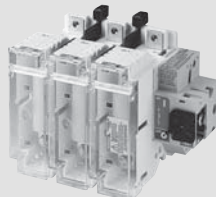
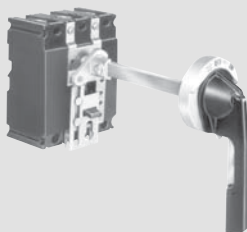
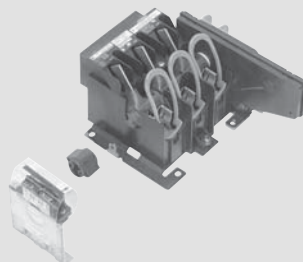


Section 8

Operator Mechanisms and
Disconnect SwitchesUL 508 Motor Disconnect
Switch (p.8-2)UL 98 Fusible Switch
(p. 8-6)UL 98 NEMA Style Rotary
Handle Disconnect Switch
(p. 8-12)9422R Circuit Breaker
Mechanism (p. 8-23)

9421L Circuit Breaker Mechanism (p. 8-13)

9422 Circuit Breaker
Cable Operator (p. 8-16)9423 Door Closing
Mechanisms (p. 8-25)UL 508 NEMA Style Flange Handle
Disconnect Switch (p. 8-16)

Door-Mounted Switches and Circuit Breaker Mechanisms

Motor Disconnect Switches	Mini-Vario and Vario™	10–115 A	8-2
IEC Style Disconnect Switches	GS1/ GS2 / LK3 / LK4	30–1200 A	8-6
NEMA Style Disconnect Switches	D10	30–200 A	8-12
Circuit Breaker Mechanisms	9421L	15–1200 A	8-13

Flange-Mounted and Cable-Operated Disconnect Switches and
Circuit Breaker Mechanisms

Disconnect Switches	9422T	30–400 A	8-16
Disconnect Switches, Bracket Mounted			8-20
Circuit Breaker Cable Mechanisms	9422C		8-22
Circuit Breaker Mechanisms Accessories	9422R	15–1200 A	8-23 8-23

Door Closing Mechanisms

Single-Door or Multi-Door Closing Mechanisms	9423	Up to 91 in. door openings	8-25
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The Mini-Vario and Vario motor disconnect switch catalog numbers can be identified as described in Table 8.1.



VCFN12GE



VN12



VN12/KCC1YZ



VBDN12



VCDN12

Table 8.1: Identification System

				V	CF	N12	GE
Model (V-Vario, K-Operator)							
Operator Type/ Accessory Designation							
CD	Single hole Red & Yellow	BD	Single hole Black & 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				
Switch Type▲							
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				
Enclosure Type (if applicable)							
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 8.2: Assembled Switches—IP65

Current Rating	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	\$ Price	Catalog Number	\$ Price	Catalog Number	\$ Price
10/12 A	VCDN12	90.00	VBDN12	90.00	VCCDN12	134.00
16/20 A	VCDN20	135.00	VBDN20	135.00	VCCDN20	161.00

Table 8.3: Enclosed Switches

Complete Switches Mounted in IP55 Non-metallic Enclosure	
Red/Yellow Mounted In Sealable Enclosure, Non-UL Listed	
Catalog Number	\$ Price
VCFN12GE	179.00
VCFN20GE	189.00

Table 8.4: Component Parts

Catalog Number	Description	\$ Price
VN12▲	10/12 A switch only	52.00
VN20▲	16/20 A switch only	63.00
VZN12▲	Add on power pole for 10/12 A switch	26.00
VZN20▲	Add on power pole for 16/20 A switch	31.50
VZN11	Neutral Pole with early make, late break for VN12 or VN20 switch	29.30
VZN14	Grounding module for VN12 or VN20	29.30
VZN05	N.O. late make auxiliary contact■	27.00
VZN06	N.C. early break auxiliary contact■	27.00
VZN26	Single-pole shroud for auxiliary contacts	5.90
VZN08	Three-pole shroud for VN12 or VN20	7.70

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

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

Table 8.5: Operators and Accessories

Catalog Number	Description	\$ Price
KCC1YZ	45 x 45 mm Red & Yellow operator	39.20
KCD1PZ	60 x 60 mm Red & Yellow operator	39.20
KAD1PZ	60 x 60 mm Black & Gray operator	39.20
VZN17	300–340 mm shaft extension	22.50
VZN30	400–430 mm shaft extension	27.00
KZ32	Door interlocking plate for 45 or 60 mm operator	20.30
KZ83	Door mounting plate for 45 or 60 mm operator	20.30



VCCDN20

Vario

Table 8.6: NEMA Type 1 and 12 Assembled Switches for Door Mounting

Operator Style	Complete Switches (Switch and Handle) for Door Mounting (3-padlock)					
	Red/Yellow (Four Hole)		Black/Gray (Four Hole)		Red/Yellow (Single Hole)	
UL/IEC	Catalog No.	\$ Price	Catalog No.	\$ Price	Catalog No.	\$ Price
10/12 A	VCF02	125.00	VBFO2	125.00	VCD02	134.00
16/20 A	VCF01	147.00	VBFO1	147.00	VCD01	161.00
20/25 A	VCF0	174.00	VBFO	174.00	VCD0	206.00
20/32 A	VCF1	185.00	VBFO1	185.00	VCD1	219.00
25/40 A	VCF2	237.00	VBFO2	237.00	VCD2	252.00
45/63 A	VCF3	282.00	VBFO3	282.00	—	—
63/80 A	VCF4	329.00	VBFO4	329.00	—	—
100/125 A	VCF5	401.00	VBFO5	401.00	—	—
115/75 A	VCF6	612.00	VBFO6	612.00	—	—

Table 8.7: NEMA Type 1 and 12 Assembled Switches for Rear Mounting

Operator Style	Complete Switches for Rear Mounting with Extension Shaft (3-Padlock)▲				Switches with Handles Installed on Unit, DIN Rail Mount Only			
	Red/Yellow (Four Hole)		Red/Yellow (Single Hole)		Red/Yellow (1-Padlock)		Black/Gray (No-Padlock)	
UL/IEC	Catalog No.	\$ Price	Catalog No.	\$ Price	Catalog No.	\$ Price	Catalog No.	\$ Price
10/12 A	VCCF02	162.00	VCCD02	162.00	—	—	—	—
16/20 A	VCCF01	185.00	VCCD01	185.00	—	—	—	—
20/25 A	VCCF0	197.00	VCCD0	197.00	VVE0	149.00	VVD0	149.00
20/32 A	VCCF1	206.00	VCCD1	206.00	VVE1	156.00	VVD1	156.00
25/40 A	VCCF2	252.00	VCCD2	252.00	VVE2	180.00	VVD2	180.00
45/63 A	VCCF3	320.00	—	—	VVE3	212.00	VVD3	212.00
63/80 A	VCCF4	356.00	—	—	VVE4	300.00	VVD4	300.00
100/125 A	VCCF5	464.00	—	—	—	—	—	—
115/75 A	VCCF6	606.00	—	—	—	—	—	—

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

The Vario Motor Disconnect Switch is also offered as an enclosed switch, which is made of corrosion resistant material. The 3-pole version makes the Vario switch ideal for manual motor control applications. They are compact, easy to wire and connect, and come undrilled to allow variable cable entry positions. Note: VCGU enclosures are UL approved.

Table 8.8: Non-Metallic Enclosed Switches ▲ ■

Ampere Size UL/IEC	IP55-PVC 3-Pole, NEMA Type 1 & 12	
	Catalog No.	\$ Price
20/32	VC1GU	239.00
25/40	VC2GU	287.00
45/63	VC3GU	345.00
63/80	VC4GU	381.00
100/125	VC5GU	548.00
115/175	VC6GU	845.00

▲ Assembled, includes switches mounted in enclosure with handle.

■ Refer to Table 8.11 and Table 8.12 for horsepower ratings.

The V1 and V2 come in metallic enclosures (NEMA Type 1, 4, 4X, and 12). The NEMA Type 1 is supplied with conduit knockouts top and bottom. A VZ7 auxiliary contact can be factory installed in these metallic enclosures by adding Form X11 to the catalog number. A VZ20 auxiliary contact can be factory installed in these enclosures by adding Form X20 to the catalog number. Price Adder \$42.00

Table 8.9: Metallic Enclosed Switches ▲ ■

Ampere Size UL/IEC	Horsepower Ratings			NEMA Type 1		NEMA Type 12		NEMA Type 4/4X■	
	240 V	480 V	600 V	Catalog No.	\$ Price	Catalog No.	\$ Price	Catalog No.	\$ Price
20/32	5	10	10	9421V1G30	333.00	9421V1A30	548.00	9421V1W30	783.00
25/40	5	10	15	9421V2G30	381.00	9421V2A30	594.00	9421V2W30	831.00

▲ Assembled, includes: switches mounted in enclosure with handle.

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

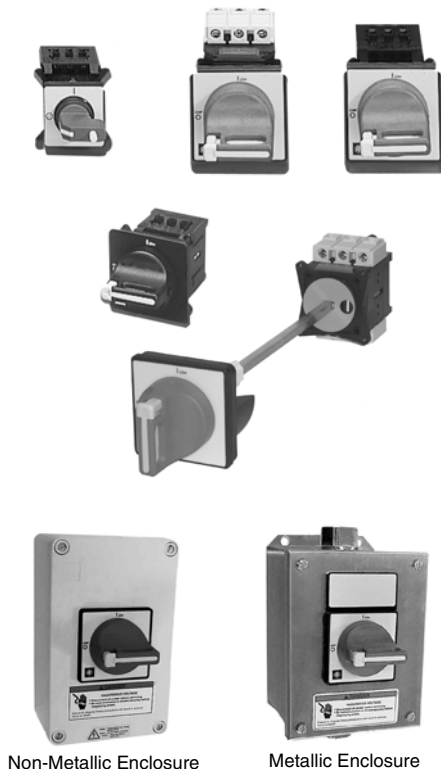
Table 8.10: Non-Metallic Enclosed Switch Dimensions▲

Catalog No. ▲	No. of Poles	Dimensions									
		a		b		c		d		e	
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
VC1GU-VC2GU	3	6.7	170	4.1	105	3.2	82	4.8	122	2.1	53
VC3GU-VC4GU	3	6.7	170	5.3	135	3.3	85	5.1	130	3.7	95
VC5GU-VC6GU	3	11.0	280	8.6	220	5.0	126	7.9	201	7.5	190

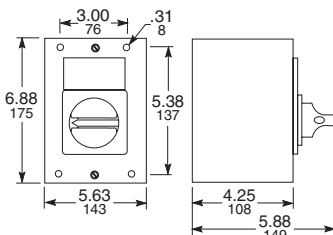
▲ UL Rated, NEMA Type 1, 12, IP55.

Table 8.11: Vario Manual Motor Control Switches, IEC

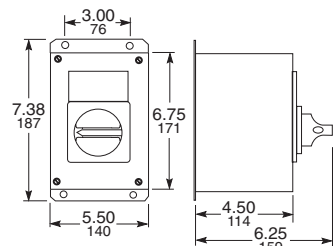
Ampere Size IEC	kW Rating				3-Pole Switch Body	
	230 V	240 V	400 V	415 V	500 V	690 V
12	3	3	4	4	5.5	7.5
20	4	4	5.5	5.5	7.5	11
25	5.5	5.5	7.5	7.5	11	15
32	5.5	5.5	11	11	11	15
40	7.5	7.5	15	15	18.5	15
63	15	15	22	22	30	22
80	18.5	18.5	30	30	37	30
125	22	22	37	37	45	37
175	30	30	45	45	55	45



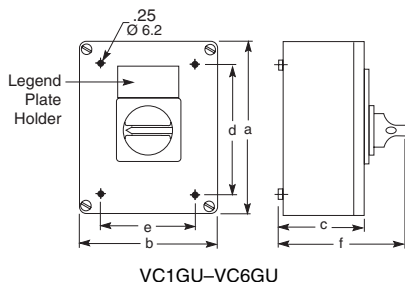
Metallic Enclosed Switch Dimensions



NEMA Type 1 V1G30, V2G30



**NEMA Type 4, 4X, 12
V1W30, V2W30, V1A30, V2A30**



VC1GU-VC6GU

Table 8.12: Vario Manual Motor Control Switches, UL

Ampere Size UL	Horsepower Rating			Shaft Size mm	3-Pole Switch Body Type
	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



Manual Motor
Control Switch

Vario Manual Motor Control Switches

Vario switches act as enclosure disconnects when short circuit protection is provided upstream of the switch (if short circuit protection is not provided upstream, use GS1, LK3, Class 9422 Type T or D10 disconnect switches). Type V switches meet UL 508 requirements as manual motor controllers.

Table 8.13: Switch Body▲

Ampere Size UL/IEC	Shaft Size mm	3 Pole Switch Body	
		Type	\$ Price
10/12	6	V02	62.00
16/20	6	V01	74.00
20/25	6	V0	84.00
20/32	6	V1	95.00
25/40	6	V2	143.00
45/63	8	V3	179.00
63/80	8	V4	215.00
100/125	8	V5	287.00
115/175	8	V6	428.00

▲ Refer to Table 8.11 and Table 8.12 for horsepower ratings.

Table 8.14: 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.	\$ Price	Catalog No.	\$ Price	Catalog No.	\$ Price	Catalog No.	\$ Price
V02–V2	0	KCC1LZ	39.20	KCE1LZ	39.20	KAC1BZ	39.20	KAE1BZ	39.20
V02–V2	1	KCC1YZ	39.20	KCE1YZ	39.20	—	—	—	—
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	39.20	KDF1PZ	39.20	KBD1PZ	39.20	KBF1PZ	39.20
V3–V4	0	—	—	KDF2PZ	39.20	—	—	KBF2PZ	39.20
V02–V2	3	KCD1PZ	39.20	KCF1PZ	39.20	KAD1PZ	39.20	KAF1PZ	39.20
V3–V4	3	—	—	KCF2PZ	39.20	—	—	KAF2PZ	39.20
Operator Type		Red/Yellow Four Hole 90 x 90 mm		Black/Gray Four Hole 90 x 90 mm					
V5–V6	0	KDF3PZ	107.00	KBF3PZ	107.00				
V5–V6	3	KCF3PZ	107.00	KAF3PZ	107.00				

▲ When using these handles for replacements on the non-metallic enclosed switches (see page 8-3), the handle shaft supplied with the enclosure must be reused.

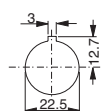
Table 8.15: Low Profile Handle Operators▲

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.	\$ Price	Catalog No.	\$ Price	Catalog No.	\$ Price	Catalog No.	\$ Price
V02–V2	3	KCD1YZ	39.20	KCF1YZ	39.20	KAD1YZ	39.20	KAF1YZ	39.20
V3–V4	3	—	—	KCF2YZ	39.20	—	—	KAF2YZ	39.20
Operator Type		Red/Yellow Four Hole 90 x 90 mm		Black/Gray Four Hole 90 x 90 mm					
V5–V6	3	KCG2YZ	72.00	KAG2YZ	72.00				

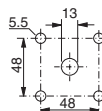
▲ When using these handles for replacements on the non-metallic enclosed switches (see page 8-3), the handle shaft supplied with the enclosure must be reused.

