Section 16

NEMA Contactors and Starters


Manual Starters and Switches (p. 16-4)

Definite Purpose Contactors and Starters (p. 16-70)


NEMA Style Type S Contactors and Starters (p. 16-14)


Lighting Contactors (p. 16-59)

Pump Panel (p. 16-75)

Combination Starters (p. 16-31)

Electro-Mechanical Reduced Voltage Starter (see Supplemental Digest)

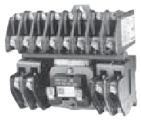







Class	2510, 2511, 2512	8502 & 8702	8536 & 8736	8538 & 8738	8539 & 8739
	Manual Starters and Switches, Non-Reversing, Reversing and Two Speed	NEMA Style Full Voltage Non-Reversing and Full Voltage Reversing Magnetic Contactors	NEMA Style Full Voltage Non-Reversing and Full Voltage Reversing Magnetic Starters	NEMA Style Full Voltage Non-Reversing and Full Voltage Reversing Combination (Disconnect Switch) Magnetic Starters	NEMA Style Full Voltage Non-Reversing and Full Voltage Reversing Combination (PowerPact™ Circuit Breaker) Magnetic Starters
Page	16-4	8502 16-14	8536 16-18	8538 16-31	8539 16-35
		8702 16-44	8736 16-46	8738 16-51	8739 16-53
NEMA Sizes	Type F = N/A	00 to 7	00 to 7	8538 = 0 to 6	8539 = 0 to 7
	Type K = N/A			8738 = 0 to 5	8739 = 0 to 6
	Type M = 0 & 1				
Load Voltage	Type F = 277 V	600 Vac Max.	600 Vac Max.	600 Vac Max.	600 Vac Max.
	Types K & M = 600 Vac				
Current Ratings (Continuous)	Type F = 16 A	9A to 810 A	9 A to 810 A	8538 = 18 A to 540 A	8539 = 18 A to 810 A
	Types K & M = 30 A			8738 = 18 A to 270 A	8739 = 18 A to 540 A
Horsepower Ratings (Maximum)	Type F = 1	1/2 to 600	1/2 to 600	8538 =1/2 to 400	8539 = 1/2 to 600
	Type K = 20			8738 = 1/2 to 200	8739 = 1/2 to 400
	Type M = 10				
Overload Relay	Type F = Melting Alloy	N/A	Melting Alloy	Melting Alloy	Melting Alloy
	Type K = N/A		Bi-Metalic	Bi-Metalic	Bi-Metalic
	Type M = Melting Alloy		Solid State	Solid State	Solid State
Enclosure Types	1, Flush Mount, 3R, 4, 4X, 7 & 9 and Open	1, 3R, 4, 4X, 12/3R, 7 & 9 and Open	1, 3R, 4, 4X, 12/3R, 7 & 9 and Open	1, 4, 4X, 12/3R	1, 4, 4X, 12/3R
Approvals	UL File E42243 NLRV	UL File E78351 NLDX	UL File E78351 NLDX	UL File E152395 NKJH7	UL File E152395 NKJH7
	UR File E42243 NLRV2	CSA 60905 Class 3211-04	CSA 60905 Class 3211-04	CSA LR584 Class 3211 04	CSA LR584 Class 3211 04
	CSA File LR 25490	CE IEC 947-4-1 Sizes 00–5 Only	CE IEC 947-4-1 Sizes 00–5 Only		

Selection Information







8903L & 8903S	8903 Combination Devices	8910, 8911, 8965	8940	8941
Multipole electrically held and mechanically held contactors available in 30 A configurations to 12 poles and 800 A configurations to 3 poles.	Type S lighting contactors electrically held and mechanically held available with disconnect switches or PowerPact™ circuit breakers	Definite Purpose non- reversing contactors available as compact 1 or 2 pole to 40 A and 2 to 4 pole to 90 A. Reversing and Starter Configurations also available.	Well-Guard Control™ Pumping Plant Panels available with disconnect switches or PowerPact™ circuit breakers.	NEMA Style AC Duplex Motor Controllers available as a combination starter or without disconnecting means.
16-59	16-61	8910 16-70	16-75	16-78
		8911 16-74		
		8965 16-81		
N/A	N/A	N/A	1 to 7	1 to 4
600 Vac Max.	600 Vac Max.	600 Vac Max.	600 Vac Max.	600 Vac Max.
8903L to 30 A	300 A (Disconnect)	20 A to 40 A (Compact)	27 A to 810 A	27 A to 135 A
8903S to 800 A	600 A (Circuit Breaker)	20 A to 90 A		
N/A	N/A	1/2 to 50	1/2 to 600	1/2 to 100
N/A	N/A	Melting Alloy (8911)	Melting Alloy	Melting Alloy
			Bi-Metallic	Bi-Metallic
			Solid State	Solid State
1, 3R, 4, 4X, 12/3R and Open	1, 4, 4X, 12/3R	1	3R	1, 4, 4X, 12/3R and Open
UL File E78427 NRNT	UL File E16151 NRNT	UR E3190 NLDX2	UL/cUL 152395 NKJH	UL File E152395 NKJH7
CSA LR60905 Class 3231 01	cUL File E16151 NRNT	CSA LR25490 Class 3211 04		

Fractional Horsepower Manual Starters with Melting Alloy Type Thermal Overload Relay

Table 16.1: Single-Unit Types—Class 2510—Rated 16 A — Thermal Units
Prices shown do not include thermal units. Standard trip thermal units are $21.50 each. See page 16-116 for selection information.

Type of Operator	No. of Poles	Features	NEMA 1 General Purpose Enclosure Surface Mounting				General Purpose Flush Mounting (Without Pull Box)						NEMA Type 4▲ Watertight and Dusttight Enclosure		NEMA Types 3R, 7 & 9 Hazardous Locations Div. 1 & 2 Class I Groups B, C, & D & Class II Groups E, F & G Enclosure		Open Type		Number of Thermal Units Required
			Standard		Oversized		Gray Flush Plate		Standard Stainless Steel Flush Plate		Jumbo Stainless Steel Flush Plate								
			Type	$ Price	Type	$ Price	Type	$ Price	Type	$ Price	Type	$ Price	Type	$ Price	Type	$ Price	Type	$ Price	
Basic Starter—Class 2510																			
Toggle	1	Standard With Red Pilot Light♦	FG1 FG1P	**86.00** **129.00**	FGJ1 FGJ1P	**99.00** **143.00**	FF1 FF1P	**78.00** **122.00**	FS1 FS1P	**83.00** **129.00**	— FSJ1P	— **149.00**	— —	— —	— —	— —	FO1 FO1P	**71.00** **116.00**	1
	2	Standard With Red Pilot Light♦	FG2 FG2P	**99.00** **143.00**	FGJ2 FGJ2P	**116.00** **158.00**	FF2 FF2P	**93.00** **120.00**	FS2 FS2P	**99.00** **143.00**	— FSJ2P	— **165.00**	— —	— —	— —	— —	FO2 FO2P	**86.00** **129.00**	1
Key	1	Standard With Red Pilot Light♦	FG3 FG3P	**116.00** **158.00**	FGJ3 FGJ3P	**129.00** **171.00**	FF3 FF3P	**107.00** **149.00**	FS3 FS3P	**114.00** **158.00**	— FSJ3P	— **179.00**	— —	— —	— —	— —	FO3 FO3P	**99.00** **143.00**	1
	2	Standard With Red Pilot Light♦	FG4 FG4P	**129.00** **171.00**	FGJ4 FGJ4P	**143.00** **185.00**	FF4 FF4P	**122.00** **165.00**	FS4 FS4P	**129.00** **171.00**	— FSJ4P	— **192.00**	— —	— —	— —	— —	FO4 FO4P	**114.00** **158.00**	1
Starter with Handle Guard/Lock-Off—Class 2510																			
Toggle	1	Standard With Red Pilot Light ♦	FG5 FG5P	**99.00** **143.00**	FGJ5 FGJ5P	**114.00** **158.00**	Order basic starter plus separate handle guard kit.						FW1 FW1P	**320.00** **435.00**	FR1 —	**350.00** —	■	—	1
	2	Standard With Red Pilot Light♦	FG6 FG6P	**116.00** **158.00**	FGJ6 FGJ6P	**129.00** **171.00**							FW2 FW2P	**336.00** **449.00**	FR2 —	**363.00** —	■	—	1

▲ Furnished with one 3/4" pipe tap in bottom (reversible for top feed). To obtain 3/4" pipe tap top and bottom, add suffix letter "H" to type number and add **$19.10** to price.
■ For replacement starter, order open type above. For NEMA 4 with pilot light, retain pilot light mounting bracket from original device.

Table 16.2: Duplex Units—Class 2510

Type of Operator	No. of Poles	Features	NEMA 1 General Purpose Enclosure Surface Mounting		General Purpose Flush Mounting (Without Pull Box)						Number of Thermal Units Required
					Gray Flush Plate for Wall or Cavity Mounting		Stainless Steel Flush Plate for Wall or Cavity Mounting		Replacement Starter Class 2510		
			Type	$ Price	Type	$ Price	Type	$ Price	Type	$ Price	
One Starter in Duplex Enclosure—Class 2510											
Toggle	2	Standard With Red Pilot Light ♦	FG02 FG02P	**158.00** **201.00**	— —	— —	— —	— —	— —	— —	1
Key	2	With Red Pilot Light ♦	FG04P	**201.00**	—	—	—	—	—	—	1
Two Starters in One Enclosure—Class 2510											
Toggle	2 Each Str.	Standard With Red Pilot Light on Each♦	FG22 FG22P	**243.00** **399.00**	FF22 FF22P	**228.00** **386.00**	— FS22P	— **399.00**	— —	— —	2
Key	2 Each Str.	With Red Pilot Light on Each♦	FG44P	**458.00**	FF44P	**441.00**	FS44P	**458.00**	—	—	2
Starter and "AUTO-OFF-HAND" SPDT Selector Switch (AC Only)—Class 2510											
Toggle	1	Standard With Red Pilot Light ♦	FG71 FG71P	**221.00** **264.00**	FF71 FF71P	**207.00** **251.00**	— FS71P	— **264.00**	— —	— —	1
	2	Standard With Red Pilot Light♦	FG72 FG72P	**234.00** **278.00**	FF72 FF72P	**221.00** **264.00**	— FS72P	— **278.00**	— —	— —	1
Key	2	With Red Pilot Light♦	FG74P	**306.00**	FF74P	**293.00**	FS74P	**306.00**	—	—	1
Two Speed Starters (AC Only)—Class 2512									Replacement Starter Class 2510		
Toggle	1	With Mechanical Interlock: Standard With 2 Red Pilot Lights♦ With HIGH-OFF-LOW Selector Switch: With 2 Red Pilot Lights♦	FG11 FG11P —	**314.00** **471.00** —	FF11 FF11P —	**300.00** **458.00** —	— — FS101P	— — **471.00**	FO1T FO1PT FO1PT	**86.00** **129.00** **129.00**	2
	2	With Mechanical Interlock: Standard With 2 Red Pilot Lights♦ With HIGH-OFF-LOW Selector Switch: With 2 Red Pilot Lights♦	FG22 FG22P —	**342.00** **500.00** —	FF22 FF22P —	**329.00** **485.00** —	— — FS202P	— — **500.00**	FO2T FO2PT FO2PT	**99.00** **143.00** **143.00**	2

♦ For green pilot light, add the letter "G" to the catalog number (i.e. 2510FG2P**G**).

Type FG2P

Table 16.3: Horsepower Ratings Type F

Volts	Maximum Horsepower		
	AC Single Phase		DC 2-Pole Only
	1-Pole	2-Pole	
115–230	1	1	3/4
277	1	1	—

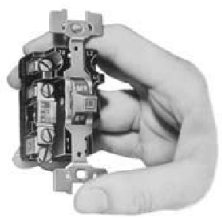
Note: Continuous current rating—16 A.

Table 16.4: Approvals—2510 Type F and K

Enclosed		Open	
(UL Listed)	File E42243	(UL Component Recognized)	File E42243
	CCN NLRV		CCN NLRV2
CSA Certified File LR25490 Class 3211-05			

Table 16.5: How to Order

To Order Specify:	Catalog Number	
	Class	Type
• Class Number • Type Number	2510	FG1



Type FO2

Table 16.6: Non-Reversing—Class 2510

Type of Operator	No. of Poles	Features	NEMA 1 General Purpose Enclosure Surface Mounting				General Purpose Flush Mounting (Without Pull Box)						NEMA Type 4 ▲ Watertight and Dusttight Enclosure		NEMA Types 3R, 7 & 9 ▲ Hazardous Locations Div. 1 & 2 Class I Groups B, C & D & Class II Groups E, F, and G Enclosure		Open Type	
			Standard		Oversized		Gray Flush Plate		Standard Stainless Steel Flush Plate		Jumbo Stainless Steel Flush Plate							
			Type	$ Price	Type	$ Price	Type	$ Price	Type	$ Price	Type	$ Price	Type	$ Price	Type	$ Price	Type	$ Price
Toggle	2	Standard With Pilot Light♦	KG1	66.00	KGJ1	81.00	KF1	59.00	KS1	66.00	—	—	KW1	314.00	KR1	342.00	KO1	52.00
		115 Vac	KG1A	138.00	KGJ1A	153.00	KF1A	131.00	KS1A	138.00	KSJ1A	161.00	KW1A	428.00	—	—	KO1A ■	125.00
		230 Vac	KG1B	138.00	KGJ1B	153.00	KF1B	131.00	KS1B	138.00	KSJ1B	161.00	KW1B	428.00	—	—	KO1B ■	125.00
	3	Standard With Pilot Light♦	KG2	149.00	KGJ2	165.00	KF2	143.00	KS2	149.00	—	—	KW2	386.00	KR2	442.00	KO2	120.00
		208-277 Vac	KG2B	221.00	KGJ2B	234.00	KF2B	215.00	KS2B	221.00	KSJ2B	243.00	KW2B	500.00	—	—	KO2B ■	207.00
		440-600 Vac	KG2C	221.00	KGJ2C	234.00	KF2C	215.00	KS2C	221.00	KSJ2C	243.00	KW2C	500.00	—	—	KO2C ■	207.00
	2	Standard With Pilot Light♦	KG5	78.00	KGJ5	93.00	—	—	—	—	—	—	KW5	327.00	—	—	KO5	64.00
		115 Vac	KG5A	149.00	—	—	—	—	—	—	—	—	KW5A	440.00	—	—	KO5A■	120.00
		230 Vac	KG5B	149.00	—	—	—	—	—	—	—	—	KW5B	440.00	—	—	KO5B■	120.00
	3	Standard With Pilot Light♦	KG6	162.00	KGJ6	176.00	—	—	—	—	—	—	KW6	396.00	—	—	KO6	147.00
		208-277 Vac	KG6B	233.00	—	—	—	—	—	—	—	—	KW6B	512.00	—	—	KO6B■	219.00
		440-600 Vac	KG6C	233.00	—	—	—	—	—	—	—	—	KW6C	512.00	—	—	KO6C■	219.00
Key	2	Standard With Pilot Light♦	KG3	95.00	KGJ3	110.00	KF3	89.00	KS3	95.00	—	—	—	—	—		KO3	81.00
		115 Vac	KG3A	167.00	KGJ3A	179.00	KF3A	161.00	KS3A	167.00	KSJ3A	185.00	—	—	—		KO3A	153.00
		230 Vac	KG3B	167.00	KGJ3B	179.00	KF3B	161.00	KS3B	167.00	KSJ3B	185.00	—	—	—	—	KO3B	153.00
	3	Standard With Pilot Light♦	KG4	179.00	KGJ4	192.00	KF4	171.00	KS4	179.00	—	—	—	—	—	—	KO4	165.00
		208-277 Vac	KG4B	251.00	KGJ4B	264.00	KF4B	243.00	KS4B	251.00	KSJ4B	270.00	—	—	—	—	KO4B	234.00
		440-600 Vac	KG4C	251.00	KGJ4C	264.00	KF4C	243.00	KS4C	251.00	KSJ4C	270.00	—	—	—	—	KO4C	234.00

▲ Furnished with one 3/4" pipe tap in bottom (reversible for top feed). To obtain 3/4" pipe tap top and bottom, add suffix letter "H" to type number and add **$28.70** to price.

■ When replacing starter with pilot light in NEMA 4 enclosure, retain pilot light mounting bracket from original device.

Table 16.7: Reversing—Class 2511

Type of Operator	Number of Poles	Motor Types for Which Suitable	Features (Including Mechanical Interlock)	NEMA 1 General Purpose Enclosure Surface Mounting		With Flush Plate for Cavity Mounting (Without Pull Box)		Replacement Switch Class 2510	
				Type	$ Price	Type	$ Price	Type	$ Price
Toggle	2	Single Ø 3-Lead Repulsion-Induction	Standard With Pilot Light:♦	KG11	287.00	KF11	270.00	KO1T	66.50
			115 Vac	KG11A	399.00	KF11A	386.00	KO1AT	138.00
			230 Vac	KG11B	399.00	KF11B	386.00	KO1BT	138.00
	3	Three Ø; Also Single Ø Capacitor, Split Ø, or 4-Lead Repulsion-Induction	Standard With Pilot Light:♦	KG22	441.00	KF22	428.00	KO2T	149.00
			110–120 Vac	KG22A	557.00	KF22A	543.00	KO2AT	221.00
			208–220 Vac	KG22B	557.00	KF22B	543.00	KO2BT	221.00
			440–600 Vac	KG22C	557.00	KF22C	543.00	KO2CT	221.00

Table 16.8: Two Speed—Class 2512

Type of Operator	Number of Poles	Motor Types for Which Suitable	Features (Including Mechanical Interlock)	NEMA 1 General Purpose Enclosure Surface Mounting		With Flush Plate for Cavity Mounting (Without Pull Box)		Replacement Switch Class 2510	
				Type	$ Price	Type	$ Price	Type	$ Price
Toggle	2	Single Ø Two Winding (3-Lead)	Standard With 2 Pilot Lights:♦	KG11	287.00	KF11	270.00	KO1T	66.50
			115 Vac	KG11A	513.00	KF11A	500.00	KO1AT	138.00
			230 Vac	KG11B	513.00	KF11B	500.00	KO1BT	138.00
	3	Three Ø Separate Winding (Wye-Connected)	Standard With 2 Pilot Lights:♦	KG22	441.00	KF22	428.00	KO2T	152.00
			208–240 Vac	KG22B	671.00	KF22B	656.00	KO2BT	221.00
			440–600 Vac	KG22C	671.00	KF22C	656.00	KO2CT	221.00

♦ For green pilot light, add the letter "G" to the catalog number (i.e. 2510KW2C**G**).

Table 16.9: Class 2510 Horsepower Ratings

Class 2510	No. of Poles	Motor Type AC	Maximum Hp				DC Rating		
			115 Volts	230 Volts	460 Volts	575 Volts	90 Volts	115 Volts	230 Volts
KO1 KO3	2	Single Ø	2	2	3	3	1	2	1-1/2
KO2 KO4	3	Three Ø	2	7-1/2	10	10	1	2	1-1/2
KO5	2	Single Ø	2	3	7-1/2	10	1	2	1-1/2
KO6	3	Three Ø	2	7-1/2	15	20	1	2	1-1/2

Note: Continuous current rating 30 A at 600 Vac maximum.

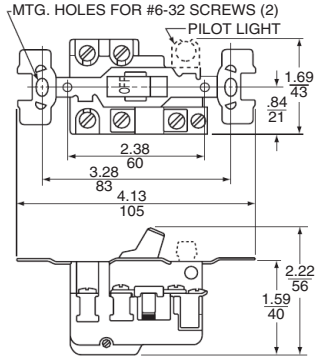
Table 16.10: How to Order

To Order Specify:	Catalog Number	
• Class Number	Class	Type
• Type Number	2510	KO2

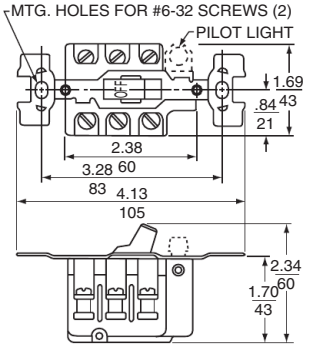
Table 16.11: Class 2511 and 2512 Horsepower Ratings Type K

Device	No. of Poles	Motor Type AC	Maximum Hp			DC Ratings		
			115 Volts	230 Volts	460–575 Volts	90 Volts	115 Volts	230 Volts
Class 2511	2	Single Ø	2	2	3	1	2	1-1/2
	3	Three Ø	2	7-1/2	10	1	2	1-1/2
Class 2512	2	Single Ø	2	2	3	1	2	1-1/2
	3	3 Ø, Constant or Variable Torque	2	7-1/2	10	1	2	1-1/2
	3	3 Ø, Constant Horsepower	2	7-1/2	10	1	2	1-1/2

Open Type

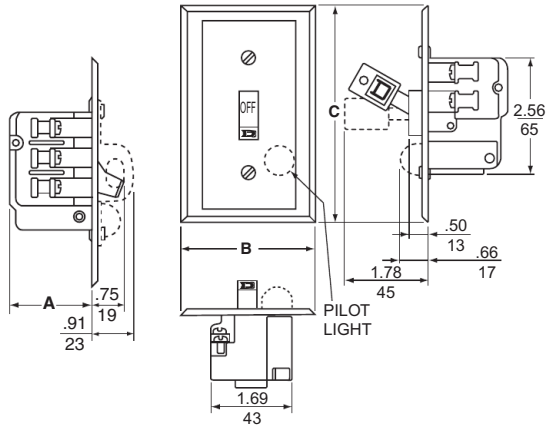


Types FO1, 1P, 2
Fractional Hp Starter



Types KO1, 1A, 1B, 2, 2B, 2C
Types KO5, 5A, 5B, 6, 6B, 6C
Motor Starting Switch

NEMA 1 General Purpose Enclosure (Flush Mount)



NEMA 4 Watertight Die Cast Zinc Enclosure

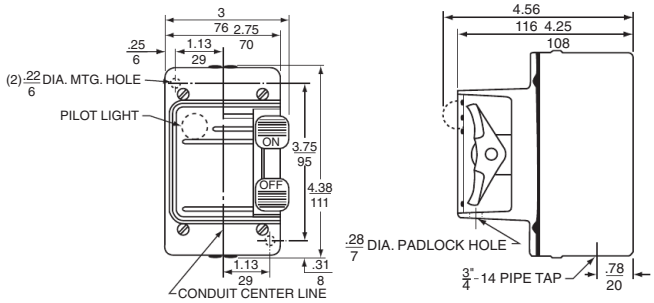


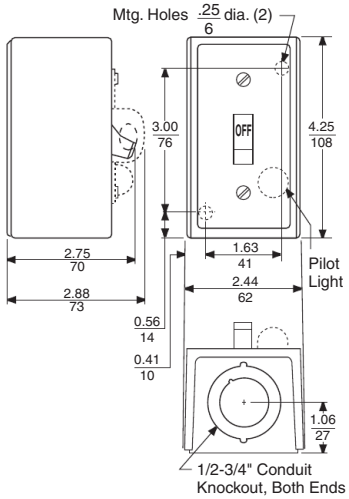
Table 16.1:

Device	Class	Type
Fractional Hp Starter	2510	FW1, 1P, 2, 2P
Motor Starting Switch	2510	KW1, 1A, 1B, 2, 2B, 2C

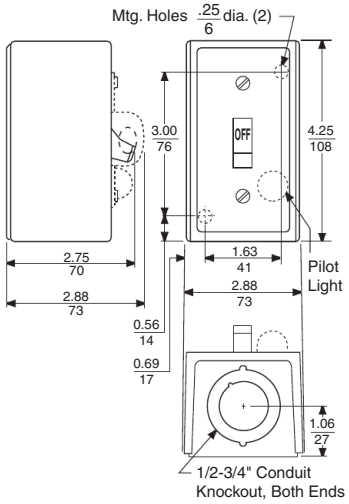
Table 16.2:

Device	Type of Operator	Class 2510 Type	Dimensions		
			A	B	C
Fractional Hp Starter	Toggle	FF1, 1P, 2, 2P FS1, 1P, 2, 2P	1-7/16	2-3/4	4-1/2
		FSJ1P, 2P	1-7/16	3-1/2	5-1/4
	Key	FF3, 3P, 4, 4P FS3, 3P, 4, 4P	1-7/16	2-3/4	4-1/2
		FSJ3P, 4P	1-7/16	3-1/2	5-1/4
Motor Starting Switch	Toggle	KF1, 1A, 1B, 2, 2B, 2C KS1, 1A, 1B, 2, 2B, 2C	1-3/4	2-3/4	4-1/2
		KSJ1A, 1B, 2B, 2C	1-3/4	3-1/2	5-1/4
	Key	KF3, 3A, 3B, 4, 4B, 4C KS3, 3A, 3B, 4, 4B, 4C	1-3/4	2-3/4	4-1/2
		KSJ3A, 3B, 4B, 4C	1-3/4	3-1/2	5-1/4

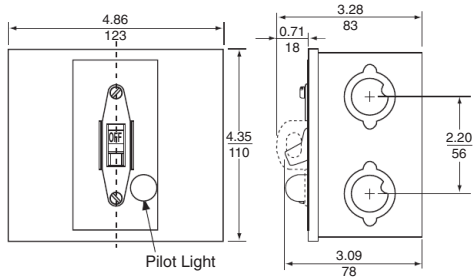
NEMA 1 General Purpose Enclosure (Surface Mount)



Standard
(Class 2510 Types FG & KG, Single Unit)



Oversized
(Class 2510 Types FGJ & KGJ, Single Unit)



Jumbo
(Class 9991Type KE2, see page 16-11)

NEMA 3R, 7, and 9 Aluminum Enclosure for Hazardous Locations

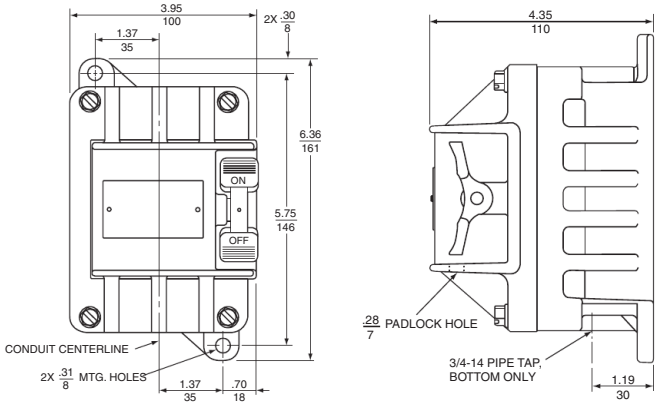


Table 16.12: NEMA 3R, 7, and 9 Aluminum Enclosure for Hazardous Locations

Device	Class	Type
Fractional Hp Starter	2510	FR1, 2
Motor Starting Switch	2510	KR1, 2

Dimensions for Duplex Devices

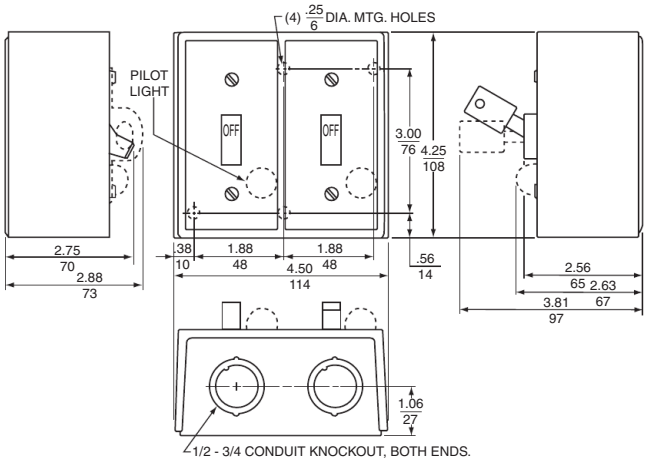


Table 16.13: NEMA 1 General Purpose Surface Mount Enclosure for Duplex Devices

Device	Type of Operator	Class	Type
One Starter	Toggle	2510	FGO2, 02P
	Key	2510	FGO4P
Two Starters	Toggle	2510	FG22, 22P
	Key	2510	FG44P
One Starter and One Selector Switch▲	Toggle	2510	FG71, 71P, 72, 72P
	Key	2510	FG74P
Reversing Switch■	Toggle	2511	KG11, 11A, 11B, 22, 22A, 22B, 22C
Two Speed Starter	Toggle	2512	FG11, 11P, 22, 22P
Two Speed Switch	Toggle	2512	KG11, 11A, 11B, 22, 22B, 22C

▲ Selector switch is on left, increases overall depth to 3-1/2".
■ Only one pilot light (located on right) is used on Class 2511 switches.

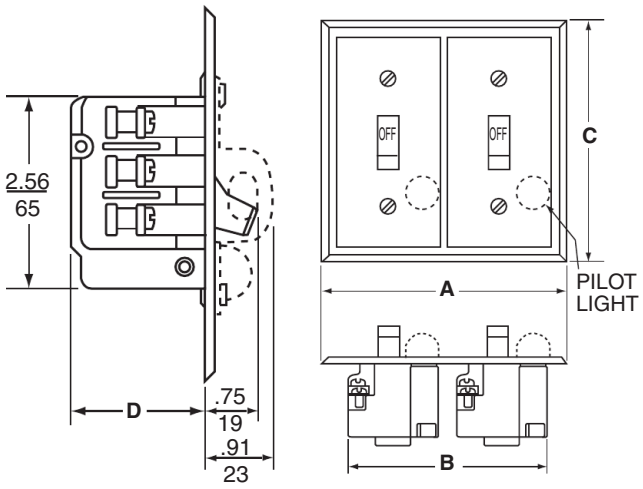


Table 16.14: General Purpose Flush Mounting Plate for Duplex Devices

Device	Type of Operator	Class	Type	Dimensions♦			
				A	B	C	D
Two Starters	Toggle	2510	FF22, 22P	5-1/4	3-3/4	5-1/4	1-7/16
			FS22P	4-9/16	3-1/2	4-1/2	1-7/16
	Key	2510	FF44P	5-1/4	3-3/4	5-1/4	1-7/16
			FS44P	4-9/16	3-1/2	4-1/2	1-7/16
One Starter and One Selector Switch★	Toggle	2510	FF71, 71P, 72, 72P	5-1/4	3/4	5-1/4	2
			FS71P, 72P	4-9/16	3-1/2	4-1/2	2
	Key	2510	FF74P	5-1/4	3-3/4	5-1/4	2
			FS74P	4-9/16	3-1/2	4-1/2	2
Reversing Switch	Toggle	2511	KF11, 11A, 11B KF22, 22A KF22B, 22C	5-1/4	3-3/4	5-1/4	1-3/4
Two Speed Starter	Toggle	2512	FF11, 11P, 22, 22P	5-1/4	3-3/4	5-1/4	1-7/16
Two Speed Switch	Toggle	2512	KF11, 11A, 11B, KF22, 22B, 22C	5-1/4	3-3/4	5-1/4	1-3/4

♦ Dimensions include factory wired power connections.
★ Selector Switch is on left, extends 1-5/8" from mounting surface.

Types M and T integral horsepower manual starters provide convenient "On-Off" operation of small single phase, polyphase or DC motors. Typical applications include small machine tools, pumps, fans and conveyors.

- Push button (M) or toggle (T) operators
- Reliable overload protection
- Pilot light and auxiliary contact available

Table 16.15: Integral Horsepower Manual Starters

Note that the prices shown do not include thermal units. Standard trip thermal units are **$21.50** each; see page 16-116 for selection information.

Non-Reversing					Class 2510										Max. Voltage: 600 Vac							
No. of Poles	NEMA Size	Ratings			NEMA 1 Surface Mounting			NEMA 4/4X Watertight and Dusttight Enclosure Brushed Stainless Steel		NEMA 4/4X Watertight, Dusttight and Corrosion-Resistant Glass-Polyester Enclosure		▲ NEMA 7 & 9 For Hazardous Locations Class I – Groups C, D Class II – Groups E, F & G		NEMA 12 Dusttight and Driptight Industrial Use Enclosure		Open Type					
		Motor Voltage	Max. Hp		Square P.B. Operator	Toggle Operator	$ Price										Square P.B. Operator	Toggle Operator	$ Price			
			Poly-Phase	Single Phase	Type			Type	$ Price	Type	$ Price	Type	$ Price	Type	$ Price	Type						
2-Pole	M-0	115 230	— —	1 2	MBG1	TBG1	**264.00**	MBW11■	**720.00**	MBW1■	**720.00**	MBR1■	**1004.00**	MBA1■	**363.00**	MBO1	TBO1	**234.00**				
	M-1	115 230	— —	2 3	MCG1	TCG1	**336.00**	MCW11	**891.00**	MCW1	**891.00**	MCR1	**1197.00**	MCA1	**435.00**	MCO1	TCO1	**306.00**				
	M-1P	115 230	— —	3 5	MCG2	TCG2	**491.00**	MCW12	**1089.00**	MCW2	**1089.00**	MCR2	**1382.00**	MCA2	**593.00**	MCO2	TCO2	**309.00**				
3-Pole	M-0	115 200-230 380-575	— 3 5	— — —	MBG2	TBG2	**314.00**	MBW12■	**770.00**	MBW2■	**770.00**	MBR2■	**1062.00**	MBA2■	**414.00**	MBO2	TBO2	**287.00**				
	M-1	115 200-230 380-575	— 7-1/2 10	— — —	MCG3	TCG3	**386.00**	MCW13	**941.00**	MCW3	**941.00**	MCR3	**1254.00**	MCA3	**485.00**	MCO3	TCO3	**356.00**				
DC 2-Pole	M-0	115 230	1 hp–D.C. 1-1/2 hp–D.C.		MBG4	TBG4	**264.00**	MBW14	**720.00**	MBW4	**720.00**	—	—	MBA4	**363.00**	MBO4	TBO4	**234.00**				
	M-1	115 230	1-1/2 hp–D.C 2 hp–D.C.		MCG5	TCG5	**336.00**	MCW15	**891.00**	MCW5	**891.00**	MCR5	**1188.00**	MCA5	**435.00**	MCO5	TCO5	**306.00**				

▲ NEMA 7 & 9 enclosures are cast-iron. NEMA 7 & 9 enclosures (cast aluminum) are available for outdoor use; to order these type of enclosures, replace the "R" in the catalog number with a "T". For additional information, contact Schneider Electric Customer Care Center.

■ Approved for group motor installations per NEC 430-53(c).

All Except NEMA 7 & 9

File E42243
CCN NLRV

File LR60905
Class 3211-05

NEMA 7 & 9 Only

File E58760
CCN NPXZ

File LR26817
Class 3218-04

Table 16.16: How to Order

To Order Specify:	Catalog Number	
	Class	Type
• Class Number • Type Number	2510	MCA1

Reversing and Two Speed

Class 2511 reversing and Class 2512 two-speed manual starters consist of two mechanically interlocked Class 2510 Types M or T manual starters.

Table 16.17: Reversing Class 2511

Class	Description	Number of Poles	NEMA Size	Ratings		NEMA 1 Surface Mounting			Open Type		
				Motor Voltage	Maximum Hp	Square P.B. Operator	Toggle Operator	$ Price	Square P.B. Operator	Toggle Operator	$ Price
2511	Standard	3-Pole	M-0	200-230 380-575	3 5	MBG1	TBG1	**984.00**	MBO1	TBO1	**899.00**
			M-1	200-230 380-575	7-1/2 10	MCG1	TCG1	**1197.00**	MCO1	TCO1	**1112.00**

Table 16.18: Two Speed (Wye-Connected Separate Winding Motors Only) Class 2512

Class	Description	Number of Poles	NEMA Size	Ratings			NEMA 1 Surface Mounting			Open Type		
				Motor Voltage	Constant Hp	Constant Torque or Variable Torque	Square P.B. Operator	Toggle Operator	$ Price	Square P.B. Operator	Toggle Operator	$ Price
2512	Standard	3-Pole	M-0	200-230 380-575	2 3	3 5	MBG1	TBG1	**984.00**	MBO1	TBO1	**899.00**
			M-1	200-230 380-575	5 7-1/2	7-1/2 10	MCG1	TCG1	**1197.00**	MCO1	TCO1	**1112.00**

Thermal Units

Starters will not operate without properly installed thermal units and device reset. Thermal unit must be installed so that markings face the front of starter.

Application Data

Size–Available in NEMA Sizes M-0, M-1, and M-1P.

Poles–Two poles single phase; three poles polyphase; 2 poles DC.

Voltage–600 volts AC max.; 250 volts DC max.

Overload Relays–Melting alloy thermal overload relays have provisions for one Type B thermal unit for single phase starters and three Type B thermal units for three phase starters. **All thermal units must be installed and the device reset before the starter contacts will operate.** After overload relays have tripped, allow one or two minutes for the alloy to solidify before resetting.

Operator–Available with a push button or toggle operator in open and NEMA 1 versions. NEMA 4/4X (stainless) and 12 versions utilize a direct acting push button only. NEMA 4/4X (polyester) and 7/9 versions utilize an external toggle to actuate a push button device inside.

Maintenance of Equipment

For proper performance, all equipment should be periodically inspected and maintained. Replacement contacts and interlocks are available in kit form to facilitate servicing and stocking. In addition, the service bulletin contains an exploded view of the device with components clearly marked for easy identification by description and part number.

Mechanism Lock Off–Both open devices and starters in NEMA 1 surface and flush mounting, and NEMA 4, 4X, 7 & 9 and 12 enclosures can be locked in the OFF or STOP position. The NEMA 1 surface mounting, 4, 4X, 7 & 9 and 12 enclosures can also be locked closed to prevent unauthorized entry.

Table 16.19: Terminal information and Replacement Contact Kits

NEMA Size	Power Terminals		Auxiliary Interlock Terminals		Number of Poles	Service Bulletin	Replacement Contact Kit	
	Type of Lug	Wire Size (Solid or Stranded Copper Wire) Min.-Max.	Type of Lug	Wire Size (Solid or Stranded Copper Wire) Min.-Max.			Class	Type
M-0	Pressure Wire	#14–#8	Pressure Wire	#16–#12	2 or 3	312AS	9998	ML1
M-1	Pressure Wire	#14–#8	Pressure Wire	#16–#12	2 or 3	312AS	9998	ML2
M-1P	Box Lug	#14–#6	Pressure Wire	#16–#12	2	312AS	9998	ML2

Accessories and Modification Kits

One auxiliary contact, either N.O. or N.C. can easily be added internally to any open or enclosed Type M or T manual starter. It occupies the space provided in either the upper right hand or left hand corners of the device. These contacts are for AC loads only. For electrical ratings, refer to page 16-110, Class 9999 Types SX11 or SX12.

A unique red **pilot light** assembly that clips into place is available **factory installed** on NEMA 1, 4, 4X, 12 and flush enclosures or as a **field modification kit** on the NEMA 1 surface or flush mounting enclosures. See page 16-11. The color cap assembly snaps into a knockout in the enclosure cover on the NEMA 1 enclosures. Pilot light kits are available for use on Various voltages (110-600 volts). Pilot light assemblies are not available for NEMA 7 & 9 enclosures.

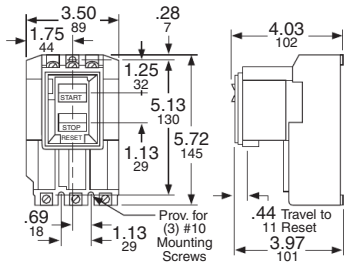
Type M and T—Integral Horsepower—Approximate Dimensions

Class **2510, 2511, 2512** / Refer to Catalog **2510CT9701**

NEMA 1
General Purpose Surface Mounting

NEMA 4/4X
Watertight and Dusttight
Stainless Steel

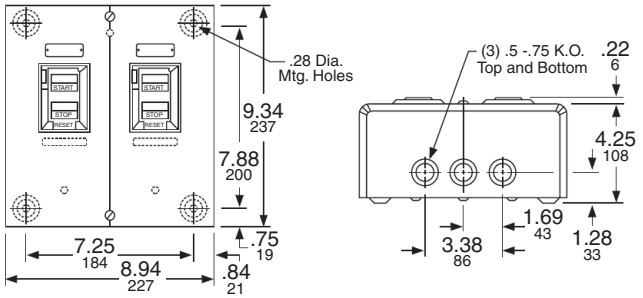
NEMA 12
Dusttight and Driptight
Industrial Use



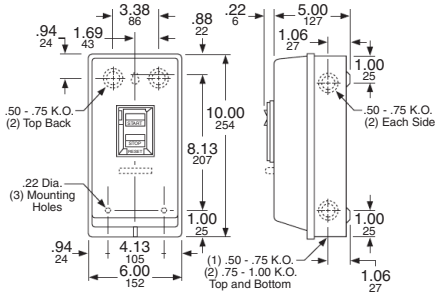
Class 2510 Type M Sizes M-0, M-1
and M-1P, Open Type
Approximate Shipping Weight—3 lb

NEMA 4/4X
Watertight, Dusttight
and Corrosion Resistant
Glass Polyester

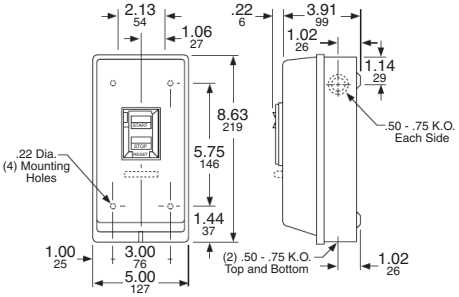
NEMA 7 & 9
Hazardous Locations
Cast Iron



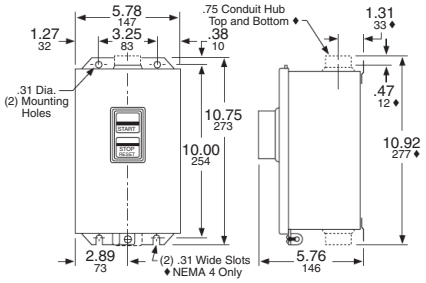
Classes 2511, 2512, Types M & T
Sizes M-0 and M-1 NEMA 1
General Purpose Enclosure
Approximate Shipping Weight—9 lb



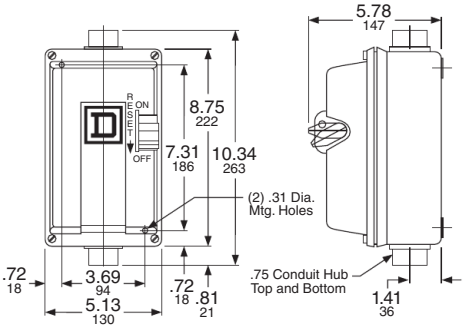
Class 2510 Type M & T Size M-1P
NEMA 1 General Purpose Enclosure
Approximate Shipping Weight—5 lb



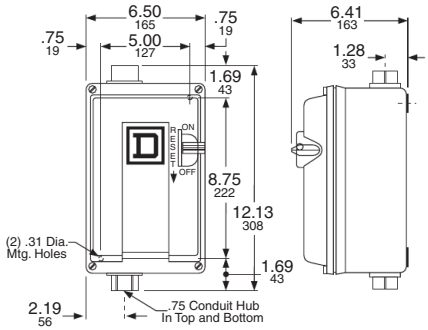
Class 2510 Types M & T Sizes M-0 and M-1
NEMA 1 General Purpose Enclosure
Approximate Shipping Weight—5 lb



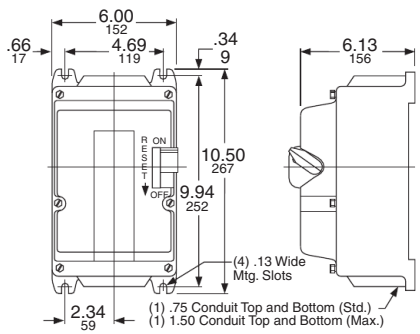
Class 2510 Type M Sizes M-0, M-1 and M-1P
NEMA 4/4X Watertight Stainless Steel Enclosure
NEMA 12 Dusttight Industrial Use Enclosure
Approximate Shipping Weight—9 lb



Class 2510 Type M Size M-0 (AC–DC)
and Size M-1 (DC) NEMA 4/4X
Watertight Corrosion-Resistant
Glass Polyester Enclosure
Approximate Shipping Weight—6 lb



Class 2510 Type M Sizes M-1 and M-1P (AC)
NEMA 4/4X Watertight Corrosion-Resistant
Glass Polyester Enclosure
Approximate Shipping Weight—6 lb



Class 2510 Type M Sizes M-0, M-1 and M-1P
NEMA 7 & 9 Hazardous Location
Cast Iron Enclosure
Approximate Shipping Weight—18 lb

Table 16.20: Accessories—Class 2510 Types F and K

Description	Class & Type	$ Price
Handle Guard Kit with Padlock Provision▲	2510FL1	14.30
Emergency Off Actuator	2510PB1	35.60
Additional Key for Key Operated Devices	2510FK1	4.80

▲ Standard on Type K devices.

Table 16.21: Pilot Light Kits—Class 2510 Types F and K

Application	Voltage	Red Pilot Light	Green Pilot Light	$ Price
		Class & Type	Class & Type	
Type KF, KG, KW■	110–120 Vac	9999PL11	9999PL11G	71.00
	208–277 Vac	9999PL12	9999PL12G	71.00
	440–600 Vac	9999PL13	9999PL13G	71.00
Type FF, FG, FW■	115–240 Vac/dc	9999PL10	9999PL10G	42.80

■ Lens cannot be replaced. Pilot light kits for NEMA 4 Enclosed Units are for replacement purposes only.

Table 16.22: Replacement Nameplates—Class 2510 Types F and K

Description	Application	Nameplate Marking	Nameplate Type Number—Class 2510				$ Price
			For Type K Switch		For Type F Starter (Includes "Reset" Indication)		
			Without Pilot Light	With Pilot Light	Without Pilot Light	With Pilot Light	
1-3/4" x 2-13/16" Nameplate with Embossed Mounting Holes for #6 Oval Head Screws	Standard commercial switch box cover or flush plate, including Square D stainless steel plates	(Blank)	FN1	—	FN2	—	21.50
		(Special marking – Specify marking desired.)	FN5	—	FN6	—	42.80
1-29/32" x 3-27/32" Flat Nameplate with Mounting Holes for #6 Pan Head Screws	Square D NEMA 1 surface mounted enclosure or gray flush plate	(Blank)	FN10	FN20	FN30	FN40	21.50
		High	FN11	FN21	FN31	FN41	21.50
		Low	FN12	FN22	FN32	FN42	21.50
		Forward	FN13	—	—	—	21.50
		Reverse	FN14	FN24	—	—	21.50
		(Special marking—Specify marking desired.)	FN15	FN25	FN35	FN45	42.80

Contact Kits

See page 16-107 for Class 9998 Replacement Contact Kits.

Table 16.23: Modifications (Types M & T only)

Description	Factory Modifications and Forms		Field Modifications	
	Form Number	Price Addition	Kit Class & Type	$ Price
Red Pilot Light♦	P11△	116.00	9999MP1 (110–120 V) 9999MP2 (208–240 V) 9999MP3 (440–600 V)	116.00
Auxiliary Contacts★	X1 (1 N.O.) X2 (1 N.C.)	158.00	9999SX11 (N.O.) 9999SX12 (N.C.)	99.00
Jumper Straps ▼	N/A	—	9998SO31	14.30
Contactor only	Y76	No Charge	N/A	—

♦ May only be field-added to NEMA 1 enclosures. For green pilot light, order 9999SPG1 additionally.

★ For proper operation, only one auxiliary contact kit per device may be added.

▼ Used to control a single phase motor utilizing a three phase starter.

△ P11 Pilot Light Voltage Codes:
120 V—V02
200/208 V—V08
230 V—V03
460 V—V06
575 V—V07
The pilot light Form P11 requires a voltage code.
Catalog number example: 2510MBG1V02P11.

Table 16.24: How to Order

To Order Specify:	Catalog Number	
	Class	Type
• Class Number • Type Number	9991	KE1

Table 16.25: Replacement Parts

Description	Class and Type	$ Price
Replacement Toggle Kits: Type FW and KW (NEMA 4) Type FR and KR (NEMA 7 & 9)	 9998HW1 9998HR2	 29.30 30.90
Replacement Handle Kits: NEMA 12 (Ser. B) Type MBA, MCA NEMA 4/4X (Stainless) (Ser. A & B) Type MBW, MCW NEMA 4/4X (Stainless) (Ser. C) Type MBW, MCW NEMA 4/4X (Polyester) Type MBW, MCW NEMA 7 and 9 Type MBR, MCR	 9998HWA1 9998HWA1 31085-381-50 9998HWA1 9998HR3	 57.00 57.00 57.00 57.00 57.00
Internal Lever	9998IL1	14.30

Table 16.26: Enclosures

For use with Class 2510 Type	Enclosure	Catalog Number	$ Price
F and K	NEMA 1 Standard	9991EN1	29.30
M–Sizes M0 & M1		9991MG1	57.00
M–Size M1P		9991MG2	57.00
FO1, FO1P, FO2, FO2P, FO3, FO3P, FO4, FO4P	NEMA 1 Oversized	9991FE1	42.80
KO1, KO1A, KO1B, KO2, KO2B, KO2C, KO3, KO3A, KO3B, KO4, KO4B, KO4C, KO5, KO5A, KO5B, KO6, KO6B, KO6C	NEMA 1 Oversized	9991KE1	42.80
	NEMA 1 Jumbo	9991KE2	86.00
	NEMA 3R	9991KE3	215.00

NEMA Style TeSys™ U Simple Motor Starter

Refer to Catalog **8502CT0201**

SQUARE D by Schneider Electric
www.schneider-electric.us

NEMA style TeSys U motor starter is integrated, simple to choose and to install, consisting of a control unit snapped in a powerbase. NEMA style TeSys U can be configured to fit specific applications as well. The NEMA style TeSys U uses the same optional accessories: reverser, current limiter, predictive maintenance options and communication options as the IEC TeSys U.

To get detailed information about TeSys U, visit our website at www.schneider-electric.us.com.

Selecting a NEMA TeSys U Motor Starter in Three Steps


Power Base

Table 16.27: Step 1. Select Power Base

Control Connection	NEMA Size	Three Phase (HP max.)				Single Phase (HP max.)	Power Bases	
		200/208 V	220/240 V	460 V	575/600 V	240 V	Catalog Number	$ Price
With screw terminations	1	7.5	7.5	10	10	3	LUB32NR	488.00

Table 16.28: Step 2. Select Control Unit ■

Setting Range A	Standard 3-phase Class 10 trip ▲	$ Price	Advanced 3-phase Class 10 trip ▲	$ Price	Advanced single-phase Class 10 trip ▲	$ Price	Advanced 3-phase Class 20 trip ▲	$ Price
0.15–0.6	LUCAX6••	120.00	LUCBX6••	150.00	LUCCX6••	150.00	LUCDX6••	150.00
0.3–1.4	LUCA1X••	120.00	LUCB1X••	150.00	LUCC1X••	150.00	LUCD1X••	150.00
1.25–5.0	LUCA05••	120.00	LUCB05••	150.00	LUCC05••	150.00	LUCD05••	150.00
3–12	LUCA12••	120.00	LUCB12••	150.00	LUCC12••	150.00	LUCD12••	150.00
4.5–18	LUCA18••	120.00	LUCB18••	150.00	LUCC18••	150.00	LUCD18••	150.00
8–32	LUCA32••	120.00	LUCB32••	150.00	LUCC32••	150.00	LUCD32••	150.00

▲ Complete catalog number by adding appropriate code from voltage code table below. For example: LUCAX6FU.
■ The control unit contains solid state overload relay and control power source for TeSys U. For more details on the different control units, their functions, and placement on the power base see page 18-29.


Control Unit

Table 16.29: Voltage Codes

Volts	24	48–72	110–240
DC	BL♦	—	—
AC	B	—	—
DC or AC	—	ES★	FU

♦ DC voltage with range of 0.90 to 1.10 of nominal.
★ 48–72 Vdc; 48 Vac


Auxiliary Contact

Table 16.30: Step 3. Select Auxiliary Contacts (optional)

Terminals	Contact Indicates	Contact Normal Status	Contact State for Each Mode▼ Off	Ready	Run	Short Circuit Trip	Overload Trip (Manual Reset)	Overload Trip (Remote/ Auto Reset)△	Catalog Number	$ Price
Auxiliary Contact Blocks										
Screw	Ready condition	N.O.	O	I	I	O	O	I	LUA1C11	34.50
	Fault condition	N.C.	I	I	I	O	O	I		
Screw	Ready condition	N.O.	O	I	I	O	O	I	LUA1C20	
	Fault condition	N.O.	O	O	O	I	I	O		
Auxiliary Contact Function Modules										
Screw	Power pole status	2 N.O.	—	—	—	—	—	—	LUFN20	34.50
Screw	Power pole status	1 N.O. and 1 N.C.	—	—	—	—	—	—	LUFN11	
Screw	Power pole status	2 N.C.	—	—	—	—	—	—	LUFN02	

▼ I–indicates closed contact; O–indicates open contact
△ Requires multifunction or advanced control unit plus fault differentiation module LUFDDA10.

Accessories for LUB32/LUB32NR	Quick Description	For details & selection, see pages:
Current Limiter	Increases the breaking capacity to 130kA @ 460 V	18-30
Reverser	Stacked or side mounted (LU6MB0•• ▲ only)	18-30
Line phase barrier	Required for use as a self-protected combination starter (UL508E)	18-30
Multifunction Control Unit	Has functions for monitoring and predictive maintenance	18-30
Function modules	Fault differentiation, Thermal overload, Motor load indication	18-30
Communication modules	Integrates into existing networks, major protocols available	18-31
Soft Starter + TeSys U	Use Altistart U01Soft Starter with TeSys U	18-32
Powerbus	Use TeSys U with a prewired system	18-31
Configuration and connection accessories	PowerSuite software, busbar, external handle	18-31

▲ Complete catalog number by adding appropriate code from voltage code table below. For example: LUCAX6FU.

E164862
CCN NLDX

LR43364
Class 3211 08

Class 8536 **Type S C G - 3 V02** **Form S**

General Classification

8502	Contactor Page 16-14
8536	Starter Page 16-18
8538	Combination Starter with Disconnect Switch Page 16-31
8539	Combination Starter with Circuit Breaker Page 16-35
8702	Reversing Contactor Page 16-44
8736	Reversing Starter Page 16-46
8738	Reversing Combination Starter with Disconnect Switch Page 16-54
8739	Reversing Combination Starter with Circuit Breaker
8810	Two Speed Starter ▲
8903	Type S Lighting Contactors Page 16-60 ▲
8940	Pumping Plant Panel ▲
8941	Duplex Controller Page 16-78 ▲

Numerals

Used to designate specific, physical arrangements, such as number of poles, fuse clip size, etc.; but the numbering varies with Class of equipment. Consult Digest listings for specific device numbers.

Voltage Code

AC operated devices without control transformer

Code	Voltage/Frequency
V01	24/60
V02	120/60 or 110/50
V06	480/60 or 440/50
V07	600/60 or 550/50
V08	208/60

V81 - 480V Primary, 120V Secondary for units using a fused transformer control circuit Form (F4T).

This is only a partial listing consult Digest pages 16-14 and 16-101 for more information.

Design

Type S NEMA Contactors and Starters

NEMA Size		8903 (only)	
A	Size 00		
B	Size 0	M	30 Amperes
C	Size 1	P	60 Amperes
D	Size 2	Q	100 Amperes
E	Size 3	V	200 Amperes
F	Size 4	X	300 Amperes
G	Size 5	Y	400 Amperes
H	Size 6	Z	600 Amperes
J	Size 7	J	800 Amperes

Common Forms (factory modifications) Page 16-100

A	"Start-Stop" pushbuttons in the enclosure cover
B■	Bimetallic overload relays
C	"Hand-Off-Auto" selector switch in the enclosure cover
F4T	Fused transformer control circuit (primary fuses only)
FF4T	Fused transformer control circuit (primary & secondary fuses)
H	Solid state overload relay
P1	Red ON pilot light in the enclosure cover
P2	Green OFF pilot light in cover
S	Separate control circuit
X01	One "normally closed" auxiliary contact N.C.
X10	One "normally open" auxiliary contact N.O.

Consult Digest pages 16-100 to 16-104 for additional form letters, When more than one form is applied to a single device, arrange Forms in alphabetical order.

Enclosure

A	NEMA 12 Industrial Use
F	NEMA 1 Flush Mounting General Purpose
G	NEMA 1 General Purpose Surface Mounting
H	NEMA 3R Rainproof
O	Open Style Device (no enclosure)
R	NEMA 7 & 9 Hazardous Environments, Spin Top
T	NEMA 7 & 9 Hazardous Environments, Bolted
W	NEMA 4 Watertight, 4X Corrosion Resistant

▲ Combination two speed starters will replace the "S" with a "C", "U" or "D". Pumping plant panels have Various leading characters. Not all use Type S contactors. Duplex controllers use "N", "C", "U", and "D".

■ May also designate Motor Logic Plus overload relay

Table 16.31: How to Order

To Order Specify:	Catalog Number			
• Class Number • Type Number • Voltage Code • Form(s) see pages 16-100–16-104	Class	Type	Voltage Code	Form(s)
	8539	SCG44	V06	AH20P1X11

Note: Description: NEMA Size 1, (10 Hp) Electronic Motor Circuit Protector (MCP) Combo Starter in a NEMA Type 1 enclosure with a 480V coil, start/stop pushbutton (A), class 20 SSOLR (H20), red pilot light (P1), 1 N.O. and 1 N.C. auxiliary contact (X11)

IMPORTANT - This information is intended for general interpretation of catalog numbers. Do not use to create catalog numbers for this product line.

Note: The terms Type and Form do not appear in the catalog number.

Devices are wired from factory according to customer preference as follows:

- Common control
- Separate control (Form S)
- Control power transformer (CPT)

Type SCO2
Size 1, 3-Pole Contactor

Class 8502 Type S magnetic contactors are used to switch heating loads, capacitors, transformers, and electric motors where overload protection is provided separately. Class 8502 contactors are available in NEMA sizes 00 through 7. Type S contactors are designed for operation at 600 Vac, 50 to 60 Hz.

Table 16.32: 3-Pole Polyphase—600 Vac Maximum—50–60 Hz

NEMA Size	Continuous Current Ratings	Motor Voltage	Max. Hp	Open Type		NEMA 1 General Purpose Enclosure		NEMA 4 & 4X Watertight, Dusttight Brushed Stainless Steel Enclosure (Size 0-5)▲	
				Type	$ Price	Type	$ Price	Type	$ Price
00	9	200 230 460 575	1-1/2 1-1/2 2 2	SAO12■	**329.00**	SAG12■	**360.00**	Use Size 0	
0	18	200 230 460 575	3 3 5 5	SBO2■	**414.00**	SBG2■	**446.00**	SBW12■	**945.00**
1	27	200 230 460 575	7-1/2 7-1/2 10 10	SCO2■	**485.00**	SCG2■	**518.00**	SCW12■	**1031.00**
2	45	200 230 460 575	10 15 25 25	SDO2■	**882.00**	SDG2■	**1031.00**	SDW12■	**1391.00**
3	90	200 230 460 575	25 30 50 50	SEO2■	**1425.00**	SEG2■	**1715.00**	SEW12■	**3167.00**
4	135	200 230 460 575	40 50 100 100	SFO2■	**3419.00**	SFG2■	**4022.00**	SFW12■	**6501.00**
5	270	200 230 460 575	75 100 200 200	SGO2■	**7451.00**	SGG2■	**8550.00**	SGW12■	**11685.00**
6	540	200 230 460 575	150 200 400 400	SHO2■	**20339.00**	SHG2■	**25172.00**	SHW2■	**32378.00**
7	810	200 230 460 575	— 300 600 600	SJO2■	**29028.00**	SJG2■	**33875.00**	SJW2■	**40995.00**

▲ Size 6 and 7 are rated NEMA 4 only, painted sheet steel.
■ Coil voltage code must be specified to order this product. Refer to standard voltage codes shown below.

Table 16.33: Coil Voltage Codes

Voltage		Code	$ Price Adder
60 Hz	50 Hz		
24♦	—	V01	No Charge
120★	110	V02	No Charge
208	—	V08	No Charge
240	220	V03	No Charge
277	—	V04	No Charge
480	440	V06	No Charge
600	550	V07	No Charge
Specify	Specify	V99	35.60

♦ 24 V coils are not available on Sizes 4–7. On Sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8502SBO2V01S).
★ 120 Volt Polyphase contactors are wired for separate control Form S must be specified (i.e., order as 8502SCO2V02S).
Note: For voltage codes used with control transformers, see page 16-101.
Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

For How to Order Information, see page 16-13.

Table 16.34: 3-Pole Polyphase—600 Vac Maximum—50–60 Hz

NEMA Size	Continuous Current Ratings	Motor Voltage	Max. Hp	NEMA 4X Watertight, Dusttight, Corrosion-Resistant Glass-Polyester Enclosure		NEMA 7 & 9 Hazardous Locations Div. 1 & 2 Class I, Groups C & D Class II, Groups E, F, & G					NEMA 12/3R ▲ Dusttight & Driptight Industrial Use Enclosure	
						Bolted Type						
				Type	$ Price	Cast Iron ■	Cast Aluminum ★	$ Price	SPIN TOP™ Type	$ Price	Type	$ Price
00	9	200 230 460 575	1-1/2 1-1/2 2 2	Use Size 0		Use Size 0			Use Size 0		Use Size 0	
0	18	200 230 460 575	3 3 5 5	SBW22♦	**945.00**	SBT2♦	SBT42♦	**2070.00**	SBR2♦	**2591.00**	SBA2♦	**617.00**
1	27	200 230 460 575	7-1/2 7-1/2 10 10	SCW22♦	**1031.00**	SCT2♦	SCT42♦	**2163.00**	SCR2♦	**2705.00**	SCA2♦	**689.00**
2	45	200 230 460 575	10 15 25 25	SDW22♦	**2057.00**	SDT2♦	SDT42♦	**3482.00**	SDR2♦	**4350.00**	SDA2♦	**1344.00**
3	90	200 230 460 575	25 30 50 50	SEW22♦	**3959.00**	—	SET42♦	**5205.00**	SER2♦	**2007.00**	SEA2♦	**2084.00**
4	135	200 230 460 575	40 50 100 100	SFW22♦	**8123.00**	—	SFT42♦	**8415.00**	SFR2♦	**10524.00**	SFA2♦	**5247.00**
5	270	200 230 460 575	75 100 200 200	—	—	—	SGT42♦	**18542.00**	SGR2♦	**23178.00**	SGA2♦	**11685.00**
6	540	200 230 460 575	150 200 400 400	—	—	—	—	—	—	—	SHA2♦	**29016.00**
7	810	200 230 460 575	– 300 600 600	—	—	—	—	—	—	—	SJA2♦	**37719.00**

▲ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
■ Limited to one Pilot Light and a Selector Switch or Start-Stop Push Button.
♦ Coil voltage code must be specified to order this product. Refer to voltage codes shown on page 16-14.
★ NEMA 7 and 9 bolted cast aluminum are not UL listed.

Auxiliary Units

Auxiliary contacts and power poles can be added by the factory or in the field on all Type S starters and contactors. The table below shows the maximum number of auxiliary units **(in addition to the holding circuit contact)** that can be added to a given size starter or contactor. In addition, it is possible to add a second internal contact on NEMA Size 0, 1, and 2 contactors and starters.

Table 16.35:

NEMA Size	Type	No. of Poles of Basic Contactor	Maximum Number of External Auxiliary Units (In addition to holding circuit contact)
00	SA	2–3	4 single circuit auxiliary contacts (N.O. or N.C.) if second internal auxiliary contact is not used.
0, 1 and 2	SB SC SD	1, 2 or 3	4 single circuit auxiliary contacts (N.O. or N.C.)
			2 single circuit auxiliary contacts (N.O. or N.C.) plus 1 power pole adder (1 or 2 poles, N.O. or N.C.)
		4 or 5	2 single circuit auxiliary contacts (N.O. or N.C.)
3, 4 and 5	SE SF SG	2–5 (Size 3 and 4)	3 single circuit auxiliary contacts (N.O. or N.C.)
		2–3 (Size 5)	2 single circuit auxiliary contacts (N.O. or N.C.) plus 1 NEMA Size 0-1 or Size 2 power pole adder (1 or 2 poles, N.O. or N.C.)
6 and 7	SH SJ	2–3	3 single circuit auxiliary contacts (N.O. or N.C.)
			2 single circuit auxiliary contacts (N.O. or N.C.) plus 1 NEMA Size 0–1 or Size 2 power pole adder (1 or 2 poles, N.O. or N.C.)

Dimensions . . . . . .page 16-24
Factory Modifications (Forms) . . . . . .page 16-100
Separate Enclosures (Class 9991) . . . . . .page 16-93
Replacement Parts (Class 9998) . . . . . .page 16-105
Type S Accessories (Class 9999) . . . . . .page 16-108

For How to Order Information, see page 16-13.

Table 16.36: 600 Vac Maximum—50–60 Hz

NEMA Size	Continuous Current Ratings	Motor Voltage	Max. Hp	Open Type		NEMA 1 General Purpose Enclosure		NEMA 4 & 4X –Watertight, Dusttight, Brushed Stainless Steel Enclosure (Size 0-5)▲	
				Type	$ Price	Type	$ Price	Type	$ Price
1-Pole Single Phase									
0	18	115 230	1 2	SBO5■	**329.00**	SBG5■	**360.00**	SBW15■	**860.00**
1	27	115 230	2 3	SCO5■	**399.00**	SCG5■	**432.00**	SCW15■	**945.00**
2-Pole Single Phase									
00	9	115 230	1/3 1	SAO11■	**287.00**	SAG11■	**318.00**	Use Size 0	
0	18	115 230	1 2	SBO1■	**372.00**	SBG1■	**404.00**	SBW11■	**903.00**
1	27	115 230	2 3	SCO1■	**441.00**	SCG1■	**476.00**	SCW11■	**989.00**
2	45	115 230	3 7-1/2	SDO1■	**827.00**	SDG1■	**975.00**	SDW11■	**1998.00**
3	90	— —	— —	SEO1■	**1310.00**	SEG1■	**1601.00**	SEW11■	**3054.00**
4	135	—	—	SFO1■	**3162.00**	SFG1■	**3765.00**	SFW11■	**6245.00**
5	270	—	—	SGO1■	**6852.00**	SGG1■	**7952.00**	SGW11■	**11087.00**
6	540	—	—	SHO1■	**17433.00**	SHG1■	**22266.00**	SHW1■	**29388.00**
7	810	—	—	SJO1■	**25452.00**	SJG1■	**30285.00**	SJW1■	**37407.00**
4-Pole Polyphase									
0	18	200 230 460 575	3 3 5 5	SBO3■	**527.00**	SBG3■	**561.00**	SBW13■	**1074.00**
1	27	200 230 460 575	7-1/2 7-1/2 10 10	SCO3■	**599.00**	SCG3■	**633.00**	SCW13■	**1146.00**
2	45	200 230 460 575	10 15 25 25	SDO3■	**1139.00**	SDG3■	**1287.00**	SDW13■	**2712.00**
3	90	200 230 460 575	25 30 50 50	SEO3■	**1823.00**	SEG3■	**2114.00**	SEW13■	**3965.00**
4	135	200 230 460 575	40 50 100 100	SFO3■	**4757.00**	SFG3■	**5360.00**	SFW13■	**8864.00**
5-Pole Polyphase									
0	18	200 230 460 575	3 3 5 5	SBO4■	**684.00**	SBG4■	**719.00**	SBW14■	**1229.00**
1	27	200 230 460 575	7-1/2 7-1/2 10 10	SCO4■	**755.00**	SCG4■	**788.00**	SCW14■	**1301.00**
2	45	200 230 460 575	10 15 25 25	SDO4■	**1710.00**	SDG4■	**1857.00**	SDW14■	**3281.00**
3	90	200 230 460 575	25 30 50 50	SEO4■	**2735.00**	SEG4■	**3024.00**	SEW14■	**4877.00**
4	135	200 230 460 575	40 50 100 100	SFO4■	**6579.00**	SFG4■	**7182.00**	SFW14■	**10688.00**

▲ Size 6 and 7 are rated NEMA 4 only, painted sheet steel.
■ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes listed on page 16-14.

For How to Order Information, see page 16-13.

Table 16.37: 600 Vac Maximum—50–60 Hz

NEMA Size	Continuous Current Ratings	Motor Voltage	Max. Hp	NEMA 4X Watertight, Dusttight Corrosion-Resistant Glass-Polyester Enclosure		NEMA 7 & 9, Div. 1 & 2 Hazardous Locations Class I, Groups C & D Class II, Groups E, F & G					NEMA 12/3R▲ Dusttight & Driptight Industrial Use Enclosure	
						Bolted Type			SPIN TOP™ Type			
				Type	$ Price	Cast Iron ■	Cast Aluminum★	$ Price		$ Price	Type	$ Price
1-Pole Single Phase												
0	18	115 230	1 2	— —	—	SBT5♦	SBT45♦	**1979.00**	SBR5♦	**2475.00**	SBA5♦	**531.00**
1	27	115 230	2 3	— —	—	SCT5♦	SCT45♦	**2070.00**	SCR5♦	**2591.00**	SCA5♦	**603.00**
2-Pole Single Phase												
00	9	115 230	1/3 1	Use Size 0		Use Size 0			Use Size 0		Use Size 0	
0	18	115 230	1 2	SBW21♦	**903.00**	SBT1♦	SBT41♦	**2021.00**	SBR1♦	**2528.00**	SBA1♦	**575.00**
1	27	115 230	2 3	SCW21♦	**989.00**	SCT1♦	SCT41♦	**2100.00**	SCR1♦	**2627.00**	SCA1♦	**647.00**
2	45	115 230	3 7-1/2	SDW21♦	**1998.00**	SDT1♦	SDT41♦	**3402.00**	SDR1♦	**4257.00**	SDA1♦	**1287.00**
3	90	— —	— —	Consult Schneider Electric CCC at (1-888-778-2733)		— —	SET41♦	**5076.00**	SER1♦	**6344.00**	SEA1♦	**1971.00**
4	135	—	—			— —	SFT41♦	**8139.00**	SFR1♦	**10175.00**	SFA1♦	**4991.00**
5	270	—	—	—	—	— —	— —	—	SGR1♦	**22350.00**	SGA1♦	**11087.00**
6	540	—	—	—	—	— —	— —	—	—	—	SHA1♦	**26112.00**
7	810	—	—	—	—	—	—	—	—	—	SJA1♦	**34131.00**
4-Pole Polyphase												
0	18	200 230 460 575	3 3 5 5	SBW23♦	**1074.00**	SBT3♦	Consult Schneider Electric CCC at (1-888-778-2733)	**2199.00**	SBR3♦	**2748.00**	SBA3♦	**732.00**
1	27	200 230 460 575	7-1/2 7-1/2 10 19	SCW23♦	**1146.00**	SCT3♦		**2291.00**	SCR3♦	**2867.00**	SCA3♦	**804.00**
2	45	200 230 460 575	10 15 25 25	SDW23♦	**2712.00**	SDT3♦		**4199.00**	SDR3♦	**5255.00**	SDA3♦	**1601.00**
3	90	200 230 460 575	25 30 50 50	Consult Schneider Electric CCC at (1-888-778-2733)				—	SER3♦	**7604.00**	SEA3♦	**2484.00**
4	135	200 230 460 575	40 50 100 100					—	SFR3♦	**14283.00**	SFA3♦	**7011.00**
5-Pole Polyphase												
0	18	200 230 460 575	3 3 5 5	Consult Schneider Electric CCC at (1-888-778-2733)		—	—	—	—	—	SBA4♦	**890.00**
1	27	200 230 460 575	7-1/2 7-1/2 10 10			—	—	—	—	—	SCA4♦	**959.00**
2	45	200 230 460 575	10 15 25 25			—	—	—	—	—	SDA4♦	**2169.00**
3	90	200 230 460 575	25 30 50 50			—	—	—	—	—	SEA4♦	**3396.00**
4	135	200 230 460 575	40 50 100 100			—	—	—	—	—	SFA4♦	**8837.00**

▲ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
■ Limited to 1 pilot light and a selector switch or Start-Stop push button.
♦ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown on page 16-14.
★ NEMA 7 and 9 bolted cast aluminum are not UL listed.

Coil Voltage Codes and page number reference for additional information are shown on page 16-14.
For How to Order Information, see page 16-13.

Type SCO3
Size 1, 3-Pole Starter

General Information

Type S magnetic starters are used for full-voltage starting and stopping of AC squirrel cage motors. Motor overload protection is provided via melting alloy type thermal overload relays. Type S starters are available in NEMA Sizes 00 through 7, and are designed for operation at 600 Vac, 50 to 60 Hz.

Solid State Overload Relay Protection (Motor Logic™)

These ambient insensitive overload relays are available on Sizes 00 through 6 and standard on size 7. They provide phase loss, phase unbalance protection. To order, add Form **H10** (for Class 10), **H20** (for Class 20), or **H30** (for selectable trip class protection). For more information about Motor Logic, see pages 16-83, 16-102 and 16-103.

New! TeSys T Motor Management System (NEMA Sizes 1–6)

TeSys T is a flexible system that integrates seamlessly into your automation system through five major communication protocols. TeSys T can predict what will happen in the process, as it accurately monitors current, voltage, and power over a wide range. For additional information about TeSys T Motor Management System, see pages 16-84 to 16-88 and page 16-103.

3-Pole Polyphase—600 Vac Maximum—50–60 Hz

Note that prices shown do not include thermal units. Devices require 3 thermal units (Sizes 00–6). Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

Table 16.38:

NEMA Size	Continuous Current Ratings	Motor Voltage	Max. Hp	Open Type		NEMA 1 General Purpose Enclosure		NEMA 4 & 4X Watertight, Dusttight Brushed Stainless Steel Enclosure (Size 0-5)▲		NEMA 4X Watertight, Dusttight, Corrosion-Resistant Glass-Polyester Enclosure	
				Type	$ Price	Type	$ Price	Type	$ Price	Type	$ Price
00	9	200 230 460 575	1-1/2 1-1/2 2 2	SAO12■	**386.00**	SAG12■	**419.00**	Use Size 0		Use Size 0	
0	18	200 230 460 575	3 3 5 5	SBO2■	**485.00**	SBG2■	**518.00**	SBW12■	**1017.00**	SBW22■	**1017.00**
1	27	200 230 460 575	7-1/2 7-1/2 10 10	SCO3■	**557.00**	SCG3■	**590.00**	SCW13■	**1103.00**	SCW23■	**1103.00**
2	45	200 230 460 575	10 15 25 25	SDO1■	**1013.00**	SDG1■	**1160.00**	SDW11■	**2186.00**	SDW21■	**2186.00**
3	90	200 230 460 575	25 30 50 50	SEO1■	**1638.00**	SEG1■	**1929.00**	SEW11■	**3380.00**	SEW21■	**4226.00**
4	135	200 230 460 575	40 50 100 100	SFO1■	**3747.00**	SFG1■	**4350.00**	SFW11■	**6827.00**	SFW21■	**8535.00**
5	270	200 230 460 575	75 100 200 200	SGO1■	**9152.00**	SGG1■	**10254.00**	SGW11■	**15795.00**	—	—
6	540	200 230 460 575	150 200 400 400	SHO2■	**21756.00**	SHG2■	**28881.00**	SHW2■	**36003.00**	—	—
7	810	200 230 460 575	— 300 600 600	SJO2■	**31256.00**	SJG2■	**38381.00**	SJW2■	**45503.00**	—	—

▲ Size 6 and 7 are rated NEMA 4 only, painted sheet steel.
■ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown below.

Table 16.39: Coil Voltage Codes

Voltage		Code	$ Price Adder
60 Hz	50 Hz		
24♦	—	V01	No Charge
120★	110	V02	No Charge
208	—	V08	No Charge
240	220	V03	No Charge
277	—	V04	No Charge
480	440	V06	No Charge
600	550	V07	No Charge
Specify	Specify	V99	35.60

♦ 24 V coils are not available on Sizes 4–7. On Sizes 00-3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8536SBO2V01S).
★ 120 Volt Polyphase contactors are wired for separate control. **Form S** (separate control) must be specified (i.e., order as 8536SCO2V02S).
Note: For voltage codes used with control transformers, see page 16-101.
Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

For How to Order Information, see page 16-13.

Table 16.40: 3-Pole Polyphase—600 Vac Maximum—50–60 Hz

Note that prices shown do not include thermal units. Devices require 3 thermal units (Sizes 00–6). Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

NEMA Size	Continuous Current Ratings	Motor Voltage	Max. Hp	NEMA 7 & 9 For Hazardous Locations Div. 1 & 2 Class I–Groups C, D Class II–Groups E, F, & G					NEMA 12/3R▲ Dusttight & Driptight Industrial Use Enclosure	
				Bolted Type			SPIN TOP™ Type	$ Price	Type	$ Price
				Cast Iron■	Cast Aluminum★	$ Price				
00	9	200 230 460 575	1-1/2 1-1/2 2 2	Use Size 0			Use Size 0		Use Size 0	
0	18	200 230 460 575	3 3 5 5	SBT2♦	SBT42♦	**2150.00**	SBR2♦	**2690.00**	SBA2♦	**689.00**
1	27	200 230 460 575	7-1/2 7-1/2 10 10	SCT3♦	SCT43♦	**2241.00**	SCR3♦	**2804.00**	SCA3♦	**761.00**
2	45	200 230 460 575	10 15 25 25	SDT1♦	SDT41♦	**3623.00**	SDR1♦	**4527.00**	SDA1♦	**1472.00**
3	90	200 230 460 575	25 30 50 50	—	SET43♦	**5439.00**	SER3♦	**6800.00**	SEA1♦	**2298.00**
4	135	200 230 460 575	40 50 100 100	—	SFT41♦	**8778.00**	SFR1♦	**10971.00**	SFA1♦	**5574.00**
5	270	200 230 460 575	75 100 200 200	—	SGT41♦	**20970.00**	SGR1♦	**26211.00**	SGA1♦	**13386.00**
6	540	200 230 460 575	150 200 400 400	—	—	—	—	—	SHA2♦	**32727.00**
7	810	200 230 460 575	– 300 600 600	—	—	—	—	—	SJA2♦	**42227.00**

▲ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
■ Limited to 1 Pilot Light and Selector Switch or Start-Stop Push-Button.
♦ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes listed in selection Table 16.39 shown on page 16-18.
★ NEMA 7 and 9 bolted cast aluminum are not UL listed.

For How to Order Information, see page 16-13.

Schneider Electric offers express shipping for factory modified NEMA Type 1 and Type 12/3R Enclosed Starters. When you need them fast, our Laser™ Delivery program is the answer to getting your product when you need it most. Ask for Laser™ Delivery, then select the product and the modifications you need when you place your order. It's as easy as that!

2-Pole Single Phase—600 Vac Maximum—50–60 Hz

Table 16.41:

Note that prices shown do not include thermal units. Devices require 1 thermal unit. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

NEMA Size	Continuous Current Ratings	Motor Voltage	Max. Hp	Open Type		NEMA 1 General Purpose Enclosure		NEMA 4 & 4X Watertight, Dusttight Brushed Stainless Steel Enclosure		NEMA 4X Watertight, Dusttight, Corrosion-Resistant Glass-Polyester Enclosure	
				Type	$ Price	Type	$ Price	Type	$ Price	Type	$ Price
00	9	115 230	1/3 1	SAO11▲	**386.00**	SAG11▲	**419.00**	Use Size 0		Use Size 0	
0	18	115 230	1 2	SBO1▲	**435.00**	SBG1▲	**468.00**	SBW11▲	**966.00**	SBW21▲	**966.00**
1	27	115 230	2 3	SCO1▲	**507.00**	SCG1▲	**539.00**	SCW11▲	**1052.00**	SCW21▲	**1052.00**
1P	36	115 230	3 5	SCO2▲	**662.00**	SCG2▲	**696.00**	SCW12▲	**1209.00**	SCW22▲	**1209.00**
2	45	115 230	3 7-1/2	SDO6▲	**918.00**	SDG6▲	**1067.00**	SDW16▲	**2091.00**	SDW26▲	**2091.00**

4-Pole, 2-Phase—600 Vac Maximum—50–60 Hz

Table 16.42:

Note that prices shown do not include thermal units. Devices require 2 thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

NEMA Size	Continuous Current Ratings	Motor Voltage	Max. Hp	Open Type		NEMA 1 General Purpose Enclosure		NEMA 4 & 4X Watertight, Dusttight Brushed Stainless Steel Enclosure		NEMA 4X Watertight, Dusttight, Corrosion-Resistant Glass-Polyester Enclosure	
				Type	$ Price	Type	$ Price	Type	$ Price	Type	$ Price
0	18	200 230 460 575	3 3 5 5	SBO3▲	**629.00**	SBG3▲	**675.00**	SBW13▲	**1229.00**	SBW23▲	**1229.00**
1	27	200 230 460 575	7-1/2 7-1/2 10 10	SCO4▲	**714.00**	SCG4▲	**761.00**	SCW14▲	**1301.00**	SCW24▲	**1301.00**
2	45	200 230 460 575	10 15 25 25	SDO2▲	**1283.00**	SDG2▲	**1430.00**	SDW12▲	**2910.00**	SDW22▲	**2910.00**
3	90	200 230 460 575	25 30 50 50	SEO2▲	**2096.00**	SEG2▲	**2357.00**	SEW12▲	**4206.00**	Consult Schneider Electric CCC at (1-888-778-2733)	
4	135	200 230 460 575	40 50 100 100	SFO2▲	**5142.00**	SFG2▲	**5715.00**	SFW12▲	**9221.00**		

▲ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes listed below.

Table 16.43: Coil Voltage Codes

Voltage		Code	$ Price Adder
60 Hz	50 Hz		
24■	—	V01	No Charge
120♦	110	V02	No Charge
208	—	V08	No Charge
240	220	V03	No Charge
277	—	V04	No Charge
480	440	V06	No Charge
600	550	V07	No Charge
Specify	Specify	V99	35.60

■ 24 V coils are not available on Sizes 4–7. On sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8536SBO2V01S).

♦ 120 Volt Polyphase starters are wired for separate control. **Form S** (separate control) must be specified (i.e., order as 8536SCO2V02S).

Note: For voltage codes used with control transformers, see 16-101.
Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

For How to Order Information, see page 16-13.

2-Pole Single Phase—600 Vac Maximum—50–60 Hz

Table 16.44:

Note that prices shown do not include thermal units. Devices require 1 thermal unit. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

NEMA Size	Continuous Current Ratings	Motor Voltage	Max. Hp	NEMA 7 & 9 Hazardous Locations, Div. 1 & 2 Class I, Groups C & D Class II, Groups E, F, & G					NEMA 12/3R■ Dusttight & Driptight Industrial Use Enclosure	
				Bolted Type			SPIN TOP™ Type	$ Price	Type	$ Price
				Cast Iron ♦	Cast Aluminum▲	$ Price				
00	9	115 230	1/3 1	Use Size 0			Use Size 0		Use Size 0	
0	18	115 230	1 2	SBT1★	SBT41	**2091.00**	SBR1★	**2619.00**	SBA1★	**639.00**
1	27	115 230	2 3	SCT1★	SCT41	**2186.00**	SCR1★	**2732.00**	SCA1★	**710.00**
1P	36	115 230	3 5	SCT2★	SCT42	**2363.00**	SCR2★	**2952.00**	SCA2★	**867.00**
2	45	115 230	3 7-1/2	SDT6★	SDT46	**3513.00**	SDR6★	**4400.00**	SDA6★	**1380.00**

▲ NEMA 7 and 9 bolted cast aluminum are not UL listed.

4-Pole 2-Phase—600 Vac Maximum—50–60 Hz

Table 16.45:

Note that prices shown do not include thermal units. Devices require 2 thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

NEMA Size	Continuous Current Ratings	Motor Voltage	Max. Hp	Coil Voltage	NEMA 7 & 9 Hazardous Locations Class I, Groups C & D Class II, Groups E, F, & G					NEMA 12/3R ■ Dusttight & Driptight Industrial Use Enclosure	
					Bolted Type			SPIN TOP™ Type	$ Price	Type	$ Price
					Cast Iron ♦	Cast Aluminum	$ Price				
0	18	200 230 460 575	3 3 5 5	208 240 480 600	SBT3★	Consult Schneider Electric CCC at (1-888-778-2733)	**2348.00**	SBR3★	**2939.00**	SBA3★	**846.00**
1	27	200 230 460 575	7-1/2 7-1/2 10 10	208 240 480 600	SCT4★		**2433.00**	SCR4★	**3047.00**	SCA4★	**932.00**
2	45	200 230 460 575	10 15 25 25	208 240 480 600	SDT2★		**4797.00**	SDR2★	**6002.00**	SDA2★	**1742.00**
3	90	200 230 460 575	25 30 50 50	208 240 480 600	Consult Schneider Electric CCC at (1-888-778-2733)		—	SER2★	**8679.00**	SEA2★	**2726.00**
4	135	200 230 460 575	40 50 100 100	208 240 480 600			—	—	—	SFA2★	**7370.00**

■ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
♦ Limited to 1 Pilot Light and Selector Switch or Start-Stop Push-Button.
★ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes listed on page 16-20.

