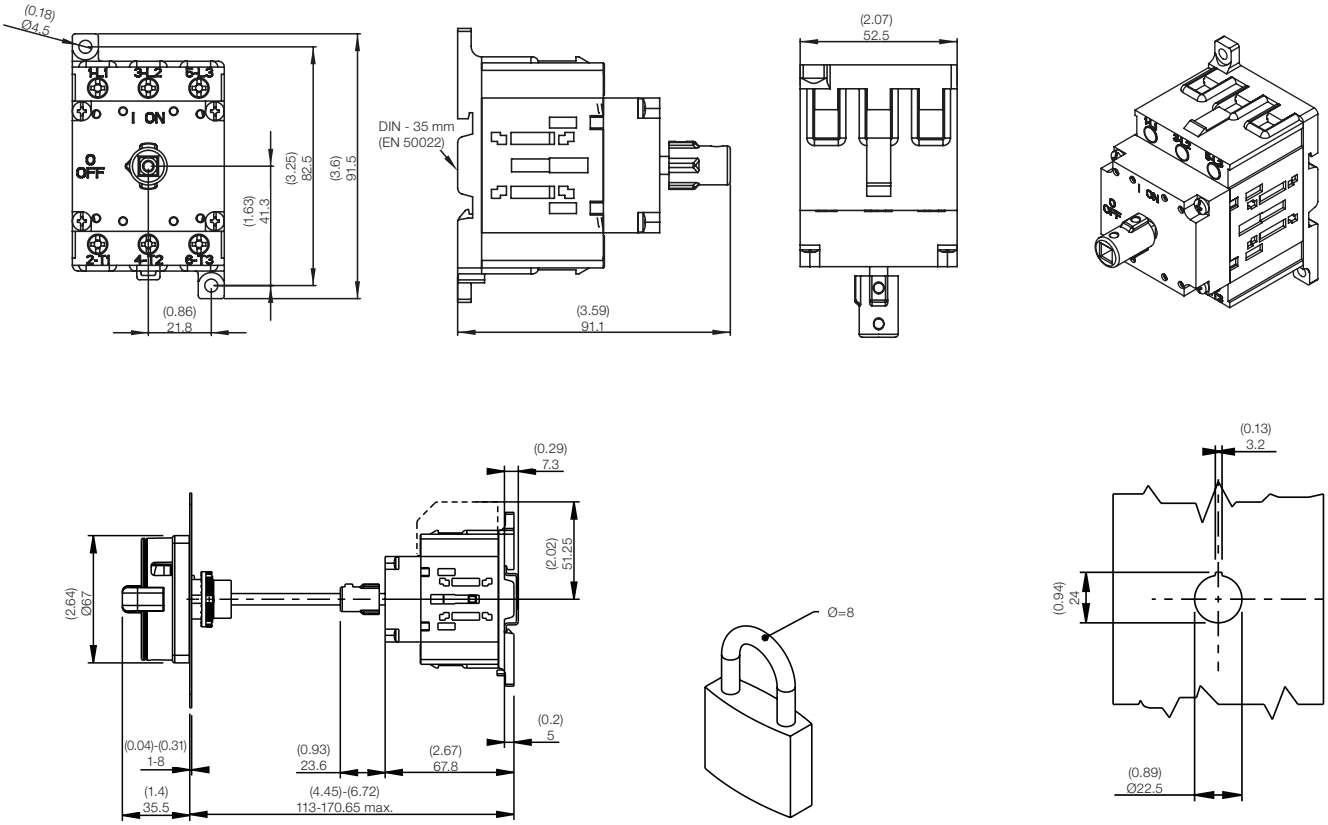
Disconnect Switches for Base Mounting

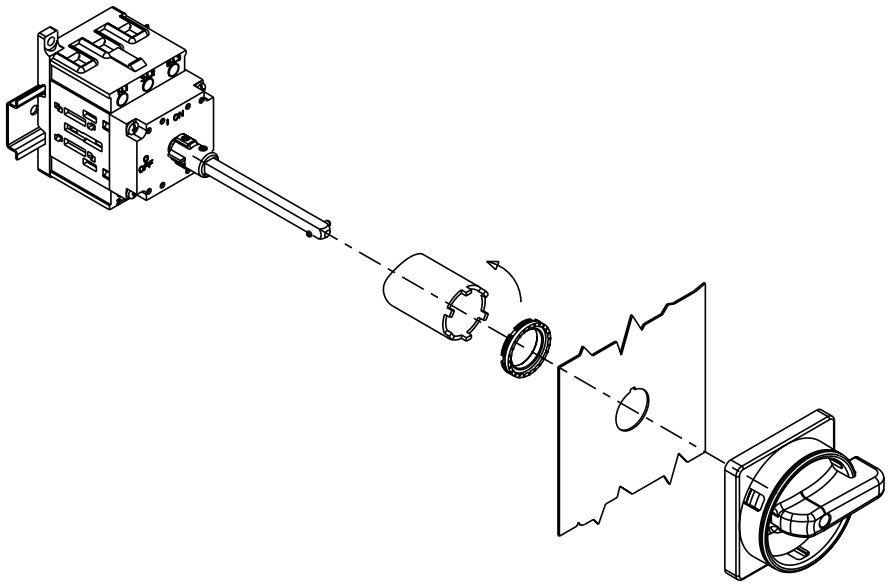