Table 8.16: Gasket Kits

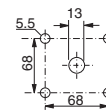
Catalog No.	Description	\$ Price
KZ65	45 x 45 mm Gasket for V02-V2 for 4-hole type handles (order in quantities of 5)—IP65	5.90
KZ66	60 x 60 mm Gasket for V02-V2 for 4-hole type handles (order in quantities of 5)	12.00
KZ62	60 x 60 mm Gasket for V3-V4 for 4-hole type handles (order in quantities of 5)	12.00
KZ67	90 x 90 mm Gasket for V5-V6 for 4-hole type handles (order in quantities of 5)—IP65	15.60



Single-Hole
Mounting Dimensions



Four-Hole 60 x 60
Mounting Dimensions ▲

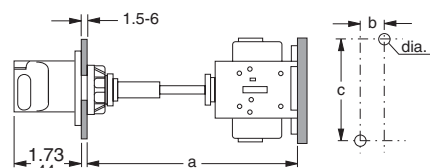


Four-Hole 90 x 90
Mounting Dimensions ▲

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

Table 8.17: 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						



Low-Profile Handle
KCD1YZ

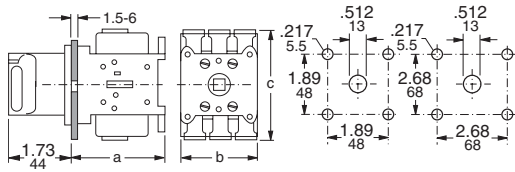


Table 8.18: Door Mounting Switch Body Dimensions

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 8.19: Shaft Extension and Door Interlock

Switch Type	Maximum Panel Depth		Shaft Extension Kit	\$ Price	Door Interlock Plate	\$ Price	Door Mounting Plate	\$ Price
	in.	mm						
V02 to V2	13.0	330	VZ17	28.70	KZ32	20.30	KZ83	20.30
V3, V4	12.6	320	VZ18	35.60	KZ74	39.20	KZ81	39.20
V5, V6	13.8	351	VZ18	35.60	KZ74	39.20	KZ81	39.20
V02 to V2	16.9	429	VZ30	35.60	KZ32	20.30	KZ83	20.30
V3, V4	16.5	419	VZ31	42.80	KZ74	39.20	KZ81	39.20
V5, V6	17.7	450	VZ31	42.80	KZ74	39.20	KZ81	39.20

Table 8.20: Accessories

Switch Type	Line Side Terminal Shroud For Main Switch	\$ Price	Terminal Shroud for Add-on Power Pole	\$ Price	Terminal Shroud for Auxiliary Contact	\$ Price
V02 to V2	VZ8	8.40	VZ26	5.90	VZ29	5.90
V3, V4	VZ9	8.40	VZ27	5.90	VZ29	5.90
V5, V6	VZ10	12.00	VZ28	9.50	VZ29	5.90

Table 8.21: Add-On Contact Modules

Switch Type	Main Pole Module	Main Pole	Ampere Rating UL/IEC	\$ Price	Auxiliary Contacts		\$ Price
					1 N.O. & 1 N.C. ▲	2 N.O.	
V02	VZ02	VZ02	10/12	31.50	VZ7 ■	VZ20 ■	42.80
V01	VZ01	VZ01	16/20	32.90			
V0	VZ0	VZ0	20/25	34.20			
V1	VZ1	VZ1	20/32	35.60			
V2	VZ2	VZ2	25/40	55.00			
V3	VZ3	VZ3	45/63	66.00			
V4	VZ4	VZ4	63/80	82.00			
V5	—	—	—	—	—	—	—
V6	—	—	—	—	—	—	—

▲ Early Break, Late Make.

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

Table 8.22: Add-On Contact Modules

Switch Type	Neutral Modules Early Make/Late Break		Grounding Module		Auxiliary Contacts		
	Catalog No.	\$ Price	Catalog No.	\$ Price	Catalog No.	Description	\$ Price
V02-V2	VZ11	42.80	VZ14	42.80	VZ7	1 Late Make N.O. & 1 Early Break N.C.	42.80
V3-V4	VZ12	54.00	VZ15	54.00	VZ20	2 N.O. Contacts	42.80
V5-V6	VZ13	70.00	VZ16	70.00	—	—	—

Table 8.23: Labeling Accessories

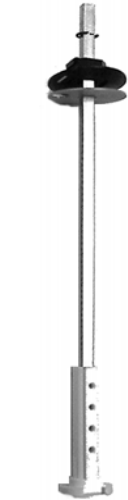
Nameplate Holder with Nameplate			Nameplate Holder Only			Nameplate Only		
Size	Catalog No.	\$ Price	Catalog No.	\$ Price	Use With	Catalog No.	\$ Price	
45 x 45 mm	KZ13	4.80	KZ14	4.40	KZ14	KZ76	3.50	
60 x 60 mm	KZ15	4.80	KZ16	4.40	KZ16	KZ77	3.50	
90 x 90 mm	KZ103	7.80	KZ101	6.80	KZ1010	KZ100	3.50	

Table 8.24: Shrouds

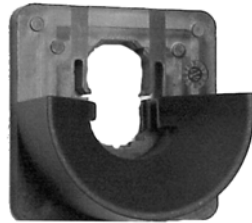
Switch Type	3-Pole Shroud		Single-Pole Shroud			
	Catalog No.	\$ Price	For Add-On Power Pole		Catalog No.	\$ Price
V02-V2	VZ8	8.40	VZ02-VZ2, VZ11 & VZ14		VZ26	5.90
V3-V4	VZ9	8.40	VZ23, VZ4, VZ12 & VZ15		VZ27	6.90
V5-V6	VZ10	12.00	VZ13 & VZ16		VZ28	9.50
—	—	—	For 2-Pole Aux. Contact		VZ29	5.90

Table 8.25: 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



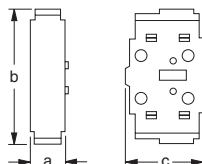
Add-On Contact Modules



Terminal Shroud for
Main Switch
VZ8



Terminal Shroud for
Auxiliary Contact
VZ29



Main Pole Module

Identification System

The GS1 part numbers can be identified as follows:
(See Catalog 9421CT0301 for specific applications.)

Model "GS1", "GS2"—Fusible (Class J Fuse unless noted), "LK3", "LK4"—Non-Fusible

Current Range, Operator Style (Front Operator unless noted), Accessory Type

"D"—30 A Front and Side Operation, "DD"—30 A Class CC Front and Side Operation "E"—30 A,
"EE"—30 A Class CC, "G"—60 A, "J"—100 A, "M"—200 A, "Q"—400 A, "S"—600 A, "T"—800 A
(Class L if Fused), "U"—1000 A, "W"—1200 A

UL Certification

Poles—Number of Poles 2 or 3

"AH"—Handle, "AHT"—Handle w/ Test, "AE"—Extension Shaft, "AD"—Aux contact holder, "AM"—Aux Contact

Note: All fusible switches through 400 A and non-fused switches through 200 A are equipped with a feature to test optional auxiliary contacts without energizing the load when the appropriate GS1AHT*** handle is used.

Table 8.26: Switches — Fusible

Catalog Number	Description	\$ Price
Compact GS1 Fusible IEC Style Disconnect Switches		
GS1DDU3	30 A, 3-Pole, Class CC, use 5 x 5 Shaft	237.00
GS1DU3	30 A, 3-Pole, Class J, use 5 x 5 Shaft	260.00
GS2 Fusible IEC Style Disconnect Switches		
GS2EEU3	30 A, 3-Pole, Class CC, use 10 x 10 Shaft	237.00
GS2EU3	30 A, 3-Pole, Class J, use 10 x 10 Shaft	260.00
GS2GU3	60 A, 3-Pole, Class J, use 10 x 10 Shaft	336.00
GS2JU3▲■	100 A, 3-Pole, Class J, use 10 x 10 Shaft	536.00
GS2MU3▲■	200 A, 3-Pole, Class J, use 10 x 10 Shaft	1181.00
GS2QU3▲■	400 A, 3-Pole, Class J, use 10 x 10 Shaft	2252.00
GS2SU3▲■	600 A, 3-Pole, Class J, use 15 x 12 Shaft	3378.00
GS2TU3▲■	800 A, 3-Pole, Class L, use 15 x 12 Shaft	5061.00

Table 8.27: Switches — Fusible with Direct Mount Side Handle

Catalog Number	Description	\$ Price
Switches with Direct Mount Side Handle		
GS1EERU20	30 A, 2-Pole, Class CC	204.00
GS1EERU30	30 A, 3-Pole, Class CC	242.00
GS1AH01	Right Side Handle for GS1EERU20 & GS1EERU30	46.40

- ▲ Shipped with line side terminal shrouds, for additional shrouds see page 8-8.
■ Terminal lug must be ordered separately—see page 8-8.

Table 8.28: Switches — Non-Fusible

Catalog Number	Description	\$ Price
Compact LK3 Non-Fusible IEC Style Disconnect Switches		
LK3/LK4DU3	30 A, 3-Pole, 5 x 5 Shaft	218.00
LK4 Non-Fusible IEC Style Disconnect Switches		
LK4GU3	60 A, 3-Pole, use 10 x 10 Shaft	263.00
LK4JU3	100 A, 3-Pole, use 10 x 10 Shaft	458.00
LK4MU3▲■	200 A, 3-Pole, use 10 x 10 Shaft	1010.00
LK4QU3▲■	400 A, 3-Pole, use 15 x 15 Shaft	1910.00
LK3SU3▲■	600 A, 3-Pole, use 15 x 12 Shaft	2873.00
LK3TU3▲■	800 A, 3-Pole, use 15 x 12 Shaft	4301.00
LK3U3▲■	1000 A, 3-Pole, use 15 x 12 Shaft	5372.00
LK3WU3▲■	1200 A, 3-Pole, use 15 x 12 Shaft	6450.00

200 A Switch
GS2MU330 A Side Handle
GS1EERU30Compact 30 A Switch
LK3DU3

Example of the parts to order to build a complete switch:

Choose a switch

+

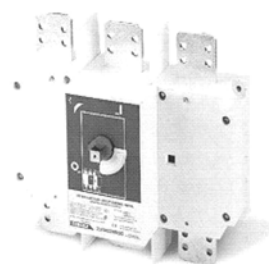
Shaft

+

Handle Assembly

+

Lugs if needed

600 A
LK3SU3Shaft 200 mm
GS2AE5Black Handle
GS2AH150Lugs Kit
GS1AW503

For example:

LK3SU3 (600 A Non-Fusible Switch, use 15 x 12 Shaft) +
GS2AE6 (15 x 12 200 mm Type S Shaft) + **GS2AH150**
(Black/ Black, Lockable)

To add auxiliary contacts:

For front mounted contacts order **LK3AD30** (front mounted auxiliary contact holder) + **GS2AM110** (N.O. contact for GS1AD10, GS2AD11, and LK3AD30).

Handles

Table 8.29: Pistol Handles for Compact GS1 and LK3 for Use with Shaft Type D (as listed below) ①

NEMA/UL Type	IEC Type	Defeatable	Padlockable	Color	Operation	Catalog No.	\$ Price
1, 12	IP54	Yes	Yes	Black	Off/On (O/I)	GS1AH101	51.00
1, 12	IP54	Yes	Yes	Red/Yellow	Off/On (O/I)	GS1AH102	51.00

Table 8.30: Pistol Handles for Compact and Standard GS1/GS2 and LK3/LK4 for Compact GS1, 30 A, and Compact LK3 30 A (3 in. handles) for Use with Shaft Type S (as listed below) ②

NEMA/UL Type	IEC Type	Defeatable	Padlockable	Color	Operation	Catalog No.	\$ Price
1, 3R, 12	IP54	Yes	Yes	Black	Off/On (O/I)	GS2AH110	62.00
1, 3R, 12	IP54	Yes	Yes	Red/Yellow	Off/On (O/I)	GS2AH120	62.00
1, 3R, 12	IP54	Yes	Yes	Black	Test/Off/On (T/O/I)	GS2AHT110	117.00
1, 3R, 12	IP54	Yes	Yes	Red/Yellow	Test/Off/On (T/O/I)	GS2AHT120	117.00
1, 3R, 4, 4X, 12	IP65	Yes	Yes	Black	Off/On (O/I)	GS2AH410	70.00
1, 3R, 4, 4X, 12	IP65	Yes	Yes	Red/Yellow	Off/On (O/I)	GS2AH420	70.00
1, 3R, 4, 4X, 12	IP65	Yes	Yes	Black	Test/Off/On (T/O/I)	GS2AHT410	117.00
1, 3R, 4, 4X, 12	IP65	Yes	Yes	Red/Yellow	Test/Off/On (T/O/I)	GS2AHT420	117.00

Table 8.31: Pistol Handles for Standard GS2 and LK4 (as listed below) ③

NEMA/UL Type	IEC Type	Defeatable	Padlockable	Color	Operation	Catalog No.	\$ Price
GS2 30–100 A and LK4 60–100 A (3 in. handles)							
1, 3R, 12	IP54	Yes	Yes	Black	Off/On (O/I)	GS2AH110	62.00
1, 3R, 12	IP54	Yes	Yes	Red/Yellow	Off/On (O/I)	GS2AH120	62.00
1, 3R, 12	IP54	Yes	Yes	Black	Test/Off/On (T/O/I)	GS2AHT110	117.00
1, 3R, 12	IP54	Yes	Yes	Red/Yellow	Test/Off/On (T/O/I)	GS2AHT120	117.00
1, 3R, 4, 4X, 12	IP65	Yes	Yes	Black	Off/On (O/I)	GS2AH410	70.00
1, 3R, 4, 4X, 12	IP65	Yes	Yes	Red/Yellow	Off/On (O/I)	GS2AH420	70.00
1, 3R, 4, 4X, 12	IP65	Yes	Yes	Black	Test/Off/On (T/O/I)	GS2AHT410	117.00
1, 3R, 4, 4X, 12	IP65	Yes	Yes	Red/Yellow	Test/Off/On (T/O/I)	GS2AHT420	117.00
GS2 200–400 A and LK4 200 A (5 in. handles)							
1, 3R, 12	IP54	Yes	Yes	Black	Off/On (O/I)	GS2AH130	70.00
1, 3R, 12	IP54	Yes	Yes	Red/Yellow	Off/On (O/I)	GS2AH140	70.00
1, 3R, 12	IP54	Yes	Yes	Black	Test/Off/On (T/O/I)	GS2AHT130	125.00
1, 3R, 12	IP54	Yes	Yes	Red/Yellow	Test/Off/On (T/O/I)	GS2AHT140	125.00
1, 3R, 4, 4X, 12	IP65	Yes	Yes	Black	Off/On (O/I)	GS2AH430	78.00
1, 3R, 4, 4X, 12	IP65	Yes	Yes	Red/Yellow	Off/On (O/I)	GS2AH440	78.00
1, 3R, 4, 4X, 12	IP65	Yes	Yes	Black	Test/Off/On (T/O/I)	GS2AHT430	132.00
1, 3R, 4, 4X, 12	IP65	Yes	Yes	Red/Yellow	Test/Off/On (T/O/I)	GS2AHT440	132.00

GS2 200–400 A and LK4 200 A (5 in. handles)

1, 3R, 12	IP54	Yes	Yes	Black	Off/On (O/I)	GS2AH130	70.00
1, 3R, 12	IP54	Yes	Yes	Red/Yellow	Off/On (O/I)	GS2AH140	70.00
1, 3R, 12	IP54	Yes	Yes	Black	Test/Off/On (T/O/I)	GS2AHT130	125.00
1, 3R, 12	IP54	Yes	Yes	Red/Yellow	Test/Off/On (T/O/I)	GS2AHT140	125.00
1, 3R, 4, 4X, 12	IP65	Yes	Yes	Black	Off/On (O/I)	GS2AH430	78.00
1, 3R, 4, 4X, 12	IP65	Yes	Yes	Red/Yellow	Off/On (O/I)	GS2AH440	78.00
1, 3R, 4, 4X, 12	IP65	Yes	Yes	Black	Test/Off/On (T/O/I)	GS2AHT430	132.00
1, 3R, 4, 4X, 12	IP65	Yes	Yes	Red/Yellow	Test/Off/On (T/O/I)	GS2AHT440	132.00

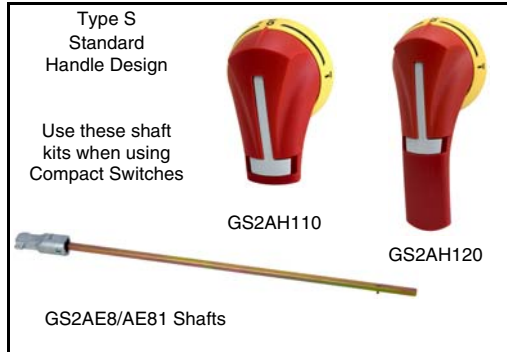
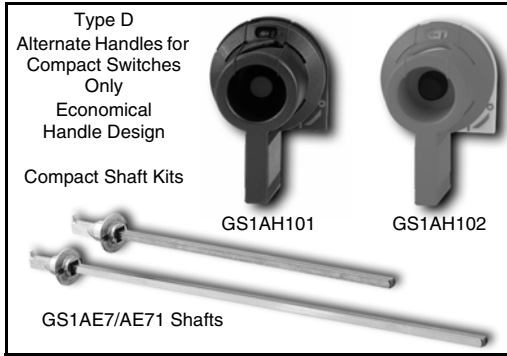
Table 8.32: Pistol Handles for Use with Shaft Type S (as listed below) ④

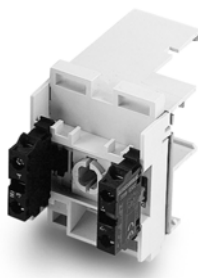
NEMA/UL Type	IEC Type	Defeatable	Padlockable	Color	Operation	Catalog No.	\$ Price
For LK3 400–1200 A							
1, 3R, 4, 4X, 12	IP65	Yes	Yes	Black	Off/On (O/I)	GS2AH150	263.00
1, 3R, 4, 4X, 12	IP65	Yes	Yes	Red/Yellow	Off/On (O/I)	GS2AH160	263.00
For GS2 600–800 A							
1, 3R, 4, 4X, 12	IP65	Yes	Yes	Black	Off/On (O/I)	GS2AH150	263.00
1, 3R, 4, 4X, 12	IP65	Yes	Yes	Red/Yellow	Off/On (O/I)	GS2AH160	263.00

Note: Now UL approved for indoor or outdoor applications.