Dimensions . . . . . .page 16-24
Factory Modifications (Forms) . . . . . .page 16-100
Separate Enclosures (Class 9991). . . . . .page 16-93
Replacement Parts (Class 9998) . . . . . .page 16-105
Type S Accessories (Class 9999). . . . . .page 16-108

For How to Order Information, see page 16-13.

Types SB–SD With Auxiliary Load Terminals

It is sometimes desirable to use capacitors in motor branch circuits to improve power factor. The Size 0–2 Type SB–SD starters listed below include three auxiliary terminals to allow easy connection of power factor correction capacitors. When capacitors are connected using these terminals, no adjustment to the selection of thermal units is necessary. The auxiliary terminals accept #12–16 solid or stranded wire. NEMA Size 3 & 4 starters have provisions for auxiliary connections. User must supply lugs as necessary.

The Type S starters with auxiliary load terminals may also be used to control two motors simultaneously from a single starter. However, this application is tightly restricted by Section 430-53 of the National Electrical Code. Refer to the NEC for restrictions regarding overload protection, size of controller and motor branch circuit protection.

Table 16.46: 3-Pole Polyphase—600 Vac Maximum—50–60 Hz

Note that prices shown do not include thermal units. Devices require 3 thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

NEMA Size	Motor Voltage	Max. Hp	Open Type	$ Price
0	200 230 460 575	3 3 5 5	SBTO2▲	**485.00**
1	200 230 460 575	7-1/2 7-1/2 10 10	SCTO3▲	**557.00**
2	200 230 460 575	10 15 25 25	SDTO1▲	**1011.00**

Extra Capacity Single Phase Starters (Not NEMA Style)
2-Pole Single Phase—250 Vac Maximum—50–60 Hz

Table 16.47:

Note that prices shown do not include thermal unit. Devices require 1 thermal unit. Standard trip thermal unit is **$21.50** each. See page 16-116 for selection information.

Motor Voltage	Max. Hp	Open Type		NEMA 1 General Purpose Enclosure		NEMA 3R Rainproof, Sleet Resistant, Outdoor Use Enclosure		NEMA 4 & 4X Watertight, Dusttight Brushed Stainless Steel Enclosure		NEMA 4X Watertight Corrosion Resistant Glass-Polyester Enclosure		NEMA 12/3R ♦ Dusttight and Driptight Industrial Use Enclosure	
		Type	$ Price	Type	$ Price	Type	$ Price	Type	$ Price	Type	$ Price	Type	$ Price
115 230	5 10	SDO8▲■	**1304.00**	—	—	SDH8▲■	**1787.00**	—	—	—	—	—	—
115 230	7-1/2 15	SEO6▲	**1431.00**	SEG6▲	**1722.00**	SEH6▲	**2091.00**	SEW16▲	**3176.00**	SEW26▲	**3969.00**	SEA6▲	**2091.00**

▲ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown below.
■ Uses a Size 3 overload relay.
♦ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.

Table 16.48: Coil Voltage Codes

Voltage		Code	$ Price Adder
60 Hz	50 Hz		
24★	—	V01	No Charge
120▼	110	V02	No Charge
208	—	V08	No Charge
240	220	V03	No Charge
277	—	V04	No Charge
480	440	V06	No Charge
600	550	V07	No Charge
Specify	Specify	V99	35.60

★ 24 V coils are not available on Sizes 4–7. On Sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified.
▼ 120 Volt Polyphase starters are wired for separate control and must be ordered with Form S (i.e., 8536SCO2V02S).
Note: For voltage codes used with control transformers, see page 16-101. Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

For How to Order Information, see page 16-13.

Application Data for Selection

Table 16.49:

NEMA Size	Load Voltage	Maximum Hp Rating—Nonplugging and Nonjogging Duty		Maximum Hp Rating—Plugging and Jogging Duty ▲		Continuous Current Rating, (A) 600 Volt Max.	Service—Limit Current Rating, (A) ■	Tungsten and Infrared Lamp Load, (A) 250 Volts Max. ♦	Resistance Heating Loads, KW—other than Infrared Lamp Loads ★		KVA Rating for Switching Transformer Primaries at 50 or 60 Cycles				3Ø Rating for Switching Capacitors ▼
											Inrush Currents (Worst Case Peak) ? 20 Times Peak of Continuous Current Rating		Inrush Currents (Worst Case Peak) > 20–40 Times Peak of Continuous Current Rating		
		Single Phase	Poly-Phase	Single Phase	Poly-Phase				Single Phase	Poly-Phase	Single Phase	Poly-Phase	Single Phase	Poly-Phase	KVAR
00	115	1/2	—	—	—	9	11	5	—	—	—	—	—	—	—
	200	—	1-1/2	—	—	9	11	5	—	—	—	—	—	—	—
	230	1	1-1/2	—	—	9	11	5	—	—	—	—	—	—	—
	380	—	1-1/2	—	—	9	11	—	—	—	—	—	—	—	—
	460	—	2	—	—	9	11	—	—	—	—	—	—	—	—
	575	—	2	—	—	9	11	—	—	—	—	—	—	—	—
0	115	1	—	1/2	—	18	21	10	—	—	0.6	—	0.3	—	—
	200	—	3	—	1-1/2	18	21	10	—	—	—	1.8	—	0.9	—
	230	2	3	1	1-1/2	18	21	10	—	—	1.2	2.1	0.6	1.0	—
	380	—	5	—	1-1/2	18	21	—	—	—	—	—	—	—	—
	460	—	5	—	2	18	21	—	—	—	2.4	4.2	1.2	2.1	—
	575	—	5	—	2	18	21	—	—	—	3.0	5.2	1.5	2.6	—
1	115	2	—	1	—	27	32	15	3	5	1.2	—	0.6	—	—
	200	—	7-1/2	—	3	27	32	15	—	9.1	—	3.6	—	1.8	—
	230	3	7-1/2	2	3	27	32	15	6	10	2.4	4.3	1.2	2.1	—
	380	—	10	—	5	27	32	—	—	16.5	—	—	—	—	—
	460	—	10	—	5	27	32	—	12	20	4.9	8.5	2.5	4.3	—
	575	—	10	—	5	27	32	—	15	25	6.2	11.0	3.1	5.3	—
1P	115	3	—	1-1/2	—	36	42	24	—	—	—	—	—	—	—
	230	5	—	3	—	36	42	24	—	—	—	—	—	—	—
2	115	3	—	2	—	45	52	30	5	8.5	2.1	—	1.0	—	—
	200	—	10	—	7-1/2	45	52	30	—	15.4	—	6.3	—	3.1	—
	230	7-1/2	15	5	10	45	52	30	10	17	4.1	7.2	2.1	3.6	8
	380	—	25	—	15	45	52	—	—	28	—	—	—	—	—
	460	—	25	—	15	45	52	—	20	34	8.3	14	4.2	7.2	16
	575	—	25	—	15	45	52	—	25	43	10.0	18	5.2	8.9	20
3	115	—	—	—	—	90	104	60	10	17	4.1	—	2.0	—	—
	200	—	25	—	15	90	104	60	—	31	—	12	—	6.1	—
	230	—	30	—	20	90	104	60	20	34	8.1	14	4.1	7.0	27
	380	—	50	—	30	90	104	—	—	56	—	—	—	—	—
	460	—	50	—	30	90	104	—	40	68	16	28	8.1	14	53
	575	—	50	—	30	90	104	—	50	86	20	35	10	18	67
4	200	—	40	—	25	135	156	120	—	45	—	20	—	10	—
	230	—	50	—	30	135	156	120	30	52	14	23	6.8	12	40
	380	—	75	—	50	135	156	—	—	86.7	—	—	—	—	—
	460	—	100	—	60	135	156	—	60	105	27	47	14	23	80
	575	—	100	—	60	135	156	—	75	130	34	59	17	29	100
5	200	—	75	—	60	270	311	240	—	91	—	41	—	20	—
	230	—	100	—	75	270	311	240	60	105	27	47	14	24	80
	380	—	150	—	125	270	311	—	—	173	—	—	—	—	—
	460	—	200	—	150	270	311	—	120	210	54	94	27	47	160
	575	—	200	—	150	270	311	—	150	260	68	117	34	59	200
6△	200	—	150	—	125	540	621	480	—	182	—	81	—	41	—
	230	—	200	—	150	540	621	480	120	210	54	94	27	47	160
	380	—	300	—	250	540	621	—	—	342	—	—	—	—	—
	460	—	400	—	300	540	621	—	240	415	108	188	54	94	320
	575	—	400	—	300	540	621	—	300	515	135	234	68	117	400
7△	230	—	300	—	—	810	932	—	180	315	—	—	—	—	240
	460	—	600	—	—	810	932	—	360	625	—	—	—	—	480
	575	—	600	—	—	810	932	—	450	775	—	—	—	—	600

Tables and footnotes are taken from NEMA Standards.

▲ Ratings shown are for applications requiring repeated interruptions of stalled motor current or repeated closing of high transient currents encountered in rapid motor reversal, involving more than five openings or closings per minute and more than ten in a ten-minute period, such as plug-stop, plug-reverse or jogging duty. Ratings apply to single speed and multi-speed controllers.

■ Per NEMA Standards paragraph ICS 2-321.20, the service-limit current represents the maximum rms current, in Amperes, which the controller may be expected to carry for protracted periods in normal service. At service-limit current ratings, temperature rises may exceed those obtained by testing the controller at its continuous current rating. The ultimate trip current of over-current (overload) relays or other motor protective devices shall not exceed the service-limit current ratings of the controller.

♦ FLUORESCENT LAMP LOADS—300 VOLTS AND LESS—The characteristics of fluorescent lamps are such that it is not necessary to derate Class 8502 contactors below their normal continuous current rating. Class 8903 contactors may also be used with fluorescent lamp loads. For controlling tungsten and infrared lamp loads, and resistance heating loads, Class 8903 AC lighting contactors are recommended. These contactors are specifically designed for such loads and are applied at their full rating as listed in the Class 8903 Section.

★ Ratings apply to contactors which are employed to switch the load at the utilization voltage of the heat producing element with a duty which requires continuous operation of not more than five openings per minute. Class 8903 Types L and S lighting contactors are rated for resistance heating loads.

▼ When discharged, a capacitor has essentially zero impedance. For repetitive switching by a contactor, sufficient impedance should be connected in series to limit inrush current to not more than 6 times the contactor rated continuous current. In many installations, the impedance of connecting conductors may be sufficient for this purpose. When switching to connect additional banks, the banks already on the line may be charged and can supply additional available short-circuit current which should be considered when selecting the impedance to limit the current.

The ratings for capacitor switching above assume the following maximum available fault currents:

— NEMA Size 00–3: 5,000 A RMS Sym.
— NEMA Size 4–5: 10,000 A RMS Sym.
— NEMA Size 6: 18,000 A RMS Sym.
— NEMA Size 7: 30,000 A RMS Sym.

Note: If available fault current is greater than these values, connect sufficient impedance in series as noted in the previous paragraph.

△ For NEMA Size 6 & 7, the operation rate is as follows: Continuous operation rate is 3 operations per minute maximum; Jogging or Plugging Duty operation rate is 15 operations per minute for a maximum of three minutes.

The motor ratings in Table 16.49 are NEMA standard ratings and apply only when the code letter of the motor is the same as or occurs earlier in the alphabet than is shown in the Table 16.50. Motors having code letters occurring later in the alphabet may require a larger controller. Consult Schneider Electric CCC at (1-888-778-2733).

Table 16.50:

Motor Hp Rating	Maximum Allowable Motor Code Letter
1-1/2–2	L
3–5	K
7-1/2 and above	H

Approximate Dimensions

Table 16.51: Dimensions for Class 8502 Open Type

NEMA Size	Type	No. of Poles	Fig. No.	Dimensions—Inches (Refer to Appropriate Figure)									Wt
				A	B	C	D	E	F	G	H	I	
				IN	IN	IN	IN	IN	IN	IN	IN	IN	(lb)
00	SAO	2–3	1	3-7/32	4-11/32	4-7/32	1-5/8	1-5/8	7/32	3-15/16	—	—	4
0	SBO	1–3	1	3-7/32	4-11/32	4-7/32	1-5/8	1-5/8	7/32	3-15/16	—	—	4
1	SCO	4–5		4-1/4	4-11/32	4-7/32	1-5/8	2-5/8	7/32	3-15/16	—	—	4-1/2
2	SDO	2–3	1	4-5/16	5-1/8	4-15/16	2-5/32	2-5/32	7/32	4-19/32	17/32	1-1/16	6-3/4
		4–5		5-5/8	5-1/8	4-15/16	2-5/32	3-15/32	7/32	4-19/32	17/32	1-1/16	8-1/4
3	SEO	2–3	1	5-15/32	7-3/32	6-1/2	1-7/8	3-17/32	5/16	6-1/32	3-1/4	4-3/4	14
		4–5		9-3/4	7-7/8	6-1/2	3-15/16	5-13/16	5/16	7	4-17/32	9-1/16	22
4	SFO	2–3	1	6	8-3/16	6-1/2	2-1/16	3-15/16	5/16	7	3-19/32	5-5/16	18
		4–5		9-3/4	8-3/16	6-1/2	3-15/16	5-13/16	5/16	7	4-17/32	9-1/16	22
5	SGO	2–3	1	8-2/3	12-5/16	8-3/4	3-1/4	5-13/16	5/8	11-1/8	4-3/4	7-1/4	45
6	SHO	2–3	1	10-35/64	28-1/16	9	3-17/32	7-1/32	5-1/16	18-9/16	4-3/4	7-1/4	80
7	SJO	2–3	1	10-35/64	37-1/4	10-7/8	3-17/32	7-1/32	7-7/32	22-3/8	4-3/4	7-1/4	135

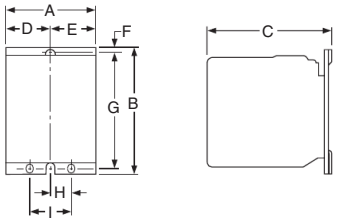


Figure 1
Class 8502

Table 16.52: Dimensions for 8536 Open Type

NEMA Size	Type	No. of Poles	Fig. No.	Dimensions—Inches (Refer to Appropriate Figure)									Wt
				A	B	C	D	E	F	G	H	I	
				IN	IN	IN	IN	IN	IN	IN	IN	IN	(lb)
00, 0, 1, 1P	SAO–SCO	2–3	2	3-1/2	6-49/64	4-7/32	1/2	1	1-39/64	13/64	6-1/4	3-31/32	5
0, 1	SBO–SCO	4	2	4-17/32	6-49/64	4-7/32	1/2	1	2-2/3	13/64	6-1/4	3-31/32	5-1/2
2	SDO	2–3	2	4-5/16	7-13/16	4-15/16	1/2	1	2-5/32	13/64	7-11/32	4-1/16	7-3/4
		4		5-5/8	7-13/16	4-15/16	1/2	1	3-15/32	13/64	7-11/32	4-1/16	9-1/4
3	SEO	2–3	2	5-15/32	11-3/32	6-1/2	7/8	1-3/4	3-19/32	5/16	10-3/16	5-3/4	17
		4		9-3/4	12-1/8	6-1/2	1-13/16	1-3/4	5-13/16	5/16	11-3/16	5-3/4	25
4	SFO	3	2	6	12-7/8	6-1/2	1-13/16	1-3/4	3-15/16	5/16	11-3/16	5-3/4	22
		4		9-3/4	12-7/8	6-1/2	1-13/16	1-3/4	5-29/32	5/16	11-3/16	5-3/4	25
5	SGO	3	2	8-9/16	17-9/16	8-3/4	4-3/4	7-1/4	5-12/32	5/8	16-3/8	6	62
6	SHO	3	2	12-11/32	28-1/16	9	4-3/4	7-1/4	5-25/32	5-1/16	18-9/16	8-11/16	85
7	SJO	3	2	12-11/32	37-1/4	10-7/8	4-3/4	7-1/4	5-25/32	7-7/32	22-3/8	9	140

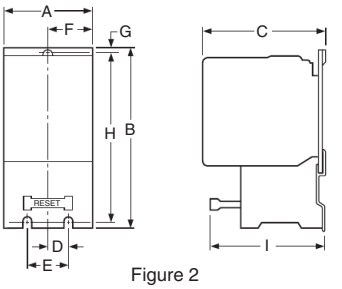


Figure 2
Class 8536

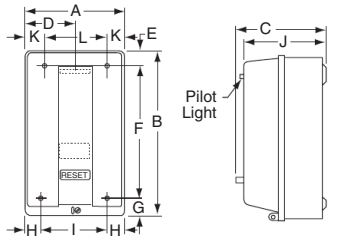


Figure 3

Table 16.53: Dimensions for NEMA 1 General Purpose Enclosure

NEMA Size	Type	No. of Poles	Fig. No.	Dimensions—Inches												
				A	B	C		D	E	F	G	H	I	J	K	L
						8502	8536									
00 0 1	SAG SBG SCG	All All All	3 3 3	6	10	5-9/32	5-9/16	3	7/8	8-1/8	1	15/16	4-1/8	5	—	—
2	SDG	All	3	7-13/16	12-11/16	6-1/32	6-5/16	—	1-3/32	10-1/2	1-3/32	1-3/32	5-5/8	5-3/4	1-3/32	5-5/8
3	SEG	All	3	11-7/16	21-13/16	8	8-3/8	—	1-17/32	18-3/4	1-17/32	1-17/32	8-3/8	7-3/4	1-17/32	8-3/8
4	SFG	All	5	11-1/4	25-5/32	9	9	8-19/32	1-1/4	1-1/4	22-5/16	1-7/16	7/16	—	—	—
5	SGG	All	5	17-7/32	44-7/32	12-13/16	12-15/16	13	2-1/8	2-1/8	40	2-1/8	9/16	—	—	—
6	SHG	All	4	65-3/4	20-7/32	13-1/8	13-1/8	—	11	64-1/2	2-5/16	5-1/2	—	—	—	—
7	SJG	All	4	93	34-1/2	23-1/2	23-1/2	Floor Mounting								

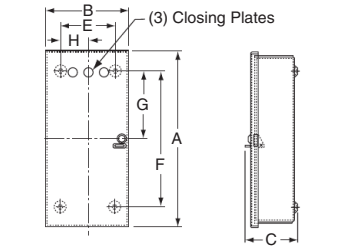


Figure 4

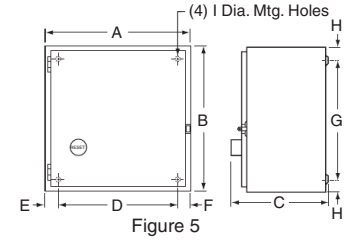


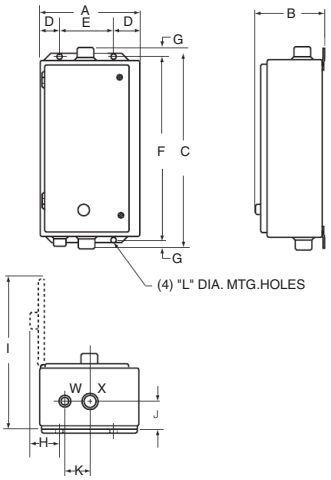
Figure 5

Approximate Dimensions

Table 16.54: NEMA 4 & 4X—Stainless Steel Watertight Enclosures▲

NEMA Size	Class	Type	No. of Poles	Dimensions—Inches												Bot. Hub Only	Top & Bot. Hub
				A	B	C	D	E	F	G	H	I	J	K	L	W	X
0 and 1	8502	SBW	All	6-3/8	7-1/8	13-3/16	1-9/16	3-1/4	12	19/32	1-3/16	11-25/32	1-5/8	2-5/16	5/16	3/4" Dia. Hub	1" Dia. Hub
		SCW															
	8536	SBW	All	6-3/8	7-13/16	13-3/16	1-9/16	3-1/4	12	19/32	1-7/8	11-25/32	1-5/8	2-5/16	5/16		
		SCW															
2	8502	SDW	All	8-1/8	7-7/8	16-3/16	1-9/16	5	15	1-3/32	1-15/16	14-3/4	2	2-5/8	5/16	3/4" Dia. Hub	1-1/2" Dia. Hub
	8536	SDW	All	8-1/8	8-9/16	16-3/16	1-9/16	5	15	1-3/32	2-7/8	14-3/4	2	2-5/8	5/16		
3 and 4	8502	SEW	All	18-5/32	8-3/4	32-7/32	3-5/64	12	30-1/2	7/8	3-11/16	26-23/32	2-9/16	3-3/16	7/16	3/4" Dia. Hub	2-1/2" Dia. Hub
		SFW															
	8536	SEW	All	18-5/32	9-9/16	32-7/32	3-5/64	12	30-1/2	7/8	4-1/2	26-23/32	2-9/16	3-3/16	7/16	3/4" Dia. Hub	2-1/2" Dia. Hub
		SFW															
5	8502 & 8536	SGW	All	17-7/32	12-5/8	47-7/32	4-1/8	9	46	5/8	4-19/32	28-5/16	3-1/8	5-3/4	9/16	3/4" Dia. Hub	3-1/2" Dia. Hub
6▲	8502 & 8536	SHW	All	20-7/32	12-1/8	65-7/32	4-1/8	12	64	5/8	4-19/32	30-13/16	2-11/16	4-1/2	9/16	3/4" Dia. Hub	(2) 3" Dia. Hub
7▲	8502 & 8536	SJW	All	34-1/2	23-1/2	101	Floor Mounting										

▲ Size 6 and 7 are sheet steel enclosures, and are rated NEMA 4 only.



NEMA 4 & 4X
Watertight Enclosure

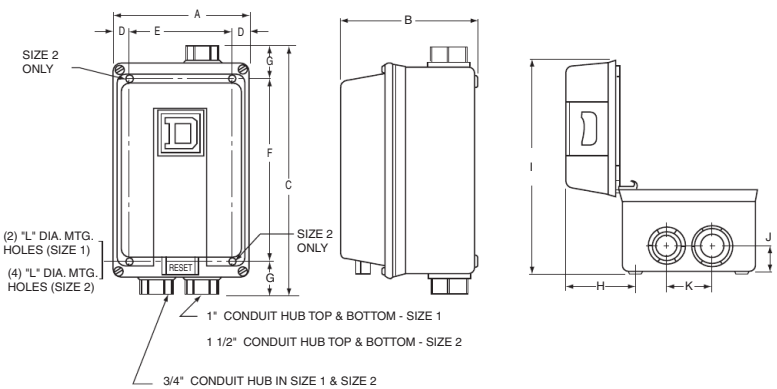
Table 16.55: NEMA 4 & 4X—Stainless Steel Watertight Enclosures with Form F4T■

NEMA Size	Class	Type	No. of Poles	Dimensions—Inches											
				A	B	C	D	E	F	G	H	I	J	K	L
0 and 1	8502	SBW	All	12-5/8	7-1/8	14-11/16	2-9/16	7-1/2	13-1/2	19/32	3-3/16	18-13/16	1-21/32	2-5/16	5/16
		SCW													
	8536	SBW	All	12-5/8	7-13/16	14-11/16	2-9/16	7-1/2	13-1/2	19/32	3-7/8	18-13/32	1-21/32	2-5/16	5/16
		SCW													
2	8502	SDW	All	14-7/8	7-9/16	16-5/16	2-9/16	9-3/4	15	21/32	3-3/16	20-7/8	2	2-5/8	5/16
	8536	SDW	All	14-7/8	8-1/4	16-5/16	2-9/16	9-3/4	15	21/32	3-7/8	20-7/8	2	2-5/8	5/16
3 and 4	8502	SEW	2–3	Same as Standard NEMA 4 dimensions, see above.											
		SFW	2–3												
	8536	SEW	2–3	Same as Standard NEMA 4 dimensions, see above.											
		SFW	2–3												
5	8502 & 8536	SGW	All	Same as Standard NEMA 4 dimensions, see above.											
6■	8502 & 8536	SHW	All	Form F4T is supplied as standard. Refer to page 16-101.											
7■	8502 & 8536	SJW	All												

■ Size 6 and 7 are sheet steel enclosures, and are rated NEMA 4 only.

Table 16.56: NEMA 4X—Watertight & Corrosion Resistant Glass Polyester Enclosures

Size	Type	No. of Poles	Dimensions—Inches (see the figure below)													Bot. Hub Only	Top & Bot. Hub	Weight (lb)
			A	B	C	D	E	F	G	H	I	J	K	L		W	X	
0, 1	SBW	All	6-1/2	6-7/16	12-1/8	3/4	5	8-3/4	1-11/16	3-11/32	10-1/16	1-5/16	2-1/8	5/16		3/4	1	17
	SCW																	
2	SDW	All	8-1/2	7-1/16	13-7/8	3/4	7	10-1/2	1-11/16	3-29/32	11-15/16	1-5/8	2-3/8	5/16		3/4	1-1/2	22



Approximate Dimensions

Table 16.57: NEMA 4X—Watertight & Corrosion Resistant Glass Polyester Enclosures

NEMA Size	Type	No. of Poles	Dimensions—Inches (see Figure 1)				
			A	B	C	E	F
0-2▲	SBW	All	16-7/8	9-25/32	22-3/4	10-1/8	21-1/2
	SCW						
	SDW						
3-4■	SEW	All	25-13/16	11-15/16	33-1/2	18-1/2	32-1/4
	SFW						

▲ With control power transformer (Form F4T).
■ Dimensions also for Form F4T.

Note: Devices with Form F4T may use larger enclosure. Consult Schneider Electric CCC at (1-888-778-2733) for dimensions.

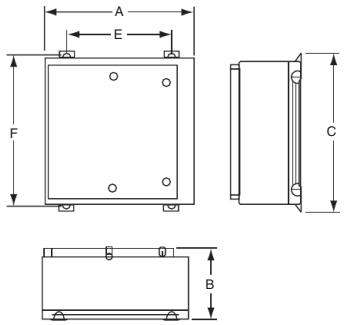


Figure 1
NEMA 4X

NEMA 7 & 9—Bolted Cover, Cast Iron

See Figure 2 for dimensions for NEMA size 0 and 1 (weight is 59 pounds).
See Figure 3 for NEMA size 2 (weight is 75 pounds).

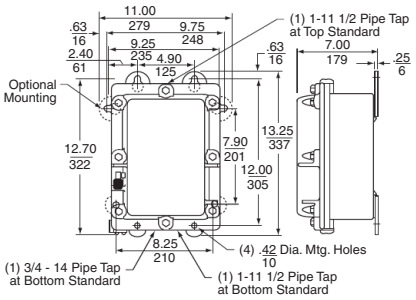


Figure 2
Size 0 and 1

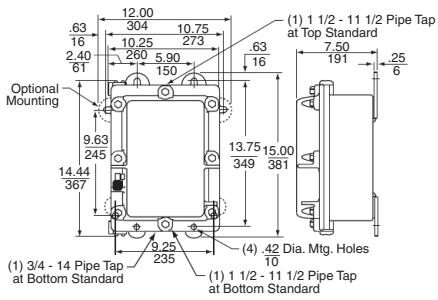


Figure 3
Size 2

Table 16.58: NEMA 7 & 9—SPIN TOP™ Enclosure

Conduit Sizes Loc. A, B, C & D			Dimensions—Inches (See Figure 4)													Wt. (lb)
NEMA Size	Std.	Type	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	
0–1	1-1/4	SBR SCR	10-5/8	26	15-1/4	8	4-3/4	5-3/8	3-3/4	1-1/16	7-1/2	11	7-5/16	2-1/16	—	—	70
2	1-1/2	SDR	13-7/8	30-1/2	19-1/4	8	4-3/4	5-1/4	3-3/4	1-1/16	7	18	9-3/8	2-3/4	—	—	100
3–4	2-1/2	SER SFR	13-3/8	39-1/2	20-1/4	8	4-3/4	7-1/2	3-3/4	—	7-3/4	23	8-5/8	3	—	—	165 195
5	4	SGR	19	53-1/2	27-3/4	—	—	11-1/4	5-3/4	1/8	16	20-5/8	11-3/8	4-5/16	12	6-1/2	375

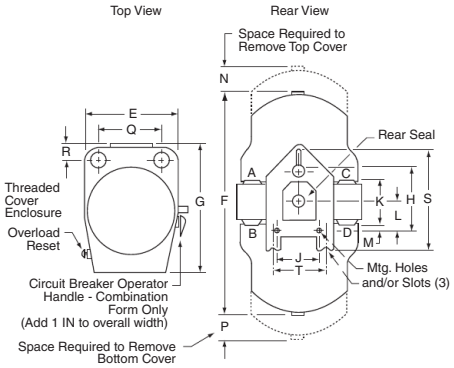
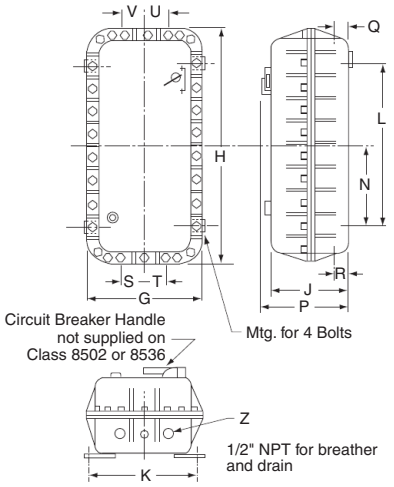


Figure 4
NEMA 7 & 9
SPIN TOP™ Enclosure

Approximate Dimensions

Table 16.59: NEMA 7 & 9—Bolted Cover, Cast Aluminum

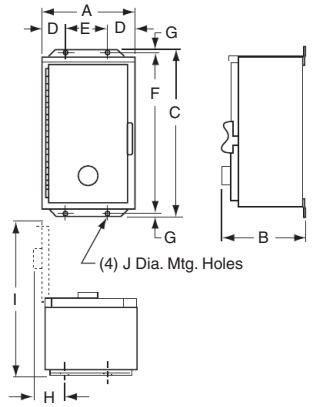
NEMA Size	Type	Dimensions—Inches									Z Dia.	Wt. (lb)
		G	H	J	K	L	N	P	Q, R	S, T, U, V		
0–1	SBT SCT	14-1/4	17-1/4	9-1/2	12-1/4	8-7/8	4-1/2	11	2-3/8	3-1/8	1-1/2	75
2	SDT	13-5/8	27-5/8	9-1/2	12-1/4	19-1/4	9-5/8	11	2-3/8	3-1/8	1-1/2	115
3–4	SET SFT	18-1/8	31-5/8	10	16-1/4	19-1/4	9-5/8	12-5/8	2-3/8	3-3/4	2-1/2	180
5	SGT	24-1/2	45-5/8	13-3/4	22-1/2	27-1/2	13-3/4	15-3/8	3-7/16	4	4	500



NEMA 7 & 9
Bolted Cover, Cast Aluminum

Table 16.60: NEMA 12/3R—Dusttight Enclosure

NEMA Size	Type	No. of Poles	Dimensions—Inches										Weight (lb)	
			A	B	C	D	E	F	G	H	I	J	Class 8502	Class 8536
0	SBA	All	6-3/8	8-17/32	12-3/4	1-9/16	3-1/4	12	3/8	3-9/16	12-1/4	5/16	15	16
1	SCA	All												
2	SDA	All	8-1/8	9-9/32	16	1-9/16	5	15	1/2	3-9/16	15-3/8	5/16	22	23
3	SEA	All	18-5/32	9-9/16	31-1/2	3-5/64	12	30-1/2	1/2	4-1/2	26-23/32	7/16	65	68
4	SFA	All											69	73
5	SGA	All	17-7/32	13-7/16	47	4-1/8	9	46	1/2	5-13/32	28-5/16	9/16	160	177
6	SHA	All	20-7/32	13	65	4-1/8	12	64	1/2	6-7/16	30-7/8	11/16	228	233
7	SJA	All	34-1/2	23-1/2	93	Floor Mounting							—	—



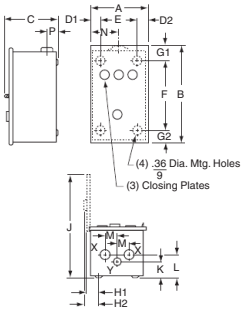
NEMA 12

Table 16.61: NEMA 12/3R—Dusttight Enclosure With Form F4T

NEMA Size	Type	No. of Poles	Dimensions—Inches									
			A	B	C	D	E	F	G	H	I	J
0	SBA	All	11-7/8	8	13-1/2	2-13/16	6-3/4	12-3/4	3/8	3-29/32	18-3/8	5/16
1	SCA	All										
2	SDA	All	14-7/8	8-1/8	16	2-9/16	9-3/4	15	3/8	3-21/32	21-1/2	5/16
3	SEA	2–3	Same as Standard NEMA 12 dimensions, see above.									
4	SFA	2–3										
5	SGA	All	Same as Standard NEMA 12 dimensions, see above.									
6	SHA	All	Form F4T is supplied as standard. Refer to page 16-101.									
7	SJA	All										

Table 16.62: NEMA 3R—Rainproof and Sleet Resistant Enclosures

Size	Type	No. of Poles	Dimensions—Inches																	
			A	B	C	D1	D2	E	F	G1	G2	H1	H2	J	K	L	M	N	P	K.O. X	K.O. Y
0, 1	SBH SCH	All	8-27/32	12-9/32	7-1/8	1-3/8	1-7/16	6	7-1/2	2-19/32	2-3/16	2-1/16	2-5/8	14-9/32	1-3/8	1-3/8	1-7/8	4-3/8	1-27/32	1/2 3/4 1	1/2 3/4 1
2	SDH	All	9-27/32	16-9/32	8-5/8	1-3/8	1-7/16	7	11-1/2	2-19/32	2-3/16	2-1/16	2-5/8	16-25/32	1-5/16	1-3/4	2-1/8	4-7/8	1-27/32	1 1-1/4 1-1/2	1/2 3/4
3	SEH	All	12-27/32	25-9/32	8-5/8	1-3/8	1-7/16	10	20-1/2	2-19/32	2-3/16	2-1/16	2-5/8	19-25/32	1-5/16	1-15/16	2-7/16	6-3/8	1-27/32	1 1-1/4 2 2-1/2	1/2 3/4
4	SFH	All	12-27/32	40-9/32	9-1/8	1-3/8	1-7/16	10	35-1/2	2-19/32	2-3/16	2-1/16	2-5/8	20-9/32	1-5/16	2-5/16	2-11/16	6-3/8	1-27/32	1 1-1/4 2 2-1/2	1/2 3/4



NEMA 3R

Class 8502 Type WH

General Information

Class 8502 Type W non-reversing vacuum contactors used to switch capacitors, transformers and electric motors where overload protection is separately provided. Type W vacuum contactors are designed for operation at 600 Volts, 50/60 Hz. (See page 16-50 for Class 8702 Reversing Vacuum Contactors.)

Table 16.63: Class 8502—Full Voltage 3 Pole Vacuum Contactors

NEMA Size	Enclosed Ampere Rating	Locked Rotor Current (A)	Motor Voltage	Max. Hp	Open Type	
					Type	$ Price
4	135	1080	200 230 460 575	40 50 100 100	WFO3▲	**3965.00**
5	270	2160	200 230 460 575	75 100 200 200	WGO3▲	**8004.00**
6	540	4320	200 230 460 575	150 200 400 400	WHO3▲	**22383.00**

▲ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes listed in selection table below.

Table 16.64: Class 9998—Replacement Coils for Class 8502 and 8702 Vacuum Contactors (Includes Rectifier)

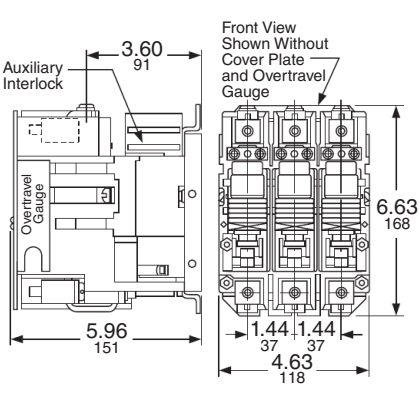
Size	Type	Poles	Class and Type	Suffix Number (Complete Coil Number Consists of Class and Type Followed by Suffix Number)				$ Price
				120 V 110 V	240 V 220 V	480 V 440 V	600 V 550 V	
4	WF	3	9998WF	120	240	480	600	**732.00**
5	WG	3	9998WG	120	240	480	600	**1724.00**
6	WH	3	9998WH	120	240	480	600	**1904.00**

Table 16.65: Class 9999—Vacuum Contactor Kits

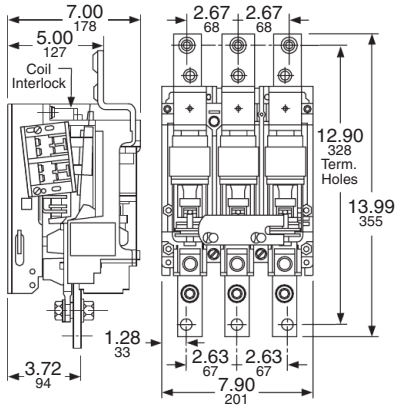
For Use With		Kit Description	Class 9999 Type	$ Price
Type	Size			
WF–WG WH	4–5 6	Auxiliary Contacts, Non-Convertible 1-N.O. & 1-N.C. Isolated Contacts	WX11	**116.00**
WF WG–WH	4 5–6	Coil Circuit Auxiliary Contacts 1-N.O. & 1-N.C. Isolated Contacts, Delayed Break 1-N.C. Isolated Contact	WCX11 WLX01	**153.00** **476.00**
WG	5	Lug Kits (6) lugs included	LUW5	**261.00**
WH	6	Lug Kits (6) lugs included	LUW6	**270.00**

Table 16.66: Coil Voltage Codes

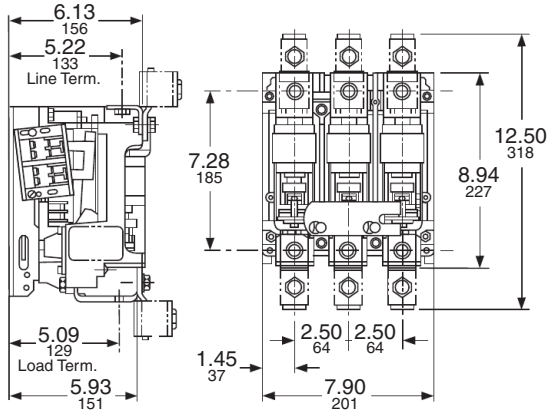
Volts	110	120	220	240	440	480	550	600
50 Hz	V02		V03		V06		V07	
60 Hz		V02		V03		V06		V07



Dimensions for Class 8502 Type WF Size 4



Dimensions for Class 8502 Type WH Size 6



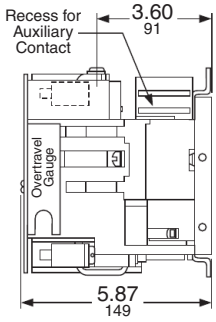
Dimensions for Class 8502 Type WG Size 5

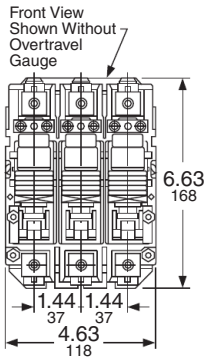
For How to Order Information, see page 16-13.

General Information

The Class 8502 Type V vacuum contactor is a three-pole, 1500 V rated device which meets UL508 (1.5 kV) and CSA. Vacuum technology offers long life and low maintenance in a compact, lightweight design. The contactor is suitable for contaminated atmospheres because the main contacts are sealed in vacuum bottles. Also, since gravity is not used to assist contactor operation, the Class 8502 contactor may be mounted in any plane without special modifications. Type V vacuum contactors are designed for the control of inductive or non-inductive loads at voltages between 200 and 1500 Vac.

Class 8502 Type VH





Dimensions for Class 8502 Type VF Size 4

Table 16.67: Class 8502—Full Voltage 3 Pole Vacuum Contactors

NEMA Size	Enclosed Ampere Rating	Locked Rotor Current (A)	Motor Voltage	Max. Hp	Open Type	
					Type	$ Price
4	160	1080	200 230 460 575 800 1000 1500	50 60 125 150 200 250 400	VFO3▲	**3965.00**
5	320	2160	200 230 460 575 800 1000 1500	100 125 250 300 400 — 800	VGO3▲	**8004.00**
6	540	4320	200 230 460 575 800 1000 1500	150 200 400 400 — — 1300	VHO3▲	**22383.00**

▲ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes listed in selection table below.

Table 16.68: Class 9998—Replacement Coils for Class 8502 and 8702 (Contains Rectifier)

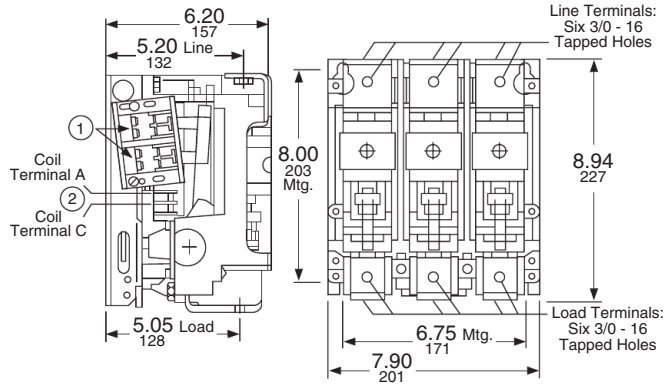
Size	Type	Poles	Class and Type	Suffix Number (Complete Coil Number Consists of Class and Type Followed by Suffix Number)				$ Price
				120 Volts 110 Volts	240 Volts 220 Volts	480 Volts 440 Volts	600 Volts 550 Volts	
4	VF	3	9998WF	120	240	480	600	**732.00**
5	VG	3	9998WG	120	240	480	600	**1724.00**
6	VH	3	9998WH	120	240	480	600	**1904.00**

Table 16.69: Class 9999—Vacuum Starter Kits

For Use With		Kit Description	Class 9999 Type	$ Price
Type	Size			
VF–VG VH	4–5 6	Auxiliary Contacts, Non-Convertible 1 N.O. & 1 N.C. Isolated Contacts	WX11	**116.00**
VF VG–VH	4 5–6	Coil Circuit Auxiliary Contacts 1 N.O. & 1 N.C. Isolated Contacts, Delayed Break 1 N.C. Isolated Contact	WCX11 WLX01	**153.00** **476.00**
VG	5	Lug Kits (6) lugs included	LUW5	**261.00**
VH	6	Lug Kits (6) lugs included	LUW6	**1715.00**

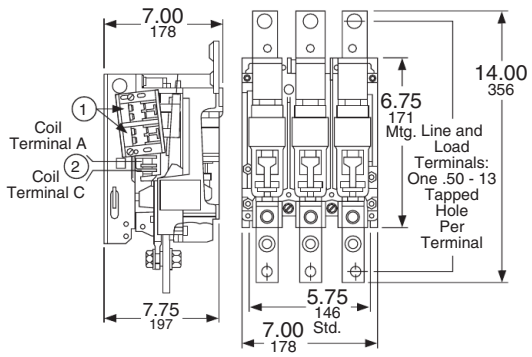
Table 16.70: Coil Voltage Codes

Volts	110	120	220	240	440	480	550	600
50 Hz	V02		V03		V06		V07	
60 Hz		V02		V03		V06		V07



1 Two Dual Circuit Auxiliary Contacts can be located on both sides of contactor.
2 Coil Terminals B and D located on opposite side of contactor.

Dimensions for Class 8502 Type VG Size 5



1 Two Dual Circuit Auxiliary Contacts can be located on both sides of contactor.
2 Coil Terminals B and D located on opposite side of contactor.

Dimensions for Class 8502 Type VH Size 6

For How to Order Information, see page 16-13.

General Information

Class 8536 Type W non-reversing vacuum starters are used to switch electric motors where overload protection is not separately provided.

Type W vacuum starters are designed for operation at 600 Volts, 50/60 Hz. Starters are available exclusively with Motor Logic™ Feature Base Solid State Overload Relays.

Table 16.71: Class 8536—Full Voltage Vacuum Starters

NEMA Size	Enclosed Ampere Rating	Locked Rotor Current (A)	Motor Voltage	Max. Hp	Open Type	
					Type	$ Price
4	135	1080	200 230 460 575	40 50 100 100	WFO3▲	**4433.00**
5	270	2160	200 230 460 575	75 100 200 200	WGO3▲	**10125.00**
6	540	4320	200 230 460 575	150 200 400 400	WHO3▲	**24008.00**

▲ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes listed in selection table at left.

Table 16.72: Class 9998—Replacement Coils for Class 8536 Vacuum Starters

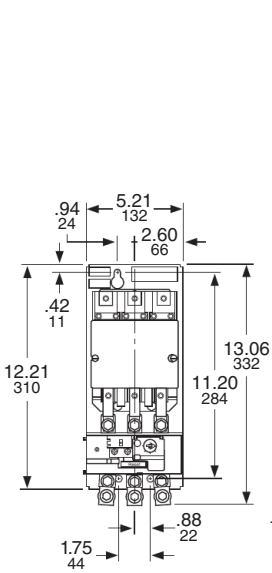
Size	Type	Poles	Class and Type	Suffix Number (Complete Coil Number Consists of Class and Type Followed by Suffix Number)				$ Price
				120 Volts 110 Volts	240 Volts 220 Volts	480 Volts 440 Volts	600 Volts 550 Volts	
4	WF	All	9998WF	120	240	480	600	**732.00**
5	WG	All	9998WG	120	240	480	600	**1724.00**
6	WH	All	9998WH	120	240	480	600	**1904.00**

Table 16.73: Class 9999—Vacuum Starter Kits

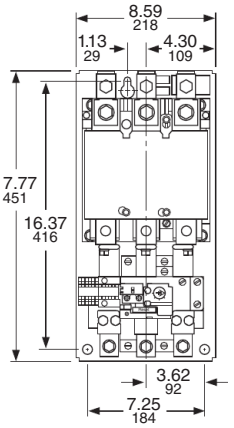
For Use With		Kit Description	Class 9999 Type	$ Price
Type	Size			
WF–WG WH	4–5 6	Auxiliary Contacts, Non-Convertible 1 N.O. & 1 N.C. Isolated Contacts	WX11	**122.00**
WF WG–WH	4 5–6	Coil Circuit Auxiliary Contacts 1 N.O. & 1 N.C. Isolated Contacts, Delayed Break 1 N.C. Isolated Contact	WCX11 WLX01	**114.00** **503.00**
WG	5	Lug Kits (6) lugs included	LUW5	**275.00**

Table 16.74: Coil Voltage Codes

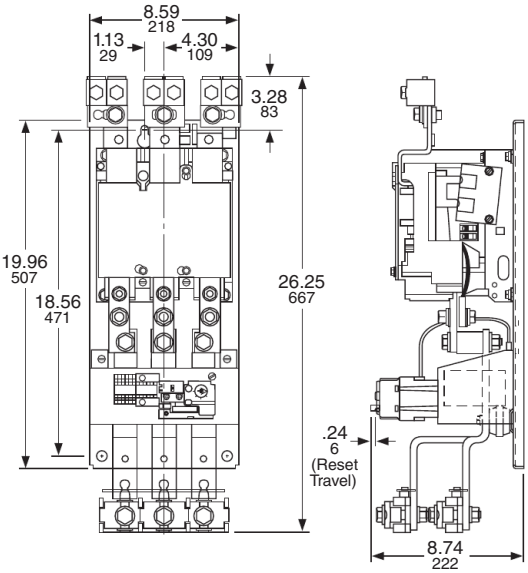
Volts	110	120	220	240	440	480	550	600
50 Hz	V02		V03		V06		V07	
60 Hz		V02		V03		V06		V07



Dimensions for Class 8536 Type WF Size 4



Dimensions for Class 8536 Type WG Size 5



Dimensions for Class 8536 Type WH Size 6

For How to Order Information, see page 16-13.

3 or 5 Days
Laser Delivery

Schneider Electric offers express shipping for factory modified NEMA Combo Starters. When you need them fast, our Laser™ Delivery program is the answer to getting your product when you need it most. Ask for Laser™ Delivery, then select the product and the modifications you need when you place your order. It's as easy as that!

General Information

Class 8538 and 8539 Type S combination starters combine the requirements of motor overload and short circuit protection into one package. These starters are manufactured in accordance with NEMA standards and are UL Listed (although some Form numbers may not be listed—contact Schneider Electric Customer Care Center for information). Class 8538 and 8539 combination starters are designed to operate at 600 Vac maximum, 50 to 60 Hz—and are supplied with melting alloy overload relays as standard.

3-Pole Polyphase—600 Vac Maximum—50–60 Hz

Note that prices shown do not include thermal units. Devices require 3 thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information. For class J fuse clip, use Form **Y1072** (no charge).

Table 16.75: Fusible Full Voltage Type (Class H Fuse Clips), with Melting Alloy Overload Relays

Ratings			Fuse Clip Size (A)	NEMA 1 General Purpose Enclosure		NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304) (Sizes 0-5)♦		NEMA 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure		NEMA 12/3R■ Dusttight and Driptight Industrial Use Enclosure		
Motor Voltage (Starter Voltage)	Max. Hp Poly-phase	NEMA Size								With External Reset	Without External Reset	$ Price
				Type	$ Price	Type	$ Price	Type	$ Price	Type	Type	
200 (208)	3	0	30	SBG12▲	1344.00	SBW12▲	2712.00	SBW22▲	3123.00	SBA22▲	SBA12▲	1686.00
	5	1	30	SCG12▲	1416.00	SCW12▲	2781.00	SCW22▲	3195.00	SCA22▲	SCA12▲	1758.00
	7-1/2		60	SCG13▲	1443.00	SCW13▲	2811.00	SCW23▲	3239.00	SCA23▲	SCA13▲	1785.00
	10	2	60	SDG12▲	2228.00	SDW12▲	4334.00	SDW22▲	4778.00	SDA22▲	SDA12▲	2712.00
	20	3	100	SEG15▲	3752.00	SEW15▲	7425.00	SEW25▲	8166.00	SEA25▲	SEA15▲	4377.00
	25		200	SEG12▲	4064.00	SEW12▲	7739.00	—	—	SEA22▲	SEA12▲	4692.00
	40	4	200	SFG15▲	7199.00	SFW15▲	11898.00	—	—	SFA25▲	SFA15▲	8936.00
	75	5	400	SGG15▲	16122.00	SGW15▲	28112.00	—	—	SGA25▲	SGA15▲	20336.00
	150	6	600	SHG13▲	42305.00	SHW13▲	54077.00	—	—	SHA23▲	SHA13▲	47219.00
230 (240)	3	0	30	SBG12▲	1344.00	SBW12▲	2712.00	SBW22▲	3123.00	SBA22▲	SBA12▲	1686.00
	5	1	30	SCG12▲	1416.00	SCW12▲	2781.00	SCW22▲	3195.00	SCA22▲	SCA12▲	1758.00
	7-1/2		60	SCG13▲	1443.00	SCW13▲	2811.00	SCW23▲	3239.00	SCA23▲	SCA13▲	1785.00
	15	2	60	SDG12▲	2228.00	SDW12▲	4334.00	SDW22▲	4778.00	SDA22▲	SDA12▲	2712.00
	25	3	100	SEG15▲	3752.00	SEW15▲	7425.00	SEW25▲	8166.00	SEA25▲	SEA15▲	4377.00
	30		200	SEG12▲	4064.00	SEW12▲	7739.00	—	—	SEA22▲	SEA12▲	4692.00
	50	4	200	SFG15▲	7199.00	SFW15▲	11898.00	—	—	SFA25▲	SFA15▲	8936.00
	100	5	400	SGG15▲	16122.00	SGW15▲	28112.00	—	—	SGA25▲	SGA15▲	20336.00
	200	6	600	SHG13▲	42305.00	SHW13▲	54077.00	—	—	SHA23▲	SHA13▲	47219.00
460 (480)	5	0	30	SBG13▲	1344.00	SBW13▲	2712.00	SBW23▲	3123.00	SBA23▲	SBA13▲	1686.00
	10	1	30	SCG14▲	1443.00	SCW14▲	2811.00	SCW24▲	3239.00	SCA24▲	SCA14▲	1785.00
	15	2	30	SDG16▲	2241.00	SDW16▲	4350.00	SDW26▲	4791.00	SDA26▲	SDA16▲	2712.00
	25		60	SDG14▲	2271.00	SDW14▲	4377.00	SDW24▲	4820.00	SDA24▲	SDA14▲	2754.00
	50	3	100	SEG13▲	3824.00	SEW13▲	7497.00	SEW23▲	8244.00	SEA23▲	SEA13▲	4449.00
	100	4	200	SFG13▲	7254.00	SFW13▲	11955.00	—	—	SFA23▲	SFA13▲	8991.00
	200	5	400	SGG13▲	16122.00	SGW13▲	28112.00	—	—	SGA23▲	SGA13▲	20336.00
	400	6	600	SHG12▲	42305.00	SHW12▲	54077.00	—	—	SHA22▲	SHA12▲	47219.00
575 (600)	5	0	30	SBG13▲	1344.00	SBW13▲	2712.00	SBW23▲	3123.00	SBA23▲	SBA13▲	1686.00
	10	1	30	SCG14▲	1443.00	SCW14▲	2811.00	SCW24▲	3239.00	SCA24▲	SCA14▲	1785.00
	15	2	30	SDG16▲	2241.00	SDW16▲	4350.00	SDW26▲	4791.00	SDA26▲	SDA16▲	2712.00
	25		60	SDG14▲	2271.00	SDW14▲	4377.00	SDW24▲	4820.00	SDA24▲	SDA14▲	2754.00
	50	3	100	SEG13▲	3824.00	SEW13▲	7497.00	SEW23▲	8244.00	SEA23▲	SEA13▲	4449.00
	100	4	200	SFG13▲	7254.00	SFW13▲	11955.00	—	—	SFA23▲	SFA13▲	8991.00
	200	5	400	SGG13▲	16122.00	SGW13▲	28112.00	—	—	SGA23▲	SGA13▲	20336.00
	400	6	600	SHG12▲	42305.00	SHW12▲	54077.00	—	—	SHA22▲	SHA12▲	47219.00

▲ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown on page 16-32.
■ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
♦ NEMA Size 6 starters are NEMA 4 painted sheet steel enclosures.
Note: Some control transformers may require the use of oversized enclosures. Refer to control transformer selection table on page 16-41.

Table 16.76: Fusible Disconnect Switch Type (Class H Fuse Clips), Single Phase▼△

Motor Voltage	Max. Hp	Coil Voltage	NEMA Size	Poles	Fuse Clip Size (A)	NEMA 1 General Purpose Enclosure		NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304)		NEMA 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure		NEMA 12/3R★ Dusttight and Driptight Industrial Use Enclosure		
												With External Reset	Without External Reset	$ Price
						Type	$ Price	Type	$ Price	Type	$ Price	Type	Type	
120	1	120	0	2	30	SBG62V02	1344.	SBW62V02	2712.	SBW65V02	3123.	SBA65V02	SBA62V02	1686.
	2		1		30	SCG62V02	1416.	SCW62V02	2781.	SCW65V02	3195.	SCA65V02	SCA62V02	1758.
	3		2		60	SDG62V02	2228.	SDW62V02	4334.	SDW65V02	4778.	SDA65V02	SDA62V02	2712.
240	2	240	0	2	30	SBG62V03	1344.	SBW62V03	2712.	SBW65V03	3123.	SBA65V03	SBA62V03	1686.
	3		1		30	SCG62V03	1416.	SCW62V03	2781.	SCW65V03	3195.	SCA65V03	SCA62V03	1758.
	7-1/2		2		60	SDG62V03	2228.	SDW62V03	4334.	SDW65V03	4778.	SDA65V03	SDA62V03	2712.

★ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
▼ Single phase units require one thermal unit and are not available with Form Hxx—Solid State Overload Relays.
△ Not included in Laser™ Delivery program.

For How to Order Information, see page 16-13.

3-Pole Polyphase—600 Vac Maximum—50-60 Hz

Note that prices shown do not include thermal units. Devices require 3 thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

Refer to page 16-31 for details.

Table 16.77: Non-Fusible Full Voltage Type, Non-Reversing, with Melting Alloy Overload Relays

Ratings			NEMA 1 General Purpose Enclosure		NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304) (Sizes 0–5)■		NEMA 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure		NEMA 12/3R▲ Dusttight and Driptight Industrial Enclosure		
Motor Voltage (Starter Voltage)	Max. Hp Poly-phase	NEMA Size	Type	$ Price	Type	$ Price	Type	$ Price	With External Reset	Without External Reset	$ Price
									Type	Type	
200 (208)	3	0	SBG11♦	1301.00	SBW11♦	2669.00	SBW21♦	3068.00	SBA21♦	SBA11♦	1643.00
	7-1/2	1	SCG11♦	1373.00	SCW11♦	2739.00	SCW21♦	3153.00	SCA21♦	SCA11♦	1715.00
	10	2	SDG11♦	2169.00	SDW11♦	4278.00	SDW21♦	4706.00	SDA21♦	SDA11♦	2654.00
	25	3	SEG11♦	3609.00	SEW11♦	7284.00	SEW21♦	8010.00	SEA21♦	SEA11♦	4235.00
	40	4	SFG11♦	6956.00	SFW11♦	11655.00	—	—	SFA21♦	SFA11♦	8693.00
	75	5	SGG11♦	15609.00	SGW11♦	27599.00	—	—	SGA21♦	SGA11♦	19823.00
	150	6	SHG11♦	41174.00	SHW11♦	52568.00	—	—	SHA21♦	SHA11♦	45710.00
230 (240)	3	0	SBG11♦	1301.00	SBW11♦	2669.00	SBW21♦	3068.00	SBA21♦	SBA11♦	1643.00
	7-1/2	1	SCG11♦	1373.00	SCW11♦	2739.00	SCW21♦	3153.00	SCA21♦	SCA11♦	1715.00
	15	2	SDG11♦	2169.00	SDW11♦	4278.00	SDW21♦	4706.00	SDA21♦	SDA11♦	2654.00
	30	3	SEG11♦	3609.00	SEW11♦	7284.00	SEW21♦	8010.00	SEA21♦	SEA11♦	4235.00
	50	4	SFG11♦	6956.00	SFW11♦	11655.00	—	—	SFA21♦	SFA11♦	8693.00
	100	5	SGG11♦	15609.00	SGW11♦	27599.00	—	—	SGA21♦	SGA11♦	19823.00
	200	6	SHG11♦	41174.00	SHW11♦	52568.00	—	—	SHA21♦	SHA11♦	45710.00
460 (480)	5	0	SBG11♦	1301.00	SBW11♦	2669.00	SBW21♦	3068.00	SBA21♦	SBA11♦	1643.00
	10	1	SCG11♦	1373.00	SCW11♦	2739.00	SCW21♦	3153.00	SCA21♦	SCA11♦	1715.00
	25	2	SDG11♦	2169.00	SDW11♦	4278.00	SDW21♦	4706.00	SDA21♦	SDA11♦	2654.00
	50	3	SEG11♦	3609.00	SEW11♦	7284.00	SEW21♦	8010.00	SEA21♦	SEA11♦	4235.00
	100	4	SFG11♦	6956.00	SFW11♦	11655.00	—	—	SFA21♦	SFA11♦	8693.00
	200	5	SGG11♦	15609.00	SGW11♦	27599.00	—	—	SGA21♦	SGA11♦	19823.00
	400	6	SHG11♦	41174.00	SHW11♦	52568.00	—	—	SHA21♦	SHA11♦	45710.00
575 (600)	5	0	SBG11♦	1301.00	SBW11♦	2669.00	SBW21♦	3068.00	SBA21♦	SBA11♦	1643.00
	10	1	SCG11♦	1373.00	SCW11♦	2739.00	SCW21♦	3153.00	SCA21♦	SCA11♦	1715.00
	25	2	SDG11♦	2169.00	SDW11♦	4278.00	SDW21♦	4706.00	SDA21♦	SDA11♦	2654.00
	50	3	SEG11♦	3609.00	SEW11♦	7284.00	SEW21♦	8010.00	SEA21♦	SEA11♦	4235.00
	100	4	SFG11♦	6956.00	SFW11♦	11655.00	—	—	SFA21♦	SFA11♦	8693.00
	200	5	SGG11♦	15609.00	SGW11♦	27599.00	—	—	SGA21♦	SGA11♦	19823.00
	400	6	SHG11♦	41174.00	SHW11♦	52568.00	—	—	SHA21♦	SHA11♦	45710.00

Table 16.78: Non-Fusible Disconnect Switch Type, Single Phase★▼

Motor Voltage	Max. Hp	Coil Voltage	NEMA Size	Poles	NEMA 1 General Purpose Enclosure		NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304)		NEMA 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure		NEMA 12/3R▲ Dusttight and Driptight Industrial Enclosure		
					Type	$ Price	Type	$ Price	Type	$ Price	With External Reset	Without External Reset	$ Price
											Type	Type	
120	1	120	0	2	SBG61V02	1301.00	SBW61V02	2669.00	SBW64V02	3068.00	SBA64V02	SBA61V02	1643.00
	2		1		SCG61V02	1373.00	SCW61V02	2739.00	SCW64V02	3153.00	SCA64V02	SCA61V02	1715.00
	3		2		SDG61V02	2169.00	SDW61V02	4278.00	SDW64V02	4706.00	SDA64V02	SDA61V02	2654.00
240	2	240	0	2	SBG61V03	1301.00	SBW61V03	2669.00	SBW64V03	3068.00	SBA64V03	SBA61V03	1643.00
	3		1		SCG61V03	1373.00	SCW61V03	2739.00	SCW64V03	3153.00	SCA64V03	SCA61V03	1715.00
	7-1/2		2		SDG61V03	2169.00	SDW61V03	4278.00	SDW64V03	4706.00	SDA64V03	SDA61V03	2654.00

▲ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
■ NEMA Size 6 starters are NEMA 4 painted sheet steel enclosure.
♦ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown below.
★ Single phase units require one thermal unit and are not available with Form Hxx—Solid State Overload Relays.
▼ Not included in Laser™ Delivery program.
Note: Some control transformers may require the use of oversized enclosures. Refer to control transformer selection table on page 16-41.

Table 16.79: Coil Voltage Codes

Voltage		Code	$ Price Adder
60 Hz	50 Hz		
24□△	—	V01	No Charge
120□	110	V02	No Charge
208	—	V08	No Charge
240	220	V03	No Charge
277	—	V04	No Charge
480	440	V06	No Charge
600	550	V07	No Charge
Specify	Specify	V99	35.60

△ 24 V coils are not available on Sizes 4–7. On Sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified(i.e., order as 8538SBG11V01S).
□ These voltage codes must include **Form S** (supplied at no charge). When specifying **Form S**, please supply motor voltage when ordering (i.e., order as 8538SCG11V02S).
Note: For voltage codes used with control transformers, see page 16-101. Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

For How to Order Information, see page 16-13.

Refer to page 16-31 for details.

3-Pole Polyphase – 600 Vac Maximum – 50-60 Hz

Note that prices shown do not include thermal units. Devices require 3 thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

Table 16.80: Fusible (with Class R Fuse Clips) Full Voltage Type, Non-Reversing, with Melting Alloy Overload Relays—(100,000 AIC Rated)

Ratings				NEMA 1 General Purpose Enclosure		NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304) (Sizes 0–5)♦		NEMA 4 & 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure		NEMA 12/3R▲ Dusttight and Driptight Industrial Enclosure		
										With External Reset	Without External Reset	$ Price
Motor Voltage (Starter Voltage)	Max. Hp Polyphase	NEMA Size	Fuse Clip Size (A)	Type	$ Price	Type	$ Price	Type	$ Price	Type	Type	
200 (208)	3	0	30	SBG32■	1367.00	SBW32■	2732.00	SBW42■	3140.00	SBA42■	SBA32■	1709.00
	5	1	30	SCG32■	1436.00	SCW32■	2804.00	SCW42■	3225.00	SCA42■	SCA32■	1778.00
	7-1/2	1	60	SCG33■	1466.00	SCW33■	2834.00	SCW43■	3252.00	SCA43■	SCA33■	1808.00
	10	2	60	SDG32■	2249.00	SDW32■	4356.00	SDW42■	4791.00	SDA42■	SDA32■	2732.00
	20	3	100	SEG35■	3794.00	SEW35■	7469.00	SEW45■	8216.00	SEA45■	SEA35■	4419.00
	25	3	200	SEG32■	4108.00	SEW32■	7781.00	—	—	SEA42■	SEA32■	4734.00
	40	4	200	SFG35■	7241.00	SFW35■	11942.00	—	—	SFA45■	SFA35■	8978.00
	75	5	400	SGG35■	16221.00	SGW35■	28214.00	—	—	SGA45■	SGA35■	20435.00
	150	6	600	SHG33■	42782.00	SHW33■	54176.00	—	—	SHA43■	SHA33■	47696.00
230 (240)	3	0	30	SBG32■	1367.00	SBW32■	2732.00	SBW42■	3140.00	SBA42■	SBA32■	1709.00
	5	1	30	SCG32■	1436.00	SCW32■	2804.00	SCW42■	3225.00	SCA42■	SCA32■	1778.00
	7-1/2	1	60	SCG33■	1466.00	SCW33■	2834.00	SCW43■	3252.00	SCA43■	SCA33■	1808.00
	15	2	60	SDG32■	2249.00	SDW32■	4356.00	SDW42■	4791.00	SDA42■	SDA32■	2732.00
	25	3	100	SEG35■	3794.00	SEW35■	7469.00	SEW45■	8216.00	SEA45■	SEA35■	4419.00
	30	3	200	SEG32■	4108.00	SEW32■	7781.00	—	—	SEA42■	SEA32■	4734.00
	50	4	200	SFG35■	7241.00	SFW35■	11942.00	—	—	SFA45■	SFA35■	8978.00
	100	5	400	SGG35■	16221.00	SGW35■	28214.00	—	—	SGA45■	SGA35■	20435.00
	200	6	600	SHG33■	42782.00	SHW33■	54176.00	—	—	SHA43■	SHA33■	47696.00
460 (480)	5	0	30	SBG33■	1394.00	SBW33■	2762.00	SBW43■	3176.00	SBA43■	SBA33■	1736.00
	10	1	30	SCG34■	1466.00	SCW34■	2834.00	SCW44■	3252.00	SCA44■	SCA34■	1808.00
	15	2	30	SDG36■	2262.00	SDW36■	4370.00	SDW46■	4805.00	SDA46■	SDA36■	2748.00
	25	2	60	SDG34■	2291.00	SDW34■	4400.00	SDW44■	4841.00	SDA44■	SDA34■	2775.00
	50	3	100	SEG33■	3866.00	SEW33■	7541.00	SEW43■	8294.00	SEA43■	SEA33■	4491.00
	100	4	200	SFG33■	7298.00	SFW33■	11997.00	—	—	SFA43■	SFA33■	9035.00
	200	5	400	SGG33■	16221.00	SGW33■	28214.00	—	—	SGA43■	SGA33■	20435.00
	400	6	600	SHG32■	42782.00	SHW32■	54176.00	—	—	SHA42■	SHA32■	47696.00
575 (600)	5	0	30	SBG33■	1394.00	SBW33■	2762.00	SBW43■	3176.00	SBA43■	SBA33■	1736.00
	10	1	30	SCG34■	1466.00	SCW34■	2834.00	SCW44■	3252.00	SCA44■	SCA34■	1808.00
	15	2	30	SDG36■	2262.00	SDW36■	4370.00	SDW46■	4805.00	SDA46■	SDA36■	2748.00
	25	2	60	SDG34■	2291.00	SDW34■	4400.00	SDW44■	4841.00	SDA44■	SDA34■	2775.00
	50	3	100	SEG33■	3866.00	SEW33■	7541.00	SEW43■	8294.00	SEA43■	SEA33■	4491.00
	100	4	200	SFG33■	7298.00	SFW33■	11997.00	—	—	SFA43■	SFA33■	9035.00
	200	5	400	SGG33■	16221.00	SGW33■	28214.00	—	—	SGA43■	SGA33■	20435.00
	400	6	600	SHG32■	42782.00	SHW32■	54176.00	—	—	SHA42■	SHA32■	47696.00

▲ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
■ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown below.
♦ NEMA Size 6 starters are NEMA 4 painted sheet steel enclosures.
Note: Some control transformers may require the use of oversized enclosures. Refer to the control transformer selection table on page 16-41.

Table 16.81: Fusible Disconnect Switch Type (Class R Fuses), Single Phase★▼

Motor Voltage	Max. Hp	Coil Voltage	NEMA Size	Poles	Fuse Clip Size (A)	NEMA 1 General Purpose Enclosure		NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel		NEMA 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure		NEMA 12/3R Dusttight and Driptight Industrial Use Enclosure		
												With External Reset	Without External Reset	$ Price
						Type	$ Price	Type	$ Price	Type	$ Price	Type	Type	
120	1	120	0	2	30	SBG63V02	1367.00	SBW63V02	2732.00	SBW66V02	3140.00	SBA66V02	SBA63V02	1709.00
	2		1		30	SCG63V02	1436.00	SCW63V02	2804.00	SCW66V02	3225.00	SCA66V02	SCA63V02	1178.00
	3		2		60	SDG63V02	2249.00	SDW63V02	4356.00	SDW66V02	4791.00	SDA66V02	SDA63V02	2732.00
240	2	240	0	2	30	SBG63V03	1367.00	SBW63V03	2732.00	SBW66V03	3140.00	SBA66V03	SBA63V03	1709.00
	3		1		30	SCG63V03	1436.00	SCW63V03	2804.00	SCW66V03	3225.00	SCA66V03	SCA63V03	1178.00
	7-1/2		2		60	SDG63V03	2249.00	SDW63V03	4356.00	SDW66V03	4791.00	SDA66V03	SDA63V03	2732.00

★ Single phase units require one thermal unit and are not available with Form Hxx—Solid State Overload Relays.
▼ Not included in Laser™ Delivery program.

Table 16.82: Coil Voltage Codes

Voltage		Code	$ Price Adder
60 Hz	50 Hz		
24□△	—	V01	No Charge
120□	110	V02	No Charge
208	—	V08	No Charge
240	220	V03	No Charge
277	—	V04	No Charge
480	440	V06	No Charge
600	550	V07	No Charge
Specify	Specify	V99	35.60

△ 24 V coils are not available on Sizes 4–7. On Sizes 00-3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8538SBG32V01S).
□ These voltage codes must include **Form S** (supplied at no charge). When specifying **Form S**, please supply motor voltage when ordering (i.e., order as 8538SCG32V02S).
Note: For voltage codes used with control transformers, see page 16-101.
Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

For How to Order Information, see page 16-13.

3-Pole Polyphase—600 Vac Maximum—50–60 Hz

Full Voltage Type With Melting Alloy Overload Relays

Note that prices shown do not include thermal units. Devices require 3 thermal units, standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

Table 16.83:

Ratings				NEMA 1 General Purpose Enclosure		NEMA 4 & 4X Watertight and Dustight Enclosure Stainless Steel (304)		NEMA 12/3R▲ Dusttight and Driptight Industrial Use Enclosure		
Motor Voltage (Starter Voltage)	Max. Hp Poly-phase	NEMA Size	Fuse Clip Size (A)	Type	$ Price	Type	$ Price	With External Reset Type	Without External Reset Type	$ Price
Class 8538 Non-Fusible Disconnect Switch Type—NEMA Size 0–2■□										
200 (208)	3	0	N/A	SBG11S8♦	**1656.00**	SBW11S8♦	**3738.00**	SBA21S8♦	SBA11S8♦	**2285.00**
	7-1/2	1	N/A	SCG11S8♦	**1728.00**	SCW11S8♦	**3807.00**	SCA21S8♦	SCA11S8♦	**2327.00**
	10	2	N/A	SDG11S8♦	**2528.00**	SDW11S8♦	**3564.00**	SDA21S8♦	SDA11S8♦	**2178.00**
230 (240)	3	0	N/A	SBG11S8♦	**1656.00**	SBW11S8♦	**3738.00**	SBA21S8♦	SBA11S8♦	**2285.00**
	7-1/2	1	N/A	SCG11S8♦	**1728.00**	SCW11S8♦	**3807.00**	SCA21S8♦	SCA11S8♦	**2327.00**
	15	2	N/A	SDG11S8♦	**2528.00**	SDW11S8♦	**3564.00**	SDA21S8♦	SDA11S8♦	**2178.00**
460 (480)	5	0	N/A	SBG11S8♦	**1656.00**	SBW11S8♦	**3738.00**	SBA21S8♦	SBA11S8♦	**2285.00**
	10	1	N/A	SCG11S8♦	**1728.00**	SCW11S8♦	**3807.00**	SCA21S8♦	SCA11S8♦	**2327.00**
	25	2	N/A	SDG11S8♦	**2528.00**	SDW11S8♦	**3564.00**	SDA21S8♦	SDA11S8♦	**2178.00**
575 (600)	5	0	N/A	SBG11S8♦	**1656.00**	SBW11S8♦	**3738.00**	SBA21S8♦	SBA11S8♦	**2285.00**
	10	1	N/A	SCG11S8♦	**1728.00**	SCW11S8♦	**3807.00**	SCA21S8♦	SCA11S8♦	**2327.00**
	25	2	N/A	SDG11S8♦	**2528.00**	SDW11S8♦	**3564.00**	SDA21S8♦	SDA11S8♦	**2178.00**
Class 8538 Fusible Disconnect Switch Type—NEMA Size 0–2■□										
200 (208)	3	0	30	SBG12S8♦	**1700.00**	SBW12S8♦	**3780.00**	SBA22S8♦	SBA12S8♦	**2327.00**
	5	1	30	SCG12S8♦	**1772.00**	SCW12S8♦	**3851.00**	SCA22S8♦	SCA12S8♦	**2370.00**
	7-1/2	1	60	SCG13S8♦	**1800.00**	SCW13S8♦	**3879.00**	SCA23S8♦	SCA13S8♦	**2399.00**
	10	2	60	SDG12S8♦	**2583.00**	SDW12S8♦	**5403.00**	SDA22S8♦	SDA12S8♦	**3324.00**
230 (240)	3	0	30	SBG12S8♦	**1700.00**	SBW12S8♦	**3780.00**	SBA22S8♦	SBA12S8♦	**2327.00**
	5	1	30	SCG12S8♦	**1772.00**	SCW12S8♦	**3851.00**	SCA22S8♦	SCA12S8♦	**2370.00**
	7-1/2	1	60	SCG13S8♦	**1800.00**	SCW13S8♦	**3879.00**	SCA23S8♦	SCA13S8♦	**2399.00**
	15	2	60	SDG12S8♦	**2583.00**	SDW12S8♦	**5403.00**	SDA22S8♦	SDA12S8♦	**3324.00**
460 (480)	5	0	30	SBG13S8♦	**1728.00**	SBW13S8♦	**3807.00**	SBA23S8♦	SBA13S8♦	**2357.00**
	10	1	30	SCG14S8♦	**1800.00**	SCW14S8♦	**3879.00**	SCA24S8♦	SCA14S8♦	**2399.00**
	15	2	30	SDG16S8♦	**2597.00**	SDW16S8♦	**5418.00**	SDA26S8♦	SDA16S8♦	**3338.00**
	25	2	60	SDG14S8♦	**2627.00**	SDW14S8♦	**5445.00**	SDA24S8♦	SDA14S8♦	**3366.00**
575 (600)	5	0	30	SBG13S8♦	**1728.00**	SBW13S8♦	**3807.00**	SBA23S8♦	SBA13S8♦	**2357.00**
	10	1	30	SCG14S8♦	**1800.00**	SCW14S8♦	**3879.00**	SCA24S8♦	SCA14S8♦	**2399.00**
	15	2	30	SDG16S8♦	**2597.00**	SDW16S8♦	**5418.00**	SDA26S8♦	SDA16S8♦	**3338.00**
	25	2	60	SDG14S8♦	**2627.00**	SDW14S8♦	**5445.00**	SDA24S8♦	SDA14S8♦	**3366.00**
Class 8538 Fusible Disconnect Switch Type with Class R Fuse Clips—NEMA Size 0–2■□										
200 (208)	3	0	30	SBG32S8♦	**1722.00**	SBW32S8♦	**3753.00**	SBA42S8♦	SBA32S8♦	**2348.00**
	5	1	30	SCG32S8♦	**1794.00**	SCW32S8♦	**3873.00**	SCA42S8♦	SCA32S8♦	**2390.00**
	7-1/2	1	60	SCG33S8♦	**1821.00**	SCW33S8♦	**3900.00**	SCA43S8♦	SCA33S8♦	**2420.00**
	10	2	60	SDG32S8♦	**2604.00**	SDW32S8♦	**5426.00**	SDA42S8♦	SDA32S8♦	**3344.00**
230 (240)	3	0	30	SBG32S8♦	**1722.00**	SBW32S8♦	**3753.00**	SBA42S8♦	SBA32S8♦	**2348.00**
	5	1	30	SCG32S8♦	**1794.00**	SCW32S8♦	**3873.00**	SCA42S8♦	SCA32S8♦	**2390.00**
	7-1/2	1	60	SCG33S8♦	**1821.00**	SCW33S8♦	**3900.00**	SCA43S8♦	SCA33S8♦	**2420.00**
	15	2	60	SDG32S8♦	**2604.00**	SDW32S8♦	**5426.00**	SDA42S8♦	SDA32S8♦	**3344.00**
460 (480)	5	0	30	SBG33S8♦	**1751.00**	SBW33S8♦	**3830.00**	SBA43S8♦	SBA33S8♦	**2376.00**
	10	1	30	SCG34S8♦	**1821.00**	SCW34S8♦	**3900.00**	SCA44S8♦	SCA34S8♦	**2420.00**
	15	2	30	SDG36S8♦	**2619.00**	SDW36S8♦	**5439.00**	SDA46S8♦	SDA36S8♦	**3360.00**
	25	2	60	SDG34S8♦	**2646.00**	SDW34S8♦	**5468.00**	SDA44S8♦	SDA34S8♦	**3387.00**
575 (600)	5	0	30	SBG33S8♦	**1751.00**	SBW33S8♦	**3830.00**	SBA43S8♦	SBA33S8♦	**2376.00**
	10	1	30	SCG34S8♦	**1821.00**	SCW34S8♦	**3900.00**	SCA44S8♦	SCA34S8♦	**2420.00**
	15	2	30	SDG36S8♦	**2619.00**	SDW36S8♦	**5439.00**	SDA46S8♦	SDA36S8♦	**3360.00**
	25	2	60	SDG34S8♦	**2646.00**	SDW34S8♦	**5468.00**	SDA44S8♦	SDA34S8♦	**3387.00**

▲ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
■ For NEMA Size 3–5 starters in oversized NEMA 1, 4 or 12 enclosures, contact factory for pricing and TAG number.
♦ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown to the right.
Note: Some control transformers may require the use of oversized enclosures. Refer to the control transformer selection table on page 16-41.

Table 16.84: Class 8538 Fusible Disconnect Switch Type for Horizontal Mounting□

Ratings				NEMA 12/3R▲ Dusttight and Driptight Industrial Use Enclosure		
Motor Voltage (Starter Voltage)	Max. Hp Poly-phase	NEMA Size	Fuse Clip Size (A)	With External Reset Type	Without External Reset Type	$ Price
200 (208)	2	1	30	SCA22S1★	SCA12S1★	**1754.00**
	7-1/2		60	SCA23S1★	SCA13S1★	**1781.00**
230 (240)	2	1	30	SCA22S1★	SCA12S1★	**1754.00**
	7-1/2		60	SCA23S1★	SCA13S1★	**1781.00**
460 (480)	10	1	30	SCA24S1★	SCA14S1★	**1781.00**
575 (600)	10	1	30	SCA24S1★	SCA14S1★	**1781.00**

★ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes listed in selection Table 16.85.

Table 16.85: Coil Voltage Codes

Voltage		Code	$ Price Adder
60 Hz	50 Hz		
24△▼	—	V01	No Charge
120△	110	V02	No Charge
208	—	V08	No Charge
240	220	V03	No Charge
277	—	V04	No Charge
480	440	V06	No Charge
600	550	V07	No Charge
Specify	Specify	V99	35.60

▼ 24 V coils are not available on Sizes 4–7. On Sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8538SBG1158V01S).
△ These voltage codes must include **Form S** (supplied at no charge). When specifying **Form S,** supply motor voltage when ordering (i.e., order as 8538SCG1158V02S).
□ Not included in Laser™ Delivery program.
Note: For voltage codes used with control transformers, see page 16-101.

For How to Order Information, see page 16-13.

Electronic Motor Circuit Protector (MCP)
3-Pole Polyphase—600 Vac Maximum—50–60 Hz

Note that prices shown do not include thermal units. Devices require 3 thermal units (Sizes 00–6). Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

Table 16.86: Full Voltage Type, Non-Reversing, with Melting Alloy Overload Relay

Ratings				NEMA 1 General Purpose Enclosure		NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304) (Sizes 0–5)▲		NEMA 4 & 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure		NEMA 12/3R■ Dusttight and Driptight Industrial Use Enclosure		
Motor Voltage (Starter Voltage)	Hp Range Poly-phase	NEMA Size	Circuit Breaker (See Page 7-32 for Breaker Adjustment Range)	Type	$ Price	Type	$ Price	Type	$ Price	With External Reset Type	Without External Reset Type	$ Price
200 (208)	1/4–3	0	HLL36030M71	SBG43♦	**1814.00**	SBW43♦	**3182.00**	\SBW53♦	**3653.00**	SBA53♦	SBA43♦	**2156.00**
	1/4–5 7-1/2	1	HLL36030M71 HLL36050M72	SCG44♦ SCG45♦	**1886.00**	SCW44♦ SCW45♦	**3252.00**	SCW54♦ SCW55♦	**3738.00**	SCA54♦ SCA55♦	SCA44♦ SCA45♦	**2228.00**
	1-1/2–5 7-1/2–10	2	HLL36030M71 HLL36050M72	SDG42♦ SDG43♦	**2669.00**	SDW42♦ SDW43♦	**4778.00**	SDW52♦ SDW53♦	**5255.00**	SDA52♦ SDA53♦	SDA42♦ SDA43♦	**3153.00**
	15–25	3	HLL36100M73	SEG42♦	**3879.00**	SEW42♦	**7554.00**	SEW52♦	**8310.00**	SEA52♦	SEA42♦	**4505.00**
	30–40	4	JLL36250M75	SFG44♦	**8508.00**	SFW44♦	**13208.00**	SFW54♦	**14534.00**	SFA54♦	SFA44♦	**10245.00**
	50–60 70	5	JLL36250M75 LJL36400M36	SGG44♦ SGG45♦	**19724.00**	SGW44♦ SGW45♦	**31716.00**	— —	—	SGA54♦ SGA55♦	SGA44♦ SGA45♦	**22859.00**
	100 125–150	6	LJL36400M36 LJL36600M42	SHG43♦ SHG45♦	**42825.00**	SHW43♦ SHW45♦	**49946.00**	— —	—	SHA53♦ SHA55♦	SHA43♦ SHA45♦	**46670.00**
230 (240)	1/4–3	0	HLL36030M71	SBG43♦	**1814.00**	SBW43♦	**3182.00**	SBW53♦	**3653.00**	SBA53♦	SBA43♦	**2156.00**
	1/4–7-1/2	1	HLL36030M71	SCG44♦	**1886.00**	SCW44♦	**3182.00**	SCW54♦	**3738.00**	SCA54♦	SCA44♦	**2228.00**
	1-1/2–7-1/2 10 15	2	HLL36030M71 HLL36050M72 HLL36100M73	SDG42♦ SDG43♦ SDG44♦	**2669.00**	SDW42♦ SDW43♦ SDW44♦	**4778.00**	SDW52♦ SDW53♦ SDW54♦	**5255.00**	SDA52♦ SDA53♦ SDA54♦	SDA42♦ SDA43♦ SDA44♦	**3153.00**
	15–30	3	HLL36100M73	SEG42♦	**3879.00**	SEW42♦	**7554.00**	SEW52♦	**8310.00**	SEA52♦	SEA42♦	**4505.00**
	40–50	4	JLL36250M75	SFG44♦	**8508.00**	SFW44♦	**13208.00**	SFW54♦	**14534.00**	SFA54♦	SFA44♦	**10245.00**
	60 75–100	5	JLL36250M75 LJL36400M36	SGG44♦ SGG46♦	**19724.00**	SGW44♦ SGW45♦	**31716.00**	— —	—	SGA54♦ SGA55♦	SGA44♦ SGA45♦	**22859.00**
	125–150 200	6	LJL36600M42 PLL34080M68	SHG45♦ SHG46♦	**42825.00**	SHW45♦ SHW46♦	**49946.00**	— —	—	SHA55♦ SHA56♦	SHA45♦ SHA46♦	**46670.00**
	250–300	7	PLL36100M69	SJA43♦	**57837.00**	SJW43♦	**64958.00**	—	—	SJA53♦	—	**61682.00**

▲ NEMA Size 6 and 7 starters are NEMA 4 painted sheet steel enclosures.
■ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
♦ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown below.
Note: Some control transformers may require the use of oversized enclosures. Refer to control transformer selection table on page 16-41.

