

SIRCO UL 98 Non-Fusible Disconnect Switches



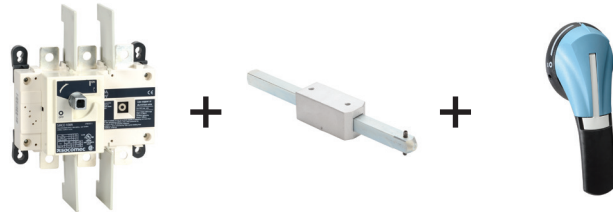
To assemble a switch, please select:

Direct Operation

External Operation



OR



Switch Body

Direct Handle

Switch Body

Shaft

External Handle

UL 98 Non-Fusible Disconnect Switches

Part Number	Description	Amp Rating	# of Poles	Price
27003011	Non-fusible 600VAC rotary disconnect switch, 200kA	100	3	\$176.00
27004011			4	\$206.00
27003021		200	3	\$274.00
27004021			4	\$302.00
27003041		400	3	\$655.00
27003060		600	3	\$1,134.00

Handles – Defeatable and Lockable

Part Number	Description	Switch Body Rating (A)	Handle Color	Handle Type	NEMA/UL Type	Price
26995052	Mounts directly on switch, no shaft required*	100-400	Black	—	—	\$18.00
37996012		600	Black	—	—	\$36.50
142F2111	External front handles, shaft required	100-400	Black/Blue	S2	1, 3R, 12	\$49.00
142G2111			Red/Yellow			\$49.00
142D2111			Black/Blue		4, 4X	\$68.00
142E2111			Red/Yellow			\$68.00
143D3111		600	Black/Bue	S3		\$81.00
143E3111			Red/Yellow		\$81.00	
143F3111			Black/Blue		1, 3R, 12	\$64.00
143G3111			Red/Yellow			\$64.00
142D2911		External heavy duty front handles, shaft required**	100-400	Black/Blue	S2	4, 4X
142E2911	Red/Yellow			\$85.00		
143D3911	600		Black/Blue	S3	\$112.00	
143E3911			Red/Yellow		\$112.00	

* Not defeatable.

** Heavy duty handles have larger metal hasp to accommodate multiple locking devices.



Shafts for External Handles

Part Number	Switch Body Rating (A)	Handle Type	Length (in)	Length (mm)	Price
14001020	100-400	S1, S2	7.9	200	\$12.50
14001032			12.6	320	\$13.50
14001040			15.7	400	\$15.00
14011520	600	S3	7.9	200	\$16.00
14011532			12.6	320	\$21.50
14011540			15.7	400	\$24.00



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Shaft Guide for External Handle

Part Number	Description	Fits Handle Type	Price
<u>14290000</u>	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	S01, S1, S2, S3	\$6.75

[14290000](#)

Auxiliary Contacts

Part Number	Description	Switch Body Rating (A)	Type	Contacts	Price
<u>27990021</u>	Auxiliary Contact Block: 1 Form C, 10A @ 125 VAC	100-600	C Type standard level	1 NO / 1 NC	\$13.50
<u>27990022</u>	Auxiliary Contact Block: 1 Form C, 10A @ 125 VAC, 2/pk			1 NO / 1 NC	\$18.00
<u>27990121</u>	Auxiliary Contact Block: 1 Form C, 1A @ 125 VAC, low impedance		C Type low impedance	1 NO / 1 NC	\$15.50
<u>27990122</u>	Auxiliary Contact Block: 1 Form C, 1A @ 125 VAC, low impedance, 2/pk			1 NO / 1 NC	\$25.00

[27990021](#)

Terminal Screens

Part Number	Description	Switch Body Rating (A)	No. of Poles	Position	Price
<u>27983021</u>	Terminal screens provide line or load protection against direct contact with terminals or connection parts.	100-250	3	Line	\$21.50
<u>27988021</u>				Load	\$21.50
<u>27984021</u>			4	Line or load	\$25.00
<u>27983041</u>		400	3	Line	\$32.00
<u>27988041</u>				Load	\$32.00
<u>27983060*</u>		600		Load	\$71.00

[27983021](#)

* Load side screen, the line side is included with the switch.

