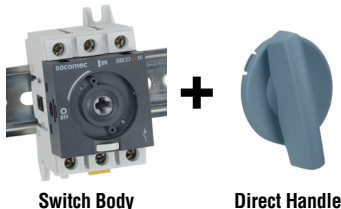


# SIRCO M UL 508 Non-Fusible Disconnect Switches



To assemble a switch, please select:

## Direct Operation



Switch Body

Direct Handle

OR

## External Operation



Switch Body

Shaft

External Handle

### UL 508 Non-Fusible Disconnect Switches

Part Number	Description	Switch Body Rating (A)	# of Poles	Price
22003000-UL	Non-fusible UL 508 disconnect rotary 600VAC disconnect switch	16	3	\$18.50
22003001-UL		20	3	\$19.75
22003002-UL		25	3	\$21.00
22003003-UL		32	3	\$21.50
22003004-UL		40	3	\$22.25
22003006-UL		63	3	\$30.25
22003008-UL		80	3	\$34.25

### Handles – Defeatable and Lockable

Part Number	Description	Switch Body Rating (A)	Handle Color	Handle Type	NEMA/UL Type	Price
22995012	Direct operation handle, shaft not required*	16 - 100	Blue	M00	—	\$2.00
14731111	Front and right side handles I - O, shaft required		Black/Blue	S00	3R, 12	\$9.75
14741111			Red/Yellow			\$9.75
147D1111			Black/Blue		4, 4X	\$14.50
147E1111			Red/Yellow			\$14.50
14831111			Black/Blue	S0	1, 3R, 12	\$16.75
14841111			Red/Yellow			\$16.75
148D1111			Black/Blue		4, 4X	\$27.25
148E1111			Red/Yellow			\$27.25
140F2111			Black/Blue	S01	3R, 12	\$22.00
140G2111			Red/Yellow			\$22.00
140D2111			Black/Blue		4, 4X	\$33.00
140E2111			Red/Yellow			\$33.00

\*Not defeatable

M00 Handle  
22995012S0 Handle  
14831111S00 Handle  
147D1111S01 Handle  
140D2111

### Shafts for External Handles

Part Number	Description	Switch Body Rating (A)	Handle Type	Length		Price
				in	mm	
14070515	For 3/4-pole switches: shafts are for external front and side handle	16 - 100	S00, S0	5.9	150	\$3.00
14070520				7.9	200	\$4.00
14070532				12.6	320	\$5.25
14040520	For 3/4-pole switches: shafts are for external front and side handle.		S01	7.9	200	\$7.25
14040532				12.6	320	\$8.75
14040540				15.7	400	\$15.25

14070515



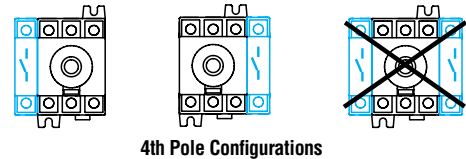
# SIRCO M UL 508 Non-Fusible Disconnect Switches



Shaft Guide for External Handle			
Part Number	Description	Fits Handle Type	Price
<b>14190000</b>	This accessory makes alignment connections between the shaft and handle easier. Allows up to 15mm misalignment tolerance. Required for a shaft length over 300mm. Included with longer shafts.	S0, S00	\$1.50
<b>14290000</b>		S01, S1, S2, S3	\$4.75



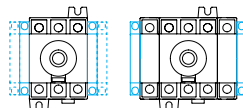
Additional Poles					
Part Number	Description	Switch Body Rating (A)	No. of Poles	Use	Price
<b>22001000-UL</b>	Module switched 4th pole	16	1	Transforms a 3-pole switch into a 4-pole	\$10.00
<b>22001001-UL</b>		20			\$11.50
<b>22001002-UL</b>		25			\$11.50
<b>22001003-UL</b>		32			\$12.00
<b>22001004-UL</b>		40			\$13.00



Terminal Shrouds				
Part Number	Description	Switch Body Rating (A)	No. of Poles	Price
<b>22941005</b>	Terminal shroud line/load mount, 2 per pack, offers additional protection against direct contact with the terminals.	16-40	1	\$2.00
<b>22943005</b>			3	\$3.00
<b>22941009</b>		63-80	1	\$2.50
<b>22943009</b>			3	\$4.00



Auxiliary Contacts				
Part Number	Description	Switch Body Rating (A)	Contacts	Price
<b>22990001-UL</b>	Auxiliary contact block module, 10A @ 240VAC, can be mounted on left or right side of switch, maximum 4 auxiliary contacts can be used (requires 2 modules)	16 - 100	1 NO / 1 NC	\$13.75
<b>22990011-UL</b>		16 - 100	2 NO	\$14.75



Door Mounting Kit				
Part Number	Description	Switch Body Rating (A)	No. of Poles	Price
<b>22993409</b>	This kit enables direct mounting of the switch on the panel door or on the right or left side of the panel. For use with S0 and S00 handles only.	16-80	3/4	\$4.00



