

# 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
<a href="#">27003011</a>	Non-fusible 600VAC rotary disconnect switch, 200kA	100	3	\$169.00
<a href="#">27004011</a>			4	\$198.00
<a href="#">27003021</a>		200	3	\$263.00
<a href="#">27004021</a>			4	\$290.00
<a href="#">27003041</a>		400	3	\$630.00
<a href="#">27003060</a>		600	3	\$1,090.00

Handles – Defeatable and Lockable						
Part Number	Description	Switch Body Rating (A)	Handle Color	Handle Type	NEMA/UL Type	Price
<a href="#">26995052</a>	Mounts directly on switch, no shaft required*	100-400	Black	-	-	\$17.50
<a href="#">37996012</a>		600	Black	-	-	\$35.00
<a href="#">142F2111</a>	External front handles, shaft required	100-400	Black/Blue	S2	1, 3R, 12	\$47.00
<a href="#">142G2111</a>			Red/Yellow			\$47.00
<a href="#">142D2111</a>			Black/Blue			\$65.00
<a href="#">142E2111</a>			Red/Yellow			\$65.00
<a href="#">143D3111</a>		600	Black/Blue	S3	4, 4X	\$78.00
<a href="#">143E3111</a>			Red/Yellow			\$78.00
<a href="#">143F3111</a>			Black/Blue			\$62.00
<a href="#">143G3111</a>			Red/Yellow			\$62.00
<a href="#">142D2911</a>	External heavy duty front handles, shaft required**	100-400	Black/Blue	S2	4, 4X	\$82.00
<a href="#">142E2911</a>			Red/Yellow			\$82.00
<a href="#">143D3911</a>		600	Black/Blue	S3		\$108.00
<a href="#">143E3911</a>			Red/Yellow			\$108.00



\* 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
<a href="#">14001020</a>	100-400	S1, S2	7.9	200	\$12.00
<a href="#">14001032</a>			12.6	320	\$13.00
<a href="#">14001040</a>			15.7	400	\$14.50
<a href="#">14011520</a>	600	S3	7.9	200	\$15.50
<a href="#">14011532</a>			12.6	320	\$20.50
<a href="#">14011540</a>			15.7	400	\$23.00



# SIRCO UL 98 Non-Fusible Disconnect Switches



Shaft Guide for External Handle			
Part Number	Description	Fits Handle Type	Price
<a href="#">14290000</a>	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	\$6.50



[14290000](#)

Auxiliary Contacts					
Part Number	Description	Switch Body Rating (A)	Type	Contacts	Price
<a href="#">27990021</a>	Auxiliary Contact Block: 1 Form C, 10A @ 125 VAC	100-600	C Type standard level	1 NO / 1 NC	\$13.00
<a href="#">27990022</a>	Auxiliary Contact Block: 1 Form C, 10A @ 125 VAC, 2/pk			1 NO / 1 NC	\$17.50
<a href="#">27990121</a>	Auxiliary Contact Block: 1 Form C, 1A @ 125 VAC, low impedance		C Type low impedance	1 NO / 1 NC	\$15.00
<a href="#">27990122</a>	Auxiliary Contact Block: 1 Form C, 1A @ 125 VAC, low impedance, 2/pk			1 NO / 1 NC	\$24.00



[27990021](#)

Terminal Screens					
Part Number	Description	Switch Body Rating (A)	No. of Poles	Position	Price
<a href="#">27983021</a>	Terminal screens provide line or load protection against direct contact with terminals or connection parts.	100-250	3	Line	\$20.50
<a href="#">27988021</a>				Load	\$20.50
<a href="#">27984021</a>			4	Line or load	\$24.00
<a href="#">27983041</a>		400	3	Line	\$31.00
<a href="#">27988041</a>				Load	\$31.00
<a href="#">27983060*</a>			600	Load	\$68.00



[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
<a href="#">39542020</a>	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	\$17.50
<a href="#">39543020</a>				3		\$26.00
<a href="#">39544020</a>				4		\$33.50
<a href="#">39543040</a>		400	#4 - 600MCM	3	2	\$66.00
<a href="#">39543041</a>						2x (#6 - 350MCM)
<a href="#">39543060</a>				600		2x (#2 - 600MCM)



[39542020](#)

# SIRCO UL 98 Non-Fusible Disconnect Switches



## Technical Characteristics

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

<sup>1</sup> 2 pole in series<sup>2</sup> 3 pole in series<sup>3</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 UL 98 Non-Fusible Disconnect Switches