MSW25...40B-3



Note: Dimensions mm (in).

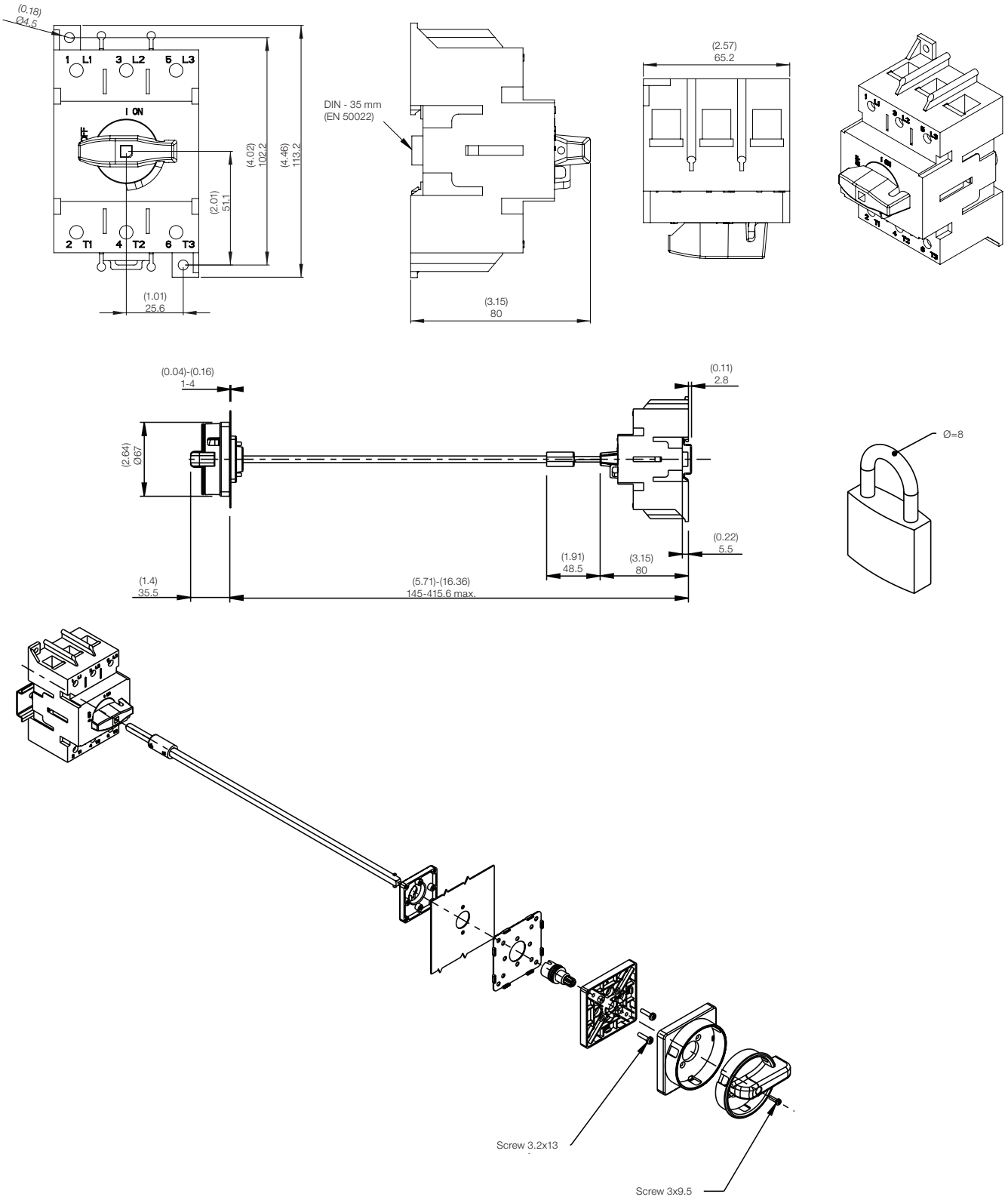
MSW63...80B-3





Note: Dimensions mm (in).