# SIRCO M UL 508 Non-Fusible Disconnect Switches



## Technical Characteristics

Characteristics According to UL 508 / CSA 22.2#4							
	22003000-UL	22003001-UL	22003002-UL	22003003-UL	22003004-UL	22003006-UL	22003008-UL
General use rating (A)	16	20	25	32	40	63	80
Short-circuit rating at 600VAC (kA)	65	65	65	65	10 / 65	50 / 65	50 / 65
Type of fuse	J	J	J	J	J	J	J
Max fuse rating (A)	30	30	30	30	60 / 30	100 / 60	100 / 60
Max. motor hp / FLA 3-phase motor max.							
208VAC	3 / 10.6	5 / 16.7	7.5 / 24.2	7.5 / 24.2	7.5 / 24.2	15 / 46.2	15 / 46.2
220-240 VAC	5 / 15.2	5 / 15.2	7.5 / 22	7.5 / 22	7.5 / 22	20 / 54	20 / 54
440-480 VAC	10 / 14	10 / 14	15 / 21	20 / 27	20 / 27	40 / 52	40 / 52
600VAC	10 / 11	15 / 17	20 / 22	25 / 27	25 / 27	40 / 41	40 / 41
Wire type/temperature	Cu / 75°C (167°F)						
Product weight – lb (kg)	0.5 (0.2)					0.7 (0.32)	
Wire range							
Solid (AWG) - 1 wire	#14-10	#14-10	#14-10	#14-10	#14-10	#14-10	#14-10
Torque - lb-in (N-m)	26.5 (3)	26.5 (3)	26.5 (3)	26.5 (3)	26.5 (3)	39.8 (4.5)	39.8 (4.5)
Solid (AWG) - 2 wire	(2) #12	(2) #12	(2) #12	(2) #12	(2) #12	(2) #12	(2) #12
Torque - lb-in (N-m)	26.5 (3)	26.5 (3)	26.5 (3)	26.5 (3)	26.5 (3)	39.8 (4.5)	39.8 (4.5)
Stranded (AWG) - 1 wire	#14-4	#14-4	#14-4	#14-4	#14-4	#14-1	#14-1
Torque - lb-in (N-m)	26.5 (3)	26.5 (3)	26.5 (3)	26.5 (3)	26.5 (3)	39.8 (4.5)	39.8 (4.5)
Stranded (AWG) - 2 wire	(2) #14-12	(2) #14-13	(2) #14-14	(2) #14-15	(2) #14-16	(2) #10-6	(2) #10-6
Torque - lb-in (N-m)	26.5 (3)	26.5 (3)	26.5 (3)	26.5 (3)	26.5 (3)	39.8 (4.5)	39.8 (4.5)
Environmental – switch body							
Operating temperature¹	-20°C to 70°C (-4°F to +158°F)						
Flammability rating	UL 94-V0						
Mechanical characteristics							
Endurance (# of operating cycles)	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Operating torque (lb-in / N-m)	7 / 0.8	7 / 0.8	7 / 0.8	7 / 0.8	7 / 0.8	8.9 / 1	8.9 / 1
Mounting	DIN rail or panel mount						
Auxiliary contacts							
Electrical characteristics	A300	A300	A300	A300	A300	A300	A300
Agency approvals							
UL file # E173959 (UL 508, C22.2 NO. 14) Manual motor controller "suitable as motor disconnect"							

<sup>1</sup> Temperatures above 40°C, the current rating of the switch has to be de-rated 1% per °C over 40°C. Example, at 60°C a 100A switch is rated 80A

Note: Short-circuit rating achieved when used with corresponding fuse type and max fuse rating.

