

# The Essential Guide to Operating Mechanisms and Disconnect Switches

Catalogue  
2013





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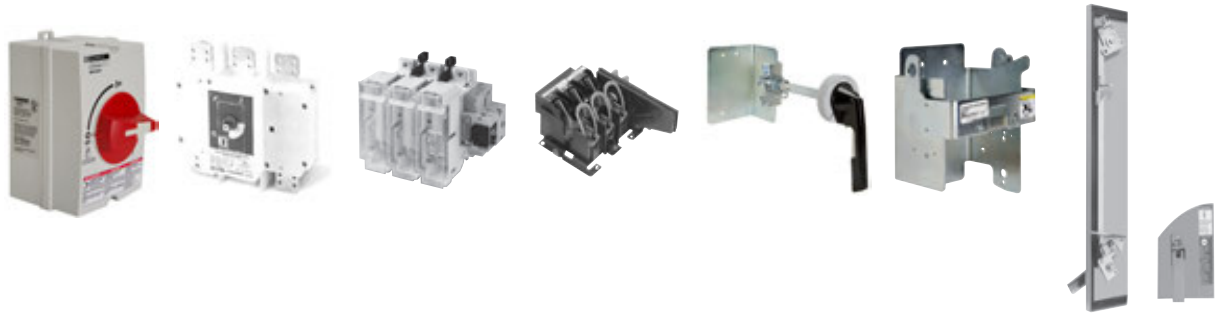
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# Operating Mechanisms and Disconnect Switches

## Selection Guide



Class	Vario	LK4	GS2	9422	9421	9422	9423
<b>Type</b>	Manual motor control switches	Nonfusible IEC style disconnect switches	Fusible IEC style disconnect switches	NEMA style fused or nonfusible disconnect switches	Circuit breaker operating mechanisms	Circuit breaker operating mechanisms	Door closing mechanisms
<b>UL Rating</b>	UL508	UL98	UL98	UL98	—	—	—
<b>Handle Type</b>	Rotary	Rotary	Rotary	Flange Adjustable rod or cable mechanism	Rotary	Flange Adjustable rod or cable mechanism	Rotary, works in conjunction with 9422 handle mechanisms
<b>Mounting</b>	Door or panel	—	Flange with cable mechanism panel	Panel or bracket mount	Panel	Panel	—
<b>Load Voltage (maximum)</b>	600 Vac	600 Vac	600 Vac	600 Vac	600 Vac	600 Vac	—
<b>Current Ratings</b>	10–115	30–1200	30–800	30–400	Circuit breaker frame sizes 100–1200	Circuit breaker frame sizes 100–1200	—
<b>Horsepower Ratings (maximum)</b>	2–60	7.5–500	7.5–500	7.5–350	—	—	—
<b>Enclosure Type</b>	Metallic: NEMA Type 1, 12, 4, 4X Plastic: IP55, NEMA Type 4X	Handle ratings: NEMA Type 1, 3R, 4, 4X, 12	Handle ratings: NEMA Type 1, 3R, 4, 4X, 12	Handle ratings: NEMA Type 1, 3R, 4, 4X, 12	Handle ratings: NEMA Type 1, 3R, 4, 4X, 12	Handle ratings: NEMA Type 1, 3R, 4, 4X, 12	Handle ratings: NEMA Type 4 and 12 sheet steel or stainless
<b>Accessories</b>	Power poles and auxiliary contacts	Auxiliary contacts and power lugs	Auxiliary contacts and power lugs	Auxiliary contacts	Auxiliary contacts	Auxiliary contacts	Right or left-hand operation
<b>Approvals</b>	UL File E164864 NLRV CSA File LR 81630 Class 3211 05	UL File E191098 WP2X/ WP2X7 CSA 703149 Class 4652 04	UL File E191098 WP2X/ WP2X7 CSA 703149 Class 4652 04	UL File E52639 WHTY2 CSA LR44199 Class 4652-04	UL File E62922 DIHS2 CSA LR44199 Class 3211 07	UL File E62922 DIHS2 CSA LR44199 Class 3211 07	—
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# UL508 Motor Disconnect Switches (CSA22.2 no 14)

## Mini-Vario and Vario™ Assembled and Enclosed Switches

The Mini-Vario and Vario motor disconnect switch catalog numbers can be identified as described in Table 1.



VCFN12GE



VN12



VN12/KCC1YZ



VBDN12



VCDN12

**Table 1: Identification System**

Model (V-Vario, K-Operator)		V	CF	N12	GE
<b>Operator Type/ Accessory Designation</b>					
CD	Single hole Red & Yellow	BD	Single hole Black and Gray		
CF	Four hole Red & Yellow	BF	Four hole Black and Gray		
CCD	Single hole Red & Yellow w/extension shaft	VE	Switch with Red handle installed on unit (one padlock only)		
CCF	Four hole Red & Yellow w/ extension shaft	VD	Switch with Black handle installed on unit (no padlock provision)		
Blank	No operator or accessory	Z	Accessory, power pole, neutral or ground		
<b>Switch Type ▲</b>					
Blank		1	Vario 20/32 A		
N12	Mini-Vario 10/12 A	2	Vario 25/40 A		
N20	Mini-Vario 16/20 A	3	Vario 45/63 A		
02	Vario 10/12 A	4	Vario 63/80 A		
01	Vario 16/20 A	5	Vario 100/125 A		
0	Vario 20/25 A	6	Vario 115/175 A		
<b>Enclosure Type (if applicable)</b>					
Blank	No Enclosure	G30, A30, W30 Type 1/12/4/4X Metallic (Class 9421)			
GE	Mini-Vario IP55 Non-Metallic	GU Vario IP55 Non-Metallic			

▲ Switches/contacts are dual rated (UL/IEC).

### Mini-Vario

**Table 2: Assembled Switches—Degree of Protection IP65, Type 1 and 12**

Rating (A)		Complete Switches for Door Mounting (3-Padlock)		Complete Switches for Rear Mounting, Includes Extension Shaft (3-Padlock)
		Red/Yellow (Single Hole)	Black/Gray (Single Hole)	Red/Yellow (Single Hole)
UL	IEC	Catalog Number	Catalog Number	Catalog Number
1	12	VCDN12	VBDN12	VCCDN12
1	20	VCDN20	VBDN20	VCCDN20

**Table 3: Enclosed Switches**

Complete Switches Mounted in IP55 Non-Metallic Enclosure
Red/Yellow Mounted in Sealable Enclosure, Non-UL Listed, Non-NEMA Rated
Catalog Number
VCFN12GE
VCFN20GE

**Table 5: Operators and Accessories**

Catalog Number	Description
KCC1YZ	45 x 45 mm Red & Yellow operator
KCD1PZ	60 x 60 mm Red & Yellow operator
KAD1PZ	60 x 60 mm Black & Gray operator
VZN17	300–340 mm shaft extension
VZN30	400–430 mm shaft extension
KZ32	Door interlocking plate for 45 or 60 mm operator
KZ83	Door mounting plate for 45 or 60 mm operator

**Table 4: Component Parts**

Catalog Number	Description
VN12▲	10/12 A switch only
VN20▲	16/20 A switch only
VZN12▲	Add on power pole for 10/12 A switch
VZN20▲	Add on power pole for 16/20 A switch
VZN11	Neutral Pole with early make, late break for VN12 or VN20 switch
VZN14	Grounding module for VN12 or VN20
VZN05	N.O. late make auxiliary contact ■
VZN06	N.C. early break auxiliary contact ■
VZN26	Single-pole shroud for auxiliary contacts
VZN08	Three-pole shroud for VN12 or VN20

▲ Switches/contacts are dual rated (UL/IEC).  
 ■ Auxiliary contacts are dual rated (UL/IEC 10/12 A).



VCCDN20

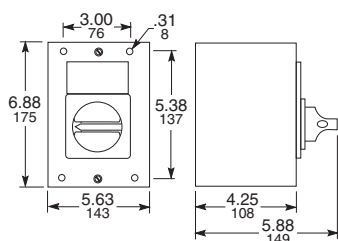
# UL508 Motor Disconnect Switches (CSA22.2 no 14)

## Mini-Vario and Vario™ Assembled and Enclosed Switches

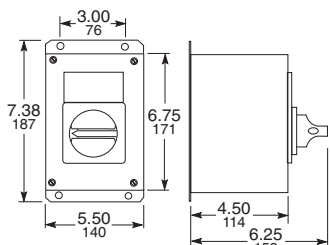


Metallic Enclosure

Metallic Enclosed Switch Dimensions



Class 9421 NEMA Type 1 V1G30, V2G30



Class 9421 NEMA Type 4, 4X, 12 V1W30, V2W30, V1A30, V2A30

### Vario

Table 6: NEMA Type 1 and 12 Assembled Switches for Door Mounting

Rating (A)		Complete Switches (Switch and Handle) for Door Mounting (3-padlock)			
UL	IEC	Red/Yellow (Four Hole)	Black/Gray (Four Hole)	Red/Yellow (Single Hole)	Black/Gray (Single Hole)
UL	IEC	Catalog No.	Catalog No.	Catalog No.	Catalog No.
10	12	VCF02	VBF02	VCD02	VBD02
16	20	VCF01	VBF01	VCD01	VBD01
20	25	VCF0	VBF0	VCD0	VBD0
20	32	VCF1	VBF1	VCD1	VBD1
25	40	VCF2	VBF2	VCD2	VBD2
45	63	VCF3	VBF3	—	—
63	80	VCF4	VBF4	—	—
100	125	VCF5	VBF5	—	—
115	175	VCF6	VBF6	—	—

Table 7: NEMA Type 1 and 12 Assembled Switches for Rear Mounting

Rating (A)		Complete Switches for Rear Mounting with Extension Shaft (3-Padlock)▲		Switches with Handles Installed on Unit, DIN Rail Mount Only	
UL	IEC	Red/Yellow (Four Hole)	Red/Yellow (Single Hole)	Red/Yellow (1-Padlock)	Black/Gray (No-Padlock)
UL	IEC	Catalog No.	Catalog No.	Catalog No.	Catalog No.
10	12	VCCF02	VCCD02	—	—
16	20	VCCF01	VCCD01	—	—
20	25	VCCF0	VCCD0	VVE0	VVD0
20	32	VCCF1	VCCD1	VVE1	VVD1
25	40	VCCF2	VCCD2	VVE2	VVD2
45	63	VCCF3	—	VVE3	VVD3
63	80	VCCF4	—	VVE4	VVD4
100	125	VCCF5	—	—	—
115	175	VCCF6	—	—	—

▲ Complete switch includes handle operator, shaft, door interlock plate, and line terminal shroud.

The V1 and V2 come in metallic enclosures (NEMA Type 1, 4, 4X, and 12). The NEMA Type 1 comes with conduit knockouts top and bottom. To factory install a VZ7 auxiliary contact in these metallic enclosures, add Form X11 to the end of the catalog number (for example, 9421V1G30X11). To factory install a VZ20 auxiliary contact in these enclosures, add Form X20 to the end of the catalog number (for example, 9421V1W30X20).

Table 8: Metallic Enclosed Switches ▲ ■

Rating (A)		Horsepower Ratings			NEMA Type 1	NEMA Type 12	NEMA Type 4/4X ■
UL	IEC	240 V	480 V	600 V	Catalog No.	Catalog No.	Catalog No.
20	32	5	10	10	9421V1G30	9421V1A30	9421V1W30
25	40	5	10	15	9421V2G30	9421V2A30	9421V2W30

▲ Assembled, includes switches mounted in enclosure with handle.

■ For indoor use only. The NEMA Type 4/4X enclosure is made of #304 stainless steel with 3/4 in. T&B stainless steel hubs on the top and bottom.

Table 9: Vario Manual Motor Control Switches, IEC

Rating (A) IEC	kW Rating				3-Pole Switch Body	
	230 V	240 V	400 V	415 V	500 V	690 V
12	3	3	4	4	5.5	7.5
20	4	4	5.5	5.5	7.5	11
25	5.5	5.5	7.5	7.5	11	15
32	5.5	5.5	11	11	11	15
40	7.5	7.5	15	15	18.5	15
63	15	15	22	22	30	22
80	18.5	18.5	30	30	37	30
125	22	22	37	37	45	37
175	30	30	45	45	55	45

### Vario Manual Motor Control Switches

Vario switches meet UL508 requirements as open manual motor controllers. They are also marked "Suitable as Motor Disconnect" allowing installation on the load side of the motor branch circuit short-circuit and ground-fault protection. If motor branch circuit short-circuit and ground-fault protection is needed, use a GS1 or 9422 fusible switch or circuit breaker meeting NEC430.52 and CEC requirements.



Manual Motor Control Switch

**Table 10: Vario Manual Motor Control Switches**

Rating (A)	Horsepower Rating			Shaft Size	3-Pole Switch Body
	240 V	480 V	600 V		
10	2	5	5	6	V02
16	3	7.5	7.5	6	V01
20	5	10	10	6	V0
20	5	10	10	6	V1
25	5	10	15	6	V2
45	10	20	30	8	V3
63	15	30	40	8	V4
100	25	50	50	8	V5
115	30	50	60	8	V6

**Table 11: Switch Body▲**

Rating (A)		Shaft Size mm	3-Pole Switch Body Type
UL	IEC		
10	12	6	V02
16	20	6	V01
20	25	6	V0
20	32	6	V1
25	40	6	V2
45	63	8	V3
63	80	8	V4
100	125	8	V5
115	175	8	V6

▲ Refer to Table 8 and Table 10 for horsepower ratings.

**Table 12: NEMA Type 1 and 12 Handle Operators: V02–V2 (6 mm Shaft), V3–V6 (8 mm Shaft) ▲**

Operator Type		Red/Yellow Single Hole 45 x 45 mm	Red/Yellow Four Hole 45 x 45 mm	Black/Gray Single Hole 45 x 45 mm	Black/Gray Four Hole 45 x 45 mm
Switches	No. of Padlocks	Catalog No.	Catalog No.	Catalog No.	Catalog No.
V02–V2	0	KCC1LZ	KCE1LZ	KAC1BZ	KAE1BZ
V02–V2	1	KCC1YZ	KCE1YZ	—	—
Operator Type		Red/Yellow Single Hole 60 x 60 mm	Red/Yellow Four Hole 60 x 60 mm	Black/Gray Single Hole 60 x 60 mm	Black/Gray Four Hole 60 x 60 mm
V02–V2	0	KDD1PZ	KDF1PZ	KBD1PZ	KBF1PZ
V3–V4	0	—	KDF2PZ	—	KBF2PZ
V02–V2	3	KCD1PZ	KCF1PZ	KAD1PZ	KAF1PZ
V3–V4	3	—	KCF2PZ	—	KAF2PZ
Operator Type		Red/Yellow Four Hole 90 x 90 mm	Black/Gray Four Hole 90 x 90 mm		
V5–V6	0	KDF3PZ	KBF3PZ		
V5–V6	3	KCF3PZ	KAF3PZ		

▲ When using these handles for replacements on the non-metallic enclosed switches, the handle shaft that comes with the enclosure must be reused.

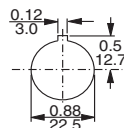
**Table 13: Low Profile Handle Operators▲**

Operator Type		Red/Yellow Single Hole 60 x 60 mm	Red/Yellow Four Hole 60 x 60 mm	Black/Gray Single Hole 60 x 60	Black/Gray Four Hole 60 x 60 mm
Switches	No. of Padlocks	Catalog No.	Catalog No.	Catalog No.	Catalog No.
V02–V2	3	KCD1YZ	KCF1YZ	KAD1XZ	KAF1XZ
V3–V4	3	—	KCF2YZ	—	KAF2XZ
Operator Type		Red/Yellow Four Hole 90 x 90 mm	Black/Gray Four Hole 90 x 90 mm		
V5–V6	3	KCG2YZ	KAG2XZ		

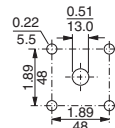
▲ When using these handles for replacements on the non-metallic enclosed switches, the handle shaft that comes with the enclosure must be reused.