Terminal Lugs

Part Number	Description	Switch Body Rating (A)	Wire Range	Lugs per kit	No cables per lug	Price
<u>39542020</u>	Terminal lug kits allow for the connection of bare copper cables on to the terminals (no spade lugs). Cable type Cu/Al.	100-250	#6 - 300MCM	2	1	\$18.00
<u>39543020</u>				3		\$27.00
<u>39544020</u>				4		\$35.00
<u>39543040</u>		400	#4 - 600MCM	3	2	\$69.00
<u>39543041</u>			2x (#6 - 350MCM)			\$94.00
<u>39543060</u>		600	2x (#2 - 600MCM)			\$141.00

[39542020](#)

SIRCO UL 98 Non-Fusible Disconnect Switches



Technical Characteristics

Characteristics According to UL 98 / CSA 22.2#4				
	<u>27003011</u> <u>27004011</u>	<u>27003021</u> <u>27004021</u>	<u>27003041</u>	<u>27003060</u>
General use rating (A)	100	200	400	600
Short-circuit rating at 600VAC (kA)	200	200	200	200
Type of fuse	J	J	J	J
Max fuse rating (A)	100	200	400	600
Max. motor hp / FLA 3-phase motor max.				
220-240 VAC	30 / 80	75 / 192	125 / 312	200 / 480
440-480 VAC	75 / 96	150 / 180	250 / 302	400 / 477
600VAC	100 / 99	200 / 192	350 / 336	350 / 336
Max. motor hp / FLA 1-phase motor max.				
240VAC	10 / 50	10 / 50	–	–
Max. motor hp / DC FLA motor max.				
120VDC ¹	10 / 76	15 / 112	20 / 148	20 / 148
250VDC ²	15 / 55	15 / 55	50 / 173	50 / 173
Wire type/temperature	Cu / 75°C (167°F)			
Product weight – lb (kg)				
3-pole	4.2 (1.91)	4.2 (1.91)	10.0 (4.6)	18.1 (8.2)
4-pole	5.0 (2.3)	5.0 (2.3)	12.3 (5.6)	23.9 (10.9)
Wire range				
Stranded (AWG)	#6-300MCM	#6-300MCM	#4-600MM	(2) #2-600MCM
Torque – lb·in (N·m)	275 (31)	275 (31)	550 (62)	375 (42.4)
Stranded (AWG)	–	–	(2) 1/0-250MCM	–
Torque – lb·in (N·m)	–	–	550 (62)	–
Stranded (AWG)	–	–	(2) #6-2	–
Torque – lb·in (N·m)	–	–	200 (22.6)	–
Stranded (AWG)	–	–	(2) #1-350MCM	–
Torque – lb·in (N·m)	–	–	375 (42.4)	–
Environmental – switch body				
Operating temperature ³	-20°C to 70°C (-4°F to +158°F)			
Flammability rating	UL 94-V0			
Mechanical characteristics				
Endurance (number of operating cycles)	10,000	8,000	6,000	6,000
Operating torque (lb·in / N·m)	88.5 / 10	88.5 / 10	128.3 / 14.5	327.5 / 37
Mounting	Panel mount			
Auxiliary contacts				
Electrical characteristics	A300	A300	A300	A600
Approvals				
UL file # E201138 (UL 98), CSA file # 112964 (C22.2 NO. 4)				

¹ 2 pole in series² 3 pole in series³ 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 UL 98 Non-Fusible Disconnect Switches