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

# SIRCO M UL 508 Non-Fusible Disconnect Switches



## Technical Characteristics

Characteristics According to IEC 60647-3							
	22003000-UL	22003001-UL	22003002-UL	22003003-UL	22003004-UL	22003006-UL	22003008-UL
<b>General use rating (A)</b>	16	20	25	32	40	63	80
Thermal current $I_{th}$ at 40°C (A)	16	20	25	32	40	63	80
Rated insulation voltage $U_i$ (V)	800	800	800	800	800	800	800
Rated impulse withstand voltage $U_{imp}$ (kV)	8	8	8	8	8	8	8
<b>Rated operational currents <math>I_e</math></b>							
415VAC AC-23A / AC-23B utilization category (A/B) <sup>1</sup>	16 / 16	20 / 20	25 / 25	32 / 32	40 / 40	63 / 63	80 / 80
500VAC AC-22A / AC-22B utilization category (A/B) <sup>1</sup>	16 / 16	20 / 20	25 / 25	32 / 32	40 / 40	63 / 63	80 / 80
500VAC AC-23A / AC-23B utilization category (A/B) <sup>1</sup>	16 / 16	20 / 20	25 / 25	25 / 25	25 / 25	63 / 63	63 / 63
690VAC AC-21A / AC-21B utilization category (A/B) <sup>1</sup>	16 / 16	20 / 20	25 / 25	32 / 32	40 / 40	63 / 63	80 / 80
690VAC AC-22A / AC-22B utilization category (A/B) <sup>1</sup>	16 / 16	20 / 20	25 / 25	32 / 32	32 / 40	40 / 63	63 / 80
690VAC AC-23A / AC-23B utilization category (A/B) <sup>1</sup>	16 / 16	20 / 20	25 / 25	25 / 25	25 / 25	40 / 40	40 / 40
<b>Operational power in AC-23 (kW)</b>							
@ 400VAC without prebreak AC in AC-23 <sup>1/2</sup>	7.5	9	11	15	18.5	30	37
@ 500VAC without prebreak AC in AC-23 <sup>1/2</sup>	7.5	9	11	15	15	30	37
@ 690VAC without prebreak AC in AC-23 <sup>1/2</sup>	7.5	11	15	18.5	18.5	30	37
<b>Fuse protected short-circuit withstand (kA rms prospective)</b>							
Prospective short-circuit current (kA rms) <sup>3</sup>	50	50	50	50	50	50	50
Associated fuse rating (A) <sup>3</sup>	16	20	25	32	40	63	80
<b>Overload capacity (<math>U_e</math> 415VAC)</b>							
Rated short-time withstand current 0.3 s. $I_{cw}$ (kA rms) <sup>3</sup>	2.5	2.5	2.5	2.5	2.5	3	3
Rated short-circuit making capacity $I_{cm}$ (kA peak) <sup>3</sup>	6	6	6	6	6	9	9
<b>Connection</b>							
Minimum Cu cable cross section (mm <sup>2</sup> )	1.5	1.5	1.5	1.5	1.5	2.5	2.5
Maximum Cu cable cross section (mm <sup>2</sup> )	16	16	16	16	16	35	35
Tightening torque min/max (N·m)	2 / 2.2	2 / 2.2	2 / 2.2	2 / 2.2	2 / 2.2	3.5 / 3.85	3.5 / 3.85

<sup>1</sup>A/B: Category with index A = frequent operation - Category with index B = infrequent operation.

<sup>2</sup>The power value is given for information only, the current values vary from one manufacturer to another.

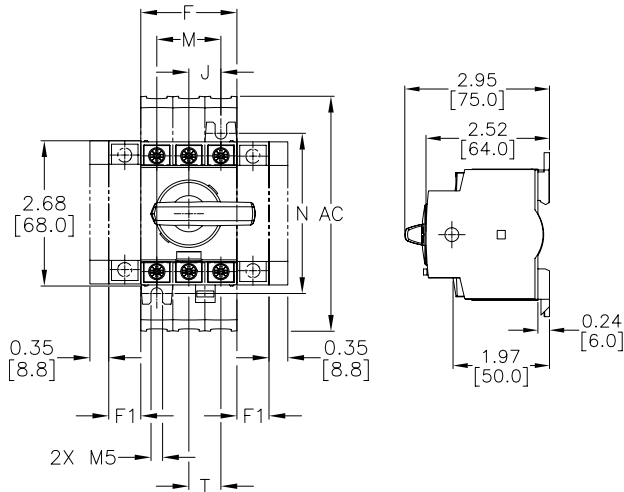
<sup>3</sup>For a rated operating voltage  $U_e = 400VAC$