**Table 14: Gasket Kits**

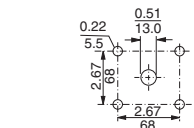
Catalog No.	Description
KZ65	45 x 45 mm gasket for V02-V2 for 4-hole type handles (order in quantities of 5)—IP65
KZ66	60 x 60 mm gasket for V02-V2 for 4-hole type handles (order in quantities of 5)
KZ62	60 x 60 mm gasket for V3-V4 for 4-hole type handles (order in quantities of 5)
KZ67	90 x 90 mm gasket for V5-V6 for 4-hole type handles (order in quantities of 5)—IP65



Single-Hole Mounting Dimensions



Four-Hole 60 x 60 Mounting Dimensions ▲

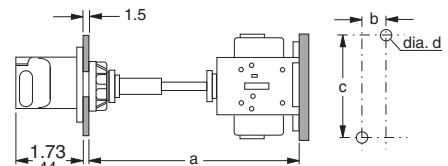


Four-Hole 90 x 90 Mounting Dimensions ▲

▲ The door interlock plate included with VCC Kits has the same drilling as the handle operators.

**Table 15: Rear/Panel Mounting Switch Body Dimensions**

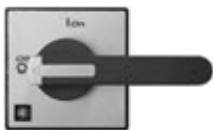
Type	Shaft Extension	Dimensions							
		a		b		c		d	
		in.	mm	in.	mm	in.	mm	in.	mm
V02 to V2	VZ17	5.5–13.0	140–330	0.60	15	2.4	60	0.17	4.2
	VZ30	5.5–16.9	140–430						
V3 to V4	VZ18	5.5–12.6	140–320	0.79	20	2.4	60	0.20	5.2
	VZ31	5.5–16.5	140–420						
V5 to V6	VZ18	6.5–13.8	165–350	1.20	30	3.9	100	0.28	7.0
	VZ31	6.5–17.7	165–450						



Single-Hole Operator



Four-Hole Operator (All except KDF3PZ and KBF3PZ)



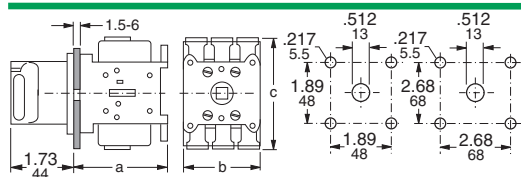
Four-Hole Operator KDF3PZ and KBF3PZ



Low-Profile Handle KCD1YZ

# UL508 Motor Disconnect Switches (CSA22.2 no 14)

## Mini-Vario and Vario™ Accessories



**Table 16: Door Mounting Switch Body Dimensions**

Switch Type	Dimensions						Weight Approx. lbs.
	a		b		c		
	in.	mm	in.	mm	in.	mm	
V02 to V2▲	2.83	72	2.17	55	2.91	74	0.44
V02 to V2	2.36	60	2.17	55	2.91	74	0.44
V3 to V4	2.56	65	2.36	60	3.27	83	1.10
V5 to V6	3.54	90	3.54	90	4.92	125	2.00

▲ Dimensions for single-hole mounting.

**Table 17: Shaft Extension and Door Interlock**

Switch Type	Maximum Panel Depth		Shaft Extension Kit	Door Interlock Plate	Door Mounting Plate
	in.	mm			
V02 to V2	13.0	330	VZ17	KZ32	KZ83
V3, V4	12.6	320	VZ18	KZ74	KZ81
V5, V6	13.8	351	VZ18	KZ74	KZ81
V02 to V2	16.9	429	VZ30	KZ32	KZ83
V3, V4	16.5	419	VZ31	KZ74	KZ81
V5, V6	17.7	450	VZ31	KZ74	KZ81

**Table 18: Accessories**

Switch Type	Line Side Terminal Shroud For Main Switch	Terminal Shroud for Add-on Power Pole	Terminal Shroud for Auxiliary Contact
V02 to V2	VZ8	VZ26	VZ29
V3, V4	VZ9	VZ27	VZ29
V5, V6	VZ10	VZ28	VZ29

**Table 19: Add-On Contact Modules**

Switch Type	Main Pole Module	Main Pole	Ampere Rating UL/IEC	Auxiliary Contacts	
				1 N.O. & 1 N.C. ▲	2 N.O.
V02	VZ02	VZ02	10/12	VZ7■	VZ20■
V01	VZ01	VZ01	16/20		
V0	VZ0	VZ0	20/25		
V1	VZ1	VZ1	20/32		
V2	VZ2	VZ2	25/40		
V3	VZ3	VZ3	45/63		
V4	VZ4	VZ4	63/80		
V5	—	—	—		
V6	—	—	—		

▲ Early Break, Late Make.

■ Auxiliary contacts are rated UL/IEC 10/12 A.

**Table 20: Add-On Contact Modules**

Switch Type	Neutral Modules Early Make/Late Break	Grounding Module	Auxiliary Contacts	
	Catalog No.	Catalog No.	Catalog No.	Description
V02-V2	VZ11	VZ14	VZ7	1 Late Make N.O. & 1 Early Break N.C.
V3-V4	VZ12	VZ15	VZ20	2 N.O. Contacts
V5-V6	VZ13	VZ16	—	—

**Table 21: Labeling Accessories**

Nameplate Holder with Nameplate		Nameplate Holder Only	Nameplate Only	
Size	Catalog No.	Catalog No.	Use With	Catalog No.
45 x 45 mm	KZ13	KZ14	KZ14	KZ76
60 x 60 mm	KZ15	KZ16	KZ16	KZ77
90 x 90 mm	KZ103	KZ101	KZ1010	KZ100

**Table 22: Shrouds**

Switch Type	3-Pole Shroud	Single-Pole Shroud	
	Catalog No.	For Add-on Power Pole	Catalog No.
V02-V2	VZ8	VZ02-VZ2, VZ11 & VZ14	VZ26
V3-V4	VZ9	VZ23, VZ4, VZ12 & VZ15	VZ27
V5-V6	VZ10	VZ13 & VZ16	VZ28
—	—	For 2-Pole Aux. Contact	VZ29

**Table 23: Main Pole Module Dimensions**

Switch Type	Dimensions						Weight Approx. lbs.
	a		b		c		
	in.	mm	in.	mm	in.	mm	
V02 to VZ2	0.63	16	2.9	74	1.38	35	0.10
VZ3 to VZ4	0.79	20	3.3	83	1.80	46	0.22



Shaft Extension Kit



Door Interlock Plate KZ32



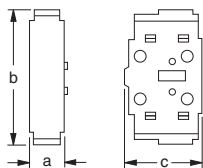
Add-On Contact Modules



Terminal Shroud for Main Switch VZ8



Terminal Shroud for Auxiliary Contact VZ29



Main Pole Module

# UL508 Motor Disconnect Switches (CSA22.2 no 14)

New! MD Motor Disconnect Switches



The MD motor disconnect switch is listed UL508 Suitable for Motor Control (UL File E164864). It is in a compact NEMA Type 4X enclosure suitable for use in NEMA Type 1, 3, 3R, 4, 4X, and 12 applications. The MD's key benefits are an extremely small footprint, a more economically efficient NEMA Type 4X solution and a handle interlock preventing cover removal when the switch is in the ON position.

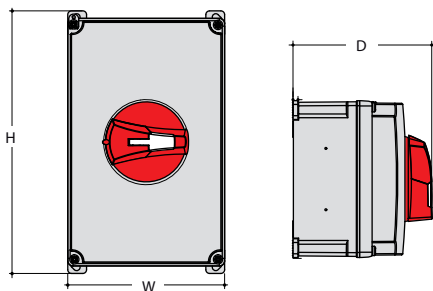
**Table 24: MD Motor Disconnect Switch—Non-Metallic NEMA Type 1, 3, 3R, 4, 4X, and 12 Enclosure▲■◆**

Amperes	Cat. No.	Maximum Horsepower Ratings			Height (in.)	Width (in.)	Depth (in.)
		Three Phase Vac					
		220–240	440–480	600			
30	MD3304X	7.5	20	25	6.38	3.9	4.37
60	MC3604X	20	40	40	8.27	4.94	4.37

- ▲ See Table 25 for accessories.
- Complies with OSHA lockout/tagout requirements—accepts up to three 8 mm padlocks.
- ◆ Suitable for NEMA Type 1, 3R, 4, 4X, and 12 enclosure applications.

**Table 25: MD Motor Disconnect Accessories**

Cat. No.	Description
MDSAN20	2 N.O. auxiliary contact module
MDSAN11	1 N.O. and 1 N.C. auxiliary contact module
MDS30P	30 A add on power pole



MD Motor Disconnect Switches



# UL98 IEC Style Disconnect Switches

## LK4 Nonfusible and GS2 Fusible Disconnect Switches

Example of the parts to order to build a complete GS or LK switch:

Choose a Switch

+

Shaft

+

Handle Assembly

+

Lugs if needed



600 A, LK4SU3N



Shaft 320 mm, GS2AE6



Black Handle, GS2AH150



Lugs Kit, GS1AW503

### Example:

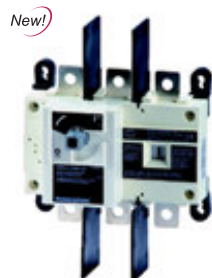
**LK4SU3N** (600 A nonfusible switch, use 15x12 shaft) + **GS2AE6** (320 mm Type S shaft) + **GS2AH150** (black/ black, lockable)

### To add auxiliary contacts:

For front-mounted contacts order **LK4AD30N** (front-mounted auxiliary contact holder) + **GS2AM110**.



30-60 A Compact



100-400 A



GS2AH130



GS2AH150



GS2AH170

**Table 26: LK Nonfusible IEC Style Disconnect Switches**

Pole	Rating (A)	Catalog Number	Maximum Horsepower Rating				Short Circuit Current Rating 600 Vac	
			240 V	480 V	600 V	250 Vdc	Fuse	SCCR kA
3	30	LK4DU3CN	10	20	25	—	J	100
3	60	LK4GU3CN	20	40	50	—	J	100
3	100	LK4JU3N	30	75	100	15	J	200
3	200	LK4MU3N	75	150	200	15	J	200
3	400	LK4QU3N	125	250	350	50	J	200
3	600	LK4SU3N	200	400	350	50	J	200
3	800	LK4TU3N	200	500	500	—	L	200
3	1000	LK4UU3N	200	500	500	—	L	100
3	1200	LK4WU3N	200	500	500	—	L	100

**Table 27: Handles and Shafts for LK Switches**

Rating (A)	Handle			Shaft: 12.6/320 in./mm	Shaft: 15.7/400 in./mm	Shaft Guide▲
	Catalog Number	Type	Color	Catalog Number	Catalog Number	Catalog Number
30-60	LK4AH110CN	1, 3R, 12	Black	LK4AE12CN	—	LK4AEAH12CN
30-60	LK4AH120CN	1, 3R, 12	Red/Yellow			
30-60	LK4AH410CN	4, 4X	Black			
30-60	LK4AH420CN	4, 4X	Red/Yellow	GS2AE2	GS2AE21	—
100-400	GS2AH130	1, 3R, 12	Black			
100-400	GS2AH140	1, 3R, 12	Red/Yellow			
100-400	GS2AH430	4, 4X	Black			
100-400	GS2AH440	4, 4X	Red/Yellow			
600	GS2AH150	4, 4X	Black			
600	GS2AH160	4, 4X	Red/Yellow			
800-1200	GS2AH170	4, 4X	Black			
800-1200	GS2AH180	4, 4X	Red/Yellow			

▲ Required on shafts for LK4DU3CN and LK4GU3CN switches.

**Table 28: Auxiliary Contacts for LK Switches**

Switch Amperes	Catalog Number	Description
30-60	MDSAN11	Aux Contact 1 N.O. and 1 N.C.
30-60	MDSAN20	Aux Contact 2 N.O. and 2 N.C.
100-400	LK4AD10N	Aux Contact 1 N.O. and 1 N.C.
100-400	LK4AD20N	Aux Contact 2 N.O. and 2 N.C.
600-1200	LK4AD30N	Aux Contact Holder
600-1200	GS2AM110	Aux Contact 1 N.O.
600-1200	GS2AM101	Aux Contact 1 N.C.

**Table 29: Terminal Shrouds for LK Switches**

Switch Amperes	Catalog Number	Description
30-60	LK4AP3CN	Shroud Top and Bottom, 3-Pole
100-200	LK4AP33TN	Shroud Top LK4, 3-Pole, 100/200 A
100-200	LK4AP33BN	Shroud Bottom LK4, 3-Pole, 100/200 A
400	LK4AP53TN	Shroud Top LK4, 3-Pole, 400 A
400	LK4AP53BN	Shroud Bottom LK4, 3-Pole, 400 A
600▲	LK4AP63N	Shroud Bottom LK4, 3-Pole, 600 A
800-1200▲	LK4AP83N	Shroud Bottom LK4, 3-Pole, 800-1200 A

▲ 600-1200 A standard with top shroud.

# UL98 IEC Style Disconnect Switches

## LK4 Nonfusible and GS2 Fusible Disconnect Switches

New!

**Table 30: GS Fusible IEC Style Disconnect Switches**



GS2GU3N

Pole	Rating (A)	Catalog Number	Maximum Horsepower Rating				Short Circuit Current Rating 600 Vac	
			240 V	480 V	600 V	250 Vdc	Fuse	SCCR kA
3	30	GS1DDU3	7.5	15	20	5	CC	100
3	30	GS1DU3	7.5	15	20	5	J	100
3	60	GS2GU3N	15	30	50	10	J	100
3	100	GS2JU3N	30	60	75	20	J	200
3	200	GS2MU3N	60	125	150	40	J	200
3	400	GS2QU3N	125	250	350	50	J	200
3	600	GS2SU3	200	400	500	—	J	200
3	800	GS2TU3	200	500	500	—	L	200

**Table 31: Handles and Shafts for GS Switches**



GS2AH130

Rating (A)	Handle			Shaft: 12.6 in. (320 mm)	Shaft: 15.7 in. (400 mm)
	Catalog No.	Type	Color	Catalog No.	Catalog No.
30-60	GS2AH110	1, 3R, 12	Black	(30A) GS2AE8 (60A) GS2AE2	(30A) GS2AE81 (60A) GS2AE21
30-60	GS2AH120	1, 3R, 12	Red/Yellow		
30-60	GS2AH410	4, 4X	Black	GS2AE2	GS2AE21
30-60	GS2AH420	4, 4X	Red/Yellow		
100-400	GS2AH130	1, 3R, 12	Black	GS2AE2	GS2AE21
100-400	GS2AH140	1, 3R, 12	Red/Yellow		
100-400	GS2AH430	4, 4X	Black	GS2AE5	GS2AE51
100-400	GS2AH440	4, 4X	Red/Yellow		
600-800	GS2AH150	4, 4X	Black	GS2AE5	GS2AE51
600-800	GS2AH160	4, 4X	Red/Yellow		

**Table 32: Auxiliary Contacts for GS Switches▲**

Switch Amperes	Catalog Number	Description
30-800	GS1AM110	Aux Contact 1 N.O.
30-800	GS1AM101	Aux Contact 1 N.C.
30	GS1AD10	Aux Contact Holder

▲ GS1DU3 and GS1DDU3 switches allow up to 4 auxiliary contacts without adding contact holder GS1AD10. For more than 4 contacts, GS1AD10 is required.