Technical Characteristics

Characteristics According to IEC 60647-3				
	<u>27003011</u> <u>27004011</u>	<u>27003021</u> <u>27004021</u>	<u>27003041</u>	<u>27003060</u>
Thermal current I_{th} at 40°C (A)	100	200	400	600
Rated insulation voltage U_i (V)	1000	1000	1000	1000
Rated impulse withstand voltage U_{imp} (kV)	12	12	12	12
Rated operational currents I_e				
400VAC / AC-22A utilization category (A) ¹	100	200	400	630
400VAC / AC-23A utilization category (A) ¹	100	200	400	630
690VAC / AC-22A utilization category (A) ¹	100	200	400	500
Connection				
Min. Cu cable cross section (mm ²)	35	70	185	2 x 150
Min. Cu busbar (mm ²)	–	–	–	2 x 30 x 5
690VAC / AC-23A utilization category (A) ¹	100	200	315	200
Operational power in AC-23 (kW)^{2/3}				
@ 400VAC without prebreak AC in AC-23	51	100	220	355
@ 500VAC without prebreak AC in AC-23	63	140	280	450
@ 690VAC without prebreak AC in AC-23	90	185	185	185
Overload capacity (U_e 415VAC)				
Rated short-circuit making capacity I_{cm} (kA peak) ⁴	17.6	32	48	48

¹Category with index A = frequent operation.

²A/B: Category with index A = frequent operation - Category with index B = infrequent operation.

³The power value is given for information only, the current values vary from one manufacturer to another.

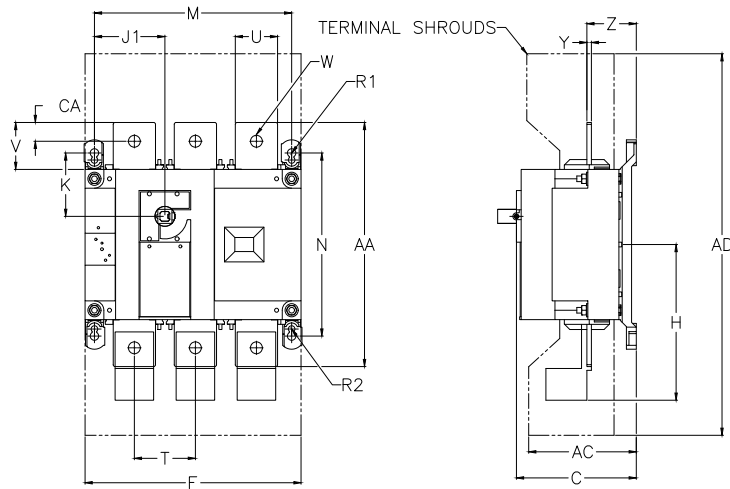
⁴For a rated operating voltage U_e = 400VAC

SIRCO UL 98 Non-Fusible Disconnect Switches

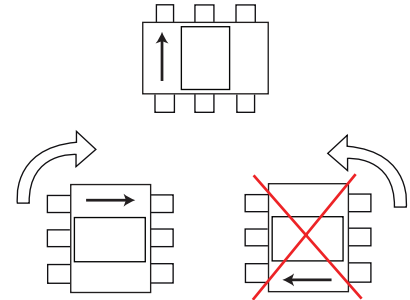


Dimensions [inches/mm]

27003011, 27004011, 27003021, 27004021, 27003041



Mounting Orientation

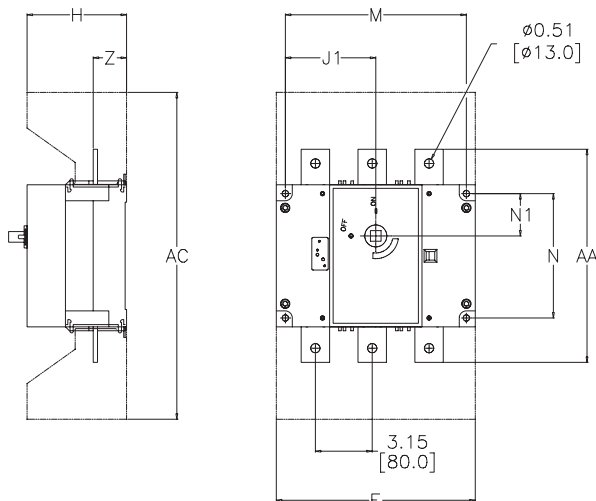


Note: The switch will operate correctly when rotated clockwise 90 degrees.
The switch will not operate correctly when rotated counter-clockwise 90 degrees.