Table 8.33: Shafts

Length		Catalog No.	\$ Price
in.	mm		
① Shaft 5 mm x 5 mm—for Use with Pistol Handles, Type D			
12.6	320	GS1AE7	18.60
15.7	400	GS1AE71	23.30
② Shaft 5 mm x 5 mm—for Use with Pistol Handles, Type G			
12.6	320	GS2AE8	18.60
15.7	400	GS2AE81	23.30
③ Shaft 10 mm x 10 mm—for Use with Standard GS2 and LK4			
12.6	320	GS2AE2	20.30
15.7	400	GS2AE21	25.00
④ Shaft 15 mm x 12 mm—for Use with Pistol Handles			
7.9	200	GS2AE5	32.60
15.7	400	GS2AE51	40.40



GS1AD10 +
GS2AM110GS2AM110 +
GS2AM101

Accessories

Table 8.34: Auxiliary Contacts

Type	Description	Catalog No.	\$ Price
For Compact LK3 / GS1			
U = Upper or Top mounted	Contact holder (for 5 to 8 auxiliary contacts). Standard products allow up to 4 auxiliary contacts without any extra contact holders.	GS1AD10	46.70
10 A	1 N.O. Contact Block	GS2AM110	14.70
600 Vac	1 N.C. Contact Block	GS2AM101	14.70
For LK4 60–200 A, GS2 30–800 A			
U = Upper or Top mounted	Contact holder required (for 1 to 8 upper auxiliary contacts)	GS2AD11	46.70
10 A	1 N.O. Contact Block	GS2AM110	14.70
600 Vac	1 N.C. Contact Block	GS2AM101	14.70
S = Side mounted ▲	1 N.O. & N.C. Contact Block (max of two blocks – any mix)	GS1AN11	78.00
	2 N.O. & N.C. Contact Block (max of two blocks – any mix)	GS1AN22	140.00
S = Side mounted ▲	1 N.O. & N.C. Contact Block w/ Test (max of two blocks – any mix)	GS1ANT11	93.00
	2 N.O. & N.C. Contact Block w/ Test (max of two blocks – any mix)	GS1ANT22	156.00
For LK3 400–1200 A			
U = Upper or Top mounted	Contact holder (for 1 to 4 auxiliary contacts)	LK3AD30	46.70
10 A	1 N.O. Contact Block	GS2AM110	14.70
600 Vac	1 N.C. Contact Block	GS2AM101	14.70

▲ GS1AN** contact blocks cannot be mixed with GS1ANT** contact blocks on the same switch. You must use all GS1AN11/GS1AN22 on a single switch OR all GS1ANT11/GS1ANT22 on a single switch.

Table 8.35: Terminal Lugs

For use on	Wire Size	# of Wires per Lug	Wire Type	Lugs per Kit	Catalog No.	\$ Price
Compact GS1/LK3	#14–#10	1	Cu	—	Standard	—
GS2 30 A CC	#14–#10	1	Cu	—	Standard	—
GS2 30 A J	#14–#10	1	Cu	—	Standard	—
GS2/LK4 60 A J	#10–#3	1	Cu	—	Standard	—
LK4 100 A	#14–#2/0	1	Cu	—	Standard	—
GS2 100 A	#14–2/0	1	Cu/Al	6	GS1AW303	59.00
GS2/LK4 200 A	#6–3/0	1	Cu/Al	6	GS1AW403	98.00
GS2 400–800 A	2 x 2–2 x 600	2	Cu/Al	6	GS1AW503	197.00
LK3 400–600 A ▲	4 x 2–4 x 600	2	Cu/Al	12	GS1AW903	395.00
LK3 800–1200 A ▲						

▲ GS1 600–800 A and LK3 800–1250 A can receive 1 lug for 3 cables per terminal or 2 lugs for 2 cables per terminal.

Table 8.36: Power Distribution Lugs

For use on	Wire Size AWG (mm ²)	# of Wires Per Lug	Wire Type	Lugs per Kit	Catalog Number	\$ Price
GS2JU3	#8 (10) – #6 (16) #14 (2.1) – #10 (6)	6	Cu	3	GS1AW306	126.00
GS2MU3	#6 (16) – #4 (35)	12	Cu	3	GS1AW406	209.00
GS2QU3	#8 (10) #14 (2.1) – #10 (6)					
GS2MU3	#2 (35) – #2/0 (70)	6	Cu	3	GS1AW506	233.00
GS2QU3	#6 (16) – #4 (25)					
	#8 (10) #12 (3.3) – #10 (4)					

Table 8.37: Terminal Shrouds

For use on Line or Load Side ▲	Catalog No.	\$ Price
Compact GS1/LK3	Standard	—
All GS2/LK4 30 A	Standard	—
All GS2/LK4 60 A	Standard	—
LK4 100 A	Standard	—
GS2 100 A ■	GS1AP33	101.00
GS2/LK4 200 A ■	GS1AP43	132.00
GS2 400 A	GS1APU53	140.00
LK3 400–600 A	LK3AP63	86.00
GS2 600–800 A	GS2AP73	140.00
LK3 800–1200 A	LK3AP83	101.00

▲ All GS1 and LK3 switches supplied with line side shrouding.

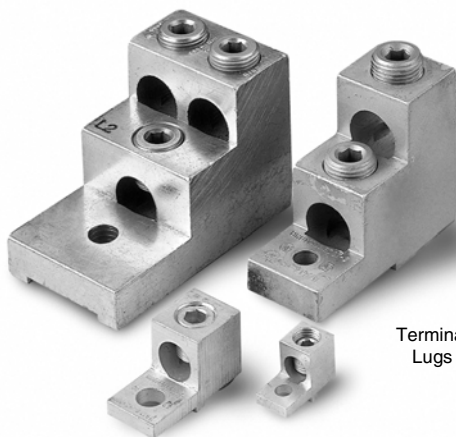
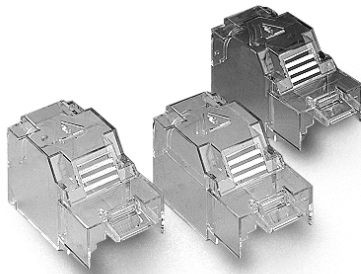
■ Three piece kit for either line or load side.

Table 8.38: Shorting Links

For use on	Shorting Links per Kit	Catalog No.	\$ Price
GS2 60 A	3	GS1AU203	29.60
GS2 100 A	3	GS1AU303	41.90
GS2 200 A	3	GS1AU403	62.10
GS2 400 A	3	GS1AU503	93.00
GS2 600–800 A	3	GS1AU803	156.00

Table 8.39: Shaft Padlocking Kit

For use on	Catalog No.	\$ Price
Compact GS1/LK3	Standard	—
LK4 60–200 A	Standard	—
GS2 30–400 A	Standard	—
LK3 400–1200 A	GS1AXU3	62.00
GS2 600–800 A	Standard	—

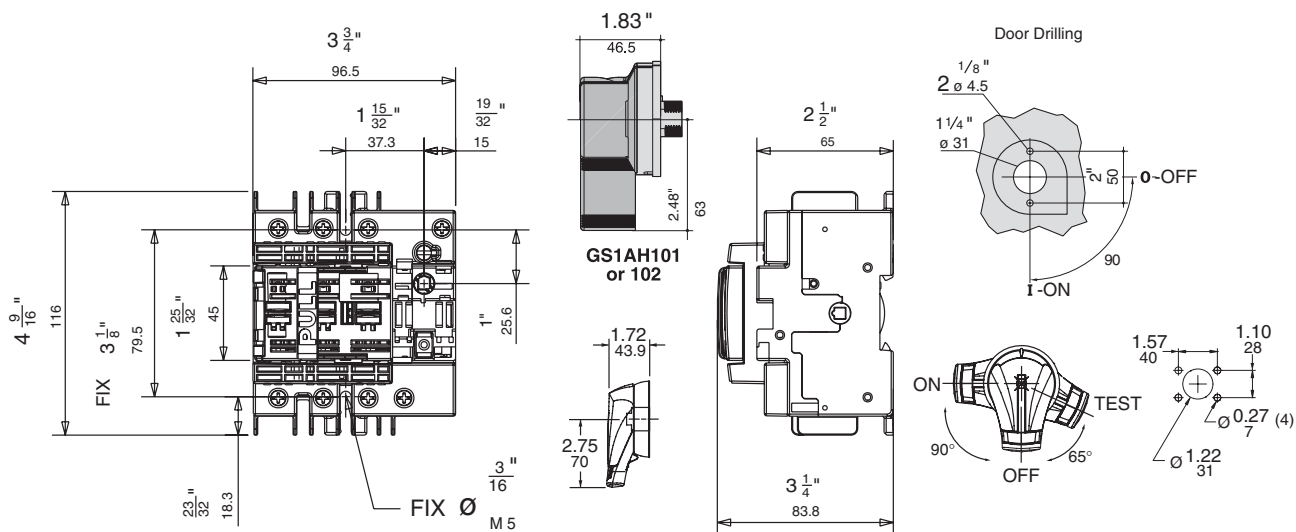
Terminal
Lugs

Terminal Shrouds



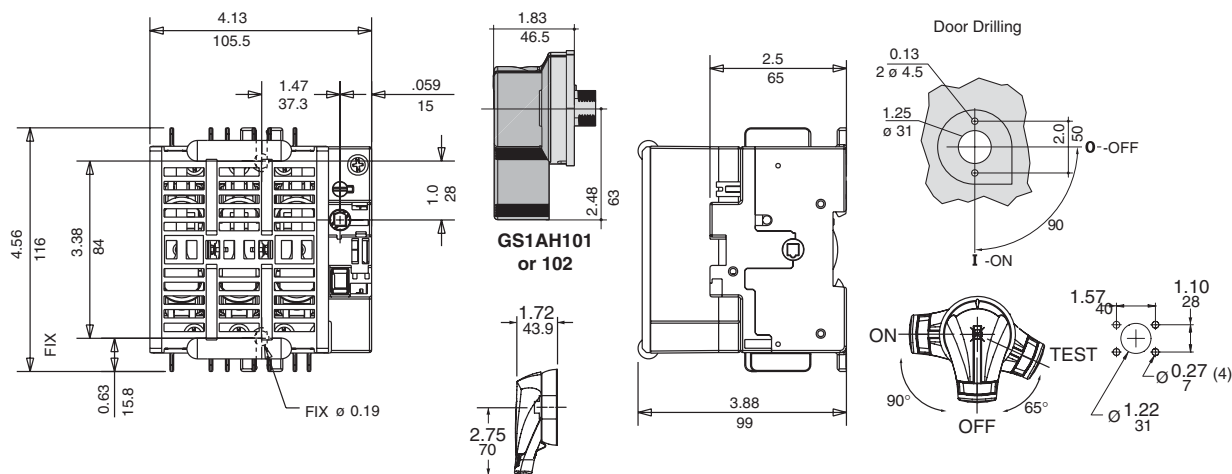
Shorting Links

GS1DDU3, 30 A Compact Class CC Fuses

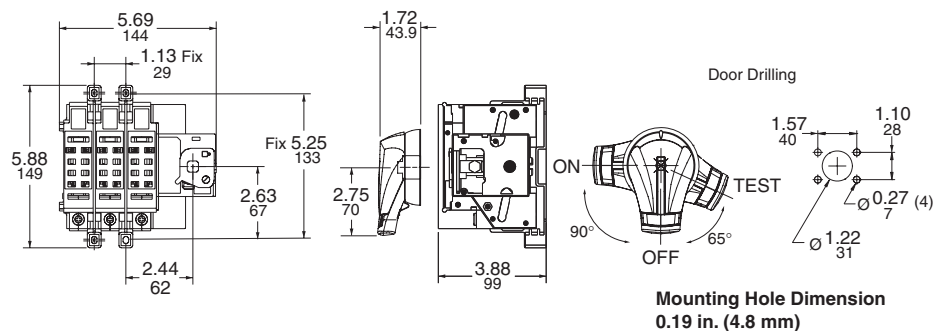


GS2AH/AHT110, 120, 410 or 420

GS1DU3, 30 A Compact Class J Fuses

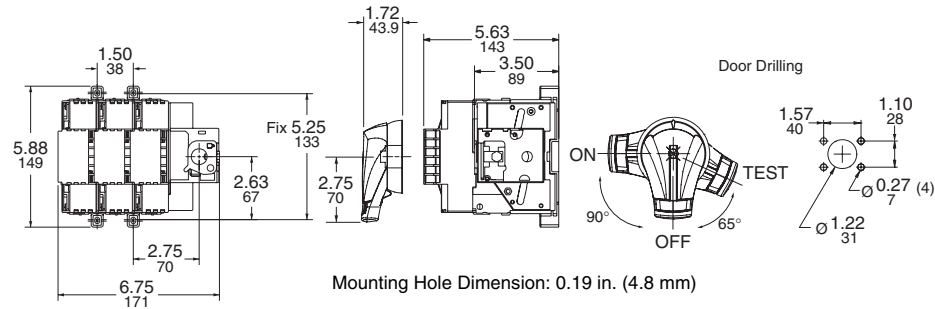
**GS2AH/AHT110, 120, 410 or 420**

GS2EEU3, 30 A Class CC Fuses

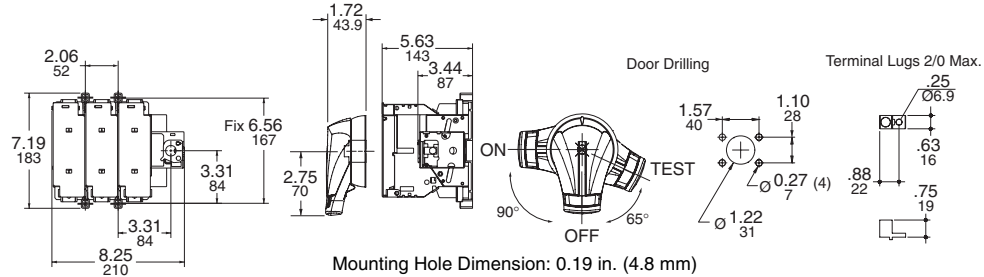


GS2 AH / AHT 110, 120, 410 or 420

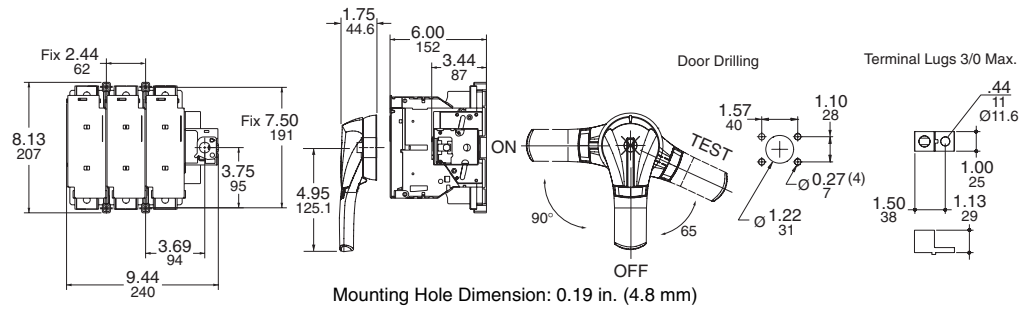
GS2EU3/GS2GU3, GS2 30 A/60 A Class J Fuse Clips