Table 16.87: Coil Voltage Codes

Voltage		Code	$ Price Adder
60 Hz	50 Hz		
24▼★	—	V01	No Charge
120▼	110	V02	No Charge
208	—	V08	No Charge
240	220	V03	No Charge
277	—	V04	No Charge
480	440	V06	No Charge
600	550	V07	No Charge
Specify	Specify	V99	35.60

★ 24 V coils are not available on Sizes 4–7. On Sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8539SBG41V01S).
▼ These voltage codes must include **Form S** (supplied at no charge). When specifying **Form S,** please supply motor voltage when ordering (i.e., order as 8539SCG41V02S).
Note: For voltage codes used with control transformers, see page 16-101.
Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

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NEMA Type 1 Enclosure with 30 mm Operators

Refer to page 16-31 for details.

For How to Order Information, see page 16-13.

Electronic Motor Circuit Protector (MCP)
3-Pole Polyphase—600 Vac Maximum—50–60 Hz

Note that prices shown do not include thermal units. Devices require 3 thermal units (Sizes 00–6). Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

Table 16.88: Full Voltage Type, Non-Reversing, with Melting Alloy Overload Relays

Ratings				NEMA 1 General Purpose Enclosure		NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304) (Sizes 0–5)▲		NEMA 4 & 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure		NEMA 12/3R■ Dusttight and Driptight Industrial Use Enclosure		
Motor Voltage (Starter Voltage)	Hp Range Poly-phase	NEMA Size	Circuit Breaker (See Page 7-32 for Breaker Adjustment Range)	Type	$ Price	Type	$ Price	Type	$ Price	With External Reset Type	Without External Reset Type	$ Price
460 (480)	1/4–5	0	HLL36030M71	SBG43♦	**1814.**	SBW43♦	**3182.**	SBW53♦	**3653.**	SBA53♦	SBA43♦	**2156.**
	1/4–10	1	HLL36030M71	SCG44♦	**1886.**	SCW44♦	**3252.**	SCW54♦	**3738.**	SCA54♦	SCA44♦	**2228.**
	5–15 20–25	2	HLL36030M71 HLL36050M72	SDG42♦ SDG43♦	**2669.**	SDW42♦ SDW43♦	**4778.**	SDW52♦ SDW53♦	**5255.**	SDA52♦ SDA53♦	SDA42♦ SDA43♦	**3153.**
	20–25 30–50	3	HLL36050M72 HLL36100M73	SEG41♦ SEG42♦	**3879.**	SEW41♦ SEW42♦	**7554.**	SEW51♦ SEW52♦	**8310.**	SEA51♦ SEA52♦	SEA41♦ SEA42♦	**4505.**
	60–100	4	JLL36250M75	SFG44♦	**8508.**	SFW44♦	**13208.**	SFW54♦	**14534.**	SFA54♦	SFA44♦	**10245.**
	125 150–200	5	JLL36250M75 LJL36400M36	SGG44♦ SGG45♦	**19724.**	SGW44♦ SGW45♦	**31716.**	— —	—	SGA54♦ SGA55♦	SGA44♦ SGA45♦	**22859.**
	250–350 400	6	LJL36600M42 PLL34080M68	SHG45♦ SHG46♦	**42825.**	SHW45♦ SHW46♦	**49946.**	— —	—	SHA55♦ SHA56♦	SHA45♦ SHA46♦	**46670.**
	500 600	7	PLL36080M68 PLL36100M69	SJA42♦ SJA43♦	**57837.**	SJW42♦ SJW43♦	**64958.**	— —	—	SJA52♦ SJA53♦	— —	**61682.**
575 (600)	1/4–5	0	HLL36030M71	SBG43♦	**1814.**	SBW43♦	**3182.**	SBW53♦	**3653.**	SBA53♦	SBA43♦	**2156.**
	1/4–10	1	HLL36030M71	SCG44♦	**1886.**	SCW44♦	**3252.**	SCW54♦	**3738.**	SCA54♦	SCA44♦	**2228.**
	5–20 25	2	HLL36030M71 HLL36050M72	SDG42♦ SDG43♦	**2669.**	SDW42♦ SDW43♦	**4778.**	SDW52♦ SDW53♦	**5255.**	SDA52♦ SDA53♦	SDA42♦ SDA43♦	**3153.**
	25–30 40–50	3	HLL36050M72 HLL36100M73	SEG41♦ SEG42♦	**3879.**	SEW41♦ SEW42♦	**7554.**	SEW51♦ SEW52♦	**8310.**	SEA51♦ SEA52♦	SEA41♦ SEA42♦	**4505.**
	60–100	4	JLL36250M75	SFG44♦	**8508.**	SFW44♦	**13208.**	SFW54♦	**14534.**	SFA54♦	SFA44♦	**10245.**
	125–150 200	5	JLL36250M75 LJL36400M36	SGG44♦ SGG45♦	**19724.**	SGW44♦ SGW45♦	**31716.**	— —	—	SGA54♦ SGA55♦	SGA44♦ SGA45♦	**22859.**
	250 300–400	6	LJL36400M36 LJL36600M42	SHG43♦ SHG45♦	**42825.**	SHW43♦ SHW45♦	**49946.**	— —	—	SHA53♦ SHA55♦	SHA43♦ SHA45♦	**46670.**
	500–600	7	PLL34100M69	SJG41♦	**57837.**	SJW41♦	**64958.**	—	—	SJA51♦	—	**61682.**

▲ NEMA Size 6 and 7 starters are NEMA 4 painted sheet steel enclosures.
■ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
♦ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown below.
Note: Some control transformers may require the use of oversized enclosures. Refer to control transformer selection table on page 16-41.

Table 16.89: Coil Voltage Codes

Voltage		Code	$ Price Adder
60 Hz	50 Hz		
24▼★	—	V01	No Charge
120▼	110	V02	No Charge
208	—	V08	No Charge
240	220	V03	No Charge
277	—	V04	No Charge
480	440	V06	No Charge
600	550	V07	No Charge
Specify	Specify	V99	35.60

★ 24 V coils are not available on Sizes 4–7. On Sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8539SBG41V01S).
▼ These voltage codes must include **Form S** (supplied at no charge). When specifying **Form S**, please supply motor voltage when ordering (i.e., order as 8539SCG41V02S).
Note: For voltage codes used with control transformers, see page 16-101.
Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

For How to Order Information, see page 16-13.

Electronic Motor Circuit Protectors (MCP) in Oversized Enclosure
3-Pole Polyphase—600 Vac Maximum—50–60 Hz

Note that prices shown do not include thermal units. Devices require 3 thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

Table 16.90: Electronic Motor Circuit Protectors (MCP) in Oversized Enclosure, NEMA Size 0–2■△ Full Voltage Type, Non-Reversing with Melting Alloy Overload Relays

Ratings				NEMA 1 General Purpose Enclosure		NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304)		NEMA 12/3R▲ Dusttight and Driptight Industrial Use Enclosure		
Motor Voltage (Starter Voltage)	Hp Range Poly-phase	NEMA Size	Circuit Breaker (See Page 7-32 for Breaker Adjustment Range)	Type	$ Price	Type	$ Price	With External Reset Type	Without External Reset Type	$ Price
200 (208)	1/4–3	0	HLL36030M71	SBG43S8♦	**2169.00**	SBW43S8♦	**4248.00**	SBA53S8♦	SBA43S8♦	**2798.00**
	1/4–5 71/2	1	HLL36030M71 HLL36050M72	SCG44S8♦ SCG45S8♦	**2241.00**	SCW44S8♦ SCW45S8♦	**4320.00**	SCA54S8♦ SCA55S8♦	SCA44S8♦ SCA45S8♦	**2867.00**
	1-1/2–5 71/2–10	2	HLL36030M71 HLL36050M72	SDG42S8♦ SDG43S8♦	**3024.00**	SDW42S8♦ SDW43S8♦	**5844.00**	SDA52S8♦ SDA53S8♦	SDA42S8♦ SDA43S8♦	**3794.00**
230 (240)	1/4–3	0	HLL36030M71	SBG43S8♦	**2169.00**	SBW43S8♦	**4248.00**	SBA53S8♦	SBA43S8♦	**2798.00**
	1/4–7-1/2	1	HLL36030M71	SCG44S8♦	**2241.00**	SCW44S8♦	**4320.00**	SCA54S8♦	SCA44S8♦	**3867.00**
	1-1/2–7-1/2 10 15	2	HLL36030M71 HLL36050M72 HLL36100M73	SDG42S8♦ SDG43S8♦ SDG44S8♦	**3024.00**	SDW42S8♦ SDW43S8♦ SDW44S8♦	**5844.00**	SDA52S8♦ SDA53S8♦ SDA54S8♦	SDA42S8♦ SDA43S8♦ SDA44S8♦	**3794.00**
460 (480)	1/4–5	0	HLL36030M71	SBG43S8♦	**2169.00**	SBW43S8♦	**4248.00**	SBA53S8♦	SBA43S8♦	**2798.00**
	1/4–10	1	HLL36030M71	SCG44S8♦	**2241.00**	SCW44S8♦	**4320.00**	SCA54S8♦	SCA44S8♦	**2867.00**
	5–15 20–25	2	HLL36030M71 HLL36050M72	SDG42S8♦ SDG43S8♦	**3024.00**	SDW42S8♦ SDW43S8♦	**5855.00**	SDA52S8♦ SDA53S8♦	SDA42S8♦ SDA43S8♦	**3794.00**
575 (600)	1/4–5	0	HLL36060M71	SBG43S8♦	**2169.00**	SBW43S8♦	**4248.00**	SBA53S8♦	SBA43S8♦	**2798.00**
	1/4–10	1	HLL36030M71	SCG44S8♦	**2241.00**	SCW44S8♦	**4320.00**	SCA54S8♦	SCA44S8♦	**3867.00**
	5–20 25	2	HLL36030M71 HLL36050M72	SDG42S8♦ SDG43S8♦	**3024.00**	SDW42S8♦ SDW43S8♦	**5844.00**	SDA52S8♦ SDA53S8♦	SDA42S8♦ SDA43S8♦	**3794.00**

▲ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
■ For NEMA Size 3–5 starters in oversized NEMA 1, 4 or 12 enclosures, contact factory for pricing and TAG number.
♦ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown below.
Note: Some control transformers may require the use of oversized enclosures. Refer to control transformer selection table on page 16-41.

Table 16.91: Coil Voltage Codes

Voltage		Code	$ Price Adder
60 Hz	50 Hz		
24▼★	—	V01	No Charge
120▼	110	V02	No Charge
208	—	V08	No Charge
240	220	V03	No Charge
277	—	V04	No Charge
480	440	V06	No Charge
600	550	V07	No Charge
Specify	Specify	V99	35.60

★ 24 V coils are not available on Sizes 4–7. On Sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8539SBG41S8V01S).
▼ These voltage codes must include **Form S** (supplied at no charge). When specifying **Form S,** please supply motor voltage when ordering (i.e., order as 8539SCG41S8V02S).
△ Not included in Laser™ Delivery program.
Note: For voltage codes used with control transformers, see page 16-101.
Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

For How to Order Information, see page 16-13.

3-Pole Polyphase—600 Vac Maximum—50–60 Hz

Note that prices shown do not include thermal units. Devices require 3 thermal units (Sizes 0-6). Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

Table 16.92: Full Voltage Type, Non-Reversing, with Melting Alloy Overload Relays

Ratings					NEMA 1 General Purpose Enclosure		NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304) (Sizes 0–5)▲		NEMA 4 & 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure		NEMA 12/3R■ Dusttight and Driptight Industrial Use Enclosure		
Motor Voltage (Starter Voltage)	Max. Hp Poly-phase	NEMA Size	Circuit Breaker		Type	$ Price	Type	$ Price	Type	$ Price	With External Reset	Without External Reset	$ Price
			Type	Ampere Rating							Type	Type	
200 (208)	2 3	0	HLL36015 HLL36020	15 20	SBG1♦ SBG3♦	**1400.**	SBW1♦ SBW3♦	**2768.**	SBW11♦ SBW13♦	**3182.**	SBA11♦ SBA13♦	SBA1♦ SBA3♦	**1742.**
	5 7-1/2	1	HLL36035 HLL36050	35 50	SCG5♦ SCG2♦	**1472.**	SCW5♦ SCW2♦	**2840.**	SCW15♦ SCW12♦	**3267.**	SCA15♦ SCA12♦	SCA5♦ SCA2♦	**1814.**
	10	2	HLL36060	60	SDG1♦	**2255.**	SDW1♦	**4364.**	SDW11♦	**4805.**	SDA11♦	SDA1♦	**2739.**
	15 20 25	3	HLL36100 HLL36125 HLL36150	100 125 150	SEG3♦ SEG1♦ SEG5♦	**3879.**	SEW3♦ SEW1♦ SEW5♦	**7554.**	SEW13♦ SEW11♦ SEW15♦	**8310.**	SEA13♦ SEA11♦ SEA15♦	SEA3♦ SEA1♦ SEA5♦	**4505.**
	30 40	4	JLL36200 JLL36250	200 250	SFG3♦ SFG4♦	**8508.**	SFW3♦ SFW4♦	**13208.**	SFW13♦ SFW14♦	**14534.**	SFA13♦ SFA14♦	SFA3♦ SFA4♦	**10245.**
	50 60–75	5	JLL36250 LLL36400E20	250 400	SGG6♦ SGG4♦	**19724.**	SGW6♦ SGW4♦	**31716.**	— —	—	SGA16♦ SGA14♦	SGA6♦ SGA4♦	**22859.**
	100–125 150	6	LLL36600E20 MJL36800	600 800	SHG4♦ SHG5♦	**42825.**	SHW4♦ SHW5♦	**49946.**	— —	—	SHA14♦ SHA15♦	SHA4♦ SHA5♦	**46670.**
230 (240)	2 3	0	HLL36015 HLL36020	15 20	SBG1♦ SBG3♦	**1400.**	SBW1♦ SBW3♦	**2768.**	SBW11♦ SBW13♦	**3182.**	SBA11♦ SBA13♦	SBA1♦ SBA3♦	**1742.**
	5 7-1/2	1	HLL36035 HLL36045	35 45	SCG5♦ SCG6♦	**1472.**	SCW5♦ SCW6♦	**2840.**	SCW15♦ SCW16♦	**3267.**	SCA15♦ SCA16♦	SCA1♦ SCA6♦	**1814.**
	10 15	2	HLL36060 HLL36090	60 90	SDG1♦ SDG7♦	**2255.**	SDW1♦ SDW7♦	**4364.**	SDW11♦ SDW17♦	**4805.**	SDA11♦ SDA17♦	SDA1♦ SDA7♦	**2739.**
	20 25–30	3	HLL36100 HLL36150	100 150	SEG3♦ SEG5♦	**3879.**	SEW3♦ SEW5♦	**7554.**	SEW13♦ SEW15♦	**8310.**	SEA13♦ SEA15♦	SEA3♦ SEA5♦	**4505.**
	40 50	4	JLL36225 JLL36250	225 250	SFG1♦ SFG4♦	**8508.**	SFW1♦ SFW4♦	**13208.**	SFW11♦ SFW14♦	**14534.**	SFA11♦ SFA14♦	SFA1♦ SFA4♦	**10245.**
	60 75 100	5	JLL36250 LLL36400E20 LLL36600E20	250 400 600	SGG6♦ SGG4♦ SGG2♦	**19724.**	SGW6♦ SGW4♦ SGW2♦	**31716.**	— — —	—	SGA16♦ SGA14♦ SGA12♦	SGA6♦ SGA4♦ SGA2♦	**22859.**
	125 150–200	6	LLL36600E20 MJL36800	600 800	SHG4♦ SHG5♦	**42825.**	SHW4♦ SHW5♦	**49946.**	— —	—	SHA14♦ SHA15♦	SHA4♦ SHA5♦	**46670.**
	250–300	7	PKL36100	1200	SJG3♦	**57837.**	SJW3♦	**64958.**	—	—	SJA13♦	—	**61682.**

▲ NEMA Size 6 & 7 starters are NEMA 4 painted sheet steel enclosures.
■ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
♦ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes listed below.
Note: Some control transformers may require the use of oversized enclosures. Refer to control transformer selection table on page 16-41.

Table 16.93: Coil Voltage Codes

Voltage		Code	$ Price Adder
60 Hz	50 Hz		
24▼★	—	V01	No Charge
120▼	110	V02	No Charge
208	—	V08	No Charge
240	220	V03	No Charge
277	—	V04	No Charge
480	440	V06	No Charge
600	550	V07	No Charge
Specify	Specify	V99	35.60

★ 24 V coils are not available on Sizes 4–7. On Sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8539SBG1V01S).
▼ These voltage codes must include **Form S** (supplied at no charge). When specifying **Form S**, please supply motor voltage when ordering (i.e., order as 8539SCG5V02S).
Note: For voltage codes used with control transformers, see page 16-101.
Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

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For How to Order Information, see page 16-13.

3-Pole Polyphase—600 Vac Maximum—50–60 Hz

Note that prices shown do not include thermal units. Devices require 3 thermal units (Sizes 00-6). Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

Table 16.94: Line Voltage Type, Non-Reversing, with Melting Alloy Overload Relays

Ratings					NEMA 1 General Purpose Enclosure		NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304) (Sizes 0–5)▲		NEMA 4 & 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure		NEMA 12/3R■ Dusttight and Driptight Industrial Use Enclosure		
Motor Voltage (Starter Voltage)	Max. Hp Poly-phase	NEMA Size	Circuit Breaker		Type	$ Price	Type	$ Price	Type	$ Price	With External Reset	Without External Reset	$ Price
			Type	Ampere Rating							Type	Type	
460 (480)	5	0	HLL36015	15	SBG1♦	1814.	SBW1♦	3182.	SBW11♦	3653.	SBA11♦	SBA1♦	2156.
	7-1/2 10	1	HLL36025 HLL36030	25 30	SCG3♦ SCG7♦	1886.	SCW3♦ SCW7♦	3252.	SCW13♦ SCW17♦	3738.	SCA13♦ SCA17♦	SCA3♦ SCA7♦	2228.
	15 20 25	2	HLL36045 HLL36060 HLL36070	45 60 70	SDG3♦ SDG1♦ SDG5♦	2669.	SDW3♦ SDW1♦ SDW5♦	4778.	SDW13♦ SDW11♦ SDW15♦	5255.	SDA13♦ SDA11♦ SDA15♦	SDA3♦ SDA1♦ SDA5♦	3153.
	30 40 50	3	HLL36080 HLL36100 HLL36150	80 100 150	SEG7♦ SEG3♦ SEG5♦	3879.	SEW7♦ SEW3♦ SEW5♦	7554.	SEW17♦ SEW13♦ SEW15♦	8310.	SEA17♦ SEA13♦ SEA15♦	SEA7♦ SEA3♦ SEA5♦	4505.
	60 75 100	4	JLL36150 JLL36200 JLL36250	150 200 250	SFG5♦ SFG3♦ SFG4♦	8508.	SFW5♦ SFW3♦ SFW4♦	13208.	SFW15♦ SFW13♦ SFW14♦	14534.	SFA15♦ SFA13♦ SFA14♦	SFA5♦ SFA3♦ SFA4♦	10245.
	125–150 200	5	LLL36400E20 LLL36600E20	400 600	SGG4♦ SGG2♦	19724.	SGW4♦ SGW2♦	31716.	— —	—	SGA14♦ SGA12♦	SGA4♦ SGA2♦	22859.
	250 300–400	6	LLL36600E20 MJL36800	600 800	SHG4♦ SHG5♦	42825.	SHW4♦ SHW5♦	49946.	— —	—	SHA14♦ SHA15♦	SHA4♦ SHA5♦	46670.
	500–600	7	PLL36120	1200	SJG3♦	57837.	SJW3♦	64958.	—	—	SJA13♦	—	61682.
575 (600)	5	0	HLL36015	15	SBG1♦	1814.	SBW1♦	3182.	SBW11♦	3653.	SBA11♦	SBA1♦	2156.
	7-1/2 10	1	HLL36020 HLL36025	20 25	SCG8♦ SCG3♦	1886.	SCW8♦ SCW3♦	3252.	SCW18♦ SCW13♦	3738.	SCA18♦ SCA13♦	SCA8♦ SCA3♦	2228.
	15 20 25	2	HLL36035 HLL36045 HLL36060	35 45 60	SDG8♦ SDG3♦ SDG1♦	2669.	SDW8♦ SDW3♦ SDW1♦	4778.	SDW18♦ SDW13♦ SDW11♦	5255.	SDA18♦ SDA13♦ SDA11♦	SDA8♦ SDA3♦ SDA1♦	3153.
	30 40 50	3	HLL36070 HLL36090 HLL36100	70 90 100	SEG4♦ SEG6♦ SEG3♦	3879.	SEW4♦ SEW6♦ SEW3♦	7554.	SEW14♦ SEW16♦ SEW13♦	8310.	SEA14♦ SEA16♦ SEA13♦	SEA4♦ SEA6♦ SEA3♦	4505.
	60–75 100	4	JLL36150 JLL36250	150 250	SFG5♦ SFG4♦	8508.	SFW5♦ SFW4♦	13208.	SFW15♦ SFW14♦	14534.	SFA15♦ SFA14♦	SFA5♦ SFA4♦	10245.
	125–150 200	5	JLL36250 LLL36400E20	250 400	SGG6♦ SGG4♦	19724.	SGW6♦ SGW4♦	31716.	— —	—	SGA16♦ SGA14♦	SGA6♦ SGA4♦	22859.
	250–350 400	6	LLL36600E20 MJL36800	600 800	SHG4♦ SHG5♦	42825.	SHW4♦ SHW5♦	49946.	— —	—	SHA14♦ SHA15♦	SHA4♦ SHA5♦	46670.
	500–600	7	PKL36100	1200	SJG2♦	57837.	SJW2♦	64958.	—	—	SJA12♦	—	61682.

Table 16.95: Thermal Magnetic Circuit Breaker Type, Single Phase★▼

Motor Voltage	Max. Hp	Coil Voltage	NEMA Size	Poles	Circuit Breaker (Type)	Ampere Rating	NEMA 1 General Purpose Enclosure		NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304) (Sizes 0–2)		NEMA 4 & 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure		NEMA 12/3R■ Dusttight and Driptight Industrial Use Enclosure		
													With External Reset	Without External Reset	$ Price
							Type	$ Price	Type	$ Price	Type	$ Price	Type	Type	
120	1 2 3	120	0 1 2	2	HLL26030 HLL26050 HLL26080	30 50 80	SBG72V02 SCG72V02 SDG71V02	**1400.00 1474.00 2255.00**	SBW72V02 SCW72V02 SDW71V02	**2768.00 2840.00 4364.00**	SBW75V02 SCW75V02 SDW74V02	**3182.00 3267.00 4805.00**	SBA75V02 SCA75V02 SDA74V02	SBA72V02 SCA72V02 SDA71V02	**1742.00 1814.00 2739.00**
240	2 3 7.5	240	0 1 2	2	HLL26025 HLL26035 HLL26080	25 35 80	SBG71V03 SCG71V03 SDG71V03	**1400.00 1474.00 2255.00**	SBW71V03 SCW71V03 SDW71V03	**2768.00 2840.00 4364.00**	SBW74V03 SCW74V03 SDW74V03	**3182.00 3267.00 4805.00**	SBA74V03 SCA74V03 SDA74V03	SBA71V03 SCA71V03 SDA71V03	**1742.00 1814.00 2739.00**

▲ NEMA Size 6 and 7 starters are NEMA 4 painted sheet steel enclosures.
■ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
♦ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes listed on page 16-38.
★ Single phase units require one thermal unit and are not available with Form Hxx—Solid State Overload Relays.
▼ Not included in Laser™ Delivery program.
Note: Some control transformers may require the use of oversized enclosures. Refer to control transformer selection table on page 16-41.

For How to Order Information, see page 16-13.

Refer to page 16-31 for details.

Application Data

Table 16.96: Class 8539—UL Listed Short Circuit Ratings

Motor Circuit Protector Type			
NEMA Size	Enclosure	AIC at 480 Vac (RMS)	AIC at 480 Vac (RMS)
0, 1	Standard▲	100,000	35,000
2 thru 5	Standard▲	100,000	50,000
6	Standard▲	65,000	18,000
7	Standard▲	65,000	30,000

▲ Standard enclosure includes: NEMAs 1, 4 & 4X stainless and 12/3R.

Table 16.97: Electronic Motor Circuit Protector (MCP) Selection by HP Ratings of Induction-type Squirrel-Cage Motors

3Ø 60 Hz Voltages				Full-Load (A)	Suffix
200 Vac	230 Vac	460 Vac	575 Vac		
.5–5	.5–7.5	.75–15	1–20	1.5–25	M71
5–10	5–15	10–30	15–40	14–42	M72
10–25	15–30	25–60	30–75	30–80	M73
20–40	25–50	50–100	60–125	58–130	M74
40–60	50–75	100–150	125–200	114–217	M75

Note: The MCP adjustable trip range is determined by the suffix of the circuit breaker catalog number. Table 16.97 indicates the trip range which corresponds to a given suffix number. The MCP Motor Circuit Protector should be adjusted to a level just above Locked-Rotor Current of the motor. This setting will provide optimum overcurrent protection for the motor. For more information on MCP instantaneous trip circuit breakers, refer to the MCP circuit breaker section of this Catalog.

Table 16.98: UL Listed Short Circuit Ratings

Thermal Magnetic Circuit Breaker Type			
NEMA Size	Enclosure	AIC at 480 Vac (RMS)	AIC at 480 Vac (RMS)
0, 1	Standard■	100,000	35,000
2 thru 5	Standard■	100,000	50,000
6	Standard■	65,000	18,000
7	Standard■	65,000	30,000

■ Standard enclosure includes: NEMAs 1, 4 & 4X stainless and 12/3R.

Table 16.99: Class 8538—UL Listed Short Circuit Ratings

NEMA Size	NEMA Fuse Class	Enclosure	Available Amperes RMS Symmetrical
0–3	Class H or K	Standard♦	5,000
0–3	Class R/J	Standard♦	100,000
0–2	Class H or K	Oversize	5,000
0–2	Class R/J	Standard	100,000
4–5	Class H or K	Standard♦	10,000
4–5	Class R/J	Standard♦	100,000
6	Class H or K	Standard♦	18,000
6	Class R/J	Standard♦	100,000

♦ Standard enclosure includes non-oversize NEMAs 1, 4 & 4X Stainless, and 12.

Table 16.100: Table 2: Motor Code Letter Table

Horsepower	Motor Code Letters
1/2 or less	A-L
3/4–1-1/2	A-K
2–3	A-J
5–25	A-H
30–125	A-G
150 or more	A-F

Note: The combination starter selection tables on pages 16-36–16-37 are suitable for motors with Locked-Rotor Current letters per NEC Table 430-7(b) as listed in Table 16.100. For other motors a special thermal magnetic circuit breaker with adjustable magnetic trip settings for the specific motor is required. When ordering for these special applications, specify the motor horsepower, voltage, frequency, full load current and code letter (or locked rotor current) to assure proper protection.

Table 16.101: Terminals

NEMA Size	Type	Line Terminals on Disconnect			Power Terminals On Magnetic Starter			Control Terminals On Magnetic Starter		
		Type of Lug	Wire Range		Type of Lug	Wire Range	Wires Per Terminal	Type of Lug	Wire Range	Wires Per Terminal
			Switch	Circuit Breaker						
0 & 1	SB & SC	Box Lug	#14–1/0 Cu/Al	(1) 14-3/0 Al or Cu	Pressure Wire	#14–#8 Cu	1 or 2	Pressure Wire	#16–#12 Cu	2
2	SD	Box Lug	#14–1/0 Cu/Al	(1) 14-3/0 Al or Cu	Box Lug	#14–#4 Cu	1	Pressure Wire	#16–#12 Cu	2
3	SE	Box Lug	#14–1/0 Cu/Al	(1) 14-3/0 Al or Cu	Box Lug	#14–#0 Cu	1	Pressure Wire	#16–#12 Cu	2
4	SF	Box Lug	#6–300 MCM Cu/Al	(1) 4-4/0 Al or Cu (JLL Breaker 150 A - 175 A) (1) 3/0 - 350 MCM Al or Cu (JLL Breaker 200 A - 250 A)	Box Lug	#8–250 MCM Cu	1	Pressure Wire	#16–#12 Cu	2
5	SG	Box Lug	One #4–500 MCM Cu	(1) 2 - 500 MCM Al or (1) 2 - 350 MCM Cu (DJL36400 Breaker) (2) 2/0 - 500 MCM Al or (2) 2/0 - 350 MCM Cu (DLL36600 Breaker) (1) 3/0 - 350 MCM Al or (1) 3/0 - 350 MCM Cu (JLL36250 Breaker)	Box Lug	#4–500 MCM Cu	1	Pressure Wire	#16–#12 Cu	2
6	SH	Box Lug	—	(2) 2/0 - 500 MCM Al or (2) 2/0 - 350 MCM Cu (DJL36600 Breaker, DLL Breaker) (1) 2 - 600 MCM Al or (1) 2 - 350 MCM Cu (DJL36400 Breaker) (3) 3/0 - 500 MCM Al or (3) 3/0 - 350 MCM Cu (MJL36800 Breaker) (3) 3/0 - 500 MCM Al or (3) 3/0 - 350 MCM Cu (PLL34080M68 Breaker)	Parallel Groove	250–500 MCM Cu★	1 or 2	Pressure Wire	#16–#12 Cu▼	2
7	SJ	Box Lug	—	(4) 3/0 - 300 MCM Al or CU (PJL, PKL, PLL Breaker)	Parallel Groove	250–500 MCM Cu	1–4	Pressure Wire	#16–#12 Cu	2

★ Order Class 9999 Type SCU6 parts kit to convert power terminals to accept sizes 2/0–300 MCM wire.
▼ Terminal block range limited to #16–#14.

Accessories

Interlocks and Control Transformers

A one or two pole electrical interlock can be added to the disconnect switch or circuit breaker. Thus, if a separate control circuit is used, the magnetic starter can be de-energized when the disconnect is switched to the OFF position. See Table 16.102 for proper interlock selection. For electrical ratings of disconnect and circuit breaker interlocks, see Table 16.103 below.

An electrical interlock may also be factory installed in either a disconnect switch or circuit breaker combination starter. Specify **Form Y74** for single pole, or **Form Y75** for two pole interlocks. For pricing see factory modifications (Forms).

Table 16.102: Disconnect Switch and Breaker Interlocks

Class	Type	SPDT (Y74)		DPDT (Y75)	
		Class 9999 Type	$ Price	Class 9999 Type	$ Price
8538	SB▲, SC▲, SD▲ (Series B)	R6	116.00	R7	221.00
8538 & 8738	SD (Series C)	R43	116.00	R44	221.00
	SB, SC (Series C)	R45	107.00	R46	207.00
	SE, SF (Series A)	R8	131.00	R9	243.00
	SE (Series B & C)	R41	131.00	R42	243.00
	SF (Series B & C)	R39	135.00	R40	243.00
	SG	R35	435.00	R36	521.00
8539, 8739	SB, SC, SD, SE, SF, SG (Series K)	R26	131.00	R27	243.00
8538	SBA, SCA, SBG, SCG (Series D and above)	TC11	120.00	TC21	239.00
8538	SBAS8, SCAS8, SBGS8, SCGS8 (Series D and above)	TC10	120.00	TC20	239.00
8738	SBAS8, SCAS8, SBGS8, SCGS8 (Series E and above)	TC10	120.00	TC20	239.00
8738	SBA, SCA, SBG, SCG (Series E and above)	TC11	120.00	TC21	239.00
8538	SDA, SDA▲, SDG, SDG▲ (Series D and above)	TC10	120.00	TC20	239.00
8738	SDA, SDG (Series E and above)	TC10	120.00	TC20	239.00
8538, 8738	SEA, SEG (Series D and above)	TC10	120.00	TC20	239.00

▲ Class 8538 type numbers ending in suffix "S8".

Table 16.103: Disconnect Switch and Breaker Interlock Electrical Ratings

Class 9999 Type R6, 8, 26, 35, 39, 41, 43, 45, TC10, & TC11				Class 9999 Type R7, 9, 27, 36, 40, 42, 44, 46 & TC 20, 21					
AC—50 or 60 Hz				AC—50 or 60 Hz					
Volts	Maximum Current			Volts	Maximum Current				
	Make	Break	Continuous Carrying Current (A)		Make		Break		Continuous Carrying Current (A)
	(A)	(A)			(A)	VA	(A)	VA	
120	40	15	15	120	30	3450	3	345	10
240	20	10	15	240	15	3450	1.5	345	10
480	10	6	15	480	7.5	3450	.75	345	10
600	8	5	15	600	6	3450	.6	345	10

Table 16.104: Control Transformer Selection

NEMA Size	Starter Type	Standard★ Capacity (Form F4T)	50 VA★ Additional Capacity (Form F4T10)	100 VA★ Additional Capacity (Form F4T11)	200 VA★ Additional Capacity (Form F4T12)
		Class 9070 Type	Class 9070 Type	Class 9070 Type	Class 9070 Type
0 & 1	SB & SC	TF100	TF150	TF200	TF300■
2	SD	TF100	TF150	TF200	TF300♦
3	SE	TF150	TF200	TF300	TF500
4	SF	TF300	TF300	TF500	T500
5	SG	TF100 and 8501XO20	TF100 and 8501XO20	TF150 and 8501XO20	TF300 and 8501XO20
6	SH	EO3S2 is standard	N/A	EO3FS2 and T100	EO3S2 and TF200
7	SJ	EO19S2 is standard	N/A	EO19S2 and TF100	EO3S2 and TF200

Note: 9070TF transformers are now standard in Series K combination starters.

■ Requires oversized enclosure. (Size 2 reversing enclosure.)

♦ Available in standard enclosure with Mag-Gard™ circuit breaker and non-fusible disconnect switch. Requires oversized enclosure with thermal-magnetic circuit breakers and fusible disconnect switches. (Size 2 reversing enclosure.)

★ Complete the contactor or starter Class and Type with Voltage Code, see page 16-101.

Internal Auxiliary Switch—Circuit breakers can be supplied with a factory installed auxiliary switch for remote indication of an open and/or tripped or a closed breaker. One (specify **Form Y741**) or two (specify **Form Y751**) auxiliary switches can be supplied. The switches are supplied with normally open and normally closed circuits with a common connection. Contacts must be used on the same polarity and are rated 15 A at 240 Vac. The auxiliary switches are located internally and are furnished with 19-20 inch long leads.

Alarm Switch—The alarm switch only operates when the breaker is tripped. It is used to actuate bell alarms and warning lights. The alarm switch is factory installed only (specify **Form Y742**) and consists of a single pole single throw switch which is normally open except when the breaker is tripped. The contacts are rated 4 A at 240 Vac. This switch is located in the breaker and is supplied with 19-20 inch long leads.

Transformer Selection—Space and drilling are provided in all disconnect switch and circuit breaker combination starters in NEMA 1, 4 & 4X stainless and polyester, 12 and 7 & 9 bolted enclosures for the field addition (or factory installation) of a Class 9070 control circuit transformer and Class 9999 Type SFR4 fuse holder. This kit can be either panel mounted or side mounted on the Type S starter. For standard control transformer selection in combination starters, see Table 16.104. Consult field office for transformer additions to NEMA 7 & 9 SPIN TOP™ enclosures. For secondary fuse holder order 9080PF1.

Fuse Block Mounting Brackets—The standard capacity transformer, Class 9070 Type T100, for the Size 0 and 1 starters mounts to the right of the magnetic starter.

Standards—Most combination starters and forms are UL Listed in file E152395, Category NKJH, and CSA File CR 584.

Approximate Dimensions

Table 16.105: NEMA 1 Enclosure—Figure 1

NEMA Size	Class	Type	Dimensions in Inches▲																Top & Bottom		Sides	Wt. (lb)
			A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	W	X	Y	
0–1	8538	SBG SCG	9-1/2	22-1/2	8-11/32	6-3/8	20-1/2	14-21/32	1-13/16	1-11/16	3	2-5/16	1-1/16	3-1/4	2-3/16	1-1/4	7/8	—	1/2–3/4	1/2–3/4	1/2	38
	8539	SBG SCG	9-1/2	22-1/2	9-27/32	6-3/8	20-1/2	14-21/32	1-13/16	1-11/16	3	2-5/16	1-1/16	3-1/4	2-3/16	1-1/4	7/8	—	1/2–3/4	1/2–3/4	1/2	38
2	8538 & 8539	SDG	10-1/2	26	9-19/32	7-3/8	24	16-29/32	2-1/8	2	4	2-5/16	1-1/16	3-1/4	2-3/16	1-1/4	7/8	—	1–1-1/4	1/2–3/4	1/2	54

Table 16.106: NEMA 1 Enclosure—Figure 2

NEMA Size	Class	Type	Dimensions in Inches▲																Top & Bottom		Sides	Wt. (lb)
			A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	W	X	Y	
3■	8538 & 8539	SEG	15-1/4	42	10-19/32	9-1/4	3	22-23/32	41	1/2	—	2-53/64	3-17/32	5	2-11/16	5-3/8	1-9/32	29/32	1–1-1/4 2–2-1/2	1/2–3/4	1/2	102
4	8538	SFG	16	52-1/2	10-17/32	10	3	23-21/32	51-1/2	1/2	—	2-53/64	3-17/32	5	2-11/16	5-3/8	1-9/32	29/32	2-1/2	1/2–3/4	1/2	163
	8539	SFG	16	52-1/2	10-17/32	10	3	23-21/32	51-1/2	1/2	—	2-53/64	3-17/32	5	2-11/16	5-3/8	1-9/32	29/32	2-1/2	1/2–3/4	1/2	163
5	8538	SGG	20	78	15-1/2	12	4	29-13/32	77	1/2	—	3-33/64	4-39/64	9-1/4	3-3/16	—	—	—	1/2–3/4♦	3	—	450
	8539	SGG	20	66	13-23/32	12	4	29-13/32	65	1/2	—	3-33/64	4-39/64	5	3-3/16	—	—	—	1/2–3/4	3	—	420
6▼	8538 & 8539	SHG	36	90	21-1/32	—	—	41-3/8	—	—	—	—	—	5	—	—	—	—	—	—	—	—

Table 16.107: NEMA 12/3R Enclosure—Figure 3

NEMA Size	Class	Type	Dimensions in Inches★										Wt. (lb)
			A	B	C	D	E	F	G	H	I	J	
0–1	8538	SBA SCA	9-1/2	8-11/32	24	3-1/4	2-1/2	4-1/2	23-1/2	19/32	4-7/16	14-5/16	40
	8539	SBA SCA	9-1/2	9-27/32	24	3-1/4	2-1/2	4-1/2	23-1/2	19/32	4-7/16	14-5/16	40
2	8538 & 8539	SDA	10-1/2	9-19/32	27-3/4	3-1/4	2-1/2	5-1/2	27	3/8	4-1/8	16-9/16	55
3■	8538 & 8539	SEA	15-1/4	10-19/32	42	5	3	9-1/4	41	1/2	5-1/16	22-5/16	111
4	8538	SFA	16	10-17/32	52-1/2	5	3	10	51-1/2	1/2	4-3/16	22-31/32	170
	8539	SFA	16	10-17/32	52-1/2	5	3	10	51-1/2	1/2	5-3/16	22-31/32	170
5	8538	SGA	20	13-23/32	78	9-1/4	4	12	77	1/2	7-25/32	29-13/32	—
	8539	SGA	20	13-23/32	66	5	4	12	65	1/2	7-25/32	27-13/32	440
6▼	8538 & 8539	SHA	36	17	90	5	—	—	—	—	—	47-3/8	—

Table 16.108: NEMA 4 and 4X Stainless Steel Enclosures—Figure 4

NEMA Size	Class	Type	Dimensions in Inches▲												Bottom	Top & Bot.	Wt. (lb)
			A	B	C	D	E	F	G	H	I	J	K	L	W	X	
0–1	8538	SBW SCW	9-1/2	8-11/32	24-1/16	3-1/4	2-1/2	4-1/2	23-1/2	19/32	3-1/32	1-5/16	2-5/16	14-9/32	3/4 Hub	1 Hub	40
	8539	SBW SCW	9-1/2	9-27/32	24-1/16	3-1/4	2-1/2	4-1/2	23-1/2	19/32	3-1/32	1-5/16	2-5/16	14-9/32	3/4 Hub	1 Hub	40
2	8538 & 8539	SDW	10-1/2	9-19/32	27-3/4	3-1/4	2-1/2	5-1/2	27	19/32	3	2	2-5/8	16-17/32	3/4 Hub	1-1/2 Hub	55
3■	8538 & 8539	SEW	15-1/4	10-19/32	42	5	3-3/16	10-1/4	40-1/2	19/32	3	2-9/16	3-3/16	223/16	3/4 Hub	2-1/2 Hub	111
4	8538	SFW	16	10-17/32	52-1/2	5	3-9/16	11	51	19/32	3	2-9/16	3-3/16	22-15/32	3/4 Hub	2-1/2 Hub	158
	8539	SFW	16	10-17/32	52-1/2	3-1/4	2-1/2	11	51	19/32	3	2-9/16	3-3/16	22-15/32	3/4 Hub	2-1/2 Hub	120
5	8538	SGW	20	13-23/32	78	9-1/4	4	12	77	9/16	4-1/2	3	3-1/2	29-13/32	3/4 Hub	3-1/2 Hub	—
	8539	SGW	20	13-23/32	66	5	4	12	65	9/16	4-1/2	3	3-1/2	29-13/32	3/4 Hub	3-1/2 Hub	440
6▼	8538 & 8539	SHW	36	17	90	—	—	—	—	—	—	—	—	47-7/8	—	—	—

▲ Dimensions also for **Form F4T** (standard control transformer). **Form F4T11** (100 VA extra capacity) and **Form F4T12** (200 VA extra capacity) could require the use of an oversized enclosure. Refer to control transformer selection table on page 16-41.

■ Class 8538 Size 3 devices with 200 A fuse clips use dimensions for Class 8538 Size 4.

♦ Left side only.

★ Dimensions include space for control circuit transformers.

▼ Size 6 enclosures are floor mounting.

Note: Illustrations may not represent the actual enclosure; they are intended for dimensional information only.

△ (4) .31 in (8 mm) dia. mtg. holes for sizes 0, 1, and 2, (4) .44 in (11 mm) dia. mtg. holes for sizes 3 and 4, (4) .56 in (14 mm) dia. mtg. holes located on external flanges for size 5.

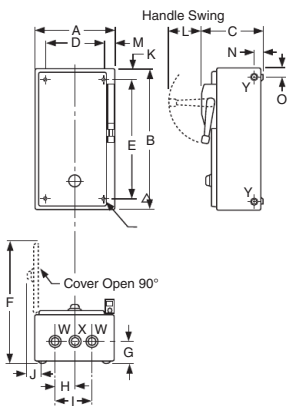


Figure 1
NEMA 1 Enclosure

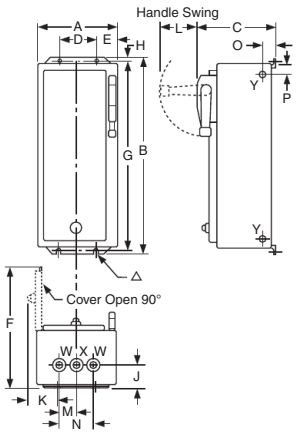


Figure 2
NEMA 1 Enclosure

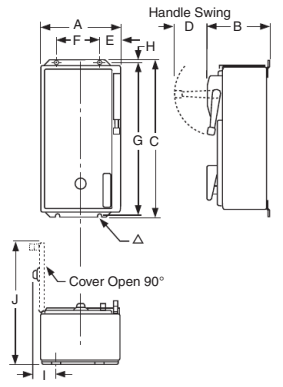


Figure 3
NEMA 12 Enclosure

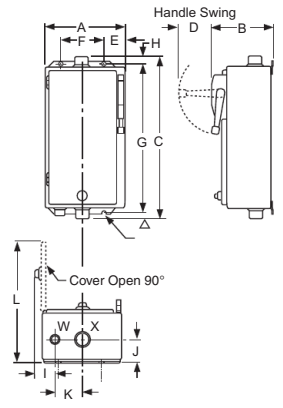


Figure 4
NEMAs 4 and 4X
Stainless Steel Enclosure

Table 16.109: NEMA 4X Polyester Enclosure—Figure 1

NEMA Size	Class	Dimensions in Inches ▲					
		Type	A	B	C	E	F
0, 1	8538	SBW SCW SDW	13.72	11.4	26.94	6.25	25.75
0, 1	8539						
0, 1, & 2	8738, 8739	SBW SCW SDW	25.25	11.4	27.00	17.88	25.75
2	8538, 8539						
3–4	8538, 8738 8539, 8739	SEW SFW ■	26.31	11.4	33.50	18.50	32.25

▲ Dimensions also for **Form F4T** (standard control transformer) and **Form F4T10** (50 VA additional capacity). Other control transformers may require the use of oversized enclosures. Refer to the control transformer selection table on page 16-41.

■ 8539 Size 4 only.

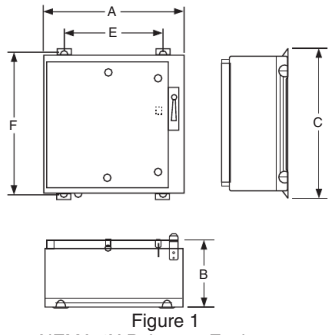


Figure 1
NEMA 4X Polyester Enclosure

Table 16.110: NEMA 1, 4, 4X Stainless, 12/3R Oversize Enclosure—Figure 2

NEMA Size	NEMA Type Encl.	Dimensions in Inches					
		Wide A	High B	Deep C	Handle L	Mounting	
						D	E
0–2	1	15	28-1/3	9-19/32	3-1/4	11-5/8	26-1/4
	4	15	30-1/32	9-19/32	3-1/4	10	29-3/4
	12	15	31	10-31/32	3-1/4	9	30-1/4

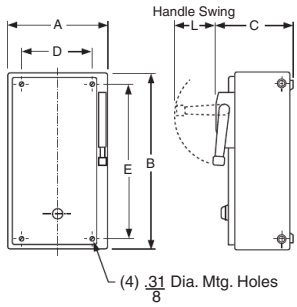


Figure 2
Class 8538 and 8539
in Oversize Enclosures —
NEMA 1, 4 & 4X Stainless and 12

Information on Hubs

Hubs are supplied with each NEMA Type 4X combination starter as shown in the table below.

Note that hubs are only installed in stainless steel enclosures; they are not installed in polyester enclosures.

Table 16.111: Hub Sizes

NEMA Size	Quantity	Hub Size
0 & 1	1 2	0.75" 1.00"
2	1 2	0.75" 1.50"
3 & 4	1 2	0.75" 2.50"

Note: Illustrations may not represent the actual enclosure; they are intended for dimensional information only.

Table 16.112: Conduit Sizes LOC A, B, C and D

NEMA Size	Standard
0—1	1-1/4
2	1-1/2
3—4	2-1/2
5	4

NEMA 00, 0, 1
Reversing Contactor

Class 8702 Type S reversing magnetic contactors are used for starting, stopping, and reversing AC motors where overload protection is separately provided. Class 8702 reversing contactors consist of two Class 8502 contactors mechanically and electrically interlocked. Open type devices, Sizes 0–5, are available in either horizontal or vertical arrangements. Sizes 00, 6, and 7 are available as horizontal only. Enclosed devices, Size 00–7, use horizontally arranged components. Type S reversing contactors are designed for operation at 600 Vac, 50–60 Hz.

Table 16.113:

NEMA Size	Continuous Current Ratings	Motor Voltage	Max. Hp	Open Type			NEMA 1 General Purpose Enclosure		NEMA 4 & 4X Watertight, Dusttight Brushed Stainless Steel Enclosure (Sizes 0–5)▲		NEMA 7 & 9 ♦ Hazardous Locations, Div. 1 & 2 Class I, Groups C & D Class II, Groups E, F & G				NEMA 12/3R★ Dusttight & Driptight Industrial Use Enclosure	
				Vertical Type	Horizontal Type	$ Price	Type	$ Price	Type	$ Price	Bolted Type Aluminum	$ Price	SPIN TOP™ Type	$ Price	Type	$ Price
00	9	200 230 460 575	1-1/2 1-1/2 2 2	— — — —	SAO4■	**855.00**	SAG4■	**917.00**	Use Size 0		Use Size 0		Use Size 0		Use Size 0	
0	18	200 230 460 575	3 3 5 5	SBO12■	SBO4■	**1026.00**	SBG4■	**1088.00**	SBW14■	**1742.00**	SBT49■	**3716.00**	SBR9■	**4649.00**	SBA4■	**1344.00**
1	27	200 230 460 575	7-1/2 7-1/2 10 10	SCO7■	SCO8■	**1169.00**	SCG8■	**1259.00**	SCW14■	**2241.00**	SCT49■	**3900.00**	SCR9■	**4877.00**	SCA4■	**1515.00**
2	45	200 230 460 575	10 15 25 25	SDO1■	SDO2■	**2222.00**	SDG2■	**2456.00**	SDW11■	**3936.00**	SDT43■	**6507.00**	SDR3■	**8139.00**	SDA1■	**2883.00**
3	90	200 230 460 575	25 30 50 50	SEO1■	SEO2■	**3689.00**	SEG2■	**4094.00**	SEW11■	**6287.00**	—	—	—	—	SEA1■	**5034.00**
4	135	200 230 460 575	40 50 100 100	SFO1■	SFO3■	**9201.00**	SFG3■	**9945.00**	SFW11■	**13820.00**	— — — —	—	— — — —	—	SFA1■	**11399.00**
5	270	200 230 460 575	75 100 200 200	SGO1■	SGO3■	**16592.00**	SGG3■	**20885.00**	SGW11■	**24017.00**	— — — —	—	— — — —	—	SGA1■	**24017.00**
6	540	200 230 460 575	150 200 400 400	— — — —	SHO1■	**41489.00**	SHG1■	**48614.00**	SHW1■	**55736.00**	— — — —	—	— — — —	—	SHA1■	**52461.00**
7	810	200 230 460 575	— 300 600 600	— — — —	SJO1■	**59372.00**	SJG1■	**66816.00**	SJW1■	**73619.00**	— — — —	—	— — — —	—	SJA1■	**70343.00**

▲ NEMA 4 and 4X stainless steel enclosures (sizes 0–5) have a brushed finish. Sizes 6 and 7 are painted sheet steel and are rated NEMA 4 only.
■ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes listed in selection table below.
♦ NEMA 7 and 9 bolted are not UL listed.
★ NEMA 12 enclosure may be field modified for outdoor non-corrosive and non-service-entrance-rated application; see page 16-95 for more information.

Table 16.114: Coil Voltage Codes

Voltage		Code	$ Price Adder
60 Hz	50 Hz		
24▼△	—	V01	No Charge
120△	110	V02	No Charge
208	—	V08	No Charge
240	220	V03	No Charge
277	—	V04	No Charge
480	440	V06	No Charge
600	550	V07	No Charge
Specify	Specify	V99	35.60

▼ 24 V coils are not available on Sizes 4-7. On Sizes 00-3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8702SAO4V01S).
△ These voltage codes must include **Form S** (supplied at no charge) (i.e., order as 8702SAO4V02S).
Note: For voltage codes used with control transformers, see page 16-101.
Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

For How to Order Information, see page 16-13.

Table 16.115: 600 Vac Maximum—50–60 Hz

NEMA Size	Continuous Current Ratings	Motor Voltage	Max. Hp	Type of Motor	Open Type			NEMA 1 General Purpose Enclosure		NEMA 4 & 4X Watertight, Dusttight Brushed Stainless Steel Enclosure		NEMA 7 & 9 ■ Hazardous Locations, Div. 1 & 2 Class I, Groups C & D Class II, Groups E, F & G				NEMA 12/3R♦ Dusttight & Driptight Industrial Use Enclosure	
					Vertical Type	Horizontal Type	$ Price	Type	$ Price	Type	$ Price	Bolted Type	$ Price	SPIN TOP™ Type	$ Price	Type	$ Price
2-Pole Single Phase																	
00	9	115 230	1/3 1	Single Phase 3-Wire	— —	SAO1▲	**827.**	SAG1▲	**887.**	Use Size 0		Use Size 0		Use Size 0		Use Size 0	
0	18	115 230	1 2		SBO9▲	SBO1▲	**998.**	SBG1▲	**1061.**	SBW11▲	**1715.**	SBT46▲	**3686.**	SBR6▲	**4613.**	SBA1▲	**1314.**
1	27	115 230	2 3		SCO1▲	SCO2▲	**1139.**	SCG2▲	**1229.**	SCW11▲	**2142.**	SCT46▲	**3873.**	SCR6▲	**4841.**	SCA1▲	**1485.**
3-Pole Single Phase																	
00	9	115 230	1/3 1	4-Wire Rep.-Ind.	— —	SAO2▲	**855.**	SAG2▲	**917.**	Use Size 0		Use Size 0		Use Size 0		Use Size 0	
		115 230	1/3 1	4-Wire Split Ph.	— —	SAO3▲	**855.**	SAG3▲	**917.**	Use Size 0		Use Size 0		Use Size 0		Use Size 0	
0	18	115 230	1 2	4-Wire Rep.-Ind.	SBO10▲	SBO2▲	**1026.**	SBG2▲	**1088.**	SBW12▲	**1742.**	SBT47▲	**3716.**	SBR7▲	**4649.**	SBA2▲	**1344.**
		115 230	1 2	4-Wire Split Ph.	SBO11▲	SBO3▲	**1026.**	SBG3▲	**1088.**	SBW13▲	**1742.**	SBT48▲	**3716.**	SBR8▲	**4649.**	SBA3▲	**1344.**
1	27	115 230	2 3	4-Wire Rep.Ind.	SCO3▲	SCO4▲	**1169.**	SCG4▲	**1259.**	SCW12▲	**2169.**	SCT47▲	**3900.**	SCR7▲	**3227.**	SCA2▲	**1515.**
		115 230	2 3	4-Wire Split Ph.	SCO5▲	SCO6▲	**1169.**	SCG6▲	**1259.**	SCW13▲	**2169.**	SCT48▲	**3900.**	SCR8▲	**3227.**	SCA3▲	**1515.**
4-Pole Polyphase																	
0	18	200 230 460 575	3 3 5 5	2 Phase 4-Wire	SBO13▲	SBO5▲	**1310.**	SBG5▲	**1368.**	SBW15▲	**2028.**	Consult Schneider Electric CCC at (1-888-778-2733)		SBR10▲	**5040.**	SBA5▲	**1629.**
1	27	200 230 460 575	7-1/2 7-1/2 10 10		SCO9▲	SCO10▲	**1497.**	SCG10▲	**1557.**	SCW15▲	**2469.**			SCR10▲	**5297.**	SCA5▲	**1814.**
2	45	200 230 460 575	10 15 25 25		— — — —	SDO4▲	**2820.**	SDG4▲	**3054.**	SDW12▲	**4620.**			SDR4▲	**9071.**	SDA2▲	**3528.**
3	90	200 230 460 575	25 30 50 50		— — — —	SEO4▲	**4671.**	SEG4▲	**5103.**	SEW12▲	**7238.**	— — — —	—	— — — —	—	SEA2▲	**6017.**
4	135	200 230 460 575	40 50 100 100		— — — —	SFO4▲	**11879.**	SFG4▲	**12653.**	SFW12▲	**16556.**	— — — —	—	— — — —	—	SFA2▲	**14129.**

▲ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes listed in selection table on page 16-44.
■ NEMA 7 and 9 bolted are not UL listed.
♦ NEMA 12 enclosure may be field modified for outdoor non-corrosive and non-service-entrance-rated application; see page 16-95 for more information.

Table 16.116: Auxiliary Units—Class 8702, 8736 and 8810

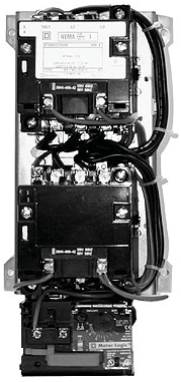
The table below shows the maximum number of auxiliary units **(in addition to the holding circuit and interlocking contacts)** that can be added to either the forward or reverse contactor or starter.

NEMA Size (Type)	No. of Poles of Basic Contactor	Maximum number of auxiliary units on each contactor, forward or reverse. (In addition to internal holding circuit and interlocking contacts.)
00 (SA)	2 or 3	2 single circuit auxiliary contacts (N.O. or N.C.)
0, 1 and 2 (SB, SC and SD)	2 or 3	4 single circuit auxiliary contacts (N.O. or N.C.)★
	4	2 single circuit auxiliary contacts (N.O. or N.C.)
3, 4, 5, 6, and 7 (SE, SF, SG, SH, and SJ)	Any	2 single circuit auxiliary contacts (N.O. or N.C.)

★ When adding 4 external auxiliary contacts to one Size 0 or 1 contactor, remove one of the return springs.

For How to Order Information, see page 16-13.

NEMA Sizes 00, 0, 1 Reversing Starter (Horizontal Type)



NEMA Sizes 00, 0, 1 Reversing Starter (Vertical Type)

Class 8736 Type S reversing magnetic starters are used for full-voltage starting, stopping, and reversing AC squirrel cage motors. Class 8736 starters consist of one Class 8502 contactor and one Class 8536 starter mechanically and electrically interlocked. Open type devices, Sizes 0–5, are available in either horizontal or vertical arrangements. Sizes 00, 6, and 7 are available as horizontal only. Enclosed devices use horizontally arranged components. Type S starters are designed for operation at 600 Vac, 50–60 Hz.

Overload Relays

Class 8736 Type S Size 00–6 reversing starters are provided with melting alloy thermal overload relay as standard. Interchangeable thermal units are available in standard trip Sizes 00–6, as are bimetallic overload relays. Ambient compensated and non-compensated versions are supplied with manual or automatic reset, trip current adjustment, and an alarm contact on Sizes 0–2.

Quick trip is available on Sizes 00–4, and slow trip on Sizes 00–3.

Single phase starters use one thermal unit; three phase starters use three thermal units. See page 16-116 for selection information.

Solid State Overload Relay Protection (Motor Logic™)

These ambient insensitive overload relays are available on three phase sizes 00 through 6 and standard on size 7. They provide phase loss, phase unbalance protection. To order, add Form **H10** (for Class 10), **H20** (for Class 20), or **H30** (for selectable trip class protection). For more information about Motor Logic overload relays, see page 16-83.

New! TeSys T Motor Management System (NEMA Sizes 1–6)

TeSys T is a flexible system that integrates seamlessly into your automation system through five major communication protocols. TeSys T can predict what will happen in the process, as it accurately monitors current, voltage, and power over a wide range. For additional information about TeSys T Motor Management System, see pages 16-84 to 16-88 and page 16-103.

Table 16.117:

NEMA Size	Continuous Current Ratings	Motor Voltage	Max. Hp	Open Type			NEMA 1 General Purpose Enclosure		NEMA 4 & 4X Watertight, Dusttight Brushed Stainless Steel Enclosure (Sizes 0–5)▲		NEMA 7 & 9 ♦ Hazardous Locations Class I, Groups C & D Class II, Groups E, F & G				NEMA 12/3R★ Dusttight & Driptight Industrial Use Enclosure	
				Vertical Type	Horizontal Type	$ Price	Type	$ Price	Type	$ Price	Bolted Type	$ Price	SPIN-TOP™ Type	$ Price	Type	$ Price
00	9	200 230 460 575	1-1/2 1-1/2 2 2	— — — —	SAO16■	**926.**	SAG16■	**989.**	Use Size 0		Use Size 0		Use Size 0		Use Size 0	
0	18	200 230 460 575	3 3 5 5	SBO10■	SBO4■	**1097.**	SBG4■	**1160.**	SBW14■	**1814.**	SBT49■	**3794.**	SBR9■	**4742.**	SBA4■	**1416.**
1	27	200 230 460 575	7-1/2 7-1/2 10 10	SCO7■	SCO8■	**1241.**	SCG8■	**1331.**	SCW14■	**2241.**	SCT49■	**3978.**	SCR9■	**4976.**	SCA4■	**1587.**
2	45	200 230 460 575	10 15 25 25	SDO1■	SDO2■	**2349.**	SDG2■	**2583.**	SDW11■	**4064.**	SDT43■	**6642.**	SDR3■	**8064.**	SDA1■	**3011.**
3	90	200 230 460 575	25 30 50 50	SEO1■	SEO2■	**3902.**	SEG2■	**4307.**	SEW11■	**6501.**	—	—	—	—	SEA1■	**5247.**
4	135	200 230 460 575	40 50 100 100	SFO1■	SFO3■	**9530.**	SFG3■	**10274.**	SFW11■	**14148.**	— — — —	—	— — — —	—	SFA1■	**11727.**
5	270	200 230 460 575	75 100 200 200	SGO1■	SGO3■	**18309.**	SGG3■	**22602.**	SGW11■	**25734.**	— — — —	—	— — — —	—	SGA1■	**25734.**
6	540	200 230 460 575	150 200 400 400	— — — —	SHO1■	**43205.**	SHG1■	**50331.**	SHW1■	**57452.**	— — — —	—	— — — —	—	SHA1■	**54176.**
7	810	200 230 460 575	– 300 600 600	— — — —	SJO1■	**61250.**	SJG1■	**68736.**	SJW1■	**75497.**	— — — —	—	— — — —	—	SJA1■	**72221.**

▲ NEMA 4 and 4X stainless steel enclosures (sizes 0–5) have a brushed finish. Sizes 6 and 7 are painted sheet steel and are rated NEMA 4 only.
■ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown on page 16-47.
♦ NEMA 7 and 9 bolted are not UL listed.
★ NEMA 12 enclosure may be field modified for outdoor non-corrosive and non-service-entrance-rated application; see page 16-95 for more information.

For How to Order Information, see page 16-13.

Table 16.118: 600 Vac Maximum—50–60 Hz

Note that prices shown do not include thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

NEMA Size	Continuous Current Ratings	Motor Voltage	Max. Hp	Type of Motor	Open Type			NEMA 1 General Purpose Enclosure		NEMA 4 & 4X Watertight, Dusttight Brushed Stainless Steel Enclosure		NEMA 7 & 9 ■ Hazardous Locations Class I, Groups C & D Class II, Groups E, F & G				NEMA 12/3R♦ Dusttight & Driptight Industrial Use Enclosure	
					Vertical Type	Horizontal Type	$ Price	Type	$ Price	Type	$ Price	Bolted Type	$ Price	SPIN TOP™ Type	$ Price	Type	$ Price
2-Pole Single Phase—1 Thermal Unit Required																	
00	9	115 230	1/3 1	Single Phase 3-Wire	— —	SAO13▲	**863.**	SAG13▲	**923.**	Use Size 0		Use Size 0		Use Size 0		Use Size 0	
0	18	115 230	1 2		SBO7▲	SBO1▲	**1034.**	SBG1▲	**1094.**	SBW11▲	**1751.**	SBT46▲	**3722.**	SBR6▲	**4656.**	SBA1▲	**1350.**
1	27	115 230	2 3		SCO1▲	SCO2▲	**1175.**	SCG2▲	**1265.**	SCW11▲	**2177.**	SCT46▲	**3909.**	SCR6▲	**4883.**	SCA1▲	**1521.**
3-Pole Single Phase—1 Thermal Unit Required																	
00	9	115 230	1/3 1	4-Wire Rep.-Ind.	— —	SAO14▲	**891.**	SAG14▲	**953.**	Use Size 0		Use Size 0		Use Size 0		Use Size 0	
		115 230	1/3 1	4-Wire Split Ph.	— —	SAO15▲	**594.**	SAG15▲	**635.**	Use Size 0		Use Size 0		Use Size 0		Use Size 0	
0	18	115 230	1 2	4-Wire Rep.-Ind.	SBO8▲	SBO2▲	**1062.**	SBG2▲	**1124.**	SBW12▲	**1778.**	SBT47▲	**3752.**	SBR7▲	**4692.**	SBA2▲	**1380.**
		115 230	1 2	4-Wire Split Ph.	SBO9▲	SBO3▲	**1062.**	SBG3▲	**1124.**	SBW13▲	**1778.**	SBT48▲	**3752.**	SBR8▲	**4692.**	SBA3▲	**1380.**
1	27	115 230	2 3	4-Wire Rep.Ind.	SCO3▲	SCO4▲	**1205.**	SCG4▲	**1295.**	SCW12▲	**2205.**	SCT47▲	**3942.**	SCR7▲	**4932.**	SCA2▲	**1551.**
		115 230	2 3	4-Wire Split Ph.	SCO5▲	SCO6▲	**1205.**	SCG6▲	**1295.**	SCW13▲	**2205.**	SCT48▲	**3942.**	SCR8▲	**4932.**	SCA3▲	**1551.**
4-Pole Polyphase—2 Thermal Units Required																	
0	18	200 230 460 575	3 3 5 5	2 Phase 4-Wire	SBO11▲	SBO5▲	**1382.**	SBG5▲	**1443.**	SBW15▲	**2100.**	Consult Schneider Electric CCC at (1-888-778-2733)		SBR10▲	**5133.**	SBA5▲	**1670.**
1	27	200 230 460 575	7-1/2 7-1/2 10 10		SCO9▲	SCO10▲	**1566.**	SCG10▲	**1629.**	SCW15▲	**2541.**	Consult Schneider Electric CCC at (1-888-778-2733)		SCR10▲	**5396.**	SCA5▲	**1886.**
2	45	200 230 460 575	10 15 25 25		—	SDO4▲	**2948.**	SDG4▲	**3182.**	SDW12▲	**4748.**	Consult Schneider Electric CCC at (1-888-778-2733)		SDR4▲	**9248.**	SDA2▲	**3609.**
3	90	200 230 460 575	25 30 50 50		—	SEO4▲	**4886.**	SEG4▲	**5318.**	SEW12▲	**7482.**	—	—	—	—	SEA2▲	**6228.**
4	135	200 230 460 575	40 50 100 100		—	SFO4▲	**12207.**	SFG4▲	**12981.**	SFW12▲	**16883.**	—	—	—	—	SFA2▲	**14462.**

▲ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown below.
■ NEMA 7 and 9 bolted are not UL listed.
♦ NEMA 12 enclosure may be field modified for outdoor non-corrosive and non-service-entrance-rated application; see page 16-95 for more information.

Table 16.119: Coil Voltage Codes

Voltage		Code	$ Price Adder
60 Hz	50 Hz		
24▼★	—	V01	No Charge
120▼	110	V02	No Charge
208	—	V08	No Charge
240	220	V03	No Charge
277	—	V04	No Charge
480	440	V06	No Charge
600	550	V07	No Charge
Specify	Specify	V99	35.60

★ 24 V coils are not available on Sizes 4–7. On Sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8736SCO1U01S).
▼ These voltage codes must include **Form S** (supplied at no charge) (i.e., order as 8736SBO7V02S).
Note: For voltage codes used with control transformers, see page 16-101.
Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

For How to Order Information, see page 16-13.

Approximate Dimensions

Table 16.120: Open Type—2 or 3-Pole Only

Class	NEMA Size	Type	Mounting	Figure Number	Dimensions—Inches													Weight (lb)
					A	B	C	D	E	F	G	H	I	J	K	L	M	
8702	00	SAO	Horizontal	1	7-1/8	5	5-5/16	—	—	3-13/32	15/32	4-11/32	3/16	5-1/2	29/32	—	—	12
	0, 1	SBO, SCO	Horizontal Vertical	1 1▲	7-1/8 5-15/32	5 9-7/32	5-5/16 5-5/16	— 5-1/2	— 7/32	3-13/32 —	15/32 39/64	4-11/32 8	3/16 39/64	5-1/2 5-1/32	29/32 7/32	— —	— —	12 12
	2	SDO	Horizontal Vertical	1 1▲	9 6-3/4	6-7/8 11-3/8	6-1/32 6-1/32	— 6-1/4	— 1/4	4-1/2 —	3/8 1/2	5-5/8 10-3/8	1/4 1/2	6 1/4	1-1/2 1/4	— —	— —	16 16
	3	SEO	Horizontal Vertical	1 1▲	12-23/32 7-13/64	7-31/32 19	7 7	11-3/4 6-1/4	31/64 31/64	— —	31/64 1-1/64	7 17	31/64 63/64	11-3/4 6-1/4	31/64 31/64	— —	— —	35 35
	4	SFO	Horizontal Vertical	1 1▲	14-1/4 7-31/32	11-11/16 23-29/32	7 7	13-1/4 7	1/2 31/64	— —	1/2 1-13/16	8 20-1/4	1-27/32 1-3/16	13-1/4 7	1/2 31/64	— —	— —	45 45
	5	SGO	Horizontal Vertical	1 1▲	19-5/16 10-3/4	16-3/16 34-13/32	9-3/8 9-3/8	18 9-1/2	21/32 5/8	— —	1-1/32 1-1/4	14 32	1-5/32 1-5/32	18 9-1/2	21/32 5/8	— —	— —	98 98
	6	SHO	Horizontal	1	22-3/8	28-3/64	9-33/64	18	40/64	—	3-53/64	21-3/16	3-1/32	18	49/64	—	—	195
	7	SJO	Horizontal	1	24-1/4	37-1/4	13-13/16	19-3/4	1-33/64	—	—	30	—	—	—	—	—	310
8736	00	SAO	Horizontal	2	7-1/8	6-29/32	5-5/16	—	—	3-13/32	15/32	4-11/32	6-7/32	4-17/32	5-1/16	21/32	—	13
	0, 1	SBO, SCO	Horizontal Vertical	2 2▲	7-1/8 5-15/32	6-29/32 11-33/64	5-5/16 5-5/16	— 5-1/32	— 7/32	3-13/32 —	15/32 39/64	4-11/32 8	6-7/32 10-45/64	4-17/32 2-33/64	5-1/16 5-1/16	21/32 7/32	— 5-1/32	13 13
	2	SDO	Horizontal Vertical	2 2▲	9 6-3/4	8-1/2 13-31/64	6-1/32 6-1/32	— 6-1/4	— 1/4	4-1/2 —	3/8 25/32	5-5/8 10-3/8	7-1/2 12-31/32	5 3-1/8	5-5/32 5-5/32	1-1/2 1/4	— 6	18 18
	3	SEO	Horizontal Vertical	2 2▲	12-23/32 7-5/16	11-23/32 22-1/4	7 7	11-3/4 6-1/4	31/64 31/64	— —	31/64 1-1/64	10-3/4 20-3/4	10-3/4 —	11-3/4 6-1/4	6-1/4 6-1/4	31/64 31/64	11-3/4 6-1/4	38 38
	4	SFO	Horizontal Vertical	2 2▲	14-1/4 7-31/32	14-19/32 26-13/16	7 7	13-1/4 7	1/2 31/64	— —	1-27/32 1-27/32	12-1/4 24-1/2	12-1/4 —	13-1/4 4-3/64	6-1/4 6-1/4	1/2 31/64	13-1/4 7	48 48
	5	SGO	Horizontal Vertical	2 2▲	19-5/16 10-3/4	20-29/32 39-5/32	9-3/8 9-3/8	18 9-1/2	21/32 21/32	— —	1-9/32 1-9/32	19 371/4	19 37-1/4	18 9-1/2	6-5/8 6-5/8	5/8 5/8	18 9-1/2	115 115
	6	SHO	Horizontal	2	22-3/8	28-3/64	9-33/64	18	44/64	—	3-53/64	21-3/16	3-1/32	18	49/64	—	—	200
	7	SJO	Horizontal	1	24-1/4	37-1/4	13-13/16	19-3/4	1-33/64	—	—	30	—	—	—	—	—	315

▲ Vertical type design differs from that shown on the corresponding NEMA size horizontal type figure, but dimensions listed apply to that figure.

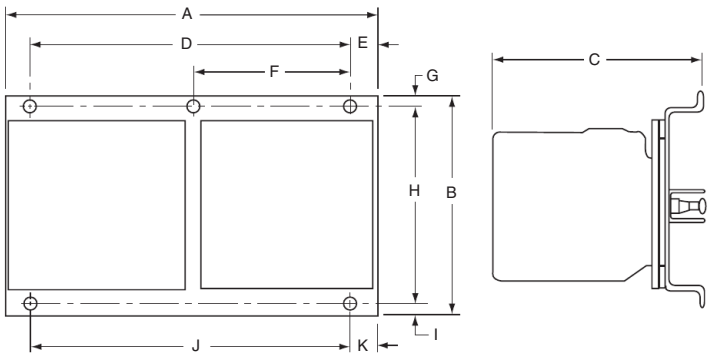


Figure 1 (Class 8702 Open Type)

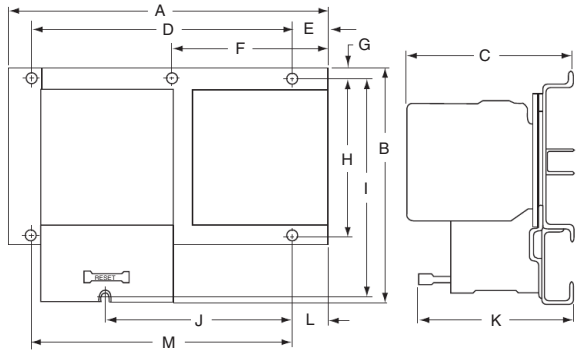


Figure 2 (Class 8736 Open Type)

Table 16.121: NEMA 1 (Class 8702 and 8736)

NEMA Size	Dimensions—Inches										Weight (lb)	
	A	B	C		D	E	F	G	H	I	8702	8736
			8702	8736								
00, 0♦ 1■	11-7/8	11-7/8	7-13/32	7-17/32	9-3/4	1-1/16	1-1/16	9-3/4	1-1/16	5/16	16	17
2■	14-7/8	14-1/8	7-9/16	7-21/32	12-3/4	1-1/16	1-1/16	12	1-1/16	5/16	24	25
3♦ 4♦	18-5/32	29-5/32	9-1/4	9-1/4	15-1/2	1-21/64	1-21/64	26-1/2	1-21/64	7/16	95	98
5	35-7/32	46-7/32	12-13/16	12-15/16	31	2-7/64	2-7/64	42	2-7/64	9/16	298	315
6	36-7/32	62-7/32	19-15/32		Floor Mounting.						400	405
7	34-1/2	93	23-1/2								—	—

■ Standard enclosure has space for a fused control transformer, **Form F4T**, on Sizes 0-2, except for Size 0 & 1 4-Pole devices.

♦ 3-Pole only.

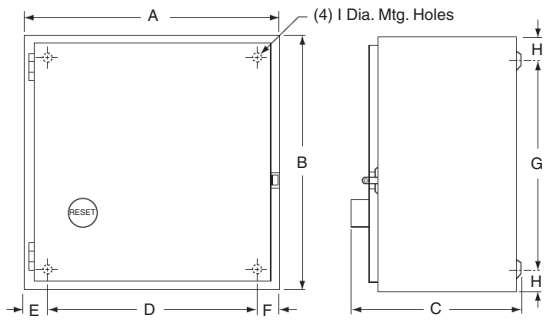


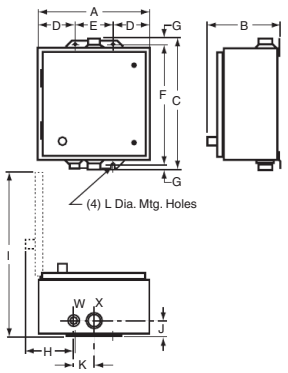
Figure 3—NEMA 1

Approximate Dimensions

Table 16.122: NEMA 4 & 4X—Stainless Steel♦

NEMA Size	Class Number	Dimensions—Inches												Hub Dia.		Weight (lb)	
		A	B	C	D	E	F	G	H	I	J	K	L	W Bot. Only	X Top & Bot.	8702	8736
0▲ 1▲	8702 & 8736	12-5/8	7-13/16	14-11/16	2-9/16	7-1/2	13-1/2	19/32	3-7/8	18-13/32	1-21/32	2-5/16	5/16	3/4	1	25	26
2▲	8702 & 8736	14-7/8	8-1/4	15-3/4	2-9/16	9-3/4	15	3/8	3-7/8	20-7/8	1-23/32	2-5/8	5/16	3/4	1-1/2	33	35
3■ 4■	8702	18-5/32	8-3/4	32-7/32	3-5/64	12	30-1/2	7/8	3-11/16	26-23/32	2-9/16	3-3/16	7/16	3/4	2-1/2	96	—
	8736	18-5/32	9-9/16	32-7/32	3-5/64	12	30-1/2	7/8	4-1/2	26-23/32	2-9/16	3-3/16	7/16	3/4	2-1/2	—	99
5	8702	35-7/32	12-1/8	49-7/32	4-7/64	27	48	5/8	4-19/32	45-13/16	2-31/32	3-1/2	9/16	3/4	3-1/2	300	—
	8736	35-7/32	12-15/16	49-7/32	4-7/64	27	48	5/8	5-13/32	45-13/16	2-31/32	3-1/2	9/16	3/4	3-1/2	—	317
6	8702 & 8736	36-7/32	19-15/32	70-1/8	Floor Mounting											500	505
7	8702 & 8736	34-1/2	23-1/2	101												—	—

▲ Standard enclosure has space for a fused control transformer, **Form F4T**, on Sizes 0-2, except for Size 0 & 1 4-Pole devices.
■ 3-Pole only.
♦ Size 6 & 7 are sheet steel enclosures and are rated NEMA 4 only.



NEMA 4 & 4X
Stainless Steel

Table 16.123: NEMA 7 and 9 Bolted Enclosure

See page 16-27 for drawing of enclosure.

NEMA Size	Type	Dimensions—Inches★									Wt. (lb)
		G	H	J	K	L	N	P	Q, R	S, T, U, V	
0–2	SBT SCT SDT	14-1/4	27-5/8	9-1/2	12-1/4	19-1/4	9-5/8	11-1/2	2-3/8	3-1/8	115
3–4	SET SFT	24-1/2	45-5/8	13-3/4	22-1/2	27-1/2	13-3/4	15-3/8	3-7/16	4	180

★ Dimensions shown for 2 or 3-Pole devices only.

Table 16.124: NEMA 7 & 9 SPIN TOP™ Enclosure

See page 16-26 for drawing of enclosure.

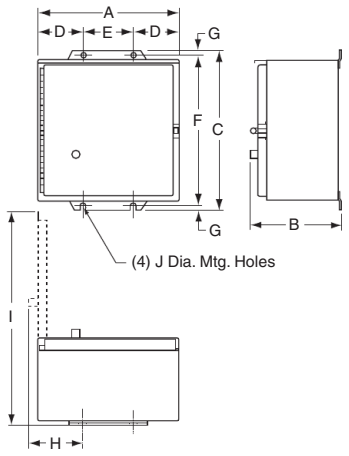
NEMA Size	Type	Dimensions—Inches																					Wt. (lb)
		A	B▼	B△	C▼	C△	D	E▼	E△	F	G▼	G△	H▼	H△	J▼	J△	K	L	M	N	P	R	
0-1	SBR SCR	12	41-1/16	46-1/8	68-1/16	79-1/8	16-3/4	7-1/4	12-1/4	7-11/16	26-1/8	26-1/8	3	9	24	24	8-1/2	2-1/16	9-3/8	5-1/4	1-1/2	3/8	70
2	SDR	16-1/8	48-1/2	50-1/2	81-1/2	85	20-1/4	12-1/8	9-1/8	8-5/8	27-3/4	32-3/4	8	4-1/2	25	30	12	2-5/8	11	5-1/2	2-1/2	3/8	100
3	SER	Consult Schneider Electric CCC at (1-888-778-2733)																					

▼ Without control transformer.
△ With control transformer (**Form F4T**).

Table 16.125: NEMA 12/3R

NEMA Size	Class Number	Dimensions—Inches										Weight (lb)	
		A	B	C	D	E	F	G	H	I	J	8702	8736
0□ 1□	8702 & 8736	11-7/8	7-3/4	13-3/4	2-9/16	6-3/4	12-3/4	1/2	3-21/32	18-1/8	5/16	23	24
2□	8702 & 8736	14-7/8	7-7/8	16	2-9/16	9-3/4	15	1/2	3-21/32	21-1/4	5/16	31	32
3◊ 4◊	8702	18-5/32	9-1/4	31-1/2	3-5/64	12	30-1/2	1/2	3-11/16	26-23/32	7/16	96	—
	8736	18-5/32	9-9/16	31-1/2	3-5/64	12	30-1/2	1/2	4-1/2	26-23/32	7/16	—	99
5	8702	35-7/32	13-1/8	49	4-1/8	27	48	1/2	5-5/16	45-7/8	9/16	302	—
	8736	35-7/32	13-15/16	49	4-1/8	27	48	1/2	6-1/8	45-7/8	9/16	—	319
6	8702 & 8736	36-7/32	19-15/32	62-7/32	Floor Mounting							490	495
7	8702 & 8736	34-1/2	23-1/2	93								—	—

□ Standard enclosure has space for a fused control transformer, **Form F4T**, on Sizes 0-2, except for Size 0 & 1 4-Pole devices.
◊ 3-Pole only.



NEMA 12

Class 8702 Type W Reversing Vacuum Contactors are used to switch capacitors, transformers and electric motors where overload protection is separately provided. Type W reversing vacuum contactors are designed for operation at 600 Volts, 50/60 Hz.

Auxiliary Contacts—An auxiliary contact block, Class 9999 Type WX11, with one normally open contact and one normally closed contact, is used with Size 4, 5 and 6 vacuum contactors. Additional auxiliary contact units may be added to the Size 4 and 5 reversing contactors in the field. A maximum of 2 units may be added to the Size 4; a maximum of 1 unit may be added to the Size 5.

Termination Means—The Size 4 reversing vacuum contactor is supplied with line and load side lugs. The Size 5 and 6 reversing vacuum contactors are supplied without line and load side lugs.

Table 16.126: Class 8702 Full Voltage Reversing Vacuum Contactors (Horizontal Only) 3-Pole Polyphase—600 Vac Maximum—50–60 Hz

NEMA Size	Enclosed Ampere Rating	Motor Voltage	Maximum Horsepower	Open Type	
				Type	$ Price
4	135	200 230 380 460 575	40 50 75 100 100	WFO3▲	**10659.00**
5	270	200 230 380 460 575	75 100 150 200 200	WGO3▲	**18678.00**
6	540	200 230 380 460 575	150 200 300 400 400	WHO3V▲	**45666.00**

▲ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes listed on page 16-51. Replacement coils are listed on page 16-28.