Auxiliary Contacts  
GS1AD10 + GS1AM110

**Table 33: Flange Handle Cable Operator Kits**

Catalog Number	Description
GS2AH36F	Flange Handle and 36 in. Cable Operator Kit
GS2AH60F	Flange Handle and 60 in. Cable Operator Kit
GS2AH120F	Flange Handle and 120 in. Cable Operator Kit



Flange Handle  
Cable Operator Kit

**Table 34: Shorting Links**

For use on	Shorting Links per Kit	Catalog No.
GS2, 60 A	3	GS1AU203
GS2, 100 A	3	GS1AU303
GS2, 200 A	3	GS1AU403
GS2, 400 A	3	GS1AU503
GS2, 600-800 A	3	GS1AU803



Shorting Links

**Table 35: Terminal Shrouds for GS Switches, Line or Load▲**

Switch Amperes	Catalog Number	Description
30-100	—	Standard on product
200	GS2AP43	GS2, 3-Pole, 200 A
400	GS2AP53	GS2, 3-Pole, 400 A
600-800	GS2AP73	GS2, 3-Pole, 600-800 A

▲ Order one terminal shroud per side. For example, order one terminal shroud for either the line side or load side; order two terminal shrouds for both the line side and load side.

# UL98 IEC Style Disconnect Switches

## Accessories, LK4 Nonfusible and GS2 Fusible



Terminal Lugs

### Accessories

**Table 36: Terminal Lugs**

For Use On	Rating	No. of Wires per Lug	No. of Lugs per Terminal	Lug Size (AWG)	Wire Type	Lugs per Kit	Lug Part No.
LK4DU3CN	30	1	1	#12-2/0	Cu	—	Standard
LK4GU3CN	60	1	1	#12-2/0	Cu	—	Standard
LK4JU3N	100	1	1	6-300 kcmil	Cu/Al	6	GS1AW403
LK4MU3N	200	1	1	6-300 kcmil	Cu/Al	6	GS1AW403
LK4QU3N	400	2	1	2 x 2-600 kcmil	Cu/Al	6	GS1AW503
LK4SU3N	600	2	1	2 x 2-600 kcmil	Cu/Al	6	GS1AW503
LK4TU3N	800	2	2	2 x 2-600 kcmil	Cu/Al	12	GS1AW903
LK4UU3N	1000	2	2	2 x 2-600 kcmil	Cu/Al	12	GS1AW903
LK4WU3N	1200	2	2	2 x 2-600 kcmil	Cu/Al	12	GS1AW903
GS1DDU3	30	1	1	#14-#10	Cu	—	Standard
GS1DU3	30	1	1	#14-#10	Cu	—	Standard
GS2GU3N	60	1	1	#10-#6	Cu	—	Standard
GS2JU3N	100	1	1	#12-#1	Cu	—	Standard
GS2MU3N	200	1	1	6-300 kcmil	Cu/Al	6	GS1AW403
GS2QU3N	400	2	1	2 x 2-600 kcmil	Cu/Al	6	GS1AW503
GS2SU3	600	2	1	2 x 2-600 kcmil	Cu/Al	6	GS1AW503
GS2TU3	800	2	1	2 x 2-600 kcmil	Cu/Al	6	GS1AW503

**Table 37: Power Distribution Lugs**

For Use On	Rating	No. of Wires per Lug	Lug Size (AWG)	Wire Type	Lugs per Kit	Lug Part No.
GS2JU3N	100	6	#14-#6	Cu	3	GS1AW306
GS2MU3N	200	12	#14-#4	Cu	3	GS1AW406
GS2QU3N	400					
GS2MU3N	200	6	#12-2/0	Cu	3	GS1AW506
GS2QU3N	400					

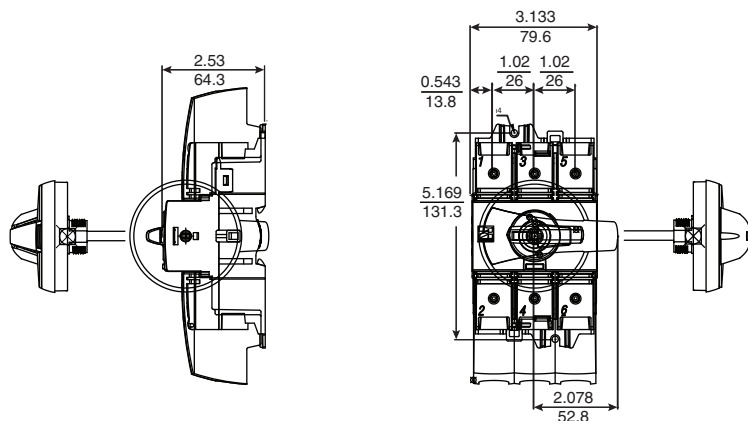
**Table 38: Handle adapter**

Catalog No.	Description	Qty per package
GS2AH100TO200	Allows GS2 handle to be mounted into GS1 handle drilling pattern for retrofit. Adds 12mm to depth	10

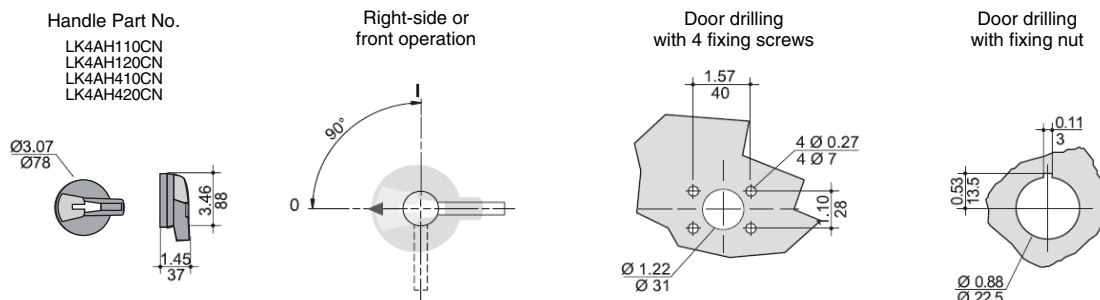
# UL98 IEC Style Disconnect Switches

Dimensions, LK4 Nonfusible and GS2 Fusible

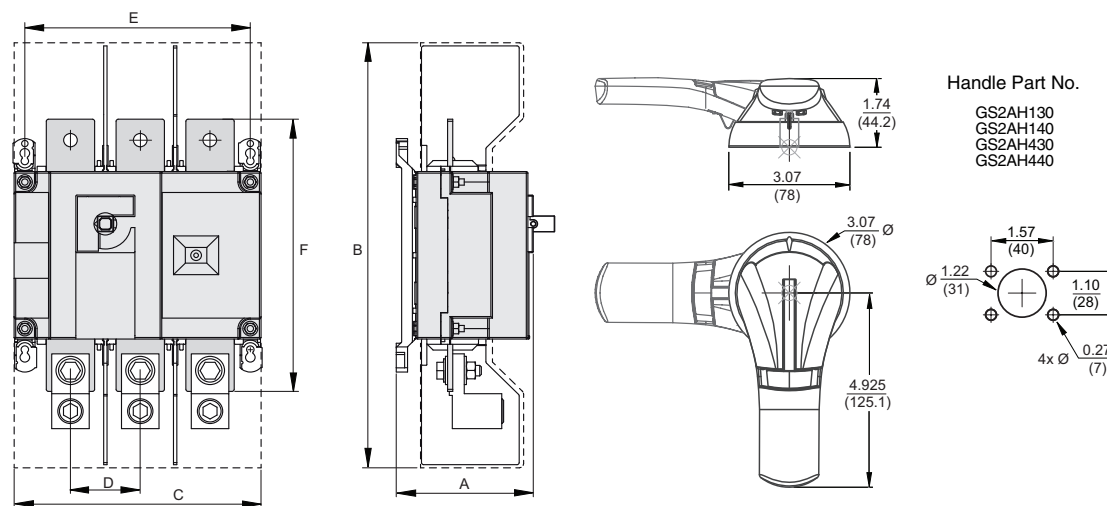
## LK4DU3CN and LK4GU3CN, 30–60 A Compact Nonfusible Disconnect Switches



## Handle for 30–60 A Compact Nonfusible Disconnect Switches



## LK4JU3N / LK4MU3N / LK4QU3N, 100–400 A Nonfusible Disconnect Switches—Dimensions



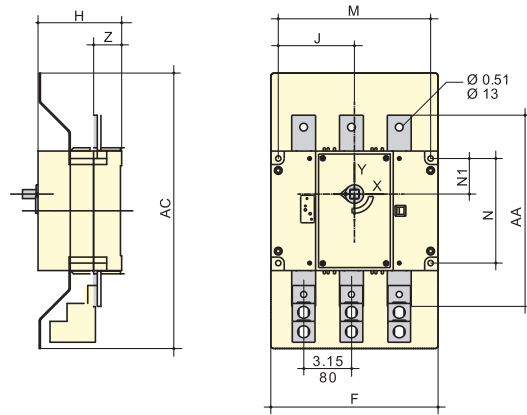
Rating (A)	Dimensions = in. (mm)					
	A	B	C	D	E	F
100–200	3.72 (94.6)	10.1 (256)	7.09 (180)	1.97 (50)	6.3 (160)	6.3 (160)
400	4.92 (128)	16 (406)	9.05 (230)	2.56 (65)	8.26 (210)	10.2 (260)

Dimensions:  $\frac{\text{in.}}{\text{mm}}$

# UL98 IEC Style Disconnect Switches

## Dimensions, LK4 Nonfusible and GS2 Fusible

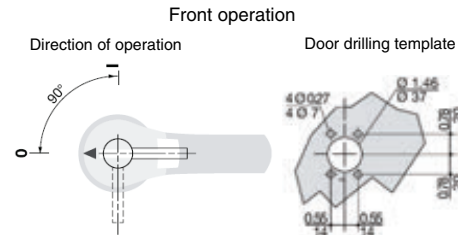
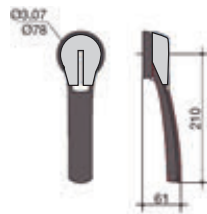
### LK4SU3N, 600 A Nonfusible Disconnect Switches—Dimensions



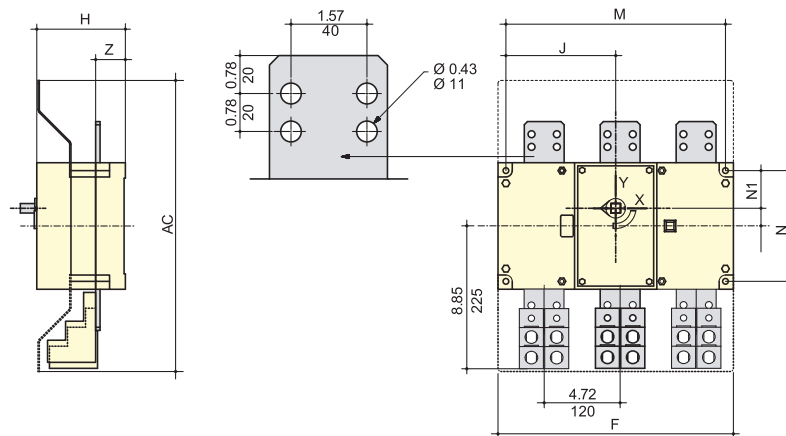
Rating (A)	Dimensions = in. (mm)								
	AC	F	H	J	M	N	N1	AA	Z
600	18.12 (460)	11 (280)	5.5 (140)	5.0 (127.5)	10.03 (255)	6.88 (175)	2.34 (59.5)	12.6 (320)	1.85 (47)

### Handle for 600 A and 800 A Fusible Disconnect Switches

Handle Part No.  
GS2AH150  
GS2AH160



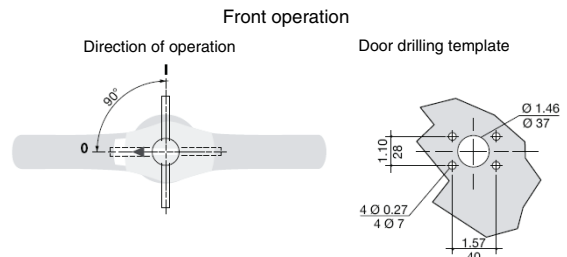
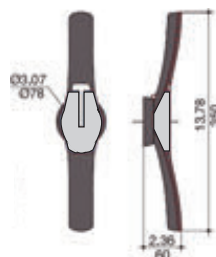
### LK4TU3N / LK4UU3N / LK4WU3N, 800–1200 A Nonfusible Disconnect Switches—Dimensions



Rating (A)	Dimensions = in. (mm)							
	AC	F	H	J	M	N	N1	Z
800–1200	18.12 (460)	14.64 (372)	5.5 (140)	6.83 (173.5)	13.66 (347)	6.88 (175)	2.34 (59.5)	1.85 (47)

### Handle for 800–1200 A Fusible Disconnect Switches

Handle Part No.  
GS2AH170  
GS2AH180

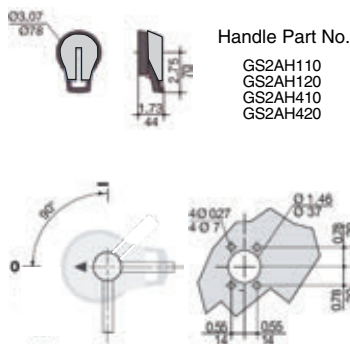


Dimensions:  $\frac{\text{in.}}{\text{mm}}$

# UL98 IEC Style Disconnect Switches

Dimensions, LK4 Nonfusible and GS2 Fusible

## Handle for 30 A and 60 A Fusible Disconnect Switches



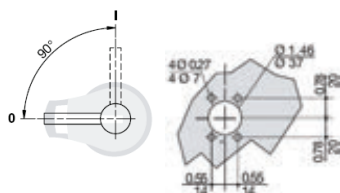
Handle Part No.

- GS2AH110
- GS2AH120
- GS2AH410
- GS2AH420

Front operation

Direction of operation

Door drilling template

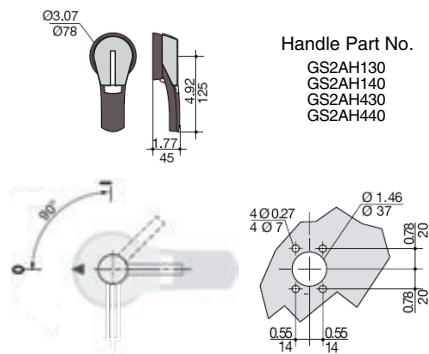


Side operation

Direction of operation

Door drilling template

## Handle for 100 A, 200 A, and 400 A Fusible Disconnect Switches



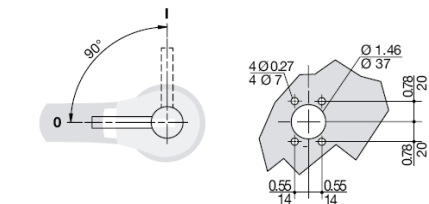
Handle Part No.