## Technical Characteristics

Characteristics According to IEC 60647-3				
	<b>27003011</b> <b>27004011</b>	<b>27003021</b> <b>27004021</b>	<b>27003041</b>	<b>27003060</b>
<b>Thermal current <math>I_{th}</math> at 40°C (A)</b>	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
<b>Rated operational currents <math>I_e</math></b>				
400VAC / AC-22A utilization category (A) <sup>1</sup>	100	200	400	630
400VAC / AC-23A utilization category (A) <sup>1</sup>	100	200	400	630
690VAC / AC-22A utilization category (A) <sup>1</sup>	100	200	400	500
<b>Connection</b>				
Min. Cu cable cross section (mm <sup>2</sup> )	35	70	185	2 x 150
Min. Cu busbar (mm <sup>2</sup> )	–	–	–	2 x 30 x 5
690VAC / AC-23A utilization category (A) <sup>1</sup>	100	200	315	200
<b>Operational power in AC-23 (kW)<sup>2,3</sup></b>				
@ 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
<b>Overload capacity (<math>U_e</math> 415VAC)</b>				
Rated short-circuit making capacity $I_{cm}$ (kA peak) <sup>4</sup>	17.6	32	48	48

<sup>1</sup>Category with index A = frequent operation.

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

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

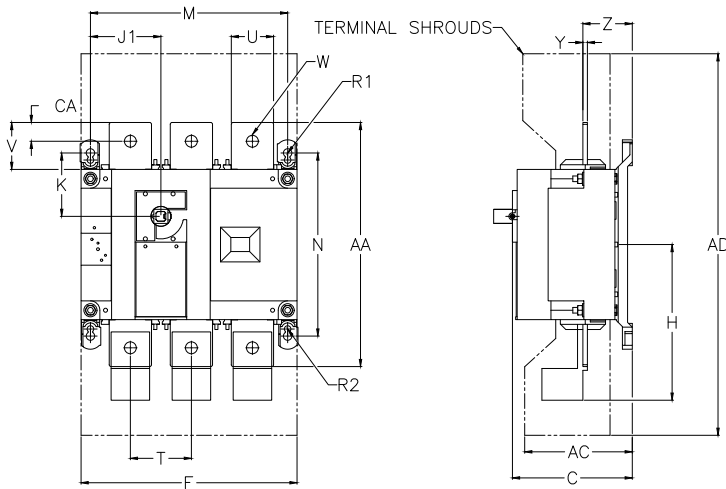
<sup>4</sup>For a rated operating voltage  $U_e$  = 400VAC

# SIRCO UL 98 Non-Fusible Disconnect Switches

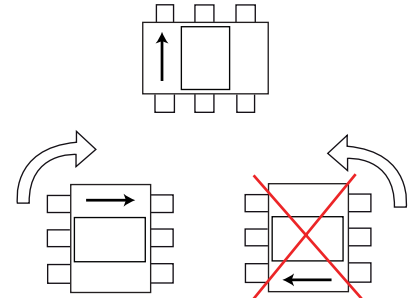


## Dimensions [inches/mm]

27003011, 27004011, 27003021, 27004021, 27003041



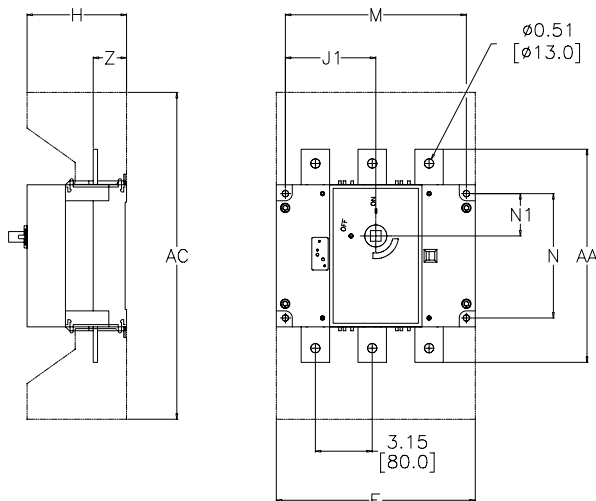
### Mounting Orientation



Note: The switch will operate correctly when rotated clockwise 90 degrees.  
The switch will not operate correctly when rotated counterclockwise 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](http://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](http://www.AutomationDirect.com) for complete engineering drawings.

# Accessories Dimensions



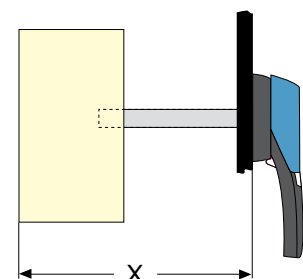
## Shafts for Non-Fusible Disconnect Switches

[inches/mm]