# SIRCO M UL 508 Non-Fusible Disconnect Switches

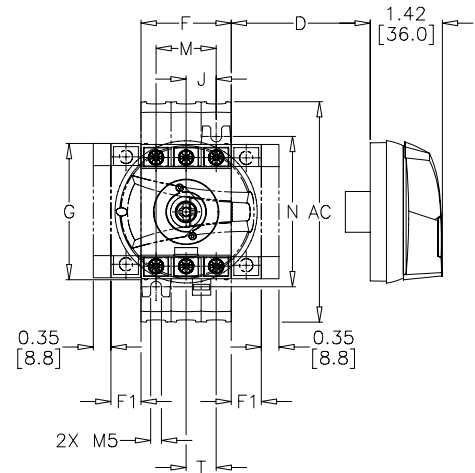


## Dimensions [inches/mm]

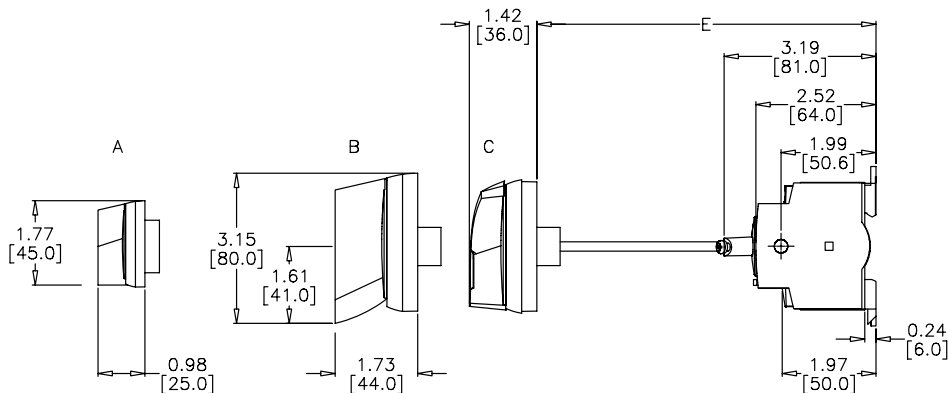
**Switch w/direct handle**



**Switch w/external handle side operation**



**Switch w/external handle front operation**



Dimensions													
Switch Body Rating (A)	Units	Overall Dimensions				Terminal Shrouds AC	Switch Body				Switch Mounting		Connection
		D min	D Max	E min	E max		F	F1	G	J	M	N	
16 - 40	in	1.18	9.25	3.94	14.64	4.33	1.77	0.59	2.67	0.59	1.18	2.95	0.59
	mm	30	235	100	372	110	45	15	68	15	30	75	15
63 - 80	in	1.18	9.25	3.94	14.64	4.33	2.06	0.69	2.99	0.69	1.38	3.35	0.69
	mm	30	235	100	372	110	52.5	17.5	76	17.5	35	85	17.5

Please see our website [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete engineering drawings.

# SIRCO M UL 508 Enclosed Non-Fusible Disconnect Switches



Our enclosed UL 508 switches allow for the safe control and disconnection of any motor application.

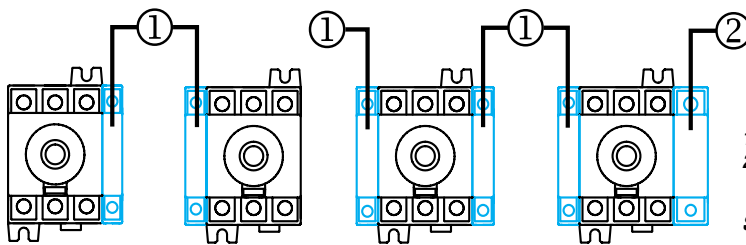
## General characteristics

- Gray enclosure with red handle
- Equipped with a 3 pole SIRCO M
- 1 removable ground terminal
- Possibility of adding 1 power pole and 1 auxiliary contact
- Operating temperature -20° to +70°C [-4° to +158°F]
- Polycarbonate plastic
- Flammability UL94-5VA
- Nema/UL type 1, 3R, 12, 4, 4X

UL 508 Enclosed Non-Fusible Disconnect Switches						Accessories		
Part Number	Enclosure Rating (A)	No. of Poles	Enclosure Size	Weight lb (kg)	Price	Switched 4th Pole Module	Auxiliary Contacts	Terminal Shrouds (Line & Load)
<b>22143503</b>	30	3	1	1.25 (0.56)	\$66.00	1P <b>22001003-UL</b> \$12.00	1 NO / 1 NC <b>22990001-UL</b> \$13.75	1P <b>22941005</b> \$2.00
<b>22243503</b>			2	1.60 (0.72)	\$74.75			3P <b>22943005</b> \$3.00
<b>22243506</b>	60	3	2	1.80 (0.82)	\$91.00	—	2 NO <b>22990011-UL</b> \$14.75	1P <b>22941009</b> \$2.50
								3P <b>22943009</b> \$4.00

Note: 2294100x fits 4th pole module only

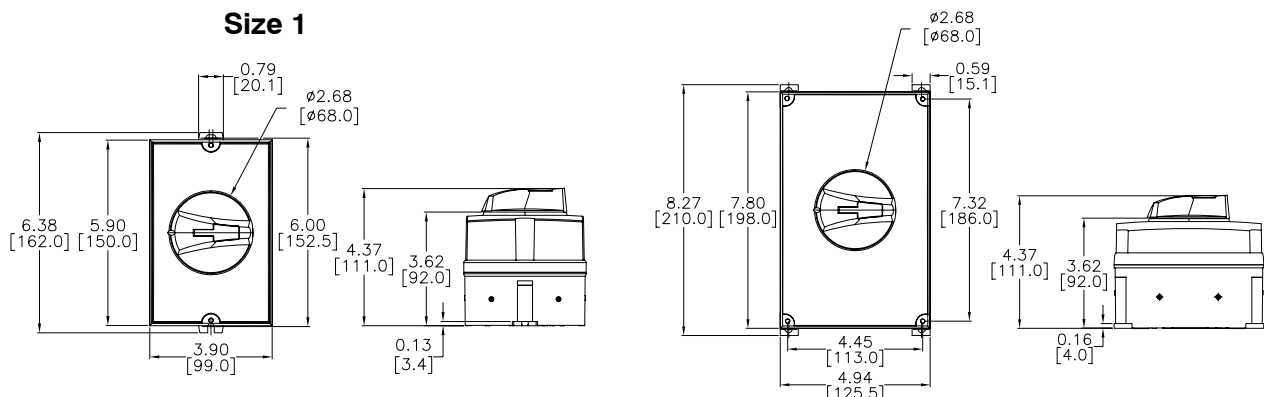
## Configuration of the Auxiliary Contacts