- GS2AH130
- GS2AH140
- GS2AH430
- GS2AH440

Front operation

Direction of operation

Door drilling template

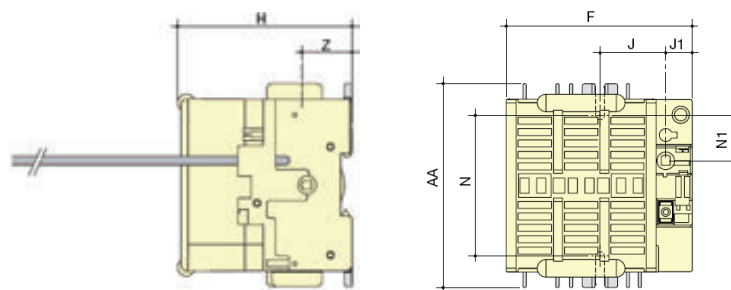


Side operation

Direction of operation

Door drilling template

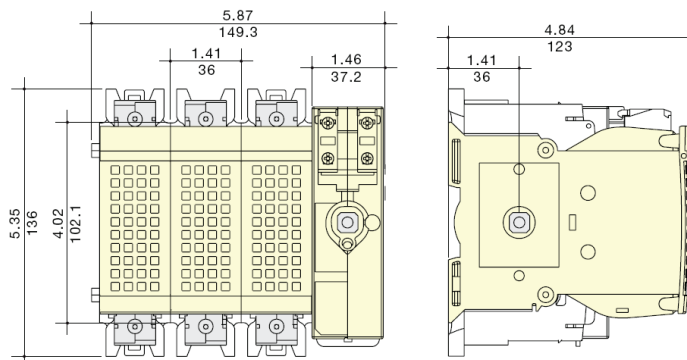
## GS1DDU3, 30 A Fusible Disconnect Switches, Class CC Fuses and GS1DU3, 30 A Fusible Disconnect Switches, Class J Fuses—Dimensions



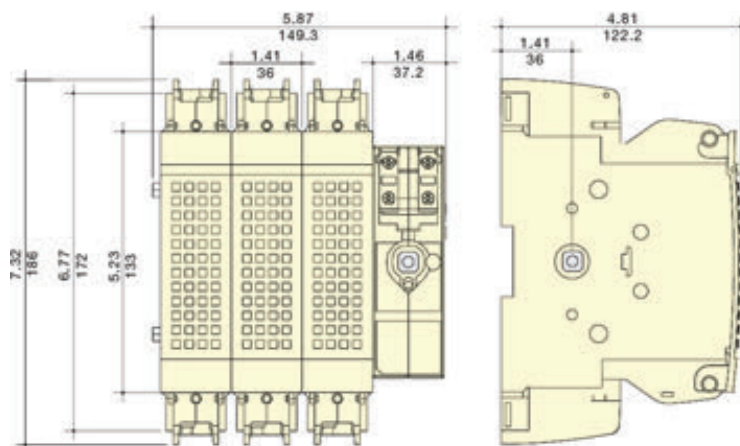
Example:  
GS1DU3

Rating (A)	Dimensions = in. (mm)							
	F	H	J	J1	N	N1	AA	Z
30 / CC	3.78 (96)	3.28 (83.5)	1.47 (37.5)	0.59 (15)	3.13 (79.5)	1 (25.5)	4.56 (116)	1.12 (28.5)
30 / J	4.13 (105)	3.89 (99)	1.47 (37.5)	0.59 (15)	3.13 (79.5)	1 (25.5)	4.56 (116)	1.12 (28.5)

## GS2GU3N, 60 A Fusible Disconnect Switches, Class J Fuses



## GS2JU3N, 100 A Fusible Disconnect Switches, Class J Fuses

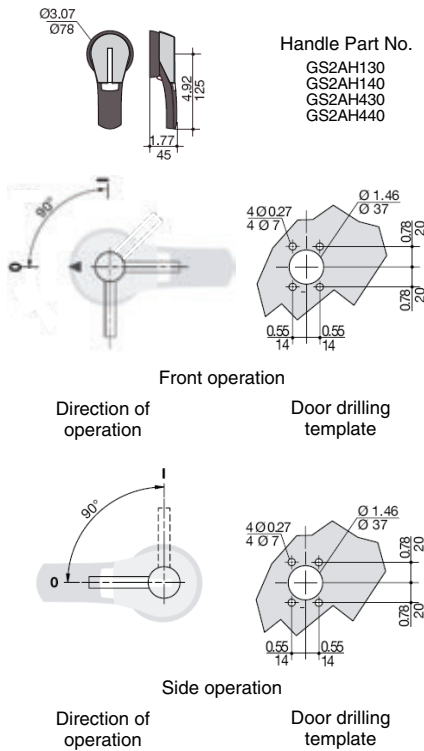


Dimensions:  $\frac{\text{in.}}{\text{mm}}$

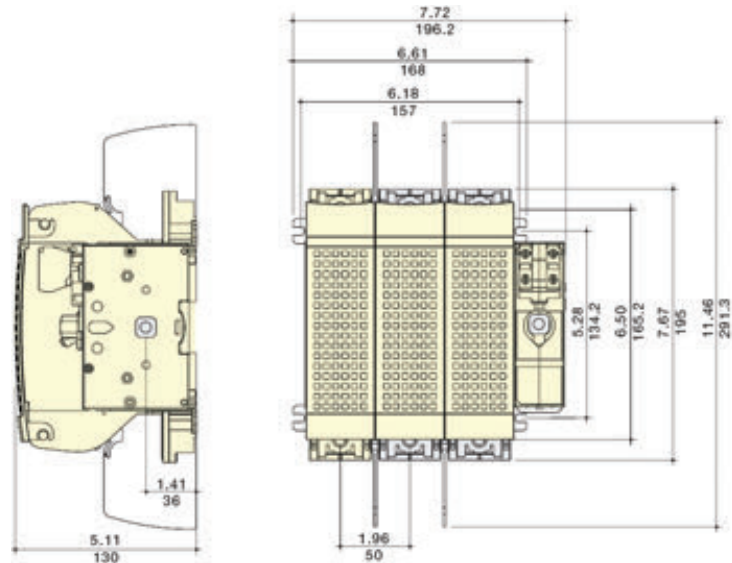
# UL98 IEC Style Disconnect Switches

## Dimensions, LK4 Nonfusible and GS2 Fusible

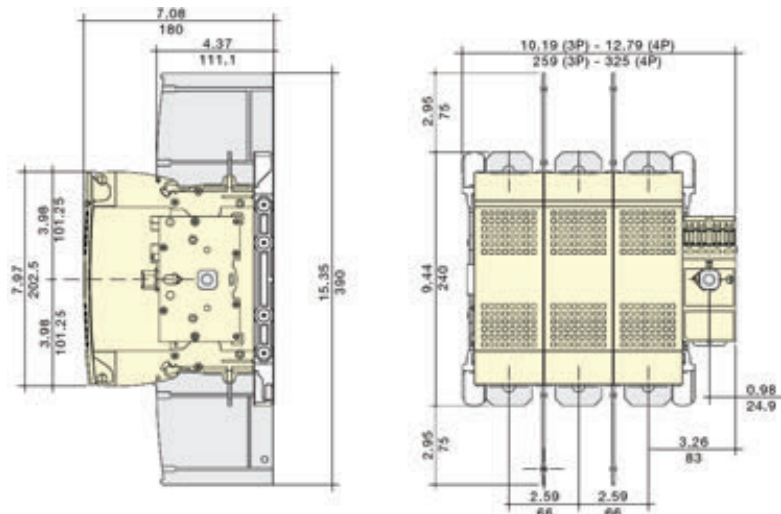
### Handle for 100 A, 200 A, and 400 A Fusible Disconnect Switches



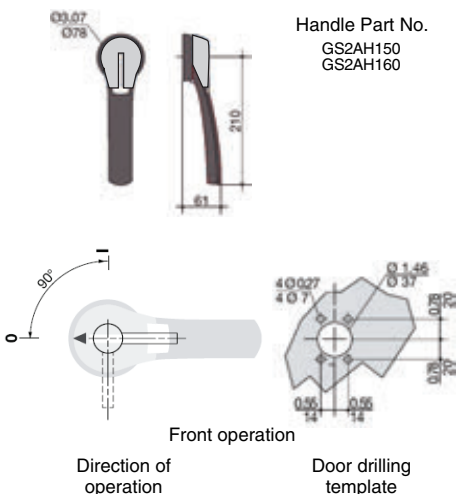
### GS2MU3N, 200 A Fusible Disconnect Switches, Class J Fuses



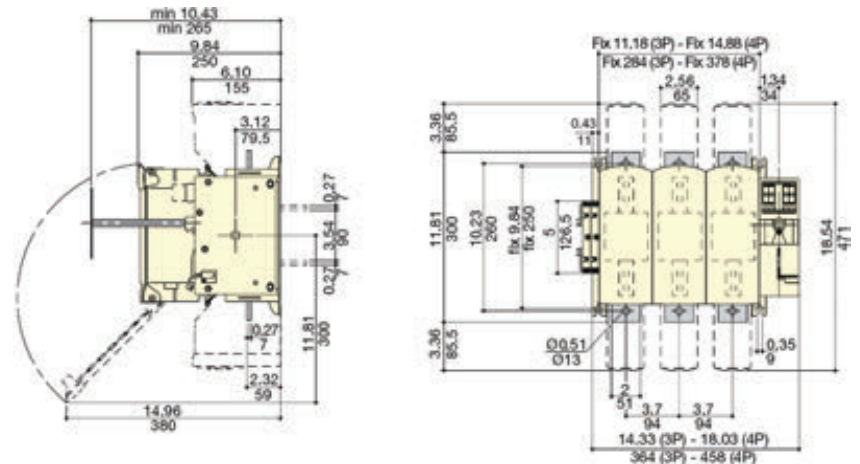
### GS2QU3N, 400 A Fusible Disconnect Switches, Class J Fuses



### Handle for 600 A and 800 A Fusible Disconnect Switches



### GS2SU3, 600 A Fusible Disconnect Switches, Class J Fuses GS2TU3, 800 A Fusible Disconnect Switches, Class J Fuses



Dimensions:  $\frac{\text{in.}}{\text{mm}}$

The 9422 disconnect switches are the ideal selections for the PV string combiner box's internal disconnect switch and control panel applications. These switches are designed for variable depth, flange mounting, traditional side mounting and bracket mounting applications providing complete flexibility in the PV string combiner box designs. The switches are compatible with 9422A handle operators and 9423 door mechanisms and are UL98 recognized (E52360 Vol. 1, Sec. 18) and CSA certified. See pages 16, 17, and 18 for dimensional information.

**Table 39: 9422 Disconnect Switches, Flange Mounted and Variable Depth**

Disconnect Switch Size	Variable Depth Min.—Max. (in.)	Maximum Horsepower Ratings						Fuse Type	Fuse Clip Rating (Amperes) Non-Interchangeable Type For Class H, J, K or R Fuses		Switch and Operating Mechanism Only— Does Not Include Handle Mechanism	Switch for Use With Cable Operators ONLY— Does Not Include Handle Mechanism or Cable Operator*	Switch and Operating Mechanism—Overpacked ◊			
		AC Systems Volts (Motor Volts)				Vdc			250 V	600 V			Cat. No. ◄	Cat. No. ◄	Includes Type A1 Handle Mechanism	Includes Type A2 Handle Mechanism
		208 (200)	240 (230)	480 (460)	600 (575)	250	600									
30 A	6.625–18	7.5	7.5	15	20	5	15	None	—	—	TCN30	TCN30C	ATCN301	ATCN302		
								H, J, K, R	30	—	TCF30	TCF30C	ATCF301	ATCF302		
								H, J, K, R	60	30	TCF33	TCF33C	ATCF331	ATCF332		
60 A	6.625–18	—	15	30	50	10	30	None	—	—	TDN60	TDN60C	ATDN601	ATDN602		
								H, J, K, R	60	30	TDF60	TDF60C	ATDF601	ATDF602		
								H, J, K, R	—	60	TDF63	TDF63C	ATDF631	ATDF632		
100 A	6.625–18	25	30	60	75	20	50	None	—	—	TEN10	TEN10C	ATEN101	ATEN102		
								H, J, K, R	100	100	TEF10	TEF10C	ATEF101	ATEF102		
								H, J, K, R	—	—	TF1	—	ATF11	ATF21		
200 A	9.12–19.25▲	40	60	125	150	40	50	None	—	—	TF2	—	ATF12	ATF22		
								H, J, K, R	200	200	TF3★	—	ATF13★	ATF23★		
								H, J, K, R	—	400	—	—	—	—		
400 A Fixed Depth■	11.38 (A5 or A6 Handle)	75	125	250	350	50	50	None	—	—	TG1△□	—	For handle selection, see Table 41.			
400 A Variable Depth■	15.87–19 (A7 or A8 Handle)▼							H, J, K, R	400	400	TG2△□	—				

- ▲ 9422 R2 will extend maximum mounting depth 7 inches, see page 17 for information.
- Switches are fixed-depth or adjustable depending on handle selection.
- ◆ For ordering use the suffix 9422, e.g., order TCN30 using catalog number 9422TCN30.
- ★ Accommodates Class J fuses only.
- ▼ Variable in increments of 0.63 inches.
- △ Commercially available enclosures may not accept 9422TG1 and 2 operating mechanisms. Contact enclosure manufacturer for availability of enclosures for use with these switches.
- Right hand flange mounting only and requires a special enclosure.
- ◊ Variable depth only — no cable operator.
- ★ See Table 45 for ordering information for the cable operator.

The 9422 Bracket Mount Disconnect Switch is designed for combiner boxes and control panel applications. The Bracket Mount Disconnect Switch is shipped with the switch and external handle assembled to a bracket, ready for quick installation. A protective trim plate is provided to prevent any mounting screws from being accessible from the front. The trim plate also provides an attractive installation feature. The switches are fully compatible with the 9423 closing mechanisms.



9422 TCN30



Bracket Mounted Disconnect Switch

**Table 40: 9422 Bracket Mounted Disconnect Switches**

Disconnect Switch Size	Maximum Horsepower Rating						Fuse Type	Fuse Clip Rating (Amperes) Non-Interchangeable Type For Class H, J, K or R Fuses		Switch and Operating Mechanism Only — Does Not Include Handle Mechanism	
	AC Systems Volts (Motor Volts)				Vdc			250 V	600 V		Catalog No. ■
	208 (200)	240 (230)	480 (460)	600 (575)	250	600					
30 A	7.5	7.5	15	20	5	15	None	—	—	BTCN30	
							H, J, K, R	30	—	BTCF30	
							H, J, K, R	60	30	BTCF33	
60 A	15	15	30	50	10	30	None	—	—	BTDN60	
							H, J, K, R	60	30	BTDF60	
							H, J, K, R	—	60	BTDF63	
100 A	25	30	60	75	20	50	None	—	—	BTEN10	
							H, J, K, R	100	100	BTEF10	
							H, J, K, R	—	100	BTEF11	
200 A	40	60	125	150	40	50	None	—	—	TFB1	
							H, J, K, R	200	200	TFB2	
							H, J, K, R	—	400	TFB3	

- ▲ Space saving design—Type J fuses mounted on the non-fused bracket.
- For ordering use the suffix 9422, e.g., order BTCN30 using catalog number 9422BTCN30.

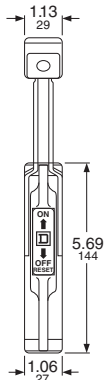
**Handle Information**

**Table 41: 9422 Disconnect Switch and Circuit Breaker Handle Mechanisms**

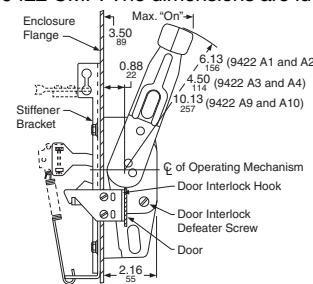
The Handle Mechanism kit contains all parts needed to mount the handle to the flange of the enclosure. Two flange mounting methods are offered. For right or left hand flange mounting use Types A1–A4 and Types A9–A10 kits. For right-hand mounting only, use Type A5–A8 handles. The type AP1 and AP2 handles are used exclusively on the PowerPact™ M and P operating mechanisms, 9422 RM1 and 9422 CMP. The dimensions are identical to 9422 A1.

Handle Depth (in.)	NEMA Type 1, 3, 3R, 4, 12 Enclosures	NEMA Type 4, 4X Stainless Steel Enclosures
	Cat. No. ◄	Cat. No. ◄
4▲	A3	A4
6▲	A1	A2
6▲★	AP1	AP2
10■	A9	A10
12▼△	A7	A8

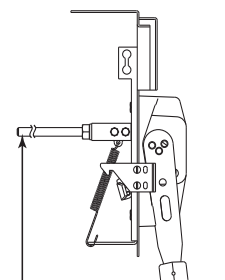
- ▲ Use with 30–200 A 9422 switches and all circuit breaker mechanisms.
- Use with Type D2 remote or dual adapter kit listed on page 24.
- ◆ For ordering use the suffix 9422, e.g., order A2 using catalog number 9422A2.
- ★ Use only with 9422 RM1, 9422 CMP and PowerPact M and P operating mechanisms.
- ▼ Use only with 400 A 9422TG1 and 9422TG2 disconnect switch.
- △ Adjustable depth.