Shafts for Non-Fusible Disconnect Switches				
Shafts for S00, S0 Handle Type	Part Number	Switch Body Rating (A)	Length	
			in	mm
	<a href="#">14070515</a>	16 - 100	5.9	150
	<a href="#">14070520</a>		7.9	200
	<a href="#">14070532</a>		12.6	320
Shafts for S01 Handle Type	Part Number	Switch Body Rating (A)	Length	
	<a href="#">14040520</a>	16 - 100	7.9	200
	<a href="#">14040532</a>		12.6	320
	<a href="#">14040540</a>		15.7	400
Shafts for S1, S2 Handle Type	Part Number	Switch Body Rating (A)	Length	
	<a href="#">14001020</a>	100 - 400	7.9	200
	<a href="#">14001032</a>		12.6	320
	<a href="#">14001040</a>		15.7	400
Shafts for S3 Handle Type	Part Number	Switch Body Rating (A)	Length	
	<a href="#">14011520</a>	600	7.9	200
	<a href="#">14011532</a>		12.6	320
	<a href="#">14011540</a>		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	<a href="#">14001020</a>
100 - 400	5.31 - 15.16	135 - 385	S2	12.6	320	<a href="#">14001032</a>
100 - 400	5.31 - 18.31	135 - 465	S2	15.7	400	<a href="#">14001040</a>
600	8.70 - 13.50	221 - 343	S3	7.9	200	<a href="#">14011520</a>
600	8.70 - 18.23	221 - 463	S3	12.6	320	<a href="#">14011532</a>
600	8.70 - 21.38	221 - 543	S3	15.7	400	<a href="#">14011540</a>

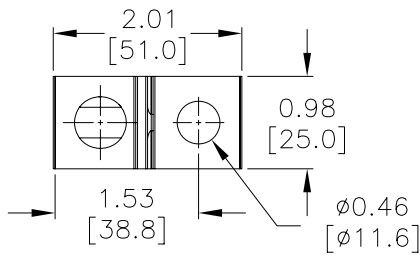


# Accessories Dimensions

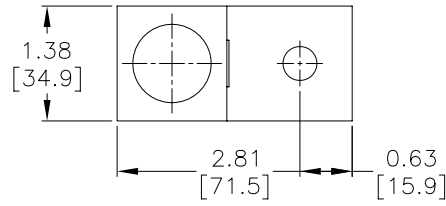


## Lugs

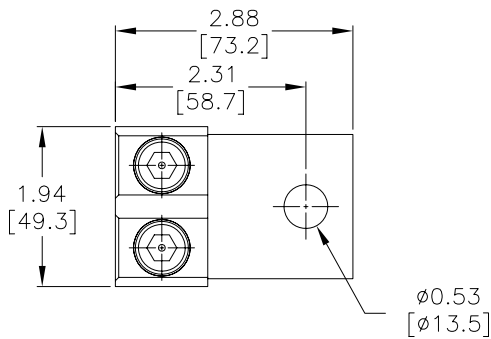
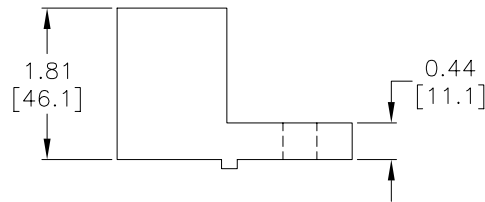
[inches/mm]



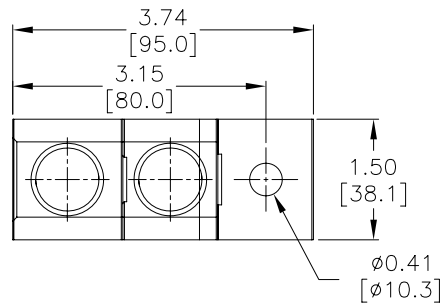
**39542020, 39543020, 39544020**



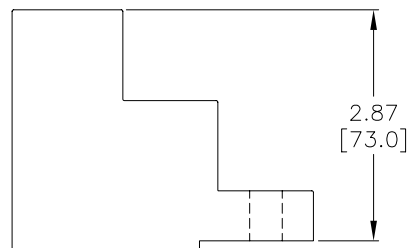
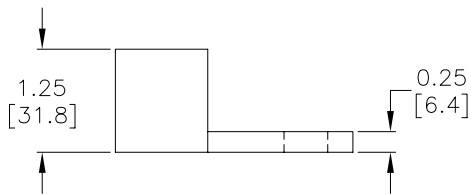
**39543040**