Table 16.127: Class 9998—Replacement Coils for Class 8702 Reversing Contactors

Size	Type	Poles	Class and Type	Suffix Number (Complete Coil Number Consists of Class and Type Followed by Suffix Number)				$ Price
				120 Volts 110 Volts	240 Volts 220 Volts	480 Volts 440 Volts	600 Volts 550 Volts	
4	WF	All	9998WF	120	240	480	600	**732.00**
5	WG	All	9998WG	120	240	480	600	**1724.00**
6	WH	All	9998WH	120	240	480	600	**1904.00**

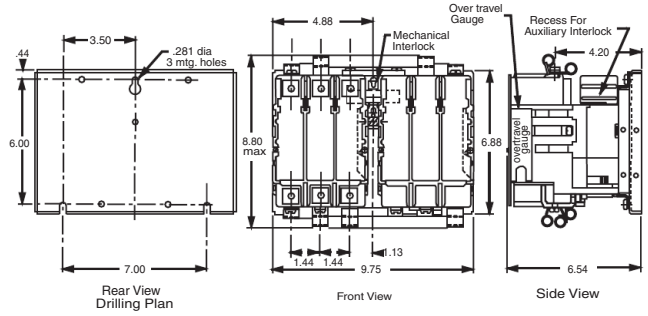
Table 16.128: Class 9999—Vacuum Starter Kits

For Use With		Kit Description	Class 9999 Type	$ Price
Type	Size			
WF–WG WH	4–5 6	Auxiliary Contacts, Non-Convertible 1 N.O. & 1 N.C. Isolated Contacts	WX11	**122.00**
WF WG–WH	4 5–6	Coil Circuit Auxiliary Contacts 1 N.O. & 1 N.C. Isolated Contacts, Delayed Break 1 N.C. Isolated Contact	WCX11 WLX01	**114.00** **503.00**
WG	5	Lug Kits (6) lugs included	LUW5	**275.00**

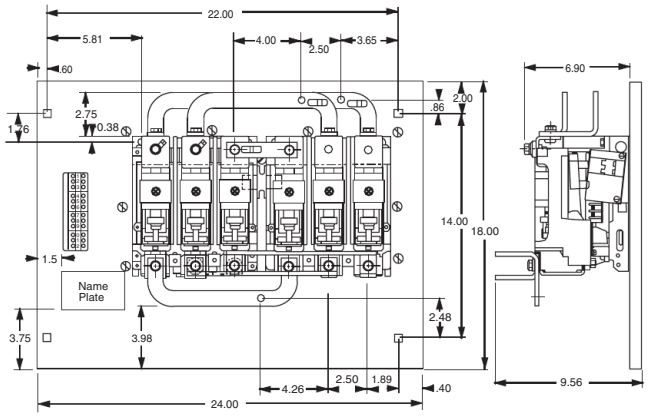
Table 16.129: Coil Voltage Codes

Volts	110	120	220	240	440	480	550	600
50 Hz	V02		V03		V06		V07	
60 Hz		V02		V03		V06		V07

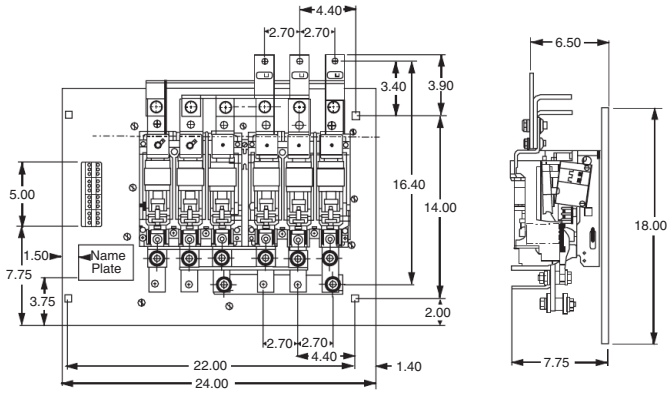
Approximate Dimensions



Size 4 Reversing Contactor Outline with Lugs
Class 8702 WF



Size 5 Reversing Contactor Outline without Lugs
Class 8702 WG



Size 6 Reversing Contactor Outline without Lugs
Class 8702 WH

For How to Order Information, see page 16-13.

Class 8738 and 8739 Type S reversing combination starters combine the requirements of motor overload and short circuit protection into one convenient package. Type S reversing combination starters are manufactured in accordance with NEMA standards, and are UL Listed (although some Form numbers may not be listed—contact your nearest Square D/Schneider Electric sales office for further information). Class 8738 and 8739 reversing combination starters are designed to operate at 600 Vac, 50–60 Hz—and are supplied with melting alloy overload relays as standard. For Class J fuses, use form Y1072 (No Charge).

Class 8738 Fusible Disconnect Switch Type

Note that the prices shown do not include thermal units. Devices require 3 thermal units. Standard trip thermal units are **$21.50** each.
See page 16-116 for selection information.

Table 16.130: Class 8738 Full-Voltage Type, Fusible (With Class H Fuse Clips) Reversing with Melting Alloy Overload Relays—3-Pole Polyphase—600 Vac Maximum—50–60 Hz

Ratings				NEMA 1 General Purpose Enclosure		NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304)		NEMA 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure		NEMA 12/3R▲ Dusttight and Driptight Industrial Use Enclosure		
Motor Voltage (Starter Voltage)	Max. Hp Poly-phase	NEMA Size	Fuse Clip Size (A)	Type	$ Price	Type	$ Price	Type	$ Price	With External Reset	Without External Reset	$ Price
										Type	Type	
200 (208)	3	0	30	SBG12■	2169.00	SBW12■	3909.00	SBW22■	4491.00	SBA22■	SBA12■	2654.00
	5	1	30	SCG12■	2313.00	SCW12■	4050.00	SCW22■	4656.00	SCA22■	SCA12■	2798.00
	7-1/2		60	SCG13■	2340.00	SCW13■	4077.00	SCW23■	4692.00	SCA23■	SCA13■	2825.00
	10	2	60	SDG12■	3851.00	SDW12■	6501.00	SDW22■	7149.00	SDA22■	SDA12■	4478.00
	20	3	100	SEG15■	6357.00	SEW15■	11001.00	—	—	SEA25■	SEA15■	7182.00
	40	4	200	SFG15■	13409.00	SFW15■	19277.00	—	—	SFA25■	SFA15■	15672.00
	75	5	400	SGG15■	25605.00	SGW15■	40589.00	—	—	SGA25■	SGA15■	30990.00
230 (240)	3	0	30	SBG12■	2169.00	SBW12■	3909.00	SBW22■	4491.00	SBA22■	SBA12■	2654.00
	5	1	30	SCG12■	2313.00	SCW12■	4050.00	SCW22■	4656.00	SCA22■	SCA12■	2798.00
	7-1/2		60	SCG13■	2340.00	SCW13■	4077.00	SCW23■	4692.00	SCA23■	SCA13■	2825.00
	15	2	60	SDG12■	3851.00	SDW12■	6501.00	SDW22■	7149.00	SDA22■	SDA12■	4478.00
	25	3	100	SEG15■	6357.00	SEW15■	11001.00	—	—	SEA25■	SEA15■	7182.00
	50	4	200	SFG15■	13409.00	SFW15■	19277.00	—	—	SFA25■	SFA15■	15672.00
	100	5	400	SGG15■	25605.00	SGW15■	40589.00	—	—	SGA25■	SGA15■	30990.00
460 (480)	5	0	30	SBG13■	2199.00	SBW13■	3936.00	SBW23■	4527.00	SBA23■	SBA13■	2682.00
	10	1	30	SCG14■	2340.00	SCW14■	4077.00	SCW24■	4692.00	SCA24■	SCA14■	2825.00
	15	2	30	SDG16■	3873.00	SDW16■	6515.00	SDW26■	7163.00	SDA26■	SDA16■	4491.00
	25		60	SDG14■	3893.00	SDW14■	6543.00	SDW24■	7199.00	SDA24■	SDA14■	4521.00
	50	3	100	SEG13■	6443.00	SEW13■	11087.00	—	—	SEA23■	SEA13■	7268.00
	100	4	200	SFG13■	13464.00	SFW13■	19332.00	—	—	SFA23■	SFA13■	15728.00
	200	5	400	SGG13■	26204.00	SGW13■	41187.00	—	—	SGA23■	SGA13■	31589.00
575 (600)	5	0	30	SBG13■	2199.00	SBW13■	3936.00	SBW23■	4527.00	SBA23■	SBA13■	2682.00
	10	1	30	SCG14■	2340.00	SCW14■	4077.00	SCW24■	4692.00	SCA24■	SCA14■	2825.00
	15	2	30	SDG16■	3873.00	SDW16■	6515.00	SDW26■	7163.00	SDA26■	SDA16■	4491.00
	25		60	SDG14■	3893.00	SDW14■	6543.00	SDW24■	7199.00	SDA24■	SDA14■	4521.00
	50	3	100	SEG13■	6443.00	SEW13■	11087.00	—	—	SEA23■	SEA13■	7268.00
	100	4	200	SFG13■	13464.00	SFW13■	19332.00	—	—	SFA23■	SFA13■	15728.00
	200	5	400	SGG13■	26204.00	SGW13■	41187.00	—	—	SGA23■	SGA13■	31589.00

▲ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information. For class J fuse clip, use Form **Y1072** (no charge).

■ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown below.

Table 16.131: Coil Voltage Codes

Voltage		Code	$ Price Adder
60 Hz	50 Hz		
24★♦	—	V01	No Charge
120★	110	V02	No Charge
208	—	V08	No Charge
240	220	V03	No Charge
277	—	V04	No Charge
480	440	V06	No Charge
600	550	V07	No Charge
Specify	Specify	V99	35.60

♦ 24 V coils are not available on Sizes 4–7. On Sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8738SBG12V01S).

★ These voltage codes must include **Form S** (supplied at no charge) (i.e., order as 8738SC13V02S).

Note: For voltage codes used with control transformers, see page 16-101.
Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

For How to Order Information, see page 16-13.

3-Pole Polyphase—600 Vac Maximum—50–60 Hz

Note that the prices shown do not include thermal units. Devices require 3 thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

Table 16.132: Non-Fusible Disconnect Switch Type—Full-Voltage Type Reversing with Melting Alloy Overload Relays

Ratings				NEMA 1 General Purpose Enclosure		NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304)		NEMA 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure		NEMA 12/3R▲ Dusttight and Driptight Industrial Use Enclosure		
Motor Voltage (Starter Voltage)	Max. Hp Poly-Phase	NEMA Size	Fuse Clip Size (A)	Type	$ Price	Type	$ Price	Type	$ Price	With External Reset Type	Without External Reset Type	$ Price
200 (208)	3	0	None	SBG11■	2127.00	SBW11■	3866.00	SBW21■	4442.00	SBA21■	SBA11■	2613.00
	7-1/2	1	None	SCG11■	2271.00	SCW11■	4008.00	SCW21■	4607.00	SCA21■	SCA11■	2754.00
	10	2	None	SDG11■	3794.00	SDW11■	6443.00	SDW21■	7083.00	SDA21■	SDA11■	4419.00
	25	3	None	SEG11■	6287.00	SEW11■	10929.00	—	—	SEA21■	SEA11■	7113.00
	40	4	None	SFG11■	13166.00	SFW11■	19034.00	—	—	SFA21■	SFA11■	15431.00
	75	5	None	SGG11■	25691.00	SGW11■	40674.00	—	—	SGA21■	SGA11■	31076.00
230 (240)	3	0	None	SBG11■	2127.00	SBW11■	3866.00	SBW21■	4442.00	SBA21■	SBA11■	2613.00
	7-1/2	1	None	SCG11■	2271.00	SCW11■	4008.00	SCW21■	4607.00	SCA21■	SCA11■	2754.00
	15	2	None	SDG11■	3794.00	SDW11■	6443.00	SDW21■	7083.00	SDA21■	SDA11■	4419.00
	30	3	None	SEG11■	6287.00	SEW11■	10929.00	—	—	SEA21■	SEA11■	7113.00
	50	4	None	SFG11■	13166.00	SFW11■	19034.00	—	—	SFA21■	SFA11■	15431.00
	100	5	None	SGG11■	25691.00	SGW11■	40674.00	—	—	SGA21■	SGA11■	31076.00
460 (480)	5	0	None	SBG11■	2127.00	SBW11■	3866.00	SBW21■	4442.00	SBA21■	SBA11■	2613.00
	10	1	None	SCG11■	2271.00	SCW11■	4008.00	SCW21■	4607.00	SCA21■	SCA11■	2754.00
	25	2	None	SDG11■	3794.00	SDW11■	6443.00	SDW21■	7083.00	SDA21■	SDA11■	4419.00
	50	3	None	SEG11■	6287.00	SEW11■	10929.00	—	—	SEA21■	SEA11■	7113.00
	100	4	None	SFG11■	13166.00	SFW11■	19034.00	—	—	SFA21■	SFA11■	15431.00
	200	5	None	SGG11■	25691.00	SGW11■	40674.00	—	—	SGA21■	SGA11■	31076.00
575 (600)	5	0	None	SBG11■	2127.00	SBW11■	3866.00	SBW21■	4442.00	SBA21■	SBA11■	2613.00
	10	1	None	SCG11■	2271.00	SCW11■	4008.00	SCW21■	4607.00	SCA21■	SCA11■	2754.00
	25	2	None	SDG11■	3794.00	SDW11■	6443.00	SDW21■	7083.00	SDA21■	SDA11■	4419.00
	50	3	None	SEG11■	6287.00	SEW11■	10929.00	—	—	SEA21■	SEA11■	7113.00
	100	4	None	SFG11■	13166.00	SFW11■	19034.00	—	—	SFA21■	SFA11■	15431.00
	200	5	None	SGG11■	25691.00	SGW11■	40674.00	—	—	SGA21■	SGA11■	31076.00

▲ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
■ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown on page 16-53.

Table 16.133: Fusible Disconnect Switch Type With Class R Fuse Clips—100,000 AIC Rating

Ratings				NEMA 1 General Purpose Enclosure		NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304)		NEMA 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure▼		NEMA 12/3R♦ Dusttight and Driptight Industrial Use Enclosure		
Motor Voltage (Starter Voltage)	Max. Hp Poly-Phase	NEMA Size	Fuse Clip Size (A)	Type	$ Price	Type	$ Price	Type	$ Price	With External Reset Type	Without External Reset Type	$ Price
200 (208)	3	0	30	SBG32★	2192.00	SBW32★	3929.00	SBW42★	4521.00	SBA42★	SBA32★	2676.00
	5	1	30	SCG32★	2334.00	SCW32★	4071.00	SCW42★	4685.00	SCA42★	SCA32★	2817.00
	7-1/2		60	SCG33★	2363.00	SCW33★	4100.00	SCW43★	4706.00	SCA43★	SCA33★	2847.00
	10	2	60	SDG32★	3873.00	SDW32★	6521.00	SDW42★	7176.00	SDA42★	SDA32★	4499.00
	20	3	100	SEG35★	6399.00	SEW35★	11043.00	—	—	SEA45★	SEA35★	7226.00
	40	4	200	SFG35★	13451.00	SFW35★	19319.00	—	—	SFA45★	SFA35★	15714.00
	75	5	400	SGG35★	25707.00	SGW35★	40689.00	—	—	SGA45★	SGA35★	31089.00
230 (240)	3	0	30	SBG32★	2192.00	SBW32★	3929.00	SBW42★	4521.00	SBA42★	SBA32★	2676.00
	5	1	30	SCG32★	2334.00	SCW32★	4071.00	SCW42★	4685.00	SCA42★	SCA32★	2817.00
	7-1/2		60	SCG33★	2363.00	SCW33★	4100.00	SCW43★	4706.00	SCA43★	SCA33★	2847.00
	15	2	60	SDG32★	3873.00	SDW32★	6521.00	SDW42★	7176.00	SDA42★	SDA32★	4499.00
	25	3	100	SEG35★	6399.00	SEW35★	11043.00	—	—	SEA45★	SEA35★	7226.00
	50	4	200	SFG35★	13451.00	SFW35★	19319.00	—	—	SFA45★	SFA35★	15714.00
	100	5	400	SGG35★	25707.00	SGW35★	40689.00	—	—	SGA45★	SGA35★	31089.00
460 (480)	5	0	30	SBG33★	2219.00	SBW33★	3959.00	SBW43★	4548.00	SBA43★	SBA33★	2705.00
	10	1	30	SCG34★	2363.00	SCW34★	4100.00	SCW44★	4712.00	SCA44★	SCA34★	2847.00
	15	2	30	SDG36★	3893.00	SDW36★	6534.00	SDW46★	7191.00	SDA46★	SDA36★	4514.00
	25		60	SDG34★	3915.00	SDW34★	6564.00	SDW44★	7433.00	SDA44★	SDA34★	4541.00
	50	3	100	SEG33★	6485.00	SEW33★	11129.00	—	—	SEA43★	SEA33★	7311.00
	100	4	200	SFG33★	13508.00	SFW33★	19376.00	—	—	SFA43★	SFA33★	15771.00
	200	5	400	SGG33★	26303.00	SGW33★	41288.00	—	—	SGA43★	SGA33★	31688.00
575 (600)	5	0	30	SBG33★	2219.00	SBW33★	3959.00	SBW43★	4548.00	SBA43★	SBA33★	2705.00
	10	1	30	SCG34★	2363.00	SCW34★	4100.00	SCW44★	4712.00	SCA44★	SCA34★	2847.00
	15	2	30	SDG36★	3893.00	SDW36★	6534.00	SDW46★	7191.00	SDA46★	SDA36★	4514.00
	25		60	SDG34★	3915.00	SDW34★	6564.00	SDW44★	7433.00	SDA44★	SDA34★	4541.00
	50	3	100	SEG33★	6485.00	SEW33★	11129.00	—	—	SEA43★	SEA33★	7311.00
	100	4	200	SFG33★	13508.00	SFW33★	19376.00	—	—	SFA43★	SFA33★	15771.00
	200	5	400	SGG33★	26303.00	SGW33★	41288.00	—	—	SGA43★	SGA33★	31688.00

♦ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
★ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown on page 16-53.
▼ 5,000 AIC Rating

For How to Order Information, see page 16-13.

3-Pole Polyphase—600 Vac Maximum—50–60 Hz

Note that the prices shown do not include thermal units. Devices require 3 thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

Table 16.134: Full-Voltage Type, Reversing with Melting Alloy Overload Relays

Ratings				NEMA 1 General Purpose Enclosure		NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304) (Sizes 0-5)▲		NEMA 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure		NEMA 12/3R■ Dusttight and Driptight Industrial Use Enclosure		
Motor Voltage (Starter Voltage)	Hp Range Poly-phase	NEMA Size	Circuit Breaker (See Page 7-32 for Breaker Adjustment Range)	Type	$ Price	Type	$ Price	Type	$ Price	With External Reset Type	Without External Reset Type	$ Price
200 (208)	1/4–3	0	HLL36030M71	SBG43♦	**2555.**	SBW43♦	**4292.**	SBW53♦	**4932.**	SBA53♦	SBA43♦	**3038.**
	1/4–5 7-1/2	1	HLL36030M71 HLL36050M72	SCG44♦ SCG45♦	**2726.**	SCW44♦ SCW45♦	**4463.**	SCW54♦ SCW55♦	**5133.**	SCA54♦ SCA55♦	SCA44♦ SCA45♦	**3209.**
	1-1/2–5 71/2–10	2	HLL36030M71 HLL36050M72	SDG42♦ SDG43♦	**4350.**	SDW42♦ SDW43♦	**6998.**	SDW52♦ SDW53♦	**7695.**	SDA52♦ SDA53♦	SDA42♦ SDA43♦	**4976.**
	15–25	3	HLL36100M73	SEG42♦	**6501.**	SEW42♦	**11142.**	SEW52♦	**12254.**	SEA52♦	SEA42♦	**7326.**
	30–40	4	JJL36250M75	SFG44♦	**14718.**	SFW44♦	**20586.**	SFW54♦	**22644.**	SFA54♦	SFA44♦	**16982.**
	50–60 75	5	JLL36250M75 LJL36400M36	SGG44♦ SGG45♦	**29808.**	SGW44♦ SGW45♦	**44792.**	— —	—	SGA54♦ SGA55♦	SGA44♦ SGA45♦	**35190.**
	100 125–150	6	LJL36400M36 LJL36600M42	SHG43♦ SHG45♦	**64274.**	SHW43♦ SHW45♦	**71396.**	— —	—	SHA53♦ SHA55♦	SHA43♦ SHA45♦	**68120.**
230 (240)	1/4–3	0	HLL36030M71	SBG43♦	**2555.**	SBW43♦	**4292.**	SBW53♦	**4932.**	SBA53♦	SBA43♦	**3038.**
	1/4–7-1/2	1	HLL36030M71	SCG44♦	**2726.**	SCW44♦	**4463.**	SCW54♦	**5133.**	SCA54♦	SCA44♦	**3209.**
	1-1/2–7-1/2 10 15	2	HLL36030M71 HLL36050M72 HLL36100M73	SDG42♦ SDG43♦ SDG44♦	**4350.**	SDW42♦ SDW43♦ SDW44♦	**6998.**	SDW52♦ SDW53♦ SDW54♦	**7695.**	SDA52♦ SDA53♦ SDA54♦	SDA42♦ SDA43♦ SDA44♦	**4976.**
	15–30	3	HLL36100M73	SEG42♦	**6501.**	SEW42♦	**11142.**	SEW52♦	**12254.**	SEA52♦	SEA42♦	**7326.**
	40–50	4	JJL36250M75	SFG44♦	**14718.**	SFW44♦	**20586.**	SFW54♦	**22644.**	SFA54♦	SFA44♦	**16982.**
	60 75–100	5	JLL36250M75 LJL36400M36	SGG44♦ SGG45♦	**29808.**	SGW44♦ SGW45♦	**44792.**	— —	—	SGA54♦ SGA55♦	SGA44♦ SGA45♦	**35190.**
	125–150 200	6	LJL36600M42 PLL34080M68	SHG45♦ SHG46♦	**64274.**	SHW45♦ SHW46♦	**71396.**	— —	—	SHA55♦ SHA56♦	SHA45♦ SHA46♦	**68120.**

▲ NEMA Size 6 starters are NEMA 4 painted sheet steel enclosures.
■ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
♦ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes listed below.

Table 16.135: Coil Voltage Codes

Voltage		Code	$ Price Adder
60 Hz	50 Hz		
24▼★	—	V01	No Charge
120▼	110	V02	No Charge
208	—	V08	No Charge
240	220	V03	No Charge
277	—	V04	No Charge
480	440	V06	No Charge
600	550	V07	No Charge
Specify	Specify	V99	35.60

★ 24 V coils are not available on Sizes 4–7. On Sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8739SBG41V01S).
▼ These voltage codes must include **Form S** (supplied at no charge) (i.e., order as 8739SCG41V02S).
Note: For voltage codes used with control transformers, see page 16-101.
Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

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For How to Order Information, see page 16-13.

3-Pole Polyphase—600 Vac Maximum—50–60 Hz

Note that the prices shown do not include thermal units. Devices require 3 thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

Table 16.136: Full-Voltage Type, Reversing with Melting Alloy Overload Relays

Ratings				NEMA 1 General Purpose Enclosure		NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304) (Sizes 0–5)▲		NEMA 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure		NEMA 12/3R■ Dusttight and Driptight Industrial Use Enclosure		
Motor Voltage (Starter Voltage)	Hp Range Poly-phase	NEMA Size	Circuit Breaker (See Page 7-32 for Breaker Adjustment Range)	Type	$ Price	Type	$ Price	Type	$ Price	With External Reset Type	Without External Reset Type	$ Price
460 (480)	1/4–5	0	HLL36030M71	SBG43♦	**2555.**	SBW43♦	**4292.**	SBW53♦	**4932.**	SBA53♦	SBA43♦	**3038.**
	1/4–10	1	HLL36030M71	SCG44♦	**2726.**	SCW44♦	**4463.**	SCW54♦	**5133.**	SCA54♦	SCA44♦	**3209.**
	5–15 20–25	2	HLL36030M71 HLL36050M72	SDG42♦ SDG43♦	**4350.**	SDW42♦ SDW43♦	**6998.**	SDW52♦ SDW53♦	**7695.**	SDA52♦ SDA53♦	SDA42♦ SDA43♦	**4976.**
	20–25 30–50	3	HLL36050M72 HLL36100M73	SEG41♦ SEG42♦	**6501.**	SEW41♦ SEW42♦	**11142.**	SEW51♦ SEW52♦	**12254.**	SEA51♦ SEA52♦	SEA41♦ SEA42♦	**7326.**
	60–100	4	JLL36250M75	SFG44♦	**14718.**	SFW44♦	**20586.**	SFW54♦	**22644.**	SFA54♦	SFA44♦	**16982.**
	125 150–200	5	JLL36250M75 LJL36400M36	SGG44♦ SGG45♦	**29808.**	SGW44♦ SGW45♦	**44792.**	— —	—	SGA54♦ SGA55♦	SGA44♦ SGA45♦	**35190.**
	250–350 400	6	LJL36600M42 PLL34080M68	SHG45♦ SHG46♦	**64274.**	SHW45♦ SHW46♦	**71396.**	— —	—	SHA55♦ SHA56♦	SHA45♦ SHA46♦	**68120.**
575 (600)	1/4–5	0	HLL36030M71	SBG43♦	**2555.**	SBW43♦	**4292.**	SBW53♦	**4932.**	SBA53♦	SBA43♦	**3038.**
	1/4–10	1	HLL36030M71	SCG44♦	**2726.**	SCW44♦	**4463.**	SCW54♦	**5133.**	SCA54♦	SCA44♦	**3209.**
	5–20 25	2	HLL36030M71 HLL36050M72	SDG42♦ SDG43♦	**4350.**	SDW42♦ SDW43♦	**6998.**	SDW52♦ SDW53♦	**7695.**	SDA52♦ SDA53♦	SDA42♦ SDA43♦	**4976.**
	25–30 40–50	3	HLL36050M72 HLL36100M73	SEG41♦ SEG42♦	**6501.**	SEW41♦ SEW42♦	**11142.**	SEW51♦ SEW52♦	**12254.**	SEA51♦ SEA52♦	SEA41♦ SEA42♦	**7326.**
	60–100	4	JLL36250M75	SFG44♦	**14718.**	SFW44♦	**20586.**	SFW54♦	**22644.**	SFA54♦	SFA44♦	**16982.**
	125–150 200	5	JLL36250M75 LJL36400M36	SGG44♦ SGG45♦	**29808.**	SGW44♦ SGW45♦	**44792.**	— —	—	SGA54♦ SGA55♦	SGA44♦ SGA45♦	**35190.**
	250 300–400	6	LJL36400M36 LJL36600M42	SHG43♦ SHG45♦	**64274.**	SHW43♦ SHW45♦	**71396.**	— —	—	SHA53♦ SHA55♦	SHA43♦ SHA45♦	**68120.**

▲ NEMA Size 6 starters are NEMA 4 painted sheet steel enclosures.
■ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
♦ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes listed below.

Table 16.137: Coil Voltage Codes

Voltage		Code	$ Price Adder
60 Hz	50 Hz		
24▼★	—	V01	No Charge
120▼	110	V02	No Charge
208	—	V08	No Charge
240	220	V03	No Charge
277	—	V04	No Charge
480	440	V06	No Charge
600	550	V07	No Charge
Specify	Specify	V99	35.60

★ 24 V coils are not available on Sizes 4–7. On Sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8739SBG41V01S).
▼ These voltage codes must include **Form S** (supplied at no charge) (i.e., order as 8739SCG41V02S).
Note: For voltage codes used with control transformers, see page 16-101.
Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

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For How to Order Information, see page 16-13.

3-Pole Polyphase—600 Vac Maximum—50–60 Hz

Note that the prices shown do not include thermal units. Devices require 3 thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

Table 16.138: Full-Voltage Type, Reversing with Melting Alloy Overload Relays

Ratings					NEMA 1 General Purpose Enclosure		NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304) (Sizes 0-5)▲		NEMA 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure		NEMA 12/3R■ Dusttight and Driptight Industrial Use Enclosure		
Motor Voltage (Starter Voltage)	Max. Hp Poly-phase	NEMA Size	Circuit Breaker		Type	$ Price	Type	$ Price	Type	$ Price	With External Reset	Without External Reset	$ Price
			Type	Ampere Rating							Type	Type	
200 (208)	2 3	0	HLL36015 HLL36020	15 20	SBG1♦ SBG3♦	2228.	SBW1♦ SBW3♦	3965.	SBW11♦ SBW13♦	4563.	SBA11♦ SBA13♦	SBA1♦ SBA3♦	2712.
	5 7-1/2	1	HLL36035 HLL36050	35 50	SCG5♦ SCG2♦	2399.	SCW5♦ SCW2♦	4136.	SCW15♦ SCW12♦	4761.	SCA15♦ SCA12♦	SCA5♦ SCA2♦	2883.
	10	2	HLL36060	60	SDG1♦	4022.	SDW1♦	6672.	SDW11♦	7340.	SDA11♦	SDA1♦	4649.
	15 20 25	3	HLL36100 HLL36125 HLL36150	100 125 150	SEG3♦ SEG1♦ SEG5♦	6501.	SEW3♦ SEW1♦ SEW5♦	11142.	SEW13♦ SEW11♦ SEW15♦	12254.	SEA13♦ SEA11♦ SEA15♦	SEA3♦ SEA1♦ SEA5♦	7326.
	30 40	4	JLL36200 JLL36250	200 250	SFG3♦ SFG4♦	14718.	SFW3♦ SFW4♦	20586.	SFW13♦ SFW14♦	22644.	SFA13♦ SFA14♦	SFA3♦ SFA4♦	16982.
	50 60–75	5	JLL36250 LLL36400E20	250 400	SGG6♦ SGG4♦	29808.	SGW6♦ SGW4♦	44792.	— —	—	SGA16♦ SGA14♦	SGA6♦ SGA4♦	35190.
	100–125 150	6	LLL36600E20 MJL36800	600 800	SHG4♦ SHG5♦	64274.	SHW4♦ SHW5♦	71396.	— —	—	SHA14♦ SHA15♦	SHA4♦ SHA5♦	68120.
230 (240)	2 3	0	HLL36015 HLL36020	15 20	SBG1♦ SBG3♦	2228.	SBW1♦ SBW3♦	3965.	SBW11♦ SBW13♦	4563.	SBA11♦ SBA13♦	SBA1♦ SBA3♦	2712.
	5 7-1/2	1	HLL36035 HLL36045	35 45	SCG5♦ SCG6♦	2399.	SCW5♦ SCW6♦	4136.	SCW15♦ SCW16♦	4761.	SCA15♦ SCA16♦	SCA5♦ SCA6♦	2883.
	10 15	2	HLL36060 HLL36090	60 90	SDG1♦ SDG7♦	4022.	SDW1♦ SDW7♦	6672.	SDW11♦ SDW17♦	7340.	SDA11♦ SDA17♦	SDA1♦ SDA7♦	4649.
	20 25–30	3	HLL36100 HLL36150	100 150	SEG3♦ SEG5♦	6501.	SEW3♦ SEW5♦	11142.	SEW13♦ SEW15♦	12254.	SEA13♦ SEA15♦	SEA3♦ SEA5♦	7326.
	40 50	4	JLL36225 JLL36250	225 250	SFG1♦ SFG4♦	14718.	SFW1♦ SFW4♦	20586.	SFW11♦ SFW14♦	22644.	SFA11♦ SFA14♦	SFA1♦ SFA4♦	16982.
	60 75 100	5	JLL36250 LLL36400E20 LLL36600E20	250 400 600	SGG6♦ SGG4♦ SGG2♦	29808.	SGW6♦ SGW4♦ SGW2♦	44792.	— — —	—	SGA16♦ SGA14♦ SGA12♦	SGA6♦ SGA4♦ SGA2♦	35190.
	125 150–200	6	LLL36600E20 MJL36800	600 800	SHG4♦ SHG5♦	64274.	SHW4♦ SHW5♦	71396.	— —	—	SHA14♦ SHA15♦	SHA4♦ SHA5♦	68120.

▲ NEMA Size 6 starters are NEMA 4 painted sheet steel enclosures.
■ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
♦ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown below.

Table 16.139: Coil Voltage Codes

Voltage		Code	$ Price Adder
60 Hz	50 Hz		
24▼★	—	V01	No Charge
120▼	110	V02	No Charge
208	—	V08	No Charge
240	220	V03	No Charge
277	—	V04	No Charge
480	440	V06	No Charge
600	550	V07	No Charge
Specify	Specify	V99	35.60

★ 24 V coils are not available on Sizes 4–7. On Sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8739SBG1V01S).
▼ These voltage codes must include **Form S** (supplied at no charge) (i.e., order as 8739SCG5V02S).
Note: For voltage codes used with control transformers, see page 16-101.
Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

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For How to Order Information, see page 16-13.

3-Pole Polyphase—600 Vac Maximum—50–60 Hz

Note that the prices shown do not include thermal units. Devices require 3 thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

Table 16.140: Full-Voltage Type, Reversing with Melting Alloy Overload Relays

Ratings					NEMA 1 General Purpose Enclosure		NEMA 4 & 4X Watertight and Dusttight Enclosure Stainless Steel (304) (Sizes 0 - 5)▲		NEMA 4X Watertight, Dusttight and Corrosion Resistant Polyester Enclosure		NEMA 12/3R■ Dusttight and Driptight Industrial Use Enclosure		
Motor Voltage (Starter Voltage)	Max. Hp Poly-phase	NEMA Size	Circuit Breaker		Type	$ Price	Type	$ Price	Type	$ Price	With External Reset	Without External Reset	$ Price
			Type	Ampere Rating							Type	Type	
460 (480)	5	0	HLL36015	15	SBG1♦	2555.	SBW1♦	4292.	SBW11♦	4932.	SBA11♦	SBA1♦	3038.
	7-1/2 10	1	HLL36025 HLL36030	25 30	SCG3♦ SCG7♦	2726.	SCW3♦ SCW7♦	4463.	SCW13♦ SCW17♦	5133.	SCA13♦ SCA17♦	SCA3♦ SCA7♦	3209.
	15 20 25	2	HLL36045 HLL36060 HLL36070	45 60 70	SDG3♦ SDG1♦ SDG5♦	4350.	SDW3♦ SDW1♦ SDW5♦	6998.	SDW13♦ SDW11♦ SDW15♦	7695.	SDA13♦ SDA11♦ SDA15♦	SDA3♦ SDA1♦ SDA5♦	4976.
	30 40 50	3	HLL36080 HLL36100 HLL36150	80 100 150	SEG6♦ SEG3♦ SEG5♦	6501.	SEW6♦ SEW3♦ SEW5♦	11142.	SEW16♦ SEW13♦ SEW15♦	12254.	SEA16♦ SEA13♦ SEA15♦	SEA6♦ SEA3♦ SEA5♦	7326.
	60 75 100	4	JJL36105 JJL36200 JJL36250	150 200 250	SFG5♦ SFG3♦ SFG4♦	14718.	SFW5♦ SFW3♦ SFW4♦	20586.	SFW15♦ SFW13♦ SFW14♦	22644.	SFA15♦ SFA13♦ SFA14♦	SFA5♦ SFA3♦ SFA4♦	16982.
	125–150 200	5	LLL36400E20 LLL36600E20	400 600	SGG4♦ SGG2♦	29808.	SGW4♦ SGW2♦	44792.	— —	—	SGA14♦ SGA12♦	SGA4♦ SGA2♦	35190.
	250 300–400	6	LLL36600E20 MJL36800	600 800	SHG4♦ SHG5♦	64274.	SHW4♦ SHW5♦	71396.	— —	—	SHA14♦ SHA15♦	SHA4♦ SHA5♦	68120.
575 (600)	5	0	HLL36015	15	SBG1♦	2555.	SBW1♦	4292.	SBW11♦	4932.	SBA11♦	SBA1♦	3038.
	7-1/2 10	1	HLL36020 HLL36025	20 25	SCG8♦ SCG3♦	2726.	SCW8♦ SCW3♦	4463.	SCW18♦ SCW13♦	5133.	SCA18♦ SCA13♦	SCA8♦ SCA3♦	3209.
	15 20 25	2	HLL36035 HLL36045 HLL36060	35 45 60	SDG8♦ SDG3♦ SDG1♦	4350.	SDW8♦ SDW3♦ SDW1♦	6998.	SDW18♦ SDW13♦ SDW11♦	7695.	SDA18♦ SDA13♦ SDA12♦	SDA8♦ SDA3♦ SDA1♦	4976.
	30 40 50	3	HLL36070 HLL36090 HLL36100	70 90 100	SEG4♦ SEG6♦ SEG3♦	6501.	SEW4♦ SEW6♦ SEW3♦	11142.	SEW14♦ SEW16♦ SEW13♦	12254.	SEA14♦ SEA16♦ SEA13♦	SEA4♦ SEA6♦ SEA3♦	7326.
	60–75 100	4	JLL36150 JLL36250	150 250	SFG5♦ SFG4♦	14718.	SFW5♦ SFW4♦	20586.	SFW15♦ SFW14♦	22644.	SFA15♦ SFA14♦	SFA5♦ SFA4♦	16982.
	125–150 200	5	JLL36250 LLL36400E20	250 400	SGG6♦ SGG4♦	29808.	SGW6♦ SGW4♦	44792.	— —	—	SGA16♦ SGA14♦	SGA6♦ SGA4♦	35190.
	250–350 400	6	LLL36600E20 MJL36800	600 800	SHG4♦ SHG5♦	64274.	SHW4♦ SHW5♦	71396.	— —	—	SHA14♦ SHA15♦	SHA4♦ SHA5♦	68120.

▲ NEMA Size 6 starters are NEMA 4 painted sheet steel enclosures.
■ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.
♦ Coil voltage code must be specified to order this product. Refer to standard coil voltage codes shown below.

Table 16.141: Class 8738 UL Listed Short Circuit Ratings

NEMA Size	Fuse Clip Type	Enclosure	Ampere Interrupting Capability Rating (AIC)
0-3	Standard	Standard★	5,000
0-3	Class R	Standard★	100,000
4-5	Standard	Standard★	10,000
4-5	Class R	Standard★	100,000

★ Standard enclosure includes: NEMAs 1, 4 & 4X stainless, and 12/3R.

Table 16.142: Coil Voltage Codes

Voltage		Code	$ Price Adder
60 Hz	50 Hz		
24△▼	—	V01	No Charge
120△	110	V02	No Charge
208	—	V08	No Charge
240	220	V03	No Charge
480	440	V06	No Charge
600	550	V07	No Charge
Specify	Specify	V99	35.60

▼ 24 V coils are not available on Sizes 4–7. On Sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified (i.e., order as 8739SBG2V01S).
△ These voltage codes must include **Form S** (supplied at no charge) (i.e., order as 8739SDG3V02S).
Note: For voltage codes used with control transformers, see page 16-101.
Form S (separate control) is used when a separate source of power is available for the control (coil) voltage. Form S is supplied at no charge.

Table 16.143: Class 8739 UL Listed Short Circuit Ratings

Motor Circuit Protector Type			
NEMA Size	Voltage	Enclosure	Ampere Interrupting Capability Rating (AIC)
0, 1	480	Standard□	100,000
0, 1	481 – 600	Standard□	35,000
2, 3, 4, 5	480	Standard□	100,000
2, 3, 4, 5	481 – 600	Standard□	50,000
6	480	Standard□	65,000
6	600	Standard□	18,000
Thermal Magnetic Circuit Breaker Type			
0, 1	480	Standard□	100,000
0, 1	481 – 600	Standard□	35,000
2, 3, 4, 5	480	Standard□	100,000
2, 3, 4, 5	481 – 600	Standard□	50,000
6	480	Standard□	65,000
6	600	Standard□	18,000

□ Standard enclosure includes: NEMAs 1, 4 & 4X stainless, and 12/3R.

For How to Order Information, see page 16-13.

Approximate Dimensions

Table 16.144: NEMA 1 Enclosure (Size 0–2) Figure 1

NEMA Size	Class	Type	Dimensions (in inches)♦—see Figure 1															Top & Bottom		Sides	Wt. (lb)
			A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	W	X	Y	
0–1	8738 & 8739	SBG SCG	13-3/4	23	8-11/32	10-5/8	21	18-29/32	1-7/8	1-7/8	3-3/4	2-5/16	1-1/16	3-1/4	2-3/16	1-1/4	7/8	—	1/2–3/4–1	1/2–3/4–1	1/2	49
2	8738 & 8739	SDG	15	28-3/4	9-19/32	11-5/8	26-1/4	21-15/32	2-3/16	2	4	2-9/16	1-1/4	3-1/4	2-3/16	1-1/4	29/32	—	1–1-1/4	1–1-1/4	1/2	80

Table 16.145: NEMA 1 Enclosure (Size 3–6) Figure 2

NEMA Size	Class	Type	Dimensions (in inches)♦—see Figure 2															Top & Bottom		Sides	Wt. (lb)
			A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	W	X	Y	
3	8738 & 8739	SEG	18-1/2	44	10-19/32	12-1/2	3	25-31/32	43-1/2	1/4	—	2-13/16	3-1/2	5	2-11/16	5-3/8	1-7/32	29/32	1–1-1/4 2–2-1/4	1/2–3/4	1/2	245
4	8738	SFG	21	51-1/2	10-17/32	15	3	30-23/32	51	1/4	—	2-13/16	3-1/2	5	2-11/16	5-3/8	1-7/32	29/32	2-1/2	1/2–3/4	1/2	—
	8739	SFG	18-1/2	44	10-19/32	12-1/2	3	25-31/32	43-1/2	1/4	—	2-13/16	3-1/2	5	2-11/16	5-3/8	1-7/32	29/32	1–1-1/4 2–2-1/4	1/2–3/4	1/2	—
5	8738	SGG	30	77	15-1/2	22	4	39-13/32	76	1/2	—	3-1/2	6-9/32	9-1/4	3-3/16	—	—	—	1/2–3/4	3	—	—
	8739	SGG	30	65	13-23/32	22	4	39-13/32	64	1/2	—	3-1/2	6-9/32	5	3-3/16	—	—	—	1/2–3/4	3	—	—
6	8738 & 8739	SHG	36	90	17-1/32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table 16.146: NEMA 12/3R Enclosure Figure 3

NEMA Size	Class	Type	Dimensions (in inches)♦—see Figure 3										Wt. (lb)
			A	B	C	D	E	F	G	H	I	J	
0–1	8738 & 8739	SBA SCA	13-3/4	10-3/32	24-3/4	3-1/4	2-1/2	8-3/4	24	3/8	3-3/4	20-5/16	52
2	8738 & 8739	SDA	15	10-31/32	31	3-1/4	3	9	30-1/4	3/8	3-3/4	23-7/16	95
3	8738 & 8739	SEA	18-1/2	10-19/32	45	5	3	12-1/2	44	1/2	3-3/4	25-19/32	255
4	8738	SFA	21	10-19/32	52-1/2	5	3	15	51-1/2	1/2	3-3/4	30-11/32	—
	8739	SFA	18-1/2	10-19/32	45	3-1/4	3	12-1/2	44	1/2	3-3/4	25-19/32	—
5	8738	SGA	30	15-1/2	78	9-1/4	4	22	77	1/2	7-1/2	39-13/32	—
	8739	SGA	30	15-1/2	66	—	4	22	65	1/2	7-1/2	37-7/8	—
6▲	8739	SHA	36	17-1/32	90	—	—	—	—	—	—	—	—

▲ Size 6 enclosures are floor mounting.

Table 16.147: NEMA 4X Polyester Enclosure■ Figure 4

NEMA Size	Class	Dimensions (in inches)♦—see Figure 4					
		Type	A	B	C	E	F
0-2	8738 & 8739	SBW SCW SDW	25.25	11.4	27.00	17.88	25.75
3-4	8739	SEW SFW	26.31	11.4	33.50	18.50	32.25

■ See page 16-58 for important information on hubs for NEMA 4X enclosures.

♦ The dimensions shown in all tables above are also for **Form F4T** (standard control transformer), **Form F4T11** (100 VA extra-capacity), and **Form F4T12** (200 VA extra-capacity).

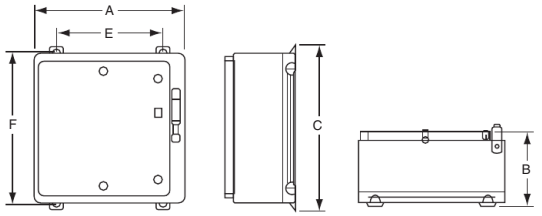


Figure 4: NEMA 4X Polyester Enclosure

NOTE: *Illustrations may not represent the actual enclosure; they are intended for dimensional information only.*

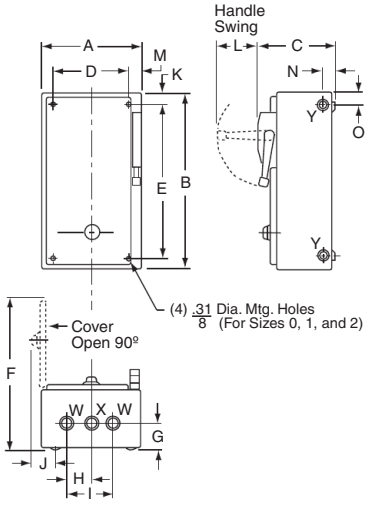


Figure 1:
NEMA 1 Enclosure (Sizes 0–2)

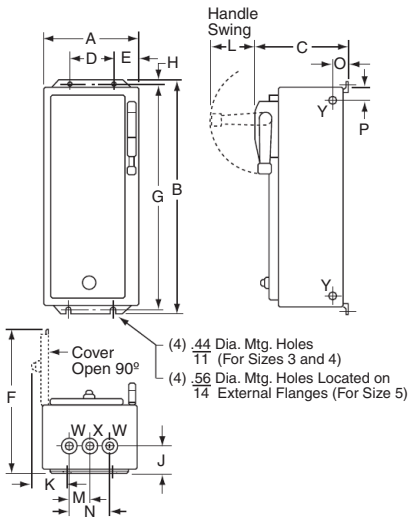


Figure 2:
NEMA 1 Enclosure (Sizes 3–6)

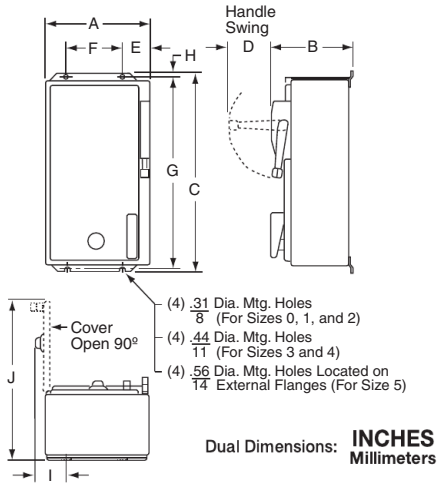


Figure 3:
NEMA 12 Enclosure

Approximate Dimensions

Table 16.148: NEMA 4 & 4X Stainless Enclosure Figure 1

NEMA Size	Class	Type	Dimensions (in inches)▲—see Figure 1												Bottom	Top & Bot.	Wt. (lb)
			A	B	C	D	E	F	G	H	I	J	K	L	W	X	
0–1	8738 & 8739	SBW SCW	13-3/4	8-11/32	25-3/16	3-1/4	2-1/2	8-3/4	24	19/32	3	1-5/8	2-5/16	18-17/32	3/4 Hub	1 Hub	52
2	8738 & 8739	SDW	15	9-19/32	30-1/32	3-1/4	2-1/2	10	29-3/4	5/8	3	2	2-5/8	21-1/32	3/4 Hub	1-1/2 Hub	95
3	8738 & 8739	SEW	18-1/2	10-9/16	45-3/16	5	3	12-1/2	44	19/32	3-1/2	2-5/8	3-3/16	25-1/2	3/4 Hub	2-1/2 Hub	255
4	8738	SFW	21	10-17/32	52-11/16	5	3	15	51-1/2	19/32	3-1/2	2-5/8	3-3/16	30-1/4	3/4 Hub	2-1/2 Hub	—
	8739	SFW	18-1/2	10-9/16	45-3/16	5	3	12-1/2	44	19/32	3-1/2	2-5/8	3-3/16	25-1/2	3/4 Hub	2-1/2 Hub	—
5	8738	SGW	30	15-1/2	78-3/32	9-1/4	4	22	77	9/16	6-3/32	3	3-1/2	39-13/32	3/4 Hub	3-1/2 Hub	—
	8739	SGW	30	13-57/64	66-3/32	5	4	22	65	9/16	6-3/32	3	3-1/2	37-7/8	3/4 Hub	3-1/2 Hub	—
6	8739	SHW	36	17-1/32	98	—	—	—	—	—	—	—	—	—	—	—	—

▲ Above dimensions also for **Form F4T** (standard control transformer), **Form F4T11** (100 VA extra capacity) and **Form F4T12** (200 VA extra capacity).

NOTE: *Illustrations may not represent the actual enclosure; they are intended for dimensional information only.*

Information on Hubs

Hubs are supplied with each NEMA 4X combination starter as shown in the table below.

Note that hubs are only installed in stainless steel enclosures; they are supplied but not installed in polyester enclosures.

Table 16.149:

NEMA Size	Quantity	Hub Size
0 & 1	1 2	0.75" 1.00"
2	1 2	0.75" 1.50"
3 & 4	1 2	0.75" 2.50"

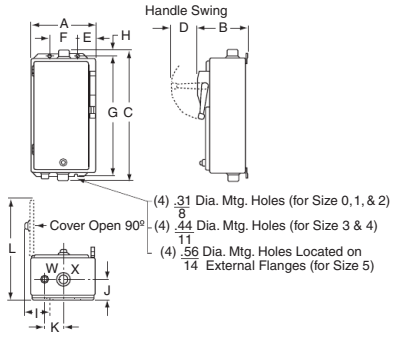


Figure 1:
NEMA 4 & 4X Stainless Enclosure

Multipole Lighting Contactors, Type L & LX

Features

- 30 A fluorescent lighting rating, 20 A tungsten lighting rating
- Electrically and mechanically held
- 2 through 12-pole versions
- Field-convertible contacts with N.O. and N.C. indicators (8 N.C. contacts maximum★)
- Silver-Cadmium-Oxide double break contacts

File E78427 CCN NRNT

File LR60905 Class 3211 07

Type L

Type LX

Table 16.150: Multipole Lighting Contactors (50–60 Hz)

Contact Ampere Ratings	No. of Poles	NEMA 1 General Purpose Enclosure		NEMA 1 Flush Mounting General Purpose Enclosure with Plaster Adjustment		NEMA 3R Rainproof Enclosure▼		NEMA 4 & 4X Watertight, Dusttight and Corrosion-Resistant Glass-Polyester Enclosure		NEMA 4 & 4X Watertight, Dusttight Brushed Stainless Steel Enclosure		NEMA 12/3R△ Dusttight and Driptight Industrial Use Enclosure		Open Type■	
		Type	$ Price▲	Type	$ Price▲	Type	$ Price▲	Type	$ Price▲	Type	$ Price▲	Type	$ Price▲	Type	$ Price▲
Electrically Held★															
30♦	2	LG20♦	**446.00**	LF20♦	**689.00**	LH20♦	**860.00**	LWW20♦	**1146.00**	LW20♦	**917.00**	LA20♦	**860.00**	LO20♦	**404.00**
	3	LG30♦	**489.00**	LF30♦	**732.00**	LH30♦	**903.00**	LWW30♦	**1197.00**	LW30♦	**959.00**	LA30♦	**903.00**	LO30♦	**446.00**
	4	LG40♦	**617.00**	LF40♦	**860.00**	LH40♦	**1031.00**	LWW40♦	**1358.00**	LW40♦	**1088.00**	LA40♦	**1031.00**	LO40♦	**575.00**
	6	LG60♦	**890.00**	LF60♦	**1031.00**	LH60♦	**1202.00**	LWW60♦	**1571.00**	LW60♦	**1259.00**	LA60♦	**1202.00**	LO60♦	**746.00**
	8	LG80♦	**1160.00**	LF80♦	**1301.00**	LH80♦	**1472.00**	LWW80♦	**1908.00**	LW80♦	**1529.00**	LA80♦	**1472.00**	LO80♦	**1017.00**
	10	LG1000♦	**1331.00**	LF1000♦	**1472.00**	LH1000♦	**1643.00**	LWW1000♦	**2123.00**	LW1000♦	**1700.00**	LA1000♦	**1643.00**	LO1000♦	**1188.00**
	12	LG1200♦	**1529.00**	LF1200♦	**1673.00**	LH1200♦	**1844.00**	LWW1200♦	**2372.00**	LW1200♦	**1899.00**	LA1200♦	**1844.00**	LO1200♦	**1386.00**
Mechanically Held▼□															
30♦	2	LXG20♦	**702.00**	LXF20♦	**975.00**	—	—	LXWW20♦	**1728.00**	LXW20♦	**1728.00**	LXA20♦	**1017.00**	LXO20♦	**590.00**
	3	LXG30♦	**738.00**	LXF30♦	**1008.00**	—	—	LXWW30♦	**1764.00**	LXW30♦	**1764.00**	LXA30♦	**1052.00**	LXO30♦	**624.00**
	4	LXG40♦	**761.00**	LXF40♦	**1031.00**	—	—	LXWW40♦	**1785.00**	LXW40♦	**1785.00**	LXA40♦	**1074.00**	LXO40♦	**647.00**
	6	LXG60♦	**1160.00**	LXF60♦	**1430.00**	—	—	LXWW60♦	**2186.00**	LXW60♦	**2186.00**	LXA60♦	**1472.00**	LXO60♦	**1044.00**
	8	LXG80♦	**1287.00**	LXF80♦	**1557.00**	—	—	LXWW80♦	**2313.00**	LXW80♦	**2313.00**	LXA80♦	**1601.00**	LXO80♦	**1173.00**
	10	LXG1000♦	**1430.00**	LXF1000♦	**1700.00**	—	—	LXWW1000♦	**2456.00**	LXW1000♦	**2456.00**	LXA1000♦	**1742.00**	LXO1000♦	**1314.00**
	12	LXG1200♦	**1580.00**	LXF1200♦	**1850.00**	—	—	LXWW1200♦	**2604.00**	LXW1200♦	**2604.00**	LXA1200♦	**1893.00**	LXO1200♦	**1466.00**

▲ Price does not include holding circuit contact.
■ Separate enclosures are available for these devices. It may be possible to improve delivery by ordering an open type contactor and separate Class 9991 enclosure.
♦ Coil voltage code must be specified to order this product. Refer to standard voltage codes listed below. All lighting contactors are provided with separate control as standard.
★ Factory conversion of N.O. contacts to N.C., order by catalog number and add **$42.80** to price (i.e. For 6 N.O. and 2 N.C. poles on an 8 pole contactor, order as 8903LG62V02). Versions are available from the factory with up to 12 N.C. poles electrically held or 2, 4, 6 and 12 N.C. poles mechanically held. For field conversion, there is a maximum of eight N.C. poles for Type L and a maximum of six N.C. poles for Type LX contactors.

NOTE: *For contactors with more than 8 poles, the catalog number configuration will be the number of normally open contacts followed by a 0 and then the number of normally closed contacts (i.e. for 4 NO and 6 NC on a 10 pole contactor order 8903LG406V02).*

▼ Cannot support control transformer forms.
△ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service entrance rated applications. See page 16-95 for more information.
□ When ordering Form C, Form R6 must be included.

Table 16.151: Power Poles for Type L or LX -

The kits below are used to add 30 Ampere power poles to existing Type L contactors when additional circuits are required. Type L lighting contactors are supplied with mounting brackets, so that adder poles may be mounted from the front by a single captive screw. Adder poles are supplied standard with N.O. contacts which are convertible to N.C.

Power Pole Adder Kit◊		Can Only Be Added to Contactor Type☆
Class 8903 Type	$ Price	
Single Pole		LO60 LXO60 LO80 LXO80 LO1000 LXO1000
L1L	**86.00**	
L1R	**86.00**	
Double Pole		
L3L	**171.00**	
L3R	**171.00**	

◊ 8903LO (electrically held) devices can accommodate 10 or 12 N.C. contacts use **only** 120 V 60Hz coils.
☆ LO60 & LXO60—add 1-pole kits only, 1 on each side, for converting to 8-pole. To maintain proper operation, it cannot be converted to greater than 8-pole contactor. LO80 & LXO80—use single-pole kits, 1 on each side, for converting to 10-pole and use two-pole kits, 1 on each side, for converting to 12-pole. LO1000 & LXO1000—remove existing single pole kit and install two-pole kits, 1 on each side, for converting to 12-pole.

Type L3L Type LO80 Type L3R

Table 16.152: Coil Voltage Codes

Voltage		Code	$ Price Adder
60 Hz	50 Hz		
24	—	V01	No Charge
120	110	V02	No Charge
208	—	V08	No Charge
240	220	V03	No Charge
277	—	V04	No Charge
480	440	V06	No Charge
Specify	Specify	V99	35.60

Factory Modifications (Forms). . . . . .page 16-63
Replacement Coils . . . . . .pages 16-105, 16-106
Replacement Contacts . . . . . page 16-107

Type L1L Type LO60 Type L1R

Table 16.153: How to Order

To Order Specify:	Catalog Number			
• Class Number • Type Number • Voltage Code • Form(s)	Class	Type	Voltage Code	Form(s)
	8903	LXG60	VO4	CF4R6

Features

- Electrically and mechanically held
- 30–800 A lighting ratings
- 2- through 5-pole versions (5-poles through 200 A)
- UL Listed short-circuit rating up to 100,000 Amperes
- Factory wired controls and clearly marked termination points
- Quick ship on most items in 5–7 days

Electrically Held

Mechanically Held

File E78427
CCN NRNT

File LR60905
(Open Devices Only)
Class 3231 01

Table 16.154: Multipole Lighting Contactors—Type S (50–60 Hz)

Contact Ampere Ratings	No. of Poles	NEMA 1 General Purpose Enclosure		NEMA 1 Flush Mounting General Purpose Enclosure with Plaster Adjustment		NEMA Type 3R Rainproof Enclosure△		NEMA 4 & 4X Watertight, Dusttight and Corrosion-Resistant Glass-Polyester Enclosure		NEMA Type 4 & 4X▲ Watertight and Dusttight Enclosure		NEMA Type 12 / 3R◊ Dusttight and Driptight Industrial Use Enclosure		Open Type	
		Type	$ Price■	Type	$ Price■	Type	$ Price■	Type	$ Price■	Type	$ Price■	Type	$ Price■	Type	$ Price■
Electrically Held♦															
30	2	SMG1★	476.	SMF1★	660.	SMH1★	647.	SMW21★	989.	SMW1★	989.	SMA1★	647.	SMO1★▼	446.
	3	SMG2★	518.	SMF2★	689.	SMH2★	689.	SMW22★	1031.	SMW2★	1031.	SMA2★	810.	SMO2★▼	488.
	4	SMG3★	633.	SMF3★	818.	SMH3★	804.	SMW23★	1146.	SMW3★	1146.	SMA3★	804.	SMO3★▼	603.
	5	SMG4★	831.	SMF4★	1017.	SMH4★	1002.	SMW24★	1344.	SMW4★	1344.	SMA4★	1002.	SMO4★▼	534.
60	2	SPG1★	975.	SPF1★	1215.	SPH1★	1287.	SPW21★	1998.	SPW1★	1998.	SPA1★	1287.	SPO1★▼	831.
	3	SPG2★	1031.	SPF2★	1272.	SPH2★	1344.	SPW22★	2057.	SPW2★	2057.	SPA2★	1344.	SPO2★▼	890.
	4	SPG3★	1287.	SPF3★	1529.	SPH3★	1601.	SPW23★	2712.	SPW3★	2712.	SPA3★	1601.	SPO3★▼	1146.
	5	SPG4★	1857.	SPF4★	2100.	SPH4★	2142.	SPW24★	3281.	SPW4★	3281.	SPA4★	2142.	SPO4★▼	1715.
100	2	SQG1★	1601.	SQF1★	2015.	SQH1★	1971.	SQW21★	3815.	SQW1★	3054.	SQA1★	1971.	SQO1★▼	1314.
	3	SQG2★	1715.	SQF2★	2127.	SQH2★	2084.	SQW22★	3959.	SQW2★	3167.	SQA2★	2084.	SQO2★▼	1430.
	4	SQG3★	2114.	—	—	SQH3★	2484.	—	—	SQW3★	3965.	SQA3★	2484.	SQO3★▼	1827.
	5	SQG4★	3024.	—	—	SQH4★	3396.	—	—	SQW4★	4877.	SQA4★	3396.	SQO4★▼	2739.
200	2	SVG1★	3765.	—	—	SVH1★	4991.	—	—	SVW1★	6245.	SVA1★	4991.	SVO1★	3167.
	3	SVG2★	4022.	—	—	SVH2★	5247.	—	—	SVW2★	6501.	SVA2★	5247.	SVO2★	3423.
	4	SVG3★	5285.	—	—	—	—	—	—	SVW3★	8864.	SVA3★	7011.	SVO3★	4761.
	5	SVG4★	7127.	—	—	—	—	—	—	SVW4★	10646.	SVA4★	8793.	SVO4★	6543.
300	2	SXG1★	7952.	—	—	—	—	—	—	SXW1★	11087.	SXA1★	11087.	SXO1★	6857.
	3	SXG2★	8550.	—	—	—	—	—	—	SXW2★	11685.	SXA2★	11685.	SXO2★	7455.
400□	2	SYG1★	20813.	—	—	—	—	—	—	SYW1★	27935.	SYA1★	24659.	SYO1★	16299.
	3	SYG2★	23534.	—	—	—	—	—	—	SYW2★	30654.	SYA2★	27378.	SYO2★	19020.
600□	2	SZG1★	25550.	—	—	—	—	—	—	SZW1★	32670.	SZA1★	29394.	SZO1★	20879.
	3	SZG2★	28704.	—	—	—	—	—	—	SZW2★	35825.	SZA2★	32549.	SZO2★	24026.
800□	2	SJG1★	30285.	—	—	—	—	—	—	SJW1★	37535.	SJA1★	33845.	SJO1★	25457.
	3	SJG2★	33875.	—	—	—	—	—	—	SJW2★	40995.	SJA2★	37719.	SJO2★	29033.
Mechanically Held♦															
30	2	SMG10★	738.	SMF10★	923.	—	—	SMW31★	1251.	SMW10★	1251.	SMA10★	912.	SMO10★▼	710.
	3	SMG11★	782.	SMF11★	966.	—	—	SMW32★	1295.	SMW11★	1295.	SMA11★	953.	SMO11★▼	752.
	4	SMG12★	824.	SMF12★	1008.	—	—	SMW33★	1337.	SMW12★	1337.	SMA12★	995.	SMO12★▼	795.
	5	SMG13★	1025.	SMF13★	1209.	—	—	SMW34★	1538.	SMW13★	1538.	SMA13★	1196.	SMO13★▼	995.
60	2	SPG10★	1485.	SPF10★	1758.	—	—	SPW31★	2511.	SPW10★	2511.	SPA10★	1800.	SPO10★▼	1373.
	3	SPG11★	1544.	SPF11★	1814.	—	—	SPW32★	2570.	SPW11★	2570.	SPA11★	1857.	SPO11★▼	1430.
	4	SPG12★	1827.	SPF12★	2100.	—	—	SPW33★	3252.	SPW12★	3252.	SPA12★	2142.	SPO12★▼	1715.
	5	SPG13★	2399.	SPF13★	2669.	—	—	SPW34★	3824.	SPW13★	3824.	SPA13★	2712.	SPO13★▼	2285.
100	2	SQG10★	2084.	SQF10★	2241.	—	—	SQW31★	4419.	SQW10★	3537.	SQA10★	2456.	SQO10★▼	1827.
	3	SQG11★	2199.	SQF11★	2357.	—	—	SQW32★	4563.	SQW11★	3653.	SQA11★	2570.	SQO11★▼	1943.
	4	SQG12★	2627.	—	—	—	—	—	—	SQW12★	4478.	SQA12★	2996.	SQO12★▼	2370.
	5	SQG13★	3537.	—	—	—	—	—	—	SQW13★	5390.	SQA13★	3909.	SQO13★▼	3281.
200	2	SVG10★	5333.	—	—	—	—	—	—	SVW10★	7811.	SVA10★	6557.	SVO10★	4505.
	3	SVG11★	6015.	—	—	—	—	—	—	SVW11★	8495.	SVA11★	7241.	SVO11★	4877.
	4	SVG12★	7353.	—	—	—	—	—	—	SVW12★	10859.	SVA12★	9008.	SVO12★	6215.
300	2	SXG13★	9320.	—	—	—	—	—	—	SXW13★	12455.	SXA13★	12455.	SXO13★	7554.
	3	SXG14★	10232.	—	—	—	—	—	—	SXW14★	13365.	SXA14★	13365.	SXO14★	7811.
400	2	SYG16★	22593.	—	—	—	—	—	—	SYW16★	29714.	SYA16★	26441.	SYO16★	18080.
	3	SYG17★	25316.	—	—	—	—	—	—	SYW17★	32436.	SYA17★	29160.	SYO17★	20799.
600	2	SZG18★	27329.	—	—	—	—	—	—	SZW18★	34451.	SZA18★	31175.	SZO18★	22658.
	3	SZG19★	30483.	—	—	—	—	—	—	SZW19★	37605.	SZA19★	34329.	SZO19★	25806.

▲ **NEMA 4 & 4X** enclosures are brush finished stainless steel for contactors sized 30 A through 300 A. Sizes 400–800 A are painted sheet steel.
■ Price does not include holding circuit contact.
♦ All lighting contactors are provided with separate control as standard, except electrically held 400, 600 and 800 A devices. Electrically held 400, 600 and 800 A devices are provided with common control.
★ Voltage code must be specified to order this product. Refer to standard voltage codes above left.
▼ Separate enclosures are available for these devices. It may be possible to improve delivery by ordering an open type contactor and separate Class 9991 enclosure from pages 16-93 and 16-94.
△ Cannot support control transformer forms.
□ **Form F4T** is provided as standard; include line voltage when ordering. Control voltage is 120–60. For 400, 600 and 800 ampere devices—must specify line voltage, not coil voltage.
◊ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service entrance rated applications. See page 16-95 for more information.

Poles for Type S Only

A single-pole or double-pole kit can be added to any 2- or 3-pole 30 or 60 A Type S lighting contactor to make a 4- or 5-pole device. Factory assembled 4- and 5-pole contactors utilize the basic 3-pole device with a single or double-pole kit installed. Only one power pole can be added per contactor. Sufficient room is provided in all enclosure styles for the addition of a power pole kit.

For How to Order Information, see page 16-13.

Table 16.155:

Coil Voltage Codes♦			
Voltage		Code	Price Adder
60 Hz	50 Hz		
24☆	—	V01	N/C
120	110	V02	N/C
208	—	V08	N/C
240	220	V03	N/C
277	—	V04	N/C
480	440	V06	N/C
Specify	Specify	V99	**35.60**

☆ 24 volt coils are not available for 200–800 A devices. Contact your nearest Square D/Schneider Electric sales office for additional information.

Table 16.156:

Ampere Rating	Description	Class 9999 Type	$ Price
30	One N.O.	SB6	**158.00**
	One N.C.	SB7	**158.00**
	One N.O. and One N.C.	SB8	**365.00**
	Two N.O.	SB9	**365.00**
	Two N.C.	SB10	**365.00**
60	One N.O.	SB21▽	**306.00**
	One N.C.	SB22▽	**306.00**
	One N.O. and One N.C.	SB23▽	**656.00**
	Two N.O.	SB24▽	**656.00**
	Two N.C.	SB25▽	**656.00**

▽ When power pole is added to 60 Ampere contactor, a 4-pole coil is also required. Order from Coil Table page 16-105. 60 A power poles are suitable for use with copper or aluminum wire.

File E16151
CCN NRNT

Features

The features include: disconnect switch and circuit breaker versions; rugged flange-mounted handle; easy installation; occupation of less space; increased operator protection; room to spare for modifications; Class R fuse clips standard; electrically and mechanically held; 30–600 Amperes.

It is desirable to install the branch-circuit protective device and lighting contactor, combining switching and over-current protection, in one enclosure. Combination lighting contactors are well suited for industrial, highway and area lighting applications, or where a lighting circuit may have to be disconnected for periodic maintenance. They may also be used for resistance heating loads.

Table 16.157: Fusible or Non-Fusible Disconnect Switch (3-Pole, 50–60 Hz)

Contactor Ampere Rating	Fuse Clip Size (A)	Fuse Clip Spacing (V)	NEMA 1 General Purpose Enclosure		NEMA 4 & 4X ■ Watertight and Dusttight Enclosure Stainless Steel		NEMA 12/3R▼ Dusttight, Oiltight Driptight, Industrial Use Enclosure	
			Type	$ Price▲	Type	$ Price▲	Type	$ Price▲
Electrically Held♦								
30	None 30 30	— 600 250	SMG60★ SMG61★ SMG62★	**1301.00** **1373.00** **1344.00**	SMW60★ SMW61★ SMW62★	**2669.00** **2739.00** **2712.00**	SMA60★ SMA61★ SMA62★	**1643.00** **1715.00** **1686.00**
60	None 60 60	— 600 250	SPG60★ SPG61★ SPG62★	**2042.00** **2142.00** **2100.00**	SPW60★ SPW61★ SPW62★	**4149.00** **4248.00** **4206.00**	SPA60★ SPA61★ SPA62★	**2528.00** **2627.00** **2583.00**
100	None 100 100	— 600 250	SQG60★ SQG61★ SQG62★	**3396.00** **3609.00** **3537.00**	SQW60★ SQW61★ SQW62★	**7070.00** **7284.00** **7212.00**	SQA60★ SQA61★ SQA62★	**4022.00** **4235.00** **4163.00**
200	None 200 200	— 600 250	SVG60★ SVG61★ SVG62★	**6629.00** **6926.00** **6870.00**	SVW60★ SVW61★ SVW62★	**11327.00** **11627.00** **11570.00**	SVA60★ SVA61★ SVA62★	**8366.00** **8585.00** **8607.00**
300	None 400 400	— 600 250	SXG60★ SXG61★ SXG62★	**13905.00** **14418.00** **14418.00**	SXW60★ SXW61★ SXW62★	**25898.00** **26411.00** **26411.00**	SXA60★ SXA61★ SXA62★	**18122.00** **18635.00** **18635.00**
Mechanically Held♦								
30	None 30 30	— 600 250	SMG70★ SMG71★ SMG72★	**1458.00** **1529.00** **1502.00**	SMW70★ SMW71★ SMW72★	**2825.00** **2897.00** **2867.00**	SMA70★ SMA71★ SMA72★	**1800.00** **1871.00** **1844.00**
60	None 60 60	— 600 250	SPG70★ SPG71★ SPG72★	**2583.00** **2682.00** **2640.00**	SPW70★ SPW71★ SPW72★	**4692.00** **4791.00** **4748.00**	SPA70★ SPA71★ SPA72★	**3068.00** **3167.00** **3123.00**
100	None 100 100	— 600 250	SQG70★ SQG71★ SQG72★	**3909.00** **4121.00** **4050.00**	SQW70★ SQW71★ SQW72★	**7583.00** **7797.00** **7725.00**	SQA70★ SQA71★ SQA72★	**4535.00** **4748.00** **4676.00**
200	None 200 200	— 600 250	SVG70★ SVG71★ SVG72★	**8081.00** **8379.00** **8324.00**	SVW70★ SVW71★ SVW72★	**12780.00** **13080.00** **13023.00**	SVA70★ SVA71★ SVA72★	**9818.00** **10116.00** **10061.00**
300	None 400 400	— 600 250	SXG70★ SXG71★ SXG72★	**14261.00** **14774.00** **14774.00**	SXW70★ SXW71★ SXW72★	**26253.00** **26766.00** **26766.00**	SXA70★ SXA71★ SXA72★	**18477.00** **18990.00** **18990.00**

Table 16.158: Circuit Breaker (3-Pole, 50–60 Hz)

Contactor Ampere Rating	Circuit Breaker		NEMA 1 General Purpose Enclosure		NEMA 4 & 4X■ Watertight and Dusttight Enclosure Stainless Steel (30-300 A)		NEMA 12/3R▼ Dusttight, Oiltight, Driptight, Industrial Use Enclosure	
	Ampere Rating	Maximum Volts	Type	$ Price▲	Type	$ Price▲	Type	$ Price▲
Electrically Held♦								
30	30	600	SMG81★	**1814.00**	SMW81★	**3182.00**	SMA81★	**2156.00**
60	60	600	SPG81★	**2541.00**	SPW81★	**4649.00**	SPA81★	**3024.00**
100	100	600	SQG81★	**3666.00**	SQW81★	**7340.00**	SQA81★	**4292.00**
200	200	600	SVG81★	**8181.00**	SVW81★	**12879.00**	SVA81★	**9918.00**
300	300	600	SXG81★	**18023.00**	SXW81★	**30014.00**	SXA81★	**21155.00**
400	400	600	SYG81★	**40085.00**	SYW81★	**47205.00**	SYA81★	**43929.00**
600	600	600	SZG81★	**45090.00**	SZW81★	**52212.00**	SZA81★	**48936.00**
Mechanically Held♦								
30	30	600	SMG91★	**1971.00**	SMW91★	**3338.00**	SMA91★	**2313.00**
60	60	600	SPG91★	**3081.00**	SPW91★	**5189.00**	SPA91★	**3567.00**
100	100	600	SQG91★	**4179.00**	SQW91★	**7853.00**	SQA91★	**4805.00**
200	200	600	SVG91★	**9633.00**	SVW91★	**14333.00**	SVA91★	**11970.00**
300	300	600	SXG91★	**18378.00**	SXW91★	**30371.00**	SXA91★	**21510.00**
400	400	600	SYG91★	**41864.00**	SYW91★	**48986.00**	SYA91★	**45710.00**
600	600	600	SZG91★	**46728.00**	SZW91★	**53991.00**	SZA91★	**50715.00**

▲ Price does not include holding circuit contact.
■ For **NEMA 4 & 4X** Watertight, Dusttight and Corrosion-Resistant Glass-Polyester enclosure pricing, multiply stainless steel enclosed price by 1.25 and add **Form G18** (limited to 100 A max.). 400 & 600 A enclosures are painted sheet steel **(NEMA Type 4 & 4X).**
♦ Control/coil voltage must be specified.
★ Coil voltage codes must be specified to order this product. Refer to standard voltage codes shown on page 16-60.
▼ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service entrance rated applications. See page 16-95 for more information.

Table 16.159: Coil Voltage Codes♦

Voltage		Code	$ Price Adder
60 Hz	50 Hz		
24△	—	V01	N/C
120	110	V02	N/C
208	—	V08	N/C
240	220	V03	N/C
277	—	V04	N/C
480	440	V06	N/C
Specify	Specify	V99	35.60

△ 24 volt coils are not available for 200 A or larger devices. Contact Schneider Electric CCC for additional information.

For How to Order Information, see page 16-13.

NIGHT-MASTER® Combination Lighting Contactors

Class **8903** / Refer to Catalog **8903CT9701**

NIGHT-MASTER Outdoor Combination Lighting Contactors offer disconnecting means, overcurrent protection and a lighting contactor in one NEMA 3R Rainproof enclosure. These combination units satisfy requirements of the National Electrical Code and UL 508 for service entrance equipment.

Long Version

Short Version

UL Approved for Service Entrance

File E16151
CCN NRNT

Features:

- Solid neutral standard
- Grounding lug standard
- Padlocking provisions
- Short and long versions available
- Electrically held Type S lighting contactor
- Eliminates the need for separate mounted safety switches
- Additional panel space eliminates the need for external mounting of time clocks

Table 16.160: Disconnect Switch Type ■ (3-Pole)

Contactor Ampere Rating	Fuse Clip Size (A)	Fuse Clip Spacing (V)	Short Version				Long Version			
			Class 8903 Type 3R	$ Price▲	Class 8903 Type 3R Stainless Steel	$ Price▲	Class 8903 Type 3R	$ Price▲	Class 8903 Type 3R Stainless Steel	$ Price ▲
30	30 30	600 250	SMC61♦ SMC62♦	**2015.00** **1956.00**	SMH61♦ SMH62♦	**3263.00** **3150.00**	SMC63♦ SMC64♦	**2199.00** **2177.00**	SMH63♦ SMH64♦	**3600.00** **3488.00**
60	60 60	600 250	SPC61♦ SPC62♦	**2664.00** **2505.00**	SPH61♦ SPH62♦	**4275.00** **4050.00**	SPC63♦ SPC64♦	**2933.00** **2825.00**	SPH63♦ SPH64♦	**4725.00** **4500.00**
100	100 100	600 250	SQC61♦ SQC62♦	**4571.00** **4454.00**	SQH61♦ SQH62♦	**7425.00** **7200.00**	SQC63♦ SQC64♦	**4797.00** **4626.00**	SQH63♦ SQH64♦	**7875.00** **7650.00**
200	200 200	600 250	SVC61♦ SVC62♦	**8171.00** **7986.00**	SVH61♦ SVH62♦	**12525.00** **12825.00**	SVC63♦ SVC64♦	**8949.00** **8868.00**	SVH63♦ SVH64♦	**13725.00** **13725.00**

Table 16.161: Circuit Breaker Type ■ (3-Pole)

Contactor Ampere Rating	Circuit Breaker		Short Version				Long Version			
	Ampere Rating	Maximum Volts	Class 8903 Type 3R	$ Price▲	Class 8903 Type 3R Stainless Steel	$ Price▲	Class 8903 Type 3R	$ Price▲	Class 8903 Type 3R Stainless Steel	$ Price ▲
30	30	600	SMC81♦	**2475.00**	SMH81♦	**4050.00**	SMC83♦	**2807.00**	SMH83♦	**4500.00**
60	60	600	SPC81♦	**3159.00**	SPH81♦	**5175.00**	SPC83♦	**3320.00**	SPH83♦	**5625.00**
100	100	600	SQC81♦	**4544.00**	SQH81♦	**7425.00**	SQC83♦	**4841.00**	SQH83♦	**7875.00**
200	200	600	SVC81♦	**8711.00**	SVH81♦	**14175.00**	SVC83♦	**9909.00**	SVH83♦	**14625.00**

▲ Price does not include holding circuit contact.
■ All lighting contactors are provided with separate control as standard.
♦ Coil voltage codes must be specified to order this product. Refer to standard voltage codes listed below.

NIGHT-MASTER Combination Lighting Contactors

The Class 8903 NIGHT-MASTER Outdoor Combination Lighting Contactor is the only product on the market that is UL Listed for Service Entrance. This allows the contactor to be pole mounted when used to control lighting in remote locations such as parks, monuments, group sports facilities, and streets and highways.

Factory modifications such as photocells, time switches, key operated selector switches, and the combination of photocells and time switches (photocell on, time switch off) allow the NIGHT-MASTER to be located in applications where manual operation of lights is not practical.

NIGHT-MASTER comes in long and short versions in sizes 30 through 200 Amperes. Most common modifications can be provided from the factory, or added in the field to the pre-drilled and pre-tapped panels.

Table 16.162: Coil Voltage Codes

Voltage		Code	$ Price Adder
60 Hz	50 Hz		
24★	—	V01	No Charge
120	110	V02	No Charge
208	—	V08	No Charge
240	220	V03	No Charge
277	—	V04	No Charge
480	440	V06	No Charge
Specify	Specify	V99	35.60

★ 24 volt coils are not available for 200 A devices. Contact your nearest Schneider Electric sales office for additional information.

For How to Order Information, see page 16-13.

Standard Equipment dimensions and enclosure construction may not apply when certain special features are added. Such cases should be referred to the factory with complete description when accurate dimensions are required.

NOTE: *If UL label is required, consult Schneider Electric CCC at (1-888-778-2733). Some Forms* ***are not*** *UL Listed.*

Table 16.163:

Description	Form Letter	NEMA Enclosure Type	Used On: Std. Elec. Held	Used On: Std. Mech. Held	Used On: Combo Elec. Held	Used On: Combo Mech. Held	Used On: NIGHT-MASTER ▲	Type L 30 A	30 A	60 A	100 A	200 A	300 A	400, 600, 800 A
"ON-OFF" (momentary contact) push button	A3	1		Y		Y		336.	336.	336.	336.	336.	336.	336.
	A3	3R, 4, 12		Y		Y		336.	336.	336.	336.	336.	336.	336.
"ON-OFF" push button (with holding circuit interlock)	A12	Any	Y		Y		Y	336.	336.	336.	336.	336.	336.	336.
"HAND–OFF–AUTO" selector switch. To substitute a key operated selector switch, use Form C33 and specify positions, legend marking, and key removal. This form must be used with another selector switch form (example: CC33). Add **$266.** (C33) **+ $224.** (C) = **$490.**	C	1	Y	Y▽	Y	Y▽		336.	336.	336.	336.	336.	336.	336.
	C	3R, 4, 12	Y	Y▽	Y	Y▽	Y	336.	336.	336.	336.	336.	336.	336.
"ON-OFF" selector switch. To substitute a key operated selector switch, use Form C33 and specify positions, legend marking, and key removal. This form must be used with another selector switch form (example: C33C6). Add **$266.** (C33) + **$224.** (C6) = **$490.**	C6	1	Y	Y	Y	Y		336.	336.	336.	336.	336.	336.	336.
	C6	3R, 4, 12	Y	Y	Y	Y	Y	336.	336.	336.	336.	336.	336.	336.
Control circuit fuse (1 fuse)	F	Any	Y	Y	Y	Y	Y	314.	314.	314.	314.	314.	314.	314.
Control circuit fuses (2 fuses)	F4	Any	Y	Y	Y	Y	Y	314.	314.	314.	314.	314.	314.	314.
Control circuit transformer standard capacity 50/60 Hz														
Fuses: Primary	Fuses: Secondary	Transformer capacity												
2 ■	0	Std.	F4T	1, 4, 12	Y	Y	Y	Y	Y	386.	386.	543.	797.	968.	1097. ☆	1097. ♦
2	1	Std.	FF4T	1, 4, 12	Y	Y	Y	Y	Y	698.	698.	855.	1112.	1283.	1412. ☆	1412. ♦
2	1	100 VA Add.	FF4T11	1, 4, 12	Y	Y	Y	Y	Y	975.	975.	1197.	1425.	1566. ☆	1710. ☆	1710. ♦
2	1	200 VA Add	FF4T12	1, 4, 12	Y	Y	Y	Y	Y	1241.	1241.	1467.	1695. ☆	1839. ☆	1839. ☆	1839. ♦
2	1	300 VA Add	FF4T13	1, 4, 12	Y	Y	Y	Y	Y	1481. ☆	1481. ☆	1737. ☆	1967. ☆	2109. ☆	2109. ☆	2109. ♦
Noise reduced enclosure and shock mounted panel	G4	Any		Y				1389.	1389.	1596.	1674.	2307.	2921.	3924.
Addition of photoelectric receptacle	G10	1★, 3R, 12	Y		Y		Y	185.	185.	185.	185.	185.	185.	185.
Addition of photoelectric receptacle with photo-cell	G101	1★, 3R, 12	Y		Y		Y	399.	399.	399.	399.	399.	399.	399.
Addition of photoelectric receptacle and relay (R6)▼	G10R6	1★, 12		Y		Y		549.	912.	912.	912.	1326.	1467.	1467.
With photo-cell installed ▼	G101R6	1★, 12		Y		Y		509.	750.	750.	750.	1026.	1121.	1121.
Addition of terminal blocks (other than standard). "xx" Represents the number of terminals needed. Available in multiples of 5 only.														
(PER TERMINAL PRICE) WIRED	G56xx	Any	Y	Y	Y	Y	Y	116.	116.	116.	116.	116.	116.	116.
(PER TERMINAL PRICE) UNWIRED	G50xx	Any	Y	Y	Y	Y	Y	57.	57.	57.	57.	57.	57.	57.
Addition of 24 hour time clock (120-277 V only)	K14	1, 4, 12	Y	Y	Y	Y		1197.	1197.	1197.	1197.	1197.	1197.	1197.
Addition of 24 hour time clock w/day omission (120-277 V)	K141	1, 4, 12	Y	Y	Y	Y		1197.	1197.	1197.	1197.	1197.	1197.	1197.
Addition of 7 day time clock (120-277 V)	K142	1, 4, 12	Y	Y	Y	Y		1368.	1368.	1368.	1368.	1368.	1368.	1368.
Addition of 24 hour time clock (120-277 V only)	K14	3R					Y	N/A	783.	783.	783.	783.	N/A	N/A
Addition of 24 hr time clock w/skip day (120-277 V)	K141	3R					Y	N/A	783.	783.	783.	783.	N/A	N/A
Addition of 7 day time clock (120-277 V)	K142	3R					Y	N/A	954.	954.	954.	954.	N/A	N/A
Addition of solid neutral terminal block	N	1, 4, 12	Y	Y	Y	Y	Std.	116.	116.	116.	171.	342.	714.	855.
Red Pilot Light	P1	Any	Y	Y	Y	Y	Y	336.	336.	336.	336.	336.	336.	336.
Two or more lights △ (each)	P	Any	Y	Y	Y	Y	Y	336.	336.	336.	336.	336.	336.	336.
Red Push-To-Test Pilot Light	P21	Any	Y	Y	Y	Y	Y	435.	435.	435.	435.	435.	435.	435.
Interlock necessary for pilot light one needed for each additional pilot light	□	Any	Y	Y	Y	Y	Y	◊	158.	158.	158.	158.	158.	158.
Two Wire Interface for Mechanically Held ▼	R6	Any		Y		Y		363.	728.	728.	728.	1139.	1283.	1283.
Addition of under and overvoltage relay	R46	Any	Y	Y	Y	Y	Y	1463.	1463.	1463.	1463.	1463.	1463.	1463.
Three wire control for long distance applications▼	R62	Any		Y		Y		728.	1454.	1454.	1454.	2280.	2564.	2564.
Auxiliary contacts (specify number of N.O. + N.C.)	X	Any	Y	Y	Y	Y	Y	◊	158.	158.	158.	158.	158.	158.
Addition of DC coil to Type L (7 poles max)	Y48	Any	Y					243.	N/A	N/A	N/A	N/A	N/A	N/A
Auxiliary electrical interlock installed on disconnect switch or circuit breaker operating mechanism	Y74	Any			Y	Y	Y	N/A	158.	158.	158.	158.	414.	414.
Coil Transient suppressor (120 Vac Only)	Y145	Any	Y		Y		Y	158.	158.	158.	158.	158.	158.	N/A
Coil Transient suppressor (120 Vac Only)	Y145	Any		Y		Y		314.	314.	314.	314.	314.	314.	314.
Addition of lightning arrestor	Y1532	Any	Y	Y	Y	Y	Y	570.	570.	570.	570.	570.	570.	570.
Substitute copper only lugs for standard	Y157	Any	Y	Y	Y	Y	Y	N/A	N/A	N/C	N/C	N/C	N/C	N/C

▲ NIGHT-MASTER maximum 200 A, minimum 30 A.
■ Transformer Voltage Codes.
♦ Mechanically held only. Electrically held device has a control circuit requiring a 120 V secondary, therefore, a transformer is supplied. The transformer comes wired to L1 and L2 unless Form S is called for. It is supplied with two primary and one secondary fuse.
★ Photocell mounted on a NEMA 1 enclosure is designed for indoor areas which rely on natural light. Addition of the photocell does not make the enclosure suitable for outdoor (NEMA Type 3R) installations.
▼ Available for 24 V, 120 V, 240 V, 277 V and 480 V applications only.
△ For electrically held enclosed devices, the first pilot is wired in parallel with the coil. Operating interlocks are required for all additional pilot lights. Mechanically held devices require operating interlocks for all pilot lights.
□ DO NOT use Form X for any interlock which is wired in series with pilot light, but DO specify how pilot light and interlock are to be wired into the circuit.
◊ Electrically held 20 A multipole contactors cannot add interlocks. Additional poles can be used for the same function, however. Mechanically held (Type LX) provide one double throw auxiliary (or status) contact as standard.
☆ Single primary voltage must be specified using the codes shown below:
▽ Form R6 must be used with Form C on mechanically held devices.