1. M Type auxiliary contacts  
2. Additional 4th pole

See switch body drawings for dimensions

## Dimensions [inches/mm]

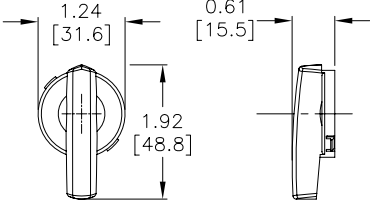


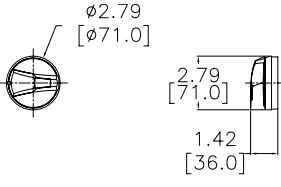
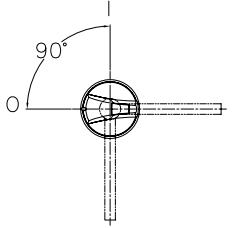
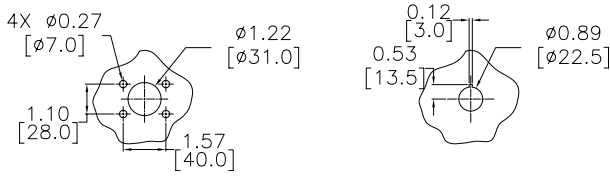
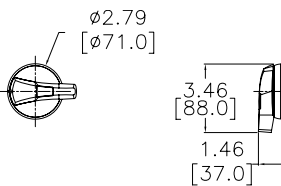
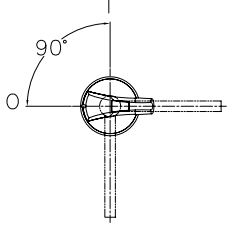
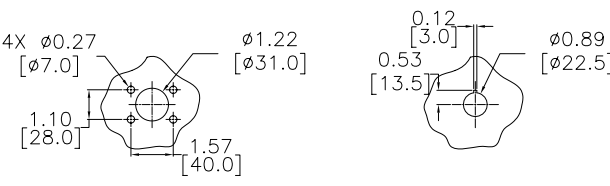
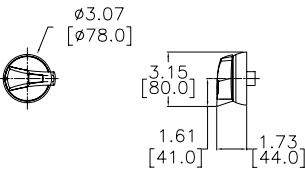
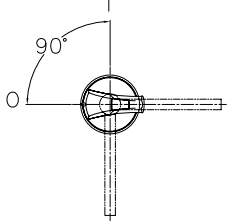
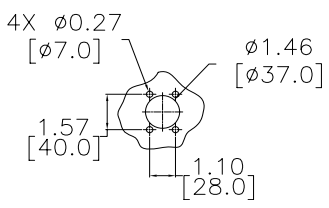
Please see our website [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete engineering drawings.

# Accessories Dimensions

## Handles

[inches/mm]

Direct Handle for UL 508 Non-Fusible Disconnect Switches	
22995012	
Handle Dimensions	
	

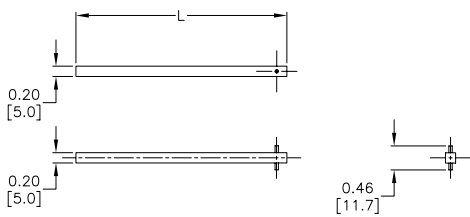
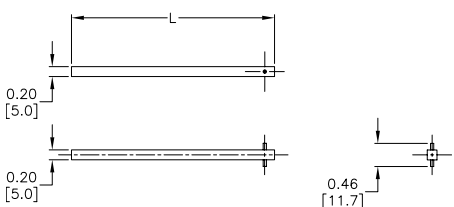
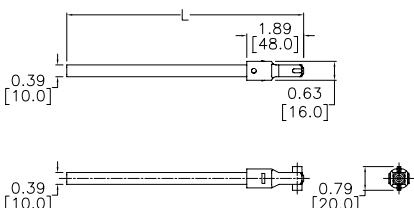
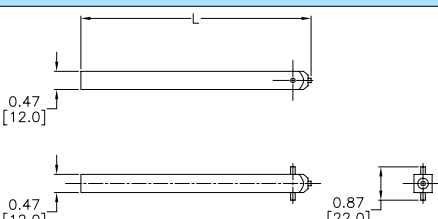
External Handles for UL 508 Non-Fusible Disconnect Switches		
S00 Type		
<b>Handle Dimensions</b> 	<b>Direction of Operation</b> 	<b>Door Drilling</b> 
S0 Type		
<b>Handle Dimensions</b> 	<b>Direction of Operation</b> 	<b>Door Drilling</b> 
S01 Type		
<b>Handle Dimensions</b> 	<b>Direction of Operation</b> 	<b>Door Drilling</b> 

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# Accessories Dimensions

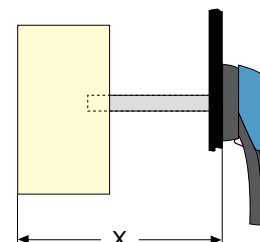
## Shafts for Non-Fusible Disconnect Switches