Dimensions

Switch Body Rating (A)	Unit	Overall Dims	Terminal Shrouds			Switch Body					Switch Mounting					Connection							
		C	AC	AD	F 3p	F 4p	H	J1 3p	J1 4p	K	M 3p	M 4p	N	R1	R2	T	U	V	W	Y	Z	AA	CA
100	in	3.72	3.05	10.1	7.09	9.06	4.22	2.17	4.13	1.8	6.3	8.27	5.31	0.35	0.27	1.97	0.98	1.18	0.43	0.14	1.35	6.3	0.6
	mm	94.6	77.5	256	180	230	107	55	105	45.6	160	210	135	9	7	50	25	30	11	3.5	34.4	160	15
200	in	3.72	3.05	10.1	7.09	9.06	4.22	2.17	4.13	1.8	6.3	8.27	5.31	0.35	0.27	1.97	0.98	1.18	0.43	0.14	1.35	6.3	0.6
	mm	94.6	77.5	256	180	230	107	55	105	45.6	160	210	135	9	7	50	25	30	11	3.5	34.4	160	15
400	in	4.92	4.15	16	9.05	—	6.53	2.95	—	2.65	8.26	—	7.67	0.35	0.27	2.56	1.77	1.97	0.43	0.2	2.08	10.2	0.8
	mm	128	115	406	230	—	166	75	—	67.5	210	—	195	9	7	65	45	50	13	5	53	260	20

27003060



Dimensions

Switch Body Rating (A)	Unit	Terminal Shrouds	Switch Body					Switch Mounting				Connection	
		AC	F 3p	F 4p	H	J1 3p	J1 4p	M 3p	M 4p	N	N1	AA	Z
600	in	18.12	11	—	5.5	5	—	10.03	—	6.88	2.34	12.6	1.85
	mm	460	280	—	140	127.5	—	255	—	175	59.5	320	47

Please see our website www.AutomationDirect.com for complete engineering drawings.

Accessories Dimensions

Handles

[inches/mm]



Direct Handles for UL 98 Non-Fusible Disconnect Switches	
26995052	37996012
Handle Dimensions	Handle Dimensions

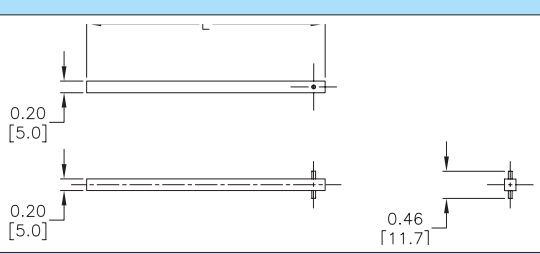
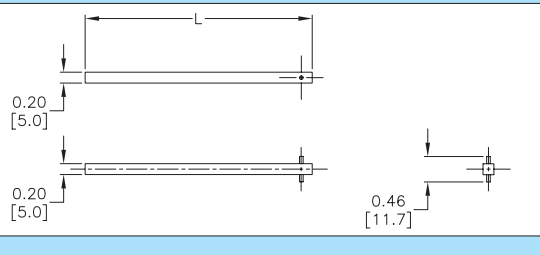
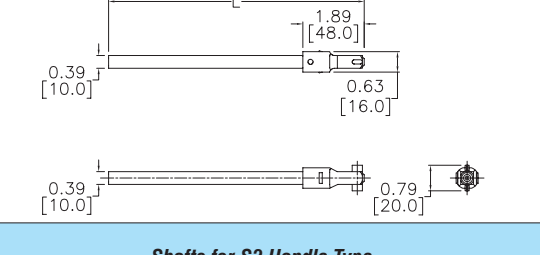
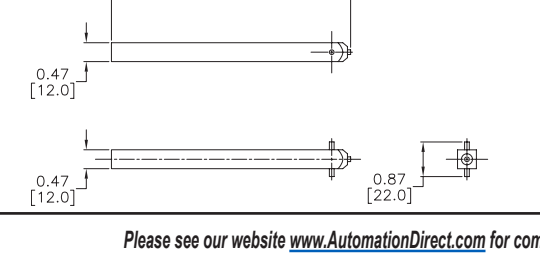
External Handles for UL 98 Non-Fusible Disconnect Switches		
S2 Type		
Handle Dimensions	Direction of Operation	Door Drilling
S3 Type		
Handle Dimensions	Direction of Operation	Door Drilling