Voltage 60 Hz	Code
120–24	V89
208–120	V84
240–24	V82
240–120	V80
277–120	V85
480–24	V83
480–120	V81
480–240	V87
600–120	V86

Order Example

You have previously selected a Class 8903SMG2V02.

V02 means that you need a coil voltage of 120-60/110-50 wired for separate control. You would like to add form FF4T with the transformer voltages being 480 volt primary, 120 volt secondary.
The new and complete Class, Type, Voltage Code and Form number:

Class	Type	Voltage Code	Form◒
8903	SMG2	V81	FF4T

◒ Form numbers should always be shown in alphabetical order.

Table 16.164:

Description	Types L & LX		Type S												Form No.
	30 A		30 A		60 A		100 A		200 A		300 A		400, 600, 800 A		
	Kit	$ Price	Kit	$ Price	Kit	$ Price	Kit	$ Price	Kit	$ Price	Kit	$ Price	Kit	$ Price	
Auxiliary Contacts															
1 N.O. LH or RH Mounting	—	—	9999SX6	**86.00**	9999SX6	**86.00**	9999SX6	**86.00**	9999SX6	**86.00**	9999SX6	**86.00**	9999SX6	**86.00**	
1 N.C. LH or RH Mounting	—	—	9999SX7	**86.00**	9999SX7	**86.00**	9999SX7	**86.00**	9999SX7	**86.00**	9999SX7	**86.00**	9999SX7	**86.00**	
1 N.C. & 1 N.O. Isolated LH or RH	—	—	9999SX8	**116.00**	9999SX8	**116.00**	9999SX8	**116.00**	9999SX8	**116.00**	9999SX8	**116.00**	9999SX8	**116.00**	X
1 N.O. Overlapping LH or RH	—	—	9999SX9	**116.00**	9999SX9	**116.00**	9999SX9	**116.00**	9999SX9	**116.00**	9999SX9	**116.00**	9999SX9	**116.00**	
1 N.C. Overlapping LH or RH	—	—	9999SX10	**116.00**	9999SX10	**116.00**	9999SX10	**116.00**	9999SX10	**116.00**	9999SX10	**116.00**	9999SX10	**116.00**	
Control Circuit Fuse Holder															
Single Fuse Unit	9999LLX and 9999SFR3	**23.70** **42.80**	9999SFR3	**64.00**	9999SFR3	**64.00**	9999SFR3	**64.00**	9999SFR3	**64.00**	9999SFR3	**64.00**	9999SFR3	**64.00**	F
Two Fuse Unit	9999LLX and 9999SFR4	**23.70** **57.00**	9999SFR4	**86.00**	9999SFR4	**86.00**	9999SFR4	**86.00**	9999SFR4	**86.00**	9999SFR4	**86.00**	9999SFR4	**86.00**	F4
Transformers (For Prices See Class 9070 Section)	9070T50	—	9070T100	—	9070T100	—	9070T150	—	9070T300	—	9070T500	—	9070T750	—	T
Oversized Enclosures (Non-Combo)															
NEMA 1	9991SDG3	**266.00**	9991SDG3	**339.00**	9991SDG3	**339.00**	—	—	—	—	—	—	—	—	—
NEMA 4	9991SDW3	**779.00**	9991SDW3	**1169.00**	9991SDW3	**1169.00**	—	—	—	—	—	—	—	—	—
NEMA 12	9991SDA3	**456.00**	9991SDA3	**684.00**	9991SDA3	**684.00**	—	—	—	—	—	—	—	—	—
Standard Enclosures															
NEMA 1–Surface Mount	9991LXG1	**95.00**	9991SCG7▲	**57.00**	9991SDG7▲	**143.00**	9991SFG8	**599.00**	9991SFG4	**1259.00**	9991SGG8	**1241.00**	—	—	—
NEMA 3R	9991SDH1	**323.00**	9991SCH2	**372.00**	9991SDH1	**485.00**	9991SEH1	**684.00**	9991SFH1	**1853.00**	—	—	—	—	—
NEMA 4–Standard	9991SDW1	**779.00**	9991SCW1	**684.00**	9991SDW1	**1169.00**	—	—	—	—	—	—	—	—	—
NEMA 4–With 2 Cvr Mtd. Clsng Plts	9991SDW11	**798.00**	9991SCW11	**714.00**	9991SDW11	**1197.00**	9991SEW11	**1767.00**	—	—	—	—	—	—	—
NEMA 4X–Glass Polyester	9991SDW20	**779.00**	9991SCW20	**684.00**	9991SDW20	**1169.00**	—	—	—	—	—	—	—	—	—
NEMA 12	9991SDA11	**323.00**	9991SCA11	**372.00**	9991SDA11	**485.00**	9991SEA11	**684.00**	—	—	—	—	—	—	—
NEMA 1–Flushmount–Complete	—	—	—	—	—	—	9991SEF11	**882.00**	—	—	—	—	—	—	—
NEMA 1–Flush Mount Parts	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
FLUSH PARTS	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Standard–Elec. held	9991SDF13	**114.00**	9991SCF11	**57.00**	9991SDF11	**171.00**	—	—	—	—	—	—	—	—	—
–Mech. held	9991SDF13	**114.00**	9991SCF13	**201.00**	9991SDF13	**171.00**	—	—	—	—	—	—	—	—	—
Mounting Strap	9991SDF2	**66.00**	9991SCF2	**71.00**	9991SDF2	**99.00**	—	—	—	—	—	—	—	—	—
Pull Box	9991SDF1	**77.00**	9991SCF1	**86.00**	9991SDF1	**116.00**	—	—	—	—	—	—	—	—	—
Internal Operator Mounting Bracket	3010215901	**26.10**	3010215901	**39.20**	3010215901	**39.20**	3010215901	**39.20**	3010215901	**39.20**	3010215901	**39.20**	3010215901	**39.20**	G53
Solid Neutral	9999SN1	**89.00**	9999SN1	**134.00**	9999SN1	**134.00**	9999SN1	**134.00**	9999SN2	**392.00**	9999SN2	**392.00**	9999SN3■	**624.00**	N
Combination Lighting Contactor Disconnect Interlock Kit															
Breaker Type															
1-Pole	—	—	9999R26	**131.00**	9999R26	**131.00**	9999R26	**131.00**	9999R26	**131.00**	9999R26	**131.00**	9999R26	**131.00**	
2-Pole	—	—	9999R27	**243.00**	9999R27	**243.00**	9999R27	**243.00**	9999R27	**243.00**	9999R27	**243.00**	9999R27	**243.00**	
Disconnect Type															
1-Pole	—	—	9999TC11	**120.00**	9999TC10	**116.00**	9999TC10	**120.00**	9999R8	**131.00**	9999R35	**435.00**	9999R26	**131.00**	
2-Pole	—	—	9999TC21	**239.00**	9999TC20	**221.00**	9999TC20	**239.00**	9999R9	**243.00**	9999R36	**521.00**	9999R27	**243.00**	Y74
Lightning Arrestor															
175 Vac to Ground Max 2 or 3 wire Grounded	SDSA1175	**92.00**	SDSA1175	**92.00**	SDSA1175	**92.00**	SDSA1175	**92.00**	SDSA1175	**92.00**	SDSA1175	**92.00**	SDSA1175	**92.00**	Y1532
650 Vac to Ground Max 3 or 4 wire Grounded	SDSA3650	**248.00**	SDSA3650	**248.00**	SDSA3650	**248.00**	SDSA3650	**248.00**	SDSA3650	**248.00**	SDSA3650	**248.00**	SDSA3650	**248.00**	

▲ For electrically held only.
■ Limited to 400 and 600 A versions. 800 A is a factory modification only.

Table 16.165: Mechanically Held

Description	Form No.	TYPE LX		TYPE S											
		30 A		30 A		60 A		100 A		200 A		300 A		400, 600, 800 A	
		Kit	$ Price	Kit	$ Price	Kit	$ Price	Kit	$ Price	Kit	$ Price	Kit	$ Price	Kit	$ Price
PUSH BUTTON (ON-OFF) NEMA 1 Enclosure	A3	9999BLX 9999LXPB	**35.60 116.00**	▲	—	9001KA2 9999SA3■	**21.50 215.00**	9001KA2 9999SA3■	**21.50 215.00**	9001KA2 9999SA3■	**21.50 215.00**	9001KA2 9999SA3■	**21.50 215.00**	9001KA2 9999SA3■	**21.50 215.00**
NEMA 3R, 4 or 12 Enclosure		9001KA2 9999SA3■	**21.50 215.00**	9001KA2 9999SA3■	**21.50 215.00**	9001KA2 9999SA3■	**21.50 215.00**	9001KA2 9999SA3■	**21.50 215.00**	9001KA2 9999SA3■	**21.50 215.00**	9001KA2 9999SA3■	**21.50 215.00**	9001KA2 9999SA3■	**21.50 215.00**
SELECTOR SWITCH (2 POSITION) NEMA 1 Enclosure	C6	9999BLX 9999LXS	**35.60 116.00**	9001KN244 9001KS11BH1	**4.40 96.00**	9001KN244 9001KS11BH1	**4.40 96.00**	9001KN244 9001KS11BH1	**4.40 96.00**	9001KN244 9001KS11BH1	**4.40 96.00**	9001KN244 9001KS11BH1	**4.40 96.00**	9001KN244 9001KS11BH1	**4.40 96.00**
NEMA 3R, 4 or 12 Enclosure		9001KN244 9001KS11BH1	**4.40 96.00**	9001KN244 9001KS11BH1	**4.40 96.00**	9001KN244 9001KS11BH1	**4.40 96.00**	9001KN244 9001KS11BH1	**4.40 96.00**	9001KN244 9001KS11BH1	**4.40 96.00**	9001KN244 9001KS11BH1	**4.40 96.00**	9001KN244 9001KS11BH1	**4.40 96.00**
SELECTOR SWITCH (3 POSITION) NEMA 1 Enclosure (MUST INCLUDE TWO WIRE CONTROL RELAY, Form R6	C	9999BLX 9999SC2	**35.60 116.00**	9001KN260 9001KS46BH2	**4.40 138.00**	9001KN260 9001KS46BH2	**4.40 138.00**	9001KN260 9001KS46BH2	**4.40 138.00**	9001KN260 9001KS46BH2	**4.40 138.00**	9001KN260 9001KS46BH2	**4.40 138.00**	9001KN260 9001KS46BH2	**4.40 138.00**
NEMA 3R, 4 or 12 Enclosure		9001KN260 9001KS46BH2	**4.40 138.00**												
TWO WIRE CONTROL RELAY (Form R6)△	R6	9999RLX CA2SK11□	**35.60 95.00**	8501XO11	**201.00**	8501XO11	**201.00**	8501XO11	**201.00**	8501XO11	**201.00**	8501XO11	**201.00**	8501XO11	**201.00**

Table 16.166: Electrically Held

Description	Form No.	TYPE L		TYPE S											
		30 A		30 A		60 A		100 A		200 A		300 A		400, 600, 800 A	
		Kit	$ Price	Kit	$ Price	Kit	$ Price	Kit	$ Price	Kit	$ Price	Kit	$ Price	Kit	$ Price
PILOT LIGHTS (RED and GREEN) NEMA 1 Enclosure NEMA 3R, 4 or 12 Enclosure	P1	9999SP28R	**215.00**	9999SP2R 9999SP28R	**215.00 215.00**	9999SP3R 9999SP28R	**215.00 215.00**	♦ 9999SP14R 9999SP28R	**215.00 215.00**	★ 9999SP28R 9999SP28R	**215.00 215.00**	★ 9999SP28R 9999SP28R	**215.00 215.00**	9999SP28R 9999SP28R	**215.00 215.00**
PUSH BUTTONS▼ NEMA 1 Enclosure	A12	9999BLX 9999SA10	**35.60 116.00**	9999SA10	**116.00**	9999SA10	**116.00**	9999SA3	**215.00**	9999SA3	**215.00**	9999SA3	**215.00**	9999SA3	**215.00**
NEMA 3R, 4 or 12 Enclosure		9999SA3	**215.00**	9999SA3	**215.00**	9999SA3	**215.00**	9999SA3	**215.00**	9999SA3	**215.00**	9999SA3	**215.00**	9999SA3	**215.00**
SELECTOR SWITCH (2 POSITION) NEMA 1 Enclosure	C6	9999BLX 9999SC22	**35.60 116.00**	9999SC22	**116.00**	9999SC22	**116.00**	9999SC22	**116.00**	9001KN244 9001KS11BH1	**4.40 96.00**	9001KN244 9001KS11BH1	**4.40 96.00**	9001KN244 9001KS11BH1	**4.40 96.00**
NEMA 3R, 4 or 12 Enclosure		9001KN244 9001KS11BH1	**4.40 96.00**	9001KN244 9001KS11BH1	**4.40 96.00**	9001KN244 9001KS11BM1	**4.40 96.00**	9001KN244 9001KS11BH1	**4.40 96.00**	9001KN244 9001KS11BH1	**4.40 96.00**	9001KN244 9001KS11BH1	**4.40 96.00**	9001KN244 9001KS11BH1	**4.40 96.00**
SELECTOR SWITCH (3 POSITION) NEMA 1 Enclosure	C	9999BLX 9999SC2	**35.60 116.00**	9999SC2	**116.00**	9999SC2	**116.00**	9999SC2	**116.00**	9999SC8	**215.00**	9999SC8	**215.00**	9999SC8	**215.00**
NEMA 3R, 4 or 12 Enclosure		9999SC8	**215.00**	9999SC8	**215.00**	9999SC8	**215.00**	9999SC8	**215.00**	9999SC8	**215.00**	9999SC8	**215.00**	9999SC8	**215.00**

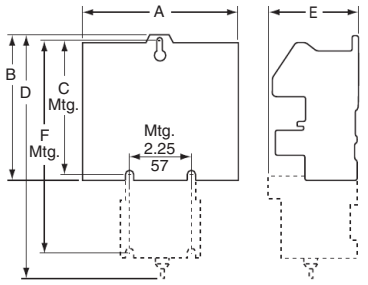
▲ No field installed kit available.
■ Mechanically held contactors need two distinct signals to operate. An N.O. contact block must be added to the Class 9999 Type SA3 push button kit.
♦ Selection for 2- or 3-Pole only; for 4- or 5-Pole use Class 9999SP15R **$215.**
★ The coil voltage must be the same as the pilot light rating. Kit contains one (1) Class 9001, Type KP1R6 120 V/60 Hz red pilot light control unit. For other voltages, refer to the Class 9001, Type KP Control Section.
▼ Requires holding circuit interlock for Type S or additional power pole on Type L devices.
△ Form R6 available for 24 V, 120 V, 240 V and 277 V only.
□ Insert CA2SK11( ) voltage code from page 23-21.

Approximate Dimensions

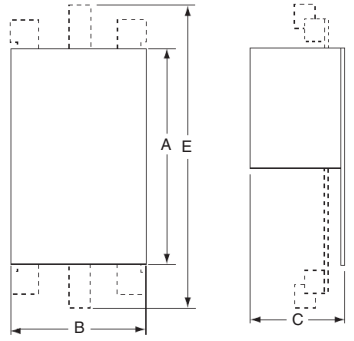
Table 16.167: Open Type

Electrically Held							Mechanically Held						
Ampere Rating	Type	Number of Poles	Dimensions				Type	Dimensions					
			A	B	C	E		A	B	C	D	E	F
30	LO	2–4	**2.88** 73	**5** 127	**4.62** 117	**3.12** 79	LXO	**2.88** 73	—	—	**8.81** 224	**3.25** 83	**7.70** 196
		6	**4.25** 108	**5** 127	**4.62** 117	**3.12** 79		**4.25** 108	—	—	**8.81** 224	**3.25** 83	**7.70** 196
		8–12	**5.63** 143	**5** 127	**4.62** 117	**3.12** 79		**5.63** 143	—	—	**8.81** 224	**3.25** 83	**7.70** 196
30	SMO	2–3	**4.34** 110	**3.22** 82	**4.22** 107	**3.50** 89	—	**7.15** 182	**3.79** 96	**4.68** 119	—	**6.04** 153	—
		4–5	**4.34** 110	**4.25** 108	**4.22** 107	**3.50** 89	—	**7.15** 182	**4.54** 115	**4.68** 119	—	**6.04** 153	—
60	SPO	2–3	**5.33** 135	**4.31** 110	**4.94** 125	**5.50** 140	—	**8.25** 210	**4.61** 117	**5.23** 133	—	**7.81** 198	—
		4–5	**6.22** 158	**5.61** 142	**4.94** 125	**5.50** 140	—	**8.70** 221	**5.90** 150	**5.23** 133	—	**7.81** 198	—
100	SQO	2–3	**7.09** 180	**5.45** 138	**6.50** 165	**7.26** 184	—	**10.13** 257	**5.94** 151	**6.72** 171	—	**7.26** 184	—
		4–5	**7.82** 199	**9.75** 248	**6.50** 165	**7.26** 184	—	**10.56** 268	**9.75** 248	**6.72** 171	—	**7.26** 184	—
200	SVO	2–3	**9.14** 232	**6.00** 152	**6.50** 165	**9.14** 232	SVO	**11.35** 288	**6.00** 152	**6.72** 171	—	**9.14** 232	—
		4 & 5▲	**9.14** 232	**9.75** 248	**6.50** 165	**9.14** 232		**11.55** 293	**9.75** 248	**6.72** 171	—	**9.14** 232	—
300	SXO	2–3	**12.31** 313	**8.66** 220	**8.74** 222	**12.25** 311	SXO	**12.31** 313	**8.66** 220	**10.50** 267	—	**12.31** 313	—
400	SYO	2–3	—	**12.33** 313	**9.00** 229	**27.78** 706	SYO	—	**8.66** 220	**10.50** 267	—	**21.00** 533	—
600	SZO						SZO						
800	SJO	2–3	—	**12.33** 313	**11.94** 303	**42.70** 1085	—	—	—	—	—	—	—

▲ 5-Pole, electrically held only.



Open Type L & LX



Open Type S

Table 16.168: NEMA 1 Enclosure (Non-Combination) Electrically and Mechanically Held

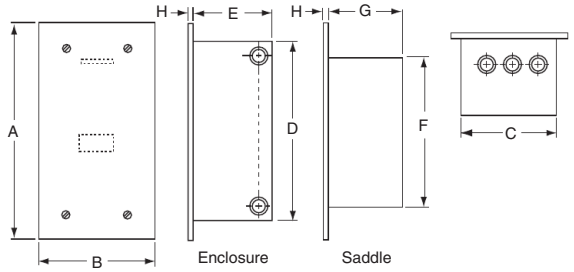
Ampere Rating	Type	Number of Poles	Form(s)		Dimensions		
					Width	Height	Depth
30	LG, LXG	Any	Standard, A3, A12, C, C6, F, R6, Y48		**7.81** 198	**12.69** 322	**6.03** 153
			P, T		**11.88** 302	**11.88** 302	**7.44** 189
30			K14, K141, K142		**16.00** 406	**22.00** 559	**7.13** 181
30	SMG	2–5	Electrically Held	Std., A12, C, C6, P, X	**6.00** 152	**10.00** 254	**5.28** 134
			Mechanically Held	Std., X			
			Electrically Held	T	**6.34** 161	**15.88** 403	**5.19** 132
				N	**14.88** 378	**14.12** 359	**7.56** 192
			Mechanically Held	T, N, R6			
				A3, C, C6, P	**8.12** 206	**14.12** 359	**9.73** 247
60	SPG	2–5	Electrically Held	Std., A12, C, C6, P, X	**7.81** 198	**12.69** 322	**6.03** 153
		2–5	Electrically Held & Mechanically Held	T, N, R6	**14.88** 378	**14.12** 359	**7.56** 192
		2–5	Mechanically Held	Std., A3, C, C6, P, X	**8.12** 206	**14.12** 359	**9.73** 247
100	SQG	2 & 3	Electrically Held	Std., A12, C, C6, F, P, X, T	**11.25** 286	**25.15** 639	**8.99** 228
			Mechanically Held	Std., F, X, T			
			Electrically Held	N, R6, T, T10-T13, ■	**18.15** 461	**29.15** 740	**9.24** 235
			Mechanically Held	A3, C, C6, N, R6, T, T10-T13, ■			
		4 & 5	Electrically Held	Std., A12, C, C6, F, P, X	**11.25** 286	**25.15** 639	**8.99** 228
			Mechanically Held	Std., F, X			
			Electrically Held	■	**18.15** 461	**29.15** 740	**9.24** 235
			Mechanically Held	A3, C, C6, ■			
			Electrically Held	N, R6, T, T10-T13	**22.15** 563	**39.15** 994	**10.24** 260
			Mechanically Held	N, R6, T, T10-T13			
200	SVG	All	Electrically and Mechanically Held	Standard and All Forms	**22.15** 563	**39.15** 994	**10.24** 260
300	SXG	All	Electrically and Mechanically Held	Standard and All Forms	**17.21** 437	**44.21** 1123	**12.83** 326
400 and 600	SYG & SZG	All	Electrically and Mechanically Held	Standard and All Forms	**20.21** 513	**65.75** 1670	**13.10** 333
800	SJG	2–3	With or without any Forms		**34.50** 876	**93.00** 2362	**23.50** 597

■ All Type K Forms.

Dual Dimensions: **INCHES** Millimeters

Table 16.169: NEMA 1 Flush Mounted

Ampere Rating	Type	Form(s)		Dimensions						
				A	B	C	D	E	F	G
30	LF LXF	Standard, F, Y48, R6		**15.19** 386	**8.94** 227	**7.63** 194	**12.88** 327	**5.44** 138	**10.94** 278	**5.13** 130
		A3, A12, C, C6, T, P		**24.00** 610	**17.50** 445	**15.00** 381	**19.25** 489	**7.12** 181	—	—
30	SMF	Electrically Held	Std., A12, C, C6, P, X	**13.44** 341	**7.19** 183	**5.88** 149	**11.13** 283	**4.75** 121	**9.19** 233	**4.50** 114
		Mechanically Held	Std., X							
		Electrically Held	T, N	**24.00** 610	**17.50** 445	**15.00** 381	**19.25** 489	**5.75** 146	—	—
		Mechanically Held	A3, C, C6, T, N, P, R6							
60	SPF	Electrically Held	Std., A12, C, C6, P, X	**15.19** 386	**8.94** 227	**7.63** 194	**12.88** 327	**5.44** 138	**10.94** 278	**5.13** 130
		Mechanically Held	Std., X							
		Electrically Held	T, N	**24.00** 610	**17.50** 445	**15.00** 381	**19.25** 489	**5.75** 146	—	—
		Mechanically Held	A3, C, C6, T, N, P, R6							
100	SQF	With or without any Forms		**31.00** 787	**16.75** 425	**14.25** 362	**26.25** 667	**8.00** 203	—	—



NEMA 1 Flush Mounted

Approximate Dimensions

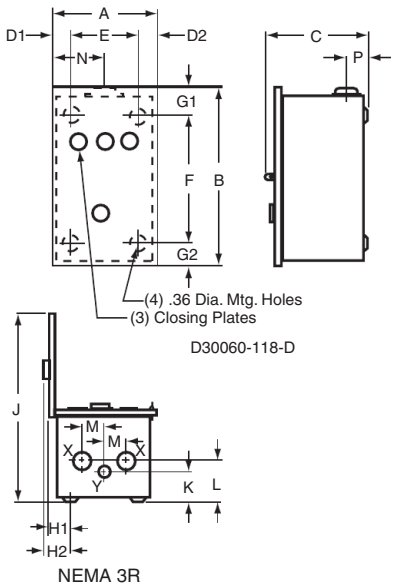
Table 16.170: NEMA 3R

Ampere Rating	Type	Number of Poles	A	B	C	D1	D2	E	F	G1	G2	H1	H2	J	K	L	M	N	P	K.O. X	K.O. Y
30	SMH	All	8.83 224	12.30 312	7.12 181	1.39 35	1.44 37	6.00 152	7.50 191	2.64 67	2.16 55	2.08 53	2.62 66	14.28 363	1.37 35	1.37 35	1.88 48	4.38 111	1.83 46	1/2 3/4 1	1/2 3/4 1
30 60	LH SPH	All	9.83 250	16.30 414	8.62 219	1.39 35	1.44 37	7.00 178	11.50 292	2.64 67	2.16 55	2.08 53	2.62 66	16.78 426	1.31 33	1.75 44	2.13 54	4.88 124	1.83 46	1 1 1/4 1 1/2	1/2 3/4
100	SQH	All	12.83 326	25.30 643	8.62 219	1.39 35	1.44 37	10.00 254	20.50 521	2.64 67	2.16 55	2.08 53	2.62 66	19.78 502	1.31 33	1.94 49	2.44 62	6.38 162	1.83 46	1 1 1/4 2 2 1/2	1/2 3/4
200	SVH	All	12.83 326	40.30 1024	9.12 232	1.39 35	1.44 37	10.00 254	35.50 902	2.64 67	2.16 55	2.08 53	2.62 66	20.28 515	1.31 33	2.31 59	2.69 68	6.38 162	1.83 46	1 1 1/4 2 2 1/2	1/2 3/4

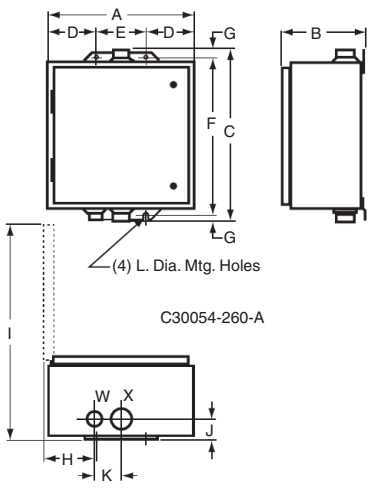
Table 16.171: NEMA 4 and 4X Stainless Steel Only♦

Ampere Rating	Type	Number of Poles	Form(s)		Dimensions for Stainless Steel Enclosures For Glass Polyester (through 100 A), see Size 2 NEMA 4/4X dimensions on page 16-25.												Bottom Hub Only	Top & Bottom Hub
					A	B	C	D	E	F	G	H	I	J	K	L	W	X
30	LW LXW	Any	Standard, F, R6, Y48		8.13 206	7.88 200	16.19 411	1.56 40	5.00 127	15.00 381	.60 15	1.94 49	14.75 375	2.00 51	2.63 67	.31 8	3/4"	1 1/2"
			A3, A12, C, C6, P, T		12.62 321	7.81 198	14.69 373	2.56 65	7.50 191	13.50 343	.63 16	3.38 86	18.44 468	1.69 43	2.31 59	.31 8	3/4"	1"
30	SMW	2–5	Electrically Held	Std., A12, C, C6, P, X	6.38 162	7.13 181	13.19 335	1.56 40	3.25 83	12.00 305	.63 16	1.19 30	11.81 300	1.63 41	2.31 59	.31 8	3/4"	1"
			Mechanically Held	Std., F, X														
			Electrically Held	T	12.63 321	7.11 181	14.69 373	2.56 65	7.50 191	13.50 343	.63 16	3.19 81	18.50 470	1.64 42	2.31 59	.31 8	3/4"	1"
			Electrically Held	N, R6	14.88 378	7.25 184	16.31 414	2.56 65	9.75 248	15.00 381	.63 16	3.19 81	20.88 530	2.06 52	2.63 67	.31 8	3/4"	1 1/2"
			Mechanically Held	A3, C, C6, T, N, P, R6														
60	SPW	2–5	Electrically Held	Std., A12, C, C6, P, X	8.13 206	7.88 200	16.19 411	1.56 40	5.00 127	15.00 381	.60 15	1.94 49	14.75 375	2.00 51	2.63 67	.31 8	3/4"	1 1/2"
			Mechanically Held	Std., A3, C, C6, P, X														
			Electrically Held	T, N, R6	14.88 378	7.25 184	16.31 414	2.56 65	9.75 248	15.00 381	.63 16	3.88 98	20.88 530	2.06 52	2.63 67	.31 8	3/4"	1 1/2"
			Mechanically Held	A3, C, C6, T, N, P, R6														
100	SQW	2 & 3	Electrically Held	Std., A12, C, C6, F, N, R6, P, T, T10-13, X	18.15 461	8.77 223	32.21 818	3.08 78	12.00 305	30.50 775	.61 15	3.67 93	26.71 678	2.58 66	3.19 81	.44 11	3/4"	2 1/2"
			Mechanically Held	Std., A3, C, C6, F, N, P, R6, T, T10-13, X														
		4 & 5	Electrically Held	Std., A12, C, C6, F, P, ■	18.15 461	8.77 223	32.21 818	3.08 78	12.00 305	30.50 775	.61 15	3.67 93	26.71 678	2.58 66	3.19 81	.44 11	3/4"	2 1/2"
			Mechanically Held	Std., A3, C, C6, P, ■														
			Electrically Held	N, R6, T, T10-13	22.15 563	9.77 248	42.21 1072	3.08 78	16.00 406	40.50 1029	.61 15	3.67 93	31.71 805	2.33 59	2.88 73	.44 11	3/4"	2 1/2"
			Mechanically Held	N, R6, T, T10-13														
200	SVW	All	Electrically and Mechanically Held	Standard and All Forms	22.15 563	9.77 248	42.21 1072	3.08 78	16.00 406	40.50 1029	.61 15	3.67 93	31.71 805	2.33 59	2.88 73	.44 11	3/4"	2 1/2"
300	SXW	All	Electrically and Mechanically Held	Standard and All Forms	17.21 437	12.63 321	47.21 1199	4.11 104	9.00 229	46.00 1168	.61 15	4.59 117	28.32 719	3.11 79	5.75 146	.56 14	3/4"	3 1/2"
400 & 600	SYW & SZW	All	Electrically and Mechanically Held	Standard and All Forms	20.21 513	12.13 308	65.21 1656	4.11 104	12.00 305	64.00 1626	.61 15	4.59 117	30.82 783	2.67 68	4.50 114	.56 14	3/4" ▲	Two 3"▲
800	SJW	2–3	With or without any Forms		34.50 876	23.50 597	101.00 2565	Floor Mounting										

▲ X hub is 1/4" left of center. W hub shown is another X hub. K dimension is distance between two X hubs. Actual W hub is located 3-3/16" to the right of X hub shown.
■ All "K" forms.
♦ For glass polyester (through 100A), see Size 2 NEMA 4/4X dimensions on page 16-25.



NEMA 3R



NEMA 4 and 4X

Dual Dimensions: **INCHES** Millimeters

Approximate Dimensions

Table 16.172: NEMA 12/3R

Ampere Rating	Type	Number of Poles	Form(s)		Dimensions▲ A	B	C	D	E	F	G	H	I	J
30	LA LXA	Any	Standard, F, R6, Y48		**8.13** 206	**8.50** 216	**15.75** 400	**1.56** 40	**5.00** 127	**15.00** 381	**.31** 8	**2.13** 54	**14.75** 375	**.31** 8
			A3, A12, C, C6, P, T		**11.88** 302	**7.75** 197	**13.50** 343	**3.81** 97	**4.25** 108	**12.75** 324	**.38** 10	**4.94** 125	**18.12** 460	**.31** 8
30	SMA	2-5	Electrically Held	Std., A12, C, C6, P, X	**6.38** 162	**8.53** 217	**12.75** 324	**1.56** 40	**3.25** 83	**12.00** 305	**.38** 10	**3.56** 90	**12.50** 318	**.31** 8
			Mechanically Held	Std., F, P, X										
			Electrically Held	T	**11.88** 302	**7.75** 197	**13.50** 343	**2.56** 65	**6.75** 171	**12.75** 324	**.38** 10	**3.66** 93	**18.12** 460	**.31** 8
			Electrically Held	N, R6	**14.88** 378	**7.88** 200	**16.00** 406	**2.56** 65	**9.75** 248	**15.00** 381	**.50** 13	**3.66** 93	**21.25** 540	**.31** 8
			Mechanically Held	A3, C, C6, T, N, P, R6										
60	SPA	2-5	Electrically Held	Std., A12, C, C6, P, X	**8.13** 206	**9.28** 236	**16.00** 406	**1.56** 40	**5.00** 127	**15.00** 381	**.50** 13	**3.66** 93	**15.38** 391	**.31** 8
			Mechanically Held	Std., A3, C, C6, P, X										
			Electrically Held	T, N, R6	**14.88** 378	**7.88** 200	**15.75** 400	**2.56** 65	**9.75** 248	**15.00** 381	**.38** 10	**3.66** 93	**21.25** 540	**.31** 8
			Mechanically Held	A3, C, C6, T, N, P, R6										
100	SQA	2 & 3	Electrically Held	Std., A12, C, C6, F, N, R6, P, T, T10-13, X	**18.15** 461	**9.24** 235	**31.50** 800	**3.08** 78	**12.00** 305	**30.50** 775	**.50** 13	**3.67** 93	**26.71** 678	**.44** 11
			Mechanically Held	Std., A3, C, C6, F, N, P, R6, T, T10-13, X										
		4 & 5	Electrically Held	Std., A12, C, C6, F, N, P, ■										
			Mechanically Held	Std., A3, C, C6, P, ■										
			Electrically Held	N, R6, T, T10-13, ■	**22.15** 563	**10.24** 260	**41.50** 1054	**3.08** 78	**16.00** 406	**40.50** 1029	**.50** 13	**3.67** 93	**31.71** 805	**.44** 11
			Mechanically Held	N, R6, T, T10-13, ■										
200	SVA	All	Electrically and Mechanically Held	Standard and All Forms	**22.15** 563	**10.24** 260	**41.50** 1054	**3.08** 78	**16.00** 406	**40.50** 1029	**.50** 13	**3.67** 93	**31.71** 805	**.44** 11
300	SXA	All	Electrically and Mechanically Held	Standard and All Forms	**17.21** 437	**13.33** 339	**47.00** 1194	**4.11** 104	**9.00** 229	**46.00** 1168	**.50** 13	**4.59** 117	**28.32** 719	**.56** 14
400 & 600	SYA & SZA	All	Electrically and Mechanically Held	Standard and All Forms	**20.21** 513	**13.00** 330	**65.00** 1651	**4.11** 104	**12.00** 305	**64.00** 1626	**.50** 13	**5.31** 135	**30.87** 784	**.69** 18
800	SJA	2-3	With or without any Forms		**93.00** 2362	**34.50** 876	**23.50** 597	Floor Mounting						

▲ See Figure 1 for all dimensions except 800 A; for 800 A dimensions, see Figure 2.
■ All Type "K" Forms using Class 9001 Type K Control Units.

Table 16.173: NIGHT-MASTER® Outdoor Lighting Contactors (Short Version)—NEMA 3R

Ampere Rating	Description	Type Number	A	B	C	D	E	F	G	H	J♦	K	L	M	Knockouts N	P	Q
30	Disconnect Switch & Circuit Breaker Types	SMC61, 62 & 81	**23.50** 597	**15.00** 381	**8.42** 214	**10.50** 267	**19.00** 483	**22.38** 568	**7.00** 178	**2.18** 55	1.50 38	**2.13** 54	**2.13** 54	**2.13** 54	.50–.75	1.–1.25 1.50	.50–.75
60	Disconnect Switch & Circuit Breaker Types	SPC61, 62 & 81															
100	Disconnect Switch & Circuit Breaker Types	SQC61, 62 & 81	**34.53** 877	**20.00** 508	**8.42** 214	**10.50** 267	**30.04** 763	**33.41** 849	**7.00** 178	**2.18** 55	**2.0** 51	**2.68** 68	**2.68** 68	**3.44** 87	.50–.75	1.–1.25 2.-2.50	1.–1.25 1.5-2.0
200	Disconnect Switch Type Circuit Breaker Type	SVC61 & 62 SVC81	**48.37** 1229	**19.00** 483	**9.12** 232	**10.53** 267	**44.00** 1118	**47.25** 1200	**7.00** 178	**2.18** 55	2.50 64	**2.68** 68	**2.68** 68	**3.44** 87	.50–.75	1.–1.25 2.–2.50	1.–1.25 1.5–2.0

Table 16.174: NIGHT-MASTER® Outdoor Lighting Contactors (Long Version)—NEMA 3R

Ampere Rating	Description	Type Number	A	B	C	D	E	F	G	H	J♦	K	L	M	Knockouts N	P	Q
30	Disconnect Switch & Circuit Breaker Types	SMC63, 64 & 83	**38.88** 987	**15.00** 381	**8.42** 214	**10.42** 265	**34.38** 873	**37.76** 959	**7.00** 178	**2.18** 55	1.50 38	**2.13** 54	**2.13** 54	**2.13** 54	.50–.75	1.–1.25 1.50	.50–.75
60	Disconnect Switch & Circuit Breaker Types	SPC63, 64 & 83															
100	Disconnect Switch & Circuit Breaker Types	SQC63, 64 & 83	**42.53** 1080	**20.00** 508	**8.42** 214	**10.42** 265	**38.04** 966	**41.41** 1052	**7.00** 178	**2.18** 55	**2.0** 51	**2.68** 68	**2.68** 68	**3.44** 87	.50–.75	1.–1.25 2.–2.50	1.–1.25 1.5–2.0
200	Disconnect Switch Type Circuit Breaker Type	SVC63 & 64 SVC83	**56.37** 1432	**19.00** 483	**9.12** 232	**10.53** 267	**52.00** 1321	**55.25** 1403	**7.00** 178	**2.18** 55	2.50 64	**2.68** 68	**2.69** 68	**3.44** 87	.50–.75	1.–1.25 2.–2.50	1.–1.25 1.5–2.0

♦ Conduit size.

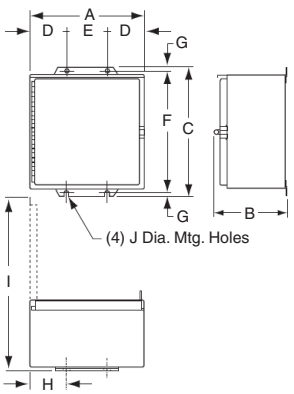


Figure 1: NEMA 12 (30–600 A)

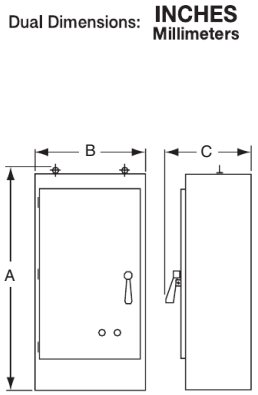


Figure 2: NEMA 12 (800 A)

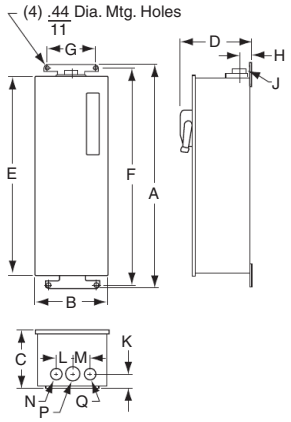


Figure 3: NIGHT-MASTER

Approximate Dimensions

Table 16.175: Combination Lighting Contactors—NEMA 1 Enclosure

Ampere Rating	Type	Dimensions▲ (see Figure 1)															Top & Bot.		Sides
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	W	X	Y
30	SMG6– & 8–	**9.50** 241	**22.50** 572	**8.37** 213	**6.38** 162	**20.50** 521	**14.68** 373	**1.81** 46	**1.69** 43	**3.37** 86	**3.38** 86	**1.06** 27	**3.25** 83	**2.18** 55	**1.25** 32	**.87** 22	.50-.75	.50-.75	.50
	SMG7– & 9–	**13.75** 349	**23.00** 584	**8.36** 212	**10.63** 270	**21.00** 533	**20.07** 510	**1.87** 47	**1.88** 48	**3.76** 96	**2.06** 52	**1.06** 27	**3.25** 83	**2.18** 55	**1.25** 32	**.87** 22	.50-.75-1.0	.50-.75-1.0	.50
60	SPG6– & 8–	**10.50** 267	**26.00** 660	**9.62** 244	**7.37** 187	**24.00** 610	**17.00** 432	**2.12** 54	**2.00** 51	**4.00** 102	**2.06** 52	**1.06** 27	**3.25** 83	**2.18** 55	**1.25** 32	**.87** 22	1.0-1.25	.50-.75	.50
	SPG7– & 9–	**15.00** 381	**28.75** 730	**9.62** 244	**11.62** 295	**26.25** 667	**21.50** 546	**2.18** 55	**2.00** 51	**4.00** 102	**2.56** 65	**1.31** 33	**3.25** 83	**2.18** 55	**1.25** 32	**.87** 22	1.0-1.25	.50-.75	.50

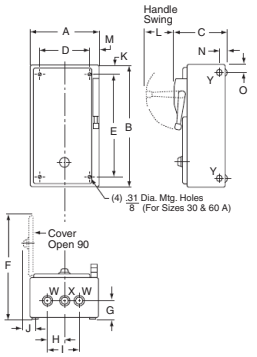


Figure 1
NEMA 1 Enclosure
Combination Devices

Table 16.176: NEMA 1 Enclosure

Ampere Rating	Type	Dimensions▲ (see Figure 2)															Top & Bot.		Sides
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	W	X	Y
100	SQG6– & 7– SQG81 & 91	**15.25** 387	**39.50** 1003	**10.60** 269	**9.25** 235	**3.00** 76	**22.68** 576	**41.00** 1041	**2.69** 68	**5.38** 137	**2.83** 72	**3.74** 95	**5.00** 127	—	**1.21** 31	**.90** 23	1.-1.25 2.-2.50	.50-.75	.50
200	SVG6– & 7– SVG81 & 91	**16.00** 406	**50.00** 1270	**10.68** 271	**10.00** 254	**3.00** 76	**23.68** 601	**51.50** 1308	**2.69** 68	**5.38** 137	**2.83** 72	**3.74** 95	**5.00** 127	—	**1.21** 31	**.90** 23	2.50	.50-.75	.50
300	SXG6– & 7–	**20.00** 508	**75.00** 1905	**14.37** 365	**12.00** 305	**4.00** 102	**29.43** 748	**77.00** 1956	**3.19** 81	—	**3.52** 89	**7.00** 178	**9.25** 235	—	—	—	.50-.75	3.00	—
	SXG81 & 91	**20.00** 508	**63.00** 1600	**14.37** 365	**12.00** 305	**4.00** 102	**27.43** 697	**65.00** 1651	**3.19** 81	—	**3.52** 89	**7.00** 178	**5.00** 127	—	—	—	.50-.75	3.00	—
400	SYG81 & 91	**36.00** 914	**90.00** 2286	**17.00** 432	Floor Mounting Enclosure												—	—	—
600	SZG81 & 91																		

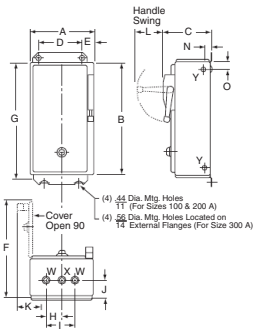


Figure 2
NEMA 1 Enclosure

Table 16.177: NEMA 4 & 4X Enclosure

Ampere Rating	Type	Dimensions▲ (see Figure 3)													
		A	B	C	D	E	F	G	H	I	J	K	L	W	X
30	SMW6–& 8–	**9.50** 241	**8.36** 212	**24.76** 629	**3.25** 83	**2.50** 64	**4.50** 114	**23.50** 597	**.63** 16	**3.00** 76	**1.62** 41	**2.31** 59	**14.31** 363	.75 Hub	1.0 Hub
	SMW7– & 9–	**13.75** 349	**8.36** 212	**25.26** 642	**3.25** 83	**4.75** 121	**4.25** 108	**24.00** 610	**.63** 16	**5.25** 133	**1.62** 41	**2.31** 59	**20.14** 512	.75 Hub	1.0 Hub
60	SPW6– & 8–	**10.50** 267	**9.61** 244	**28.26** 718	**3.25** 83	**2.50** 64	**5.50** 140	**27.00** 686	**.63** 16	**3.00** 76	**2.00** 51	**2.63** 67	**16.56** 421	.75 Hub	1.50 Hub
	SPW7– & 9–	**15.00** 381	**9.61** 244	**31.01** 788	**3.25** 83	**5.38** 137	**4.25** 108	**29.75** 756	**.63** 16	**5.88** 149	**2.00** 51	**2.63** 67	**21.06** 535	.75 Hub	1.50 Hub
100	SQW6– & 7– SQW81 & 91	**15.25** 387	**10.60** 269	**41.76** 1061	**5.00** 127	**2.50** 64	**10.25** 260	**40.50** 1029	**.63** 16	**3.24** 82	**2.61** 66	**3.19** 81	**22.18** 563	.75 Hub	2.50 Hub
200	SVW6– & 7– SVW81 & 91	**16.00** 406	**10.56** 268	**52.26** 1327	**5.00** 127	**2.50** 64	**11.00** 279	**51.00** 1295	**.63** 16	**3.24** 82	**2.61** 66	**3.19** 81	**23.00** 584	.75 Hub	2.50 Hub
300	SXW6– & 7–	**20.00** 508	**14.21** 361	**78.12** 1984	**9.25** 235	**4.00** 102	**12.00** 305	**77.00** 1956	**.56** 14	**4.77** 121	**2.96** 75	**3.50** 89	**29.43** 748	.75 Hub	3.50 Hub
	SXW81 & 91	**20.00** 508	**14.21** 361	**66.12** 1679	**5.00** 127	**4.00** 102	**12.00** 305	**65.00** 1651	**.56** 14	**4.77** 121	**2.96** 75	**3.50** 89	**27.43** 697	.75 Hub	3.50 Hub
400	SYW81 & 91	**36.00** 914	**17.71** 450	**98.00** 2489	Floor Mounting Enclosure									—	—
600	SZW81 & 91														

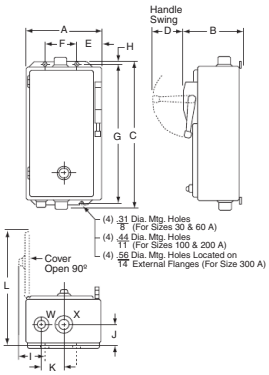


Figure 3
NEMA 4 & 4X Enclosure

Table 16.178: NEMA 12/3R Enclosure

Ampere Rating	Type	Dimensions▲ (see Figure 4)									
		A	B	C	D	E	F	G	H	I	J
30	SMA6– & 8–	**9.50** 241	**8.36** 212	**24.26** 616	**3.25** 83	**2.50** 64	**4.50** 114	**23.50** 597	**.38** 10	**3.25** 83	**14.31** 363
	SMA7– & 9–	**13.75** 349	**10.10** 257	**24.76** 629	**3.25** 83	**4.75** 121	**4.25** 108	**24.00** 610	**.38** 10	**5.50** 140	**22.00** 559
60	SPA6– & 8–	**10.50** 267	**9.61** 244	**27.76** 705	**3.25** 83	**2.50** 64	**5.50** 140	**27.00** 686	**.38** 10	**3.25** 83	**16.56** 421
	SPA7– & 9–	**15.00** 381	**10.98** 279	**30.51** 775	**3.25** 83	**5.38** 137	**4.25** 108	**29.75** 756	**.38** 10	**6.13** 156	**23.43** 595
100	SQA6– & 7– SQA81 & 91	**15.25** 387	**10.59** 269	**42.00** 1067	**5.00** 127	**3.00** 76	**9.25** 235	**41.00** 1041	**.50** 13	**3.75** 95	**22.31** 567
200	SVA6– & 7– SVA81 & 91	**16.00** 406	**10.52** 267	**52.50** 1334	**5.00** 127	**3.00** 76	**10.00** 254	**51.50** 1308	**.50** 13	**3.75** 95	**23.00** 584
300	SXA6– & 7–	**20.00** 508	**14.21** 361	**78.00** 1981	**9.25** 235	**4.00** 102	**12.00** 305	**77.00** 1956	**.50** 13	**7.75** 197	**29.43** 748
	SXA81 & 91	**20.00** 508	**14.21** 361	**66.00** 1676	**5.00** 127	**4.00** 102	**12.00** 305	**65.00** 1651	**.50** 13	**7.75** 197	**27.43** 697
400	SYA81 & 91	**36.00** 914	**17.71** 450	**90.00** 2286	Floor Mounting Enclosure						
600	SZA81 & 91										

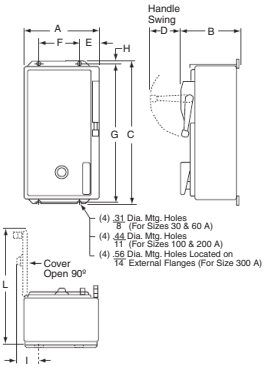


Figure 4
NEMA 12/3R Enclosure

▲ Dimensions are the same for Form F4T (standard control transformer), Form F4T11 (100 VA extra capacity) and Form F4T12 (200 VA extra capacity).

Dual Dimensions: **INCHES** Millimeters

- Compact Design
- Industry Standard Mounting
- Double Break Contacts
- Low Coil VA
- Straight-Through Wiring
- Low Cost

Definite purpose contactors are ideal for heating, air conditioning, refrigeration, data processing, and food service equipment. New compact 1 and 2-Pole contactors are available along with standard size 2, 3, and 4-Pole devices.

They feature quick connect terminals and binder head screws for easy wiring. Box lugs are standard on 40 A contactors and larger. An exclusive DIN track mounting option may reduce installation costs. Coils can be changed on the Type DPA contactors (50 to 90 A) quickly without a tool. Auxiliary contact modules snap on either side of the Type DPA contactors.

8910DP22V09
Definite Purpose Contactor

Table 16.179: Compact 1-Pole Contactors—600 Vac Maximum

Full Load (A)	Locked Rotor (A)			Resistive Load (A)	N.O. Poles	Type	$ Price
	277 V	460 V	575 V				
20	120	100	80	25	1	DP11♦	**32.80**
25	150	125	100	30	1	DP21♦	**38.20**
30	150	125	100	40	1	DP31♦	**45.90**
40	240	200	160	50▲	1	DP41♦	**54.00**

8910DP42V14
Definite Purpose Contactor

Table 16.180: Compact 2-Pole Contactors—600 Vac Maximum■

Full Load (A)	Locked Rotor (A)			Resistive Load (A)	N.O. Poles	Type	$ Price
	277 V	460 V	575 V				
20	120	100	80	30	2	DP12♦	**38.20**
25	150	125	100	35	2	DP22♦	**50.00**
30	150	125	100	40	2	DP32♦	**55.00**
40	240	200	160	50	2	DP42♦	**65.00**

8910DPA33V04
Definite Purpose Contactor

Table 16.181: 2, 3, and 4-Pole Contactors—600 Vac Maximum■

Full Load (A)	Locked Rotor (A)			Resistive Load (A)	Horsepower Ratings				N.O. Poles	Type	$ Price
	230 V	460 V	575 V		115 V 1Ø	230 V 1Ø	230 V 3Ø	460/575 V 3Ø			
20	120	100	80	30	1.5	3	7-1/2	7-1/2	2 3 4	DPA12♦ DPA13♦ DPA14♦	**53.00** **61.00** **76.00**
25	150	125	100	35	2	5	10	15/20	2 3 4	DPA22♦ DPA23♦ DPA24♦	**58.00** **67.00** **86.00**
30	180	150	120	40	2	5	10	15/20	2 3 4	DPA32♦ DPA33♦ DPA34♦	**71.00** **75.00** **99.00**
40	240	200	160	50	3	7-1/2	10	20/25	2 3 4	DPA42♦ DPA43♦ DPA44♦	**79.00** **88.00** **114.00**
50	300	250	200	65	3	10	15	30	2 3	DPA52♦ DPA53♦	**164.00** **174.00**
60	360	300	240	75	5	10	25	30	2 3	DPA62♦ DPA63♦	**185.00** **193.00**
75	450	375	300	94	5	15	25	40	2 3	DPA72♦ DPA73♦	**221.00** **247.00**
90	540	450	360	120	7-1/2	20	30	50	2 3	DPA92♦ DPA93♦	**286.00** **311.00**

▲ 50 A Resistive, maximum 277 V. All others rated 40 A Resistive (above 277 V).
■ Above 240 V, all lines must be switched.
♦ Voltage code must be specified to order this product. Refer to standard voltage codes listed below.

Table 16.182: Coil Voltage Codes

Voltage		Code Type DP, DPA
60 Hz	50 Hz	
24	24	V14
24	—	—
120	110	V02
208	—	—
208-240	220	V09
230-240	220	—
277	—	V04
480	440	V06★
600	550	V07▼

★ Not available for Type DP11 through DP31 single-pole devices.
▼ Not available for Type DP one- and two-pole devices.

Types DP, DPA Application Data

Table 16.183: 2 Normally Open & 2 Normally Closed 4-Pole Contactors—600 Vac Maximum

Full Load (A)	Resistive Load (A)	N.O. Poles	N.C. Poles■	Class 8910		$ Price
				Type	Form	
20	25	2	2	DPA14▲	Y392	**148.00**
25	35	2	2	DPA24▲	Y392	**159.00**
30	40	2	2	DPA34▲	Y392	**171.00**

▲ Voltage code must be specified to order this product. Refer to standard voltage codes below.
■ Above 240 volts, all lines must be switched.
Note: N.C. poles on outside. N.C. poles open before N.O. poles close.

Table 16.184: Auxiliary Contacts, 5 A, 600 Vac Rated

For Use With Class 8910 Type	Contact Arrangement	Class 9999 Type		$ Price
		20–40 A	50–90 A	
DPA	1 N.O.	DD10	D10	**16.40**
	1 N.C.	DD01	D01	**16.40**
	1 N.O. & 1 N.C.	DD11	D11	**29.50**
	2 N.O.	DD20	D20	**29.50**

Table 16.185: NEMA 1 General Purpose Enclosures for Type DP, DPA Contactors

Class 8910 Type	Full Load (A)	Poles	Class 9991 Type	$ Price ♦
DP	20–40	1 & 2	DPG1	**78.00**
DPA	20–40	2 & 3	DPG1	**78.00**
DPA	50	2 & 3	DPG2	**99.00**
	20–40	4		
DPA	60–75	2 & 3	DPG3	**143.00**
DPA	90	2 & 3	DPG4	**287.00**

♦ CP1 discount schedule.

Table 16.186: Application Data

Mechanical Life:	500,000 operations
Electrical Life:	
Type DP	100,000 operations
Type DPA	200,000 operations
Duty Cycle:	Continuous
Approvals:	
UL Component Recognized	
UL Listed (Form U1)	File E3190, CCN NLDX2
CSA Certified	File E3190, CCN NLDX
DPA is CE marked	File LR25490, Class 321104

Note: See page 16-107 for replacement contacts.

Coil Replacement

No tools required (DPA50–60A)

Table 16.187: Class 8910 Type DPA Replacement Coils

Full Load (A)	Poles	Class 9998 Type	Volt-Amperes▼		$ Price△
			Inrush	Sealed	
50–60 A	2 & 3	DA2★	109	10	**92.00**
75–90 A	2 & 3	DA3★	214	19	**114.00**

★ Replace diamond with suffix from DPA Coil Table 16.191. Example: Coil for Class 8910 DPA53V02 120 V 60 Hz would be a Class 9998 Type DA2V02.
▼ For Types DP11 through DP32: Inrush 30 VA; Sealed 5 VA.
△ CP10 Discount Schedule, not CP1.

Table 16.188: Terminals

Full Load (A)	Power Terminals	
	Type of Lug	Wire Range□
20–30 A	Binder Head	#14–#8
40 A	Box Lug	#14–#6
50–60 A	Box Lug	#14–#2
75–90 A	Box Lug	#14–#I/O

□ Solid or stranded copper wire only.

Table 16.189: Miscellaneous Parts

Description	Class 9999 Type	$ Price
DIN mounting bracket attachment (Type DPA, 20 A to 60 A only)	DMB1	**15.00**
Type DP Series B Cover	DPC1	**2.10**

Table 16.190: Factory Modifications

Auxiliary contacts can be factory installed along with a DIN mounting bracket option. Special terminations are also available.

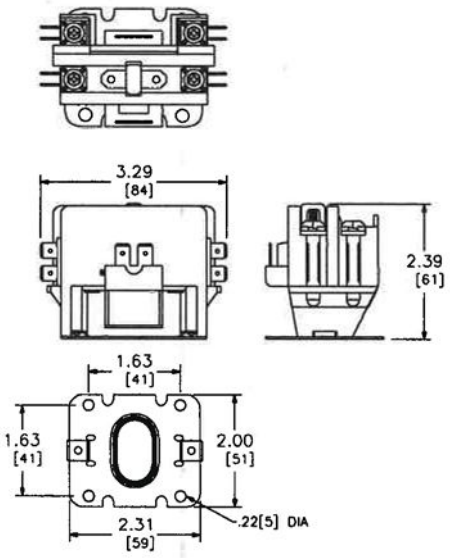
Modification	Type	Form	$ Price
Factory installed auxiliary contacts	—	◊	◊
Pressure wire connectors (20–30 A)	DPA	Y122	**1.70 per pole**
Box lugs (20–30 A)	DP	Y124	**3.30 per pole**
	DPA		
DIN mounting bracket attached (35 mm style)☆	DP	Y135	**3.30**
	DPA		**8.70**
Contact cover for Type DP Series B	—	Y248	**2.10**
UL Listed label on device	DP	U1	**No Charge**

◊ Contact your nearest Schneider Electric sales office.
☆ Available for 20 through 60 A only.

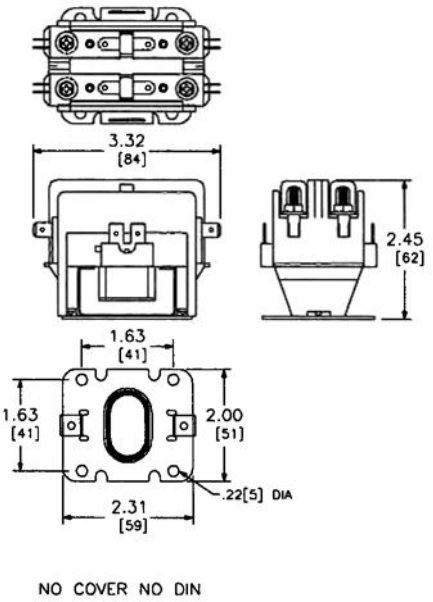
Table 16.191: Type DPA Coil Voltage Codes

Voltage, 60 Hz	Voltage, 50 Hz	Voltage Code
24	24	V14
120	110	V02
208–240	220	V09
277	—	V04
480	440	V06▽
600	550	V07▽

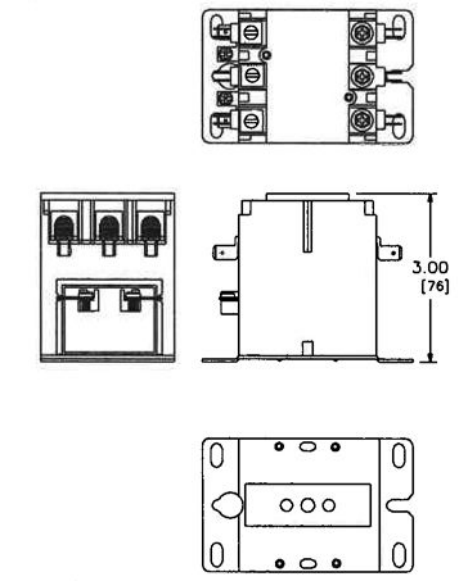
▽ Available for Type DPA contactors only.



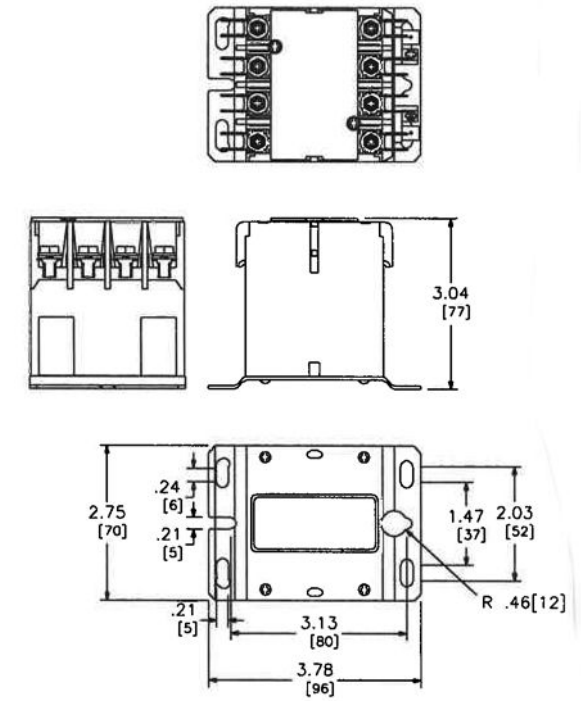
Type DP—1-Pole
20 through 40 Full Load Amperes



Type DP—2-Pole
20 through 40 Full Load Amperes

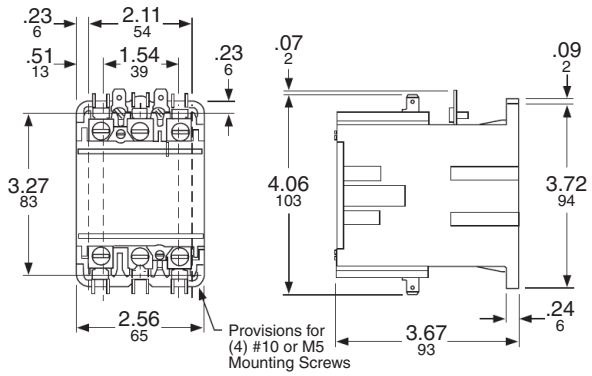


Type DPA—2 and 3-Pole
20 through 40 Full Load Amperes

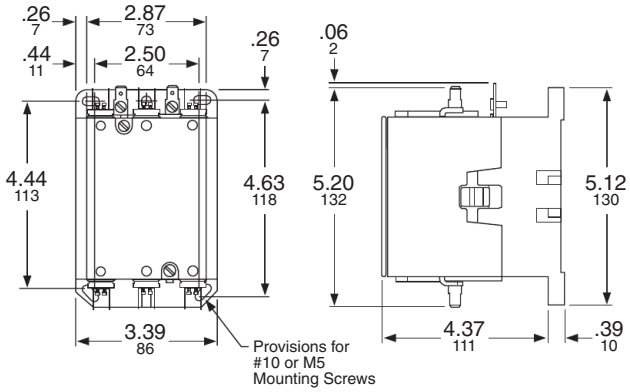


Type DPA—4-Pole
20 through 40 Full Load Amperes

Dual Dimensions: INCHES Millimeters



Type DPA—2 and 3-Pole
50 and 60 Full Load Amperes



Type DPA—2 and 3-Pole
75 and 90 Full Load Amperes

Dual Dimensions: INCHES
Millimeters

8911DPSO33V09
Definite Purpose Starter

Type DPSG23V02

Class 8911 definite purpose starters are inexpensive starters for applications with relatively low duty cycles. Typical applications include air compressors, agricultural equipment, pumps, and HVAC equipment. Definite purpose starters offer:

- Low cost
- Small size
- Melting alloy overload block
- Trip-free reset mechanism
- Open type or enclosed
- 500,000 mechanical operations

Table 16.192: 2- and 3-Pole Starters—600 Vac Maximum

No. of Poles	Full Load (A)	Horsepower Ratings 115 V 1Ø	230 V 1Ø	230 V 3Ø	460/575 V 3Ø	Open Type Type■	Open Type $ Price▲	NEMA 1 Enclosed Type■	NEMA 1 Enclosed $ Price▲	No. of Thermal Units▲
2-Pole Single Phase	20	1 1/2	3	—	—	DPSO12♦	**270.00**	DPSG12♦	**332.00**	1
	25	2	5	—	—	DPSO22♦	**296.00**	DPSG22♦	**354.00**	
	30	2	5	—	—	DPSO32♦	**333.00**	DPSG32♦	**392.00**	
	40	3	7 1/2	—	—	DPSO42♦	**365.00**	DPSG42♦	**426.00**	
	50	3	10	—	—	DPSO52♦	**482.00**	DPSG52♦	**539.00**	
3-Pole Poly-Phase	20	1 1/2	3	7 1/2	7 1/2	DPSO13♦	**297.00**	DPSG13♦	**356.00**	3
	25	2	5	10	15/20	DPSO23♦	**320.00**	DPSG23♦	**381.00**	
	30	2	5	10	15/20	DPSO33♦	**363.00**	DPSG33♦	**423.00**	
	40	3	7 1/2	10	20/25	DPSO43♦	**399.00**	DPSG43♦	**459.00**	
	50	3	10	15	30	DPSO53♦	**638.00**	DPSG53♦	**696.00**	

▲ **Prices do not include thermal units.** Standard trip thermal units are priced at **$21.50** each. See page 16-116 for selection information.
■ Holding circuit contacts are not provided as standard; refer to table below for kit.
♦ Voltage code must be specified to order this product. Refer to standard voltage codes listed below.

Table 16.193: Cross Reference Existing/Replacement Class 8911

Existing Device	Replacement Device
HO33	DPSO13
HG33	DPSG13
JO33	DPSO23
JG33	DPSG23
KO33	DPSO33
KG33	DPSG33
KO43	★
KG43	★
LO33	DPSO43
LG33	DPSG43
MO33	DPSO53
MG33	DPSG53
MO43	★
MG43	★

★ Type DPS 4-Pole starter not available. Suggest 3-Pole device with auxiliary contact.

Table 16.194: Miscellaneous Parts and Kits

Description	Class & Type	$ Price
Start-Stop push button kit▼△	8911DPB1	**134.00**
Hand-Off-Auto selector switch kit▼	8911DSS1	**134.00**
Standard N.C. overload relay contact	9998SO1	**42.80**
N.C. and N.O. isolated overload relay alarm contacts	9999SO4	**116.00**
Overload relay jumper strap	9998SO31	**14.30**

▼ Use for 20 to 40 A starters. For 50 A starters, use the 9999BLX bracket.
△ Does not include holding circuit interlock—order auxiliary contact.

Table 16.195: Class 8911 Type DPS Replacement Parts

Full Load (A)	Poles	Class 9998 Type	Volt A Inrush	Volt A Sealed	$ Price□
50 A	2 & 3	DA2◊	109	10	**92.00**

See page 16-107 for replacement contacts for DPS devices.
□ CP10 Discount Schedule, not CP1.
◊ Replace with Voltage Code from the Coil Table shown below.

Table 16.196: Coil Voltage Codes

Voltage, 60 Hz	Voltage, 50 Hz	Voltage Code
24	24	V14
120	110	V02
208–240	220	V09
277	—	V04
480	440	V06
600	550	V07

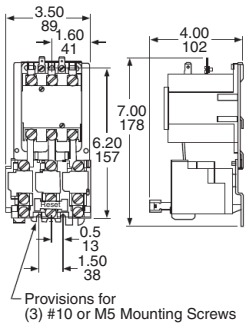
Table 16.197: Auxiliary Contacts For Type DPS Starters

Description	20–40 A Class 9999 Type	50 A Class 9999 Type	$ Price☆
1 N.O.	DD10	D10	**16.40**
1 N.C.	DD01	D01	**16.40**
1 N.O./1 N.C.	DD11	D11	**29.50**
2 N.O.	DD20	D20	**29.50**

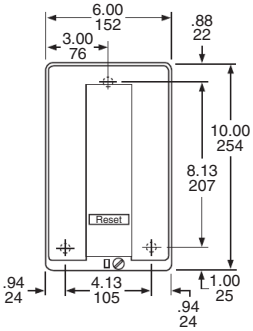
☆ CP1B discount schedule.

NOTE: *Auxiliary contacts must be field installed.*

Approximate Dimensions



Type DPSO—2 and 3-Pole and DSO 20–50 Full Load Amperes



Type DPSG—2 and 3-Pole 20–40 Full Load Amperes

Table 16.198: Ratings—Overload Contacts and Auxiliary Contacts

Device	Volts AC	Pilot Duty – AC Only (35% Power Factor) Make	Pilot Duty – AC Only (35% Power Factor) Carry and Break	Continuous Current Rating
9998 SO1 9999 SO4	120 or Less	30 A	3 A	5 A
9999 R20 & R21 9999 D10, D01, D11 & D20	120–600	3600 VA	360 VA	5 A

Table 16.199: How to Order

To Order Specify:	Catalog Number Class	Typse	Coil Voltage Code	Form(s)
• Class Number • Type Number • Voltage Code • Form(s)	8911	DPSG33	V02	

NOTE: *Motor Logic™SSOLR are designed to protect 50/60 hertz three-phase AC motors from overload and phase loss conditions. Open Delta systems or grounded B-phase systems are difficult to balance and could cause the Motor Logic SSOLR to trip. For applications of this nature, it is recommended that bi-metallic overload relays (Form B12) be used.*

Class 8940 Type NS, SS, and XS panels in NEMA 3R enclosures are specifically designed for pumping applications. Extra space is provided for field installation of auxiliary equipment.

Type SSD4030

Type SSE4050

- Type S Contactor provided as standard
- Approved for submersible pump applications
- Class 10 Motor Logic™ SSOLR through 200 hp–480 V, 100 hp–240 V, Type SS only (Includes rubber boot.)
- All prices include a START push button and a HAND-OFF-AUTO selector switch
- Adjustable trip current
- Phase failure sensitive through 200 hp–480 V, 100 hp–240 V, Type SS only
- Ambient temperature compensated overload
- All devices are UL Listed, and marked “SUITABLE FOR USE AS SERVICE EQUIPMENT”

NOTE: *Class 10 Motor Logic SSOLR does not protect for phase imbalance.*

Table 16.200: 3-Pole Polyphase—480 Vac Maximum (50–60 Hz)—Fusible or Thermal Magnetic Breaker▲

Volts	Maximum Hp Polyphase	Coil Voltage	Fuse Clip (A)♦	Type	$ Price
240	3, 5, 7-1/2	240–60	30	SSC2007★	**2003.00**
	10, 15		60	SSD2015★	**2480.00**
	20, 25, 30		100	SSE2030★	**4194.00**
	40, 50		200	SSF2050★	**7718.00**
	75	220–50	LLL36400E20▼	XSG2075■	**19890.00**
	100		400	SSG2100★	**16286.00**
	100		LLL36600E20▼	XSG2100■	**19890.00**
	200		MJL36800▼	XSH2200■	**58145.00**
	250, 300		PLL34120▼	XSJ2300■	**58145.00**
480	3, 5, 7-1/2, 10	480–60	30	SSC4010★	**2003.00**
	15, 20, 25		60	SSD4025★	**2480.00**
	30		60	SSD4030★	**3338.00**
	40, 50		100	SSE4050★	**4194.00**
	60, 75, 100		200	SSF4100★	**7718.00**
	150	440–50	LLL36400E20▼	XSG4150■	**19890.00**
	200		400	SSG4200★	**16286.00**
	200		LLL36600E20▼	XSG4200■	**19890.00**
	300, 350, 400		MJL36800▼	XSH4400■	**58145.00**
	500, 600		PLL34120▼	XSJ4600■	**58145.00**

Table 16.201: 3-Pole Polyphase—480 Vac Maximum (50–60 Hz)—Electronic Motor Circuit Protector (MCP)

Volts	Max. Hp Polyphase	Coil Voltage■	Circuit Breaker△	Type	$ Price
240	30	240–60 220–50	HLL36100M73	XSE2030V03	**4599.00**
	40		JLL36250M75	XSE2040V03	**7650.00**
	50		JLL36250M75	XSF2050V03	**8258.00**
480	40	480–60 440–50	HLL36100M73	XSE4040V06	**4599.00**
	50			XSE4050V06	**4599.00**
	75		JLL36250M75	XSE4075V06	**7650.00**
	100		JLL36250M75	XSF4100V06	**8258.00**

▲ To substitute an IEC ambient compensated bimetallic overload relay (up to size 5) for the Motor Logic SSOLR, request Form B12 and state motor hp (no charge). This applies to the above (SSx) devices only.
■ See page 16-76 for coil voltage codes and pricing.
♦ Fuse clips are sized for use with dual-element time-delay fuses.
★ Voltage code not required for 240 V or 480 V common control with 8940SS controllers.
▼ Circuit breaker disconnect supplied. (See page 7-32 for circuit breaker adjustment range.)
△ See page 7-32 for circuit breaker adjustment range.

Table 16.202: Class 8940—UL Listed Short Circuit Ratings

Thermal Magnetic Circuit Breaker Type			
NEMA Size	Voltage	Enclosure	Available Amperes RMS Symmetrical
0-5	0-480	Standard	100,000
6, 7	0-480	Standard	65,000

□ Standard enclosure includes non-oversize NEMAs 1, 4 & 4X Stainless, and 12.

Table 16.203: Class 10 Pump Panel Replacement Motor Logic SSOLR (with rubber boot)

Description	Catalog Number	$ Price
Pump Panel SSOLR 27A Special	3116154764 (Size 1)	**$192.00**
Pump Panel SSOLR 45A Special	3116154883 (Size 2)	**270.00**
Pump Panel SSOLR 90A Special	3116155158 (Size 3)	**329.00**
Pump Panel SSOLR 135A Special	3116155368 (Size 4)	**477.00**
Pump Panel SSOLR 270A Special	3116118474 (Size 5)	**221.00**
Pump Panel SSOLR 540A Special	3116118476 (Size 6)	**221.00**
Pump Panel SSOLR 810A Special	3116118477 (Size 7)	**221.00**
Replacement Boot Size 1 & 2	9999MRB12 (5 boots)	**50.00**
Replacement Boot Size 3 & 4	9999MRB34 (5 boots)	**50.00**

Table 16.204: Class 8940—UL Listed Short Circuit Ratings

NEMA Size	NEMA Fuse Class	Enclosure	Available Amperes RMS Symmetrical
0–3	Class H or K	Standard	5,000
0–3	Class R	Standard	100,000
0–2	Class H or K	Standard	5,000
0–2	Class R	Standard	100,000
4–5	Class H or K	Standard	10,000
4–5	Class R	Standard	100,000
6	Class H or K	Standard	18,000
6	Class R	Standard	100,000

For How to Order Information, see page 16-13.

Class 8940 "S2" Pumping Plant Panels in NEMA 3R enclosures are specifically designed for oil field applications. All panels are supplied with an Electonic Motor Circuit Protector (MCP) or a visible blade, fused, disconnect switch. This line of pumping plant panels features:

- Rugged spring latches for easy access without a tool
- Side mounted control units for convenient operation
- Door retainer available for windy areas
- Price includes Hand-Off-Auto selector switch
- UL Listed for use as service equipment for motors
- Extra panel space for additional electrical controls
- All devices are UL Listed, and marked "SUITABLE ONLY FOR USE AS SERVICE EQUIPMENT"

Thermal units must be ordered separately at **$21.50** each. See page 16-116 for selection information.

NOTE: *Overload relays are ambient temperature compensated.*

Type WC3S2V06

Type XE3S2V02B12S

Table 16.200: 3-Pole Polyphase—480 Vac Maximum (50–60 Hz)

Volts	Max. Hp Polyphase	Coil▲ Voltage	NEMA Size	Fusible Disconnect Type			Circuit Breaker Type		
				Fuse Clip (A)■	Type	$ Price	Frame Size	Type	$ Price
240	7-1/2	240–60 220–50	1	30	WC1S2V03	**2109.00**	HLL36030M71	XC1S2V03	**2228.00**
	10		2	60	WD1S2V03	**2880.00**	HLL36050M72	XD1S2V03	**2997.00**
	15						HLL36100M73	XD2S2V03	**2997.00**
	30		3	100	WE1S2V03	**4649.00**	HLL36100M73	XE1S2V03	**4886.00**
	50		4	200	WF1S2V03	**8724.00**	JLL36250M75	XF2S2V03	**8963.00**
480	10	480–60 440–50	1	30	WC3S2V06	**2109.00**	HLL36030M71	XC4S2V06	**2262.00**
	15		2	60	WD3S2V06	**2919.00**	HLL36030M71	XD3S2V06	**3036.00**
	25		2				HLL36050M72	XD4S2V06	**3036.00**
	50		3	100	WE3S2V06	**4748.00**	HLL36100M73	XE3S2V06	**4986.00**
	100		4	200	WF3S2V06	**8801.00**	JLL36250M75	XF4S2V06	**9036.00**

▲ Coil voltage code must be supplied to order this product. See Coil Voltage Codes table to the left for codes.
■ Fuse clips are sized for use with dual-element time-delay fuses.

Table 16.201: Factory Modifications (Forms)

Description	Form Letter	$ Price
Substitute Class 10 IEC overload relay – state motor hp (NEMA Sizes 0–4 only)	B12	**No Charge**
Control transformer with fused primary: Types: NPD, NPE, NPF, SSC, WC, XC (50 VA) NPG, SSD, XD, WD (100 VA) NPJ, SSE, XE, WE (150 VA) SSF, XF, WF (300 VA) SSG, NSG, XSG (50 VA and an interposing control relay)	F4T	 **386.00** **539.00** **797.00** **968.00** **1097.00**
Factory installed door wind latch assembly in a standard 8940NPD, NPE, NPF, NPG, NPJ, SSC, SSD, SSE and SSF	G45	**113.00**
Elapsed time meter	G97	**827.00**
Substitute Class 10 Motor Logic™ SSOLR▼	H10	**64.00**
ON Delay Timer	K25	**1197.00**
OFF Delay Timer	K26	**1197.00**
Program timer with day omission feature	K141	**1197.00**
Backspin timer (time delay upon energization)	K15	**1112.00**
Start Pushbutton (S2 panels only)	A28	**No Charge**
"Slim" panel (Types WC, WD, WE, XC, XD, XE only)	L8	**No Charge**
"Short" panel (Types SSE, SSF, XE-S2 and XF-S2 only)	L9	**No Charge**
Pilot light (specify lens color). Does not include auxiliary contact.	P♦	**336.00**
Separate control	S	**No Charge**
Auxiliary contacts (specify N.O. or N.C.)	X★	**158.00**
Special UL panel label for modified UL Listed devices on non-standard panels, requires approval by manufacturing plant	Y1	**267.00**
Lightning arrestor	Y1532	**570.00**
Phase failure, phase reversal relay with time delay including under and over voltage protection	R44	**1463.00**
Substitute standard trip melting alloy overload relays	Y61	**No Charge**
Substitute quick-trip melting alloy overload relay (Sizes 1 and 2 only) – Not available on IEC style contactors	Y611	**No Charge**
Substitution of Class R rejection fuse clips for standard fuse clip. (8940 RD, RE, RF, RG, MD, ME, MF, MG, SSC, SSD, SSE, SSF, SSG, WC, WD, WE and WF)	Y1071	**No Charge**

♦ Indicate pilot light color as **Form P1** (red) or **Form P2** (green). See page 16-100, footnote △ for more selections.
★ To determine the maximum number of auxiliary contacts which can be added to each Type S device and for the appropriate "X Form," refer to tables in the Class 8536 section.
▼ Motor Logic SSOLR are designed to protect 50/60 hertz three-phase AC motors from overload, phase unbalance and phase loss conditions. Open Delta systems or grounded B-phase systems are difficult to balance and could cause the Motor Logic SSOLR to trip. For applications of this nature, it is recommended that bi-metallic overload relays (Form B12) be used.

Table 16.202: Coil Voltage Codes

Voltage		Code	$ Price Adder
60 Hz	50 Hz		
24△□	—	V01	N/C
120□	110□	V02	N/C
208□	—	V08	N/C
240	220	V03	N/C
—	380	V05	N/C
480	440	V06	N/C
600□	550□	V07	N/C
Specify	Specify	V99	35.60

△ 24 V coils are not available on Size 4 starters. On Size 1–3, 24 V coils are available. **Form S** must be used.
□ **Form S** required for separate control.

For How to Order Information, see page 16-13.

Approximate Dimensions

Table 16.203:

Type	Fig.	A		B		C		D		E		F		G		H		J		K		L	M		Knockouts			V	
		IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	Conduit	IN	mm	R	S	T	IN	mm
NPD/E/F SSC SSD	1	39.05	992	13.73	349	6.67	169	9.70	246	33.05	839	37.93	963	7.00	178	2.41	61	3.00	76	3.00	76	2-1/2	2.41	61	1/2–3/4	1-1/4–1-1/2	1/2–3/4	1.41	36
NPG/J SSE/F XSE/F	1	49.00	1245	19.15	486	8.81	224	10.37	263	44.07	1119	47.88	1216	7.00	178	2.17	55	2.69	68	3.44	87	2-1/2	2.57	65	1/2–3/4	1–1-1/4 1–2-1/2	1–1-1/4 1-1/2–2	1.41	36
WC—S2 WD—S2 XC—S2 XD—S2	1	38.50	978	19.00	483	7.29	185	9.39	239	34.00	864	37.38	949	7.00	178	2.18	55	2.13	54	2.13	54	1-1/2	2.12	54	1/2–3/4	1–1-1/4 1-1/2	1/2–3/4	—	—
WE—S2 WF—S2 XE—S2 XF—S2	1	56.50	1435	23.00	584	8.23	209	10.33	262	52.00	1321	55.38	1407	7.00	178	2.18	55	2.69	68	3.44	87	2	2.68	68	1/2–3/4	1–1-1/4 2–2-1/2	1–1-1/4 1-1/2–2	1.50	38
SSG XSG	1	75.50	1892	22.00	559	13.80	351	17.55	446	73.00	1854	74.50	13	14.00	356	N/A	N/A	.56	14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.50	38
XSH	2	82.50	2096	36.00	914	20.00	508	23.25	591	80.00	2032	33.75	857	16.50	419	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
XSJ	2	92.50	2350	34.00	864	20.00	508	23.25	591	90.00	2286	31.75	806	16.50	419	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

NOTE: *Illustrations may not represent the actual enclosure; they are intended for dimensional information only.*

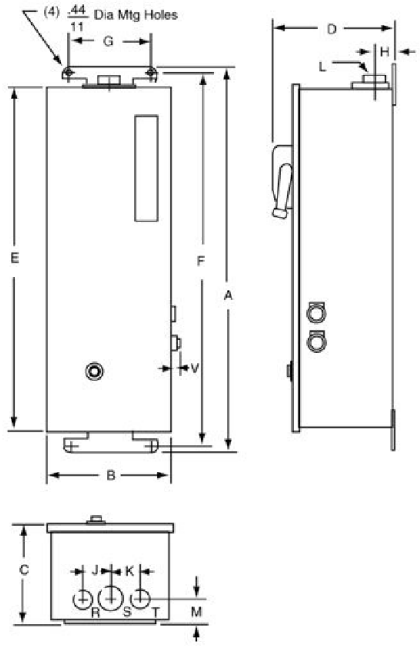


Figure 1

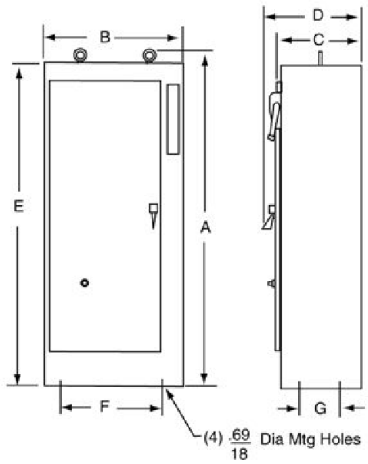


Figure 2

Dual Dimensions: **INCHES** Millimeters

Duplex Motor Controllers are used to control two motors, and consist of two starters in a common enclosure. Two separate disconnect switches or circuit breakers with operators are included with all combination devices. Unless **Form Y68** is specified, an alternation circuit (a Class 8501 Type XO40 relay) is included, which alternately operates first one motor and then the other on each successive closing of a pilot device. Both motors will be energized should a second pilot device close. All devices incorporate a terminal block to simplify wiring of pilot devices A and B. Typical applications include pump motors where a second pump is required for peak demand periods yet alternation is desirable to equalize pump wear.