[inches/mm]

Shafts for Non-Fusible Disconnect Switches				
Shafts for S00, S0 Handle Type	Part Number	Switch Body Rating (A)	Length	
			in	mm
	14070515	16 - 100	5.9	150
	14070520		7.9	200
	14070532		12.6	320
Shafts for S01 Handle Type	Part Number	Switch Body Rating (A)	Length	
			in	mm
	14040520	16 - 100	7.9	200
	14040532		12.6	320
	14040540		15.7	400
Shafts for S1, S2 Handle Type	Part Number	Switch Body Rating (A)	Length	
			in	mm
	14001020	100 - 400	7.9	200
	14001032		12.6	320
	14001040		15.7	400
Shafts for S3 Handle Type	Part Number	Switch Body Rating (A)	Length	
			in	mm
	14011520	600	7.9	200
	14011532		12.6	320
	14011540		15.7	400

Please see our website [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete engineering drawings.

Shaft Length Minimum Dimensions						
Use standard lengths: - 7.9 in / 200mm - 12.6 in / 320mm - 15.7 in / 400mm						
Switch Body Rating (A)	Dimension X		Handle Type	Length		Part Number
	in	mm		in	mm	
100 - 400	5.31 - 10.43	135 - 265	S2	7.9	200	14001020
100 - 400	5.31 - 15.16	135 - 385	S2	12.6	320	14001032
100 - 400	5.31 - 18.31	135 - 465	S2	15.7	400	14001040
600	8.70 - 13.50	221 - 343	S3	7.9	200	14011520
600	8.70 - 18.23	221 - 463	S3	12.6	320	14011532
600	8.70 - 21.38	221 - 543	S3	15.7	400	14011540

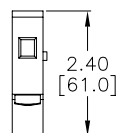
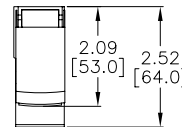
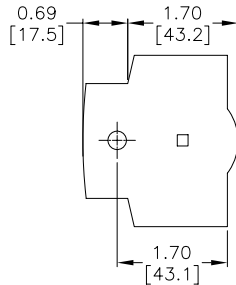
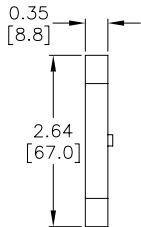
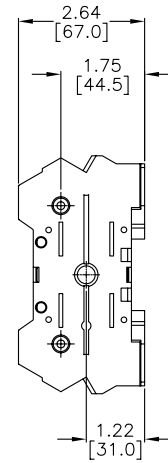
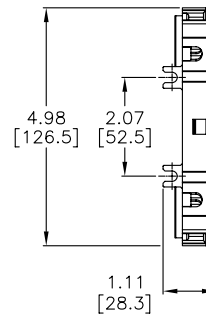
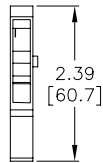
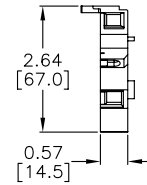
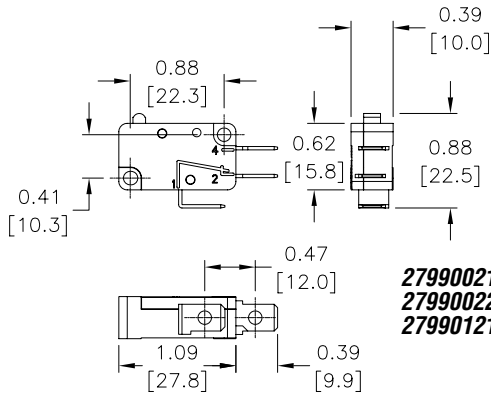




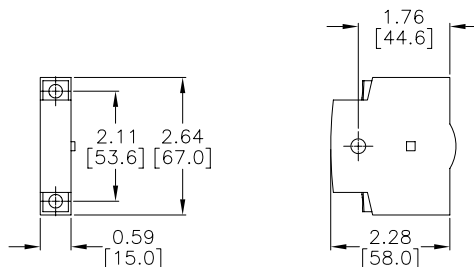
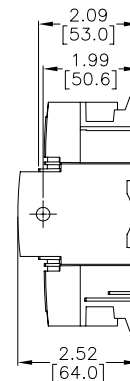
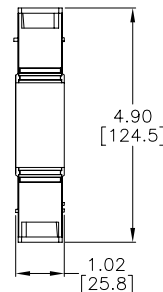
# Accessories Dimensions

## Auxiliary Contacts and Additional Poles

[inches/mm]



**22001000-UL**  
**22001001-UL**  
**22001002-UL**  
**22001003-UL**  
**22001004-UL**



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# Disconnect Switches

## Introduction

### UL®/CSA® Standards for Disconnect Switches

#### UL 98 – Enclosed and Deadfront Switches (CSA C22.2 No. 4)

These requirements cover enclosed or deadfront switches, with or without provision for fuses, at 600V or less. These products are used as disconnecting means without restrictions; they are heavy-duty products requiring 2 inches (50mm) minimum of creepage distance between phases, which gives maximum safety for users and installation. The short-circuit withstand of these products goes up to 200kA.