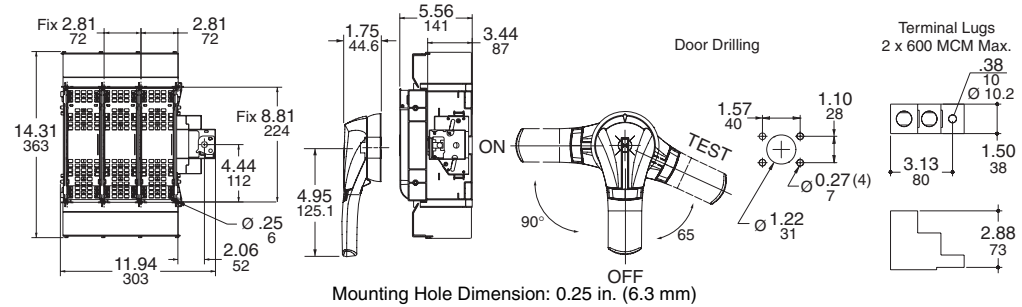
GS2JU3, GS2 100 A Class J Fuses



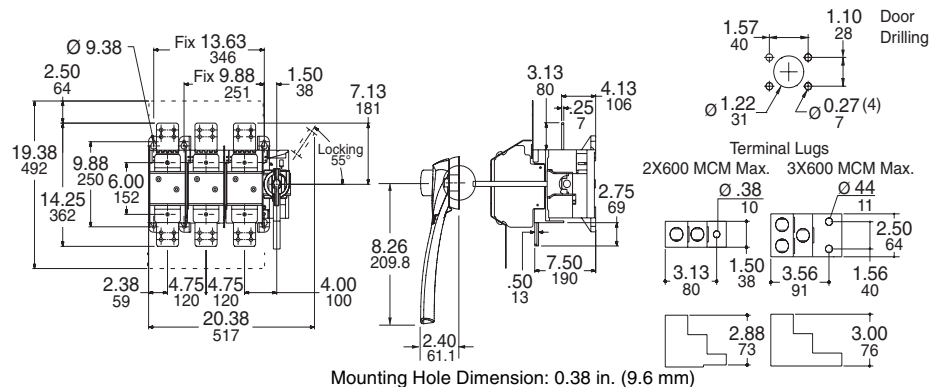
GS2MU3, GS2 200 A Class J Fuses



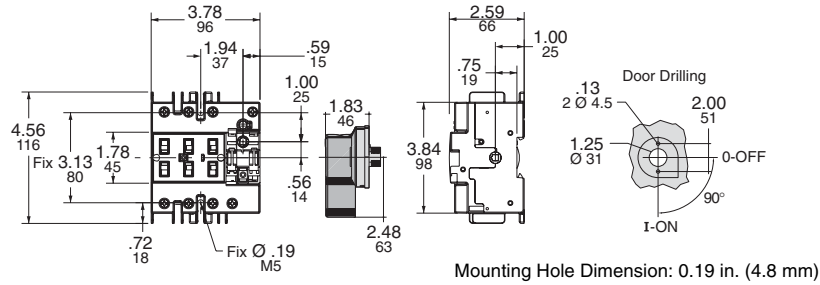
GS2QU3, GS2 400 A Class J Fuses



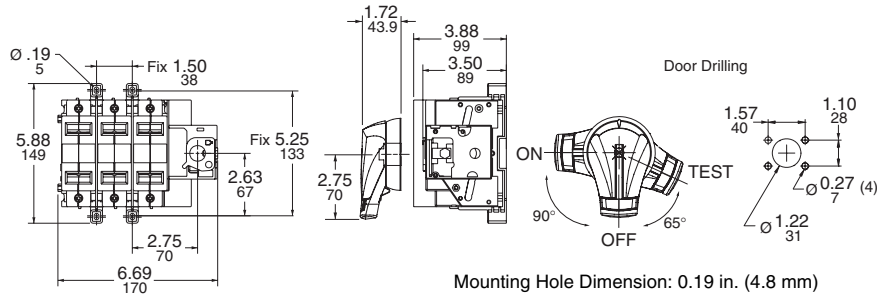
GS2SU3/GS2TU3, GS2 600 A Class J AND 800 A Class L Fuses



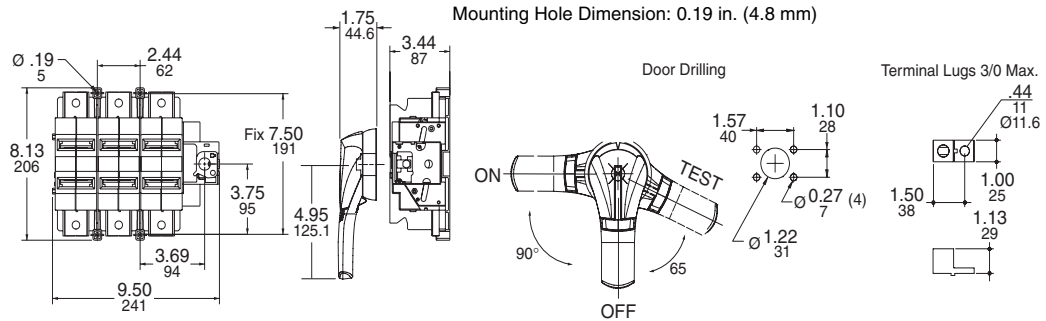
LK3DU3, Compact LK3 30 A



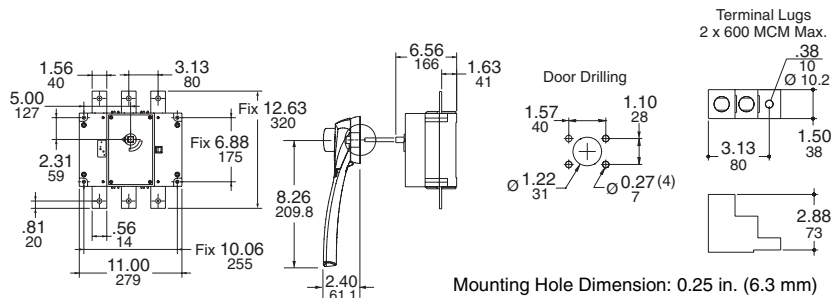
LK3GU3/LK3JU3, LK3 60 A/100 A



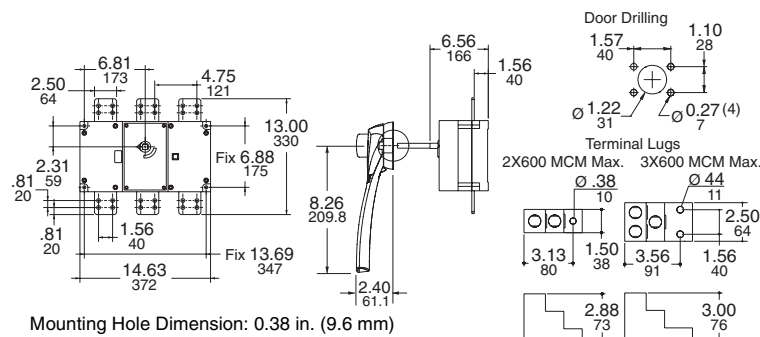
LK3MU3, LK3 200 A



LK3QU3/LK3SU3, LK3 400 A/600 A



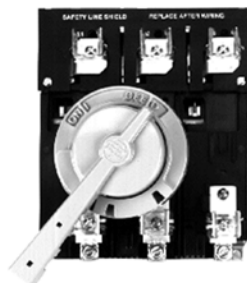
LK3TU3/LK3UU3/LK3WU3, LK3 800 A/1000 A/1250 A



File D10

The D10 disconnect switch features high I²T rating, longer contact life, visible contact indication, fuse-mounting flexibility, dead-front construction, and auxiliary interlocks.

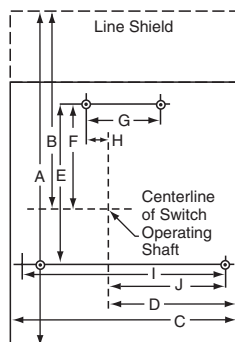
A complete installation includes a D10 disconnect switch, D11 handle operator, and D12 fuse clip kit. The D10 accepts Class H, K, J, or R fuses or can be used for non-fusible applications. The D10 disconnect switch is operated by a cast metal handle operator that is lockable in the "OFF" position and defeatable in the "ON" position.

**Table 8.40: Disconnect Switches (without fuse clips or shorting straps)**

600 V—Without Service Entrance Rating							
Starter NEMA Type Size	Rating (A)	Max. Horsepower Rating▲				Catalog Number	\$ Price
		120 V	200–240 V	480 V	600 V		
0–1	30	5	10	20	25	D10S1	270.00
2	60	10	20	40	50	D10S2	292.00
3	100	15	30	60	75	D10S3	452.00
4	200	25	50	100	100	D10S4	860.00

600 V—With Service Entrance Rating							
Starter NEMA Type Size	Rating (A)	Max. Horsepower Rating ▲				Catalog Number	\$ Price
		120 V	200–240 V	480 V	600 V		
0–1	30	5	10	20	25	D10S1H	320.00
2	60	10	20	40	50	D10S2H	352.00
3	100	15	30	60	75	D10S3H	544.00
4	200	25	50	100	100	D10S4H	1154.00

▲ Non-fused ratings

**Table 8.41: Rotary Handle Operator Kits and Shafts**

Kits include: Handle, shaft, and actuator
NEMA Type 1, 3, 3R, 4, and 12

Description	Rating (A)	Enclosure Interior Depth—Inches	Catalog Number	\$ Price
Complete Kit with Handle, Shaft, and Actuator	30, 60, 100, 200	5–6	D11SF4	106.00
		6–10	D11SF10	118.00
		10–16	D11SF16	130.00
Shaft only	30, 60, 100, 200	6	D11SH10	26.20
		12	D11SH16	32.80

Table 8.42: Auxiliary Electrical Interlock

(for mounting on 30 A—200 A disconnect switch ▲)

Block Description (with switch contacts open)	Catalog Number	\$ Price
1 N.O.	D11N0	79.00
1 N.C.	D11NC	79.00
1 N.O. and 1 N.C.	D11N0C	116.00
2 N.O.	D11N00	116.00
2 N.O. and 2 N.C.	D11N0C2	130.00

▲ One block per switch.

Table 8.43: Interrupting and Withstandability Ratings

Rating (A)	Interrupting Rating Amperes Symmetrical 600 Vac, 3Ø	Withstandability I ² T (Amperes ² seconds)
30	1,200	0.38 x 10 ⁶
60	1,800	1.28 x 10 ⁶
100	2,000	2.62 x 10 ⁶
200	3,600	5.25 x 10 ⁶

Note: These switches are for motor circuit applications.

Table 8.46: Switch Dimensions (in inches)

Rating (A)	Length		Width	Mounting Hole Dimensions							Depth	
	A	B	C	D	E	F	G	H	I	J	K▲	L■
30	7-5/16	4-15/32	5-7/8	3-15/32	6	3-15/32	1-7/8	13/32	5-7/16	3-1/4	4-3/32	4-11/32
60	7-5/16	4-15/32	5-7/8	3-15/32	6	3-15/32	1-7/8	13/32	5-7/16	3-1/4	4-11/32	4-11/32
100	9-27/32	5-11/32	8-3/16	4-5/8	5-13/16	3-13/16	2-11/16	51/64	7-5/16	4-3/16	5-23/32	4-27/32
200	12-3/16	7-7/32	8-3/16	4-5/8	5-13/16	3-13/16	2-11/16	51/64	7-5/16	4-3/16	5-23/32	4-27/32

▲ Maximum depth with largest fuse.

■ Depth including insulating barrier on service entrance switches.

Table 8.44: Lug Data

Rating (A)	Number Per Pole	Wire Range ▲	Wire Type
30	1	#14–#8	Cu
60		#14–#4	Cu
100		#14–#1/0	Al–Cu
200		#6–250 kcmil	Al–Cu

▲ One conductor per lug.

Table 8.45: Fuse Clip Kits

D10 Switch Size	Fuse Clip Rating ▲			Catalog Number	\$ Price
	Amperes	AC Volts	Type		
30 A	No Fuse			D12C01	8.30
	0–30	250	H, K	D12C21	16.30
	0–30	250	R	D12CR21	65.00
	0–30	600	H, K	D12C61	24.50
	0–30	600	R	D12CR61	65.00
	0–30	600	J	D12CJ1	49.30
	31–60	250	H, K	D12C22	24.50
	31–60	600	H, K	D12C62	49.30
	31–60	600	R	D12CR62	82.50
	31–60	600	J	D12CJ2	57.50
	61–100	250	H, K	D12C23	65.00
	No Fuse			D12D02	24.50
60 A	0–30	250	R	D12DR21	65.00
	0–30	600	H, K	D12D61	24.50
	0–30	600	R	D12DR61	65.00
	31–60	250	H, K	D12D22	23.80
	31–60	250	R	D12DR22	82.50
	31–60	600	H, K	D12D62	41.00
	31–60	600	R	D12DR62	82.50
	31–60	600	J	D12DJ2	57.50
	61–100	250	H, K	D12D23	65.00
	61–100	600	H, K	D12D63	115.00
	61–100	600	J	D12DJ3	106.30
	61–100	600	R	D12DR63	113.80
100 A	No Fuse			D12E03	49.30
	31–60	250	H, K	D12E22	41.00
	31–60	600	H, K	D12E62	41.00
	61–100	250	H, K	D12E23	32.50
	61–100	250	R	D12ER23	115.00
	61–100	600	H, K	D12F63	90.00
	61–100	600	R	D12FR63	115.00
	61–100	600	J	D12EJ3	115.00
	101–200	250	H, K	D12F24	106.30
	101–200	600	H, K	D12F64	122.50
	101–200	600	J	D12FJ4	140.00
	No Fuse			D12F04	82.50
200 A	61–100	600	H, K	D12F63	90.00
	101–200	250	H, K	D12F24	106.30
	101–200	250	R	D12FR24	140.00
	101–200	600	H, K	D12F64	122.50
	101–200	600	R	D12FR64	135.00
	101–200	600	J	D12FJ4	140.00

▲ Continuous current should not exceed switch rating (size). Fuse clip kits should be sized to accommodate inrush.

Type L Circuit Breaker Mechanisms

Type L door-mounted, variable depth operating mechanisms feature heavy duty, all metal construction with trip indication. All 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 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.



Operating Mechanism

Table 8.47: 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	\$ Price	Mounting Depth ▲ Min. – Max.	Type	\$ Price	Mounting Depth ▲ Min. – Max.	Type	\$ Price	Mounting Depth ▲ Min. – Max.
Circuit Breaker or Interrupter Type	No. of Poles	Frame Size (A)									
GJL	3	75, 100	LG1	140.00	5-1/2–10-1/4	LG4	158.00	5-1/2–20-7/8	LG3	198.00	5-1/2–20-7/8
FAL, FCL, FHL	2–3	100	LN1	140.00	5-1/2–10-7/16	LN4	158.00	5-1/2–21	LN3	198.00	5-1/2–21
KAL, KCL, KHL	2–3	250	LP1	171.00	6-1/4–11-3/16	LP4	189.00	6-1/4–21-3/4	LP3	230.00	6-1/4–21-3/4
NSF, PowerPact® H and J	2–3	250	LJ1	171.00	5-1/2–10-3/4	LJ4	189.00	5-1/2–21-3/8	—	—	—
LAL♦, LHL♦, Q4L	2–3	400	LR1	242.00	6-5/16–10-7/8	LR4	255.00	6-5/16–21-1/2	3 in. handles are not recommended for use with these circuit breakers.		
MEL, MXL	2–3	800	LT1■	242.00	7-3/16–11-5/8	LT4■	255.00	7-3/16–22-1/4			
MAL, MHL	2–3	1200	LT1■	242.00	7-3/16–11-5/8	LT4■	255.00	7-3/16–22-1/4			
NAL, NCL, NEL, NXL	2–3	1200	LX1■	242.00	8-1/4–12-3/4	LX4■	255.00	8-1/4–23-3/8			
PowerPact M and P ▼	3	1200	LW1★	242.00	7-3/16–11-5/8	LW4★	255.00	7-3/16–22-1/4			

Table 8.48: 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	\$ Price	Type	\$ Price	Type	\$ Price	Mounting Depth ▲ Min. – Max.	Type	\$ Price	Mounting Depth ▲ Min. – Max.	Type	\$ Price
GJL	3	75, 100	LH3	90.00	LH6	50.00	LG7	68.00	5-1/2–10-7/16	LS8	21.50	5-1/2–21	LS13	35.60
FAL, FCL, FHL	2–3	100	LH3	90.00	LH6	50.00	LF1	71.00	5-1/2–10-7/16	LS8	21.50	5-1/2–21	LS12	35.60
KAL, KCL, KHL	2–3	250	LH3	90.00	LH6	50.00	LK1	105.00	6-1/4–11-3/16	LS8	21.50	6-1/4–21-3/4	LS12	35.60
NSF, PowerPact H and J	2–3	250	LH3	90.00	LH6	50.00	LJ7	105.00	5-1/2–10-1/4	LS8	21.50	5-1/2–21-3/8	LS13	35.60
LAL♦, LHL♦, Q4L	2–3	400	3 in. handles are not recommended for use with these circuit breakers.		LH6	50.00	LL1	170.00	6-5/16–10-7/8	LS8	21.50	6-5/16–21-1/2	LS10	35.60
MEL, MXL	2–3	800			LH8	50.00	LM1	170.00	7-3/16–11-5/8	LS8	21.50	7-3/16–22-1/4	LS10	35.60
MAL, MHL	2–3	1200			LH8	50.00	LM1	170.00	7-3/16–11-5/8	LS8	21.50	7-3/16–22-1/4	LS10	35.60
NAL, NCL, NEL, NXL	2–3	1200			LH8	50.00	LX7	170.00	8-1/4–12-3/4	LS8	21.50	8-1/4–23-3/8	LS10	35.60
PowerPact M and P ▼	3	1200			LHP8	50.00	LW7	170.00	7-3/16–11-5/8	LS8	21.50	7-3/16–22-1/4	LS10	35.60

- ▲ Mounting depth measured from circuit breaker mounting surface (control panel) to outside of enclosure door in inches.
- Types LT1, LT4, LX1, and LX4 include an 8 in. handle rather than a 6 in. handle.
- ♦ Note: These operating mechanisms cannot be used with any LA/LH circuit breaker with an MB or MT suffix.
- ★ Type LW1 and LW4 include an 8 in. handle (9421LHP8) rather than a 6 in. handle.
- ▼ These circuit breakers must use the 9421LHP** or LCP** handles only.