Please see our website www.AutomationDirect.com for complete engineering drawings.

Accessories Dimensions

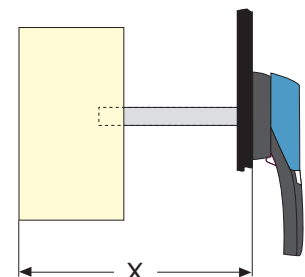
Shafts for Non-Fusible Disconnect Switches

[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 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

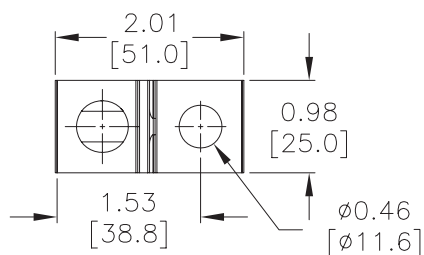


Accessories Dimensions

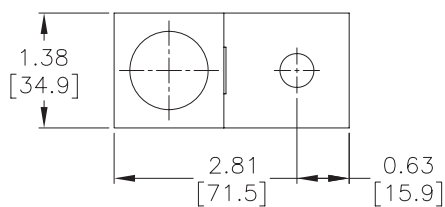


Lugs

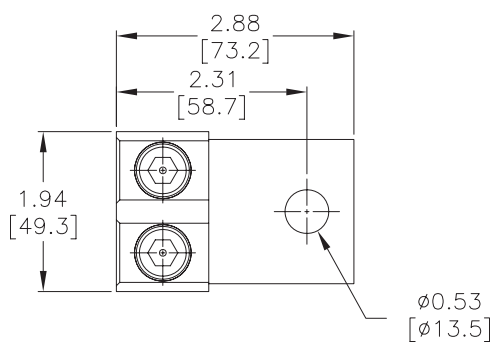
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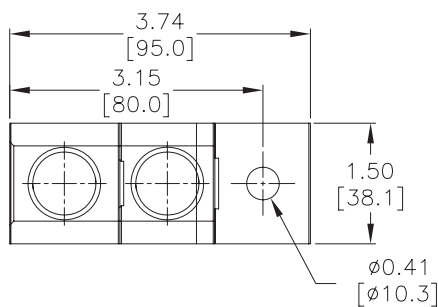
39542020, 39543020, 39544020



39543040



39543041



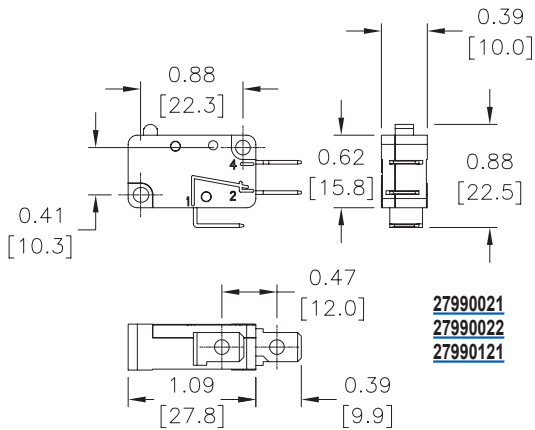
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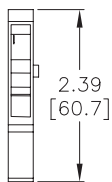
Accessories Dimensions