Table 16.204: 3-Pole Polyphase—600 Vac Maximum (50–60 Hz)
Non-Combination Type—Without Disconnect—With Electric Alternation

Note that the prices shown do not include thermal units. Devices require 6 thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

NEMA Size	Maximum Rating Each Motor		NEMA 1 General Purpose Enclosure		NEMA 4/4X Watertight and Dusttight Enclosure Stainless Steel		NEMA 12 (NEMA 3 and 3R)▲ Dusttight and Driptight Industrial Use Enclosure		Open Type	
	Voltage	Hp Polyphase	Type	$ Price	Type	$ Price	Type	$ Price	Type	$ Price
0	200–230 460–575	3 5	NBG10■	2322.00	NBW10■	3105.00	NBA10■	2564.00	NBO10■	2138.00
1	200–230 460–575	7-1/2 10	NCG20■	2478.00	NCW20■	3290.00	NCA20■	2721.00	NCO20■	2294.00
2	200 230 460–575	10 15 25	NDG30■	3731.00	NDW30■	5427.00	NDA30■	4359.00	NDO30■	3290.00
3	200 230 460–575	25 30 50	NEG40■	5112.00	NEW40■	8303.00	NEA40■	5925.00	NEO40■	4487.00
4	200 230 460–575	40 50 100	NFG50■	10440.00	NFW50■	15881.00	NFA50■	13131.00	NFO50■	9116.00

Table 16.205: 3-Pole Polyphase—600 Vac Maximum (50–60 Hz)
Combination Thermal Magnetic Circuit Breaker Type—With Electric Alternation

Note that the prices shown do not include thermal units. Devices require 6 thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

Motor Starter Voltage	Max. Hp Poly-phase	Coil Voltage ■	NEMA Size	Circuit Breaker		NEMA 1 General Purpose Enclosure		NEMA 4/4X Watertight and Dusttight Stainless Steel Enclosure		NEMA 12 (NEMA 3 and 3R)▲ Dusttight and Driptight Industrial Use Enclosure	
				Frame Size	Ampere Rating	Type	$ Price	Type	$ Price	Type	$ Price
200 (208)	2 3	208–60	0	HLL36015 HLL36020	15 20	CBG06■ CBG08■	3945.00	CBW06■ CBW08■	6951.00	CBA06■ CBA08■	4701.00
	5 7-1/2		1	HLL36035 HLL36050	35 50	CCG12■ CCG15■	4103.00	CCW12■ CCW15■	7109.00	CCA12■ CCA15■	4859.00
	10		2	HLL36060	60	CDG22■	5826.00	CDW22■	10470.00	CDA22■	6894.00
	15 20 25		3	HLL36100 HLL36125 HLL36150	100 125 150	CEG32■ CEG36■ CEG38■	9401.00	CEW32■ CEW36■ CEW38■	17490.00	CEA32■ CEA36■ CEA38■	10782.00
	30 40		4	JLL36200 JLL36250	200 250	CFG41■ CFG44■	19584.00	CFW41■ CFW44■	29924.00	CFA41■ CFA44 ■	23400.00
230 (240)	2 3	240–60 220–50	0	HLL36015 HLL36020	15 20	CBG06■ CBG08■	3945.00	CBW06■ CBW08■	6951.00	CBA06■ CBA08■	4701.00
	5 7-1/2		1	HLL36035 HLL36045	35 45	CCG14■ CCG16■	4103.00	CCW14■ CCW16■	7109.00	CCA14■ CCA16■	4859.00
	10 15		2	HLL36060 HLL36090	60 90	CDG22■ CDG24■	5826.00	CDW22■ CDW24■	10470.00	CDA22■ CDA24■	6894.00
	25 30		3	HLL36150	150	CEG38■	9401.00	CEW38■	17490.00	CEA38■	10782.00
	40 50		4	JLL36225 JLL36250	225 250	CFG43■ CFG44■	19584.00	CFW43■ CFW44■	29924.00	CFA43■ CFA44■	23400.00
460 (480)	5	480–60 440–50	0	HLL36015	15	CBG10■	4859.00	CBW10■	7862.00	CBA10■	5612.00
	7-1/2 10		1	HLL36025 HLL36030	25 30	CCG18■ CCG20■	5013.00	CCW18■ CCW20■	8019.00	CCA18■ CCA20■	5769.00
	15 20 25		2	HLL36045 HLL36060 HLL36070	45 60 70	CDG26■ CDG28■ CDG30■	6737.00	CDW26■ CDW28■ CDW30■	12881.00	CDA26■ CDA28■ CDA30■	7806.00
	30 50		3	HLL36080 HLL36150	80 150	CEG39■ CEG40■	9401.00	CEW39■ CEW40■	17490.00	CEA39■ CEA40■	10782.00
	75 100		4	JLL36200 JLL36250	200 250	CFG45■ CFG47■	19584.00	CFW45■ CFW47■	29924.00	CFA45■ CFA47■	23400.00

▲ NEMA 12 enclosures may be field modified for outdoor applications. For details refer to Class 9991, page 16-95.
■ Coil voltage code must be specified to order this product. Refer to standard voltage codes listed on page 16-80.
Note: For voltage codes used with control transformers, see page 16-101.

For How to Order Information, see page 16-13.

Table 16.206: 3-Pole Polyphase—600 Vac Maximum (50–60 Hz) Combination Disconnect Switch Type—With Electric Alternation

Note that the prices shown do not include thermal units. Devices require 6 thermal units. Standard trip thermal units are **$21.50** each. See page 16-116 for selection information.

Motor Voltage (Starter Voltage)	Max. Hp Poly-phase	Coil Voltage ♦	NEMA Size	Fuse Clip Size (A)■	NEMA 1 General Purpose Enclosure		NEMA 4/4X Watertight and Dusttight Enclosure Stainless Steel		NEMA 12 (NEMA 3 and 3R)▲ Dusttight and Driptight Industrial Use Enclosure	
					Type	$ Price	Type	$ Price	Type	$ Price
200 (208)	3	208-60	0	None 30	UBG10♦ DBG08♦	**3731.00** **3816.00**	UBW10♦ DBW08♦	**6737.00** **6822.00**	UBA10♦ DBA08♦	**4487.00** **4572.00**
	7-1/2		1	None 60	UCG20♦ DCG18♦	**3888.00** **3974.00**	UCW20♦ DCW18♦	**6894.00** **6980.00**	UCA20♦ DCA18♦	**4644.00** **4730.00**
	10		2	None 60	UDG30♦ DDG28♦	**5642.00** **5754.00**	UDW30♦ DDW28♦	**10283.00** **10398.00**	UDA30♦ DDA28♦	**6708.00** **6822.00**
	25		3	None 200	UEG40♦ DEG38♦	**8798.00** **9072.00**	UEW40♦ DEW38♦	**16892.00** **17163.00**	UEA40♦ DEA38♦	**10184.00** **10454.00**
230 (240)	3	240-60 220-50	0	None 30	UBG10♦ DBG08♦	**3731.00** **3816.00**	UBW10♦ DBW08♦	**6737.00** **6822.00**	UBA10♦ DBA08♦	**4487.00** **4572.00**
	7-1/2		1	None 60	UCG20♦ DCG18♦	**3888.00** **3974.00**	UCW20♦ DCW18♦	**6894.00** **6980.00**	UCA20♦ DCA18♦	**4644.00** **4730.00**
	15		2	None 60	UDG30♦ DDG28♦	**5642.00** **5754.00**	UDW30♦ DDW28♦	**10283.00** **10398.00**	UDA30♦ DDA28♦	**6708.00** **6822.00**
	30		3	None 200	UEG40♦ DEG38♦	**8802.00** **9072.00**	UEW40♦ DEW38♦	**16892.00** **17163.00**	UEA40♦ DEA38♦	**10184.00** **10454.00**
460 (480)	5	480-60 440-50 575 (600)	0	None 30	UBG10♦ DBG10♦	**3731.00** **3833.00**	UBW10♦ DBW10♦	**6737.00** **6836.00**	UBA10♦ DBA10♦	**4487.00** **4586.00**
	10		1	None 30	UCG20♦ DCG20♦	**3888.00** **3987.00**	UCW20♦ DCW20♦	**6894.00** **6993.00**	UCA20♦ DCA20♦	**4644.00** **4743.00**
	25		2	None 60	UDG30♦ DDG30♦	**5642.00** **5796.00**	UDW30♦ DDW30♦	**10283.00** **10440.00**	UDA30♦ DDA30♦	**6708.00** **6866.00**
	50		3	None 100	UEG40♦ DEG40♦	**8802.00** **9230.00**	UEW40♦ DEW40♦	**16892.00** **17319.00**	UEA40♦ DEA40♦	**10184.00** **10611.00**

▲ NEMA 12 enclosures may be field modified for outdoor applications. For details refer to Class 9991, page 16-95.
■ Hp rating applies only when dual element time delay fuses are used.
♦ Coil voltage code must be specified to order this product. Refer to standard voltage codes listed on page 16-80.
Note: For voltage codes used with control transformers, see page 16-101.

Table 16.207: Factory Modifications (Forms)

Description◊	Enclosure Type	Form	Price/NEMA Size			
			0–1	2	3	4
PILOT DEVICES IN COVER★						
"START-STOP" push buttons—one supplied for each motor. (**Form C** or **Form Y68** required.)	1, 4, 12	A	**671.00**	**671.00**	**671.00**	**671.00**
"HAND-OFF-AUTO" selector switch—one supplied for each motor.	1, 4,12	C	**671.00**	**671.00**	**671.00**	**671.00**
"NO. 1 LEAD—NO. 2 LEAD" selector switch for manual selection of lead pump. (**Form Y68** required.)	Any	C13	**513.00**	**513.00**	**513.00**	**513.00**
Red "ON" pilot light—one supplied for each motor.	1, 4, 12	P1	**671.00**	**671.00**	**671.00**	**671.00**
Push-to-test red "ON" pilot light—one supplied for each motor.	1, 4, 12	P21	**869.00**	**869.00**	**869.00**	**869.00**
Non-standard markings for pilot devices.	Any	G12	**28.70**	**28.70**	**28.70**	**28.70**
"TEST" push button for each starter.	Any	Y29	**671.00**	**671.00**	**671.00**	**671.00**
CONTROL CIRCUIT MODIFICATIONS						
Fused control circuit without transformer						
One fuse	Any	F	**627.00**	**627.00**	**627.00**	**627.00**
Two fuses	Any	F4	**627.00**	**627.00**	**627.00**	**627.00**
Fused control circuit transformer, two fuses in primary, with 600, 480, 240 or 208 V primary and 120 V secondary –one supplied for each starter.	Any	F4T	**770.00**	**1083.00**	**1596.00**	**1938.00**
Fused control circuit transformer, two fuses in primary, one fuse in secondary—one supplied for each starter.	Any	FF4T	**1395.00**	**1710.00**	**2222.00**	**2564.00**
100 VA additional capacity	Any	FF4T11	**1994.00**	**2393.00**	**2849.00**	**3135.00** □
200 VA additional capacity	Any	FF4T12	**2478.00**	**2934.00**	**3392.00** □	**3675.00** □
Extra capacity control circuit transformer—two fuses in primary—one supplied for each starter (See Table 16.208)						
100 VA additional capacity	Any	F4T11	**1446.00**	**1767.00**	**2222.00**	— △
200 VA additional capacity	Any	F4T12	**1853.00**	**2303.00**	**2763.00**	— △
Elapsed time meter for each starter	Any	G97	**1652.00**	**1652.00**	**1652.00**	**1652.00**
Pressure switch for each starter (Square D pressure switch 9012GAW25)	Any	D	**755.00**	**755.00**	**755.00**	**755.00**
Addition of 2 relays to modify controller for operation with single pole pilot devices.	Any	R7	**1454.00**	**1454.00**	**1454.00**	**1454.00**
Addition of 3 relays to modify controller for operation with single pole mercury float switches.	Any	R8	**2178.00**	**2178.00**	**2178.00**	**2178.00**
Control circuit wired for separate 120 V source.	Any	S	**No Charge**	**No Charge**	**No Charge**	**No Charge**
Addition of 1 N.O. unwired interlock per starter for use by customer. (1 N.O. unwired interlock per starter is supplied as standard.)	Any	X10	**315.00**	**315.00**	**315.00**	**315.00**
Addition of 1 N.C. unwired interlock per starter for customer use.	Any	X01	**315.00**	**315.00**	**315.00**	**315.00**
Modified wiring for use with double pole mercury float switches.	Any	Y24	**314.00**	**314.00**	**314.00**	**314.00**
Deduct for omission of electrical alternating circuit.	Any	Y68	**869.00**	**869.00**	**869.00**	**869.00**
Additional Control circuit terminals—per wired terminal. (5 point terminal block is standard)	Any	G56▼	**116.00**	**116.00**	**116.00**	**116.00**
Unwired	Any	G50▼	**57.00**	**57.00**	**57.00**	**57.00**

★ Not available on open style devices.
▼ Addition of terminal block 9080CA or 9080GR6 only. 5 point terminal block is provided as standard for custom connection. A wiring diagram must be supplied for factory wiring.
△ Not available on this size. Use **Form FF4T_ _.**
□ Single primary voltage must be specified.
◊ These Forms are most commonly used. Other Forms may be available. Consult Schneider Electric CCC at (1-888-778-2733) for additional information.

Table 16.208:

NEMA Size	Standard Capacity (Form F4T)	100 VA Additional Capacity (Form F4T11)	200 VA Additional Capacity (Form F4T12)
	Class 9070 Type	Class 9070 Type	Class 9070 Type
0 & 1	T100	T200	T300
2	T100	T200	T300
3	T150	T300	T500
4	T300	T500	T500

For How to Order Information, see page 16-13.

Approximate Dimensions

Table 16.209: NEMA 1 Enclosure—Non-Combination (Figure 1)

Starter Size	A	B	C	D	E	F	G	H
0, 1, or 2	20-1/2	24-1/8	8-11/16	17-7/8	21-1/2	1-5/16	1-5/16	5/16 Dia.
3 or 4	22-1/8	34	9-3/4	16	35-1/2	3-1/16	3/4	7/16 Dia.

Table 16.210: NEMA 1 Enclosure—Combination (Figure 2)

Starter Size	A	B	C	D	E	F	G	H	J	K
0, 1, or 2 (For FAL Circuit Breaker and 30 A & 60 A Disconnect Switch)	20-3/8	35	9-5/8	17	32-1/2	3-5/16	1-1/4	1-1/4	1-1/4	7/16 Dia.
3 or 4 (For FAL & KAL Circuit Breaker and 100 A Disconnect Switch)	32	44	10-3/4	24	46	▲	1	2-1/2	2-1/2	9/16 Dia.

▲ For FAL & KAL Circuit Breaker. Dimension F=3-5/16. For 100 A Disconnect Switch Dimension F=4-7/8

Table 16.211: NEMA 4 Enclosure—Non-Combination (Figure 3)

Starter Size	A	B	C	D	E	F	G	H	J
0, 1, or 2	20-1/2	24	8	25	15-3/8	26	2-9/16	1/2	5/16
3 or 4	22	34	9-1/8	35	17	36	2-1/2	1/2	9/16

Table 16.212: NEMA 4 Enclosure—Combination (Figure 4)

Starter Size	A	B	C	D	E	F	G	H	J	K
0, 1, or 2 (For FA Circuit Breaker and 30 A & 60 A Disconnect Switch)	20-1/2	35	9-9/16	36	15-3/8	37	2-9/16	1/2	5/16	3-5/16
3 or 4 (For FA and KA Circuit Breaker and 100 A Disconnect Switch)	32	44	10-11/16	46	26	47	3	1/2	9/16	■

■ For FA or KA Circuit Breaker K = 3-1/16. For 100 A Disconnect Switch K = 4-7/8

Table 16.213: NEMA 12/3R Enclosure—Non-Combination (Figure 3)

Starter Size	A	B	C	D	E	F	G	H	J
0, 1, or 2	20-1/2	24-1/4	8	25-1/2	14-3/8	26-1/2	3-1/16	1/2	7/16
3 or 4	22	34	9-1/8	35-1/2	16	36-1/2	3	1/2	7/16

Table 16.214: NEMA 12/3R Enclosure—Combination (Figure 4)

Starter Size	A	B	C	D	E	F	G	H	J	K
0, 1, or 2 (For FA Circuit Breaker and 30 A & 60 A Disconnect Switch)	20-1/2	35	9-9/16	36-1/2	14-3/8	37-1/2	3	1/2	7/16	3-5/16
3 or 4 (For FA and KA Circuit Breaker and 100 A Disconnect Switch)	32-1/4	44-1/4	10-11/16	46	24	47	4-1/8	1/2	9/16	♦

♦ For FA or KA Circuit Breaker K = 3-5/16. For 100 A Disconnect Switch K = 4-7/8

Table 16.215: Coil Voltage Codes

Voltage		Code	$ Price Adder
60 Hz	50 Hz		
24▼★	—	V01	No Charge
120▼	110	V02	No Charge
208	—	V08	No Charge
240	220	V03	No Charge
—	380	V05	No Charge
480	440	V06	No Charge
600	550	V07	No Charge
Specify	Specify	V99	35.60

★ 24 V coil is not available on Size 4. On Sizes 00–3, where 24 V coils are available, **Form S** (separate control) must be specified.

▼ These voltage codes must include **Form S** (No additional charge).

NOTE: *Illustrations may not represent the actual enclosure; they are intended for dimensional information only. Dimensions are in inches.*

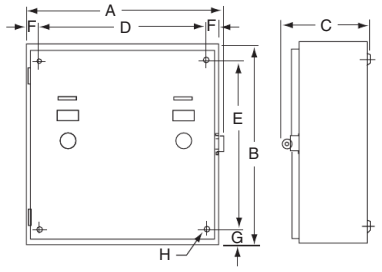


Figure 1

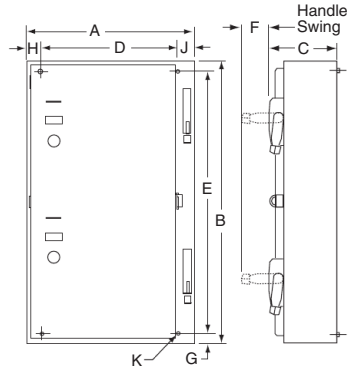


Figure 2

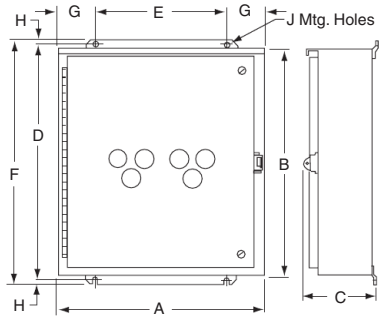


Figure 3

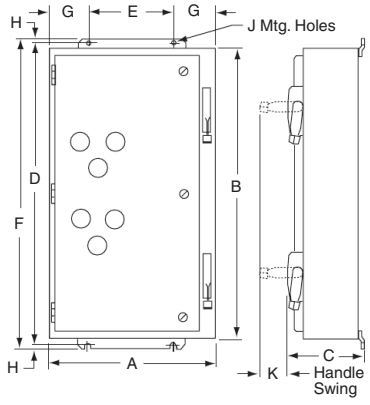


Figure 4

8965DPR33V02
Hoist Contactor
600 Vac, 25 A
DPR, Angled

Class 8965 Type DPR reversing/hoist contactors are designed for the control of motors in hoists, overhead doors, small elevators, commercial laundry equipment, and other related products which use reversing motors. They are rated to perform in the short periods of jogging experienced in hoist service.

The coils are designed to operate on line voltages of 85% to 110% of rated voltage, and are for applications at 50 or 60 Hz only. Coils are easily replaced with external base removed.

Auxiliary contacts may be easily field–added to any Class 8965 reversing contactor. Type DPR contactors accept one auxiliary contact module with up to two isolated circuits per side (two modules per device). When auxiliary contacts are ordered separately, two modules are normally used for each device; one for forward, one for reverse.

Table 16.216: Reversing/Hoist Contactors—600 Vac Maximum

No. of Poles	Horsepower Ratings▲ 115 V 1Ø	230 V 1Ø	230 V 3Ø	460/575 V 3Ø	Open Type Type	$ Price	Replacement Coil Class 9998 Type	$ Price■
3-Pole Poly-Phase	1	2	5	7-1/2	DPR13♦	**998.00**	DA1♦	**68.00**
	2	3	7-1/2	10	DPR23♦	**1139.00**	DA1♦	**68.00**
	2	5	10	15	DPR33♦	**1283.00**	DA1♦	**68.00**
	3	7-1/2	15	20	DPR43♦	**1425.00**	DA1♦	**68.00**
4-Pole Poly-Phase	1	2	5	7-1/2	DPR14♦	**1070.00**	DA2♦	**92.00**
	2	3	7-1/2	10	DPR24♦	**1211.00**	DA2♦	**92.00**
	2	5	10	15	DPR34♦	**1353.00**	DA2♦	**92.00**
	3	7-1/2	10	20	DPR44♦	**1497.00**	DA2♦	**92.00**

▲ For rapid operation (jogging duty), use the next larger size contactor.
■ CP10 Discount Schedule, not CP1.
♦ Voltage code must be specified to order this product. Refer to standard voltage codes listed below.

Table 16.217: Auxiliary Contacts Separate Module★

Description	Class 9999 Type	$ Price
1 N.O.	DD10	**35.60**
1 N.C.	DD01	**24.60**
1 N.O.–1 N.C.	DD11	**64.00**
2 N.O.	DD20	**44.30**

★ Order two modules for Type DPR, one for each side.

Table 16.218: Factory Installed

Description	Form	$ Price
1 N.O. Each Side	X1010	**95.00**
1 N.C. Each Side	X0101	**95.00**
1 N.O.–1 N.C. Each Side	X1111	**153.00**
2 N.O. Each Side	X2020	**153.00**

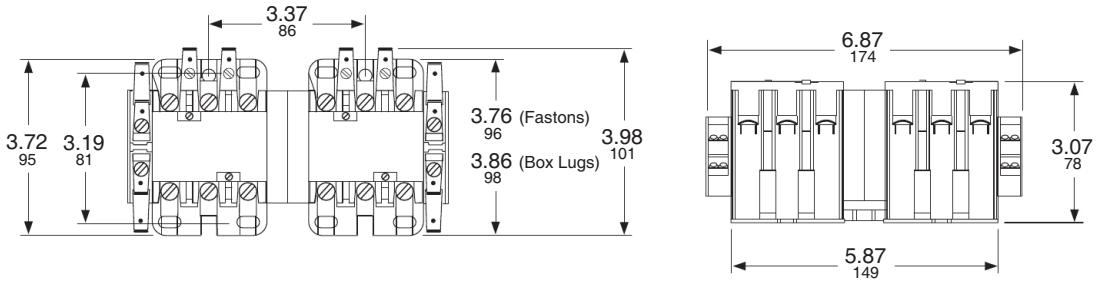
Table 16.219: Coil Voltage Codes

Volts, 60 Hz	Volts, 50 Hz	Voltage Code
24	24	V14
120	110	V02
208–240	220	V09
277	—	V04
480	440	V06
600	550	V07

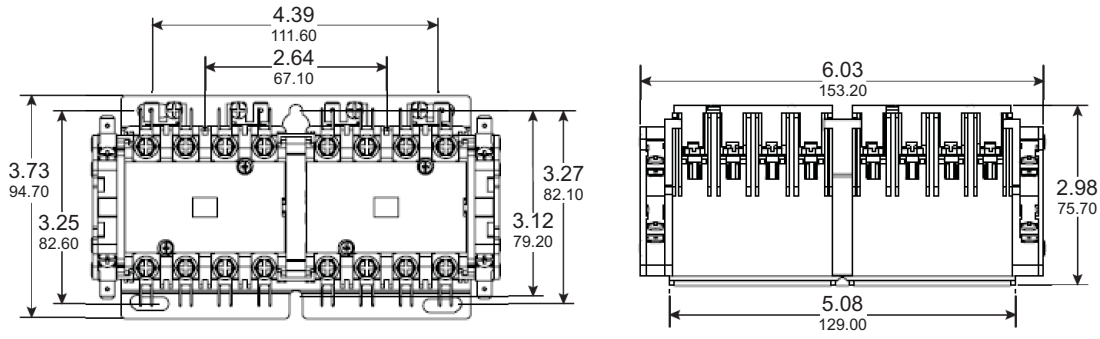
Approvals

UL Component Recognized—File E42240, CCN NLDX
CSA Certified—File LR25490, Class 3211 04

Approximate Dimensions



Type DPR13 through DPR43



Type DPR14 through DPR44

Type CO1R

NEMA-styled Thermal Overload Relays feature:

- Exclusive One-Piece Thermal Unit
- Inverse Time Delay Trip
- Trip Free Reset Mechanism on Types G & S
- Replaceable Contact Units on Types G & S

Note that the prices shown on this page do not include thermal units. Standard trip thermal units are **$21.50** each. Slow trip (Class 30) and quick trip (Class 10) melting alloy thermal units are available for all Size 1, 2, 5 and 6, and some Size 3 and 4 applications.

Table 16.220: For Separate Mounting—Melting Alloy—600 Volts Maximum, AC or DC▲

NEMA Size	Maximum Full Load Current (A)	Open Type for Separate Panel Mounting			For Terminal Block Channel Mounting Order Open Type Relay and Bracket Kit Below	
		Left Hand Type	Right Hand Type	$ Price	Type	$ Price
Single Pole Construction (One N.C. Contact)—1 Thermal Unit Required						
1	25	CO1■	CO1R■	**64.00**	—	—
2	45	TO1■	TO1■	**100.00**	—	—
3	86	UO1■	UO1■	**122.00**	—	—
Three Pole Construction (One Common N.C. Contact on Type S Only)—3 Thermal Units Required						
1	25	SEO5		**129.00**	SM2	**35.60**
2	45	SEO8		**185.00**	SM2	**35.60**
3	86	SEO12		**243.00**	—	—
4	133	SEO15		**386.00**	—	—
5	266	Use 3 Type GO11R Relays Listed Above			—	—

▲ Maximum power circuit rating for separate mounting overload relays, Types C, F, G, T and U, is 600 Vac or Vdc; Type S is 600 Vac only. Maximum control circuit contact rating for Types C, F, G, T, U and SDO18 is 600 Vac and 250 Vdc; the remaining Type S versions are 600 Vac only

■ Not UL listed.

Table 16.221: Replacement Melting Alloy Overload Relays for Square D Class 8536 Starters

Type SE05

Locate Class 8536 Starter in this Column				Order Class 9065 Overload Relay from this Column		
NEMA Size	Type	Series	Number of Poles	Type	$ Price	Number of Thermal Units Required
00	SA	A & B	2 3	SDO4 SDO5	**86.00** **149.00**	1 3
0	SB	A	2 3–5	SDO4 SDO5	**86.00** **149.00**	1 3♦
1	SC	A	2 3–5	SDO4 SDO5	**86.00** **149.00**	1 3♦
1P	SC	A	2	SDO10	**116.00**	1
2	SD	A	2 3–5	SDO7 SDO8	**116.00** **207.00**	1 3♦
3	SE	A	2 3 4 5	SDO11 SDO12 SDO13 SDO14	**143.00** **264.00** **264.00** **264.00**	1 3 2 3
4	SF	A	3 4 5	SDO15 SDO16 SDO17	**414.00** **414.00** **414.00**	3 2 3
5	SG	A	3	Form Y500 and Series B use SEO5	**129.00**	3
6	SH	A & B	3	SEO5	**129.00**	3

♦ For 4-pole starters used on two phase systems order two thermal units plus one Class 9998 Type SO31 jumper strap kit for every two starters. Each kit includes two jumper straps.

Table 16.222: Special Features for Melting Alloy Types

	Form	$ Price
Substitute 1-N.O. isolated alarm contact and 1-N.C. contact per relay. (Type S starters only)▼	Y342▼	**179.00**
Substitute 2-N.C. contacts for standard N.C. contact per relay. (Type S starters only)	Y344▼	**179.00**
Modify Type SDO12 relays to accept Type FB quick trip or SB slow trip thermal units, and Type F and Type SDO15 relays to accept Type FB quick trip thermal units. (Rejects Type CC standard trip units)	Y81★	**No Charge**

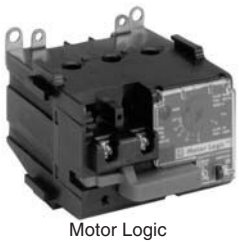
★ This form cannot be field modified.

▼ Field modification possible. Order 9999S04 (for **Form Y342**) or 9999S05 (for **Form Y344**).

Motor Logic

Base Unit relays feature: 3 to 1 adjustment for trip current; phase loss and unbalance protection; direct replacement for Type S melting alloy. They are ambient insensitive and self–powered. Electrical remote reset is also available.

NOTE: *Motor Logic SSOLR are designed to protect 50/60 hertz three-phase AC motors from overload, phase unbalance and phase loss conditions. Open Delta systems or grounded B-phase systems are difficult to balance and could cause the Motor Logic SSOLR to trip. For applications of this nature, it is recommended that bi-metallic overload relays (Form B12) be used.*



Motor Logic

Table 16.223: Base Unit: For Separate Mounting Solid State Overload Relay 600 Vac Maximum

NEMA Size□ (3-Pole)	Full Load Current Range (A)	Open Type		$ Price
		Trip Class 10	Trip Class 20	
00C▲	3–9	SSC10	SSC20	**192.00**
0▲	6–18	SS010	SS020	**192.00**
1▲	9–27	SS110	SS120	**192.00**
2	15–45	SS210	SS220	**270.00**
3	30–90	SS310	SS320	**329.00**
4	45–135	SS410	SS420	**477.00**

▲ Size 00C, 0, and 1 are supplied without lugs. Lower amperage loads can be protected by looping of power wires. Lugs are available, see page 16-111.

Table 16.224: Base Unit: Replacement SSOLR for Retrofit of Square D Type S Starter Solid State Overload Relay 600 Vac Maximum

Locate 8536 Starter in this column		Order Class 9065 Overload from this column		
NEMA Size□	Full Load Current Range (A)	Open Type		$ Price
		Trip Class 10	Trip Class 20	
00C■	3-9	SSC10	SSC20	**192.00**
0■	6-18	SS010	SS020	**192.00**
1■	9-27	SS110	SS120	**192.00**
2	15-45	SR210	SR220	**251.00**
3▼	30-90	SR310	SR320	**306.00**
4▼	45-135	SR410	SR420	**449.00**
5♦	90-270	SR510	SR520	**192.00**
5★	90-270	SS510	SS520	**1044.00**

■ Lug - Bar Kits are available for Size 00C, 0 and 1. Lower amperage loads can be protected by looping of power wires. See page 16-111.

♦ Size 5 Replacement Overload is only for existing NEMA S starters with Motor Logic overload relay. External CTs and additional components are not included.

★ Size 5 is a complete drop-in replacement for Square D NEMA S melting alloy, bimetallic, and Y500 overload relays **only.**

▼ Need 9999ER4 for reset bar.

Feature Unit relays include all of the features found on the Base Unit relays plus: switch selectable trip class; Class II ground fault detection; and direct replacement for Type S melting alloy. Electrical remote reset is also available.

Table 16.225: Feature Unit: For Separate Mounting Solid State Overload Relay 600 Vac Maximum

NEMA Size□ (3-Pole)	Full Load Current Range (A)	Open Type	$ Price
		Trip Class 10/20	
00B	1.5–4.5△	SFB20	**221.00**
00C	3–9△	SFC20	**221.00**
0	6–18△	SF020	**221.00**
1	9–27△	SF120	**221.00**
2	15–45	SF220	**309.00**
3	30–90	SF320	**378.00**
4	45–135	SF420	**545.00**

△ Size 00B, 00C, 0, and 1 are supplied without lugs. Lower amperage loads can be protected by looping of power wires. Lugs are available. See page 16-111.

□ NEMA Size 00B and 00C are not actual NEMA sizes. These designations are used to differentiate the lower FLA of these devices from the NEMA Size 00 Motor Logic Solid State Overload Relay.

Table 16.226: Feature Unit: Replacement SSOLR for Retrofit of Square D Type S Starter Solid State Overload Relay 600 Vac Maximum

Locate 8536 Starter in this column		Order Class 9065 Overload Relay from this column	
NEMA Size◒	Full Load Current Range (A)	Open Type	$ Price
		Trip Class 10/20	
00B◊	1.5–4.5	SFB20	**221.00**
00C◊	3–9	SFC20	**221.00**
0◊	6–18	SF020	**221.00**
1◊	9–27	SF120	**221.00**
2	15–45	ST220	**288.00**
3	30–90	ST320	**351.00**
4	45–135	ST420	**516.00**
5☆	90–270	ST520	**221.00**
5▽	90–270	SF520	**1074.00**
6☆	180–540	ST620	**221.00**
7☆	270–810	ST720	**221.00**

◊ Size 00B, 00C, 0, and 1 are supplied without lugs. Lower amperage loads can be protected by looping of power wires.

☆ Size 5, 6 and 7 Replacement Overloads are only for existing NEMA S starters with Motor Logic overload relay. External CTs and additional components are not included.

▽ Size 5 is a complete drop-in replacement for Square D NEMA S melting alloy, bimetallic, and Y500 overload relays **only**.

◒ NEMA Size 00B and 00C are not actual NEMA sizes. These designations are used to differentiate the lower FLA of these devices from the NEMA Size 00 Motor Logic Solid State Overload Relay.

TeSys™ T Motor Management System

TeSys T is a motor management system that provides full motor monitoring, control, and protection when used with short circuit protection and a contactor. TeSys T manages most critical processes while reducing downtime and increasing productivity.

TeSys T is a flexible system that integrates seamlessly into your automation system through five major communication protocols. TeSys T predicts what will happen in the process, as it accurately monitors current, voltage, and power over a wide range.

TeSys T is a green motor management system with unique power monitoring capabilities for better energy management.

TeSys T carries all appropriate and necessary third party certifications.

To get detailed information about TeSys T, visit our website at www.schneider-electric.us.com.

TeSys T detailed functionalities and possible configuration:

Communication:

TeSys T is a flexible motor management system that supports five major communication protocols: Modbus, CANopen, DeviceNet, Profibus, and Ethernet Modbus TCP.

These communication protocols allow the TeSys T controller to integrate seamlessly into your automation systems.

Ethernet Modbus TCP provides Faulty Device Replacement to reduce maintenance time to a minimum.

Protection functions:

- thermal overload
- phase imbalance and phase failure
- thermal motor protection via PTC probes
- phase reversal
- ground fault detection
- long starting times and motor stalling
- automatic load shedding and restarting
- load fluctuations (current, voltage, power)
- variations of Cos φ (power factor)

Metering functions:

- Measurements (rms values):
  - current on the 3 phases
  - voltage on the 3 phases (shedding)
  - motor temperature
  - ground fault sensing
- Values calculated:
  - average current
  - frequency
  - Power factor, power, power consumption

Motor control functions:

A motor managed by a TeSys T controller can be controlled:

- locally, using the logic inputs present on the product, or via the human machine interface (HMI)
- remotely, via the network

Motor control modes:

10 predefined motor control modes are incorporated in the controller. Each listed mode is available as 2 or 3 wire control.

- overload mode: monitoring of motors whose control is not managed by the controller
- independent mode: starting of full voltage non-reversing motors
- reverser mode: starting of full voltage reversing motors
- 2-step mode: 2-step starting of motors (star-delta, by autotransformer and by resistor)
- 2-speed mode: 2-speed starting of motors (Dahlander, pole changer)

A custom mode is available to allow the user to create a specific motor control mode that is not predefined in the controller.

Custom Logic has the basic functions of a small programmable logic controller (PLC). Programming can be done in Structured Text mode or in Block Diagrams through PowerSuite V2.6 software. To ensure consistency, the same software used to commission the TeSys T controller is used for Custom Logic programming.

Statistical and diagnostic functions:

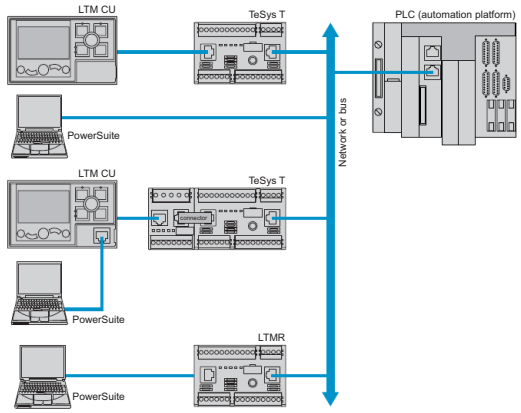
- history of the last five detected faults
- motor statistics
- controller operations
- warning of pending faults

Standards and Certifications

Product Type	LTMR Controllers	LTMEV40 Expansion Modules
Conforming to standards	IEC/EN 60947-4-1, UL 508, UL E164353 NKCR, CSA 22-2 n°14, CSA LR43364 Class 3211 03, IACS E10	
Product certifications	UL, CSA, BV, LROS, DNV, GL, RINA, ABS, RMRos, NOM, CCC, C-TIC'K, ATEX, GOST, KERI	

Possible Configurations:

TeSys T controller is a flexible motor management system using PowerSuite V2.6 commissioning tool. PowerSuite is the configuration software for the TeSys T controllers. See page 16-86 for details.



LTMR Controller:

The controller is the central component in the motor management system. It manages the basic functions such as:


LTMR27EBD

- measurement of 3-phase current via integral current transformers from 0.4 to 100 A (up to 1000 A by external current transformers)
- measurement of ground current internally or external ground sensors
- measurement of motor temperature
- inputs and outputs for the various motor control modes, detected fault management, and other functions

Characteristics

As standard, the controller manages the following:

Control Modes

- overload mode
- independent mode
- reverser mode
- 2-speed mode
- 2-step mode
- Custom mode

Inputs/Outputs

- 6 discrete logic inputs
- 3 relay logic outputs (1 N.O. contact each)
- 1 relay output for detected fault signalling (1 N.O. + 1 N.C.) overload relay

Measurements

- connection for a thermistor probe
- connections for a ground sensor

Table 16.227: Controllers

Setting Range (A)	Control Voltage (V)	Current Range (A)	Catalog Number	$ Price
For Modbus®				
8	24 Vdc	0.4–8	LTMR08MBD	**675.00**
	100–240 Vac	0.4–8	LTMR08MFM	**675.00**
27	24 Vdc	1.35–27	LTMR27MBD	**675.00**
	100–240 Vac	1.35–27	LTMR27MFM	**675.00**
100	24 Vdc	5–100	LTMR100MBD	**765.00**
	100–240 Vac	5–100	LTMR100MFM	**765.00**
For EtherNet Modbus TCP				
8	24 Vdc	0.4–8	LTMR08EBD	**825.00**
	100–240 Vac	0.4–8	LTMR08EFM	**825.00**
27	24 Vdc	1.35–27	LTMR27EBD	**825.00**
	100–240 Vac	1.35–27	LTMR27EFM	**825.00**
100	24 Vdc	5–100	LTMR100EBD	**935.00**
	100–240 Vac	5–100	LTMR100EFM	**935.00**
For CANopen				
8	24 Vdc	0.4–8	LTMR08CBD	**750.00**
	100–240 Vac	0.4–8	LTMR08CFM	**750.00**
27	24 Vdc	1.35–27	LTMR27CBD	**750.00**
	100–240 Vac	1.35–27	LTMR27CFM	**750.00**
100	24 Vdc	5–100	LTMR100CBD	**850.00**
	100–240 Vac	5–100	LTMR100CFM	**850.00**
For DeviceNet				
8	24 Vdc	0.4–8	LTMR08DBD	**750.00**
	100–240 Vac	0.4–8	LTMR08DFM	**750.00**
27	24 Vdc	1.35–27	LTMR27DBD	**750.00**
	100–240 Vac	1.35–27	LTMR27DFM	**750.00**
100	24 Vdc	5–100	LTMR100DBD	**850.00**
	100–240 Vac	5–100	LTMR100DFM	**850.00**
For Probibus DP				
8	24 Vdc	0.4–8	LTMR08PBD	**750.00**
	100–240 Vac	0.4–8	LTMR08PFM	**750.00**
27	24 Vdc	1.35–27	LTMR27PBD	**750.00**
	100–240 Vac	1.35–27	LTMR27PFM	**750.00**
100	24 Vdc	5–100	LTMR100PBD	**850.00**
	100–240 Vac	5–100	LTMR100PFM	**850.00**

LTME Expansion Module:

The expansion module adds the following functionalities to the TeSys T controller:


LTMEV40FM

- voltage measurement between phases up to 690 V nominal
- 4 additional inputs

Inputs

- 4 discrete logic inputs (isolated)
- 2 types of power for the inputs: 24 Vdc and 100 to 240 Vac
  - — A 24 Vdc LTMR controller can be assembled with a 240 Vac expansion module and vice versa

The LTMVE must be connected to the LTMR controller by a connecting cable.

Table 16.228: Expansion Module

Input Control Voltage	Number of Inputs	Supply to the Electronics	Catalog Number	$ Price
24 Vdc	4	via the LTMR controller	LTMEV40BD	**300.00**
100–240 Vac	4		LTMEV40FM	**300.00**

HMI — Human Machine Interface:

Depending on the application, two types of HMI can be used with the motor management system.

- The LTMCU operator control unit:
  - — Control/monitoring of a 1 to 1 LTMR controller
- A Magelis XBTN410 terminal
  - — Control/monitoring of 1 to 8 LTMR controllers

LTMCU Compact Display:

New!


LTM9KCU
(Holder Only)

- Configure the parameters
- Display information
- Monitor the alarms and detected faults
- Local control of the motor via the local control interface (keys can be customized)
- Three different languages can be loaded into the LTMCU controller at the same time: English, French, Spanish are the defaults.


LTMCU

A language download utility (LangTool), together with all the other languages, are available on the website www.schneider-electric.com.

This tool allows the languages present in the LTMCU control until to be adapted.

The LTMCU HMI control unit has an additional front panel RJ45 port, protected by a flexible cover.

Magelis Display:

Two applications have been predefined for the TeSys T controller. Depending on the application loaded, the HMI terminal makes it possible to:

- Configure and monitor a motor starter (LTM_1T1_V1.dop)
- Monitor and modify certain parameters up to 8 motor starters (LTM_1T8_X_V1.dop)

Vijeo Designer programming software is needed for loading applications into the XBT HMI terminal.

Table 16.229: HMI Modules and Software

Description	Supply Voltage	Catalog Number	$ Price
Operator Control unit	via the LTMR controller	LTMCU	**265.00**
Holder for LTMCU (with magnetic back)		LTM9KCU	**30.00**
Magelis compact display	24 Vdc	XBTN410	**300.00**
Configuration software Windows 99, 2000, XP		VJD SND TMS V13M	**161.00**

LT6CT4001

DA1TT••

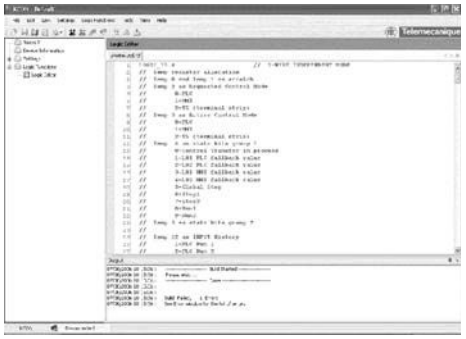


Table 16.230: Current Transformers

Current Transformer Ratio ▲	Catalog Number	$ Price
100:1	LT6CT1001	300.00
200:1	LT6CT2001	300.00
400:1	LT6CT4001	700.00
800:1	LT6CT8001	1000.00

▲ For use with LTMR08•• controllers. Three current transformers are required for 3-phase applications.

Table 16.231: Ground Fault Sensors

Rated Operational Current Ie (A)	Internal Toroid Ø (mm)	Catalog Number	$ Price
Closed Toroids, Type A			
65	30	50437	250.00
85	50	50438	325.00
160	80	50439	410.00
250	120	50440	555.00
400	200	50441	835.00
630	300	50442	1530.00
Split Toroids, Type QA			
85	46	50485	1145.00
250	110	50486	2010.00

Note: Dimensional drawings are in catalog DIA1ED2061002EN-US.

Table 16.232: PTC Thermistor Probes ■

Description	Nominal Operating Temperature (NOT) °C	Color	Catalog Number ♦	$ Price Each
Triple Probes	90	Green/green	DA1TT090	3.30
	110	Brown/brown	DA1TT110	3.30
	120	Grey/grey	DA1TT120	3.30
	130	Blue/blue	DA1TT130	3.30
	140	White/blue	DA1TT140	3.30
	150	Black/black	DA1TT150	3.30
	160	Blue/red	DA1TT160	3.30
	170	White/green	DA1TT170	3.30

■ PTC: Positive Temperature Coefficient.
♦ Sold in lots of 10.

Configuration with PowerSuite

The TeSys T configurator is incorporated in the PowerSuite software application, versions 2.6 and higher.

PowerSuite software allows configuration, commissioning and maintenance of motor starters protected by a TeSys T controller.

A library containing predefined motor control mode functions is available in order to:

- allow standardization
- avoid errors
- reduce motor starter setup times

By using logic functions, a custom mode makes it possible to:

- easily adapt these predefined motor control mode functions to the specific needs of your applications
- create new functions

The functions thus defined can be saved and used to build your function library for future applications.

To create special functions, a logic editor is incorporated in the configurator and allows a choice of 2 programming languages:

- function block
- structured text

Table 16.233: Configuration Tools

Description	Composition	Catalog Number	$ Price
Connection kit for PC serial port for Modbus® PLC multidrop connection	1 x 3 m length cable with two RJ45 connectors	VW3A8106	75.00
	1 RS232/RS485 converter with one 9-pin female SUB-D connector and one RJ45 connector.		
USB serial port adapter★ for connecting a TeSys T controller to your PC	1 USB / serial port adapter★	TSXCUSB485	250.00
USB serial port cable for connecting a TeSys T controller to your PC	1 USB / serial port cable	TCSMCNAM3M002P	52.00

★ Modbus (RS485) cable required, not included.

TeSys T and SMS PowerLogic:

TeSys T is integrated in PowerLogic SMS Version 4.0. and will address energy management needs by fully utilizing the TeSys T power/energy management features. For more information on PowerLogic products, see Power Monitor Control Section 4.

New!

8536SCO3V02H626

Table 16.234: Connecting Cables

Description	Number and type of connectors	Length m (ft)	Catalog Number	$ Price
LTMCU control unit	2 x RJ45	1 (3)	VW3A1104R10	35.00
		3 (10)	VW3A1104R30	35.00
		5 (16)	VW3A1104R50	35.00
XBTN410	SUB-D 25-pin female to RJ45	2.5 (8)	XBTZ938	30.00
LTME expansion module	2 x RJ45	0.04 (0.13)	LTMCC004	125.00
		0.3 (1)	LU9R03	20.00
		1 (3)	LU9R10	25.00
180 degree Ethernet external connector	1 x RJ45	–	LTM9CE180T	20.00

Table 16.235: Connection Accessories

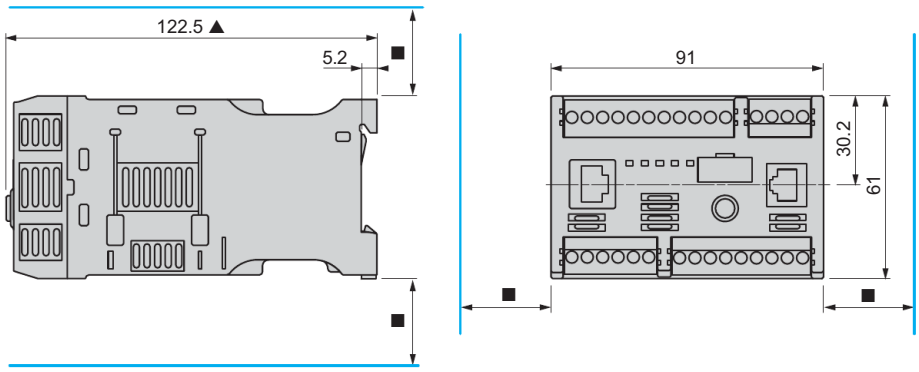
Description		Length m (ft)	Catalog Number	$ Price
For EtherNet (Modbus TCP) connection				
Shielded twisted pair cables to standard EIA/TIA568				
Cables fitted with 2 x RJ45 connectors for connection to terminal equipment	Straight	2 (7)	490NTW00002	48.60
		5 (16)	490NTW00005	58.00
		12 (39)	490NTW00012	77.00
		40 (131)	490NTW00040	150.00
		80 (263)	490NTW00080	266.00
Shielded twisted pair cables, UL and CA 22.1 approved				
Cables fitted with 2 x RJ45 connectors for connection to terminal equipment	Straight	2 (7)	490NTW00002U	48.00
		5 (16)	490NTW00005U	57.00
		12 (39)	490NTW00012U	75.00
		40 (131)	490NTW00040U	159.00
		80 (263)	490NTW00080U	258.00
For Modbus® PLC connection				
Cables fitted with 2 x RJ45 connectors		0.3 (1)	VW3A8306R03	20.00
		1 (3)	VW3A8306R10	25.00
		3 (10)	VW3A8306R30	30.00
T-junctions		0.3 (1)	VW3A8306TF03	75.00
		1 (3)	VW3A8306TF10	85.00
RS485 line terminator		—	VW3A8306R	N/A
For CANopen connection				
Cables		50 (164)	TSXCANCA50	112.00
		100 (328)	TSXCANCA100	467.00
		300 (984)	TSXCANCA300	1323.00
IP20 connectors SUB-D 9-pin female Line end adapter switch	Elbowed (90°)	—	TSXCANKCDF90T	52.00
	Straight	—	TSXCANKCDF180T	52.00
	Elbowed (90°) SUB-D 9-pin connector for connection to PC or diagnostic tool	—	TSXCANKCDF90TP	78.00
For DeviceNet connection				
Cables		50 (164)	TSXCANCA50	112.00
		100 (328)	TSXCANCA100	467.00
		300 (984)	TSXCANCA300	1323.00
For Profibus DP connection				
Cables		100 (328)	TSXPBSCA100	826.00
		400 (1313)	TSXPBSCA400	2990.00
Connectors	With line terminator	—	490NAD01103	73.00
	Without line terminator	—	490NAD01104	62.00
	With line terminator and terminal port	—	490NAD01105	101.00

Table 16.236: Marking Accessories

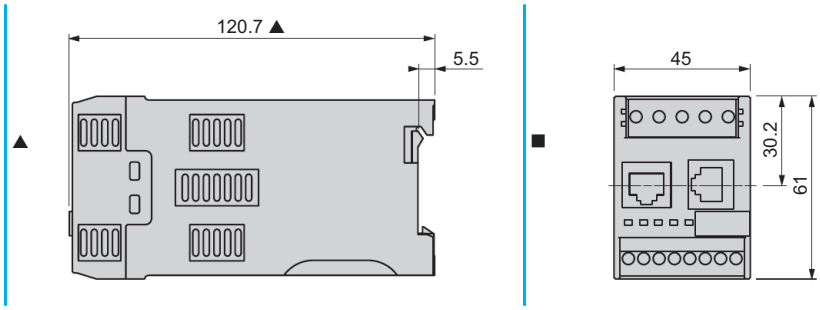
Description	Composition	Sold in lots of	Catalog Number	$ Price Each
Clip-in markers (maximum of 5 per unit)	Strips of 10 identical numbers (0 to 9)	25	AB1R•▲	0.52
	Strips of 10 identical capital letters (A to Z)	25	AB1G•▲	0.52

▲ When ordering replace the • in the catalog number with the number or letter required.

LTMR•• controllers

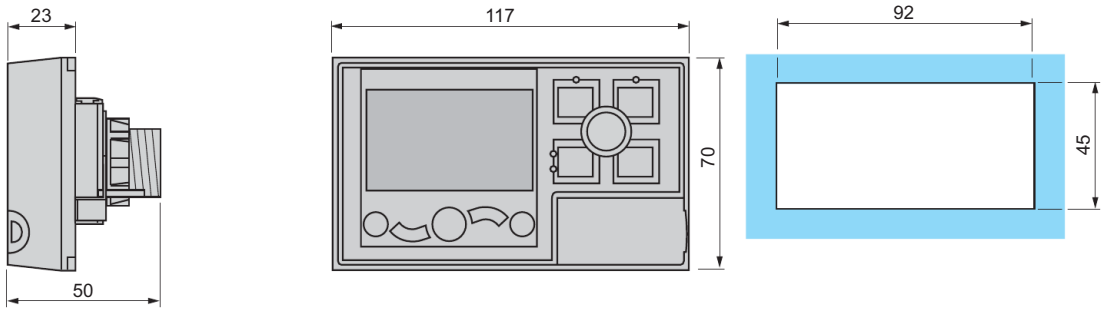


LTMEV40•• expansion modules



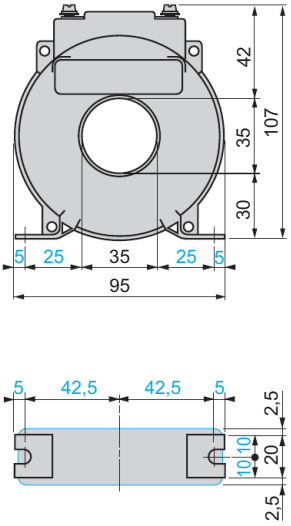
LTMCU operator control unit

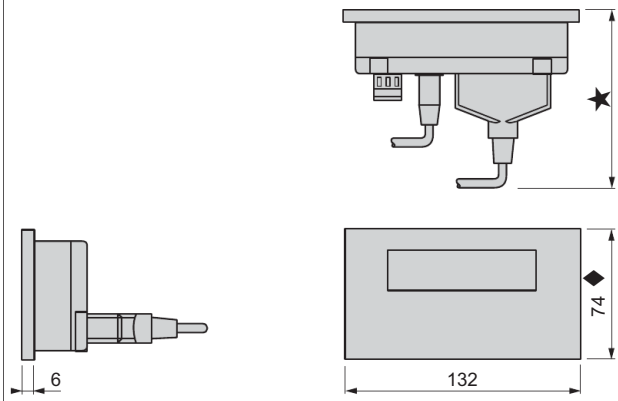
Panel mounting, cut-out



▲ 140 mm with RJ45 connector for connection to expansion module and to network, 166 mm with Profibus DP/CANopen connector.
■ Leave a gap around the device of: 9 mm at 45 °C, 9 to 40 mm from 45 to 50 °C, 40 mm at 60 °C.

Current Transformers	HMI Terminal
LT6CT	XBTN410





♦ 104 mm with mounting clips (supplied with the product).
★ 58 mm with SUB-D 25-pin elbowed cable **XBTZ9680** for Twido®, TSX Micro™ and Premium™ PLCs or **XBTZ998** for Advantys™ STB distributed I/O system.
104 mm with SUB-D 25-pin cable **XBTZ68/Z9681** for Twido®, TSX Micro™ and Premium™ PLCs

Class 9065
Type SEO6B2
Three Pole Construction
Non-Compensated

Bimetallic thermal overload relays feature Class 20 protection with automatic reset or hand reset and a trip-free mechanism. There are ambient temperature-compensated versions. Note that thermal units are not included in the shown prices. Standard trip thermal units are **$21.50** each.

Table 16.237: For Separate Mounting—Bimetallic—600 V Maximum AC or DC▲

Description	Size	Maximum Full Load Current (A)	Open Type	$ Price	Bracket Kit for Terminal Block Channel Mounting		Number of Thermal Units Required
					Type	$ Price	
Single Pole Construction (One N.C. Contact)							
Compensated	00, 0, 1 2 3 4	25 60 100 180	DA2 GA2 HA2 JA2	**107.00** **149.00** **261.00** **306.00**	— — — —	— — — —	1
Three Pole Construction (One Common SPDT Contact on Type S)							
Non-Compensated	1 2	26 45	SEO6B2 SEO9B2	**392.00** **441.00**	SM2 SM2	**35.60** **35.60**	3
Ambient Temperature-Compensated	1 2	26 45	SEO6B SEO9B	**441.00** **441.00**	SM2 SM2	**35.60** **35.60**	3
For additional selections see International Control Products.							

▲ Maximum power contact rating for separate mounting overload relays. Maximum control circuit contact rating for Type S versions is 600 Vac only.

Table 16.238: Replacement Overload Relay for Square D Class 8536 Bimetallic Overload Relay on an Existing Starter

Locate Class 8536 Starter in this Column					Order Class 9065 Overload Relay from this Column		
NEMA Size	Type	Series	Number of Poles	Form	Type	$ Price	Number of Thermal Units Required
0	SB	A & B	Any	B■ B1■ B2■	SDO6B SDO5B1 SDO6B2	**441.00** **392.00** **392.00**	3 2 3
1	SC	A & B	Any	B■ B1■ B2■	SDO6B SDO5B1 SDO6B2	**441.00** **392.00** **392.00**	3 2 3
2	SD	A	Any	B■ B1■ B2■	SDO9B SDO8B1 SDO9B2	**512.00** **464.00** **464.00**	3 2 3
3 ▼	SE	A	3	Y59♦	26005-11000	**243.00**	1
		A B	3		SHA01Y59	**1089.00**	3
4 ▼	SF	A	3	Y59♦	26005-11500	**306.00**	1
		A B	3		SJA01Y59	**1431.00**	3
5	SG	A & B	3	B2★	SEO6B2	**392.00**	3
				B★	SEO6B	**441.00**	3
6	SH	A & B	3	B B2	SEO6B SEO6B2	**441.00** **392.00**	3 3

■ B indicates ambient temperature-compensated bimetallic overload relay.
B1 indicates single phase non-ambient temperature compensated bimetallic overload relay.
B2 indicates polyphase non-ambient temperature compensated bimetallic overload relay.

♦ Y59 indicates single phase ambient temperature compensated bimetallic overload relay.

★ B2Y500 indicates bimetallic overload relay with current transformer sensing. BY500 indicates ambient temperature compensated bimetallic overload relay with current transformer sensing. This part number does not include the current transformer assembly.

▼ Non-compensated Size 3 & 4 OLRs are no longer available. Select an ambient compensated OLR from appropriate table above.

Table 16.239: Replacement Overload Relay for Square D Class 8940 Pump Panel with IEC Style Bi-metallic Overload Relays Mounted on Current Transformers

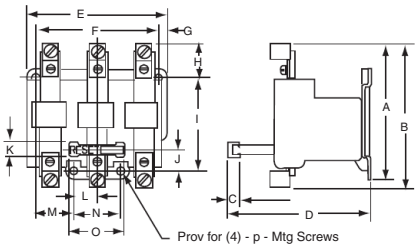
AMP Range	Number of Poles	Form	Series	Type△	$ Price
40A-63A	3	B12	B	TJF40	**428.00**
63A-100A	3	B12	B	TJF63	**428.00**
100A-160A	3	B12	B	TJF100	**468.00**
160A-250A	3	B12	B	TJF160	**468.00**

△ A retro-fit reset kit is required for pre-series B pump panels. See page 16-92 for selection.

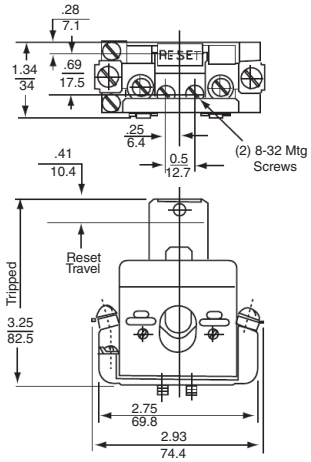
Approximate Dimensions

Table 16.240: Melting Alloy Type NEMA Style

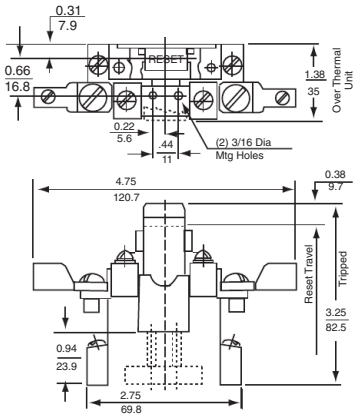
Type	Dimensions (IN)																Shipping Weight (lb)
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
SEO5	3-5/16	—	15/32	3-31/32	3-17/32	2-13/16	7/32	11/16	2-5/16	1/2	1/2	1/2	27/32	1	1-3/8	#10	1
SEO8	3-5/16	—	15/32	3-31/32	3-1/2	2-13/16	3/16	11/16	2-5/16	1/2	1/2	1/8	27/32	1	1-3/8	#10	1-1/4
SEO12	—	5-19/32	9/16	5-3/4	5-5/16	4-3/4	9/32	1-7/16	3-9/16	3/4	9/16	7/8	1-1/2	1-3/4	2	#1/4	3
SEO15	—	6-31/32	9/16	5-3/4	5-5/16	4-3/4	9/32	2-1/8	3-9/16	3/4	9/16	7/8	1-1/2	1-3/4	2	#1/4	4



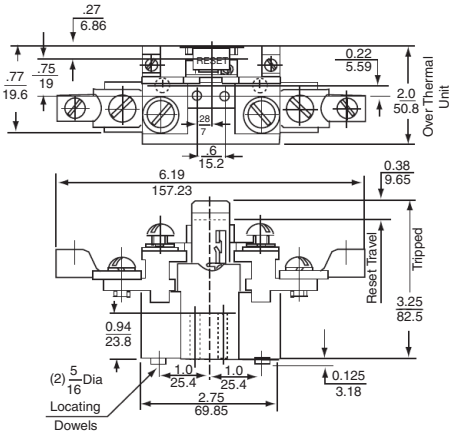
Type SEO



Type CO1
Weight–1½ lb

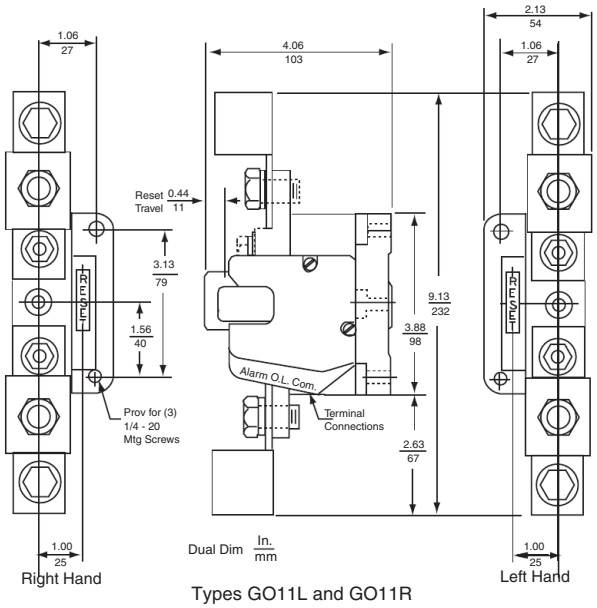


Type TO1▲
Weight–1½ lb

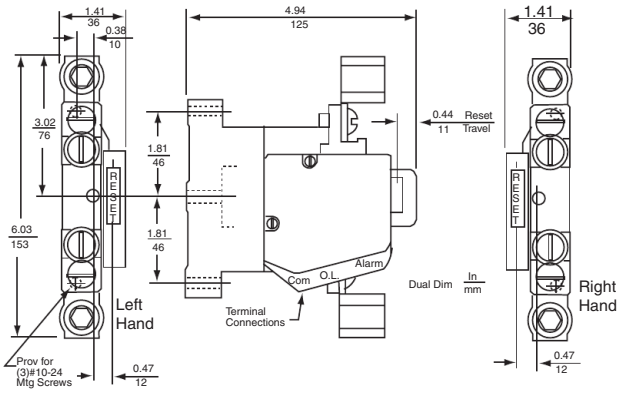


Type UO1▲
Weight–1½ lb

▲ Dimensions shown for Types TO1 and UO1 do not apply when Form Y342 or Y34 is supplied.



Types GO11L and GO11R
Weight–5 lb

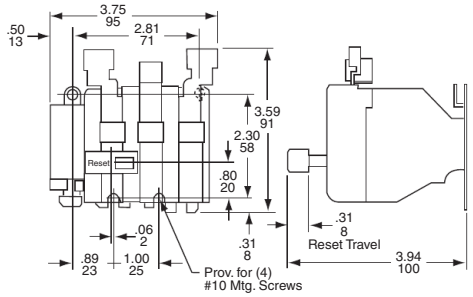


Types FO1L and FO1R
Weight–2 lb

Dual Dimensions: **INCHES** Millimeters

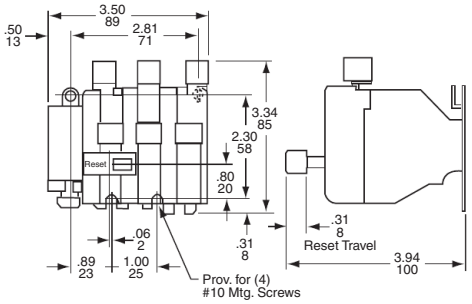
Approximate Dimensions

Bimetallic Overload Relays



Types SEO6B and SEO6B2
Weight—1lb

Dual Dimensions: **INCHES** / **Millimeters**

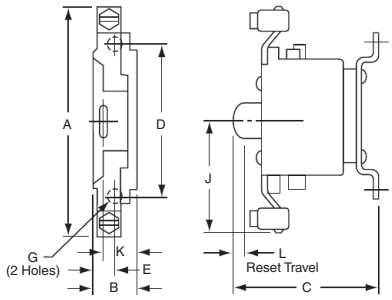


Types SEO9B and SEO9B2
Weight—1 1/4 lb

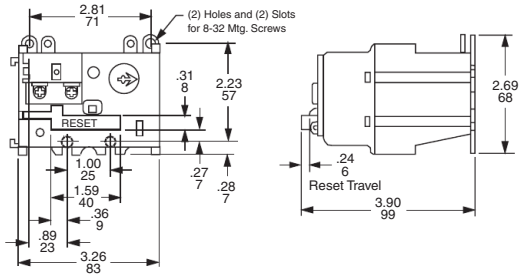
Table 16.241:

Class 9065	Ampere Rating	Outline Dimensions			Mounting Dimensions		Reset Dimensions		Mounting Screw	Maximum Wire Size	Approximate Shipping Weight (lb)
		A	B	C	D	E	K	L	G		
DA	25	3-1/2	7/8	3-3/16	3	1/2	3/8	1/8	10	8	2
GA	60	4-7/8	7/8	3-3/16	3	1/2	3/8	1/8	10	1	2
HA	100	4-7/8	1-1/4	3-3/16	3-1/2	1/16	1/2	1/8	10	00	3
JA	180	5-15/16	1-1/4	3-3/16	3-1/2	1/2	3/16	1/8	10	250 MCM	4

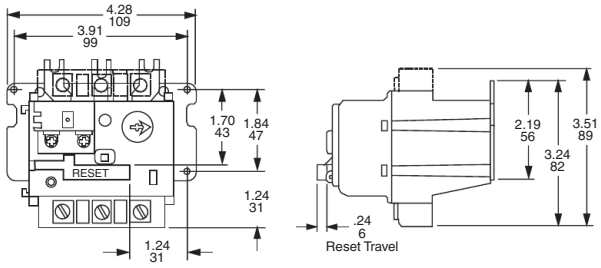
NOTE: *Dimensions shown in inches.*



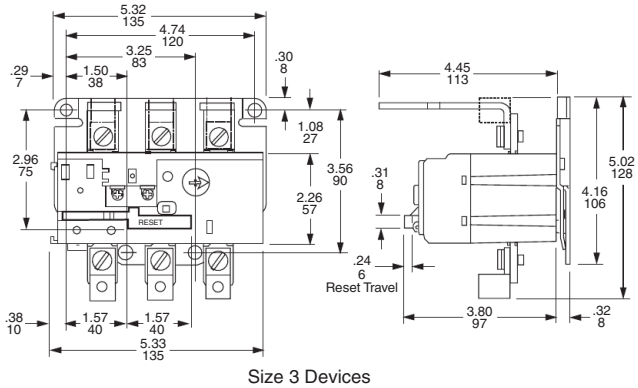
Motor Logic™ Solid State Overload Relay



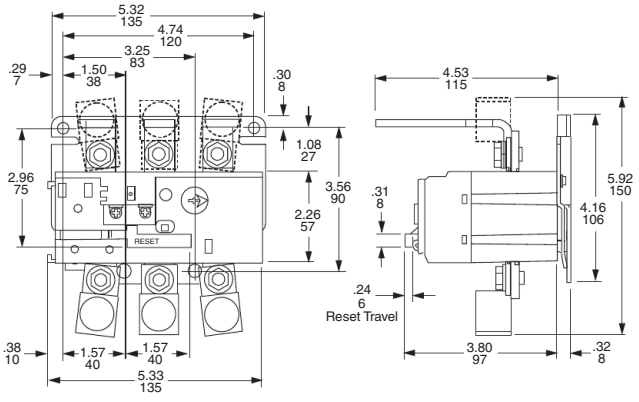
NEMA Size 00B, 00C, 0, and 1 Devices
Note: NEMA Size 00B and 00C are not actual NEMA sizes. These designations are used to differentiate the lower FLA of these devices from the NEMA size 00 Motor Logic Solid State Overload Relay.



Size 2 Devices



Size 3 Devices

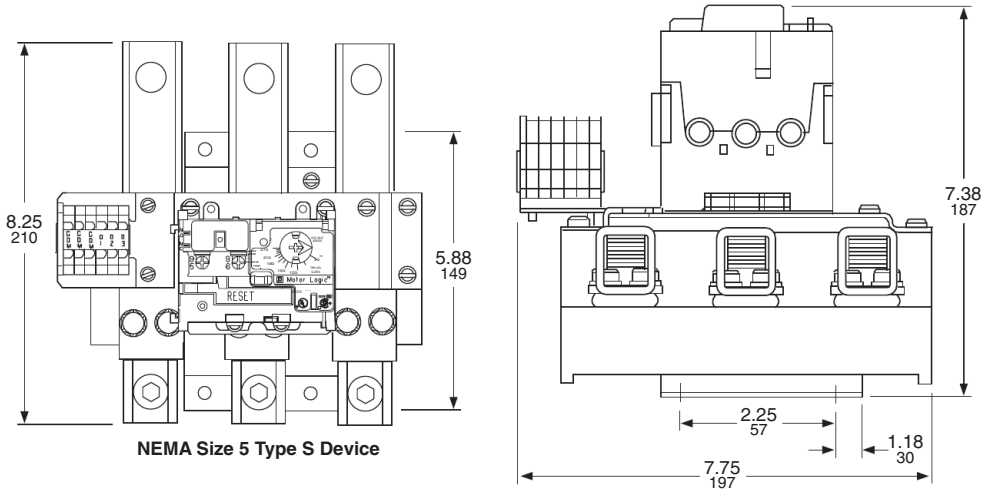


Size 4 Devices

Approximate Dimensions

Class **9065** / Refer to Catalog **9065CT9701**

Note: The dimensions are for reference only.



NEMA Size 5 Type S Device

External Reset Mechanisms

Class 9066

Type RB1

Type W1

Type RA2 Series B

Type SC1

Type RA kits provide a convenient external means for resetting overload relays mounted in control enclosures of almost any depth. Designed for use on NEMA 1, 4 or 12 enclosures, they can be used with any Square D open type magnetic starter or Class 9065 overload relay. All kits are individually packaged for easy stocking and include complete installation instructions.

Only a single mounting hole is required in the enclosure door. Each kit contains one or more threaded reset rods, grooved at intervals of 3/4" so they can be cut to the approximate length required without thread damage. Final adjustment is easily made after installation by rotating a plunger and tightening the lock nut. Mechanisms with more than one reset rod include a steel cross bar with mounting holes located at 1/2" intervals, providing a choice of rod locations to suit any application. All steel parts are electrically isolated from the enclosure and the operator.

Type RB kits make it possible to field install external reset mechanisms to Type S combination starters in NEMA 12 enclosures. They may also be used to replace external reset mechanisms on Type S combination starters in NEMA 1, 4 and 12 enclosures.

Table 16.242:

Where Used	Type of Enclosure	Reset Mechanism Kit		
		Description	Type	$ Price
OEM Kit for commercial enclosures	NEMA 1, 12	With 1 Rod With 2 Rods With 3 Rods	RA1 RA2 RA3	**57.00** **71.00** **86.00**
Replacement on 8538, 8539 starters	NEMA 1, 12	Size 0 and 1 Size 2	RB1 RB2	**42.80** **42.80**
On commercial enclosures or Type S combination starters	NEMA 4	W1 is a boot only and must be used with RA or RB Kit listed above	W1	**28.70**
Replacement on Class 8536 Type S starters	NEMA 1 with slip-on covers	Size 00, 0 and 1 Size 2 Size 3	SC1 SD1 SE1	**7.20** **12.00** **14.30**
Retro-fit kit Class 8940 Pump Panel	NEMA 3R	Reset for use with 9065TJF Series B OLR	RTJF	**42.80**

Type SCW21
NEMA 4X
Enclosure

Type SCA11
NEMA 12
Enclosure

Type SCW11
NEMA 4
Enclosure

Type SCH2
NEMA 3R
Enclosure

Separate enclosures can be used with open style devices for field assembly of enclosed controls. These enclosures, plus the open style components, are equivalent to a factory-assembled device. Separate enclosures are to be used only with the equipment listed below:

- **NEMA 4 and 12** Class 9991 separate enclosures for Type S devices are supplied as standard with closing plates. See selection chart below for specific number of closing plates on Various enclosures. For applications requiring enclosures without closing plates, contact your nearest Schneider Electric sales office.
- **NEMA 3R** enclosures for field assembly of equipment for outdoor applications are provided with three closing plates, a reset mechanism and predrilled panel as standard. For conduit connection to the top of these enclosures, select watertight hubs from listing on Digest page 3-10 in accordance with applicable code requirements. Square D's NEMA 12 enclosures can also be modified for outdoor use. For details, refer to NEMA 12 enclosure modification information on page 16-95. **NOTE: Not for use in high-corrosive outdoor locations or sea coast environments.**
- **NEMA 4X** enclosures for Type S devices, Sizes 0–2 and 30–60 Ampere, are provided as standard without closing plates. Cover mounted control units for NEMA 4X separate enclosures are available as a factory modification only.

When closing plates are removed from NEMAs 4, 12 & 3R enclosure covers, the openings can be used for easy installation of Class 9001 Type K or Type SK cover mounted control units. Convenient Class 9999 modification kits containing Class 9001 Type K control kits can be found on page 16-109.

Table 16.243:

For Use With		Enclosure Classification										
		NEMA Size or Ampere Rating	NEMA 4X Watertight, Dusttight and Corrosion-Resistant Glass-Polyester		NEMA 4★ Watertight and Dusttight Stainless Steel			NEMA 12/3R Dusttight and Driptight			NEMA 3R Rainproof, Sleet Resistant, Outdoor Use	
Class	Types (All Pole Arrangements)		Type	$ Price	Type	$ Price	Number of Closing Plates	Type	$ Price	Number of Closing Plates	Type	$ Price
Manual Starters												
2510	MBO, MCO	MO M1 M1P	MW1▼	**485.00**	MW11	**485.00**	—	MA1	**129.00**	—	—	—
Magnetic Contactors												
8502▲	SAO, SBO, SCO	00, 0, 1	SCW20	**684.00**	SCW11	**714.00**	2	SCA11△	**372.00**	3	SCH2	**372.00**
	SDO	2	SDW20	**1169.00**	SDW11	**1197.00**	2	SDA11△	**485.00**	3	SDH1	**485.00**
	SEO	3	—	—	SEW11	**1767.00**	3	SEA11△	**684.00**	3	SEH1	**684.00**
	SFO	4	—	—	SFW11	**3119.00**	3	SFA11△	**1853.00**	3	SFH1	**1853.00**
Magnetic Starters												
8536	SAO, SBO, SCO	00, 0, 1	SCW21	**684.00**	SCW11	**714.00**	2	SCA11△	**372.00**	3	SCH2	**372.00**
	SDO	2	SDW21	**1169.00**	SDW11	**1197.00**	2	SDA11△	**485.00**	3	SDH1	**485.00**
	SEO	3	—	—	SEW11♦	**1767.00**	3	SEA11♦△	**684.00**	3	SEH1	**684.00**
	SFO	4	—	—	SFW11♦	**3119.00**	3	SFA11♦△	**1853.00**	3	SFH1	**1853.00**
Lighting Contactors, Non-Combination, Electrically and Mechanically Held												
8903▲	LO, LXO	20 Amp	SDW20	**1107.00**	SDW11	**1197.00**	2	SDA11△	**485.00**	3	SDH1	**485.00**
	SMO	30 Amp	SCW20■	**684.00**	SCW11	**714.00**	2	SCA11△	**372.00**	3	SCH2	**372.00**
	SPO	60 Amp	SCW20■	**1169.00**	SDW11	**1197.00**	2	SDA11△	**485.00**	3	SDH1	**485.00**
	SQO	100 Amp	—	—	SEW11♦	**1767.00**	3	SEA11♦△	**684.00**	3	SEH1	**684.00**
	SVO	200 Amp	—	—	—	—	—	—	—	—	SFH1	**1853.00**
Reversing and Two Speed Horizontally Arranged Contactors and Starters												
8702▲ 8736	SBO, SCO SDO	0, 1 2	—	—	SCW12 SDW12	**1182.00** **1754.00**	3	SCA12△ SDA12△	**527.00** **728.00**	3	— —	— —
8810	SBO & SCO	0, 1	—	—	SCW13	**1610.00**	3	SCA13△	**714.00**	3	—	—

▲ For contactors, replace reset assembly with proper closing plate; for NEMA 4 use Class 9001 Type K52, for NEMAs 3R and 12 use Class 9001 Type K51. Class 9991 Types SCW20 and SDW20 are designed for contactors only, reset closing plates not required.
■ For electrically held devices only.
♦ Enclosure suitable for starter with melting alloy and solid state overload relays **only**.
★ The standard cabinet has a brushed finish.
▼ Type MBO, Size MO only.
△ NEMA 12 enclosures may be field modified for outdoor non-corrosive and non-service-entrance-rated applications; see page 16-95 for more information.

Table 16.244: How to Order

To Order Specify:	Catalog Number	
	Class	Type
• Class Number • Type Number	9991	SCW11

NEMA Type 1 and Flush Mounting

Flush Mounting Selection Table

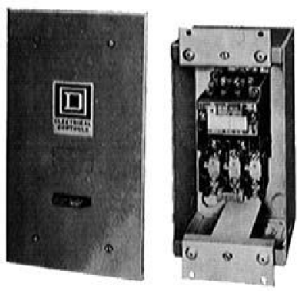
Flush Mounting General Purpose separate enclosures for Type S Sizes 0–2, 30–60 ampere are provided with knock-outs in the cover for field assembly of one Class 9999 push button or selector switch kit and one Class 9999 pilot light kit. (Refer to Class 9999 for selection.) For Type S Size 3, 100 ampere, three closing plates are provided for installation of Class 9001 Type K oiltight control units. For enclosure dimensions, refer to page 16-96.

Table 16.245:

For Use With		NEMA Size or Ampere Rating	Flush Mounting General Purpose (Components)							
			Flush Plates				Mounting Strap		Pull Box	
			Standard		Stainless Steel■					
Class	Types (All Pole Arrangements)		Type	$ Price	Type	$ Price	Type	$ Price	Type	$ Price
2510	MBO & MCO	MO M1 M1P	MF1	**215.00**	(with pullbox and plaster adjustment)					
			MF2	**129.00**	(without pullbox but with mounting strap)					
Magnetic Contactors										
8502▲	SBO & SCO	0, 1	SCF11	**57.00**	SCF12	**201.00**	SCF2	**71.00**	SCF1	**86.00**
	SDO	2	SDF11	**171.00**	SDF12	**386.00**	SDF2	**99.00**	SDF1	**116.00**
	SEO	3	SEF11	**882.00**	(Enclosure Complete)					
Magnetic Starters										
8536	SBO & SCO	0, 1	SCF11	**57.00**	SCF12	**201.00**	SCF2	**71.00**	SCF1	**86.00**
	SDO	2	SDF11	**171.00**	SDF12	**386.00**	SDF2	**99.00**	SDF1	**86.00**
Lighting Contactors Non-Combination Electrically and Mechanically Held										
8903▲	LO, LXO	20 A	SDF13	**171.00**	—	—	SDF2	**99.00**	SDF1	**86.00**
	SMO 1–4	30 A	SCF11	**57.00**	—	—	SCF2	**71.00**	SCF1	**86.00**
	SMO 10–13	30 A	SCF13	**201.00**	—	—	SCF2	**71.00**	SCF1	**86.00**
	SPO 1–4	60 A	SDF11	**171.00**	—	—	SDF2	**99.00**	SDF1	**86.00**
	SPO 10–13	60 A	SDF13	**171.00**	—	—	SDF2	**99.00**	SDF1	**86.00**
	SQO 1–13	100 A	SEF11	**882.00**	(Enclosure Complete)					

▲ For contactors, replace reset assembly with proper closing plate. For Flush Mounting use Class 9999 Type SG2 except for Class 9991 Type SDF11 which requires a Class 9001 Type K51 or K11 closing plate. Class 9991 Types SEF11 and LF1 are designed for contactors only, reset closing plates not required.

■ The standard cabinet has a brushed finish.



Flush Mounting Starter With Pull Box and Mounting Strap Having Plaster Adjustment Feature

Type SCG8 NEMA 1 Enclosure

NEMA 1 Selection Table

The **NEMA 1 General Purpose** separate enclosures listed below, when used with open style components, are equivalent to a standard factory assembled control device.

Table 16.246:

For Use With			NEMA 1 General Purpose Enclosure Class 9991	
Class	Type	No. of Poles	Type	$ Price
2510	F and K	All	EN1	**29.30**
	M–Sizes M0 and M1	All	MG1	**57.00**
	M–Size M1P	All	MG2	**57.00**
8501	CO	All	UE1♦	**39.40**
	XO	2–12, 2–4 w/Attachments	UE7	**99.00**
	XDO	2–8 w/o Attachments		
8502	SAO, SBO, SCO	2–4	SCG7	**57.00**
	SDO	2–4	SDG7	**143.00**
	SEO	2–4	SEG7	**287.00**
	SFO	2–4	SFG8	**599.00**
8536	SAO, SBO, SCO	2–4	SCG8	**57.00**
	SDO	2–4	SDG8	**143.00**
	SEO	2–4	SEG8★	**287.00**
	SFO	2–4	SFG8★	**599.00**
	SGO	3	SGG8★□	**1241.00**
8702, 8736	SAO, SBO, SCO	All	SCG9▼	**171.00**
	SDO	All	SDG9▼	**372.00**
8903	LO, LXO	All	LXG1◊	**143.00**
	SMO	All	SCG7△	**57.00**
	SPO	All	SDG7△	**143.00**
	SQO	All	SFG8	**599.00**
	SVO	All	SFG4	**1259.00**
8910	DP	1–2	DPG1	**78.00**
	DPA12, 13, 22, 23, 32, 33, 42, 43	2–3	DPG1	**78.00**
	DPA14, 24, 34, 44, 52, 53	2–4	DPG2	**99.00**
	DPA62, 63	2–3	DPG3	**143.00**
	DPA72, 73, 92, 93, 122, 123	2–3	DPG4	**287.00**
	H, J, K, L & M	All	UE6	**99.00**
8911	DPSO13, 23, 33, 43	3	DPSG1	**59.00**
	DPSO53	3	DPSG2	**102.00**
	DPSO63, 73, 93	3	SEG8	**287.00**
9050	AO (Single Head)	All	UE6	**99.00**
	HO	All	UE6	**99.00**
9070	EO51, EO61, EO71, K750, K1000	—	SDG4	**458.00**
	EO2, EO3, EO4, EO15, EO16 EO18, EO19, T75, T100, T150, T200, T250, T300, T350, T500	—	LG1	**143.00**
	EO1, EO17, T50	—	UE7	**99.00**

♦ CP2 Discount Schedule, not CP1.

★ Enclosure suitable for starter with melting alloy or solid state overload relay **only**.

▼ For horizontally arranged Class 8702 contactors replace reset assembly with a Class 9001 Type K51 closing plate.

△ For electrically held contactors only. See page 16-95 for mechanically held contactors.

□ Series B starter enclosure.

◊ If cover mounted control units are required, select oversized enclosure listed on page 16-95.