3 in. Handle Assembly



Standard Handle Assembly

Table 8.49: 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	\$ Price	Type	\$ Price	Type	\$ Price	Type	\$ Price
GJL	3	75	LH46	90.00	LC46	149.00	LH43	165.00	LC43	233.00
FAL, FCL, FHL	2–3	100	LH46	90.00	LC46	149.00	LH43	165.00	LC43	233.00
KAL, KCL, KHL	2–3	250	LH46	90.00	LC46	149.00	LH43	165.00	LC43	233.00
NSF, PowerPact H and J	2–3	250	LH46	90.00	LC46	149.00	LH43	165.00	LC43	233.00
LAL, LHL, Q4L	2–3	400	LH46	90.00	LC46	149.00				
MEL, MXL	2–3	800	LH48	90.00	LC48	149.00				
MAL, MHL	2–3	1000	LH48	90.00	LC48	149.00				
NAL, NCL, NEL, NXL	2–3	1200	LH48	90.00	LC48	149.00				
PowerPact M and P	3	1200	LHP48	90.00	LCP48	149.00				

- ▲ Due to gasketing, NEMA Type 3 & 4 handle assemblies are NOT trip indicating.

Table 8.50: IEC Style Operating Mechanisms

Circuit Breaker or Interrupter Type	Type 1, 4, 4X, 12			Operating Mechanism Includes Lockout		Extension Shafts			
	Color	Type	\$ Price	Type	\$ Price	Mounting Depth		Type	\$ Price
						Min.	Max.		
GJL	Red/Yellow	NW3	90.00	LG8	\$71.00	6-1/8	10-3/4	NS16	28.70
	Black	NW3B	90.00			6-1/8	17-7/8	NS336▲	35.60

- ▲ Contains support bracket.

Table 8.51: Electrical Interlock Kits—Class 9999 ▲

Description	Class	Type	\$ Price
Single Pole Double Throw	9999	R47	131.00
Double Pole Double Throw	9999	R48	221.00

- ▲ Optional accessory for use with 9421L operating mechanisms.

Note: Not used with GJL, NAL, NCL, NEL, NXL, NSF, NSJ, PowerPact® C, D, H, and J circuit breakers; use field-installed circuit breaker interlocks instead.

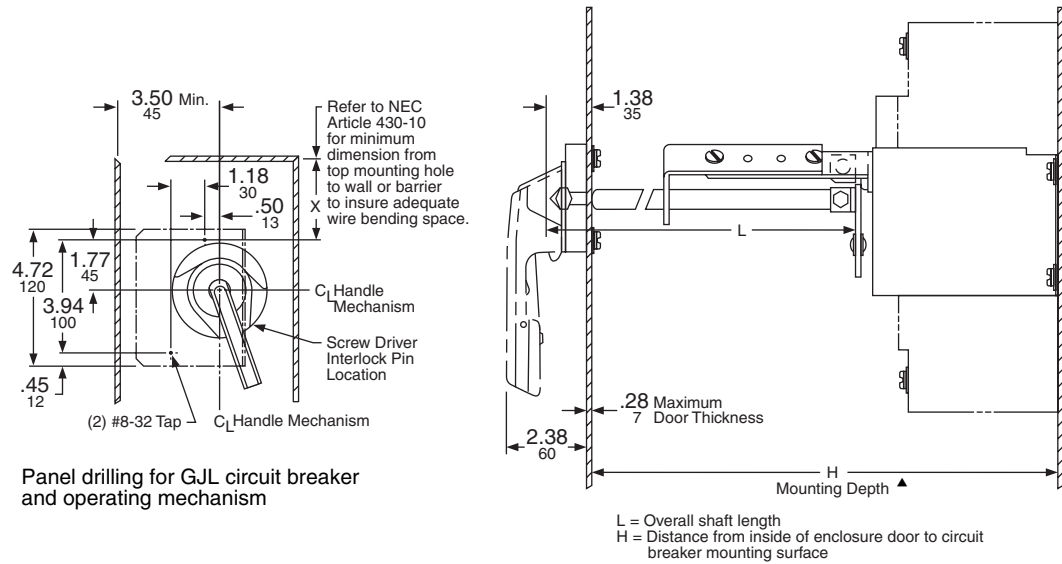
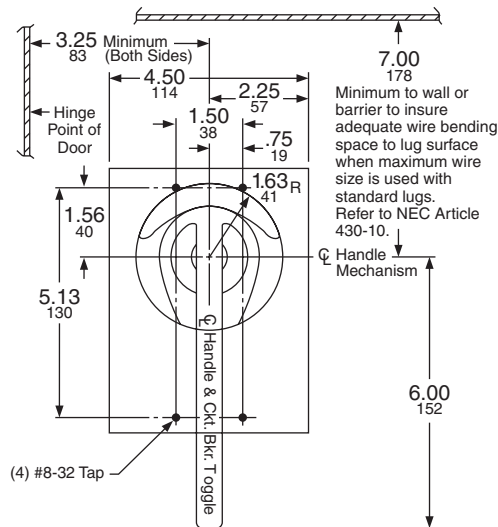


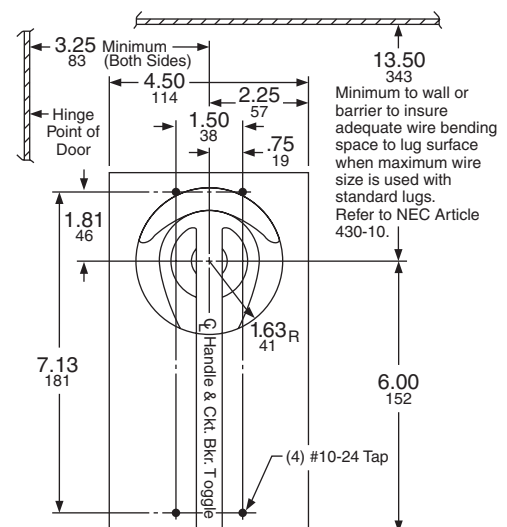
Table 8.52: Shaft Cutting Dimensions

Class	Type	Shaft Length Formula	H = Standard Shaft		H = Long Shaft	
			Min.	Max.	Min.	Max.
9421	LG7, LG1, LG4, LG3	L = H-2.50 64	5.50 140	10.25 260	5.50 140	20.85 530
9421	LF1, LN1, LN3, LN4	L = H-2.88 73	5.50 140	10.44 265	5.50 140	21.00 533
9421	LK1, LP1, LP3, LP4	L = H-3.63 92	6.25 159	11.19 284	6.25 159	21.75 552
9421	LJ1, LJ4, LJ7	L = H-3.00 76	5.5 138	10.75 273	5.5 138	21.63 543
9421	LL1, LR1, LR4	L = H-3.13 79	6.31 160	10.88 276	6.31 160	21.50 546
9421	LM1, LT1, LT4	L = H-4.00 102	7.18 182	11.63 295	7.18 182	22.25 565
9421	LX7, LX1, LX4	L = H-5.17 131	8.25 210	12.75 324	8.25 210	23.38 594
9421	LW1, LW4, LW7	L = H-4.89 124	7.19 183	11.63 295	7.63 183	22.25 565

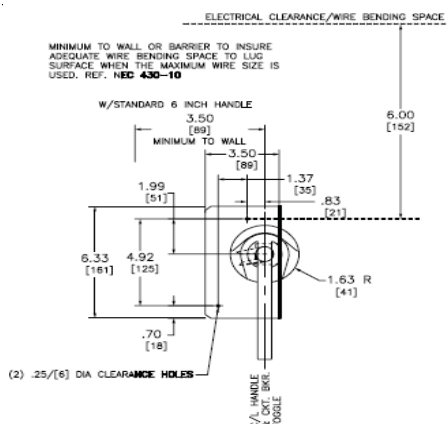
▲ Mounting depth measured from circuit breaker mounting surface (control panel) to outside of enclosure door.



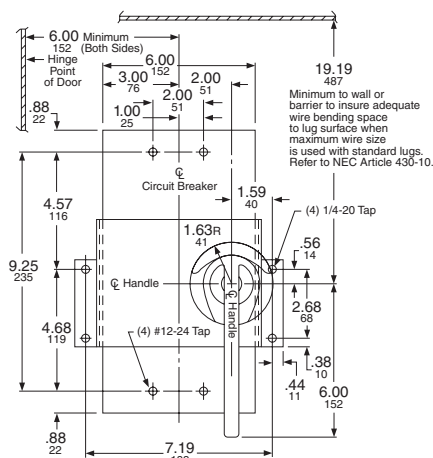
Panel drilling for FAL, FCL, FHL circuit breaker and operating mechanism



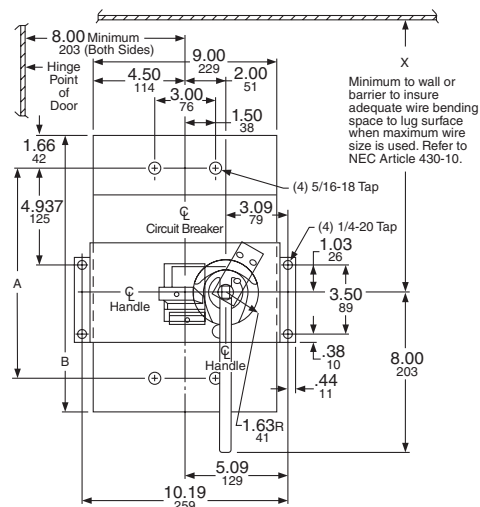
Panel drilling for KAL, KCL, KHL circuit breaker and operating mechanism



Panel Drilling for PowerPact® H and J Circuit Breakers and Operating Mechanism

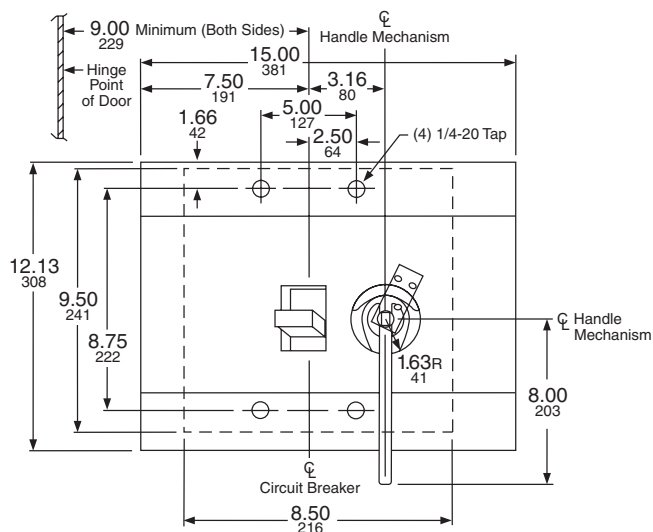


Panel Drilling for LAL, LHL, and Q4L Circuit Breakers and Operating Mechanism

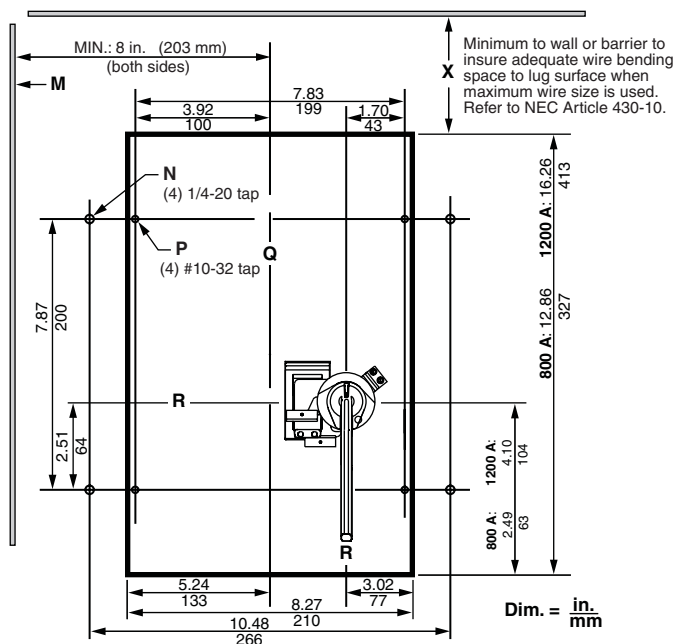


Panel Drilling for MAL, MEL, MHL, and MXL Circuit Breakers and Operating Mechanism

Circuit Breaker Type	Dimensions = in. (mm)	
	A	B
MAL, MHL	10.69 (272)	14.00 (356)
MEL, MXL	11.47 (291)	14.75 (375)



Panel Drilling for NAL, NCL, NEL, and NXL Circuit Breaker and Operating Mechanism



Panel Drilling for PowerPact® M and P Circuit Breaker and Operating Mechanism

The Class 9422 Type TCF, TCN, TDF, TDN, TEF, TEN disconnect switches were designed for control panel installations. These switches include common switch profile 30–100 A, interchangeable fuse clips 30–60 A, and the ability to add fuse clip kits and cable mechanisms. They are compatible with 9422A and 9423, and are UL recognized and CSA certified.

Table 8.53: Class 9422 Flange Mounted, Variable Depth Disconnect Switches

Disconnect Switch Size	Variable Depth Mtg. Range Min.–Max. (In.)	Maximum Horsepower Ratings				Fuse Type	Fuse Clip Rating (Amperes) Non-Interchangeable Type For Class H, J, K or R Fuses Only	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 and Handle Mechanism—Overpacked					
		AC Systems Volts (Motor Volts)						DC Using 2 Poles 250 V Max.					Includes Type A1 Handle Mechanism		Includes Type A2 Handle Mechanism		
		208 (200)	240 (230)	480 (460)	600 (575)												
									Type	\$ Price	Type	\$ Price	Type	\$ Price	Type	\$ Price	
30 A	6-5/8–18	7.5	7.5	15	20	5	None	—	—	TCN30	329.00	TCN30C	315.00	ATCN301	471.00	ATCN302	585.00
							H, K, J, R	30	—	TCF30	372.00	TCF30C	359.00	ATCF301	513.00	ATCF302	629.00
								60	30	TCF33	399.00	TCF33C	386.00	ATCF331	543.00	ATCF332	660.00
60 A	6-5/8–18	15	15	30	50	10	None	—	—	TDN60	386.00	TDN60C	372.00	ATDN601	527.00	ATDN602	642.00
							H, K, J, R	60	30	TDF60	458.00	TDF60C	444.00	ATDF601	599.00	ATDF602	714.00
								—	60	TDF63	485.00	TDF63C	471.00	ATDF631	629.00	ATDF632	741.00
100 A	6-5/8–18	25	30	60	75	20	None	—	—	TEN10	570.00	TEN10C	557.00	ATEN101	714.00	ATEN102	827.00
							H, K, J, R	100	100	TEF10	783.00	TEF10C	770.00	ATEF101	926.00	ATEF102	1040.00
200–400 A		See 9422 TF and TG on page 8-17															

Table 8.54: Internal Barrier Kits

Provide 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 the door of the 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 type 9422 disconnect.