Auxiliary Contacts and Additional Poles

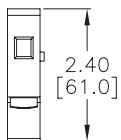
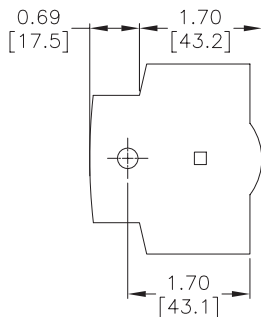
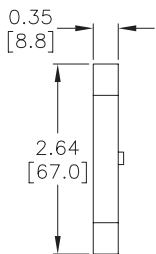
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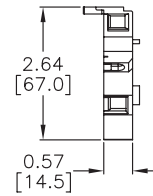
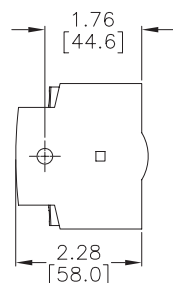
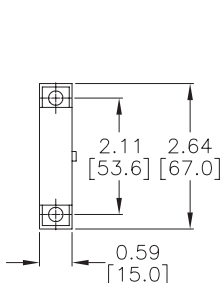
27990021
27990022
27990121



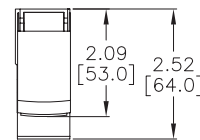
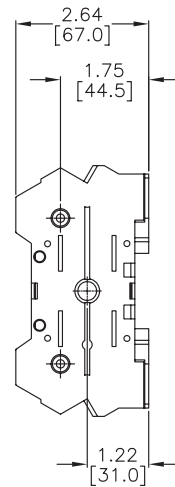
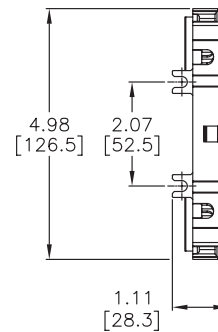
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22990011
39990701
39990702



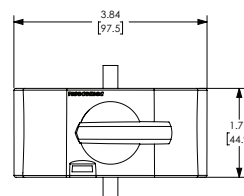
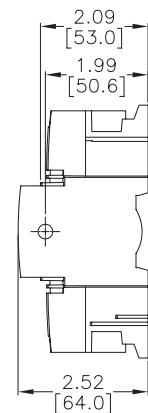
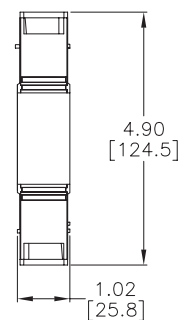
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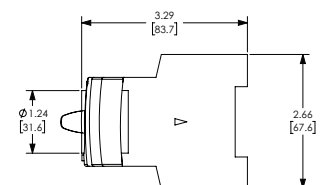
3999U041
3999U042



22011003
22011006
22001010
22005011
22009011



22696009



Please see our website www.AutomationDirect.com for complete engineering drawings.