#### UL 489 – Molded Case Switches (CSA C22.22 No. 5)

These requirements cover molded case circuit breakers, molded case switches and fused molded case switches, rated at 600V or less and 6000A or less.

### NFPA® 79 Electrical Standard for Industrial Machinery

The following types of machines are identified as industrial machinery:

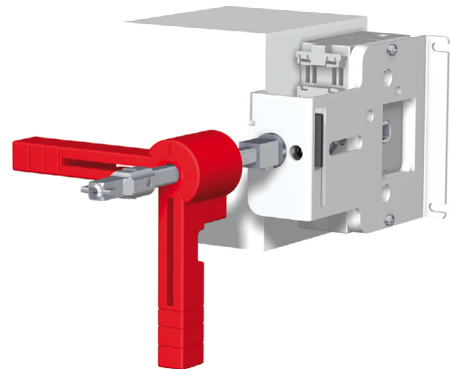
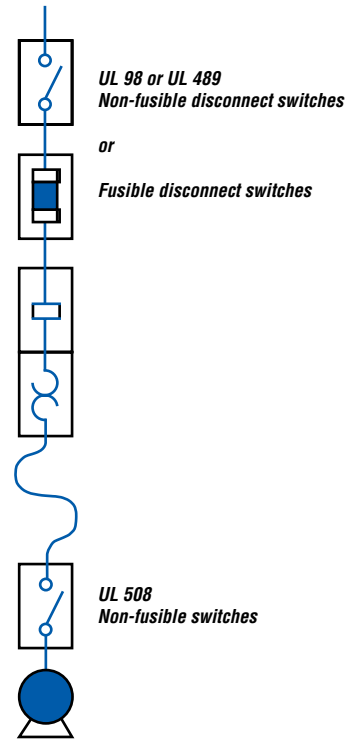
- Metalworking machine tools, including machines that cut or form metal
- Plastics machinery
- Wood machinery, including woodworking, laminating and sawmill machines
- Assembly machines
- Material handling machines, including industrial robots and transfer machines
- Inspection and testing machines, including coordinate measuring and in-process gauging machines

### UL® Standards for Electrical Machinery

#### UL 508 – Industrial Control Equipment (CSA C22.2 No. 14)

These requirements cover manual, magnetic and solidstate starters and controllers, overload relays, pushbuttons, selector switches and control lights. These products are smaller, requiring only a creepage distance between phases of 0.50 inch (12.7 mm). Their use as a disconnecting means is limited to local disconnection of motors. These products can be used as a disconnect means only when they have been additionally tested “suitable as motor disconnect.” This additional testing ensures that the switch has a proper closing capacity on a short circuit. UL 508 devices cannot be used as main disconnect of an electrical panel, e.g., at the entrance of control panels. A manual motor controller marked “suitable as motor disconnect” shall be installed only on the load side of the branch circuit protective device [UL 508A 30.3.3 and NEC 430.109 (6)].

### Typical Control Panel



### Meeting the requirements of UL508A and NFPA79

#### The disconnect shall be operable independent of the door position.

The disconnect must be operable, by qualified persons, independent of the door position without the use of accessory tools or devices.

**Note:** NFPA 79; Paragraph 5.3.3.1 (5).

An operating mechanism for the disconnecting means shall be operable independent of the door position without the use of accessory tools or devices.


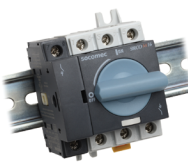



**Note:** UL 508A; Paragraph 66.6.3 c.

# Non-Fusible Disconnect Switches



## Selection Guide

- Which application?
- Which function?
- Which operation handle?
- Which type of breaking?

Machine Control			Power Distribution	
UL 98 Compact Non-Fusible Disconnect Switches	UL 508 Non-Fusible Disconnect Switches	UL 508 Non-Fusible Enclosed Disconnect Switches	UL 98 Non-Fusible Disconnect Switches	UL 98B DC Non-Fusible Disconnect Switches
				
22013003 22013006 22003010-UL	22003000-UL, 22003001-UL 22003002-UL, 22003003-UL 22003004-UL, 22003006-UL 22003008-UL	22143503 22243503 22243506	27003011, 27004011 27003021, 27004021 27003041, 27003060	270C3011 270C4011 270C3021 270C4021