Catalog No. ▲■	Description	Safety Switch Application (F series only)	9422 Type T Disconnect Application	\$ Price ■
SS06	Interior barrier for 60 A safety switch, 30 or 60 A 9422 switch	600 Vac–60 A	600 Vac–30 A 600 Vac–60 A	220.00
SS10	Interior barrier for 100 A safety switch or 100 A 9422 switch	600 Vac–100 A	600 Vac–100 A	260.00
SS0306SK	Skirt kit to enclose 30 or 60 A 9422 switch (requires SS06)	—	600 Vac–30 A 600 Vac–60 A	300.00
SS10SK	Skirt kit to enclose 100 A 9422 switch (requires SS10)	—	600 Vac–100 A	340.00
30528-358-50S	Interior barrier for 200 A 9422 disconnect switch	—	600 Vac–200 A	272.00
30528-369-50S	Interior barrier for 400 A 9422 disconnect switch	—	600 Vac–400 A	390.00

▲ No Class Number is required.

■ For price, use Discount Schedule DE1, not CP1

Table 8.55: Class 9422 Replacement/Retrofit 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	\$ Price
30 A	TCF30 TCN30 TCF33	H, K, J, R	30	—	TC30	42.80
			60	30	TC33	71.00
60 A	TDN60	H, K, J, R	60	30	TC33	71.00
			—	60	TD63	99.00

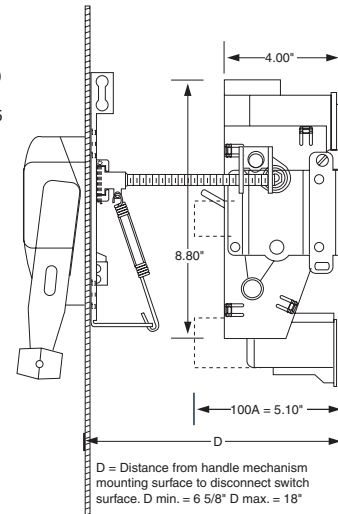
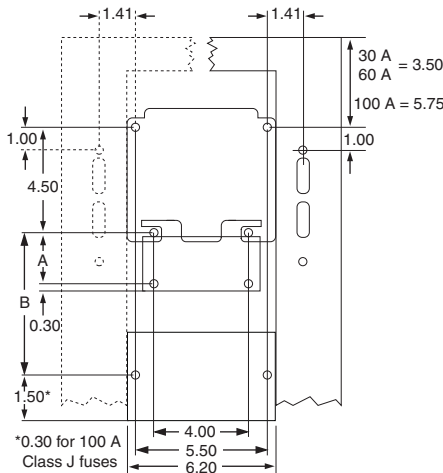


Table 8.56: Class R Fuse Clip Kits

Disconnect Switch Size	Switch Type	Fuse Type	Fuse Clip Rating (A)		Rejection Feature—Class R Kit ■	
			250 V	600 V	Cat No. ▲	\$ Price
30 A	TCF30 TCF33	R	30	—	RFK03	32.69
			60	30	RFK06	34.00
60 A	TDF60 TDF63	R	60	30	RFK06	34.00
			—	60	RFK06H	34.00
100 A	TEF10	R	100	100	RFK10	64.00

▲ No Class Number required.

■ For price, use Discount Schedule DE1, not CP1.

Table 8.57: Class 9999 Electrical Interlocks

Disconnect Switch Size	Switch Type	Electrical Interlock		
		Contacts	Type	\$ Price
30 A 60 A 100 A	TCF, TCN TDF, TDN TEF, TEN	SPDT▲	TC10	120.00
		DPDT■	TC20	239.00
	BTCF, BTCN BTDF, BTDN BTEF, BTEN	SPDT▲	TC11	120.00
		DPDT■	TC21	239.00

▲ 1 N.C. or 1 N.O. depending on wiring.

■ 2 N.C., 2 N.O. or 1 N.O., 1 N.C. depending on wiring.

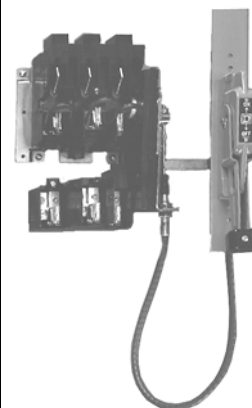
Table 8.58: Dimensions

Switch Type	Maximum Voltage	Fuse Type Class	Dimension A	Dimension 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

Table 8.59: Class 9422 Disconnect Switch Cable Operators (must purchase switch separately)

Disconnect Switch Size	Switch Type	Cable Mechanisms ▲			Cable Mechanisms with A1 Handle for Types 1, 3, 3R, 4 and 12		
		Cable Length	Type	\$ Price	Type	\$ Price	\$ Price
30 A, 60 A, 100 A	TCF, TCN TDF, TDN TEF, TEN	36 in.	CFT30	273.00	CFT31	417.00	—
		48 in.	CFT40	291.00	—	—	—
		60 in.	CFT50	291.00	CFT51	432.00	—
		120 in.	CFT10	333.00	CFT11	476.00	—

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



Ordering Information

The 9422 Type T disconnect switches are designed for variable depth, flange mounting applications. These switches are fully compatible with 9422 handle operators and 9423 door closing mechanisms. They feature: 200 and 400 A; fusible (Classes H, K, J, or R fuses) and nonfusible; right or left flange mounting (except 400 A, which mounts only right hand flange and requires a special enclosure), UL recognized, and CSA certified.

Table 8.60: Disconnect Switches

Disconnect Switch Size	Variable Depth Mounting Range Min.–Max. (in.)	Maximum Horsepower Ratings▲					Fuse Clip Rating (A) Non-Interchangeable Type For Class H, J, K, or R Fuses Only		Switch and Operating Mechanism Only— Does Not Include Handle Mechanism		Switch and Operating Mechanism and Handle Mechanism—Overpacked			
		AC Systems Volts (Motor Volts)				DC Using 2 Poles 250 V Max.	250 V	600 V	Type	\$ Price	Includes Type A1 Handle Mechanism		Includes Type A2 Handle Mechanism	
		208 (200)	240 (230)	480 (460)	600 (575)						Type	\$ Price	Type	\$ Price
200 A	9.12–19.25 ■	40	60	125	150	40	Non-Fusible		TF1	1247.00	ATF11	1389.00	ATF21	1503.00
							200	200	TF2	1389.00	ATF12	1530.00	ATF22	1646.00
							—	400	TF3♦	2052.00	ATF13♦	2195.00	ATF23♦	2307.00
400 A Fixed Depth★	11.38 (A5 or A6 Handle)	75	125	250	350	50	Non-Fusible		TG1△□	2672.00	For handle selection, see Table 8.62.			
400 A Adj. Depth★	15.87–19▼ (A7 or A8 Handle)						400	400	TG2△□	3027.00				

- ▲ Refers to rating of switch only.
■ 9422 R2, shown on page 8-23, will extend maximum mounting depth 7 inches.
♦ Accommodates Class J fuses only.
★ Switches are either fixed-depth or adjustable; the handle will determine installation.
▼ In increments of 0.63 inches.
△ Commercially available enclosures may not accept type TG operating mechanisms. Contact enclosure manufacturer for availability of enclosures for use with these switches.
□ Right hand flange mounting only.

Table 8.61: Class R Fuses

Fusible disconnect switches on this page and page 8-16 will accept Class R fuses as standard. A field installable rejection kit is available which, when installed, rejects all but Class R fuses. With the rejection kit and Class R fuses installed, the switch is UL component recognized for use on systems with up to 200,000 RMS symmetrical amperes fault current available.

Switch Rating (A)	Type	Fuse Clip Rating		Class	Type	\$ Price
		250 Vac	600 Vac			
200	TF	200 A	200 A	9999	SR4	47.60
400	TG	400 A	400 A	9999	SR5	107.00

Table 8.62: Handle Mechanisms

Handle mechanism kits are used with all disconnect switch and circuit breaker installations. The kits contain all parts necessary for mounting the handle to the flange of the enclosure. The Types A1–A4, A9–A10 are suitable for right or left hand flange mounting. Two mounting methods are offered. The Types A5–A8 handles are designed for right hand mounting only.

Type of Handle	NEMA Type Enclosure	Type	\$ Price
6 in. ▲	1, 3, 3R, 4 (sheet steel), 12	A1	143.00
	4, 4X (stainless steel) ■	A2	257.00
6 in. ▲▼	1, 3, 3R, 4 (sheet steel), 12	AP1	188.00
	4, 4X (stainless steel) ■	AP2	338.00
4 in. ▲	1, 3, 3R, 4 (sheet steel), 12	A3	143.00
	4, 4X (stainless steel) ■	A4	257.00
12 in. (fixed depth) ♦	1, 3, 3R, 4 (sheet steel), 12	A5	251.00
	4 (stainless steel)	A6	320.00
12 in. (adjustable depth) ♦	1, 3, 3R, 4 (sheet steel), 12	A7	300.00
	4 (stainless steel)	A8	372.00
10 in. ★	1, 3, 3R, 4 (sheet steel), 12	A9	158.00
	4 (stainless steel)	A10	270.00

- ▲ Use with 30–200 A switches and all circuit breaker mechanisms.
■ All external metal parts are either stainless steel or a chrome-plated non-ferrous die casting.
♦ Use with 400 A Type TG1 and TG2 disconnect switches only.
★ Use with Type D2 remote or dual adapter kit listed on page 8-24.
▼ Use with 9422 RM1 and 9422 CMP only.

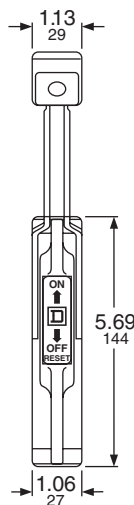
Optional accessory for use with disconnect switches listed on this page.

Table 8.63: Electrical Interlocks

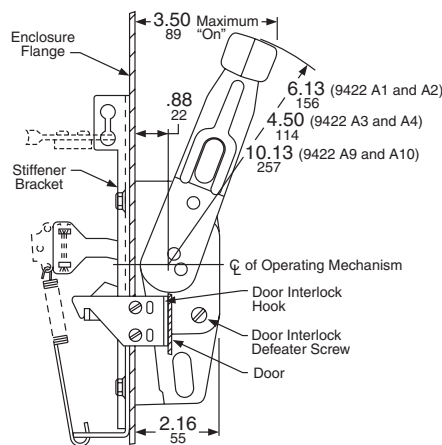
For Use On Switch Type	Class	Single Pole Interlock Type	\$ Price	Class	Two Pole Interlock Type	\$ Price
TF, ATF	9999	R8	83.00	9999	R9	243.00
TG	9999	R35	275.00	9999	R36	521.00

Table 8.64: Lug Data

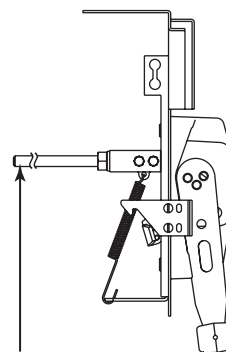
Disconnect Switch Size	Wire Size Minimum–Maximum
30 A, 60 A	#14–#2 Cu, #10–#2 Al
100 A	#10–#0 Cu, #6–#0 Al
200 A	#6–300 kcmil Cu or Al
400 A	#4–500 kcmil Cu



Type A1



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



Rod used only on the variable-depth mechanism.

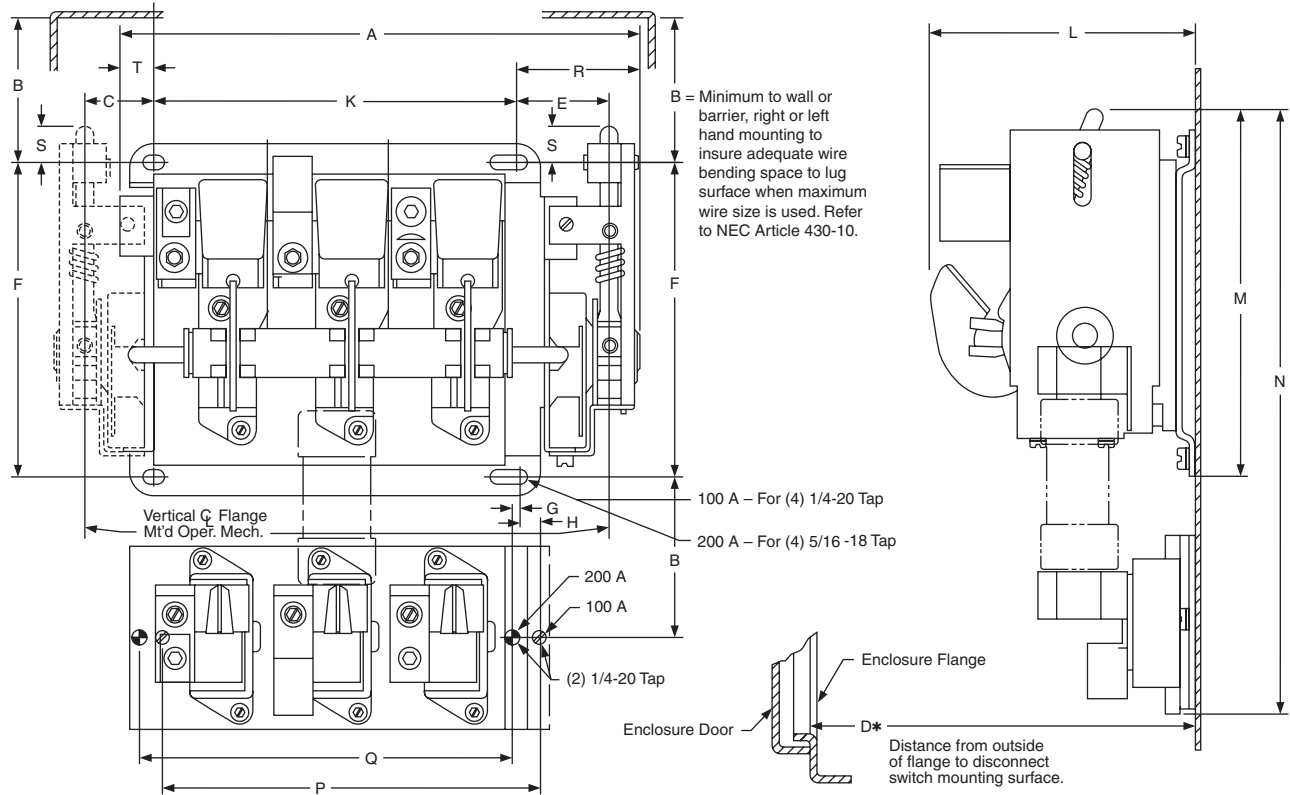
The type AP1 and AP2 handles are used exclusively on the PowerPact® M and P Operating Mechanisms, 9422 RM1 and 9422 CMP. The dimensions are identical to 9422 A1.