Type A1



9422 A1, A2, A3, A4, A9, and A10 Handles



Rod used only on the variable-depth mechanism.



# Flange Mounted and Cable Operated

## Accessories, Disconnected Switches

Class 9422

### Accessories

#### Class R Fuse Kits

When installed, this kit rejects all fuses except Class R. The kits are available for field installation. With rejection kit and Class R fuses installed, the switch is UL component recognized for use on systems with fault current up to 200,000 RMS symmetrical amperes.

**Table 42: Class R Fuse Kits**

Disconnect Switch Type	Switch Type	Fuse Clip Rating		Class R Kit Cat No.
		250 V	600 V	
30 A	TCF30	30	—	RFK03
	TCF33	60	30	RFK06
60 A	TDF60	60	30	RFK06
	TDF63	—	60	RFK06H
100 A	TEF10	100	100	RFK10
200 A	TF2	200	200	9999SR4
	TF3	200	200	9999SR4
400 A	TG2	400	400	9999SR5

**Table 43: Electrical Interlocks**

Disconnect Switch Size	Switch Type	Electrical Interlocks
		Cat No. ♦
30 A 60 A 100 A	TCF, TCN, TDF, TDN, TEF, TEN	TC10▲
		TC20■
		TC11▲
200 A	TF, ATF	TC21■
		R8▲
		R9■
400 A	TG	R35▲
		R36■

- ▲ 1 N.C. or N.O. Contact depending on wiring.
- 2 N.C. or N.O. or 1 N.O. or 1 N.C. Contact depending on wiring.
- ♦ For ordering use the suffix 9999, e.g., order TC10 using catalog number 9999TC10.



#### Internal Barrier Kits

Provides an additional barrier that helps prevent accidental contact with live parts. Field-installed transparent barriers do not restrict visual inspection of the switch. Barriers provide IEC529 IP2X "finger safe" protection when door of enclosed disconnect switch is open. A convenient door allows use of test probes without accessing fuses and replacement of fuses without removing barrier. Barrier must be used with the skirt kit to enclose a panel mounted 9422 disconnect.

**Table 44: Internal Barrier Kits**

Disconnect Switch Size	Barrier	Skirt
	Cat. No.	Cat. No.
30 A	SS06	SS0306SK
60 A	SS06	SS0306SK
100 A	SS10	SS10SK

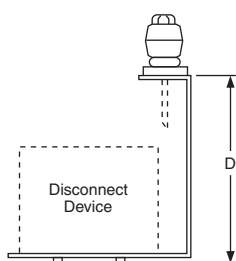
- ▲ Use Discount Schedule DE1 for price, not CP1.

**Table 45: Cable Operators for 9422 Disconnect Switches**

Switch Type	Cable Mechanisms▲		Cable Mechanisms with A1 Handle for NEMA Type 1, 3, 3R, 4, and 12 Enclosures
	Cable Length (inches)	Cat. No.	
TCN30C, TCF30C, TCF33C, TDN60C, TDF60C, TDF63C, TEN10C, TEF10C	36	9422CFT30	9422CFT31
	48	9422CFT40	—
	60	9422CFT50	9422CFT51
	120	9422CFT10	9422CFT11

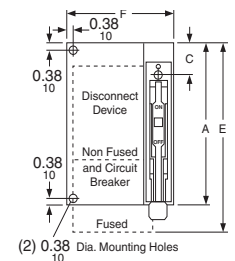
- ▲ Purchase handle mechanism separately (9422A1, A2, A3, or A4).

**Table 49: Dimensions**



Type	A in. (mm)	C in. (mm)	D in. (mm)	Min. Enclosure Depth▲ in. (mm)	Fusible Device	
					E in. (mm)	F in. (mm)
BTCN, BTDN, BTEN	—	—	6.56 (167)	8.00 (203)	—	—
BTCF, BTDF, BTEF	9.50 (241)	1.88 (48)	8.56 (217)	10.00 (254)	11.88 (302)	6.38 (162)
TFB1	11.50 (292)	—	—	—	—	—
TFB2, TFB3	20.00 (508)	3.88 (99)	9.50 (241)	12.00 (305)	20.00■(508)	13.19 (335)

- ▲ The minimum enclosure depth is greater than Dimension D since additional space is needed when mounting the mechanism.
  - Fuses and fuse base assembly do not extend beyond bracket.
- Note: Back panel support is recommended for Types TFB1, 2, & 3. Other devices may also require support if the flange is not sufficiently rigid.



(2) 0.38 Dia. Mounting Holes  
(For back panel support if necessary.)

**Table 46: Class 9422 Replacement/Refrofit Fuse Clip Kits**

Disconnect Switch Size	Switch Type	Fuse Type	Fuse Clip Rating (Amperes)		Line and Load Fuse Clip Kit (includes load base and fuse pullers)
			250 V	600 V	Type
30 A	TCF30 TCN30 TCF33	H, K, J, R	30	—	TC30
			60	30	TC33
60 A	TDN60	H, K, J, R	60	30	TC33
			—	60	TD63

**Table 47: Lug Data**

Disconnect Switch Size	Wire Size (Min-Max)		Lug Kits Copper	Lug Kits Al
	Cu	Al	Cat No.	Cat No.
30–60 A	#14–#2	#10–#2	CL0306F	AL0306F
100 A	#10–#0	#6–#0	CL10F	AL10F
200 A	#6–600 kcmil	#6–600 kcmil	—	—
400 A	#4–500 kcmil	—	—	—

**Table 48: Dimensions 30 A, 60 A, and 100 A Class 9422 Disconnect Switches**

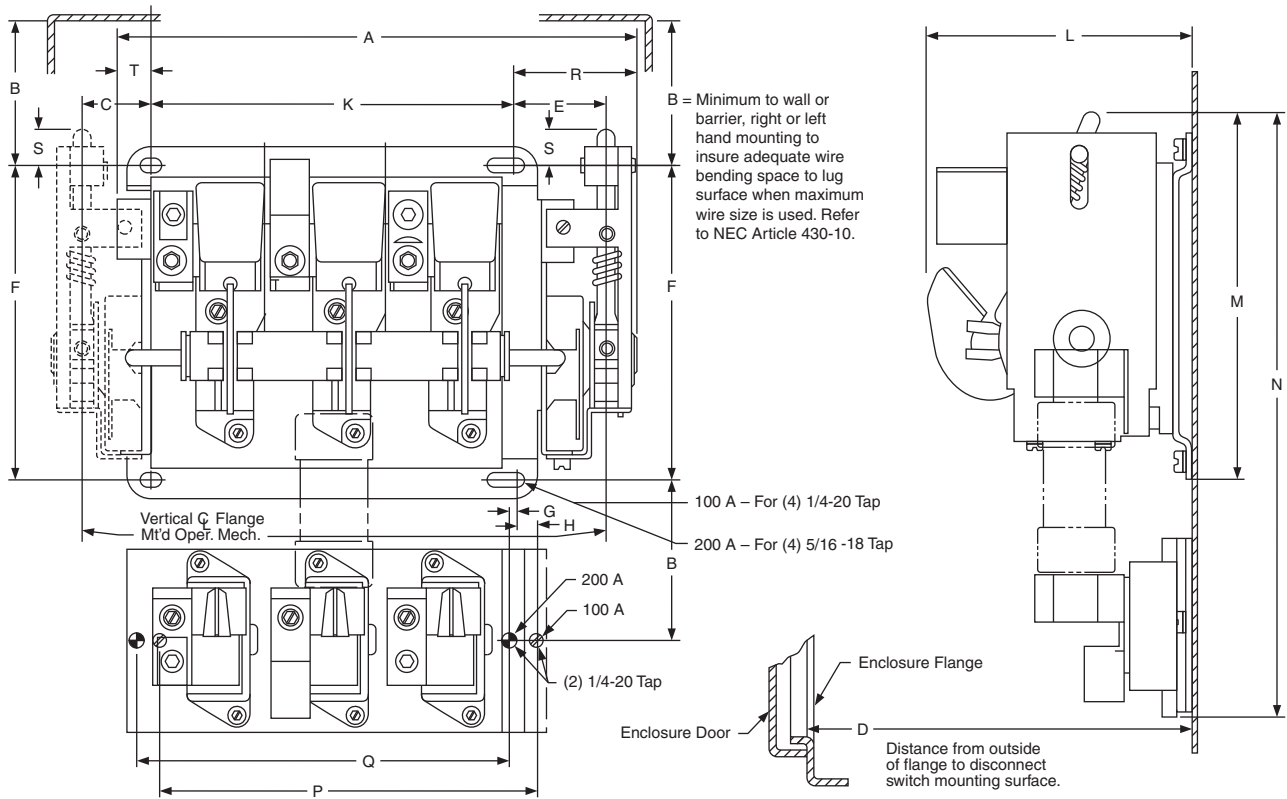
Switch Type	Maximum Voltage	Fuse Type	Dimension	
			A	B
30 A 60 A	30 A, 250 V	H, K, R	1.625	—
	30 A, 600 V	H, K, R	4.25	
	30 A, 600 V	J	1.625	
	60 A, 250 V	H, K, R	2.25	
	60 A, 600 V	H, K, R	4.75	
	60 A, 600 V	J	1.625	
100 A	100 A, 250 V	H, K, R	—	3.25
	100 A, 600 V	H, K, R	—	5.25
	100 A, 600 V	J	—	3.25

## Dimensions

**Table 50: Dimensions (in. / mm) for 200 A Type TF Disconnect Switches**

Type	Switch Size		A	B	C	D A Min.-Max.	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
	(A)	Fuse Clips																		
TF1	200	None	13.33 339	9.38 238	1.64 42	9.12-19.25 232 489	2.33 59	8.00 203	—	—	—	9.44 240	6.50 165	9.53 242	—	—	—	3.14 80	1.03 26	0.75 19
TF2	200	Class J 200 A 600 V	13.33 339	9.38 238	1.64 42	9.12-19.25 232 489	2.33 59	8.00 203	0.09 3	—	2.77 70	9.44 240	6.50 165	—	14.11 358	—	9.63 245	3.14 80	1.03 26	0.75 19
TF2	200	Class H, K, R 200 A 250 V	13.33 339	9.38 238	1.64 42	9.12-19.25 232 489	2.33 59	8.00 203	0.09 3	—	4.14 105	9.44 240	6.50 165	—	15.48 393	—	9.63 245	3.14 80	1.03 26	0.75 19
TF2	200	Class H, K, R 200 A 600 V	13.33 339	9.38 238	1.64 42	9.12-19.25 232 489	2.33 59	8.00 203	0.09 3	—	6.64 169	9.44 240	6.50 165	—	17.98 457	—	9.63 245	3.14 80	1.03 26	0.75 19
TF3	200	Class J 400 A 600 V	13.33 339	9.38 238	1.64 42	9.12-19.25 232 489	2.33 59	8.00 203	0.09 3	—	2.77 70	9.44 240	6.50 165	9.53 242	18.53 471	—	9.63 245	3.14 80	1.03 26	0.75 19

▲ The dimensions shown may be extended 7 in. by using 9422R2 (two required per switch).



# Flange Mounted and Cable Operated

## Dimensions, Disconnected Switches

Class 9422

### Disconnect Switches—400 A Type TG

Outline Dimensions and General Location

400 A Disconnect Switches Nonfusible and Non-Interchangeable Fuse Clip Type Fusible Switches

**Table 51: Handle Mechanism—Type A7 and A8**

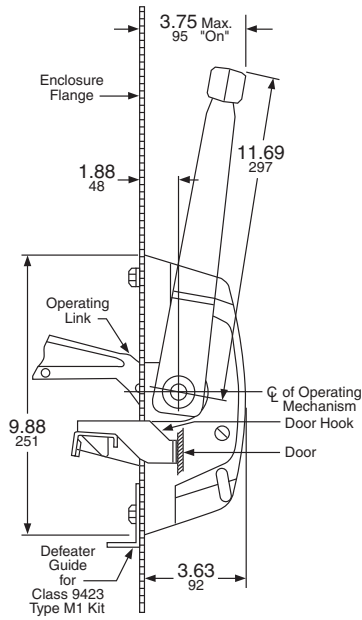


Figure 1

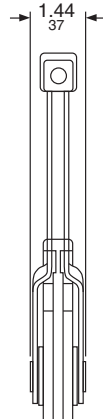


Figure 2

Switch Type	B	X
TG1, 2	11.28 286	16.06 408

Note: B and X = Minimum to wall or barrier to ensure adequate wire bending space to lug surface when maximum wire size is used. Refer to NEC Article 430.10.

**NOTE:** Commercially available enclosures may not accept type TG operating mechanisms. Contact the enclosure manufacturer for availability of enclosures for use with these switches.

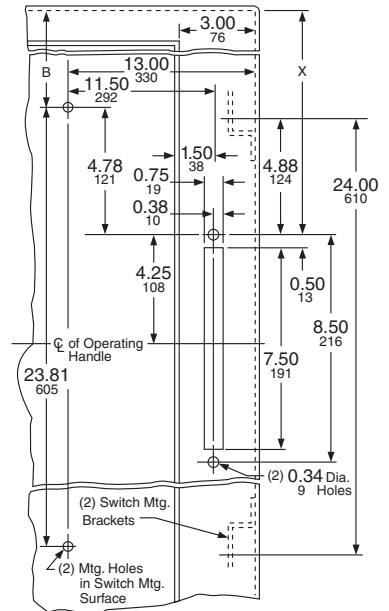


Figure 3

**Table 52: Nonfusible and Fusible Switches**

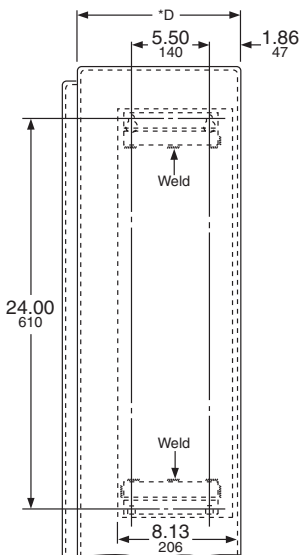


Figure 4

Dimension D = Distance from outside of flange to disconnect switch mounting surface.

For Type TG1 or TG2 with:

Type A7 or A8 adjustable depth handle mechanism	D =	15.87 403	to	19 483
	In steps of	0.63 16		

Note: Copper lugs are standard on all Type TG disconnect switches.

\* D = Mounting depth measured from the switch mounting surface to the surface of flange.

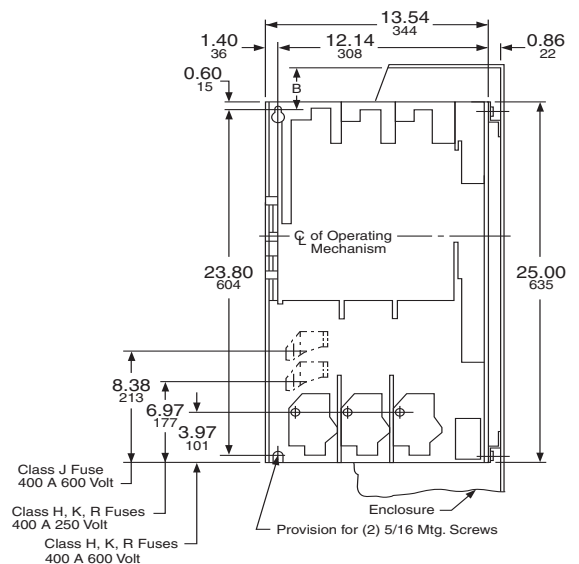


Figure 5

Dim. =  $\frac{\text{in.}}{\text{mm}}$



9421 Type L Circuit Breaker Mechanism

## Type L Circuit Breaker Mechanisms

Type L door-mounted, variable depth operating mechanisms feature heavy duty, all metal construction with trip indication. All mechanisms can be padlocked in the "OFF" position when the enclosure door is open. Further, the handle assemblies can be locked "OFF" with up to three padlocks, which also locks the enclosure when the door is closed. (The 3" handle accepts one padlock.) Complete kits are rated for NEMA Type 1, 3R, and 12 enclosures. They include a handle assembly, operating mechanism, and shaft assembly.