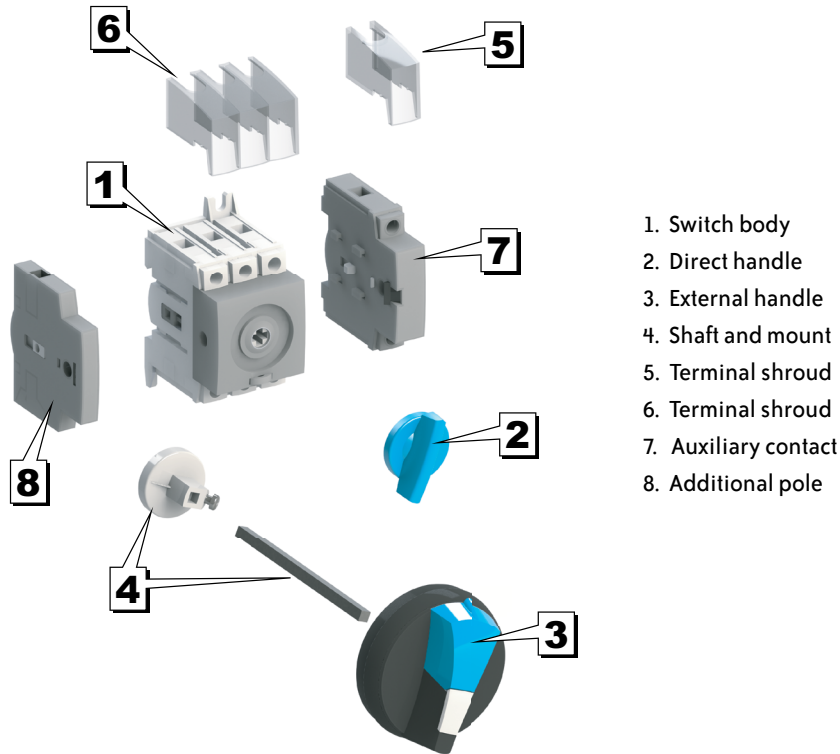
Applications					
Main switchboard		✓	✓	✓	✓
Distribution panel		✓	✓	✓	✓
Emergency disconnect		✓	✓	✓	✓
Local safety disconnect (padlockable)		✓	✓	✓	✓
Photovoltaic disconnect					✓
Enclosed switches		✓	✓	✓	✓
Functions					
3/4 pole non-fusible disconnect switch		✓	✓	✓	✓
Characteristics					
Operation	Manual (rotating)	✓	✓	✓	✓
Direct operation handle	Front	✓	✓	✓	✓
External operation handle	Front	✓	✓	✓	✓
	Right side		✓		
Indication of breaking	Positive break indication	✓	✓	✓	✓
Switch body	Modular	✓	✓	✓	

# Non-Fusible Disconnect Switches

## Assembly of Accessories

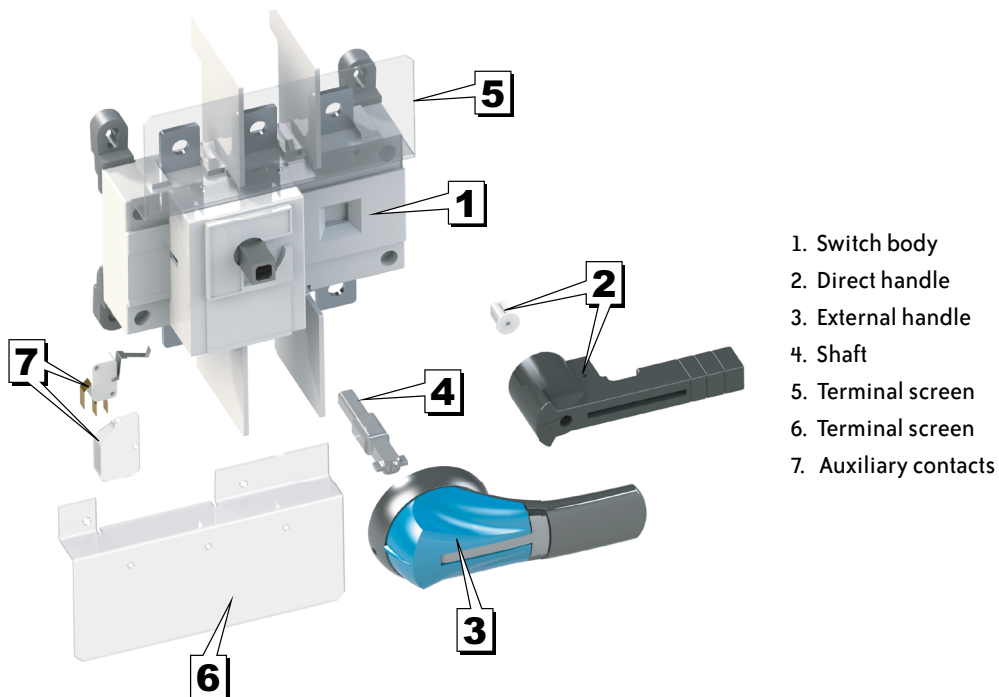


### Non-fusible 16 - 100A Disconnect Switches Accessories



1. Switch body
2. Direct handle
3. External handle
4. Shaft and mount
5. Terminal shroud
6. Terminal shroud
7. Auxiliary contact
8. Additional pole

### Non-fusible 100 - 600A Disconnect Switches Accessories



1. Switch body
2. Direct handle
3. External handle
4. Shaft
5. Terminal screen
6. Terminal screen
7. Auxiliary contacts