Dimensions

Table 8.65: Dimensions (in. / mm) for 200 A Type TF Disconnect Switches

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

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



Disconnect Switches—400 A Type TG

Outline Dimensions and General Location, 400 A Disconnect Switches Non-Fusible and Non-Interchangeable Fuse Clip Type Fusible Switches

Table 8.66: Handle Mechanism—Type A5 through A8

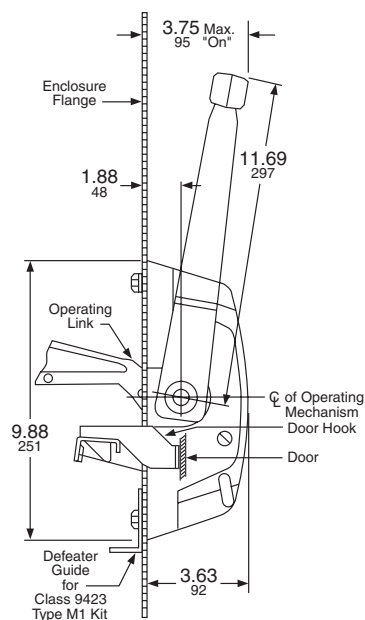


Figure 1

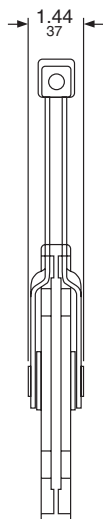


Figure 2

Switch Type	B	X
TG1, 2	11.28 286	16.06 408

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

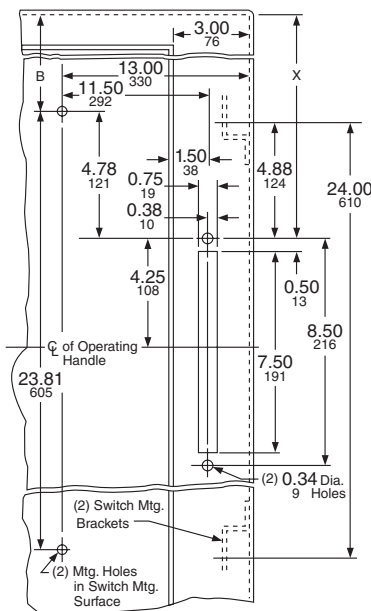


Figure 3

Table 8.67: Non-fusible and Fusible Switches

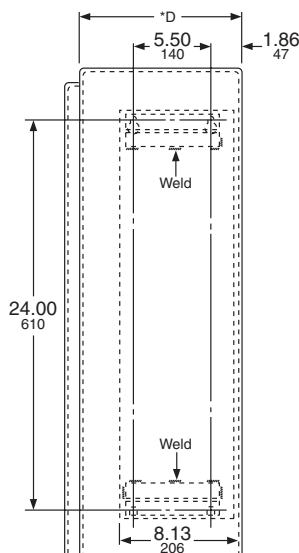


Figure 4

Dimension D = Distance from outside of flange to disconnect switch mounting surface.			
For Type TG1 or TG2 with:			
Type A5 or A6 fixed depth handle mechanism	D =	11.38 289	
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.

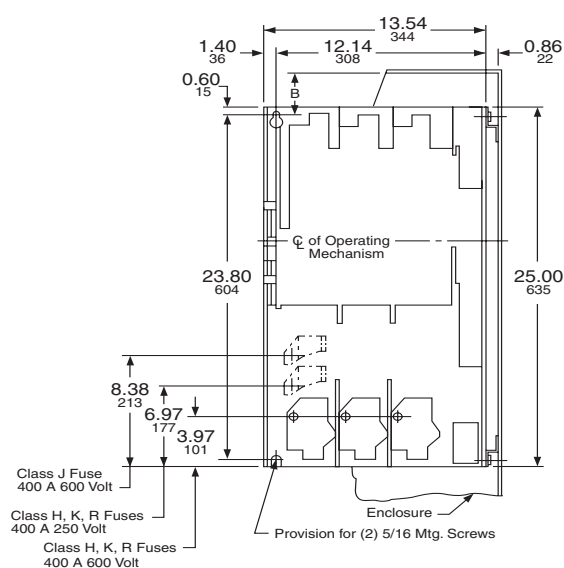


Figure 5

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

The Class 9422 Type T disconnect switches listed in the table below are shipped with the switch and external handle assembled to a bracket, ready for installation into the enclosure. A trim plate is provided with each kit to

prevent any mounting screws from being accessible from the front and also to provide an attractive installation. These switches can be used with Class 9423 door closing mechanisms.

Table 8.68: Bracket Mounted Disconnect Switches

Disconnect Switch Size	Maximum Horsepower Rating					Fuse Type	Fuse Clip Rating		Bracketed Mounted Switch Mechanism and Handle		
	AC System Volts (Motor Voltage)				250 Vdc		250 V (A)	600 V (A)	Catalog No.	\$ Price	
	208 (200)	240 (230)	480 (480)	600 (600)							
30 A	7.5	7.5	15	20	5	None	—	—	BTCN30	471.00	
						H, K, J, R	30	—	BTCF30	543.00	
							60	30	BTCF33	543.00	
							J▲	60	30	BTCF32	543.00
60 A	15	15	30	50	10	None	—	—	BDTN60	527.00	
						H, K, J, R	60	30	BDTF60	585.00	
							—	60	BDTF63	629.00	
							J▲	—	60	BDTF62	629.00
100 A	25	30	60	75	20	None	—	—	BTEN10	714.00	
						H, K, J, R	100	100	BTEF10	926.00	
							J▲	100	100	BTEF11	926.00
							None	—	—	TFB1	1488.00
200 A	40	60	125	150	40	H, K, J, R	200	200	TFB2	1610.00	
						J	—	400	TFB3	2264.00	

▲ Space saving design—Type J fuses mounted on the non-fused bracket.

Note: For Lug Data, see 8-17; for Electrical Interlocks, see page 8-16.

Note: Some enclosures may not accept the listed bracket mounted operating mechanisms; contact the enclosure manufacturer.

Table 8.69: Bracket Mounted Operating Mechanisms for Use With Square D® Circuit Breakers

The circuit breaker operating mechanisms listed below are shipped with the external operating handle assembled to a bracket. Circuit breakers are not included and must be ordered separately. A trim plate is provided with each kit to prevent any mounting screws from being accessible from the front and also to provide an attractive installation. The operating handle is Type A1. These switches can be used with Class 9423 door closing mechanisms.

Use With			Operating Mechanism	
Circuit Breaker or Interrupter Type	No. of Poles	Frame Size (A)	Right Hand Flange Mounting	
			Cat. No.	\$ Price
FAL, FHL	2-3	100	BN1	257.00
KAL, KHL	2-3	250	BP1	270.00
LAL▲, LHL▲, Q4L	2-3	400	BR1	543.00

▲ Note: These operating mechanisms cannot be used with any LA/LH circuit breaker with an MB or MT suffix.

Note: Some enclosures may not accept the listed bracket mounted operating mechanisms; contact the enclosure manufacturer.

Table 8.70: Electrical Interlock Kits—Class 9999

Optional accessory for use with circuit breaker operating mechanisms listed to the left and the flexible cable mechanisms listed below, except GJL.

Description	Class	Type	\$ Price
Single Pole, Double Throw	9999	R26	131.00
Double Pole, Double Throw	9999	R27	243.00

Note: Not used with GJL; use field installed circuit breaker interlocks.

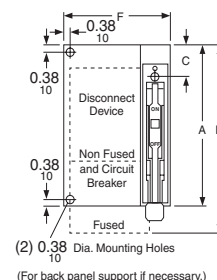
Table 8.71: Dimensions

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)
BG1, BN1	8.75 (222)					7.13 (181)
BP1	9.13 (232)	1.13 (29)	6.50 (165)	8.00 (203)		7.38 (187)

▲ 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.

**Table 8.72: Class 9422—Flexible Cable Mechanisms for Use With Square D Circuit Breakers**

For use with Square D circuit breakers and Class 9422 A handle operators. Especially designed for tall, deep enclosures where placement flexibility is required. See page 8-21 for dimensions.

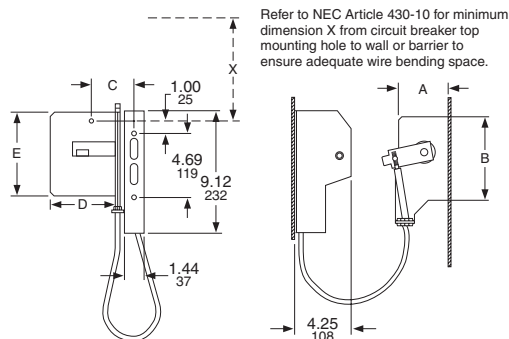
Circuit Breaker Type	No. of Poles	Frame Size (A)	Cable Mechanism			Cable Mechanisms with A1 Handle For Types 1, 3, 3R, 4, 12	
			Cable Length	Catalog No.	\$ Price	Catalog No.	\$ Price
GJL	3	100	36 in.	CGJ30	273.00	CGJ31	417.00
			48 in.	CGJ40	291.00	CGJ41	432.00
			60 in.	CGJ50	291.00	CGJ51	432.00
			120 in.	CGJ10	333.00	CGJ11	476.00
FAL, FHL	2 - 3	100	36 in.	CFA30	273.00	CFA31	417.00
			60 in.	CFA50	291.00	CFA51	432.00
			120 in.	CFA10	333.00	CFA11	476.00
KAL, KHL	2 - 3	250	36 in.	CKA30	288.00	CKA31	431.00
			60 in.	CKA50	305.00	CKA51	446.00
			120 in.	CKA10	347.00	CKA11	489.00
LAL▲, LHL▲, Q4L	2 - 3	400	36 in.	CLA30	486.00	CLA31	630.00
			60 in.	CLA50	504.00	CLA51	647.00
			120 in.	CLA10	548.00	CLA11	689.00

▲ Note: These operating mechanisms cannot be used with any LA/LH circuit breaker with an MB or MT suffix.

Flexible Cable Mechanisms

For Circuit Breakers

Class 9422 / Refer to Catalog 9420CT9701



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

Table 8.73: Flexible Cable Mechanisms for Use with Schneider Electric® (formerly Merlin Gerin®) 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	\$ Price
MG-NSF PowerPact H- and J-Frame	2 - 3	250	36 in.	CSF30	288.00
			60 in.	CSF50	305.00
			84 in.	CSF70	323.00
			120 in.	CSF10	347.00
MG-NSF	4	250	36 in.	CSF304	297.00
			60 in.	CSF504	314.00
			120 in.	CSF104	356.00
MG-NSJ PowerPact D	3	600	36 in.	CSJ30	486.00
			60 in.	CSJ50	504.00
			120 in.	CSJ10	548.00
MG-NSJ PowerPact D	4	600	36 in.	CSJ304	500.00
			60 in.	CSJ504	516.00
			120 in.	CSJ104	558.00
PowerPact M- and P-Frame	3	1200	36 in.	CMP40	759.00
			50 in.	CMP50	785.00
			120 in.	CMP10	857.00

Table 8.74: Cable Operating Mechanisms for Circuit Breakers—Dimensions

Type	A		B		C		D		E	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
CGJ	3.50	89	5.25	133	2.50	63	3.75	95	5.25	133
CFA	4.26	108	8.50	216	3.75	95	6.75	171	8.50	216
CKA	4.94	125	10.13	257	3.75	95	7.13	181	10.13	257
CLA	6.00	152	11.00	279	3.75	95	10.19	259	11.00	279
CSF 3-Pole	5.85	149	7.97	202	3.50	89	4.84	123	7.97	202
CSF 4-Pole	5.85	149	7.97	202	3.50	89	8.08	205	7.97	202
CSJ 3-Pole	4.13	105	9.50	241	3.00	76	7.25	183	9.50	241
CSJ 4-Pole	4.13	105	9.50	241	3.00	76	9.03	229	9.50	241
CMP	8.744	222	15.00	381	2.38	60	12.41	315	15.00	381

Table 8.75: Class 9999 Auxiliary Contact Kits for Disconnect Switches and Circuit Breakers

Class	Type	SPDT		DPDT	
		Type	\$ Price	Type	\$ Price
Disconnect Switches					
9422	BTCF, BTCN, BTDF, BTEF, BTEN	TC11	120.00	TC21	239.00
9422	TCF, TCN, TDF, TDN, TEF, TEN	TC10	120.00	TC11	239.00
9422	TF	R8	87.00	R9	243.00
Circuit Breaker Operating Mechanisms					
9421	LF, LK, LL, LM, LN, LP, LR, LT, LW	R47	131.00	R48	221.00
9422	RM, RN, RP, RQ, RR, RT	R26	131.00	R27	243.00
9422	CFA, CKA, CLA, CSF, CMP	R26	131.00	R27	243.00

NOTE: No external auxiliary contacts are available for the following circuit breakers:
GJL circuit breakers must use internal catalog No. AAC.
PowerPact D circuit breakers must use internal catalog No. AAC.

For additional variations, contact CIC at 1-888-SQUARE D (1-888-778-2733).

Dual Cable Operating Mechanisms for Square D® Circuit Breakers

Dual Cable Operator Mechanisms are designed for use with Square D GJL and PowerPact® D, H, and J circuit breakers through 600 A frame sizes. The cable mechanisms allow for a single handle operator, Class 9422A1, 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

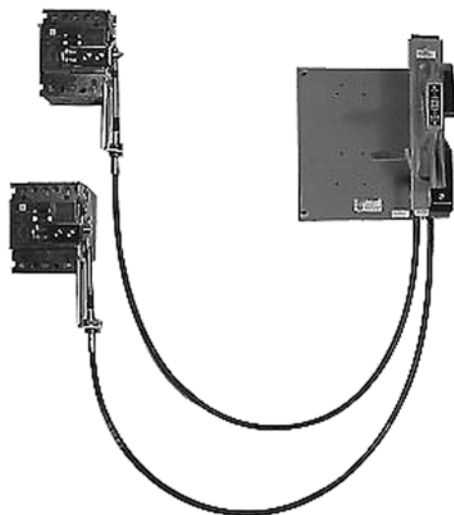


Table 8.76: Dual Cable Operating Mechanisms Selection

Circuit Breaker Type	Cable Length in. / mm (quantity)	Catalog Number	Frame Size (max.)	\$ Price
GJL	36 in. / 914 mm (2)	9422CGJD3	100 A	585.00
	48 in. / 1219 mm (2)	9422CGJD4		608.00
	60 in. / 1524 mm (2)	9422CGJD5		675.00
	120 in. / 3048 mm (2)	9422CGJD1		788.00
	36 in. / 914 mm (1) 60 in. / 1524 mm (1)	9422CGJD8		642.00
	60 in. / 1524 mm (1) 120 in. / 3048 mm (1)	9422CGJD9		720.00
	120 in. / 3048 mm (2)	9422CSFD1		693.00
PowerPact H & J MG NSF	36 in. / 914 mm (1) 60 in. / 1524 mm (1)	9422CSFD35	250 A	648.00
	60 in. / 1524 mm (1-CSF 3 pole) 60 in. / 1524 mm (1-CSF 4 pole)	9422CSFD345		672.00
	120 in. / 3048 mm (1-CSF) & 120 in. / 3048 mm (1-CSJ)	9422CSFJD10		894.00
PowerPact D MG NSJ	36 in. / 914 mm (1-CSF) & 36 in. / 914 mm (1-CSJ)	9422CSFJD30	250 A & 600 A	774.00
	60 in. / 1524 mm (1-CSF) 60 in. / 1524 mm (1-CSJ)	9422CSFJD50		809.00

Table 8.77: Special Left-hand Mounted Single Cable Operating Mechanisms

Circuit Breaker Type	Cable Length in. / mm (quantity)	Catalog Number	Frame Size (max.)	\$ Price
FAL	120 in. / 3048 mm (1)	9422CFAL10	100 A	350.00
	36 in. / 914 mm (1)	9422CFAL30		287.00
	60 in. / 1524 mm (1)	9422CFAL50		318.00

Disconnect Switch Accessories

Flange Mounted, Variable Depth

Class 9422 / Refer to Catalog 9420CT9701

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.

Table 8.78: Variable Depth Mechanisms for Use with Square D® and Schneider Electric® (formerly Merlin Gerin®) Circuit Breakers

Use with				Operating Mechanism											
Circuit Breaker Frame Size	No. of Poles	Frame Size A	Variable Depth Mtg. Range Min.-Max.▲ (Inches)	Operating Mechanism Only—Does Not Include Handle Mechanism		Operating Mechanism and Handle Mechanism									
						Includes Type A1 Handle Mechanism		Includes Type A2 Handle Mechanism							
										Type	\$ Price	Type	\$ Price	Type	\$ Price
Square D Circuit Breakers															
GJL	3	100	6.00–17.75	RG1	116.00	ARG11	257.00	ARG21	372.00						
FAL, FHL	2–3	100	5.38–17.75	RN1	116.00	ARN11	257.00	ARN21	372.00						
KAL, KHL	2–3	250	6.38–17.88	RP1	129.00	ARP11	270.00	ARP21	386.00						
LAL♦, LHL♦, Q4L	2–3	400	7.44–18.25	RR1	329.00	ARR11	471.00	ARR21	585.00						
MEL, MXL	2–3	800	9.00–18.38	RT1	449.00	ART11	593.00	ART21	705.00						
MAL, MHL	2–3	1200	9.00–18.38	RT1	449.00	ART11	593.00	ART21	705.00						
NAL, NCL, NEL, NXL	2–3	1200	11.00–18.37	RX1	513.00	—	—	—	—						
Schneider Electric (formerly Merlin Gerin) and PowerPact® Frame 3-Pole Circuit Breakers															
MG-NSF PowerPact H- and J-Frame	2–3	250	5.88–17.75	RQ1	185.00	—	—	—	—						
MG-NSJ PowerPact D	3	600	9.00–17.75	RS1	383.00	—	—	—	—						
PowerPact M- and P-Frame	3	1200	9.00–18.38	RM1	513.00	—	—	—	—						

▲ Class 9422 Type R2 will extend mounting depth 7 inches (see page 8-24).