Type SCW4
NEMA 4 Enclosure

Type SCG1
With Starter, Transformer and Fuse Block Installed

Type SCA11
NEMA 12 Enclosure

NEMA 1, 4 and Oversized

For Addition of Control Circuit Transformer

The Class 9991 enclosures listed below accept an open type Class 8502 or 8536 Type S, NEMA Size 0, 1, 1P, or 2 contactor or starter along with a fused control circuit transformer (Form F4T) to allow field assembly of enclosed controllers. In the cover of the Class 9991 Type SCG1 enclosure, knock-outs are provided for field addition of Class 9999 cover-mounted control units. All other Class 8502 & 8536 enclosures include a panel with space and drilling for an open-type device and a fused control circuit transformer. In addition, three closing plates are included in each cover for easy installation of Class 9001 Type K or SK control units.

Oversized enclosures for open type Class 8903 Type L & LX, 20 A and Type S, 30 and 60 A electrically and mechanically held lighting contactors include a panel with space and drilling for an open- type contactor and fused control circuit transformer (Form F4T) and/or an auxiliary relay for use with single pole pilot devices (Form R6). When an auxiliary relay is required, use a Class 8501 Type XO11 relay. Three closing plates are provided as standard for easy installation of Class 9001 Type K or SK control units. **Note:** A Class 9991 Type SCG1 NEMA 1 separate enclosure can also be used for Class 8903 Type SMO, 30 A electrically held lighting contactor if Form F4T (control transformer), with or without cover control units is required.

Table 16.247:

For Use With				Class 9991 Enclosure						Recommended Class 9070♦ Transformer Selection					Fuse Block
Class	Type	NEMA Size or Ampere Rating	No. of Poles	General Purpose NEMA 1		Watertight and Dusttight Stainless Steel NEMA 4▼		Dusttight and Driptight Industrial Use NEMA 12■		Standard		Extra Capacity			
				Type	$ Price	Type	$ Price	Type	$ Price	Type	VA	100 VA Type	150 VA Type	300 VA Type	
Magnetic Contactors and Starters															
★ 8502 & 8536	SAO, SBO & SCO	00, 0 & 1	1–3	SCG1	**270.00**	SCW4	**827.00**	SCA4	**485.00**	T50	50 VA	T100▲	T150▲	—	Class 9999 Type SFR4
			4–5							T100▲	100 VA	—	T150▲	—	
	SDO	2	2–5	SDG4	**458.00**	SDW4	**1488.00**	SDA4	**705.00**	T100	100 VA	—	T150	T300	
Lighting Contactors, Non-Combination															
8903	LO, LXO	20 A	All	SDG3	**399.00**	SDW3	**1169.00**	SDA3	**684.00**	T50	50 VA	—	—	—	
										T50	50 VA	T100▲	T150▲	—	
	SMO△	30 A	1–3							T100▲	100 VA	—	T150▲	—	
			4–5							T100	100 VA	—	T150	T300	
	SPO△	60 A	2–5												

▲ For mounting in SCG1 enclosure, a Class 9991 Type S1 adapter bracket is also required — **$44.00**
■ NEMA 12 modified for outdoor use (see below).
♦ For price list and complete description, see the Class 9070 section. **Note:** Class 9991 Type SCG1 enclosure is provided with a Class 9999 Type SF4 fuse block as standard.
★ For contactors (Class 8502), a separate closing plate is provided with each enclosure to replace the reset mechanism with the exception of Class 9991 Type SCG1 which requires a separate reset closing plate.
Class 9999 Type SG2 — **$14.30**
▼ The standard cabinet has a brushed finish.
△ Mechanically held.

NEMA 12/3R Enclosures Modified for Outdoor Applications (not to be used in salt air or corrosive environments)

Field Modifications for NEMA 3 dusttight, raintight and sleet resistant outdoor applications are as follows: Watertight conduit hubs or equivalent provision for watertight connection at the conduit entrance shall be used.

Field Modifications for NEMA 3R rainproof and sleet resistant outdoor applications are as follows:

1. Watertight conduit hubs or equivalent provision for watertight connection at the conduit entrance, when the conduit enters at a level higher than the lowest live part, shall be used.
2. Drain holes of 1/8 inch diameter shall be added to the bottom of the enclosure.

Class 9001 Type K oiltight/watertight control units can be easily installed in NEMAs 4, 12, and oversized NEMA 1 separate enclosures provided with closing plates. When installing control units simply remove the closing plates and install the proper Class 9001 Type K components. Convenient control unit kits complete with assembled and pre-wired operators for quick installation are available as Class 9999 user modification kits. See Table 16.248 for contents of each control unit kit. Class 9001 Type SK NEMA 4X corrosion resistant control units may be used as an alternate.

Table 16.248: Control Unit Selection Table

Class 9999 Type	Control Function	Kit Contents	
		Class and Type	Description
SA3	Start-Stop Pushbutton	1-9001 KR1B 1-9001 KR1R 1-9001 KN201 1-9001 KN202 2-9001 KA1	Start Operator Stop Operator Start Legend Plate Stop Legend Plate Contact Block
SC8	Hand-Off-Auto Selector Switch	1-9001 KS43B 1-9001 KN260 1-9001 KA1	Selector Operator Switch Hand-Off-Auto Legend Plate Contact Block
SP28R	Pilot Light (120 V)	1-9001 KP1R31	Red Pilot Light

Table 16.249: NEMA 1—General Purpose Enclosures (Standard)

Class 9991 Type	For Use With				Dimensions (inches/millimeters)														Weight (lb)
	Class	Type	Size	No. of Poles	Fig. No.	Mounting Screws (in.)	A	B	C	D	E	F	G	H	I	J	K	L	
LXG1	8903	LO, LXO	20 A	2–12	1	—	7.81 198	12.69 322	6.03 153	—	1.09 28	10.50 267	1.09 28	1.09 28	5.63 143	5.75 146	1.09 28	5.63 143	8
DPG1	8910	DP DPA	20–40 A	1–2 1–3	1	(4)#10	4.85 123	8.5 216	4.03 102	2.42 62	.109 3	5.75 146	.531 13	.92 23	3.00 76	3.75 95	—	—	2
SCG7	8903	SMO (E.H.)	30 A	All	1	(3)#10	6.00 152	10.00 254	5.28 134	3.00 76	.88 22	8.13 206	1.00 25	.94 24	4.13 105	5.00 127	—	—	4
	8502	SAO	00	2–3															
		SBO SCO	0 1	All															
SCG8	8536	SAO	00	2–3					5.56 141										
		SBO SCO	0 1	All															
DPG2	8910	DPA	—	—															
DPSG1	8911	DPS	—	—															
SDG7	8903	SPO (E.H.)	60 A	2–12	1	(4)1/4	7.81 198	12.69 322	6.03 153	—	1.09 28	10.50 267	1.09 28	1.09 28	5.63 143	5.75 146	1.09 28	5.63 143	8
	8502	SDO	2	All															
SDG8	8536	SDO	2	All					6.31 160										
DPG3	8910	DPA	—	—															
DPSG2	8911	DPS	—	—															
SEG7	8502	SEO	3	All	1	(4)3/8	11.44 291	21.81 554	8.00 203	—	1.53 39	18.75 476	1.53 39	1.53 39	8.38 213	7.75 197	1.53 39	8.38 213	23
SEG8	8536	SEO	3	All															
	8911	DPSG63 to 93	—	All															
DPG4	8910	DPA	—	—					8.38 213										
SFG8	8502	SFO	4	All	2	(4)7/16	11.25 286	25.15 639	8.99 228	8.60 218	1.25 32	1.25 32	22.31 567	1.42 36	.44 11	—	—	—	34
	8536	SFO	4	All															
	8903	SQO (E.H. & M.H.)	100 A	All															
SCG9	8702▲	SBO, SCO	0 & 1	All	2	(4)5/16	11.88 302	11.88 302	7.41 188	9.75 248	1.06 27	1.06 27	9.75 248	1.06 27	.31 8	—	—	—	16
	8922	ETBC20, ETBC36	—																
SDG9	8702▲	SCO	2	All	2	(4)5/16	14.88 378	14.13 359	7.56 192	12.75 324	1.06 27	1.06 27	12.00 305	1.06 27	.31 8	—	—	—	24
	8922	ETBC60	—																

▲ Standard enclosure has space for a fused control transformer, Form F4T, on Sizes 0–2.

Table 16.250: NEMA 1—General Purpose Enclosures (Oversize)

Class 9991 Type	For Use With				Fig. No.	Mounting Screws (in.)	A	B	C	D	E	F	G	H	I	Weight (lb)
	Class	Type	Size	No. of Poles												
SDG3	8903	LO, LXO SMO (M.H.) SPO (Form F4T)	20 A 30 A 60 A	All	2	(4)5/16	14.88 378	14.13 359	7.56 192	12.75 324	1.06 27	1.06 27	12.00 305	1.06 27	.31 8	15
SDG4	8502	SDO (Form F4T)	2	All												21
	8536	SDO (Form F4T)	2	All					7.66 194							
	9070	EO51, EO61, EO71, T750, T1000	—	—					7.56 192							
SCG1	8502	SBO, SCO (Form F4T)	0, 1	All	3	(4)9/32	6.34 161	15.88 403	5.19 132	4.66 118	.84 21	14.38 365	.75 19	.28 7	.35 9	8
	8536	SBO, SCO (Form F4T)	0, 1	All												
	8903	SMO (E.H.) (Form F4T)	30 A	All												

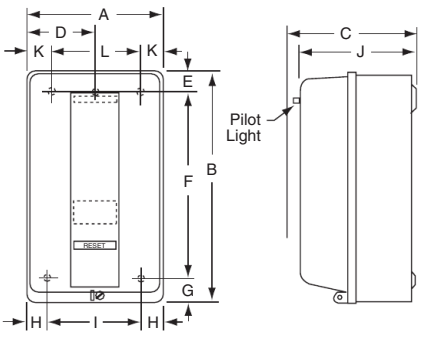


Figure 1

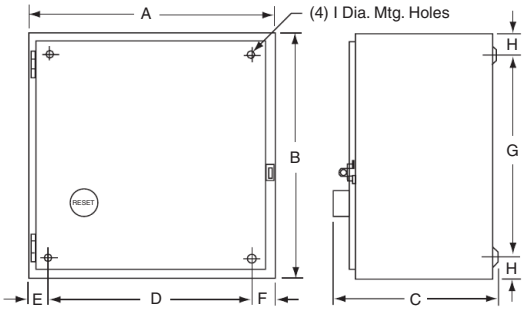


Figure 2

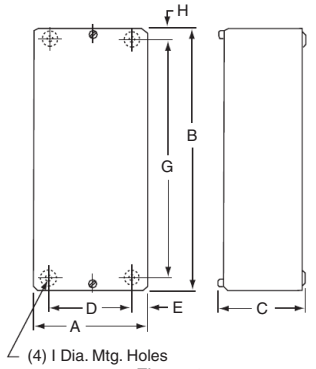


Figure 3

Dual Dimensions: **INCHES** Millimeters

Table 16.251: NEMA 1—General Purpose Enclosures

Class 9991 Type	For Use With			Dimensions (See Figure 4)										Weight (lb)
	Class	Type	No. of Poles	A	B	C	D	E	F	G	H	J	L	
UE1	8501	CO	All	3.63 92	5.28 134	3.31 84	1.88 48	3.63 92	1.06 27	1.50 38	1/4 in.▲	1/2–3/4 in.		2
UE6	8910	H, J, K L & M	All	4.91 125	5.75 146	5.53 140	3.50 89	4.38 111	1.56 40	2.00 51	9/32 in.	1/2–3/4 in. 1–1-1/4 in.	1/2–3/4 in.	2
	9050	AO (Single Head)	All											
		HO	All											
UE7	8501	XO	2–12, 2–4 w/Attachments	4.87 124	7.79 198	7.53 191	3.50 89	6.38 162	1.31 33	1.88 48	#10	1/2–3/4 in.		4
		XDO	2–8											
	9070	EO1, EO17 T25, & T50	—											
LG1	9070	EO2, EO3, EO4, EO15, EO16, EO18, EO19 T75, T100, T150, T200, T250, T300, T350, & T500	—	7.53 191	9.78 248	5.91 150	6.13 156	8.38 213	1.31 33	1.88 48	9/32 in.	1/2–3/4–1 in. ■		10

▲ Class 9991 UE1 has only (3) -H diameter mounting holes; 2 in the bottom as shown and 1 centered at the top.
■ Class 9999 LG1 has three knockouts, top and bottom.

Table 16.252: NEMA 3R—Rainproof and Sleet-Resistant Enclosures

Class 9991 Type	For Use With				Dimensions (see Figure 5)																	
	Class	Type	Size	No. of Poles	A	B	C	D1	D2	E	F	G1	G2	H1	H2	J	K	L	M	N	P	K.O. X	K.O. Y
SCH2	8502 8536	SBO, SCO	0, 1	All	8.83 224	12.30 312	7.12 181	1.39 35	1.44 37	6.00 152	7.50 191	2.61 66	2.19 56	2.08 53	2.62 66	14.28 363	1.37 35	1.37 35	1.88 48	4.38 111	1.83 46	1/2 3/4 1	1/2 3/4 1
	8903	SMO	30 A																				
SDH1	8502 8536	SDO	2	All	9.83 250	16.30 414	8.62 219	1.39 35	1.44 37	7.00 178	11.50 292	2.61 66	2.19 56	2.08 53	2.62 66	16.78 426	1.31 33	1.75 44	2.13 54	4.88 124	1.83 46	1 1-1/4 1-1/2	1/2 3/4
	8903	LO LXO	20 A																				
	8903	SPO	60 A																				
SEH1	8502 8536	SEO	3	All	12.63 321	25.30 643	8.62 219	1.39 35	1.44 37	10.00 254	20.60 523	2.61 66	2.19 56	2.08 53	2.62 66	19.78 502	1.31 33	2.31 59	2.69 68	6.38 162	1.83 46	1 1-1/4 2 2-1/2	1/2 3/4
	8903	SQO	100 A																				
SFH1	8502 8536	SFO	4	All	12.63 321	40.30 1024	9.12 232	1.39 35	1.44 37	10.00 254	35.50 902	2.61 66	2.19 56	2.08 53	2.62 66	20.28 515	1.31 33	2.31 59	2.69 68	6.38 162	1.83 46	1 1-1/4 2 2-1/2	1/2 3/4
	8903	SVO	200 A	2-3																			

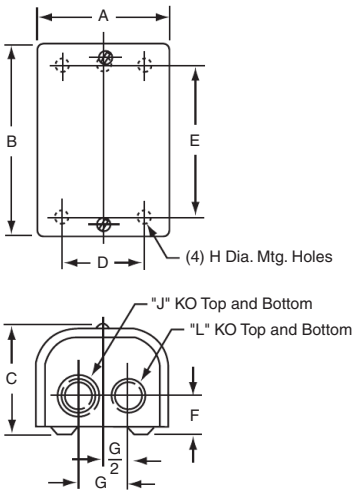


Figure 4

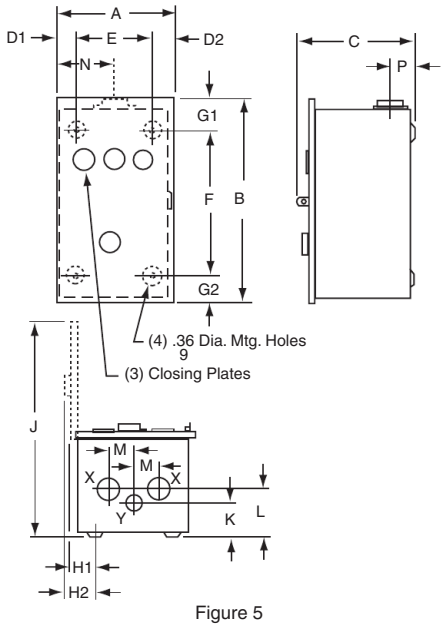


Figure 5

Dual Dimensions: **INCHES** Millimeters

Table 16.253: NEMA 4X—Watertight and Corrosion Resistant Enclosures

Class 9991 Type	For Use With				Dimensions (see Figure 6)												Hub Dia.		Weight (lb)
	Class	Type	Size	No. of Poles	A	B	C	D	E	F	G	H	I	J	K	L	Bot. Only W	Top & Bot. X	
SCW20	8903	SMO (E.H.)	30 A	All	6.50 165	6.44 164	12.13 308	.75 19	5.00 127	8.25 210	1.69 43	3.34 85	10.06 256	1.31 33	2.13 54	.31 8	3/4 in.	1 in.	7
	8502	SBO, SCO	0, 1	All															
SCW21	8536	SBO, SCO	0, 1	All															
SDW20	8903	LO, LXO	20 A	All	8.50 216	7.06 179	13.88 352	.75 19	7.00 178	10.50 267	1.69 43	3.91 99	11.94 303	1.63 41	2.38 60	.31 8	3/4 in.	1-1/2 in.	13
	8903	SPO (E.H.)	60 A	All															
	8502	SDO	2	All															
SDW21	8536	SDO	2	All															

Table 16.254: NEMA 4—Watertight Enclosures (Standard)

Class 9991 Type	For Use With				Dimensions (see Figure 6)												Hub Dia.		Weight (lb)
	Class	Type	Size	No. of Poles	A	B	C	D	E	F	G	H	I	J	K	L	Bot. Only W	Top & Bot. X	
SCW11	8903	SMO	30 A	All	6.38 162	7.13 181	13.19 335	1.56 40	3.25 83	12.00 305	.59 15	1.88 48	11.78 299	1.63 41	2.31 59	.31 8	3/4 in.	1 in.	12
	8502	SBO, SCO	0, 1	All															
	8536	SBO, SCO	0, 1	All	6.38 162	7.81 198	13.19 335	1.56 40	3.25 83	12.00 305	.59 15	1.88 48	11.78 299	1.63 41	2.31 59	.31 8			
SDW11	8903	LO, LXO	20 A	All	8.13 206	7.88 200	16.19 411	1.56 40	5.00 127	15.00 381	1.09 28	1.94 49	14.75 375	2.00 51	2.63 67	.31 8	3/4 in.	1-1/2 in.	18
	8903	SPO	60 A	All															
	8502	SDO	2	All															
	8536	SDO	2	All	8.13 206	8.56 217	16.19 411	1.56 40	5.00 127	15.00 381	1.09 28	2.88 73	14.75 375	2.00 51	2.63 67	.31 8			
SEW11	8903	SQO	100 A	All	18.15 461	8.77 223	32.21 818	3.08 78	12.00 305	30.50 775	.86 22	3.67 93	26.71 678	2.58 66	3.19 81	.44 11	3/4 in.	2-1/2 in.	51
	8502	SEO	3	All															
	8536	SEO	3	All	18.15 461	9.58 243	32.21 818	3.08 78	12.00 305	30.50 775	.86 22	4.48 114	26.71 678	2.58 66	3.19 81	.44 11			
SFW11	8536	SFO	4	All															
	8502	SFO	4	All	18.15 461	8.77 223	32.21 818	3.08 78	12.00 305	30.50 775	.86 22	3.67 93	26.71 678	2.58 66	3.19 81	.44 11			

Table 16.255: NEMA 4—Watertight Enclosures (Oversize)

Class 9991 Type	For Use With				Dimensions (see Figure 7)												Hub Dia.		Weight (lb)
	Class	Type	Size	No. of Poles	A	B	C	D	E	F	G	H	I	J	K	L	Bot. Only W	Top & Bot. X	
SCW2	8702 8736	SCO	1	All	12.63 321	7.81 198	14.69 373	2.56 65	7.50 191	13.50 343	.59 15	3.88 98	18.41 468	1.66 42	2.31 59	.31 8	3/4 in.	1 in.	23
SCW3	8810	SBO SCO	0 1	All															19
SCW4	8502 8536	SBO, SCO (Form F4T)	0, 1	All															24
SDW2	8702 8736	SDO	2	All	14.88 378	7.25 184	16.19 411	2.56 65	9.75 248	15.00 381	.38 10	3.88 98	20.88 530	1.72 44	2.63 67	.31 8	3/4 in.	1-1/2 in.	25
SDW3	8903	LO, LXO SMO, SPO (Form F4T)	20 A 30 A 60 A	All															29
SDW4	8502 8536	SDO (Form F4T)	2	All															28

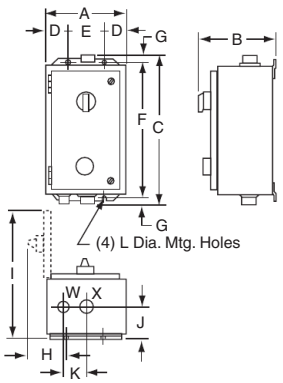


Figure 6

Dual Dimensions: **INCHES** Millimeters

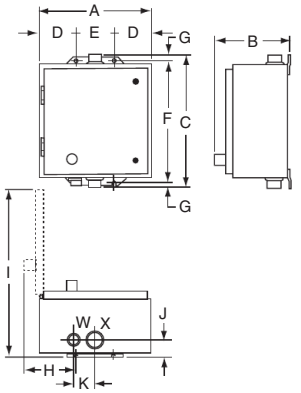


Figure 7

Approximate Dimensions

Table 16.256: NEMA 12/3R—Dusttight and Driptight Enclosures (Standard)

Class 9991 Type	For Use With			Dimensions (see Figure 8)											Weight (lb)
	Class	Type	Size	No. of Poles	A	B	C	D	E	F	G	H	I	J	
SCA11	8502	SBO, SCO	0, 1	All	6.38 162	8.53 217	12.75 324	1.56 40	3.25 83	12.00 305	.38 10	3.56 90	12.50 318	.31 8	10
	8536	SBO, SCO	0, 1	All											
	8903	SMO	30 A	All											
SDA11	8502	SDO	2	All	8.13 206	9.28 236	16.00 406	1.56 40	5.00 127	15.00 381	.50 13	3.56 90	15.38 391	.31 8	15
	8536	SDO	2	All											
	8903	LO, LXO	20 A	All											
	8903	SPO	60 A	All											
SEA11	8903	SQO	100 A	All	18.15 461	9.24 235	31.50 800	3.08 78	12.0 305	30.50 775	.50 13	3.67 93	26.71 678	.44 11	51
	8502	SEO	3	All											
	8536	SEO	3	All	18.15 461	9.58 243	31.50 800	3.08 78	12.0 305	30.50 775	.50 13	4.48 114	26.71 678	.44 11	
SFA11	8536	SFO	4	All											
	8502	SFO	4	All	18.15 461	9.24 235	31.50 800	3.08 78	12.0 305	30.50 775	.50 13	3.67 93	26.71 678	.44 11	

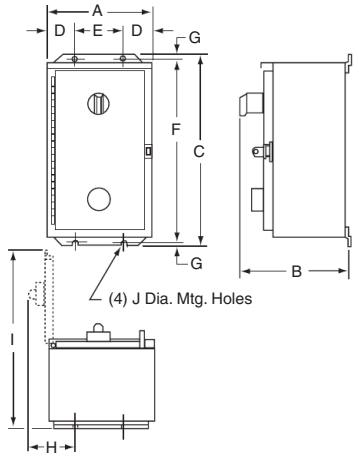


Figure 8

Table 16.257: NEMA 12/3R—Dusttight and Driptight Enclosures (Oversized)

Class 9991 Type	For Use With			Dimensions (see Figure 9)											Weight (lb)
	Class	Type	Size	No. of Poles	A	B	C	D	E	F	G	H	I	J	
SCA2	8702 8736	SCO	1	All	11.88 302	7.75 197	13.5 343	2.56 65	6.75 171	12.75 324	.38 10	3.66 93	18.13 460	.31 8	17
SCA3	8810	SBO SCO	0 1	All											18
SCA4	8502 8536	SBO, SCO (Form F4T)	0, 1	All											19
SDA2	8702 8736	SDO	2	All	14.88 378	7.88 200	16.00 406	2.56 65	9.75 248	15.00 381	.50 13	3.66 93	21.25 540	.31 8	24
SDA3	8903	LO, LXO SMO, SPO (**Form F4T**)	20 A 30 A 60 A	All											27
SDA4	8502 8536	SDO (**Form F4T**)	2	All											27

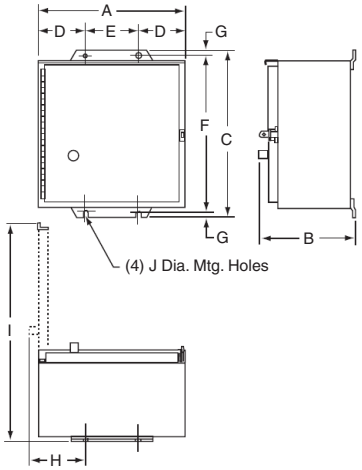


Figure 9

Table 16.258: Flush Mounting General Purpose Enclosures

Class 9991 Type	For Use With			Dimensions (see Figure 10)									Weight (lb)
	Class	Type	Size	No. of Poles	A	B	C	D	E	F	G	H	
SDF13 (w/SDF1 & SDF2)	8903	LO, LXO	20 A	All	15.19 386	8.94 227	7.63 194	12.88 327	5.44 138	10.94 278	5.13 130	.38 10	17
SCF11 (w/SDF1 & SDF2)	8502	SBO, SCO	0, 1	All	13.44 341	7.19 183	5.88 149	11.13 283	4.75 121	9.19 233	4.50 114	.38 10	10
	8536	SBO, SCO	0, 1	All									
	8903	SMO (E.H.)	30 A	All									
SDF11 (w/SDF1 & SDF2)	8502	SDO	2	All	15.19 386	8.94 227	7.63 194	12.88 327	5.44 138	10.94 278	5.13 130	.38 10	17
	8536	SDO	2	All									
	8903	SPO (E.H.)	60 A	All									
SEF11	8502	SEO	3	All	31.00 787	16.75 425	14.25 362	26.25 667	8.00 203	—	—	.18 5	48
	8903	SQO	100 A	All									

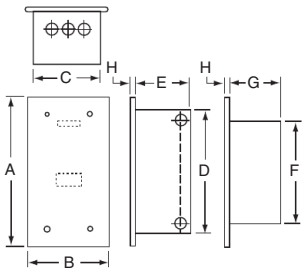


Figure 10

Factory installed modifications are available for the classes of control equipment listed in the respective tables. Prices shown are **additions** to standard equipment prices and are **not** to be used as separate selling prices. Kits are also available for many field modifications and normal parts replacement on most control items. Refer to Classes 9998 and 9999 for complete listings.

Standard equipment dimensions and enclosure construction may not apply when certain special features are added. Such cases should be referred to the factory with complete description when accurate dimensions are required.

NOTE: *If UL label is required, consult Schneider Electric CCC at (1-888-778-2733). Some Forms **are not** UL Listed.*

Table 16.259: Full Voltage Starters

	Factory Modifications	Enclosure Type	Form	NEMA Size								
				00	0	1	2	3	4	5	6	7
PILOT DEVICES IN COVER Full Voltage Non-Reversing Controllers Only Classes 8502 8536 8538 8539	**Push Buttons ▲**											
	Start-Stop	1□, 3R, 4, 4X, 12 7 & 9	A A	— —	336.00 599.00	336.00 599.00	336.00 599.00	336.00 599.00	336.00 599.00	336.00 599.00	336.00 599.00	336.00 599.00
	Start-Stop (maintained contact)▼	1□, 3R, 4, 4X, 12	A16	—	378.00	378.00	378.00	378.00	378.00	378.00	378.00	378.00
	Start-Stop push button and Hand-Off-Auto selector switch	1□, 3R, 4, 4X, 12	AC	—	671.00	671.00	671.00	671.00	671.00	671.00	671.00	671.00
	On-Off	1□, 3R, 4, 4X, 12	A3	—	336.00	336.00	336.00	336.00	336.00	336.00	336.00	336.00
	Single Oiltight Pushbutton (specify marking)	1, 3R, 4, 4X, 12	A11	—	336.00	336.00	336.00	336.00	336.00	336.00	336.00	336.00
	Selector Switches											
	Hand-Off-Auto	1□, 3R, 4, 4X, 12 7 & 9	C C	— —	336.00 599.00	336.00 599.00	336.00 599.00	336.00 599.00	336.00 599.00	336.00 599.00	336.00 599.00	336.00 599.00
	On-Off	1□, 3R, 4, 4X, 12 7 & 9	C6 C6	— —	336.00 599.00	336.00 599.00	336.00 599.00	336.00 599.00	336.00 599.00	336.00 599.00	336.00 599.00	336.00 599.00
	NON-STANDARD markings for Pilot Devices	1, 3R, 4, 12	G12★	—	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00
	Addition of padlock attachment to Class 9001 operators	1, 3R, 4, 12	G122	—	44.00	44.00	44.00	44.00	44.00	44.00	44.00	44.00
	Pilot Lights (specify color/type) ■ See Table 16.260 below.											
	With Operating Interlock: Add price of each interlock per light	1, 3R, 4, 4X, 12	X△	158.00	158.00	158.00	158.00	158.00	158.00	158.00	158.00	158.00
PILOT DEVICES IN COVER Full Voltage Reversing and Multi-Speed Controllers Only Classes 8702 8736 8738 8739 8810 8811 8812	**Push Buttons ▲**											
	Forward-Reverse-Stop	1, 4, 4X, 12 7, 9	A1 A1	— —	570.00 1017.00	570.00 1017.00	570.00 1017.00	570.00 1017.00	570.00 1017.00	570.00 1017.00	570.00 1017.00	570.00 1017.00
	High-Low-Stop	1, 4, 12	A2	—	570.00	570.00	570.00	570.00	570.00	570.00	570.00	570.00
	Fast-Off-Slow	1, 4, 12	A9	—	570.00	570.00	570.00	570.00	570.00	570.00	570.00	570.00
	High-Low push button and Hand-Off-Auto selector	1, 4, 12	A10C	—	671.00	671.00	671.00	671.00	671.00	671.00	671.00	671.00
	Single Oiltight Pushbutton (specify marking)	1, 4, 4X, 12	A11	—	336.00	336.00	336.00	336.00	336.00	336.00	336.00	336.00
	Selector Switches											
	Hand-Off-Auto	1□, 4, 4X, 12 7 & 9	C C	— —	336.00 599.00	336.00 599.00	336.00 599.00	336.00 599.00	336.00 599.00	336.00 599.00	336.00 599.00	336.00 599.00
	On-Off	1□, 4, 4X 7 & 9	C6 C6	— —	336.00 599.00	336.00 599.00	336.00 599.00	336.00 599.00	336.00 599.00	336.00 599.00	336.00 599.00	336.00 599.00
	High-Off-Low	1, 4, 12	C7	224.00	336.00	336.00	336.00	336.00	336.00	336.00	336.00	336.00
	Forward-Off-Reverse	1, 4, 4X, 12 7 & 9	C14	—	336.00 599.00	336.00 599.00	336.00 599.00	336.00 599.00	336.00 599.00	336.00 599.00	336.00 599.00	336.00 599.00
	High-Low and Hand-Off-Auto	1, 4, 12	CC17	—	671.00	671.00	671.00	671.00	671.00	671.00	671.00	671.00
	Slow-Fast	1, 4, 4X, 12	C19	—	336.00	336.00	336.00	336.00	336.00	336.00	336.00	336.00
	Forward-Reverse	1, 4, 4X, 12	C20	—	336.00	336.00	336.00	336.00	336.00	336.00	336.00	336.00
	High-Low-Off-Auto	1, 4, 12	C25	—	671.00	671.00	671.00	671.00	671.00	671.00	671.00	671.00
	NON-STANDARD markings for Pilot Devices	Any	G12★	—	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00
	Pilot Lights ■ With Operating Interlock: Add price of each interlock per light	1, 4, 4X, 12	X△	158.00	158.00	158.00	158.00	158.00	158.00	158.00	158.00	158.00

▲ All push buttons are momentary contact unless specified otherwise.

■ Indicate pilot light color as **Form P1** (red) or **Form P2** (green), etc. as shown in the table below. Unless otherwise requested, standard practice is to wire red pilot light to indicate device is energized. No additional auxiliary contact is required. Also, standard practice is to wire green pilot light to indicate device is de-energized. An additional normally closed auxiliary contact is supplied. A wiring diagram must be supplied for other pilot light colors and/or arrangements.

♦ Pilot lights available at 120 to 600 V only.

★ Specify marking and/or Class 9001 Type KN or Type SKN legend plate required.

▼ Specify appropriate Class 9001 Type K or SK operator required.

△ To determine the maximum number of auxiliary contacts which can be added to each Type S device and for the appropriate "X Form", refer to the tables in the Class 8536 section on page 16-15 (for non-reversing single-speed devices) or the Class 8736 section on page 16-52 (for reversing or two-speed devices). For Class 8600 Reduced Voltage controllers, consult Schneider Electric CCC at (1-888-778-2733).

□ Various form combinations selected may force the use of a larger enclosure.

Table 16.260: Pilot Light Forms

	Standard			Push-to-Test			LED			LED-Push-to-Test		
	Form	Ty 1/4/12	Ty 7/9	Form	Ty 1/4/12	Ty 7/9	Form	Ty 1/4/12	Ty 7/9	Form	Ty 1/4/12	Ty 7/9
Red ON	P1	336.00	599.00	P21	435.00	599.00	P51	383.00	599.00	P42	482.00	599.00
Red OFF	P71	336.00	599.00	P81	435.00	599.00	P91	383.00	599.00	P43	482.00	599.00
Red Unwired	P38	336.00	599.00	P28	435.00	599.00	P58	383.00	599.00	P44	482.00	599.00
Green ON	P72	336.00	599.00	P82	435.00	599.00	P92	383.00	599.00	P45	482.00	599.00
Green OFF	P2	336.00	599.00	P22	435.00	599.00	P52	383.00	599.00	P46	482.00	599.00
Green Unwired	P39	336.00	599.00	P29	435.00	599.00	P59	383.00	599.00	P47	482.00	599.00
Amber	P3	336.00	599.00	P23	435.00	599.00	P53	383.00	599.00	P63	482.00	599.00
Clear	P4	336.00	599.00	P24	435.00	599.00	P54	383.00	599.00	P64	482.00	599.00
Yellow	P35	336.00	599.00	P25	435.00	599.00	P55	383.00	599.00	P48	482.00	599.00
Blue	P36	336.00	599.00	P26	435.00	599.00	P56	383.00	599.00	P66	482.00	599.00
White	P37	336.00	599.00	P27	435.00	599.00	P57	383.00	599.00	P67	482.00	599.00
Red LOW - Green HI	P73	672.00	1197.00	P83	870.00	1197.00	P93	765.00	1197.00	P77	963.00	1197.00
Green LOW - Red HI	P74	672.00	1197.00	P84	870.00	1197.00	P94	765.00	1197.00	P78	963.00	1197.00
Red OFF - Green FWD/REV	P75	1008.00	1796.00	P85	1305.00	1796.00	P95	1184.00	1796.00	P79	1445.00	1796.00
Green OFF - Red FWD/REV	P76	1008.00	1796.00	P86	1305.00	1796.00	P96	1184.00	1796.00	P80	1445.00	1796.00

For Full Voltage Contactors and Starters

Table 16.261: Full Voltage Controllers Only

Classes 8502, 8536, 8538, 8539, 8702, 8736, 8738, 8739, 8810, 8811 and 8812													
Factory Modifications		Enclosure Type	Form	NEMA SIZE									
				00	0	1	2	3	4	5	6	7	
CONTROL CIRCUIT Full Voltage and Multi-Speed Controllers Only Classes 8502 8536 8538 8539 8702 8736 8738 8739 8810 8811 8812	Separate Control Circuit—(specify voltage and frequency)	Any	S▲		No Charge	No Charge	No Charge	No Charge	No Charge	No Charge	No Charge	No Charge	
	Fused Control Circuit (without control transformer)												
	One fuse	1, 3R, 4, 4X, 12	F	314.00	314.00	314.00	314.00	314.00	314.00	314.00	—	—	
	Two fuses	1, 3R, 4, 4X, 7, 9, 12	F4	314.00	314.00	314.00	314.00	314.00	314.00	314.00	—	—	
	Control Circuit Transformers■—Standard capacity (50 or 60 Hz) Note: All orders requesting Form FT will be supplied as Form F4T.												
	FUSES: Primary / Secondary												
	2 / 1	1, 4, 4X, 12	FF4T	698.00	698.00	698.00	855.00	1112.00	1283.00	1412.00 ♦	1412.00	1412.00	
	2 / 1	7 & 9	FF4T	755.00	755.00	755.00	1053.00	1353.00	1640.00	1839.00 ♦	1839.00	1839.00	
	2 / 2	1, 4, 4X, 12	F4F10T	698.00	698.00	698.00	855.00	1112.00	1283.00	1412.00 ♦	—	—	
	Additional Capacity (50 or 60 Hz)												
	Two fuses in primary and one fuse in secondary												
	100 VA additional capacity	1, 4, 4X, 12	FF4T11	998.00	998.00	998.00	1197.00	1425.00	1566.00 ♦	1710.00 ♦	1710.00	1710.00	
	100 VA additional capacity	7 & 9	FF4T11	1053.00	1053.00	1053.00	1395.00	1668.00	1925.00 ♦	2138.00 ♦	—	—	
	200 VA additional capacity	1, 4, 4X, 12	FF4T12	1241.00	1241.00	1241.00	1467.00	1695.00 ♦	1839.00 ♦	1839.00 ♦	1839.00	1839.00	
	300 VA additional capacity	1, 4, 4X, 12	FF4T13	1481.00	1481.00 ♦	1481.00 ♦	1737.00 ♦	1967.00 ♦	2109.00 ♦	2109.00 ♦	2109.00	2109.00	
	400 VA additional capacity	1, 4, 4X, 12	FF4T14	1967.00	1967.00 ♦	1967.00 ♦	2280.00 ♦	2507.00 ♦	2793.00 ♦	2793.00 ♦	2793.00 ♦	2793.00 ♦	
	500 VA additional capacity	1, 4, 4X, 12	FF4T15	2250.00	2250.00 ♦	2250.00 ♦	2564.00 ♦	2793.00 ♦	3077.00 ♦	3077.00 ♦	3077.00 ♦	3077.00 ♦	

▲ All combination style devices such as 8538, 8539, 8738, 8739, that use **Form S** should also use **Form Y74** (auxiliary contact installed on disconnect switch) per NEC Article 430-74.
■ Table 16.264 at right.
♦ **Single** primary voltage must be specified.

Table 16.262: Marine Control

Class	Factory Modification	Enclosure Type	Form	$ Price
8502 8536 8538 8539 8702 8736 8738 8739 8810 8941	Modification of standard device for use as marine control per UL508	12/3R 4/4X (S.S. only)	M10	See Below

Table 16.263:

Form	NEMA Size★							
	00▼	0▼	1	2	3	4	5	6
M10	—	—	338.00	450.00	720.00	1260.00	3015.00	4725.00

★ Not available for NEMA Size 7.
▼ Cannot be used with Marine controls.

■Selection of Control Circuit Transformers

The standard primary/secondary voltages for control circuit transformers are indicated in the following table.

Table 16.264:

AC-OPERATED DEVICES With Control Transformers	
Voltage 60 Hz (Primary–Secondary)	Code
120–12△	V88
120–24△	V89
208–120	V84
240–24△	V82
240–120	V80
277–120	V85
480–24△	V83
480–120	V81
480–240	V87
600–120	V86
Specify	V99

△ 12 V coils are not available on Sizes 3–7.
24 V coils are not available on Sizes 4–7.

To order, select the desired device with the appropriate transformer Form designation. Then convert the previously selected voltage code (V••) to reflect the desired primary/secondary voltage for the transformer. The secondary voltage should equal the previously selected coil voltage of the device.

Example:

You have previously selected a Class 8536SDG1V02S. V02S means that you need a coil voltage of 120-60/110-50 wired for separate control. You would like to add **Form FF4T** with the transformer voltages being 480 volt primary, 120 volt secondary with Solid State Overload Relay Protection Class 20 Trip Class (H20).

The new and complete class, type, voltage code and form number will be:

Class	Type	Voltage Code	Form □
8536	SDG1	V81	FF4H20T

□ Form numbers should always be shown in alphabetical order. Each letter indicates the beginning of a new form and may be followed by one or more numbers.

Table 16.265: Full Voltage Controllers Only

Classes 8502, 8536, 8538, 8539, 8702, 8736, 8738, 8739, 8810, 8811 and 8812														
Factory Modifications		Enclosure Type	Form	NEMA Size										
				00	0	1	2	3	4	5	6	7		
Overload Relays	**Non-Compensated Bimetallic Overload Relays** **Single Phase:** Types SB–SD (Sizes 0–2)■	Any	B1	—	**35.60**	**35.60**	**35.60**	—	—	—	—	—		
	Polyphase: **Two Element**—For 2 Phase Only Types SB–SD (Sizes 0–2)	Any	B1	—	**35.60**	**35.60**	**35.60**	—	—	—	—	—		
	Three Element Types SB–SD (Sizes 0–2) Type SG (Size 5) Type SH (Size 6)	Any Any Any	B2 B2 B2	— — —	**35.60** — —	**35.60** — —	**35.60** — —	— — —	— — —	— **35.60** —	— — **35.60**	— — —	 ▲	
	Ambient Compensated Bimetallic Overload Relays **Three Element** Types SB–SD (Sizes 0–2) Types SE–SF (Sizes 3 & 4) Type SG (Size 5) Type SH (Size 6)	1, 4, 7, 9, 12 Any Any Any	B Y59 B B	— — — —	**64.00** — — —	**64.00** — — —	**64.00** — — —	— **64.00** — —	— **64.00** — —	— — **64.00** —	— — — **64.00**	— — — —	 ▲	
	Overload Relays—General Modify Size 3 Type SE starters with melting alloy overload relays to accept Type FB quick trip or SB slow trip thermal units	Any	Y81	—	—	—	—	**N/C**	—	—	—	—		
	Substitute 9999 SO4 isolated alarm contact (N.O.) on melting alloy overload relay	Any	Y342	**179.00**	**179.00**	**179.00**	**179.00**	**179.00**	**179.00**	**179.00** ♦	**179.00**	—	▲	
	Substitute 9999 SO5 isolated alarm contact (N.C.) on melting alloy overload relay	Any	Y344	**179.00**	**179.00**	**179.00**	**179.00**	**179.00**	**179.00**	**179.00** ♦	**179.00**	—	▲	

▲ Size 7 uses a solid state overload relay as standard. See Class 8536 for complete details.
■ Single phase bimetallic overload relays for Type S Sizes 0–2 require **two** (2) thermal units per starter.
♦ For Classes 8736, 8738 and 8739 Type SG, consult Schneider Electric CCC at (1-888-778-2733).

Accessories available on page 16-111.

Solid State Overload Relay Factory Modifications (Forms)

The solid state overload relay is available on NEMA Size 00–7.
For Class 8536, 8538, 8539, 8736, 8738, 8739 and 8810 devices.

H # # #

Form Description

Type S Starter with MOTOR LOGIC™
Solid State Overload Relay
1—MOTOR LOGIC, Base Unit, Trip Class 10
2—MOTOR LOGIC, Base Unit, Trip Class 20
3—MOTOR LOGIC, Feature Unit

0—No additional modifications
1—N.O. Auxiliary Contact (Field Convertible to N.C.)

Special Overload/Contactor Size Combinations (Base Unit & Feature Units):
(Must Be Specified On Size 00 Starter Orders)
Blank -Overload Matched to Starter Size (i.e., Size 1 contactor & 9-27 A overload)
0—A 6–18 A overload on a starter size as indicated by the Starter Catalog Number
1—A 9–27 A overload on a starter size as indicated by the Starter Catalog Number
2—A 15–45 A overload on a starter size as indicated by the Starter Catalog Number
3—A 30–90 A overload on a starter size as indicated by the Starter Catalog Number
4—A 45–135 A overload on a starter size as indicated by the Starter Catalog Number
8—A 1.5–4.5 A overload on a starter size as indicated by the Starter Catalog Number (only offered on Feature Units)
9—A 3–9 A overload on a starter size as indicated by the Starter Catalog Number

SPECIAL NOTE for Class 8810 devices:
You MUST SPECIFY TWO SEPARATE FORM NUMBERS TO GET MOTOR LOGIC OVERLOADS ON TWO SPEED STARTERS. The catalog number will be alphanumeric.
EXAMPLE: Open Style, Size 4 Two Speed Starter with MOTOR LOGIC Overload Relays Required.
Single Winding, 460 V, Constant or Variable Torque
High Speed FLA = 96 A
Low Speed FLA = 27 A (use Size 2 Overload)
Catalog Number to Order: 8810SF01V02H20H202S
Where: Form H20 is a Size 4 Contactor with a 45-135 A MOTOR LOGIC Overload Relay for the High Speed and form H202 is a 15–45 A MOTOR LOGIC Overload Relay on the low speed contactor.

Table 16.266: Classes 8536, 8538, 8539, 8736, 8738, 8739 and 8810

Factory Modifications		Form	NEMA Size (Overload Current Range)								
			00	0	1	2	3	4	5	6	7
			3–9 A	6–18 A	9–27 A	15–45 A	30–90 A	45–135 A	90–270 A	180–540 A	270–810 A
Motor Logic Solid State Overload Relay	Base Unit, Trip Class 10	H10	**64.00**	**64.00**	**64.00**	**64.00**	**64.00**	**64.00**	**64.00**	—	—
	Base Unit, Trip Class 20	H20	**64.00**	**64.00**	**64.00**	**64.00**	**64.00**	**64.00**	**64.00**	—	—
	Feature Unit	H30	**93.00**	**93.00**	**93.00**	**102.00**	**116.00**	**131.00**	**215.00**	**215.00**	**Std.**
Motor Logic Solid State Overload Relay with Auxiliary Contact	Base Unit, Trip Class 10	H11	**122.00**	**122.00**	**122.00**	**122.00**	**122.00**	**122.00**	**122.00**	—	—
	Base Unit, Trip Class 20	H21	**122.00**	**122.00**	**122.00**	**122.00**	**122.00**	**122.00**	**122.00**	—	—
	Feature Unit	H31	**149.00**	**149.00**	**149.00**	**161.00**	**171.00**	**188.00**	**270.00**	**270.00**	**56.00**

Table 16.267: Special Starter Combinations with Motor Logic Overload Relay Protection

NEMA Contactor Size	Solid State Overload Relay Size						
	00_B	00_C	0	1	2	3	4
00	★	Std					
0	★	★	Std				
1	★	★	★	Std			

NEMA Contactor Size	Solid State Overload Relay Size						
	00_B	00_C	0	1	2	3	4
2	★	★	★	★	Std		
3	n/a	n/a	n/a	n/a	n/a	Std	
4	n/a	n/a	n/a	n/a	n/a	★	Std

★ Possible factory starter combinations available.

Table 16.268: TeSys T Motor Management System Modifications - H6xx or H7xx for use with Class 8536 and 8736 (Open Starters)

NOTE: *Product Configurator Must Be Used To Order TeSys T Open Starters.*

Used on Size	Range	Control Voltage 100-240 Vac Form		Control Voltage 24 Vdc Form
00, 0, 1	0.4–8 A	H61X▲		H71X▲
0, 1	1.35–27 A	H62X▲		H72X▲
2, 3	5.0–100 A	H63X▲	or	H73X▲
4	8–160 (CT 300:5 3 turns)	H65X▲		H75X▲
5	24–480 A (CT 300:5 1 turn)	H66X▲		H76X▲
6	48–960 A (CT 600:5 1 turn)	H67X▲		H77X▲

▲ Where X is the communication option per table (i.e.H612)

Code	Communication Type	List Price Adder
2	Modbus	**$2,295.00**
3	ProfiBus	**$2,550.00**
4	CANopen	**$2,550.00**
5	DeviceNet	**$2,550.00**
6	Ethernet	**$2,805.00**

NOTE: *Auxiliary contact for control of starter coil has a maximum rating of 240V AC.*

Table 16.269: Full Voltage Controllers Only

Classes 8502, 8536, 8538, 8539, 8702, 8736, 8738, 8739, 8810, 8811 and 8812					NEMA Size								
Factory Modifications		Enclosure Type	Form		00	0	1	2	3	4	5	6	7
Power Poles	Addition of one NEMA Size 1, 30 A single pole N.O. unit	Any	Y428	—	**287.00**	**287.00**	**287.00** ■	**287.00**	**287.00**	**287.00**	**287.00**	**287.00**
	Addition of one NEMA Size 1, 30 A single pole N.C. unit	Any	Y429	—	**287.00**	**287.00**	**287.00** ■	**287.00**	**287.00**	**287.00**	**287.00**	**287.00**
	Addition of one NEMA Size 1, 30 A double pole N.O./N.O. unit	Any	Y430	—	**441.00**	**441.00**	**441.00** ■	**441.00**	**441.00**	**441.00**	**441.00**	**441.00**
	Addition of one NEMA Size 1, 30 A double pole N.C./N.C. unit	Any	Y434	—	**441.00**	**441.00**	**441.00** ■	**441.00**	**441.00**	**441.00**	**441.00**	**441.00**
	Addition of one NEMA Size 1, 30 A double pole N.O./N.C. unit	Any	Y435	—	**441.00**	**441.00**	**441.00** ■	**441.00**	**441.00**	**441.00**	**441.00**	**441.00**
	Addition of one NEMA Size 2 single pole N.O. unit	Any	Y436	—	—	—	**414.00** ■	**414.00**	**414.00**	**414.00**	**414.00**	**414.00**
	Addition of one NEMA Size 2 single pole N.C. unit	Any	Y437	—	—	—	**414.00** ■	**414.00**	**414.00**	**414.00**	**414.00**	**414.00**
	Addition of one NEMA Size 2 double pole N.O./N.O. unit	Any	Y438	—	—	—	**698.00** ■	**698.00**	**698.00**	**698.00**	**698.00**	**698.00**
	Addition of one NEMA Size 2 double pole N.C./N.C. unit	Any	Y439	—	—	—	**698.00** ■	**698.00**	**698.00**	**698.00**	**698.00**	**698.00**
	Addition of one NEMA Size 2 double pole N.O./N.C. unit	Any	Y440	—	—	—	**698.00** ■	**698.00**	**698.00**	**698.00**	**698.00**	**698.00**
Miscellaneous	Coil transient suppressor (120 Volt only). Per Coil.	Any	Y145	**158.00**	**158.00**	**158.00**	**158.00**		**158.00**	**158.00**	**158.00**	**158.00**	**158.00**
	Addition of terminal blocks (specify wired or unwired). Wired, per terminal. Each	1, 4, 12	G56▲	—	**116.00**	**116.00**	**116.00**		**116.00**	**116.00**	**116.00**	**116.00**	**116.00**
	Unwired, per terminal. Each	1, 4, 12	G50▲	—	**57.00**	**57.00**	**57.00**		**57.00**	**57.00**	**57.00**	**57.00**	**57.00**

▲ Addition of terminal block type 9080CA or 9080GR6 only. Number of circuits is same as ending of form number. (Ex.: G505 is 5 un-wired terminal block.) Available in groups of 5 only.
■ When adding a power pole to a Size 2 device, also specify **Form Y118** and add **$140.00.**

Table 16.270: Reversing Full Voltage Starters Only♦

Class 8810				NEMA Size							
Factory Modifications		Enclosure Type	Form	0	1	2	3	4	5	6	7
Circuit Breaker or Disconnect Switch	Molded case circuit breaker	1	Y791	**2010.00**	**2010.00**	**2451.00**	**2664.00**	**4872.00**	**9471.00**	**13944.00**	**19328.00**
		4, 7★, 9★	Y791	**2862.00**	**2862.00**	**3533.00**	**4886.00**	**7092.00**	**11808.00**	**18216.00**	**23601.00**
		12	Y791	**2037.00**	**2037.00**	**2564.00**	**2862.00**	**5079.00**	**10839.00**	**14990.00**	**20397.00**
	Non–fusible disconnect switch	1	Y792	**1340.00**	**1340.00**	**1710.00**	**2165.00**	**2165.00**	**5355.00**	—	—
		4, 9★	Y792	**2172.00**	**2172.00**	**2646.00**	**4388.00**	**5327.00**	**7691.00**	—	—
		12	Y792	**1368.00**	**1368.00**	**1823.00**	**2366.00**	**4815.00**	**5925.00**	—	—
	Fusible switch with 30 A fuse clips	1	Y793	**1566.00**	**1566.00**	—	—	—	—	—	—
		4	Y793	**2421.00**	**2421.00**	—	—	—	—	—	—
		12	Y793	**1596.00**	**1596.00**	—	—	—	—	—	—
	Fusible switch with 60 A fuse clips	1	Y794	—	**1566.00**	**1823.00**	—	—	—	—	—
		4	Y794	—	**2421.00**	**2885.00**	—	—	—	—	—
		12	Y794	—	**1596.00**	**1938.00**	—	—	—	—	—
	Fusible switch with 100 A fuse clips	1	Y795	—	—	—	**1336.00**	—	—	—	—
		4	Y795	—	—	—	**4559.00**	—	—	—	—
		12	Y795	—	—	—	**2537.00**	—	—	—	—
	Fusible switch with 200 A fuse clips	1	Y796	—	—	—	**2885.00**	**3596.00**	—	—	—
		4	Y796	—	—	—	**5129.00**	**5840.00**	—	—	—
		12	Y796	—	—	—	**3105.00**	**5327.00**	—	—	—
	Fusible switch with 400 A fuse clips	1	Y797	—	—	—	—	—	**5868.00**	**11039.00**	—
		4	Y797	—	—	—	—	—	**8204.00**	**15354.00**	—
		12	Y797	—	—	—	—	—	**6438.00**	**12861.00**	—
	Automatic molded case switch with 600 A fuse clips	1	Y798	—	—	—	—	—	—	**13802.00**	—
		4	Y798	—	—	—	—	—	—	**18075.00**	—
		12	Y798	—	—	—	—	—	—	**14871.00**	—
	Automatic molded case switch with 1200 A or less fuse clips	1	Y799	—	—	—	—	—	—	**15425.00**	**15425.00**
		4	Y799	—	—	—	—	—	—	**19697.00**	**19697.00**
		12	Y799	—	—	—	—	—	—	**17562.00**	**17562.00**
	Automatic molded case switch	1	Y7910	—	—	—	—	—	—	**12293.00**	**13004.00**
		4	Y7910	—	—	—	—	—	—	**16565.00**	**17276.00**
		12	Y7910	—	—	—	—	—	—	**13361.00**	**14072.00**

♦ For non-reversing 2-speed starters with disconnect switch or circuit breaker, see pages 16-60–16-64.
★ NEMA 7 & 9 adders apply to 8810 non-reversing devices Sizes 0, 1 and 2 only.

For Full Voltage Contactors & Starters

Table 16.271: Full Voltage Controllers△

Classes 8502, 8536, 8538, 8539, 8702, 8736, 8738, 8739, and 8810											
Factory Modifications		Enclosure Type	Form	NEMA Size							
				0	1 1 PW 1 YD	2 2 PW 2 YD	3 3 PW 3 YD	4 4 PW 4 YD	5 5 PW 5 YD	6 6 PW 6 YD	7 7 PW 7 YD
Auxiliary Relays	Control relay (4 & 8 poles)	1, 12	R174	$ 485.00	$ 485.00	$ 485.00	$ 485.00	$ 485.00	$ 485.00	$ 485.00	$ 485.00
		4, 4X■	R174	741.00	741.00	741.00	741.00	741.00	741.00	741.00	741.00
		7, 9	R174	741.00	741.00	741.00	741.00	741.00	741.00	—	—
		1, 12	R178	741.00	741.00	741.00	741.00	741.00	741.00	741.00	741.00
		4, 4X■	R178	1112.00	1112.00	1112.00	1112.00	1112.00	1112.00	1112.00	1112.00
		7, 9	R178	1112.00	1112.00	1112.00	1112.00	1112.00	1112.00	—	—
	Pneumatic Timing Relay – specify Class 9050 Type A or B										
	0.1 seconds to 1.0 minute—On delay	1	K25	1197.00	1197.00	1197.00	1197.00	1197.00	1197.00	1197.00	1197.00
		3R, 4, 4X■, 12	K25	1566.00	1566.00	1566.00	1566.00	1566.00	1566.00	1566.00	1566.00
		7, 9	K25	1566.00	1566.00	1566.00	1566.00	1566.00	1566.00	—	—
	0.1 seconds to 1.0 minute—Off delay	1	K26	1197.00	1197.00	1197.00	1197.00	1197.00	1197.00	1197.00	1197.00
		3R, 4, 4X■, 12	K26	1566.00	1566.00	1566.00	1566.00	1566.00	1566.00	1566.00	1566.00
		7, 9	K26	1566.00	1566.00	1566.00	1566.00	1566.00	1566.00	—	—
	1.0 to 3.0 minute—On delay	1, 3R, 4, 12	K37	1197.00	1197.00	1197.00	1197.00	1197.00	1197.00	1197.00	1197.00
		4X■, 7, 9	K37	1197.00	1197.00	1197.00	1197.00	1197.00	1197.00	—	—
	1.0 to 3.0 minute—Off delay	1, 3R, 4, 12	K38	1197.00	1197.00	1197.00	1197.00	1197.00	1197.00	1197.00	1197.00
		4X■, 7, 9	K38	1197.00	1197.00	1197.00	1197.00	1197.00	1197.00	—	—
	Solid State Timing Relay (specify timing range) and timer (120 V control required)	1, 4, 4X, 7, 9, 12	K1070	449.00	449.00	449.00	449.00	449.00	449.00	449.00	449.00
	Motor driven timing relay▲♦	1, 4, 12	K5	2507.00	2507.00	2507.00	2507.00	2507.00	2507.00	2507.00	2507.00
	Phase failure and phase reversal relay with time delay option including under and over voltage protection. Addition of a protective relay with options of Phase Failure with Time Delay, Phase Reversal and Under/ Over Voltage Protection. (RM3TR1). Both motor voltage and control voltage (V8• voltage code) must be specified with device even if Form S is specified. Form replaces Forms Y444, Y445, Y447, Y448 and Y449.	1, 3R, 4, 4X, 7/9, 12	R44	1463.00	1463.00	1463.00	1463.00	1463.00	1463.00	1463.00	1463.00
	For multispeed controllers: Compelling relay (requires motor to be started in low speed)	1, 4, 7, 9, 12	R1	941.00	941.00	941.00	941.00	941.00	941.00	941.00	941.00
	Accelerating relay (provides timed acceleration to selected speed):										
	For Class 8810	1, 4, 7, 9, 12	R2	2195.00	2195.00	2195.00	2195.00	2195.00	2195.00	2195.00	2195.00
	For Class 8811	1, 4, 7, 9, 12	R2	4388.00	4388.00	4388.00	4388.00	4388.00	4388.00	4388.00	4388.00
	For Class 8812	1, 4, 7, 9, 12	R2	6579.00	6579.00	6579.00	6579.00	6579.00	6579.00	6579.00	6579.00
	Decelerating relay (imposes a timing delay during transfer from a higher to a lower speed):										
	For Class 8810	1, 4, 7, 9, 12	R3	2195.00	2195.00	2195.00	2195.00	2195.00	2195.00	2195.00	2195.00
	For Class 8811	1, 4, 7, 9, 12	R3	4388.00	4388.00	4388.00	4388.00	4388.00	4388.00	4388.00	4388.00
	For Class 8812	1, 4, 7, 9, 12	R3	6579.00	6579.00	6579.00	6579.00	6579.00	6579.00	6579.00	6579.00
	Antiplugging timers and relays	1, 4, 7, 9, 12	R10	3846.00	3846.00	3846.00	3846.00	3846.00	3846.00	3846.00	3846.00
★ Meters and Metering	Ammeter in cover (includes current transformer if required)	1, 12	G91	1994.00	1994.00	1994.00	1994.00	2820.00	2820.00	2820.00	2820.00
	Ammeter and switch with two current transformers	1, 12	G92	—	4274.00	4274.00	4274.00	4274.00	4274.00	4274.00	4274.00
	Ammeter and switch with three current transformers	1, 12	G93	—	5270.00	5270.00	5270.00	5270.00	5270.00	5270.00	5270.00
	Voltmeter mounted	1, 12	G94	—	2820.00	2820.00	2820.00	2820.00	2820.00	2820.00	2820.00
	Voltmeter and switch mounted	1, 12	G95	—	4274.00	4274.00	4274.00	4274.00	4274.00	4274.00	4274.00
	Elapsed time meter	1, 12	G97	827.00	827.00	827.00	827.00	827.00	827.00	827.00	827.00
	Operation counter	1, 12	G99	1425.00	1425.00	1425.00	1425.00	1425.00	1425.00	1425.00	1425.00
Auxiliary Contacts	Additional starter (contactor) auxiliary contacts (Specify number of additional N.O. or N.C. contacts required per contactor.) Each will be X_ _ (2 digits) i.e. X01	Any	X▼	158.00	158.00	158.00	158.00	158.00	158.00	158.00	158.00
	Auxiliary contacts installed on disconnect switch or circuit breaker operating mechanism.										
	SPDT	1, 4, 4X, 12	Y74	192.00	192.00	192.00	221.00	221.00	413.00	413.00	413.00
	DPDT	1, 4, 4X, 12	Y75	386.00	386.00	386.00	441.00	441.00	570.00	570.00	570.00
	(**Note:** Above contacts do not switch with automatic tripping of circuit breaker. If such operation is required, consult your nearest Schneider Electric Sales Office.)										
Enclosures	Space heater with N.C. auxiliary contact	1, 4, 4X, 12	G51	386.00	386.00	684.00	1097.00	1767.00	2622.00	3987.00	3987.00
	Function identification plate, with marking as specified	Any	G11	42.80	42.80	42.80	42.80	42.80	42.80	42.80	42.80
	Drain and breather installed	7 & 9□	Y41	372.00	372.00	372.00	372.00	372.00	372.00	372.00	—
	Cover gaskets added to NEMA 1 enclosures:										
	For Classes 8538 and 8539	1	Y47	143.00	143.00	Std.	Std.	Std.	Std.	—	—
	For Classes 8738 and 8739	1	Y47	Std.	Std.	Std.	Std.	Std.	Std.	—	—
	For other full voltage controllers	1	Y47	143.00	143.00	215.00	320.00	534.00	1070.00	1710.00	1710.00
	For reduced voltage controllers	1	Y47	143.00	143.00	215.00	320.00	534.00	1070.00	1710.00	1710.00
	Brushed stainless steel watertight device (add to catalog price of sheet steel watertight device):										
	Class 8606	—	Y56	—	—	1710.00	2138.00	3419.00	4773.00	8546.00	8546.00
	Classes 8630 and 8640	—	Y56	—	Std.	Std.	Std.	Std.	4773.00	8546.00	8546.00

▲ If controller has a control transformer, price that transformer with additional capacity for the relay provided.
■ This adder, used with a NEMA 4X enclosure, applies only to Classes 8538, 8539, 8738, 8739 and 8810 non-reversing.
♦ Specify control and line voltage.
★ Motor hp and voltage required when placing order. Meters will be panel mounted in NEMA 12 enclosures.
▼ To determine the maximum number of auxiliary contacts which can be added to each Type S device and for the appropriate "X Form", refer to the tables in the Class 8536 section on page 16-15 (for non-reversing single-speed devices) or the Class 8736 section on page 16-45 (for reversing or two-speed devices). For Class 8600 Reduced Voltage controllers, consult Schneider Electric CCC at (1-888-778-2733).
△ NEMA Type 7 & 9 enclosures not available with Class 8600 devices.
□ Available only on SPIN TOP™ and cast aluminum NEMA 7/9 enclosures.

Table 16.272: Replacement AC Magnet Coils for Magnetic Contactors and Starters
(Refer to Table 16.274 on page 16-106 for listing of mechanically held unlatch coils.)

Equipment To Be Serviced				Coil Prefix or Class and Type	Hz	Suffix Number (Complete Coil Number Consists of Prefix or Class and Type Followed by Suffix Number.)												Coil VA		$ Price
Device	Size	Type	Poles			24 V	110-115 V	120 V	208 V	220 V	240 V	277 V	380 V	440 V	480 V	550 V	600 V	In-rush	Sealed	
Coils for Present Design Magnetic Contactors and Starters Classes 8502, 8536, 8538, 8539, 8606, 8630, 8640, 8647, 8650, 8651, 8702, 8736, 8738, 8739, 8810, 8811, 8812, 8903, 8910♦ and 8940 (except NP)	30 A	L	2–6	9998L	60 50	23 24	— 44	44 45	50 52	▲ 53	53 54	55 —	— 60	— 62	62 63	— 65	65 66	150 140	30 30	**85.00**
			8–12	9998LH	60 50	23 24	— 44	44 45	50 —	▲ 53	53 54	55 —	— 60	— 62	62 —	— 65	65 —	180 170	35 35	**85.00**
		LX (Latch)	2–4	9998L	60 50	23 24	— 44	44 45	50 52	— 53	53 54	55 —	— 60	— 62	62 63	— 65	65 66	150 140	— —	**85.00**
			6–12	9998LH	60 50	23 24	— 44	44 45	50 —	— 53	53 54	55 —	— 60	— 62	62 —	— 65	65 —	180 170	— —	**85.00**
	00	SA■ (Series B)	All	9998SAC	60 50	23 —	▲ 45	45 —	52 —	▲ 54	54 —	55 —	59 —	▲ 62	62 —	▲ 65	65 —	165 —	33 —	**85.00**
	00 0, 1, 1–P & 30 A	SA (Series A) SB, SC & SM	All	31041-400	60 50	20 22	▲ 42	42 43	48 —	▲ 51	51 53	52 —	56 57	58 60	60 ▲	61 62	62 64	245 232	27 26	**98.00**
	2 & 60 A	SD & SP	2 & 3	31063-409	60 50	16 17	▲ 38	38 39	44 —	▲ 47	47 48	49 —	53 54	▲ 57	57 —	▲ 60	60 61	311 296	37 36	**128.00**
			4 & 5	31063-400	60 50	16 17	▲ 38	38 39	44 —	▲ 47	47 48	49 —	53 54	▲ 57	57 —	▲ 60	60 61	438 429	38 37	**128.00**
	3 & 100 A	DPA12_, SE, SQ & SYD138	2 & 3	31074-400	60 50	16 17	▲ 38	38 39	44 —	▲ 47	47 48	49 —	53 54	▲ 57	57 —	▲ 60	60 61	700 678	46 47	**254.00**
			4 & 5	31091-400	60 50	— —	▲ 38	38 39	44 —	▲ 47	47 48	49 —	53 54	▲ 57	57 58	▲ 60	60 61	1185 1260	85 89	**254.00**
	4 & 200 A	SF, SV & SYD230	All	31091-400	60 50	— —	▲ 38	38 39	44 —	▲ 47	47 48	49 —	53 54	▲ 57	57 58	▲ 60	60 61	1185 1260	85 89	**254.00**
	5 & 300 A	SG, SX & SYD368 Series A	All	31096-400	60 50	— —	▲ 09	09 10	15 —	▲ 18	18 —	19 —	21 22	▲ 24	24 —	▲ 29	29 30	2970 2970	212 250	**354.00**
		SG, SX & SYD368 Series B	All	31096-320	60 50	— —	50 50	50 50	51 —	52 52	52 52	53 —	54 54	55 55	55 55	— —	— —	1300 —	14 —	**600.00**
	6 & 7	SH & SJ	2–3	Coil Part Number 3110440050 (All System Voltages)														1780	48	**860.00**
	400, 600 & 800 A	SY, SZ, SJ (Elect. Held)																1960	59	
		SY, SZ, SJ (Mech. Held)	2–3	31104-418	60 50	— —	▲ 09	09 —	15 —	▲ 18	18 —	19 —	— —	▲ 24	24 —	▲ 29	29 —	1530 1250	— —	**860.00**

▲ Use next higher voltage, 60 Hz coil.
■ Use on Type S Series B devices only.
♦ For 8910DPA1x to DPA9x, see page 16-71.

NEMA S Size 5 E-Coil Modification Kit

Classes 8502, 8536, 8538, 8539, 8606, 8630, 8640, 8647, 8650, 8651, 8702, 8736, 8738, 8739, 8810, 8811, 8812, 8910 and 8903

Consisting of:

- E-Coil
- Armature
- 15 A, 600 V Fuse and Holder (Class 9999SFR)
- Bottom Magnet
- Instruction Material

Table 16.273:

Catalog Number	Description	$ Price
9998SG120	Coil Modification Kit 120 V	**1506.00**
9998SG480	Coil Modification Kit 480 V	**1506.00**
9998SG277	Coil Modification Kit 277 V	**1506.00**
9998SG208	Coil Modification Kit 208 V	**1506.00**
9998SG240	Coil Modification Kit 240 V	**1506.00**
9998SG380	Coil Modification Kit 380 V	**1506.00**

Table 16.274: Replacement AC Magnet Coils for Relays, Timers and Contactors

Equipment To Be Serviced			Coil Prefix or Class and Type	Hz	Suffix Number (Complete Coil Number Consists of Prefix or Class and Type Followed by Suffix Number)												Coil VA		$ Price
Device	Type	Poles			24 V	110–115 V	120 V	208 V	220 V	240 V	277 V	380 V	440 V	480 V	550 V	600 V	In-rush	Sealed	
Classes 8501 and 9050																			
8501 (Relays)	X	All	9998-X▲	60 50	23 24	— 44	44 —	51 52	52 53	53 —	55 —	— —	— 62	62 —	— 65	65 —	148 143	23 25	**69.00**
9050 (Timer)	A	All	2959-S49-	60 50	W25A W25B	W31B W32A	W32A W32B	W34A W34B	W34B W35A	W35A W35B	W35B W36A	— —	W37B W38A	W38A W38B	W38B W39A	W39A W39B	74 68	17 17	**132.00**
	B■	All	31017-400-	60 50	33 34	— —	54 55	61 —	61 63	63 64	65 —	— —	70 72	72 73	73 75	75 76	165 155	27 27	**98.00**
Mechanically Held *Unlatch* Coils—Classes 8508 and 8903 Note: A *latch* coil is also used with mechanically held devices. For selection of latch coils for mechanically held relays, refer to page 16-105.																			
8903 (Lighting Contactors)	LX	All	9998LX	60 50	23 —	— 44	44 —	51 —	— 53	53 —	55 —	— —	— 62	62 —	— 65	65 —	25 —	— —	**118.00**
	SM, SP	All	2959-S13	60 50	W23B W24B	♦ W30B	W30B W31B	W33A —	♦ W33B	W33B W34B	W34A —	— W36A	♦ W36B	W36B —	♦ W37B	W37B —	80 —	— —	**202.00**
	SQ, SV, SX, SY, SZ	All	31096-416	60 50	03 —	♦ 09	09 —	15 —	♦ 18	18 —	20 —	— 22	♦ 24	24 —	♦ 28	28 —	550 —	— —	**202.00**
	SJ	All	31123-403	60 50	03 —	♦ 09	09 —	15 —	♦ 18	18 —	20 —	— 22	♦ 24	24 —	♦ 28	28 —	2100 —	— —	**202.00**

Table 16.275: Replacement DC Magnet Coils for Magnetic Relays and Timers

Equipment To Be Serviced			Coil Prefix or Class and Type	Suffix Number (Complete Coil Number Consists of Prefix or Class and Type Followed by Suffix Number.)													Coil Burden Watts	$ Price
Class	Type	Poles		6 V	12 V	18 V	24 V	32 V	48 V	64 V	72 V	90 V	110 V	115/ 125 V	220 V	230/ 250 V		
8501 (Relays)	XD	All	9998 XD	19	28	34	37	40	46	49	52	55	—	58	—	67	18	**168.00**
	XDL	—	9998 XDL	19	28	34B	37B	40B	46B	49B	52B	55B	—	58B	—	67B	50	**216.00**
	XUD	All	9998 XUD	19	28	—	37	—	46	—	—	—	—	58★	—	67★	16	**168.00**
9050 (Timers)	C		31018-400-	22	31	—	40	—	49	—	—	—	—	61	—	70	14	**312.00**
	H		4491S1	W21	W24	—	W27	—	W30	—	—	—	—	W34	—	W37	14	**210.00**

Table 16.276: Replacement Coil for 8903 Panel Board Lighting Contactors

Class	Type	Replacement Solenoid	Catalog Number	$ Price ▼
8903	PB	120 V	9998PBV02	**428.00**
		208 V	9998PBV08	**428.00**
		240/277 V	9998PBV39	**428.00**
		480 V	9998PBV28	**428.00**

▲ To order an unlatch coil add the letter "L" to the type number and the letter "B" to the suffix number.
Example: For a 120 V 60 Hz unlatch coil order a Class 9998 Type X**L**44**B**.
Price for the 9998 Type XL coil series is **$114.00**.

■ Series C (Double Pole) and Series E (Single Pole).

♦ Use next higher voltage, 60 Hz coil.

★ Not dual rated. 125 Vdc or 250 Vdc only.

▼ CP1 discount schedule.

Class 9998 replacement parts kits are available for servicing Square D relays, contactors, and starters as well as pressure, vacuum, and float switches. Each kit contains the necessary movable and stationary contacts, contact springs (when required—NEMA Size 3 and above do not include contact springs, and springs are not available), and additional hardware required to service the devices listed below. When servicing devices having more poles than contained in the corresponding kit, it may be necessary to order an additional kit.

Table 16.277: Magnetic Contactor and Starter Contact Kits for Present Designs

Equipment To Be Serviced			No. of Poles in Kit	Class 9998 Parts Kit Type No.	$ Price
Class	Type	NEMA Size or Ampere Rating			
8502 8536 8538 8539 8547 8549 8606 8630 8640 8647 8702 8736 8738 8739 8810 8811 8812 8940	SA-, (Series B)	00	3	SJ1	**90.00**
	SB-	0	3 4	SL2 SL12	**130.00** **176.00**
	SB-, SC-(Power Pole Adder)	0 & 1	1	SL22	**63.00**
	SC-	1 & 1P 1	3 4	SL3 SL13	**188.00** **246.00**
	SD-	2	3 4	SL4 SL14	**370.00** **494.00**
	SD-(Power Pole Adder)	2	1	SL24	**124.00**
	SE-	3	2 3	SL6 SL7	**442.00** **662.00**
	SF-	4	2 3	SL8 SL9	**848.00** **1270.00**
	SG-	5	2 3	SL10 SL11	**2104.00** **3120.00**
	SH-	6	2 3	SL25 SL26	**3762.00** **5606.00**
	SJ-	7	2 3	SL30 SL31	**5454.00** **8162.00**
8903	L (Series C) & LX (Series B)	30 A	4	RA5B	**174.00**
	SM-	30 A	3 4	SL3 SL13	**188.00** **246.00**
	SP-	60 A	3 4	SL4 SL14	**370.00** **494.00**
	SQ-	100 A	2 3	SL6 SL7	**442.00** **662.00**
	SV-	200 A	2 3	SL8 SL9	**848.00** **1270.00**
	SX-	300 A	2 3	SL10 SL11	**2104.00** **3120.00**
	SY-	400 A	2 3	SL25 SL26	**3762.00** **5606.00**
	SZ-	600 A	2 3	SL32 SL33	**3762.00** **5606.00**
	SJ-	800 A	2 3	SL30 SL31	**5454.00** **8162.00**
	PBM, PBP	30, 60 A	2	PB2	**520.00**
	PBN, PBQ	75, 100 A			
	PBM, PBP	30, 60 A	3	PB3	**780.00**
	PBN, PBQ	75, 100 A			
	PBR, PBV, PBW	150, 200, 225 A	2	PB14	**850.00**
	PBR, PBV, PBW	150, 200, 225 A	3	PB15	**1276.00**

Table 16.278: Magnetic Contactor and Starter Contact Kits for Obsolete Designs

Equipment To Be Serviced			No. of Poles in Kit	Class 9998 Parts Kit Type No.	$ Price
Class	Type	NEMA Size			
8502 & 8536▲	SA-, (Series A)	00	3 4	SL2 SL12	**130.00** **176.00**
8903	LL, L (Series A, B) & LX (Series A)	20 A	4	RA5	**174.00**

▲ Includes reversing, two speed and similar devices. Select coil based on NEMA size of basic starter or contactor.

Table 16.279: Class 8965 Replacement Contact Kits

Device Type	Device Series	Class 9998 Kit Type	Device Series	Class 9998 Kit Type	$ Price
DPR53 DPR63	A A	DRC5■ DRC6■	—	—	**52.00** **59.00**
RO10	A & B	RA10	C	RA14	**202.00**
RO11	A & B	RA11	C	RA15	**202.00**
RO12	A & B	RA12	C	RA16	**236.00**
RO13	A & B	RA13	C	RA17	**236.00**

■ Single pole kits.

Table 16.280: Manual Starter Contact Kits

Equipment To Be Serviced			No. of Poles in Kit	Class 9998 Parts Kit Type No.	$ Price
Class	Type	NEMA Size			
2510 Manual Starters	M-, T-	M-0	3	ML1	**90.00**
		M-1 & M-1P	3	ML2	**106.00**

Table 16.281: Replacement Control Transformers (150 VA) Class 8502, 8536 Type S Size 6

Voltage		Part Number	$ Price
60 Hz	50 Hz		
240/480–120	220/440–110	3110451250	
208–120	—	3110451252	
277–120	—	3110451253	
—	380–110	3110451254	**188.00**
600–120	550–110	3110451251	
120–120	110–110	3110451255	
240–120	220–110	3110451256	

Table 16.282: Replacement Control Transformers (200 VA) Class 8502, 8536 Type S Size 7

Voltage		Part Number	$ Price
60 Hz	50 Hz		
240/480–120	220/440–110	3112350150	
208–120	—	3112350152	
277–120	—	3112350153	
—	380–110	3112350154	**236.00**
600–120	550–110	3112350151	
120–120	110–110	3112350155	
240–120	220–110	3112350156	

Table 16.283: Class 8910, 8911 & 8965 Replacement Contact Kits

Device To Be Serviced			Class 9998		$ Price
Class 8910 Type	Class 8911 Type	Series	1-Pole Type	3-Pole Type	
SYD138	—	—	—	SL27	**662.00**
SYD230	—	—	—	SL28	**1270.00**
SYD368	—	—	—	SL29	**3120.00**
DPA_50A	DPSO5_	A, B	DRC5	—	**52.00**
DPA_60A	—	A, B	DRC6	—	**59.00**
DPA_75A	—	A	DRC7	—	**100.00**
DPA_90A	—	A	DRC9	—	**132.00**

Table 16.284: How to Order

To Order Specify:	Catalog Number	
• Class Number • Type Number	Class	Type
	9998	SL6

Class 9998 Type SO1

Contact Units for Melting Alloy Type Overload Relays

One normally closed contact, Class 9998 Type SO1, is provided in each overload relay block on Type S starters Sizes 00-6. The Class 9998 Type SO1 contact unit listed below is provided as standard in each Class 9065 melting alloy overload relay. Contact modules can be easily replaced and are identified in the table below. Isolated overload relay alarm circuit contacts are available as an optional feature. A pilot light or alarm bell can be wired in series with this contact to indicate that the overload relay has tripped. For further information on isolated alarm contacts refer to Class 9999 Types SO4 and SO5 (page 16-113).

Table 16.285:

Magnetic Starter			Description ▲	Parts Kit Number	$ Price
NEMA Size	Type	Series			
00–4 & 6	SA–SF SH	A & B	Standard N.C. contact unit	Class 9998 Type SO1 ■	39.40
5	SG	A	Standard N.C. contact unit	3110251450	134.00
			N.C. and N.O. alarm (three point) contact unit	3110251451	196.00

▲ Refer to page 16-110 for contact ratings.
■ The Type SO1 is also the replacement contact unit for Class 9065 Type M melting alloy overload relays.

Overload Contact Unit
Part No. 31102-514-50.
Used on Size 5 Starter
(8536SGO) with Melting
Alloy Overload Relay.

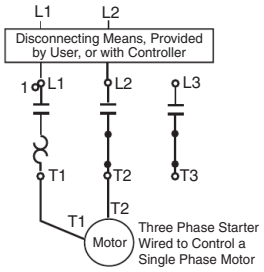
Class 9998 Type UB Universal Baseplate

A universal baseplate may be used to retrofit a Square D Type S NEMA starter into an application which is currently using a competitive NEMA starter. The universal baseplate is a metal plate which attaches to the panel in the location of the starter to be replaced. The Type S starter then mounts to the baseplate. It is available for NEMA Sizes 00 through 4, and mounting screws are provided with each plate.

The universal baseplate adapter allows the Type S starter to replace the following competitive starters:

Table 16.286:

Competitor Starter	NEMA Size	Baseplate	NEMA Size	Baseplate	NEMA Size	Baseplate	NEMA Size	Baseplate	$ Price
Allen Bradley 509	0, 1	UB01	2	UB02	3	UB03	4	UB04	No charge
Allen Bradley 709	1		2		3		4		
Cutler Hammer Freedom Series	00, 0, 1		2		3		4		
Furnas ESP100	0, 1		2		3		4		
Furnas INNOVA	0, 1		2		3		4		
General Electric CR306	00, 0, 1		2		3		4		
Telemecanique "A" Line and Pre-type "S"	0, 1	UB11	2	UB12	3	UB13	4	UB14	



Melting Alloy Overload Relay
Jumper Strap Kits

Melting Alloy Overload Relay Jumper Strap Kits

Jumper strap kits are for use on three-phase manual or magnetic starters with melting alloy overload relays only, where a three-phase starter is used to control a single-phase motor. These kits will include two jumper straps, a wiring diagram showing how to wire a three-phase starter to control a single-phase motor, and single-phase (one thermal unit) selection tables.

Table 16.287: Melting Alloy Overload Relay Jumper Strap Kits

Class	For Starter		Class 9998 Kit Type	$ Price ♦
	Size	Type		
ALL	00, 0, 1, 2 and M0 & M1	SA, SB, SC, SD and M & T (Manual)	SO31	14.30
	3,4	SE, SF	SO32	35.60
	5	SG	None Available	

♦ CP1 discount schedule.

How to Order

Table 16.288: How to Order

To Order Specify:	Catalog Number	
• Class Number • Type Number	Class	Type
	9998	UB01

Cover-Mounted Control Units

Class 9999 push button, selector switch and pilot light cover-mounted control unit kits can be easily field installed in a NEMA 1, 3R, 4 or 12 Type S contactor or starter enclosure cover. Knockouts or removable closing plates are furnished with many enclosure covers for convenient field installation of control units. Kits are supplied with leads and clearly illustrated instructions. The Class 9999 cover mounted control unit kits are identical to the units which are factory installed.

Table 16.289:

For Use With					NEMA 1 Kit 8538, 8539 and 8903 Pre-Series K Description									NEMAs 1, 3R & 12 Kit 8538, 8539 and 8903 Series K and Later Description★				NEMA 4/4X Kit (Stainless) Description★			
Class	Type	NEMA Size or Ampere Rating	No. of Poles	Voltage	Red or Green Pilot Light■		Push Button		Selector Switch		$ Price	Red or Green Pilot Light	Push Button	Selector Switch	$ Price	Red or Green Pilot Light	Push Button	Selector Switch	$ Price
					With Control Transformer (Form F4T)		Standard		Start-Stop	On-Off	Hand-Off-Auto	On-Off		120 V 60 Hz	Start-Stop or On-Off	Hand-Off-Auto		120 V 60 Hz	Start-Stop or On-Off	Hand-Off-Auto	
					Type	Price	Type	Price	Type	Type	Type	Type		Type	Type	Type		Type	Type	Type	
8502 & 8536	SA, SB & SC	00, 0, 1 & 1P	All	6–600 Volts 50–60 Hz	SP28R♦	215.	SP2R	215.	SA2	SA10	SC2	SC22	116.	SP28R♦■ (incandescent) SPL28R (LED–Red) SPL28G (LED–Green)	SA3▲	SC8	215.	SP29R♦■ (incandescent) SPL29R (LED–Red) SPL29G (LED–Green)	SA13	SC9	215.
	SD	2	All		SP28R♦	215.	SP3R	215.													
	SE	3	2–3		SP28R♦	215.	SP4R	215.													
			4–5		SP28R♦	215.	SP5R	215.													
	SF	4	All		SP28R♦	215.	SP28R♦	215.	SA3	SA3	SC8	—	215.								
	SG–SJ	5–7	All		SP28R♦	215.	SP28R♦	215.													
8538 8539 8702 8736	SB & SC	0 & 1	All		SP12R	215.	SP12R	215.	SA2	SA10	SC2	SC22	116.								
	SD	2	All		SP13R	215.	SP13R	215.													
	SE	3	All		SP14R	215.	SP14R	215.													
	SF	4	All		SP15R	215.	SP15R	215.													
	SG–SJ	5–7	All		SP28R♦	215.	SP28R♦	215.	SA3	SA3	SC8	—	215.								
△ 8903 (Electrically Held)	L	20 A	All		SP28R♦	215.	—	—	—	SA10▼	—	SC22 ▼	116.								
	SM	30 A	All		SP28R♦	215.	SP2R	215.	SA2▲	SA10▲	SC2	SC22	116.								
	SP	60 A	All		SP28R♦	215.	SP3R	215.													
	SQ	100 A	All		SP28R♦	215.	SP28R♦	215.	SA3▲	SA3▲	SC8	—	215.								
	SJ, SV, SX SY, SZ	200–800 A	All		SP28R♦	215.	SP28R♦	215.	SA3▲	SA3▲	SC8	—	215.								