**Table 53: Complete Kits**

Complete Kit Does Not Include Circuit Breaker			Includes: Operating Mechanism Standard 6 in. Handle Standard Shaft Kit		Includes: Operating Mechanism Standard 6 in. Handle Long Shaft Kit		Includes: Operating Mechanism Short 3 in. Handle Long Shaft Kit	
Use With			Type	Mounting Depth ▲ Min. – Max.	Type	Mounting Depth ▲ Min. – Max.	Type	Mounting Depth ▲ Min. – Max.
NSF, PowerPact™ H and J	2-3	250	LJ1	5-1/2-10-3/4	LJ4	5-1/2-21-3/8	LJ3	5-1/2-21-3/8
PowerPact D and L	2-3	600	LD1	7-1/4-12-1/16	LD4	7-1/4-22-5/8	3 in. handles are not recommended for use with these circuit breakers.	
PowerPact M and P ♦	3	1200	LW1 ■	7-3/16-11-5/8	LW4 ■	7-3/16-22-1/4		

- ▲ Mounting depth measured in inches from circuit breaker mounting surface (control panel) to outside of enclosure door.
- Type LW1 and LW4 include an 8 in. handle (9421LHP8) rather than a 6 in. handle.
- ♦ These circuit breaker operating mechanisms must use the 9421LHP\*\* or LCP\*\* handles only.

**Table 54: Component Parts**

Use With			3 in. Handle Assemblies Type 1, 3R, 12	Standard Handle Assemblies Type 1, 3R, 12	Operating Mechanism Includes Lockout	Standard Shaft (Support Bracket Not Required)		Long Shaft (Support Bracket Included)	
Circuit Breaker or Interrupter Type	No. of Poles	Frame Size (A)	Type	Type	Type	Mounting Depth ▲ Min. – Max.	Type	Mounting Depth ▲ Min. – Max.	Type
NSF, PowerPact H & J	2-3	250	LH3 ▼	LH6 ▼	LJ7	5-1/2-10-1/4	LS8	5-1/2-21-3/8	LS13
PowerPact D & L	2-3	600	★	LH6 ▼	LD7	7-1/4-12-1/16	LS8	7-1/4-22-5/8	LS13
PowerPact M & P ♦	3	1200	★	LHP8 ▼	LW7	7-3/16-11-5/8	LS8	7-3/16-22-1/4	LS10

- ▲ Mounting depth measured in inches from circuit breaker mounting surface (control panel) to outside of enclosure door.
- Type LW1 and LW4 include an 8 in. handle (9421LHP8) rather than a 6 in. handle.
- ♦ These circuit breaker operating mechanisms must use the 9421LHP\*\* or LCP\*\* handles only.
- ★ 3 in. handles are not recommended for use with these circuit breakers.
- ▼ For a red handle and yellow bezel, add suffix RY to catalog number, e.g., 9421LH6RY.

New!



3 in. Handle Assembly



Standard Handle Assembly

**Table 55: NEMA Type 4 and 4X Handle Assemblies**

Use With			Standard Handle Assemblies		Special 3 in. Version	
Circuit Breaker or Interrupter Type	No. of Poles	Frame Size (A)	NEMA Type 1, 3R, 4, 12 (Painted)	NEMA Type 1, 3R, 4, 4X, 12 (Chrome Plated)	NEMA Type 1, 3R, 4, 12 (Painted)	NEMA Type 1, 3R, 4, 4X, 12 (Chrome Plated)
			Type	Type	Type	Type
NSF, PowerPact H and J	2-3	250	LH46	LC46	LH43	LC43
PowerPact D and L	2-3	600	LH46	LC46	3 in. handles are not recommended for use with these circuit breakers.	
PowerPact M and P	3	1200	LHP48	LCP48		

**Table 56: Auxiliary and Alarm Switches for PowerPact™ Circuit Breakers**

Description	H- and J-Frame	D- and L-Frame	D- and L-Frame
1 Auxiliary Switch 1a 1b	S29450	S29450	S29450
2 Auxiliary Switch 2a 2b	2 xS29450	2 xS29450	2 xS29450
3 Auxiliary Switch 3a 3b	—	3 xS29450	3 x S29450

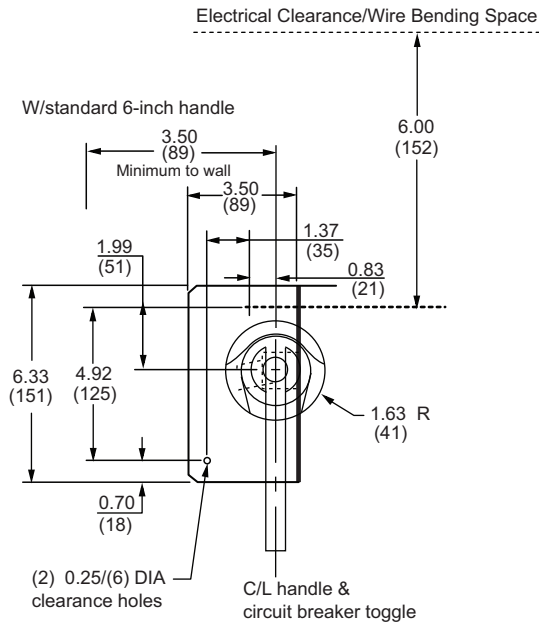
**NOTE:** The location of the accessory in the circuit breaker determines its function.

# Flange Mounted and Cable Operated

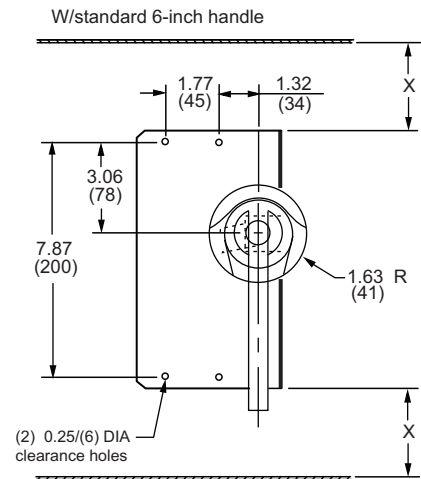
## Dimensions, Disconnected Switches

Class 9421

**Panel Drilling for PowerPact™ H and J Circuit Breaker**  
Operating Mechanisms: 9421LJ1, 9421LJ4, and 9421LJ7



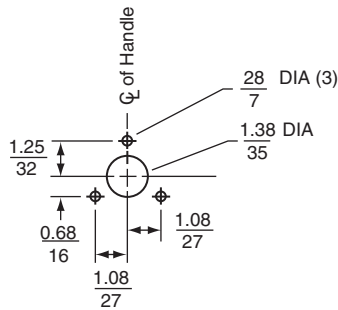
**Panel Drilling for PowerPact D and L Circuit Breaker**  
Operating Mechanisms: 9421LD1, 9421LD4, and 9421LD7



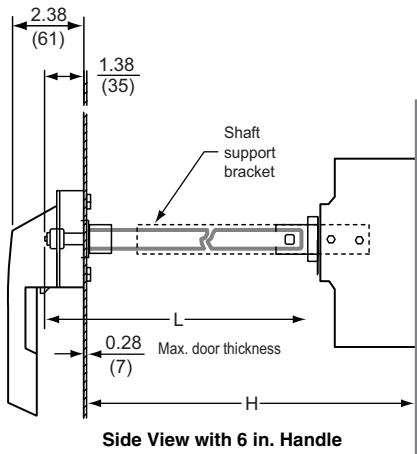
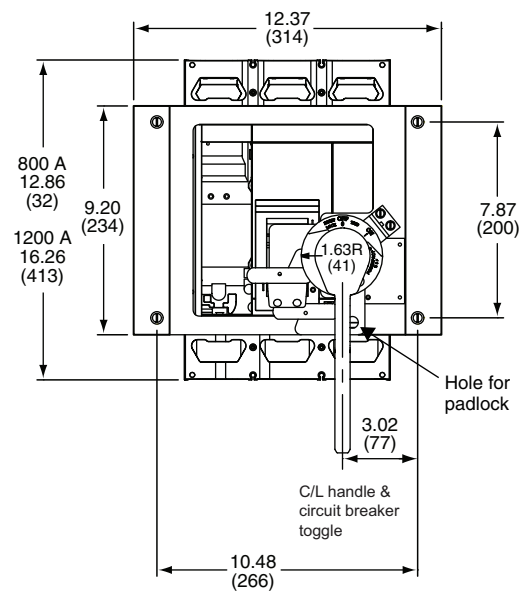
X: Minimum to wall or barrier to insure adequate wire bending space to lug surface when the maximum wire size is used. Refer to NEC 430-10.

Dimensions:  $\frac{\text{in.}}{\text{mm}}$

**Panel Drilling for PowerPact M and P Circuit Breaker**  
Operating Mechanisms: 9421LW1, 9421LW4, and 9421LW7



**Door Drilling Dimensions**



**Side View with 6 in. Handle**

**Table 57: Shaft Cutting Dimensions**

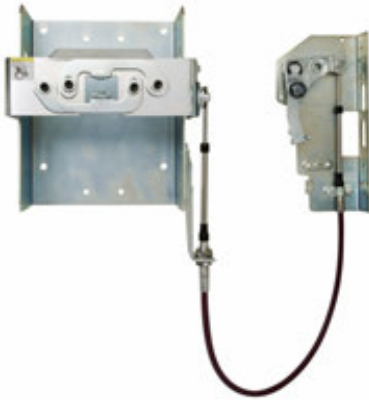
Class	Type	Shaft Length Formula	H = Standard Shaft		H = Long Shaft	
			Min.	Max.	Min.	Max.
9421	LJ1, LJ4, LJ7	L = H - 3.00	76	10.75	5.5	21.63
			76	273	138	543
9421	LD1, LD4, LD7	L = H - 4.25	108	12.06	7.25	22.63
			108	306	184	575
9421	LW1, LW4, LW7	L = H - 4.89	124	11.63	7.19	22.25
			124	295	183	565

**Table 58: Flexible Cable Mechanisms for Use with Schneider Electric™ (formerly Merlin Gerin™) Circuit Breakers and PowerPact™ 3-Pole Circuit Breakers**

For use with Class 9422 A handle operators especially designed for tall, deep enclosures where placement flexibility is required.

Circuit Breaker Type	No. of Poles	Frame Size A	Cable Mechanism	
			Length	Type
MG-NSF PowerPact H- and J-Frame	2 - 3	250	36 in.	CSF30
			60 in.	CSF50
			84 in.	CSF70
			120 in.	CSF10
MG-NSF	4	250	36 in.	CSF304
			60 in.	CSF504
			120 in.	CSF104
MG-NSJ PowerPact D and L	3	600	36 in.	CSJ30
			60 in.	CSJ50
			120 in.	CSJ10
MG-NSJ PowerPact D and L	4	600	36 in.	CSJ304
			60 in.	CSJ504
			120 in.	CSJ104
			48 in.	CMP40
PowerPact M- and P-Frame▲	3	1200	50 in.	CMP50
			120 in.	CMP10

▲ Must use 9422AP1 or 9422AP2 Handle with this operating mechanism.

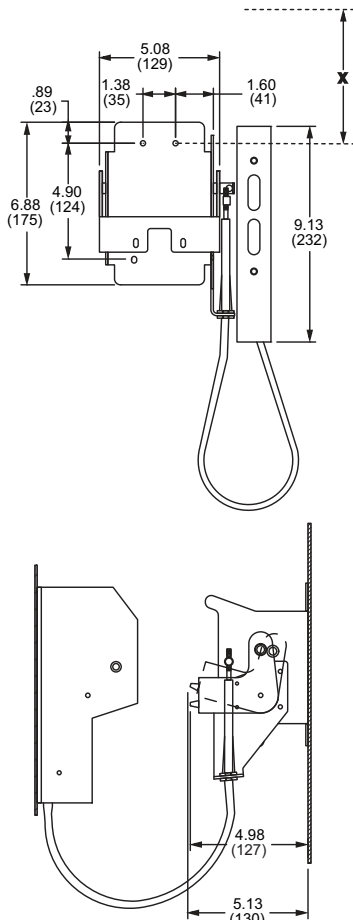


**Flexible Cable Mechanism  
9422CSJ30**

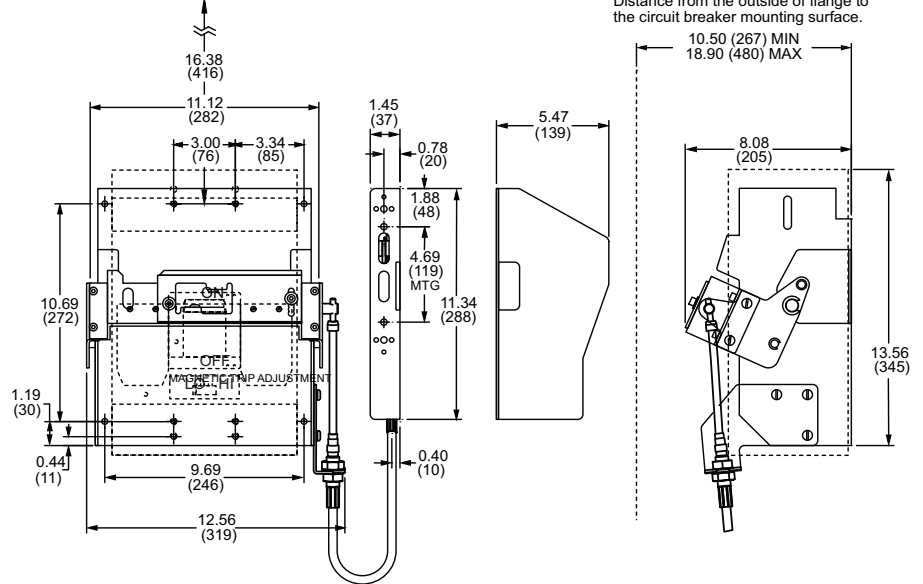
**NOTE:** Refer to NEC Article 430-10 for minimum dimension X from circuit breaker top mounting hole to wall or barrier to ensure adequate wire bending space.

**NOTE:** Bend radius in cable must never be less than 6 inches. Electrical clearances must be maintained between cable and live electrical parts.