**39543041**



**39543060**



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

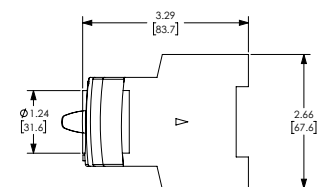
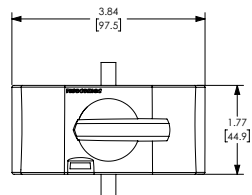
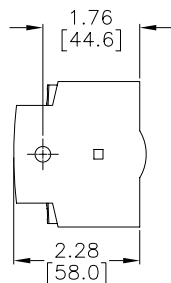
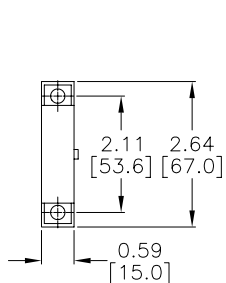
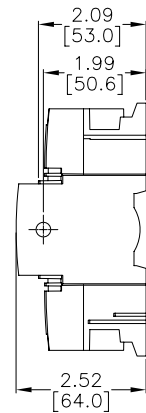
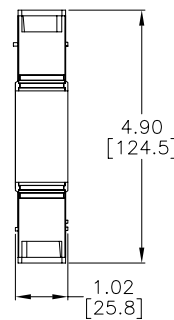
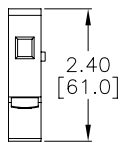
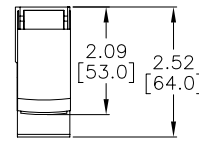
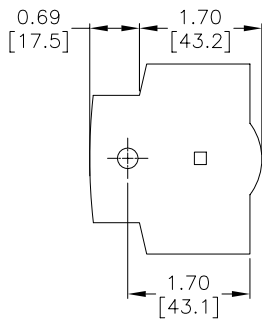
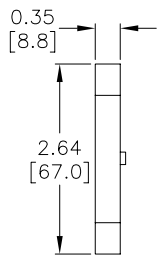
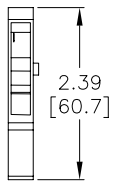
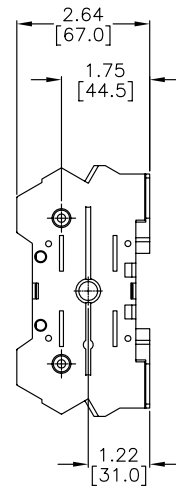
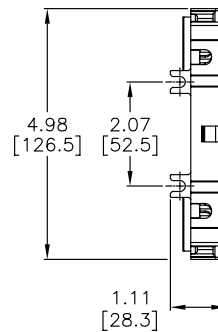
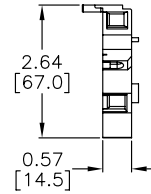
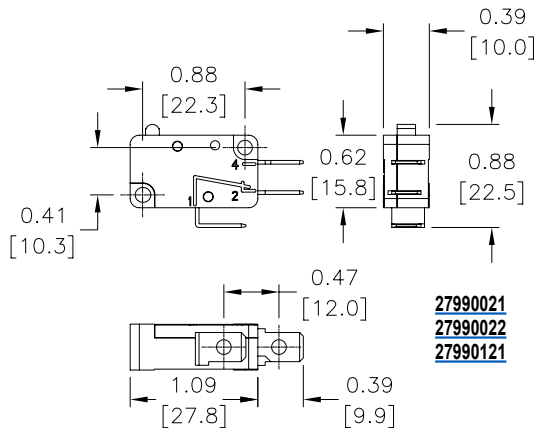


# Accessories Dimensions



## Auxiliary Contacts and Additional Poles

[inches/mm]



Please see our website [www.AutomationDirect.com](http://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

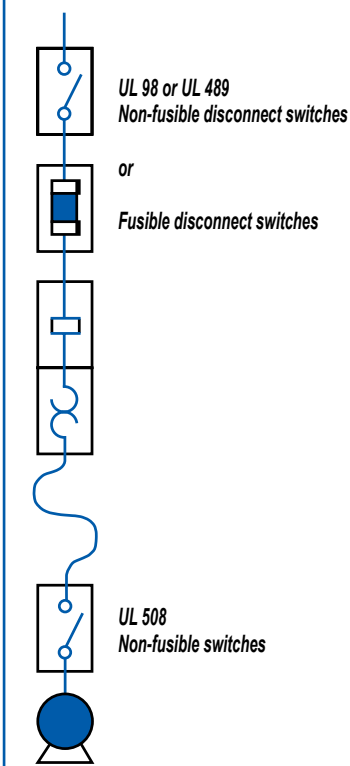
### **UL® Standards for Electrical Machinery**

#### **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
				
<a href="#">22013003</a> <a href="#">22013006</a> <a href="#">22003010</a>	<a href="#">22003000</a> , <a href="#">22003001</a> <a href="#">22003002</a> , <a href="#">22003003</a> <a href="#">22003004</a> , <a href="#">22003006</a> <a href="#">22003008</a>	<a href="#">22143503</a> <a href="#">22243503</a> <a href="#">22243506</a>	<a href="#">27003011</a> , <a href="#">27004011</a> <a href="#">27003021</a> , <a href="#">27004021</a> <a href="#">27003041</a> , <a href="#">27003060</a>	<a href="#">27DC3011</a> <a href="#">27DC4011</a> <a href="#">27DC3021</a> <a href="#">27DC4021</a>

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

\* 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