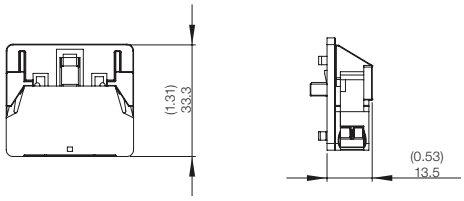
MSW125...160B-3



Note: Dimensions mm (in).

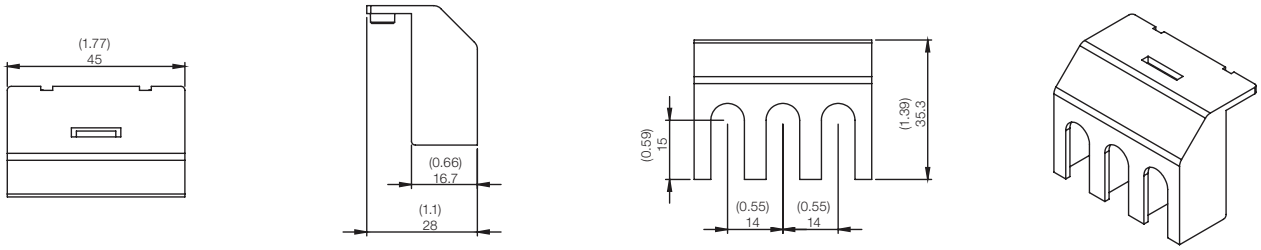
Auxiliary Contact

MSWAC-40...80B1NC / MSWAC-40...80B1NO

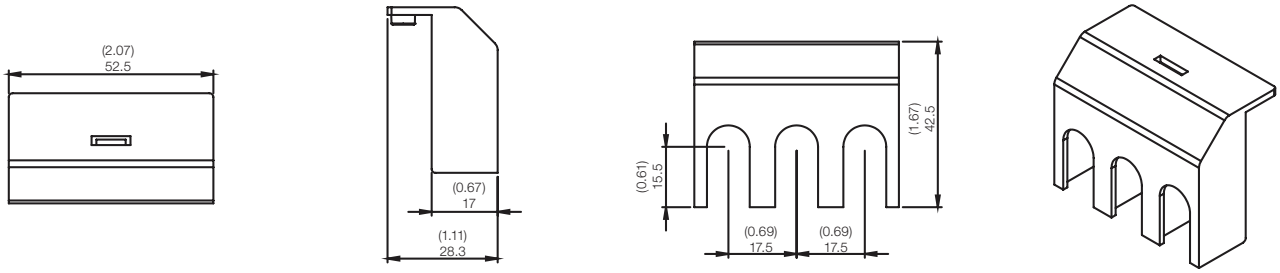


Terminal Cover

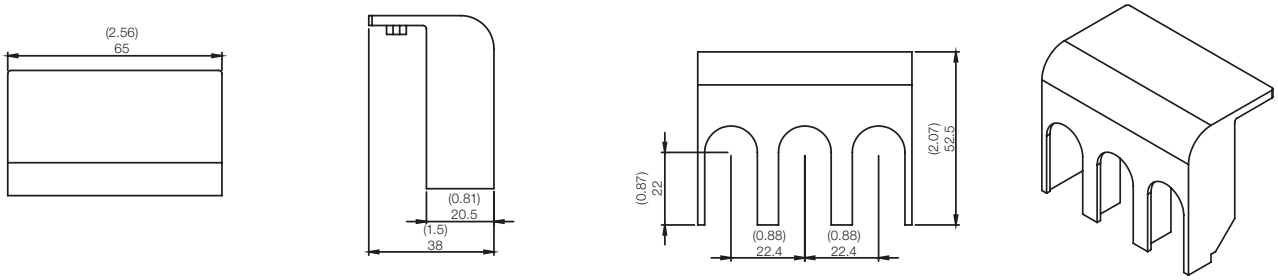
MSWTS-40B



MSWTS-80B-P



MSWTS-160B



Note: Dimensions mm (in).