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

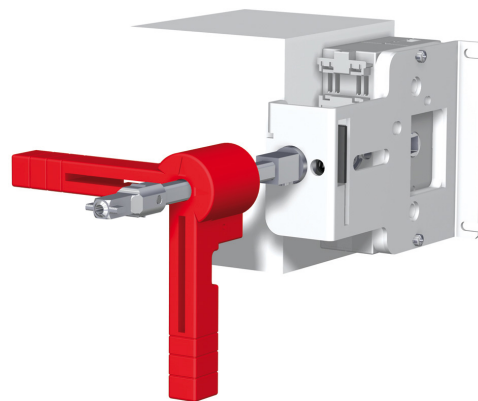
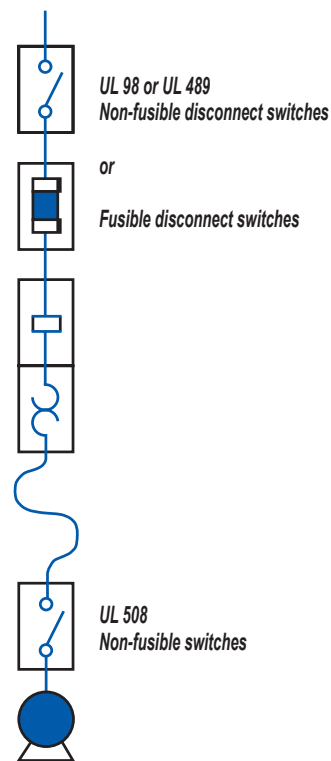
UL® Standards for Electrical Machinery

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.

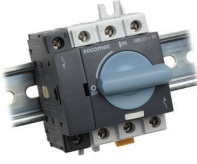
Note: UL 508A; Paragraph 66.6.3 c.

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	22003000 , 22003001 22003002 , 22003003 22003004 , 22003006 22003008	22143503 22243503 22243506	27003011 , 27004011 27003021 , 27004021 27003041 , 27003060	27DC3011 27DC4011 27DC3021 27DC4021

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	✓	✓		

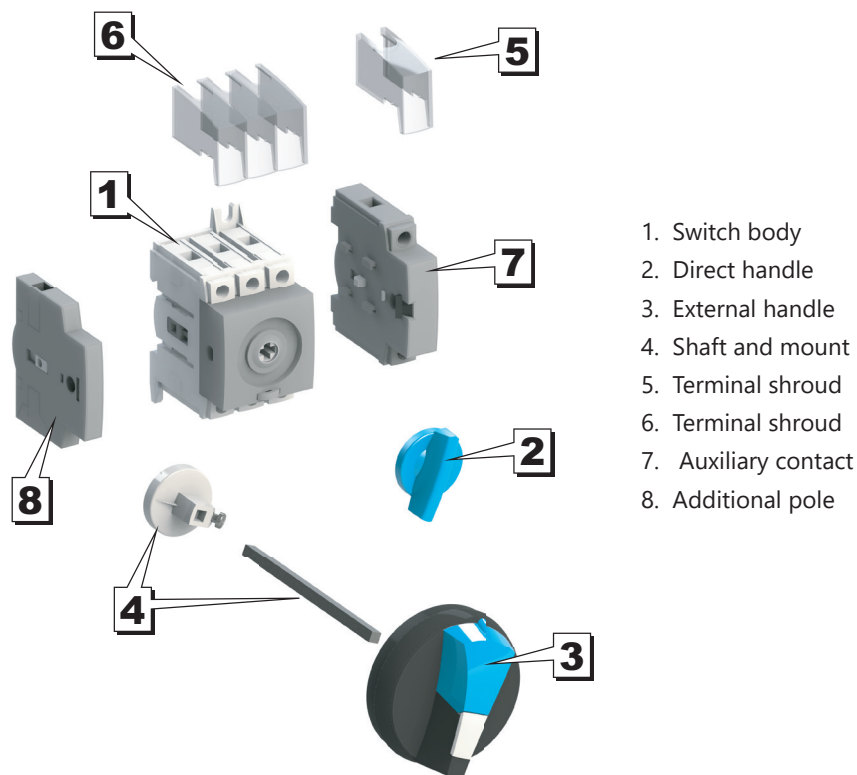
* Note: These part numbers are direct replacements for previous part numbers with a "-UL" suffix. They have identical technical specs, form, fit and function. There is no change in agency approvals, the UL mark, listing, or File numbers E173959 and E201138.

Non-Fusible Disconnect Switches

Assembly of Accessories



Non-fusible 16 - 100A Disconnect Switches Accessories



Non-fusible 100 - 600A Disconnect Switches Accessories