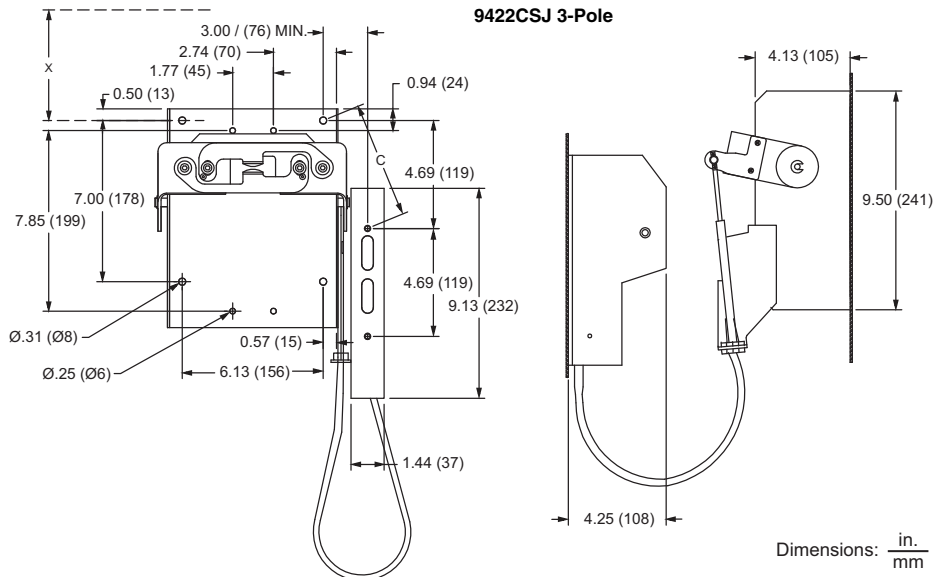
**9422CSF 3-Pole**



**9422CMP**



**9422CSJ 3-Pole**



Dimensions:  $\frac{\text{in.}}{\text{mm}}$



9422CSFD33

### Dual Cable Operating Mechanisms for Square D™ Circuit Breakers

Dual Cable Operating Mechanisms are designed for use with Square D brand PowerPact™ D, H, J, and L circuit breakers through 600 A frame sizes. The cable mechanisms allow for a single handle operator, Class 9422Ax, to operate both circuit breakers. The cable mechanism is designed especially for tall, deep enclosures where placement flexibility is required. There are numerous cable arrangements to choose from to accommodate many applications.

#### Features

- Separate cables for each circuit breaker
- Rugged metal flange handle operator
- Maximized flexibility of circuit breaker placement for existing and new applications
- Control panel can be fed from two separate supply voltages (if required)
- Dual mechanism allows both separate supply voltages to be controlled by a single handle to improve security features

Table 59: Dual Cable Operating Mechanisms Selection

Circuit Breaker Type	Cable Length in. / mm (quantity)	Catalog Number	Frame Size (max.)
PowerPact H & J MG NSF	120 in. / 3048 mm (2)	9422CSFD1	250 A
	36 in. / 914 mm (1)	9422CSFD35	
	60 in. / 1524 mm (1)	9422CSFD35	
	60 in. / 1524 mm (1-CSF 3 pole)	9422CSFD345	
	60 in. / 1524 mm (1-CSF 4 pole)	9422CSFD345	
	36 in. / 914 mm (1)	9422CSFD31	
	120 in. / 3048 mm (1)	9422CSFD31	
PowerPact D & L MG NSJ	36 in. / 914 mm (2)	9422CSFD33	600 A
	60 in. / 1524 mm (1)	9422CSFD51	
	120 in. / 3048 mm (1)	9422CSFD51	
	60 in. / 1524 mm (2)	9422CSFD55	
	60 in. / 1524 mm (2-CSJ)	9422CSJD50▲	
	120 in. / 3048 mm (2-CSJ)	9422CSJD10▲	
	60 in. / 1524 mm and 120 in. / 3048 mm (2-CSJ)	9422CSJD51▲	
New!	120 in. / 3048 mm (1-CSF) and 120 in. / 3048 mm (1-CSJ)	9422CSFJD10	250 A and 600 A
	60 in. / 1524 mm (1-CSF)	9422CSFJD50	
	60 in. / 1524 mm (1-CSJ)	9422CSFJD50	

▲ Must use the 9422AP1 or 9422AP2 operating handle with this operating mechanism.



9422Ax

9422APx

Handle Mechanisms

### Handle Mechanisms

These handle mechanism kits are used with the circuit breaker variable depth and cable operating mechanisms. The kits contain all parts necessary for mounting the handle to the flange of the enclosure. Types A1/AP1 to A4 are suitable for right or left-hand flange mounting.

Table 60: Handle Mechanisms

Type of Handle	NEMA Type Enclosure	Type
6 in.	1, 3, 3R, 4 (sheet steel), 12	A1
	4, 4X (stainless)▲	A2
6 in. ■	1, 3, 3R, 4 (sheet steel), 12	AP1
	4, 4X (stainless)▲	AP2
4 in.	1, 3, 3R, 4 (sheet steel), 12	A3
	4, 4X (stainless)▲	A4

▲ All external metal parts are either stainless steel or a chrome-plated non-ferrous die casting.

■ Must be used with 9422 RM1, 9422CMP, and 9422CSJD (dual cable mechanism) only.

NOTE: See page 15 for dimensional information.

### Flange-Mounted, Variable-Depth Operating Mechanisms

Designed for installation in custom built control enclosures where main or branch circuit protective devices are required. All circuit breaker operating mechanisms are suitable for either right- or left-hand flange mounting, convertible on the job. Selection of a 9422Ax handle is required to complete the operating mechanism.

Table 61: Variable-Depth Operating Mechanisms for Use with Schneider Electric™ (formerly Merlin Gerin™) Circuit Breakers

Use with Circuit Breaker Frame Size	No. of Poles	Frame Size A	Variable Depth Mtg. Range Min.-Max. (Inches)▲	Operating Mechanism
				Operating Mechanism Only—Does Not Include Handle Mechanism Type
<b>Schneider Electric (formerly Merlin Gerin) Circuit Breakers and PowerPact™ Frame 3-Pole Circuit Breakers</b>				
MG-NSF PowerPact H- and J-Frame	2-3	250	5.88-17.75	RQ1
MG-NSJ PowerPact D and L	3	600	9.00-17.75	RS1
PowerPact M- and P-Frame ■	3	1200	10.50-18.38	RM1

▲ Class 9422 Type R2 will extend mounting depth 7 inches—not recommended for use with the 9422RM1 operating mechanism (see page 15).

■ These circuit breaker operating mechanisms must use the 9422APx handles.



9422 Type R  
Circuit Breaker Mechanism

Table 62: Electrical Interlocks—Class 9999

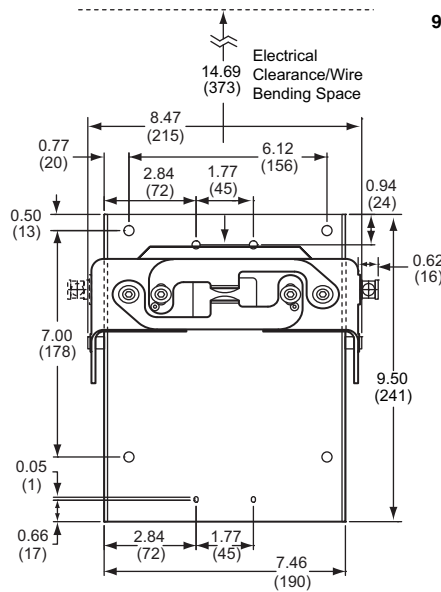
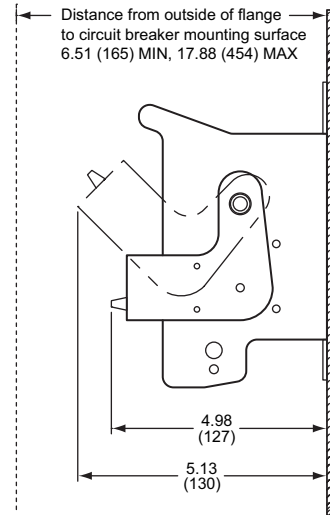
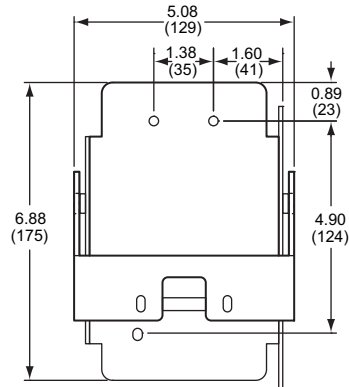
Description	Class	Type
Single Pole, Double Throw	9999	R26
Double Pole, Double Throw	9999	R27

# Operating Mechanisms for Circuit Breakers

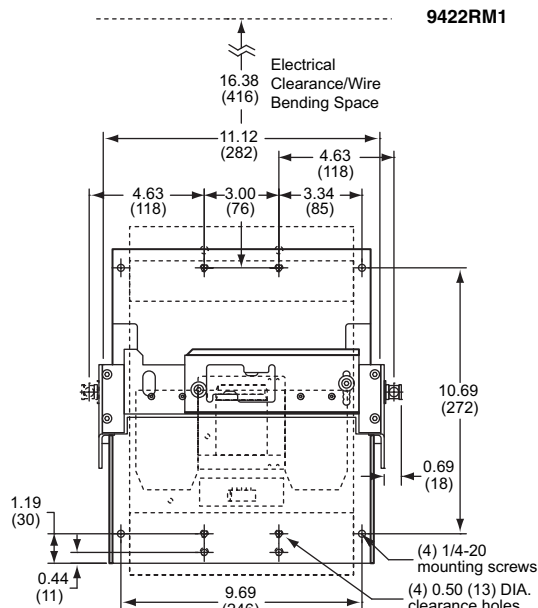
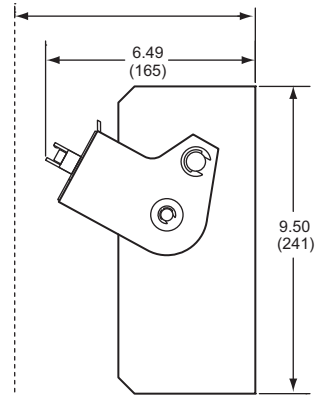
Class 9422 Dimensions, Flange Mounted and Variable Depth

Minimum to wall or barrier to insure adequate wire bending space to lug surface when the maximum wire size is used with standard lugs. Refer to NEC 430-10.

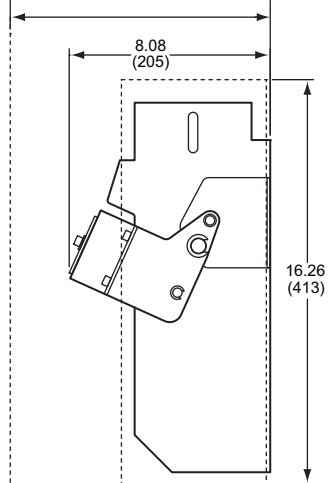
Dimensions:  $\frac{\text{in.}}{\text{mm}}$



Distance from outside of flange to circuit breaker mounting surface: 7.44 (189) MIN, 18.25 (464) MAX



Distance from outside of flange to circuit breaker mounting surface: 10.50 (267) MIN, 18.90 (480) MAX





# Operating Mechanisms Accessories

## Disconnect Switches and Circuit Breakers

Class 9422

Switch  
or  
Breaker



### Remote or Dual Adapter Kit

For the remote or dual operation of 30, 60, 100, and 200 A disconnect switches.

**Remote Operation**—permits mounting the Class 9422 Type A9 or A10 handle mechanism at a lower level than the disconnect device it controls. This arrangement is often required where the disconnect device is mounted too high for personnel to easily reach a conventional operator.

**Dual Operation**—permits controlling two disconnect devices, one in line with and one remote from a single Class 9422 Type A9 or A10 handle mechanism.

**NOTE:** A Class 9422 Type A9 or A10 handle (page 8-15) and the preferred mounting method **must** be used.

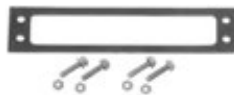
**Table 63: Disconnect Device**

Disconnect Device	Enclosure Mounting Depth		Type
	Min.	Max.	
<b>Disconnect Switch</b>			
30 A Type TCF/TCN	10.63	19.50	D2
60 A Type TDF/TDN	10.63	19.50	
100 A Type TEF/TEN	12.13	20.25	
200 A Type TF	13.13	20.81	

Remote operation shown (handle mechanism not included in kit)

**Table 64: Other Accessories**

Accessory	Description	Class	Type
Alternate Mounting Kit	Permits mounting Class 9422 Type A1 or A2 handle mechanisms in enclosures with flange thickness of 16 gauge to 0.5 in.	9422	AM2
Channel/Flange Support Kit	Auxiliary kit recommended for use with 30 and 60 A disconnect switches and PowerPact™, NSF, and NSJ circuit breaker mechanisms when these devices are to be mounted on the center channel of a multi-door enclosure or when extra rigidity for the flange is required. Supplied as standard with 100 and 200 A disconnect switches.	9422	C1
Auxiliary Lock Plate	Auxiliary kit recommended for use with the Class 9422 Type A-1 flange handle to facilitate padlocking the handle in the "OFF" position. Primarily used when the handle is mounted on the center channel of a multi-door enclosure. Also in any case where the enclosure doors interfere with the normal padlock slot in the flange handle. Meets both the Automotive and NFPA 79 specifications.	9422	L1
Special Lugs for Disconnect Switches	Copper Lugs only—Specify Form Y157	—	—
	Tin Plated Aluminum Lugs for 400 A Type TG Switch—Specify Form Y1572 (000–750 kcmil Cu/Al wire)	—	—
Operating Rods	Anderson Type VCEL Compression Lugs—Specify Form Y1574 <b>Exceptions:</b> None of the 30 A or 60 A disconnect switches are available with compression lugs.	—	—
	Standard operating rod for use with Class 9422 variable depth mechanisms. Included as standard in each kit.	9422	R1
	Extra long operating rod for use with Class 9422 variable depth mechanisms. Can be used as a substitute for the standard rod included in each kit to increase the maximum mounting depth 7 in. (Two are required for Types ARR, RR, ART, RT, ATE, TE, ATF, TF).	9422	R2



Alternate Mounting Kit



Channel/Flange Support Kit



Auxiliary Lock Plate



9422 TCN30

Class 9423 door closing mechanisms cover a range of enclosures with door openings up to a maximum of 91 in. high. The door closing mechanisms are designed to be used on control enclosures and interlocked with a Class 9422 disconnect device, although they all can be used independently. Three different systems are available, and their use is as recommended below. A complete system is available for interlocking all the doors of a multi-door enclosure with the master door when using the 6 in. or 8 in. vault handle mechanism.

Note that the “Master Door” is defined to be the door of a single or multi-door enclosure which is interlocked directly with the disconnect device. The master door can be hinged on either the right or left hand side. It can be located in any position on a multi-door enclosure. An “Auxiliary Door” is defined to be any remaining doors of a multi-door enclosure which are interlocked with the master door by means of the overhead interlocking system as illustrated on pages 26 and 27.

### Selection Procedure

#### Step 1.

Determine enclosure construction (number of doors, door height, hinge location, etc.).

#### Step 2.

Determine Class 9422 disconnect device to be used—either a disconnect switch or a circuit breaker mechanism.

#### Step 3.

Determine the location of the disconnect device and handle mechanism (right- or left-hand flange or center channel).




#### Step 4.

Select the door closing mechanism required.

#### Step 5.

Select the auxiliary door closing mechanisms and multi-door interlocking hardware, if required. (A complete system for interlocking all auxiliary doors of a multi-door enclosure with center channel is available for the medium and large enclosures.)

**Table 65: Door Closing Mechanism**

60 in. Maximum Door Opening (Recommended)	46–60 in. Door Opening (Recommended)	61–91 in. Door Opening (Recommended)
 <ul style="list-style-type: none"> <li>• 2 Point Locking is Standard</li> <li>• A Third Roller Latch Kit is Available for 3 Point Locking</li> <li>• For 3/4 in. Door Depths</li> </ul>	 <ul style="list-style-type: none"> <li>• For use on Single or Multi-Door Enclosures</li> <li>• For use with Doors Hinged on Right or Left Side</li> <li>• Referred to as the 6 in. Vault Handle Mechanism</li> <li>• For 3/4 in. Door Depths</li> </ul>	 <ul style="list-style-type: none"> <li>• For use on Single or Multi-Door Enclosures</li> <li>• For use with Doors Hinged on Right or Left Side</li> <li>• Referred to as the 8 in. Vault Handle Mechanism</li> <li>• For 1-1/8 in. Door Depths</li> </ul>

Type M4

Latch bar not included, but most prepunched enclosures that accept Square D™ operating mechanisms supply a predrilled latch bar.