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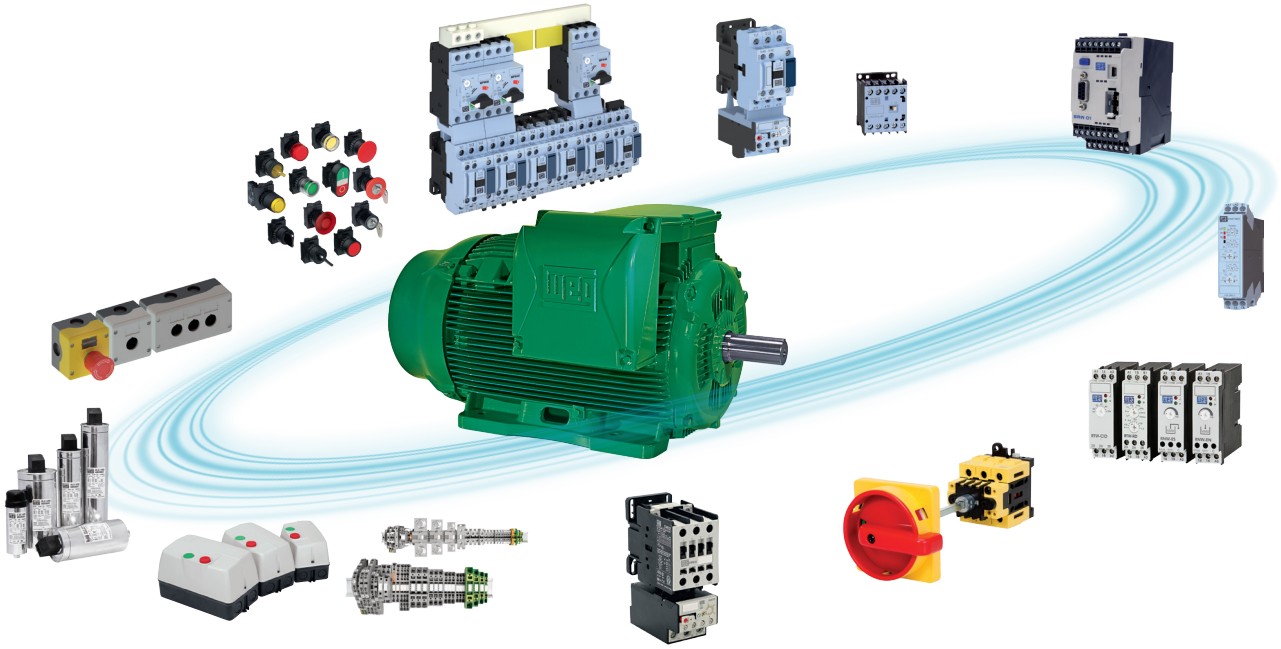

Motor Protection and Starters

- Modular contactors up to 800 A (AC-3)
- Compact contactors up to 22 A (AC-3)
- Control relays
- Motor protective circuit breakers up to 100 A
- Enclosed starters (plastic or metallic enclosures)
- Customized starters for OEM applications
- Overload relays

Electrical Circuit Protection

- Miniature circuit breakers up to 125 A
- Molded case circuit breakers up to 1,600 A (3P and 4P)
- Air circuit breakers up to 6,300 A
- D gL-gG fuses up to 63 A
- NH gL-gG fuses up to 630 A
- NH aR fuses up to 1,000 A
- Disconnect Switches for door or base mounting up to 160 A
- Residual current circuit-breaker up to 100 A (30 or 300 mA)
- Surge supressors

Electrical Connections

- Terminal blocks with screw type connection
- Terminal block with spring type connection
- Terminal blocks for fuses
- Busbar and busbar connectors
- Identifiers for terminals and cables
- Printing system

Capacitors

- Power factor compensation
- Lighting
- Motor-run

Pushbuttons and Pilot Lights

- IP66 pushbuttons and pilot lights
- Flush, guarded, extended or mushroom illuminated or non illuminated pushbuttons
- Selector switches lever or knob illuminated or non illuminated or with key
- Emergency pushbuttons (according EN 418)
- Contact blocks with “positive break” system
- Double pushbutton
- Pilot lights with LED technology
- Customized descriptions
- Decentralized control stations - PBW

Smart Relay

- Low voltage electric motor management system
- Compact and modular concept
- Full motor protection and monitoring through current and voltage measurements
- Multiple operating modes including PLC functions
- Easy network module change via exclusive drawer system (Modbus, DeviceNet, Profibus modules)
- USB communication
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Electronic Relays

- Timing, monitoring and level relays
- 22.5 mm width frame
- LED for status indication
- Multifunction three-phase monitoring relays and timer relays

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Wound Rotor Systems (including starters) up to 70,000HP and 13,200V
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Controls

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