Table 8.79: Electrical Interlocks—Class 9999

Description	Class	Type	\$ Price
Single Pole, Double Throw	9999	R26▲	131.00
Double Pole, Double Throw	9999	R27▲	243.00

▲ Not for use with the GJL operating mechanism.

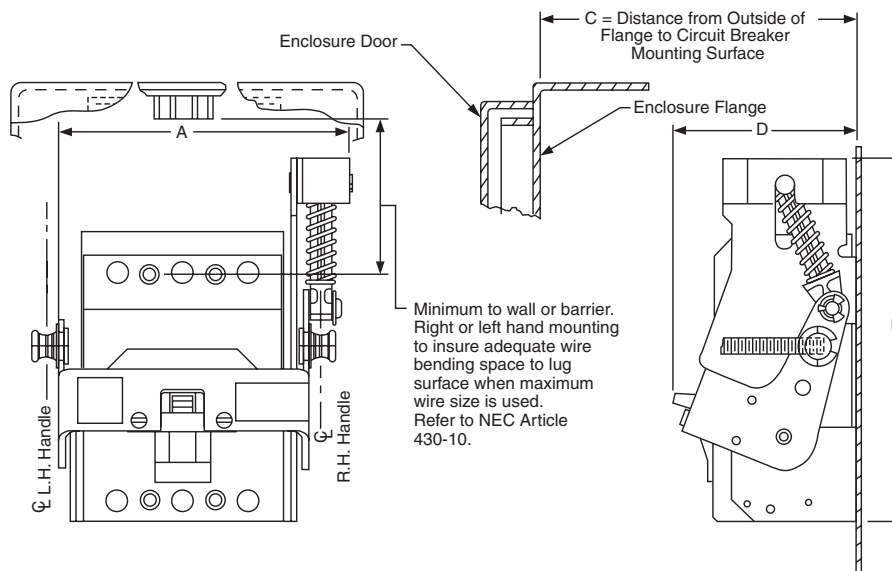
Table 8.80: Dimensions

Circuit Breaker Frame Size	Type	Width (A)		Height (B)		Distance to Enclosure Flange▲ (C)				Bracket Depth (D)	
		in.	mm	in.	mm	Minimum		Maximum		in.	mm
						in.	mm	in.	mm		
GJL	RG1	5.00	127	4.75	121	6.00	152	17.75	451	4.00	102
FAL, FHL	RN1	6.75	171	8.50	216	5.51	140	17.75	451	4.26	108
KAL, KHL	RP1	7.13	181	10.13	257	6.51	165	17.88	454	4.94	125
LAL♦, LHL♦, Q4L	RR1	10.19	259	11.00	279	7.44	189	18.25	464	6.00	152
MEL, MXL	RT1	13.38	340	14.00	356	9.00	229	18.38	467	9.69	246
MAL, MHL	RT1	13.38	340	14.00	356	9.00	229	18.38	467	9.69	246
NAL, NCL, NEL, NXL	RX1	19.63	499	13.50	343	11.00	279	18.37	467	9.00	229
MG-NSF	RQ	4.84	123	7.97	203	5.875	149	17.75	451	5.62	143
MG-NSJ	RS	9.27	236	9.5	241	9.0	228	17.75	451	5.73	146
PowerPact M & P	RM	12.29	312	15	381	10.5	267	18.9	480	8.73	222

▲ 9422 R2 will extend dimension 7 in. Two required.

■ Minimum mounting depth when using MAL or MHL circuit breakers can be decreased to 7.63 inches by using the Class 9422 Type RT1B conversion kit. **\$23.00**

♦ **Warning:** These operating mechanisms cannot be used with any LA / LH circuit breaker with an MB or MT suffix.



Switch
or
Breaker



Remote operation shown
(handle mechanism not
included in kit)

Remote or Dual Adapter Kit

For the remote or dual operation of 30, 60, 100 and 200 A disconnect switches, or GJL, FAL, FHL, KAL, KHL, LAL, LHL, Q4L, MAL, MHL, MEL and MXL circuit breakers.

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 8-17) and the preferred mounting method **must** be used.

Table 8.81: Disconnect Device

Disconnect Device	Enclosure Mounting Depth		Type	\$ Price
	Min.	Max.		
Disconnect Switch			D2	251.00
30 A Type TCF/TCN	10.63	19.50		
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		
Circuit Breaker				
GJL	10.50	19.50		
FAL, FHL	10.66	19.50		
KAL, KHL	11.13	19.50		
LAL, LHL, Q4L	12.13	19.88		
MAL, MHL, MEL, MXL	13.75	20.25		

Table 8.82: Air Valve Interlock

Note that air valve interlocks only accept the specific three-way air valves, manufactured by Parker, listed in the table below.

Parker Valve Model Number▲		Class 9422 Air Valve Interlock	
Air Valve Size	Knob Operated	Type	\$ Price
0.50 NPT 13	M04841885	G1	513.00
	M08541848		
0.75 NPT 19	M04861885	G2	513.00
	M08561848		
1.00 NPT 25	M00080004	G1	513.00

▲ Prices do not include air valves or handle mechanism. For more information on air valves listed above contact Parker at C-PARKER@PARKER.COM, or call 1-800-272-7537.

Table 8.83: Other Accessories

Accessory	Description	Class	Type	\$ Price
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	14.30
Channel/Flange Support Kit	Auxiliary kit recommended for use with 30 and 60 A disconnect switches and FAL, FCL, FHL, KAL, KHL, 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 and LAL, LHL, Q4L, MAL, MHL, MEL and MXL circuit breaker mechanisms.	9422	C1	42.80
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	36.00
Special Lugs for Disconnect Switches	Copper Lugs only—Specify Form Y157	—	—	No Charge
	Tin Plated Aluminum Lugs for 400 A Type TG Switch—Specify Form Y1572 (000–750 kcmil Cu/Al wire)	—	—	No Charge
	Anderson Type VCEL Compression Lugs—Specify Form Y1574 Exceptions: None of the 30 A or 60 A disconnect switches are available with compression lugs.	—	—	No Charge
Operating Rods	Standard operating rod for use with Class 9422 variable depth mechanisms. Included as standard in each kit.	9422	R1	28.70
	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	50.00



Air valve interlock
mounted on enclosure



Alternate Mounting Kit



Channel/Flange
Support Kit



Auxiliary Lock Plate

Class 9423 door closing mechanisms cover a range of enclosures with up to 91 inch high maximum door openings. 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. On the other hand, 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 8-26 and 8-27.

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 8.84: Door Closing Mechanism

60 in. Maximum Door Opening (Recommended)	46–60 in. Door Opening (Recommended)	61–91 in. Door Opening (Recommended)
 2 Point Locking is Standard - A Third Roller Latch Kit is Available for 3 Point Locking - For 3/4 in. Door Depths	 - For use on Single or Multi-Door Enclosures - For use with Doors Hinged on Right or Left Side - Referred to as the 6 in. Vault Handle Mechanism - For 3/4 in. Door Depths	 - For use on Single or Multi-Door Enclosures - For use with Doors Hinged on Right or Left Side - Referred to as the 8 in. Vault Handle Mechanism - For 1-1/8 in. Door Depths

9422 TCN30

Circuit Breaker Mechanism

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 8.85: 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	\$ Price
Two point, roller latch, door closing mechanism for use on enclosures with doors hinged on the left hand side.	NEMA Type 4 and 12 Sheet Steel	Class 9422 Types A1, A3, A9	4 in.	Less than 39 in.	3/4	M4	228.00
			4 in.	Less than 39 in.	▲	M10	314.00
			6 in.	60 in.	3/4	M9	243.00
Two point, roller latch, door closing mechanism for use on enclosures with doors hinged on the right hand side.	NEMA Type 4 and 12 Stainless Steel	Class 9422 Types A2, A4, A10	4 in.	Less than 39 in.	3/4	M24	300.00
			4 in.	Less than 39 in.	3/4	M4L	228.00
			4 in.	Less than 39 in.	▲	M10L	314.00
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 9422 Types A1, A3, A9	6 in.	60 in.	3/4	M9L	243.00
			4 in.	Less than 39 in.	3/4	M24L	300.00
			4 in.	Less than 39 in.	3/4	M3	50.00
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 Stainless Steel	Class 9423 Types M4, M9, M4L, M9L	—	—	3/4	M3	50.00
			—	—	3/4	M23	57.00

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

Type M4

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

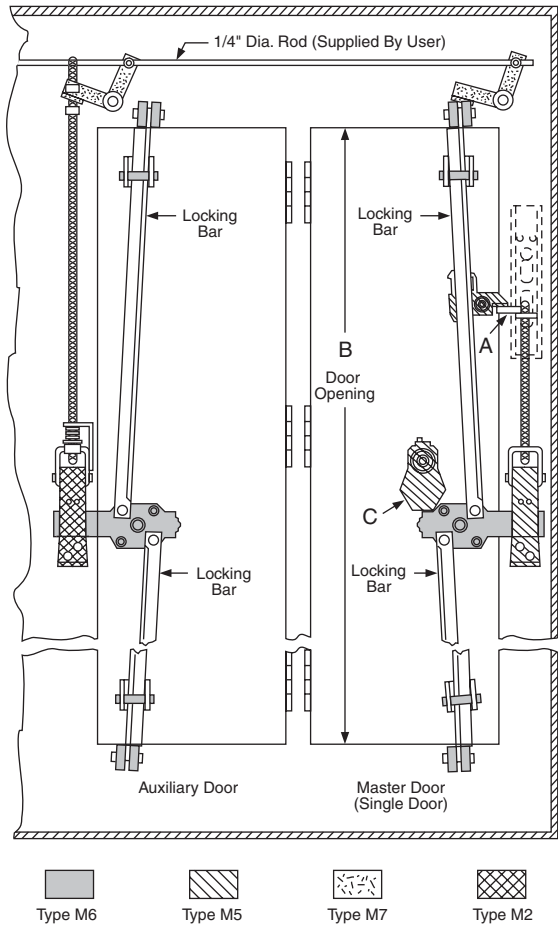
Vault Type for Single and Multi-Door Enclosures

Table 8.86 shows the requirements for the door closing mechanism, the locking bar kit, and the mechanical interlock kit, if used.

Table 8.86: 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 each door: 1—M6 door closing mechanism 1—Type M660 locking bar kit	For Master door: 1—M6 door closing mechanism 1—Type M660 locking bar kit 1—Type M5 (for use with 9422A handles)	For each Auxiliary 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. **\$45.00**

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

Table 8.87: Door Interlocks

Type M6 Door Closing Mechanism	\$ Price
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.	257.00
Type M660 Locking Bar Kits	86.00
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	215.00
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 opening 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 8.88: Required Accessories for Auxiliary Doors

Type M2	\$ Price
One Type M2 kit is required for each auxiliary door. This kit is required to interlock any auxiliary door(s) with the master door.	257.00
Type M7	71.00
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.	

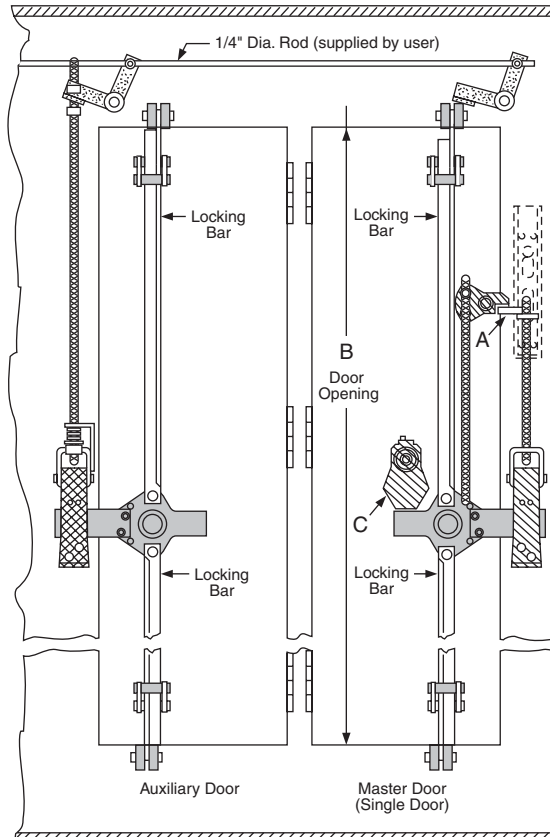
Vault Type for Single and Multi-Door Enclosures

Table 8.89 shows the requirements for the door closing mechanism, the locking bar kit, and the mechanical interlock kit, if used.

Table 8.89: 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. **\$45.00**

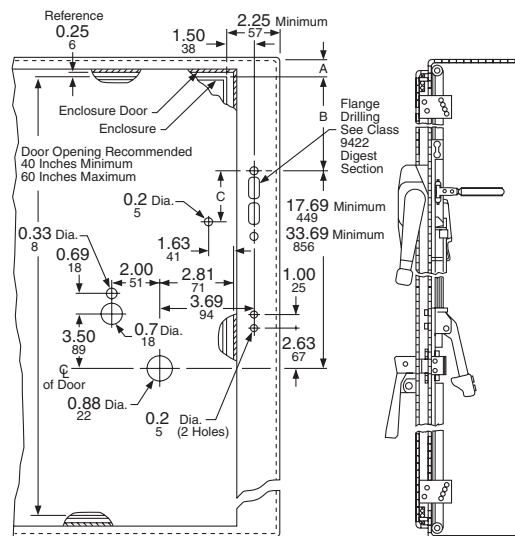
NOTE: All mechanisms listed on this page are suitable for either left or right hand mounting.

Table 8.90: Door Interlocks

Type M8 Door Closing Mechanism	\$ Price
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.	500.00
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.	86.00
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 opening 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.	428.00

Table 8.91: Required Accessories for Auxiliary Doors

Type M2	\$ Price
One Type M2 kit is required for each auxiliary door. This kit is required to interlock any auxiliary door(s) with the master door.	257.00
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.	71.00



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.

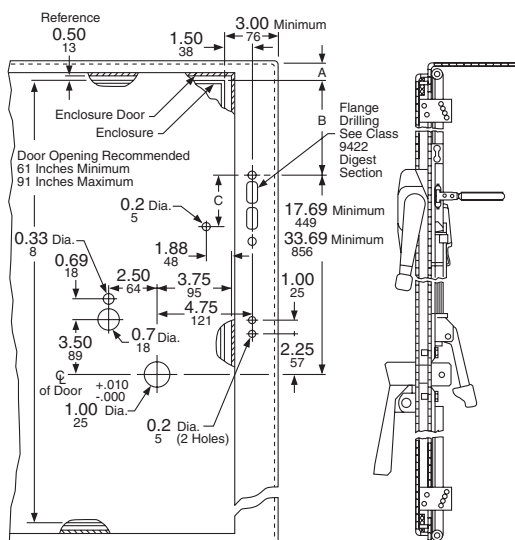
Note: Multi-Door enclosures without overhead interlocking system: A minimum = 1 in.

Note: Multi-Door enclosures with overhead interlocking system: A minimum = 4 1/2 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 8-26.

Table 8.92: Dimension B (Minimums)

Type	Disconnect Device	If A = 1 Minimum B =	If A = 4 1/2 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 = 1 1/2 in.

Note: Multi-Door enclosures without overhead interlocking system: A minimum = 1 1/2 in.

Note: Multi-Door enclosures with overhead interlocking system: A minimum = 4 1/2 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 8-27.

Table 8.93: Dimension B (Minimums)

Type	Disconnect Device	If A = 1 1/2 Minimum B =	If A = 4 1/2 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