The door closing mechanisms listed below are for use on small to medium size single door control enclosures. They are designed to be used in conjunction with Class 9422 flange-mounted disconnect switches and circuit breaker operating mechanisms; however, they can be used independently as well. When used on properly designed and gasketed NEMA Type 12 enclosures, they meet NFPA 79 standards.

**Table 66: Single Door Enclosures—NEMA Type 4 or 12 with 60 in. High Maximum Opening**

Description	For Use On (Enclosure Type)	Use In Conjunction With	Door Latch Handle Length	Suggested Maximum Door Opening	Door Depth	Type
Two point, roller latch, door closing mechanism for use on enclosures with doors hinged on the <b>left</b> hand side.	NEMA Type 4 and 12 Sheet Steel	Class 9422 Types A1, A3, A9	4 in.	Less than 39 in.	3/4	M4
			4 in.	Less than 39 in.	▲	M10
			6 in.	60 in.	3/4	M9
Two point, roller latch, door closing mechanism for use on enclosures with doors hinged on the <b>right</b> hand side.	NEMA Type 4 and 12 Sheet Steel	Class 9422 Types A1, A3, A9	4 in.	Less than 39 in.	3/4	M4L
			4 in.	Less than 39 in.	▲	M10L
			6 in.	60 in.	3/4	M9L
			4 in.	Less than 39 in.	3/4	M24L
Third roller latch kit for 3 point locking; for use where 3 point locking is desired or where the door opening is 39 in. or more.	NEMA Type 4 and 12 Sheet Steel	Class 9423 Types M4, M9, M4L, M9L	—	—	3/4	M3
			Class 9423 Types M24, M24L	—	—	3/4

▲ Suitable for door depths of 1-1/8 in., 1-1/4 in., 1-3/8 in. and 1-1/2 in.



Circuit Breaker Operating Mechanism

# Door Closing Mechanisms

Type M5, M6, M1 and M8

Class 9423

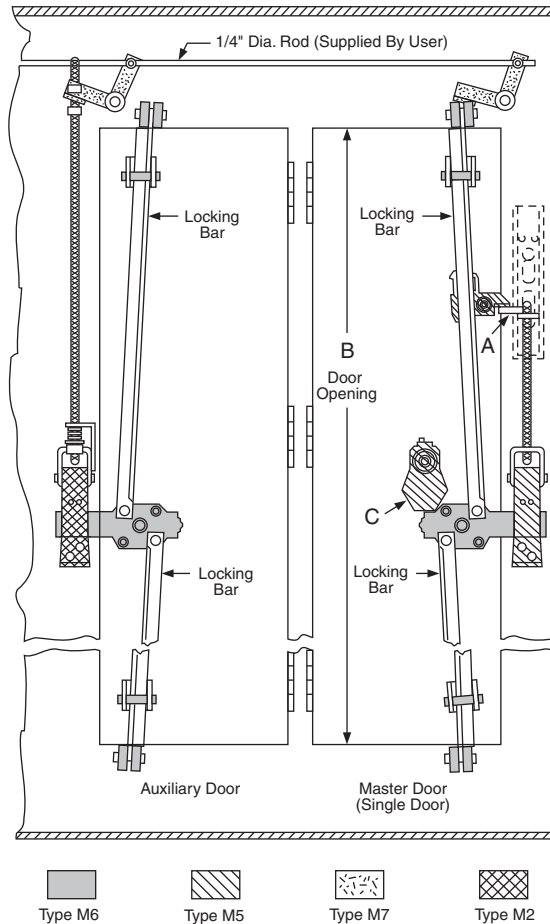
## Vault Type for Single and Multi-Door Enclosures

Table 67 shows the requirements for the door closing mechanism, the locking bar kit, and the mechanical interlock kit, if used.

**Table 67: Single or Multi-Door Enclosures—NEMA Type 12 with 40 in. to 60 in. Door Opening**

Single-Door Enclosure		Multi-Door Enclosure	
Without Interlocking	With Interlocking	Without Interlocking	With Interlocking
1—M6 door closing mechanism 1—Type M660 locking bar kit	1—M6 door closing mechanism 1—Type M660 locking bar kit 1—Type M5 (use with 9422A handles)	For <i>each</i> door: 1—M6 door closing mechanism 1—Type M660 locking bar kit	For <i>Master</i> door: 1—M6 door closing mechanism 1—Type M660 locking bar kit 1—Type M5 (for use with 9422A handles) For <i>each Auxiliary</i> door: 1—M6 door closing mechanism 1—Type M660 locking bar kit Necessary quantities of Types M2 and M7 for each door (see below)

### View from Inside the Enclosure



- Note: A - Interlocking lever extension of the flange-mounted handle mechanism.
- Note: B - Actual enclosure opening—not door height.
- Note: C - Screwdriver interlock assembly can be ordered separately. Class 9423 Type CEQ2493.

**NOTE:** All mechanisms listed on this page are suitable for either left or right hand mounting.

**Table 68: Door Interlocks**

- Type M6 Door Closing Mechanism**  
The Class 9423 Type M6 door closing mechanism is designed to close and seal 0.75 in. deep doors of single or multi-door NEMA Type 12 enclosures. The Type M6 can be used on doors hinged on either the left or right hand side. Recommended door openings are from 40–60 in. Vault type handle length is 6 in.
- Type M660 Locking Bar Kits**  
The lock bar kit for the Type M6 door closing mechanism contains two lock bars and is available from stock. The bars can be cut to fit door openings through 60 in. One lock bar kit is required for each Type M6 ordered.
- Type M5**  
The Class 9423 Type M5 mechanical interlock kit is designed to interlock a Class 9422 handle mechanism with the Type M6 door closing mechanism. This kit prevents the opening of the master door (or single door) with the disconnect handle in the “ON” position, making it mandatory to use a screwdriver to gain entry to the enclosure at any time, regardless of the disconnect handle position.

**Table 69: Required Accessories for Auxiliary Doors**

- Type M2**  
One Type M2 kit is required for each auxiliary door. This kit is required to interlock any auxiliary door(s) with the master door.
- Type M7**  
The first auxiliary door requires 2 Type M7 kits. Additional auxiliary doors require only 1 Type M7 kit. The 0.25 in. diameter rod used to interconnect the M7 kits is furnished by the user. If the distance between any two Type M7 kits exceeds 36 in., an additional Type M7 kit should be installed to prevent the rod from buckling.

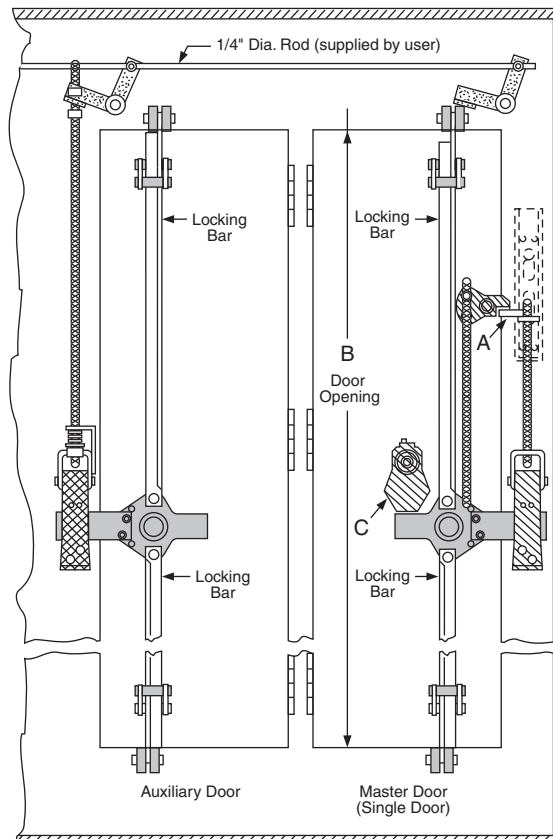
### Vault Type for Single and Multi-Door Enclosures

Table 70 shows the requirements for the door closing mechanism, the locking bar kit, and the mechanical interlock kit, if used.

**Table 70: Single Or Multi-Door Enclosures—NEMA Type 12 with 61 in. to 91 in. Door Openings**

Single-Door Enclosure		Multi-Door Enclosure		
Without Interlocking	With Interlocking	Without Interlocking	With Interlocking	
1—M8 door closing mechanism 1—Type M891 locking bar kit	1—M8 door closing mechanism 1—Type M891 locking bar kit 1—Type M1 (for use with 9422A handles)	For each door: 1—M8 door closing mechanism 1—Type M891 locking bar kit	For Master door: 1—M8 door closing mechanism 1—Type M891 locking bar kit 1—Type M1 (for use with 9422A handles)	For each Auxiliary door: 1—M8 door closing mechanism 1—Type M891 locking bar kit Necessary quantities of Types M2 and M7 for each door (see below)

### View from Inside the Enclosure



Note: A - Interlocking lever extension of the flange-mounted handle mechanism.

Note: B - Actual enclosure opening—not door height.

Note: C - Screwdriver interlock assembly can be ordered separately. Class 9423 Type CEQ2493.

**NOTE:** All mechanisms listed on this page are suitable for either left or right hand mounting.

**Table 71: Door Interlocks**

#### Type M8 Door Closing Mechanism

The Class 9423 Type M8 door closing mechanism is designed to close and seal 1.125 in. deep doors of single or multi-door NEMA Type 12 enclosures. The Type M8 can be used on doors hinged on either the left or right hand side. Recommended door openings are from 61–91 in. Vault type handle length is 8 in.

#### Type M891 Locking Bar Kits

The lock bar kit for the Type M8 door closing mechanism contains two lock bars and is available from stock. The bars can be cut to fit door openings through 91 in.. One lock bar kit is required for each Type M8 ordered.

#### Type M1

The Class 9423 Type M1 mechanical interlock kit is designed to interlock a Class 9422 handle mechanism with the Type M8 door closing mechanism. This kit prevents the opening of the master door (or single door) with the disconnect handle in the "ON" position, making it mandatory to use a screwdriver to gain entry to the enclosure at any time, regardless of the disconnect handle position.

**Table 72: Required Accessories for Auxiliary Doors**

#### Type M2

One Type M2 kit is required for each auxiliary door. This kit is required to interlock any auxiliary door(s) with the master door.

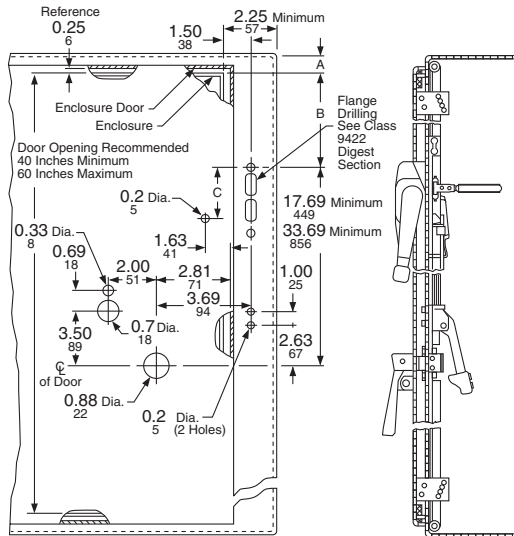
#### Type M7

The first auxiliary door requires 2 Type M7 kits. Additional auxiliary doors require only 1 Type M7 kit. The 0.25 in. diameter rod used to interconnect the M7 kits is furnished by the user. If the distance between any two Type M7 kits exceeds 36 in., an additional Type M7 kit should be installed to prevent the rod from buckling.

# Door Closing Mechanisms

## Type M5, M6, M1 and M8

Class 9423



### Enclosure Construction and General Location Information For Types M5 and M6

Drilling and location information below is complete for a single door enclosure with door hinged on left side, incorporating a Type M6, M5, and Class 9422 handle mechanism. Transpose all horizontal dimensions for doors hinged on right side.

#### Dimension A

Note: Single door enclosures: A minimum = 1 in.

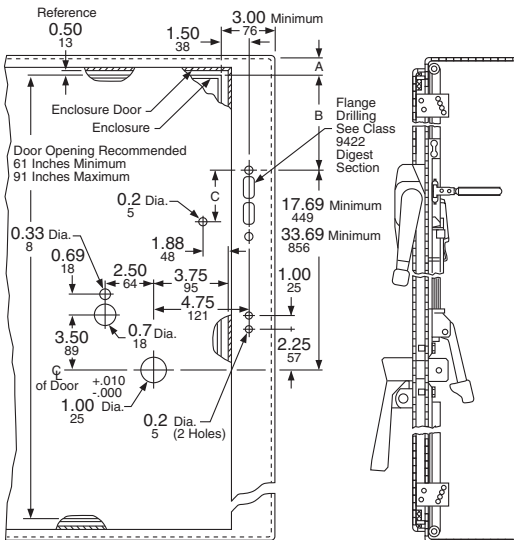
Note: Multi-Door enclosures without overhead interlocking system: A minimum = 1 in.

Note: Multi-Door enclosures with overhead interlocking system: A minimum = 4½ in.

Note: Overhead interlocking system consists of the required number of Class 9423 Type M2 and M7 kits for interlocking the auxiliary doors with the master door. See page 26.

**Table 73: Dimension B (Minimums)**

Type	Disconnect Device	If A = 1 Minimum B =	If A = 4½ Minimum B =	C
TCF, TCN, TDF, TDN, TD	60 A Disconnect Switch	3-1/16	2-1/2	3-3/16
TE, TEF, TEN	100 A Disconnect Switch	5-1/4	2-1/2	3-3/16
TF	200 A Disconnect Switch	11-5/8	8-1/8	3-3/16
TG	400 A Disconnect Switch	15-1/16	11-9/16	6-3/4
RN1	FAL, FHL Circuit Breaker	4-27/32	2-1/2	3-3/16
RP1	KAL, KHL Circuit Breaker	11-5/32	7-21/32	3-3/16
RR2	ILL Circuit Breaker	17-31/32	14-15/32	3-3/16
RT1	MAL, MHL, MEL, MXL Circuit Breaker	18-5/8	15-1/8	3-3/16



### Enclosure Construction and General Location Information For Types M1 and M8

Drilling and location information below is complete for a single door enclosure with the door hinged on the left side, incorporating a Type M8, M1, and Class 9422 handle mechanism. Transpose all horizontal dimensions for doors hinged on the right side.

#### Dimension A

Note: Single door enclosures: A minimum = 1½ in.

Note: Multi-Door enclosures without overhead interlocking system: A minimum = 1½ in.

Note: Multi-Door enclosures with overhead interlocking system: A minimum = 4½ in.

Note: Overhead interlocking system consists of the required number of Class 9423 Type M2 and M7 kits for interlocking the auxiliary doors with the master door. See page 26.

**Table 74: Dimension B (Minimums)**

Type	Disconnect Device	If A = 1½ Minimum B =	If A = 4½ Minimum B =	C
TCF, TCN, TDF, TDN, TD	60 A Disconnect Switch	2-15/16	2-1/2	3-3/16
TE, TEF, TEN	100 A Disconnect Switch	4-3/4	2-1/2	3-3/16
TF	200 A Disconnect Switch	11-1/8	8-1/8	3-3/16
TG	400 A Disconnect Switch	14-9/16	11-9/16	5-7/8
RN1	FAL, FHL Circuit Breaker	4-11/32	2-1/2	3-3/16
RP1	KAL, KHL Circuit Breaker	10-21/32	7-21/32	3-3/16
RR2	ILL Circuit Breaker	17-15/32	14-15/32	3-3/16
RT1	MAL, MHL, MEL, MXL Circuit Breaker	18-1/8	15-1/8	3-3/16

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Document Number S9422CT1201EP R0



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January 2013 SF