▲ Also requires N.O. auxiliary contact for holding circuit contact when used on Class 8903 electrically held lighting contactors.
■ Each pilot light kit contains 1 red and 1green lens cap.
♦ The coil voltage must be the same as the pilot light rating. Kit contains one Class 9001 Type KP1R31120V, 60 Hz red pilot light control unit. For other voltages, refer to Class 9001 Type KP.
★ User made openings are required in order to field install these modification kits on standard 8502, 8536 Type S Sizes 0–2, and 8903 Sizes 30–60 A NEMAs 4 and 12 enclosures.
▼ To mount control unit in a NEMA 1 enclosure, a Class 9999 Type BLX bracket is also required, **$35.60**.
△ For Class 8903 (mechanically held contactor) control unit kits, refer to the Class 8903 section, page 16-65.
Note: There are no field modification kits available for the polyester enclosures.

Table 16.290: NEMA 1 Enclosure Closing Plates

For Use With			Description	Type	$ Price
Class	Type	NEMA Size or Ampere Rating			
8502, 8536, 8903	SA–SE or SM–SP	00–3 or 30–60A	For Pilot Light or Reset—Slip-on Cover NEMA 1 Enclosure	SG2	**29.00**
			For Push Button or Selector Switch—Slip-on Cover NEMA 1 Enclosure	SG3	**29.00**
8538 & 8539 Pre-series "K"	SB–SF	0–4	For Push Button or Selector Switch—Hinged Cover NEMA 1 Enclosure	SG1	**29.00**
			For Pilot Light—Hinged Cover NEMA 1 Enclosure	SG2	**14.30**
8538 & 8539 Series J and later	SB–SF	0–4	Pushbutton or Pilog Light NEMA Combination Starter	9001K51	**14.30**
8903	SM–SV	30–400 A	Combination Lighting Contactor	9001K51	**14.30**

Table 16.291: How to Order

To Order Specify:	Catalog Number	
• Class Number • Type Number	Class	Type
	9999	SP29R


Class 9999 Type SP2R
Pilot Light Kit


Class 9999 Type SA2
Push Button Kit


Class 9999 Type SC2
Selector Switch Kit


Class 9999 Type SA3
Push Button Kit

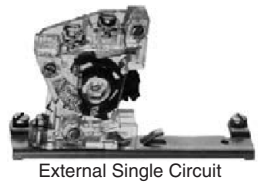
Auxiliary Contacts for Manual and Magnetic Contactors and Starters

Internal Contacts

Internal Auxiliary Contact

Class 9999 Type SX11 internal contact kit is a replacement unit for the N.O. holding circuit contact supplied as standard on Type S Sizes 00–2 three phase starters and contactors. The Class 9999 Type SX12 is a replacement unit for the N.C. electrical contact which is furnished as standard on Type S, Sizes 00–2 mechanically interlocked devices (e.g., Class 8736 reversing starters). Internal contacts are also used on Class 2510 Types M & T manual starters. The internal contacts can be used for other applications as long as the electrical rating is not exceeded. See table below for electrical ratings.

External Contacts



External Single Circuit Auxiliary Contact

Class 9999 Type SX6 external auxiliary contact is supplied as standard for the N.O. holding circuit contact on Type S Sizes 3–7 starters and contactors. Additional auxiliary contacts can be added to Type S contactors, starters and lighting contactors. These contacts mount on either side of the basic contactor and are available with convertible or non-convertible contacts. The contacts of the convertible version can be changed from N.O. to N.C. or vice versa in the field. The non-convertible version has fixed contacts, either N.O. or N.C.

To determine the number of auxiliary contacts which can be added to each Type S contactor or starter, refer to the Class 8536 or Class 8736 section.

See table below for electrical ratings.

Table 16.292: Maximum Ratings for Type S Auxiliary Contacts and Timers

Class 9999 Type	Contact Ratings				Class 9999 Type	Contact Ratings			
	Volts AC	AC Only (35% Power Factor)		Continuous		Volts AC	AC Only (35% Power Factor)		Continuous
		Make	Break				Make	Break	
SX11, SX12	120 or Less	30 A	3 A	3 A	SX6-SX10 SX13-SX17	120 or Less	60 A	6 A	10 A
	120-600	3600 VA	360 VA	3 A		120–600	7200 VA	720 VA	10 A

Table 16.293: Class 8502, 8536 and 8903 Type S

For Use With		Kit Description	Ordering Information	
			Class 9999	
Type	NEMA Size		Type	$ Price
External—Field Convertible				
SA-SJ	00–7	1-N.O. Contact	SX6	**86.00**
		1-N.C. Contact	SX7	**86.00**
		1-N.O. and 1-N.C. Isolated Contacts	SX8	**116.00**
		1-N.O. Overlapping Contact	SX9▲	**116.00**
		1-N.C. Overlapping Contact	SX10▲	**116.00**
External—Non-Convertible				
SA-SJ	00–7	1-N.O. Contact	SX13	**99.00**
		1-N.C. Contact	SX14	**99.00**
		1-N.O. & 1 N.C. Isolated Contacts	SX15	**134.00**
		1-N.O. Overlapping Contact	SX16▲	**134.00**
		1-N.C. Overlapping Contact	SX17▲	**134.00**
Internal—Non-Convertible				
SA-SD	00–2	1-N.O. Contact	SX11■	**99.00**
		1-N.C. Contact	SX12■	**99.00**

▲ Types SX9 and SX10 or Types SX16 and SX17 must be used together and mounted on the same side of the contactor. They are suitable for applications where it is necessary for a normally open contact to overlap a normally closed contact.

■ Types SX11 and SX12 are not applicable for use on NEMA Sizes 3 or larger. Internal contacts can also be used on Class 2510 Types M and T manual starters.

Table 16.294: Class 8910 and 8911 Definite Purpose Contactors and Starters – Auxiliary Contacts

Device To Be Serviced	Auxiliary Contact Kit			
Class 8910 or 8911 Type	Contact Arrangement	Class 9999		$ Price Each
		Series B (20-90 A)	Series C (20-40 A)	
DPA DPS	1 N.O.	D10	DD10	**24.60**
	1 N.C.	D01	DD01	
	1 N.O./1 N.C.	D11	DD11	**44.30**
	2 N.O.	D20	DD20	

Table 16.295: Class 8965 Reversing/Hoist Contactors –Auxiliary Contacts

Device To Be Serviced	Auxiliary Contact Kit			
Class 8965 Type	Contact Arrangement	Type of Connector	Class 9999 Type	$ Price Each
DPR	1 N.O.	Screw/ Quick-Connect	D10	**35.60**
	1 N.C.		D01	
	1 N.O./1 N.C.		D11	**64.00**
	2 N.O.		D20	
RO2 & RG2 RO10 Form X1 RO11 Form X1	1 N.O. each side	Slip-on	R10	**50.00**
RO3 & RG3 RO10 Form X2 RO11 Form X2	1 N.C. each side		R11	
RO5 & RG5 RO12 Form X1 RO13 Form X1	1 N.O. each side	Screw	R12	
RO6 & RG6 RO12 Form X2 RO13 Form X2	1 N.C. each side		R13	

Table 16.296: How to Order

To Order Specify:	Catalog Number	
• Class Number • Type Number	Class	Type
	9999	SX6

Motor Logic—Class 9999

Isolated Auxiliary Contacts for Motor Logic Overload Relays

Overload relay auxiliary contacts are available factory installed or in kit form for field installation on Motor Logic overload relays. These contacts may be used for isolated alarm contact applications.

Table 16.297:

For Use With		Parts Kit Description	Class 9999 Type	$ Price
Class & Type	NEMA Size♦			
8536 SA-SJ	00B through 7	N.O. or N.C. Auxiliary Contact (Field Convertible)	AC04	**57.00**
9065 SS, SR, SF, ST	00B through 7			

DIN Adapter

The DIN adapter provides a method to mount the Motor Logic overload relay to a 35 mm DIN rail.

Table 16.298:

For Use With		Parts Kit Description	Class 9999 Type	$ Price
Class & Type	NEMA Size♦			
9065 SS or SF	00B, 00C, 0, and 1	DIN Adapter	DA01	**23.90**

Lug-Lug and Lug-Extender Kits

A Class 9999 LL0 Lug-Lug Kit can be field installed on separately mounted overload relays. The standard Size 00B, 00C, 0, and 1 Class 9065 Type SS and SF overload relays are supplied without lugs. A Class 9999 LB0 Lug-Extender Kit is designed for Size 00B, 00C, 0, and 1 Retrofit Starter Applications. This kit allows the lugs to be in the same location as the Class 9065 melting alloy overload relay, eliminating the need for additional wire length.

Table 16.299:

For Use With		Parts Kit Description	Class 9999 Type	$ Price
Class & Type	NEMA Size♦			
9065 SS or SF	00B, 00C, 0, and 1	Lug-Lug Kit for separate mounting	LL0	**42.80**
9065 SS or SF	00B, 00C, 0, and 1	Lug-Extender Kit for retrofitting existing NEMA S starters	LB0	**35.60**

Remote Reset Module

The Remote Reset Module can be easily field installed on solid state overload relays. This module will allow the overload relay to be reset from a remote location.

Table 16.300:

For Use With		Parts Kit Description	Class 9999 Type	$ Price
Class and Type	NEMA Size♦			
536 SA-SJ	00B through 7	Remote Reset Module	RR04■	**162.00**
9065 SS, SR, SF, ST	00B through 7			
8536 SE-SF	3 and 4	Top Mounting Bracket	RB34▲■	**50.00**
9065 SS, SR, SF, ST	3 and 4			

▲ To be used to mount the remote reset module on the top of the overload relay.
■ 120 Vac power required.
♦ NEMA Size 00B and 00C are not actual NEMA sizes. These designations are used to differentiate the lower FLA of these devices from the NEMA size 00 Motor Logic Solid State Overload Relay.

Class 9999 Type SB9 Double Power Pole Adder

Class 9999 Type SB9 Double Power Pole Adder

Class 9999 Type SB6 Single Power Pole Adder

Power Pole Adders

One single or double circuit power pole kit may be field added to a basic 2 or 3-Pole Type S contactor or starter Sizes 0, 1 and 2, or 30–60 A lighting contactors. See table below for selection. The ratings for these power pole adders correspond to the NEMA contact ratings found on page 16-105. A two or three pole contactor or starter accepts only one single or double circuit unit. A power pole cannot be used on four or five pole devices or devices which are mechanically interlocked.

To add a power pole to a Size 0 and 1 device, remove return springs.

When adding a power pole to a Size 2 or 60 A device, a coil change is required. Select a 4- and 5-Pole coil from the coil selection table on page 16-105, or specify Form Y118 as noted in the footnote below.

When adding Sizes 0–2 power pole kits to a Size 3–7 or 100–800 A device, an adapter bracket (9999 SBT1) is required. The Class 9999 Types SB6 through SB15 power pole kits are suitable for copper wire only. Types SB21 through 25 are supplied with lugs suitable for copper and aluminum wire.

Table 16.301:

For Use With		Power Pole Adder Kit		
Type	Size	Description	Class 9999 Type	$ Price
SB, SC & SM	0, 1 & 30 A	One N.O. power pole adder	SB6	158.00
SD	2		SB11▲	287.00
SP	60 A		SB21▲	
SB, SC & SM	0, 1 & 30 A	One N.C. power pole adder	SB7	158.00
SD	2		SB12▲	287.00
SP	60 A		SB22▲	
SB, SC & SM	0, 1 & 30 A	One N.O. and one N.C. power pole adder	SB8	365.00
SD	2		SB13▲	656.00
SP	60 A		SB23▲	
SB, SC & SM	0, 1 & 30 A	Two N.O. power pole adders	SB9	365.00
SD	2		SB14▲	656.00
SP	60 A		SB24▲	
SB, SC & SM	0, 1 & 30 A	Two N.C. power pole adders	SB10	365.00
SD	2		SB15▲	656.00
SP	60 A		SB25▲	
SE-SJ & SQ-SZ & SJ	3-7 & 100-800 A	Adapter Bracket	SBT1	35.00

▲ To order a Size 2 or 60 A power pole kit complete with a new starter coil, specify **Form Y118,** voltage and frequency and add **$140.00** to the price of the kit (e.g., Class 9999 Type SB11 **Form Y118,** 120 volts, 60 cycles. Priced at **$426.00**).

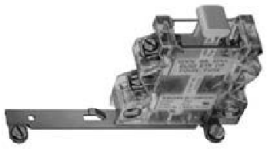
Control Circuit Fuse Holder

The control circuit fuse holder is designed to be used on Type S contactors and starters, Sizes 00–7, when either one or two control circuit fuses, 600 V maximum, are required. The Type SF3 and SF4 fuse holders will accept standard 600 V Bussmann Type KTK or equivalent fuses (13/32" x 1-1/2"); 6 A maximum. The SFR3 and SFR4 will accept Class CC 600 V Bussmann Type KTK-R or equivalent fuses only.

Table 16.302:

Description ■	Class 9999	
	Type	$ Price
Single Fuse Unit	SF3	64.00
Single Fuse Unit for Class CC Fuse	SFR3	64.00
Two Fuse Unit	SF4	86.00
Two Fuse Unit for Class CC Fuses	SFR4	86.00

■ Fuses not included.



Class 9999 Type SF4 Fuse Kit

Transient Suppression Module

The transient suppression module is designed to be used where the transient voltage, generated when opening the coil circuit, interferes with the proper operation of nearby integrated or solid state control circuits. The module consists of an RC circuit and is designed to suppress the coil voltage transients to approximately 200% of peak coil supply voltage. The module is wired across the coil for Type S, Sizes 00–5 and is designed for coil voltages of 120 volts only.

Table 16.303:

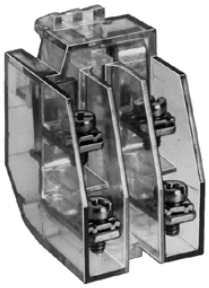
Description	Class 9999	
	Type	$ Price
For Sizes 00-2	ST1	62.00
For Sizes 3-5	ST2	62.00

Class 9999 Type ST1 Transient Suppression Module

Table 16.304: How to Order

To Order Specify:	Catalog Number	
	Class	Type
• Class Number • Type Number	9999	SM1

Isolated Alarm Contacts For Melting Alloy Overload Relays



Type SO4

Isolated overload relay alarm contacts are available factory installed or in kit form for field installation in Type S, NEMA Size 00–6▲ starters and Class 9065 Types M and S melting alloy overload relays. Type S, NEMA Size 7, utilizes a solid state overload relay which has isolated alarm contacts as a standard feature. The alarm contacts allow the starter to be used in applications which require isolated contacts, such as inputs to a computer.

Class 9999 Types SO4 and SO5 modules are interchangeable with the standard module (Class 9998 Type SO1) and may be installed on starters already in service. The case is made of clear plastic (polycarbonate) to allow for visual inspection of contacts.

Table 16.305: Contact Unit For Melting Alloy Overload Relays

Magnetic Starter		Parts Kit Description	Class 9999 Type	$ Price
NEMA Size	Type			
00-6▲	SA-SH	N.O. Isolated Alarm Contact Plus Standard N.C. Overload Contact	SO4	**116.00**
		N.C. Isolated Alarm Contact Plus Standard N.C. Overload Contact	SO5	

▲ Isolated alarm contacts **cannot** be added in the field to the Type S Size 5 starter. Current transformers and a Size 1 overload block must be used. For factory installation specify **Form Y342.**

Solid Neutral

The Class 9999 Type SN kit can be used on Class 8903 Type S lighting contactors and other controllers where field addition of a solid neutral is required. Each kit has lugs suitable for both copper and aluminum wire, and mounts with two screws.

Table 16.306:

Number of Lugs	Wire Capacity Per Lug (Cu/Al)	Class 9999	
		Type	$ Price
4	14–2/0	SN1	**134.00**
3	(1) 4–600 MCM or (2) 1/0–250 MCM	SN2	**392.00**
3 (Dual)	(2) 2–600 MCM	SN3	**624.00**
2 (Dual)	(2) 6–350 MCM	SN4	**392.00**

Tie Point Terminal Block

Tie Point Terminal Block

The tie point terminal block provides easy wiring of a Hand-Off-Auto selector switch or Start-Stop push buttons with separate control. The T7 terminal block requires no panel space. It simply snaps on Type S Sizes 00–4 contactors and starters by two tabs and is secured to the left hand coil terminal.

Table 16.307:

Magnetic Contactor or Starter		Class 9999 Type	$ Price
NEMA Size	Type		
00–4	SA-SF	T7	**33.30**

Table 16.308: How to Order

To Order Specify:	Catalog Number	
	Class	Type
• Class Number • Type Number	9999	SO4

Mechanical Interlock

Type SM1

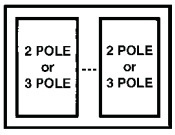
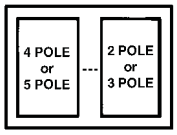
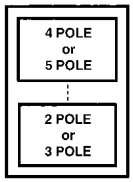
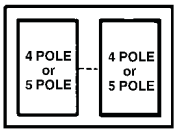
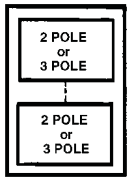
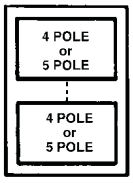
General: Type S contactors or starters can be mechanically interlocked so that only one device is energized at a time. The mechanical interlock is an interference (non-jamming) type, locking at the beginning of the stroke of any starter or contactor.

Type S Sizes 00, 0, 1 and 2—The mechanical interlock is mounted on the underside of the reversing baseplate. Two pins extend from the mechanical interlock through openings in the baseplate and engage the contact carrier of each contactor. Two styles of mechanical interlocks are used: one version for three pole contactors, a different version for four or five pole contactors. **When adding a power pole to the left-hand side of an existing Size 0, 1, or 2 three-pole reversing contactor, a new mechanical interlock must also be installed. When added to the right-hand side only, the power pole will not be mechanically interlocked with the left-hand contactor.**

Type S Sizes 3 and 4—The mechanical interlock is separate from the mounting pan on Sizes 3 and 4. Cams on the mechanical interlocks are operated by the contact carrier of each contactor. The mechanical interlock is attached to the underside of the two contactor baseplates on Sizes 3 and 4.

Table 16.309: Mechanical Interlock for Two Contactors

The following mechanical interlock kits can be used to interlock 2–5 pole contactors. Mechanical interlocks for horizontal and vertical arrangement are listed in Various pole arrangements.

	Contactor NEMA Size	Class 9999 Type	$ Price
 Horizontal Type SM1 for Size 00–1 Type SM6 for Size 2 Type SM12 for Sizes 3 & 4	00, 0, 1	SM1	**116.00**
 Horizontal Type SM2 for Size 0 or 1▲ Type SM7 for Size 2 Type SM12 for Sizes 3 & 4	0, 1	SM2	**116.00**
 Vertical Type SM2 for Size 0 or 1▲ Type SM10 for Size 2 Type SM11 for Size 3 Type SM13 for Size 4	0, 1	SM3	**116.00**
	0, 1	SM4	**116.00**
	0, 1	SM5	**116.00**
 Horizontal Type SM3 for Size 0 or 1 Type SM8 for Size 2 Type SM12 for Sizes 3 & 4	2	SM6	**257.00**
 Vertical Type SM4 for Size 0 or 1 Type SM9 for Size 2 Type SM11 for Size 3 Type SM13 for Size 4	2	SM7	**257.00**
 Vertical Type SM5 for Size 0 or 1 Type SM11 for Size 3 Type SM13 for Size 4	2	SM8	**257.00**
	2	SM9	**257.00**
	2	SM10	**257.00**
	3	SM11	**257.00**
	3, 4	SM12	**257.00**
	4	SM13	**257.00**

▲ The Type SM2 interlock is factory assembled for horizontal mounting, but can easily be converted to vertical mounting. Conversion instructions are included.

Overload Relay Mounting Bracket

Table 16.310: Overload Relay Mounting Bracket

Mechanical interlock Types SM1 through SM10 for Sizes 00-2 devices use overload relay mounting brackets to support the overload relay portion of the starter.

Kit Description	Class 9999 Type	$ Price
Bracket for one overload relay used with horizontal mechanical interlocks, Types SM1 through SM10	SO11	**14.30**
Bracket for two overload relays used with vertical mechanical interlocks, Types SM2, SM4, SM5, SM9 and SM10	SO12	**42.80**

Type SM12

Table 16.311: How to Order

To Order Specify:	Catalog Number	
	Class	Type
• Class Number • Type Number	9999	SM1

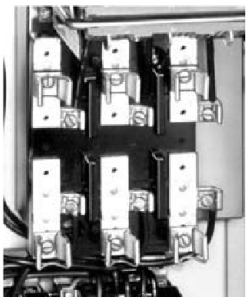
Class 8538 (Series D and newer), Class 8738 (Series E and newer), and Class 8903 (Series C and newer) Type S non-fusible combination starters and lighting contactors (sizes 0–2, 30 to 60 A) can be converted to the fusible type by installing a Class 9422 Fuse Clip Kit. Both fusible and non-fusible combination devices have the same size enclosure in NEMAs 1, 4, and 12 construction, which permits this conversion. The 9422 Fuse Clip Kits contain line and load fuse clips, load base, and fuse pullers.

Class 9422 TC33
Fuse Block

Table 16.312: Class 9422 Replacement Fuse Clip Kits

Device Used on	Disconnect Ampere Rating	NEMA Class H, K, J, R Fuses			$ Price	Class R Fuse Clip Kits	$ Price
		Fuse Clip Ratings (A)		Class & Type			
Size or Ampere Rating		250 V Max.	600 V Max.				
0, 1 & 30 A	30	0–30	—	9422TC30▲	**42.80**	RFK03■	**32.60**
0, 1 & 30 A	30	31–60	0–30	9422TC33▲	**71.00**	RFK06■	**34.00**
2 & 60 A	60	31–60	0–30	9422TC33	**71.00**	RFK06■	**36.50**
2 & 60 A	60	—	31–60	9422TD63	**99.00**	RFK06H■	**34.00**

▲ When using with a 9422FTCN or FTCF disconnect switch in 8538 or 8738 combination starters, remove and discard metal base plate.
■ No Class Number required Discount Schedule DE1.



Class 9999 Type S2
Interchangeable Fuse Clips

Table 16.313: Class 9999 Replacement Fuse Clip Kits (8538 Pre-Series D, 8738 Pre-Series E)

Device Used on	Disconnect Ampere Rating	NEMA Class H Fuses				NEMA Class R Fuses				NEMA Class J Fuses		
		Fuse Clip Ratings (A)		Type	$ Price	Fuse Clip Ratings (A)		Type	$ Price	Fuse Clip Ratings (A) 600 V Max.	Type	$ Price
Size or Ampere Rating		250 V Max.	600 V Max.			250 V Max.	600 V Max.					
0, 1 & 30 A	30	0–30 — 31–60	— 0–30 0–30	S1 S2 S2	**35.60** **35.60** **35.60**	0–30 — 31–60	— 0–30 0–30	SR1 SR2 SR2	**35.60** **47.60** **47.60**	— 0–30 0–30	— SJ2 SJ2	— **105.00** **105.00**
2 & 60 A	60	31–60 —	0–30 31–60	S2 S3	**35.60** **50.00**	31–60 —	0–30 31–60	SR2 SR3	**47.60** **64.00**	0–30 31–60	SJ2 SJ3	**105.00** **125.00**
3 & 100 A	100	61–100 101–200	61–100 —	S4★ S5★	**144.00** **270.00**	61–100 101–200	61–100 —	SR4♦ SR4♦	**47.60** **47.60**	61–100 —	SJ4 —	**201.00** —
4 & 200 A	200	101–200	101–200	S5★	**270.00**	101–200	101–200	SR4♦	**47.60**	—	—	—
5 & 300 A	400	—	—	—	—	201–400	201–400	SR5♦	**107.00**	—	—	—
6 & 400, 600 A	600	—	—	—	—	401–600	401–600	SR5♦	**107.00**	—	—	—

♦ Fuse clips are not provided in the Type SR4 and SR5 kits. On new installations Class 9999 Type S fuse clips must also be purchased. Three non-removable pins are supplied and can be installed only in the latest production devices, which have a hole in the lower fuse clips.
★ Cannot be used in Series B or newer 8538 devices.

Class 9999 Type TC10

Table 16.314: Class 9999 Auxiliary Contact Kits for Disconnect Switches and Circuit Breakers

Class	Type	SPDT		DPDT	
		Type	$ Price	Type	$ Price
8538, 8738	SB, SC (Series C)	R45	**71.00**	R46	**207.00**
8539, 8739	SB, SC, SD, SE, SF, SG	R26	**131.00**	R27	**243.00**
8538	SBA, SCA, SBG, SCG (Series K)	TC11	**120.00**	TC21	**239.00**
8738	SBA, SCA, SBG, SCG (Series K)	TC10	**120.00**	TC20	**239.00**
8538	SB▼, SC▼, SD▼ (Series B)	R6	**113.00**	R7	**221.00**
8538	SBAS8, SCAS8, SBGS8, SCGS8, (Series K)	TC10	**120.00**	TC20	**239.00**
8538, 8738	SD (Series C)	R43	**116.00**	R44	**221.00**
8538	SDA, SDA▼, SDG, SDG▼ (Series K)	TC10	**120.00**	TC20	**239.00**
8738	SDA, SDG (Series K)	TC10	**120.00**	TC20	**239.00**
8538, 8738	SE (Series B & C)	R41	**131.00**	R42	**243.00**
8538, 8738	SE, SF (Series A)	R8	**131.00**	R9	**243.00**
8538, 8738	SF (Series B & C)	R39	**135.00**	R40	**243.00**
8538, 8738	SG	R35	**435.00**	R36	**521.00**

▼ Class 8538 type numbers ending in suffix "S8".

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**

Table 16.315: How to Order

To Order Specify:	Catalog Number	
• Class Number • Type Number	Class	Type
	9999	R6

General

All tables are based on the operation of the motor and controller in the same ambient temperature, 40°C (104°F) or less. Always be certain the correct thermal units are installed in the starter before operating the motor. Each thermal unit shall be installed such that its catalog number is visible. See page 16-120, Figure 1 for complete thermal unit installation instructions. On melting alloy thermal units the ratchet wheel must engage the pawl assembly.

Selection Procedure

1. Determine motor data:
   - a. Full load current rating
   - b. Service factor

   NOTE: *If motor full load current (FLC) is not known, a tentative thermal unit selection could be made, based on horsepower and voltage. Refer to page 16-120.*
2. Motor and controller in *same ambient temperature:*
   - a. All starter classes, except Class 8198:
     1. For 1.15 to 1.25 service factor motors use 100% of motor FLC for thermal unit selection.
     2. For 1.0 service factor motors use 90% of motor FLC for thermal unit selection.
   - b. Class 8198 only:
     1. For 1.0 service factor motors use 100% of motor FLC for thermal unit selection.
     2. For 1.15 to 1.25 service factor motors use 110% of motor FLC for thermal unit selection.
3. Motor and controller in *different ambient temperatures:*
   - a. Multiply motor FLC by the multiplier in Table A. Use the resultant full load current for thermal unit selection.
4. Locate proper selection table from index, pages 16-117 and 16-118.
   - a. The proper thermal unit number will be found adjacent, to the right of the range of full load currents in which the motor FLC or resultant full load current falls.
5. See page 16-119 for calculation of trip current rating.

Slow Trip Thermal Unit Selection

To select Type SB slow trip thermal units, the selection table for a standard Type B thermal unit may be used with the following modifications: For continuous rated motors having service factors of 1.15 to 1.25, select thermal units from the standard Type B table using 93% (102% for Class 8198) of the full load current shown on the motor nameplate and then substitute an SB for the B in the thermal unit type number.

Example: A motor with a full load current of 12 A controlled by an 8536SCG3 would require B22 thermal units for standard trip applications and SB19.5 thermal units for slow trip applications. The SB is selected by multiplying 12 A times 93% for 11.16 A and using this value to select B19.5. Then add the S prefix to arrive at SB19.5.

For continuous rated motors having a service factor of 1.0, select thermal units in the same manner using 84% (93% for Class 8198) of full load current shown on the motor nameplate.

NOTE: *SB thermal units are used on Size 0, 1, 2 and only some Size 3 applications. Check thermal unit tables for current ranges.*

Table A: Selection of Thermal Units for Special Applications

Class of Controller	Continuous Duty Motor Service Factor	Melting Alloy and Non-Compensated Bimetallic Relays			Ambient Temp.-Comp. Relays
		Ambient Temperature of Motor			
		Same as Controller Ambient	Constant 10°C (18°F) Higher Than Controller Ambient	Constant 10° C (18°F) Lower Than Controller Ambient	Constant 40°C (104°F) or less, for Any Controller Ambient
		Full Load Current Multiplier			
All Classes, Except 8198	1.15 to 1.25	1.0	0.9	1.05	1.0
	1.0	0.9	0.8	.95	0.9
Class 8198	1.15 to 1.25	1.1	1.0	1.15	1.1
	1.0	1.0	0.9	1.05	1.0

Table 16.382: Thermal Unit Prices

Melting Alloy			Bimetallic		
Type of Trip	Thermal Unit Type	$ Price	Type of Trip	Thermal Unit Type	$ Price
Standard	A	**21.50**	Standard	AR	**21.50**
	B	**21.50**		AF	**21.50**
	C	**21.50**		AU	**21.50**
	CC	**21.50**		E	**21.50**
	DD	**21.50**			
Quick	FB	**35.60**			
Slow	SB	**57.00**			

NOTE: *For thermal unit selection tables for other devices including obsolete devices, consult Schneider Electric CCC at (1-888-778-2733).*

Table 16.383: Thermal Unit Selection

Controller					Thermal Unit Selection Table Number				
					Hand Reset Melting Alloy			Bimetallic	
Starter Type	Class	Type	Series▲	Size	Standard Trip (20)	Quick Trip (10)	Slow Trip (30)	Non-Compensated	Compensated
Manual Starters FHP	2510 2512 8908	F	A	FHP	43◊	—	—	—	—
Manual Starters (Small Enclosure)	2510	M, T	A	M–0 M–1 M–1P	1 1 1	72 72 72	▽ ▽ ▽	— — —	— — —
Manual Starters (Large Enclosure)	2510 2511 2512 8925	M, T	A	M–0 M–1 M–1P	2 2 2	73 73 73	▽ ▽ ▽	— — —	— — —
DC Magnetic Starters EC & M Crane Control Product	7135 7136 7735 7736	C, D	—	1, 2	65	—	▽	—	—
		E	—	3	9	—	—	—	—
		F	—	4	10	—	—	—	—
		G	—	5	12	—	—	—	—
AC Magnetic Starters (Small Enclosure)	8536 8904■ (Starter In Own Enclosure)	A (8536 only)	B, C	00	17◊	—	—	—	—
		SA	A, B	00	13	—	▽	—	—
		SB	A	0	13	74	▽	8	33
	8933	SC	A	1	13	74	▽	8	33
			A	1P	41	—	▽	—	—
	8998 8999 (Model 3 Control Center) I-LINE® and QMB Motor Starter Centers	SD	A	2	56	75	▽	62	70
		SE	A	3	18	76☆	134☆▽	63	37□
			B	3	—	—	—	142□	—
		SF	A	4	54	77☆	—	11	29□
			B	4	—	—	—	144□	—
		SG	A	5	49	—	—	38	46
			B✱	5	59	83	—	23	42
		SH	A, B	6	21	—	—	39	47
	8998 8999 (Model 4 Control Center)	SC	A	1 Fusible	66	74	—	64	33
				1 Circuit Breaker	15	74	—		
		SD	A	2 Fusible	67	75	—	57	70
				2 Circuit Breaker	58△	75	—		
		SE	A	3 Small Enclosure	16	76☆	134☆▽	51	37□
				3 Large Enclosure	68△	76☆	133☆▽		
			B	3	—	—	—	141□	—
		SF	A	4	61	77☆	—	35	29△
			B	4	—	—	—	143□	—
		SG	A	5	24	—	—	52	46
		SH	A	6	20	—	—	48	47
	8998 (Model 5 and Model 6 MCCs)	SC◒	A	1	109	—	—	—	97
				1 COMPAC 6	104	—	—	—	—
		SD◒	A	2	110	—	—	—	98
		SE◒	A	3	111	—	—	—	99□
		SF◒	A	4	112	—	—	—	100□
		SG◒	A	5	113	—	—	—	101
			B	5 CT	103	—	—	—	—
		SH◒	A	6	114	—	—	—	102
	8911	DPSG	C	20–30 A	135	—	—	—	—
				40 A	145	—	—	—	—
			A	50 A	146	—	—	—	—

Table continued on the next page; see page 16-118 for Footnotes.

NOTE: *For thermal unit selection tables for other devices including obsolete devices, consult Schneider Electric CCC at (1-888-778-2733).*

Thermal Unit Prices . . . . . .page 16-116.

Table 16.384: Thermal Unit Selection

Controller					Thermal Unit Selection Table Number				
					Hand Reset Melting Alloy			Bimetallic	
Starter Type	Class	Type	Series▲	Size	Standard Trip (20)	Quick Trip (10)	Slow Trip (30)	Non-Compensated	Compensated
AC Magnetic Starters (Large Enclosure)	8198	G, S	—	—	5	—	▽	—	6
	8536 (Starter Used in Multi-Motor Panel) 8538 8904▼ 8539 8906 8606 8907 8630♦ 8920 8640★ 8922 9089 8924 8647 8925 8650 8930 8736 8941 8738 8739	A (8536 only)	B, C	00	14◊	—	—	—	—
		SA	A, B	00	53	—	▽	55	25
		SB, NB	A	0	15	78	▽	64	33
		SC, NC	A	1	15	78	▽	64	33
		SD, ND	A	2	58	79	▽	57	70
		SE, NE	A	3	16	80☆	133☆▽	51	37□
			B	3	—	—	—	141□	—
		SF, NF	A	4	61	81☆	—	35	29□
			B	4	—	—	—	143□	—
		SG	A	5	24	—	—	52	46
			B✱	5	59	83	—	23	42
		SH	A, B	6	20	—	▽	48	47
	8810 8811 8812	CB, DB, SB, UB	A	0	15	78	▽	64	33
		CC, DC, SC, UC	A	1	15	78	▽	64	33
		CD, DD, SD, UD	A	2	58	79	▽	57	70
		CE, DE, SE, UE	A	3	16	80☆	133☆▽	51	37□
		CF, DF, SF, UF	A	4	61	81☆	—	35	29□
		SE	B	3	—	—	—	141□	—
		SF	B	4	—	—	—	143□	—
		CG, DG, SG, UG	A	5	24	—	—	52	46
			B✱	5	59	83	—	23	42
		CH, DH, SH, UH	A	6	20	—	▽	48	47
	8940 WELL-GUARD™ Control	WC, XC	A	1	13	78	—	—	33
		WD, XD, MD, RD,	A	2	56	79	—	—	70
		WE, XE, ME, RE,	A	3	18	80☆	—	—	37□
		PF, WF, XF, MF,	A	4	54	81☆	—	—	29□
		XSG, NSG, MG,RG, VG◊	A	5	—	—	—	—	46
			B✱	5	—	—	—	—	42
		XSH, VH	A	6	—	—	—	—	47
	8911	DPSO	C	20–30 A	136	—	—	—	—
				40 A	147	—	—	—	—
			A	50 A	148	—	—	—	—
AC Magnetic Part-Winding	8998 (Model 5 and Model 6 MCCs)	SC◒	A	1	127	—	—	—	121
		SD◒	A	2	128	—	—	—	122
		SE◒	A	3	129	—	—	—	123□
		SF	A	4	105	—	—	—	117□
		SG	A	5	115	—	—	—	118
			B✱	5 CT	116	—	—	—	—
Separately Mounted Overload Relays	9065	AF	B	4(133 A)	—	—	—	30	—
		AG	A	5(266 A)	—	—	—	36	—
		AR	A	1(25 A)	—	—	—	32	—
		AT	A	2(45 A)	—	—	—	60	—
		AU	—	3(86 A)	—	—	—	50	—
		DA2	A	1(25 A)	—	—	—	—	140□
		GA2	A	2(60 A)	—	—	—	—	139□
		HA2	A	3(100 A)	—	—	—	—	138□
		JA2	A	4(180 A)	—	—	—	—	137□
		C	A	1(25 A)	44	82	▽	—	—
		F	B	4(133 A)	19	85☆	—	—	—
		G	A	5(266 A)	22	—	—	—	—
		MEO	A	(32 A)	86	—	—	—	—
		S	A	1(26 A)	59	83	▽	23	42
				2(45 A)	69	84	▽	27	71
				3(86 A)	34	—	—	—	—
				4(133 A)	28	—	—	—	—
		T	A	2(45 A)	31	—	▽	—	—
		U	—	3(86 A)	40	—	—	—	—

▲ Series letters listed refer to the marking on the nameplate of the basic open type starter. When the starter is supplied in a controller containing other devices, the controller may have a different series letter marked on the enclosure nameplate.

■ Small enclosure tables apply for **Class 8904** non-combination and non-reversing starters. For combination and reversing **Class 8904** starters refer to the large enclosure selections, index above.

♦ For **Class 8630** starters divide the delta connected motor full load current by 1.73, and use this quotient to select thermal units.

★ For **Class 8640** and **Class 8940** (MD, PD, ME, PE, MF, PF, MG and PG) starters use the full load current of each motor winding as a basis for thermal unit selection—normally one-half total motor current.

▼ Large enclosure tables apply for **Class 8904** combination and reversing starters. For non-combination and non-reversing **Class 8904** starters refer to small enclosure selections, page 16-117.

△ Use for Autotransformer Starters (Fusible and Circuit Breaker).

□ Order Type E thermal units by number from Schneider Electric, Furnas Electric Company, Batavia, Illinois or a Furnas distributor at **$13.50** each, subject to motor control discounts.

◊ Type A thermal units for full load currents lower than those listed in this table are available. For complete information, consult Schneider Electric CCC at (1-888-778-2733).

☆ Form Y81 must be specified to use quick trip (Class 10) or slow trip (Class 30) thermal units on Size 3 starters and quick trip (Class 10) thermal units on Size 4 starters.

▽ This device will accept Type SB slow trip (Class 30) thermal units. For selection, see page 16-116.

◒ Refers to type number of starter in MCC, not actual type number of MCC.

✱ Divide the motor FLC by 60 and use this quotient to select the appropriate thermal units.

Calculation of Trip Current Rating

Trip Current Rating—Trip current rating is a nominal value which approximates the minimum current to trip an overload relay in an ambient temperature, outside of the enclosure, of 40°C (104°F). In all selection tables except Class 8198, the trip current rating is 1.25 times the minimum full load current shown for the thermal unit selected. For Class 8198, the trip current rating is 1.15 times the minimum full load current. This applies to bimetallic overload relays with the trip adjustment set at 100 percent.

Calculation Procedure

1. Use the selection table for the specific controller involved.
2. Find the minimum motor full load current listed for the thermal unit in question.
3. Multiply that current by 1.25 (1.15 for Class 8198). The result is the trip current rating.

Example 1: Determine the thermal unit selection and trip current rating for thermal units in a Class 8536 Type SCG3 Size 1 magnetic starter used to control a three-phase, 1.15 service factor motor with a full load current of 17.0 Amperes, where the motor and controller are both located in a 40°C (104°F) ambient temperature.

1. From Table 13 the proper selection is B32.
2. The minimum motor full load current is 16. 0 Amperes.
3. Trip current rating is 16.0 x 1.25= 20.0 Amperes.

Protection Level is the relationship between trip current rating and full load current. Protection level, in percent, is the trip current rating divided by the motor full load current times 100. In Example 1 the protection level for the B32 thermal unit is: 20.0/17.0 x 100=118%.

National Electrical Code, Section 430-32, allows a maximum protection level of 125% for the motor in the above example.

Minimum Trip Current (also called ultimate current) may vary from the trip current rating value, since ratings are established under standardized test conditions. Factors which influence variations include: the number of thermal units installed, enclosure size, proximity to heat producing devices, size of conductors installed, ambient (room) temperature, and others.

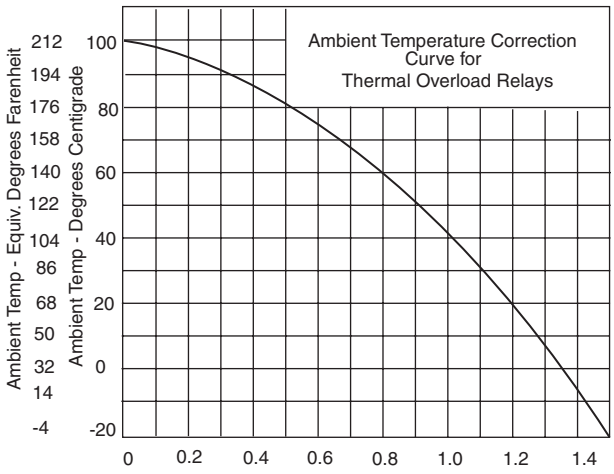
Except for ambient temperature-compensated overload relays, an ambient temperature higher than 40°C would lower the trip current, and a lower temperature would increase it. This variation is not a factor in selecting thermal units for the average application, since most motor ratings are based on an ambient temperature of 40°C, and motor capacity varies with temperature in about the same proportion as the change in trip current. Temperature-compensated relays maintain a nearly constant trip current over a wide range of ambient temperature, and are intended for use where the relay, because of its location, cannot sense changes in the motor ambient temperature.

Calculation of Trip Current For Ambient Temperatures Other Than 40°C

For a controller ambient temperature other than 40°C (104°F) trip current can be calculated by applying a correction factor from the curve in Figure 1. The approximate trip current for a particular ambient temperature is the product of (1) the multiplier M corresponding to the temperature and (2) the 40°C trip current rating.

NOTE: *Ambient temperature is the temperature surrounding the starter enclosure. Normal temperature rise inside the enclosure has been taken into account in preparing the thermal unit selection tables.*

Example 2: Determine the trip current for the motor and controller in Example 1, except the controller is in a 30°C (86°F) ambient temperature. From the curve in Figure 1 the multiplier M is 1.1 at 30°C. Approximate Trip Current is 16.0 x 1.25 x 1.1=22 Amperes



Approximate Thermal Unit Selection Based On Horsepower and Voltage

General—Thermal units selected using approximate full load currents from the table below will provide a trip current between 101% and 125% of full load current for many 4-pole, single speed, normal torque, 60 Hz motors. Since full load current rating of different makes and types of motors vary so widely, these selections may not be suitable.

Thermal units should be selected on the basis of motor nameplate full load current and service factor. Thermal unit sizes originally selected on an approximate basis should always be rechecked and corrected at the time of installation if required.

Instructions:

1. Locate motor horsepower and voltage.
2. Determine approximate full load current from the table below.
3. Use approximate full load current in place of actual nameplate full load current and follow instructions on page 16-116.

Only Use This Table When Motor Full Load Current Is Not Known

Table 16.385:

Motor Horsepower	Motor Full Load Current					
	Three Ø				Single Ø	
	200 V	230 V	460 V	575 V	115 V	230 V
1/6	—	—	—	—	4.4	2.2
1/4	—	—	—	—	5.8	2.9
1/3	—	—	—	—	7.2	3.6
1/2	2.5	2.2	1.1	0.9	9.8	4.9
3/4	3.7	3.2	1.6	1.3	13.8	6.9
1	4.8	4.2	2.1	1.7	16	8
1-1/2	6.9	6.0	3.0	2.4	20	10
2	7.8	6.8	3.4	2.7	24	12
3	11.0	9.6	4.8	3.9	34	17
5	17.5	15.2	7.6	6.1	56	28
7-1/2	25.3	22	11	9	80	40
10	32.2	28	14	11	—	50
15	48.3	42	21	17	—	—
20	62.1	54	27	22	—	—
25	78.2	68	34	27	—	—
30	92	80	40	32	—	—
40	120	104	52	41	—	—
50	150	130	65	52	—	—
60	177	154	77	62	—	—
75	221	192	96	77	—	—
100	285	248	124	99	—	—
125	359	312	156	125	—	—
150	414	360	180	144	—	—
200	552	480	240	192	—	—

NOTE: *These currents should not be used for selection of fuses, circuit breakers or wire sizes. See NEC tables 430-248 through 430-250. For motors rated 208-220 volts, use 230 V column. For motors rated 440 to 550 volts, use 460 and 575 V columns, respectively.*

Mounting Thermal Units

Figure 1

Always be certain the correct thermal units are installed in the starter before operating the motor. Thermal units should always be mounted so that their type designation can be read from the front of the starter (see Figure 1). Melting alloy thermal units should be mounted so that the tooth of the pawl assembly can engage the teeth of the ratchet wheel when the reset button is pushed.

Mounting surfaces of starter and thermal units should be clean and care should be taken to insure that thermal unit mounting screws are fastened securely.

Table 1

Motor FLC (A)		Thermal Unit Number
1 T.U.	3 T.U.	
0.33–0.36	0.29–0.32	B 0.44
0.37–0.40	0.33–0.36	B 0.51
0.41–0.45	0.37–0.39	B 0.57
0.46–0.52	0.40–0.47	B 0.63
0.53–0.59	0.48–0.56	B 0.71
0.60–0.66	0.57–0.63	B 0.81
0.67–0.73	0.64–0.69	B 0.92
0.74–0.81	0.70–0.77	B 1.03
0.82–0.91	0.78–0.86	B 1.16
0.92–1.02	0.87–0.96	B 1.30
1.03–1.14	0.97–1.11	B 1.45
1.15–1.29	1.12–1.23	B 1.67
1.20–1.42	1.24–1.37	B 1.88
1.43–1.64	1.38–1.55	B 2.10
1.65–1.80	1.56–1.75	B 2.40
1.81–2.10	1.76–1.92	B 2.65
2.11–2.30	1.93–2.16	B 3.00
2.31–2.61	2.17–2.50	B 3.30
2.62–2.99	2.51–2.81	B 3.70
3.00–3.37	2.82–3.16	B 4.15
3.38–3.94	3.17–3.40	B 4.85
3.95–4.24	3.41–3.76	B 5.50
4.25–4.54	3.77–4.00	B 6.25
4.55–5.29	4.01–4.68	B 6.90
5.30–5.73	4.69–5.18	B 7.70
5.74–6.35	5.19–5.51	B 8.20
6.36–7.08	5.52–6.19	B 9.10
7.09–7.83	6.20–7.12	B 10.2
7.84–8.47	7.13–8.15	B 11.5
8.48–9.83	8.16–8.60	B 12.8
9.84–10.5	8.61–9.21	B 14.0
10.6–11.4	9.22–10.1	B 15.5
11.5–12.8	10.2–11.2	B 17.5
12.9–13.9	11.3–12.0	B 19.5
14.0–16.1	—	B 22.0
16.2–18.0	—	B 25.0
Following Selections for Size M-1 & M-1P Only.		
—	11.3–12.1	B 19.5
—	12.2–13.6	B 22.0
16.2–17.6	13.7–15.3	B 25.0
17.7–20.6	15.4–17.3	B 28.0
20.7–23.1	17.4–19.1	B 32.0
23.2–26.0	19.2–21.7	B 36.0
—	21.8–24.2	B 40.0
—	24.3–26.0	B 45.0
Following Selections for Size M-1P Only		
23.2–27.1	—	B 36.0
27.2–29.2	—	B 40.0
29.3–33.0	—	B 45.0
33.1–36.0	—	B 50.0

Table 2

Motor FLC (A)		Thermal Unit Number
1 T.U.	3 T.U.	
0.35–0.38	0.30–0.32	B 0.44
0.39–0.43	0.33–0.37	B 0.51
0.44–0.48	0.38–0.39	B 0.57
0.49–0.56	0.40–0.48	B 0.63
0.57–0.63	0.49–0.57	B 0.71
0.64–0.71	0.58–0.64	B 0.81
0.72–0.78	0.65–0.70	B 0.92
0.79–0.88	0.71–0.78	B 1.03
0.89–0.99	0.79–0.87	B 1.16
1.00–1.15	0.88–0.98	B 1.30
1.16–1.23	0.99–1.13	B 1.45
1.24–1.43	1.14–1.25	B 1.67
1.44–1.51	1.26–1.40	B 1.88
1.52–1.75	1.41–1.58	B 2.10
1.76–1.93	1.59–1.79	B 2.40
1.94–2.25	1.80–1.91	B 2.65
2.26–2.47	1.92–2.20	B 3.00
2.48–2.81	2.21–2.55	B 3.30
2.82–3.20	2.56–2.87	B 3.70
3.21–3.63	2.88–3.24	B 4.15
3.64–4.19	3.25–3.48	B 4.85
4.20–4.53	3.49–3.85	B 5.50
4.54–4.89	3.86–4.10	B 6.25
4.90–5.68	4.11–4.79	B 6.90
5.69–6.27	4.80–5.31	B 7.70
6.28–6.85	5.32–5.65	B 8.20
6.86–7.73	5.66–6.35	B 9.10
7.74–8.50	6.36–7.31	B 10.2
8.51–9.29	7.32–8.34	B 11.5
9.30–10.4	8.35–8.84	B 12.8
10.5–11.3	8.85–9.47	B 14.0
11.4–12.3	9.48–10.4	B 15.5
12.4–13.9	10.5–11.5	B 17.5
14.0–15.0	11.6–12.0	B 19.5
15.1–18.0	—	B 22.0
Following Selections for Size M-1 & M-1P Only.		
—	11.6–12.4	B 19.5
15.1–17.4	12.5–14.0	B 22.0
17.5–19.2	14.1–15.8	B 25.0
19.3–22.0	15.9–17.8	B 28.0
22.1–24.6	17.9–19.7	B 32.0
24.7–26.0	19.8–22.4	B 36.0
—	22.5–25.1	B 40.0
—	25.1–26.0	B 45.0
Following Selections for Size M-1P Only.		
24.7–29.1	—	B 36.0
29.2–31.7	—	B 40.0
31.8–36.0	—	B 45.0

Table 3

Motor FLC (A)		Thermal Unit Number
1 T.U.	3 T.U.	
0.29–0.31	0.28–0.29	B 0.44
0.32–0.36	0.30–0.33	B 0.51
0.37–0.39	0.34–0.36	B 0.57
0.40–0.47	0.37–0.44	B 0.63
0.48–0.56	0.45–0.52	B 0.71
0.57–0.63	0.53–0.59	B 0.81
0.64–0.69	0.60–0.64	B 0.92
0.70–0.77	0.65–0.71	B 1.03
0.78–0.86	0.72–0.80	B 1.16
0.87–0.97	0.81–0.90	B 1.30
0.98–1.12	0.91–1.03	B 1.45
1.13–1.24	1.04–1.14	B 1.67
1.25–1.39	1.15–1.27	B 1.88
1.40–1.57	1.28–1.44	B 2.10
1.58–1.78	1.45–1.63	B 2.40
1.79–1.96	1.64–1.79	B 2.65
1.97–2.20	1.80–2.01	B 3.00
2.21–2.41	2.02–2.19	B 3.30
2.42–2.75	2.20–2.52	B 3.70
2.76–3.25	2.53–2.95	B 4.15
3.26–3.50	2.96–3.17	B 4.85
3.51–3.87	3.18–3.50	B 5.50
3.88–4.13	3.51–3.73	B 6.25
4.14–4.69	3.74–4.22	B 6.90
4.70–5.20	4.23–4.68	B 7.70
5.21–5.53	4.69–4.98	B 8.20
5.54–6.23	4.99–5.59	B 9.10
6.24–7.18	5.60–6.43	B 10.2
7.19–8.20	6.44–7.41	B 11.5
8.21–8.98	7.42–8.02	B 12.8
8.99–9.63	8.03–8.59	B 14.0
9.64–10.6	8.60–9.52	B 15.5
10.7–11.8	9.53–10.5	B 17.5
11.9–12.7	10.6–11.2	B 19.5
12.8–14.3	11.3–12.0	B 22.0
14.4–16.1	—	B 25.0
16.2–18.0	—	B 28.0
Following Selections for Size M-1 & M-1P Only.		
—	11.3–12.7	B 22.0
—	12.8–14.3	B 25.0
16.2–18.3	14.4–16.1	B 28.0
18.4–20.2	16.2–17.8	B 32.0
20.3–23.0	17.9–20.1	B 36.0
23.1–26.0	20.2–22.6	B 40.0
—	22.7–25.5	B 45.0
—	25.6–26.0	B 50.0
Following Selections for Size M-1P Only		
25.9–29.0	—	B 45.0
29.1–30.8	—	B 50.0
30.9–32.7	—	B 56.0
32.8–36.0	—	B 62.0

Table 4

Motor FLC (A)		Thermal Unit Number
1 T.U.	3 T.U.	
0.32–0.33	0.29–0.30	B 0.44
0.34–0.38	0.31–0.35	B 0.51
0.39–0.41	0.36–0.37	B 0.57
0.42–0.50	0.38–0.45	B 0.63
0.51–0.61	0.46–0.54	B 0.71
0.62–0.68	0.55–0.61	B 0.81
0.69–0.74	0.62–0.66	B 0.92
0.75–0.83	0.67–0.74	B 1.03
0.84–0.93	0.75–0.83	B 1.16
0.94–1.05	0.84–0.93	B 1.30
1.06–1.21	0.94–1.07	B 1.45
1.22–1.34	1.08–1.19	B 1.67
1.35–1.50	1.20–1.33	B 1.88
1.51–1.70	1.34–1.51	B 2.10
1.71–1.93	1.52–1.70	B 2.40
1.94–2.12	1.71–1.87	B 2.65
2.13–2.38	1.88–2.10	B 3.00
2.39–2.61	2.11–2.29	B 3.30
2.62–2.99	2.30–2.63	B 3.70
3.00–3.53	2.64–3.09	B 4.15
3.54–3.80	3.10–3.32	B 4.85
3.81–4.21	3.33–3.67	B 5.50
4.22–4.49	3.68–3.91	B 6.25
4.50–5.10	3.92–4.43	B 6.90
5.11–5.66	4.44–4.91	B 7.70
5.67–6.03	4.92–5.23	B 8.20
6.04–6.79	5.24–5.88	B 9.10
6.80–7.84	5.89–6.77	B 10.2
7.85–8.96	6.78–7.90	B 11.5
8.97–9.82	7.91–8.44	B 12.8
9.83–10.4	8.45–9.05	B 14.0
10.5–11.6	9.06–9.99	B 15.5
11.7–12.9	10.0–11.0	B 17.5
13.0–13.9	11.1–11.9	B 19.5
14.0–15.7	12.0–12.0	B 22.0
15.8–18.0	—	B 25.0
Following Selections for Size M-1 & M-1P Only.		
—	12.0–13.4	B 22.0
—	13.5–15.1	B 25.0
17.8–20.1	15.2–17.0	B 28.0
20.2–22.2	17.1–18.9	B 32.0
22.3–25.3	19.0–21.4	B 36.0
25.4–26.0	21.5–24.0	B 40.0
—	24.1–26.0	B 45.0
Following Selections for Size M-1P Only.		
25.4–28.4	—	B 40.0
28.5–33.1	—	B 45.0
33.2–36.0	—	B 50.0

Table 5

Current Transformer Ratio										Thermal Unit Number
25/5	50/5	75/5	100/5	150/5	200/5	250/5	300/5	400/5	500/5	
Motor FLC										
10.6–11.7	21.1–23.6	31.7–35.4	42.3–47.2	63.4–70.9	84.5–94.6	106.–117.	127.–141.	169.–188.	211.–236.	B 3.00
11.8–13.2	23.7–26.5	35.5–39.8	47.3–53.1	71.0–79.7	94.7–105.	118.–132.	142.–159.	189.–212.	237.–265.	B 3.30
13.3–14.8	26.6–29.6	39.9–44.5	53.2–59.4	79.8–89.1	106.–118.	133.–148.	160.–177.	213.–237.	266.–296.	B 3.70
14.9–17.2	29.7–34.5	44.6–51.8	59.5–69.2	89.2–103.	119.–138.	149.–172.	178.–207.	238.–276.	297.–345.	B 4.15
17.3–19.6	34.6–39.2	51.9–58.9	69.3–78.6	104.–117.	139.–156.	173.–196.	208.–235.	277.–314.	346.–360.	B 4.85
19.7–22.3	39.3–44.6	59.0–67.0	78.7–89.3	118.–133.	157.–178.	197.–223.	236.–267.	315.–357.	—	B 5.50

Table 6

Current Transformer Ratio										Thermal Unit Number
25/5	50/5	75/5	100/5	150/5	200/5	250/5	300/5	400/5	500/5	
Motor FLC										
10.6–11.9	21.2–23.9	31.8–35.9	42.4–47.9	63.6–72.0	84.8–96.0	106.–119.	127.–143.	170.–191.	212.–239.	AR 3.62
12.0–13.4	24.0–26.9	36.0–40.3	48.0–53.8	72.1–80.8	96.1–107.	120.–134.	144.–161.	192.–215.	240.–269.	AR 3.98
13.5–15.0	27.0–30.0	40.4–45.1	53.9–60.1	80.9–90.2	108.–119.	135.–150.	162.–180.	216.–240.	270.–300.	AR 4.37
15.1–16.6	30.1–33.4	45.2–50.1	60.2–66.9	90.3–99.9	120.–133.	151.–166.	181.–200.	241.–267.	301.–334.	AR 4.80
16.7–18.7	33.5–37.5	50.2–56.3	67.0–75.1	100.–112.	134.–149.	167.–187.	201.–225.	268.–300.	335.–360.	AR 5.3
18.8–20.7	37.6–41.4	56.4–62.2	75.2–82.9	113.–124.	150.–165.	188.–207.	226.–248.	301.–331.	—	AR 5.8
20.8–22.8	41.5–45.7	62.3–68.5	83.0–91.4	125.–136.	166.–182.	208.–228.	249.–274.	332.–365.	—	AR 6.4

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Table 8

Motor FLC (A)			Thermal Unit Number
2.T.U.1Ø	2 T.U.2Ø	3 T.U.	
0.37–0.39	0.37–0.39	0.30–0.31	AR .45
0.40–0.42	0.40–0.42	0.32–0.34	AR .49
0.43–0.46	0.43–0.46	0.35–0.37	AR .54
0.47–0.50	0.47–0.50	0.38–0.41	AR .59
0.51–0.54	0.51–0.54	0.42–0.45	AR .65
0.55–0.59	0.55–0.59	0.46–0.49	AR .71
0.60–0.65	0.60–0.65	0.50–0.54	AR .78
0.66–0.71	0.66–0.71	0.55–0.56	AR .86
0.72–0.78	0.72–0.78	0.57–0.62	AR .95
0.79–0.86	0.79–0.86	0.63–0.68	AR 1.05
0.87–0.94	0.87–0.94	0.69–0.75	AR 1.15
0.95–1.04	0.95–1.04	0.76–0.82	AR 1.26
1.05–1.14	1.05–1.14	0.83–0.91	AR 1.39
1.15–1.25	1.15–1.25	0.92–1.00	AR 1.53
1.26–1.42	1.26–1.42	1.01–1.18	AR 1.68
1.43–1.62	1.43–1.62	1.19–1.30	AR 1.85
1.63–1.75	1.63–1.75	1.31–1.41	AR 2.04
1.76–1.91	1.76–1.91	1.42–1.53	AR 2.24
1.92–2.07	1.92–2.07	1.54–1.69	AR 2.46
2.08–2.25	2.08–2.25	1.70–1.79	AR 2.71
2.26–2.47	2.26–2.47	1.80–2.02	AR 2.98
2.48–2.73	2.48–2.73	2.03–2.19	AR 3.28
2.74–2.99	2.74–2.99	2.20–2.43	AR 3.62
3.00–3.31	3.00–3.31	2.44–2.81	AR 3.98
3.32–3.71	3.32–3.71	2.82–3.12	AR 4.37
3.72–4.15	3.72–4.15	3.13–3.47	AR 4.80
4.16–4.65	4.16–4.65	3.48–3.89	AR 5.3
4.66–5.11	4.66–5.11	3.90–4.30	AR 5.8
5.12–5.68	5.12–5.68	4.31–4.69	AR 6.4
5.69–6.24	5.69–6.24	4.70–5.19	AR 7.0
6.25–7.15	6.25–7.15	5.20–5.93	AR 7.7
7.16–7.84	7.16–7.84	5.94–6.45	AR 8.5
7.85–8.56	7.85–8.56	6.46–7.08	AR 9.3
8.57–9.40	8.57–9.40	7.09–7.71	AR 10.2
9.41–10.2	9.41–10.2	7.72–8.39	AR 11.2
10.3–10.7	10.3–10.7	8.40–8.64	AR 12.4
10.8–12.2	10.8–12.2	8.65–9.74	AR 13.6
12.3–14.1	—	9.75–11.0	AR 15.4
14.2–15.9	—	11.1–12.0	AR 17.6
16.0–18.0	—	—	AR 20.5
Following Selections for Size 1 Only			
—	10.8–12.2	—	AR 13.6
—	12.3–14.1	—	AR 15.4
—	14.2–15.9	11.1–12.4	AR 17.6
16.0–18.1	16.0–18.1	12.5–13.9	AR 20.5
18.2–20.8	18.2–20.8	14.0–15.9	AR 23.0
20.9–23.6	20.9–23.6	16.0–17.7	AR 27.0
23.7–26.0	23.7–26.0	17.8–20.3	AR 30.0
—	—	20.4–22.8	AR 35.0
—	—	22.9–26.0	AR 40.0

Table 9

Motor FLC (A)	Thermal Unit Number
15.3–16.7	C 20.0
16.8–19.8	C 22.0
19.9–22.8	C 26.0
22.9–25.8	C 30.0
25.9–30.4	C 34.0
30.5–31.9	C 40.0
32.0–34.2	C 42.0
34.3–38.8	C 45.0
38.9–44.2	C 51.0
44.3–50.2	C 58.0
50.3–57.1	C 66.0
57.2–63.2	C 75.0
63.3–68.6	C 83.0
68.7–78.6	C 90.0
78.7–86.9	C 103.0
87.0–100.0	C 114.0

Table 10

Motor FLC (A)	Thermal Unit Number
43.6–47.3	CC 54.5
47.4–51.3	CC 59.4
51.4–54.6	CC 64.3
54.7–59.7	CC 68.5
59.8–65.1	CC 74.6
65.2–70.1	CC 81.5
70.2–75.1	CC 87.7
75.2–82.2	CC 94.0
82.3–89.2	CC 103.0
89.3–96.5	CC 112.0
96.6–104.	CC 121.0
105.–113.	CC 132.0
114.–123.	CC 143.0
124.–132.	CC 156.0
133.–150.	CC 167.0

Table 11

Motor FLC (A)		Thermal Unit Number
2 T.U.	3 T.U.	
33.0–36.1	30.5–33.4	AU 44.0
36.2–40.2	33.5–37.1	AU 50.0
40.3–44.5	37.2–42.0	AU 56.0
45.6–51.3	42.1–47.0	AU 64.0
51.4–58.5	47.1–53.5	AU 72.0
58.6–62.6	53.6–57.5	AU 81.0
62.7–71.3	57.6–64.4	AU 88.0
71.4–77.1	64.5–69.4	AU 99.0
77.2–86.9	69.5–77.4	AU 110.0
87.0–93.3	77.5–83.6	AU 123.0
93.4–102.	83.7–92.9	AU 135.0
103.–107.	93.0–100.	AU 152.0
108.–112.	101.–104.	AU 169.0
113.–121.	105.–115.	AU 183.0
122.–123.	116.–119.	AU 198.0
124.–133.	120.–123.	AU 217.0
———	124.–133.	AU 235.0

Table 12

Motor FLC (A)	Thermal Unit Number
92.–100.	DD 112.0
101.–109.	DD 121.0
110.–119.	DD 128.0
120.–131.	DD 140.0
132.–139.	DD 150.0
140.–156.	DD 160.0
157.–166.	DD 185.0
167.–180.	DD 213.0
181.–189.	DD 220.0
190.–209.	DD 230.0
210.–225.	DD 250.0
226.–238.	DD 265.0
239.–263.	DD 280.0
264.–300.	DD 300.0

Table 13

Motor FLC (A)			Thermal Unit Number
1.T.U.	2 T.U.	3 T.U.	
0.29–0.31	0.29–0.31	0.28–0.30	B 0.44
0.32–0.34	0.32–0.34	0.31–0.34	B 0.51
0.35–0.38	0.35–0.38	0.35–0.37	B 0.57
0.39–0.45	0.39–0.45	0.38–0.44	B 0.63
0.46–0.54	0.46–0.54	0.45–0.53	B 0.71
0.55–0.61	0.55–0.61	0.54–0.59	B 0.81
0.62–0.66	0.62–0.66	0.60–0.64	B 0.92
0.67–0.73	0.67–0.73	0.65–0.72	B 1.03
0.74–0.81	0.74–0.81	0.73–0.80	B 1.16
0.82–0.94	0.82–0.94	0.81–0.90	B 1.30
0.95–1.05	0.95–1.05	0.91–1.03	B 1.45
1.06–1.22	1.06–1.22	1.04–1.14	B 1.67
1.23–1.34	1.23–1.34	1.15–1.27	B 1.88
1.35–1.51	1.35–1.51	1.28–1.43	B 2.10
1.52–1.71	1.52–1.71	1.44–1.62	B 2.40
1.72–1.93	1.72–1.93	1.63–1.77	B 2.65
1.94–2.14	1.94–2.14	1.78–1.97	B 3.00
2.15–2.40	2.15–2.40	1.98–2.32	B 3.30
2.41–2.72	2.41–2.72	2.33–2.51	B 3.70
2.73–3.15	2.73–3.15	2.52–2.99	B 4.15
3.16–3.55	3.16–3.55	3.00–3.42	B 4.85
3.56–4.00	3.56–4.00	3.43–3.75	B 5.50
4.01–4.40	4.01–4.40	3.76–3.98	B 6.25
4.41–4.88	4.41–4.88	3.99–4.48	B 6.90
4.89–5.19	4.89–5.19	4.49–4.93	B 7.70
5.20–5.73	5.20–5.73	4.94–5.21	B 8.20
5.74–6.39	5.74–6.39	5.22–5.84	B 9.10
6.40–7.13	6.40–7.13	5.85–6.67	B 10.2
7.14–7.90	7.14–7.90	6.68–7.54	B 11.5
7.91–8.55	7.91–8.55	7.55–8.14	B 12.8
8.56–9.53	8.56–9.53	8.15–8.72	B 14.0
9.54–10.6	9.54–10.6	8.73–9.66	B 15.5
10.7–11.8	10.7–11.8	9.67–10.5	B 17.5
11.9–13.2	11.9–12.0	10.6–11.3	B 19.5
13.3–14.9	—	11.4–12.0	B 22.0
15.0–16.6	—	—	B 25.0
16.7–18.0	—	—	B 28.0
Following Selections for Size 1 Only			
—	11.9–13.2	—	B 19.5
—	13.3–14.9	11.4–12.7	B 22.0
—	15.0–16.6	12.8–14.1	B 25.0
16.7–18.9	16.7–18.9	14.2–15.9	B 28.0
19.0–21.2	19.0–21.2	16.0–17.5	B 32.0
21.3–23.0	21.3–23.0	17.6–19.7	B 36.0
23.1–25.5	23.1–25.5	19.8–21.9	B 40.0
25.6–26.0	25.6–26.0	22.0–24.4	B 45.0
—	—	24.5–26.0	B 50.0

Table 14

Motor FLC (A)			Thermal Unit Number
1.T.U.	2 T.U.	3 T.U.	
0.43–0.47	0.41–0.45	0.40–0.41	A .49
0.48–0.51	0.46–0.50	0.42–0.46	A .54
0.52–0.56	0.51–0.55	0.47–0.51	A .59
0.57–0.64	0.56–0.62	0.52–0.57	A .65
0.65–0.69	0.63–0.67	0.58–0.62	A .71
0.70–0.76	0.68–0.72	0.63–0.67	A .78
0.77–0.84	0.73–0.81	0.68–0.75	A .86
0.85–0.91	0.82–0.88	0.76–0.80	A .95
0.92–1.01	0.89–0.97	0.81–0.89	A 1.02
1.02–1.15	0.98–1.08	0.90–1.02	A 1.16
1.16–1.23	1.09–1.18	1.03–1.09	A 1.25
1.24–1.37	1.19–1.32	1.10–1.21	A 1.39
1.38–1.45	1.33–1.40	1.22–1.29	A 1.54
1.46–1.56	1.41–1.48	1.30–1.37	A 1.63
1.57–1.67	1.49–1.60	1.38–1.48	A 1.75
1.68–1.77	1.61–1.72	1.49–1.58	A 1.86
1.78–1.92	1.73–1.84	1.59–1.72	A 1.99
1.93–2.09	1.85–2.00	1.73–1.85	A 2.15
2.10–2.31	2.01–2.22	1.86–2.05	A 2.31
2.32–2.56	2.23–2.45	2.06–2.29	A 2.57
2.57–2.92	2.46–2.82	2.30–2.62	A 2.81
2.93–3.16	2.83–3.08	2.63–2.84	A 3.61
3.17–3.48	3.09–3.39	2.85–3.10	A 3.95
3.49–3.83	3.40–3.75	3.11–3.46	A 4.32
3.84–4.24	3.76–4.16	3.47–3.85	A 4.79
4.25–4.62	4.17–4.51	3.86–4.16	A 5.30
4.63–4.92	4.52–4.83	4.17–4.46	A 5.78
4.93–5.61	4.84–5.49	4.47–5.08	A 6.20
5.62–5.85	5.50–5.67	5.09–5.35	A 6.99
5.86–6.36	5.68–6.16	5.36–5.82	A 7.65
6.37–6.99	6.17–6.75	5.83–6.34	A 8.38
7.00–7.67	6.76–7.00	6.35–6.95	A 9.25
7.68–8.15	—	6.96–7.00	A 9.85
8.16–9.00	—	—	A 11.0

Table 15

Motor FLC (A)			Thermal Unit Number
1.T.U.	2 T.U.	3 T.U.	
0.31–0.33	0.31–0.33	0.29–0.31	B 0.44
0.34–0.36	0.34–0.36	0.32–0.36	B 0.51
0.37–0.40	0.37–0.40	0.37–0.38	B 0.57
0.41–0.48	0.41–0.48	0.39–0.46	B 0.63
0.49–0.57	0.49–0.57	0.47–0.55	B 0.71
0.58–0.64	0.58–0.64	0.56–0.61	B 0.81
0.65–0.70	0.65–0.70	0.62–0.66	B 0.92
0.71–0.77	0.71–0.77	0.67–0.75	B 1.03
0.78–0.85	0.78–0.85	0.76–0.83	B 1.16
0.86–0.99	0.86–0.99	0.84–0.93	B 1.30
1.00–1.10	1.00–1.10	0.94–1.06	B 1.45
1.11–1.28	1.11–1.28	1.07–1.18	B 1.67
1.29–1.41	1.29–1.41	1.19–1.31	B 1.88
1.42–1.58	1.42–1.58	1.32–1.47	B 2.10
1.59–1.80	1.59–1.80	1.48–1.67	B 2.40
1.81–2.03	1.81–2.03	1.68–1.83	B 2.65
2.04–2.25	2.04–2.25	1.84–2.04	B 3.00
2.26–2.51	2.26–2.51	2.05–2.38	B 3.30
2.52–2.83	2.52–2.83	2.39–2.60	B 3.70
2.84–3.29	2.84–3.29	2.61–3.13	B 4.15
3.30–3.75	3.30–3.75	3.14–3.59	B 4.85
3.76–4.22	3.76–4.22	3.60–3.94	B 5.50
4.23–4.65	4.23–4.65	3.95–4.19	B 6.25
4.66–5.16	4.66–5.16	4.20–4.72	B 6.90
5.17–5.53	5.17–5.53	4.73–5.21	B 7.70
5.54–6.09	5.54–6.09	5.22–5.51	B 8.20
6.10–6.80	6.10–6.80	5.52–6.17	B 9.10
6.81–7.60	6.81–7.60	6.18–7.07	B 10.2
7.61–8.35	7.61–8.35	7.08–8.05	B 11.5
8.36–9.04	8.36–9.04	8.06–8.69	B 12.8
9.05–9.99	9.05–9.99	8.70–9.32	B 14.0
10.0–11.1	10.0–11.1	9.33–10.2	B 15.5
11.2–12.3	11.2–12.0	10.3–11.3	B 17.5
12.4–13.7	—	11.4–12.0	B 19.5
13.8–15.4	—	—	B 22.0
15.5–18.0	—	—	B 25.0
Following Selections for Size 1 Only			
—	11.2–12.3	—	B 17.5
—	12.4–13.7	11.4–12.1	B 19.5
—	13.8–15.4	12.2–13.7	B 22.0
15.5–17.2	15.5–17.2	13.8–15.2	B 25.0
17.3–19.4	17.3–19.4	15.3–17.2	B 28.0
19.5–21.7	19.5–21.7	17.3–18.9	B 32.0
21.8–23.9	21.8–23.9	19.0–21.4	B 36.0
24.0–26.0	24.0–26.0	21.5–23.7	B 40.0
—	—	23.8–26.0	B 45.0

Table 16

Motor FLC (A)			Thermal Unit Number
1.T.U.	2 T.U.	3 T.U.	
16.2–17.5	15.1–16.2	14.3–15.4	CC 20.9
17.6–18.8	16.3–17.3	15.5–16.4	CC 22.8
18.9–20.5	17.4–19.5	16.5–18.5	CC 24.6
20.6–22.2	19.6–20.7	18.6–19.6	CC 26.3
22.3–23.7	20.8–22.3	19.7–21.1	CC 28.8
23.8–25.4	22.4–24.0	21.2–22.7	CC 31.0
25.5–27.3	24.1–25.7	22.8–24.4	CC 33.3
27.4–29.3	25.8–27.5	24.5–26.1	CC 36.4
29.4–31.5	27.6–29.6	26.2–28.1	CC 39.6
31.6–33.9	29.7–31.7	28.2–30.0	CC 42.7
34.0–36.2	31.8–33.9	30.1–32.1	CC 46.6
36.3–39.3	34.0–36.6	32.2–34.7	CC 50.1
39.4–42.3	36.7–39.3	34.8–37.3	CC 54.5
42.4–45.3	39.4–42.3	37.4–40.1	CC 59.4
45.4–48.3	42.4–44.9	40.2–42.6	CC 64.3
48.4–52.0	45.0–48.3	42.7–45.8	CC 68.5
52.1–54.9	48.4–50.9	45.9–48.3	CC 74.6
55.0–59.7	51.0–55.5	48.4–52.6	CC 81.5
59.8–65.4	55.6–59.9	52.7–56.8	CC 87.7
65.5–69.6	60.0–64.2	56.9–60.9	CC 94.0
69.7–74.8	64.3–68.7	61.0–65.1	CC 103.0
74.9–79.7	68.8–71.4	65.2–67.7	CC 112.0
79.8–83.1	71.5–74.8	67.8–70.9	CC 121.0
83.2–86.0	74.9–78.0	71.0–73.9	CC 132.0
—	78.1–80.7	74.0–76.5	CC 143.0
—	80.8–86.0	76.6–80.2	CC 156.0
—	—	80.3–83.1	CC 167.0
—	—	83.2–86.0	CC 180.0

Table 17

Motor FLC (A)			Thermal Unit Number
1.T.U.	2 T.U.	3 T.U.	
0.42–0.46	0.39–0.43	0.38–0.40	A .49
0.47–0.50	0.44–0.47	0.41–0.44	A .54
0.51–0.55	0.48–0.52	0.45–0.49	A .59
0.56–0.62	0.53–0.58	0.50–0.55	A .65
0.63–0.67	0.59–0.64	0.56–0.60	A .71
0.68–0.73	0.65–0.68	0.61–0.65	A .78
0.74–0.81	0.69–0.77	0.66–0.72	A .86
0.82–0.89	0.78–0.84	0.73–0.79	A .95
0.90–0.98	0.85–0.93	0.80–0.88	A 1.02
0.99–1.12	0.94–1.05	0.89–0.98	A 1.16
1.13–1.20	1.06–1.13	0.99–1.07	A 1.25
1.21–1.34	1.14–1.25	1.08–1.17	A 1.39
1.35–1.41	1.26–1.33	1.18–1.25	A 1.54
1.42–1.51	1.34–1.42	1.26–1.33	A 1.63
1.52–1.62	1.43–1.52	1.34–1.44	A 1.75
1.63–1.73	1.53–1.63	1.45–1.53	A 1.86
1.74–1.86	1.64–1.75	1.54–1.65	A 1.99
1.87–2.02	1.76–1.90	1.66–1.79	A 2.15
2.03–2.25	1.91–2.13	1.80–1.99	A 2.31
2.26–2.46	2.14–2.33	2.00–2.18	A 2.57
2.47–2.77	2.34–2.73	2.19–2.45	A 2.81
2.78–2.99	2.74–2.86	2.46–2.65	A 3.61
3.00–3.26	2.87–3.14	2.66–2.90	A 3.95
3.27–3.59	3.15–3.47	2.91–3.19	A 4.32
3.60–3.99	3.48–3.83	3.20–3.56	A 4.79
4.00–4.42	3.84–4.16	3.57–3.83	A 5.30
4.43–4.61	4.17–4.43	3.84–4.08	A 5.78
4.62–5.23	4.44–5.00	4.09–4.64	A 6.20
5.24–5.39	5.01–5.16	4.65–5.00	A 6.99
5.40–5.88	5.17–5.56	5.01–5.36	A 7.65
5.89–6.56	5.57–6.22	5.37–5.87	A 8.38
6.57–7.18	6.23–6.89	5.88–6.43	A 9.25
7.19–7.80	6.90–7.00	6.44–6.79	A 9.85
7.81–9.00	—	6.80–7.00	A 11.0

Table 18

Motor FLC (A)			Thermal Unit Number
1.T.U.	2 T.U.	3 T.U.	
15.5–16.4	14.4–15.3	13.6–14.5	CC 20.9
16.5–17.6	15.4–16.4	14.6–15.5	CC 22.8
17.7–19.1	16.5–18.4	15.6–17.4	CC 24.6
19.2–20.4	18.5–19.6	17.5–18.5	CC 26.3
20.5–22.1	19.7–21.0	18.6–19.9	CC 28.8
22.2–23.4	21.1–22.7	20.0–21.5	CC 31.0
23.5–25.6	22.8–24.2	21.6–22.9	CC 33.3
25.7–27.3	24.3–25.9	23.0–24.5	CC 36.4
27.4–29.4	26.0–27.8	24.6–26.3	CC 39.6
29.5–31.5	27.9–29.8	26.4–28.2	CC 42.7
31.6–33.7	29.9–31.7	28.3–30.0	CC 46.6
33.8–36.5	31.8–34.2	30.1–32.3	CC 50.1
36.6–39.1	34.3–36.9	32.4–34.9	CC 54.5
39.2–41.7	37.0–39.8	35.0–37.6	CC 59.4
41.8–44.8	39.9–42.3	37.7–40.0	CC 64.3
44.9–48.0	42.4–45.3	40.1–42.8	CC 68.5
48.1–50.7	45.4–47.9	42.9–45.3	CC 74.6
50.8–54.9	48.0–51.9	45.4–49.1	CC 81.5
55.0–59.9	52.0–56.5	49.2–53.4	CC 87.7
60.0–63.3	56.6–60.7	53.5–57.4	CC 94.0
63.4–67.2	60.8–64.8	57.5–61.3	CC 103.0
67.3–72.4	64.9–67.1	61.4–63.5	CC 112.0
72.5–74.9	67.2–70.1	63.6–66.3	CC 121.0
75.0–77.4	70.2–72.9	66.4–69.0	CC 132.0
77.5–80.7	73.0–74.9	69.1–70.9	CC 143.0
80.8–83.1	75.0–77.9	71.0–73.7	CC 156.0
83.2–86.0	78.0–80.9	73.8–76.5	CC 167.0
—	81.0–82.9	76.6–78.4	CC 180.0
—	83.0–86.0	78.5–86.0	CC 196.0

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Table 19

Motor FLC (A)	Thermal Unit Number
43.6–47.3	CC 54.5
47.4–51.3	CC 59.4
51.4–54.6	CC 64.3
54.7–59.7	CC 68.5
59.8–65.1	CC 74.6
65.2–70.1	CC 81.5
70.2–75.1	CC 87.7
75.2–82.2	CC 94.0
82.3–89.2	CC 103.0
89.3–96.5	CC 112.0
96.6–104.	CC 121.0
105.–113.	CC 132.0
114.–123.	CC 143.0
124.–133.	CC 156.0

Table 20

Motor FLC (A)	Thermal Unit Number
133.–148.	B 1.30
149.–174.	B 1.45
175.–195.	B 1.67
196.–219.	B 1.88
220.–239.	B 2.10
240.–271.	B 2.40
272.–308.	B 2.65
309.–348.	B 3.00
349.–397.	B 3.30
398.–429.	B 3.70
430.–495.	B 4.15
496.–520.	B 4.85

Table 21

Motor FLC (A)	Thermal Unit Load
128.–140.	B 1.30
141.–163.	B 1.45
164.–179.	B 1.67
180.–201.	B 1.88
202.–227.	B 2.10
228.–251.	B 2.40
252.–278.	B 2.65
279.–308.	B 3.00
309.–346.	B 3.30
347.–380.	B 3.70
381.–426.	B 4.15
427.–454.	B 4.85
455.–489.	B 5.50
490.–520.	B 6.25

Table 22

Motor FLC (A)	Thermal Unit Number
92.0–100.	DD 112.0
101.–109.	DD 121.0
110.–119.	DD 128.0
120.–131.	DD 140.0
132.–139.	DD 150.0
140.–156.	DD 160.0
157.–166.	DD 185.0
167.–180.	DD 213.0
181.–189.	DD 220.0
190.–209.	DD 230.0
210.–225.	DD 250.0
226.–238.	DD 265.0
239.–266.	DD 280.0

Table 23

Motor FLC (A) 2 or 3 T.U.		Thermal Unit Number
Large Enclosure	Small Enclosure	
0.31–0.32	0.29–0.30	AR .45
0.33–0.36	0.31–0.33	AR .49
0.37–0.39	0.34–0.37	AR .54
0.40–0.43	0.38–0.41	AR .59
0.44–0.47	0.42–0.45	AR .65
0.48–0.52	0.46–0.50	AR .71
0.53–0.58	0.51–0.55	AR .78
0.59–0.60	0.56–0.57	AR .86
0.61–0.62	0.58–0.60	AR .95
0.63–0.69	0.61–0.66	AR 1.05
0.70–0.76	0.67–0.73	AR 1.15
0.77–0.84	0.74–0.81	AR 1.26
0.85–0.93	0.82–0.90	AR 1.39
0.94–1.03	0.91–0.99	AR 1.53
1.04–1.23	1.00–1.18	AR 1.68
1.24–1.35	1.19–1.30	AR 1.85
1.36–1.47	1.31–1.42	AR 2.04
1.48–1.61	1.43–1.49	AR 2.24
1.62–1.76	1.50–1.69	AR 2.46
1.77–1.93	1.70–1.85	AR 2.71
1.94–2.12	1.86–2.03	AR 2.98
2.13–2.35	2.04–2.25	AR 3.28
2.36–2.61	2.26–2.50	AR 3.62
2.62–2.79	2.51–2.68	AR 3.98
2.80–3.14	2.69–3.01	AR 4.37
3.15–3.48	3.02–3.35	AR 4.80
3.49–3.89	3.36–3.74	AR 5.3
3.90–4.30	3.75–4.14	AR 5.8
4.31–4.73	4.15–4.57	AR 6.4
4.74–5.20	4.58–5.03	AR 7.0
5.21–5.95	5.04–5.76	AR 7.7
5.96–6.49	5.77–6.29	AR 8.5
6.50–7.08	6.30–6.87	AR 9.3
7.09–7.77	6.88–7.54	AR 10.2
7.78–8.48	7.55–8.25	AR 11.2
8.49–9.15	8.26–8.60	AR 12.4
9.16–10.3	8.61–9.63	AR 13.6
10.4–11.9	9.64–11.1	AR 15.4
12.0–13.4	11.2–12.5	AR 17.6
13.5–15.4	12.6–14.3	AR 20.5
15.5–17.5	14.4–16.1	AR 23.0
17.6–19.8	16.2–18.2	AR 27.0
19.9–22.5	18.3–20.6	AR 30.0
22.6–26.0	20.7–23.4	AR 35.0
—	23.5–26.0	AR 40.0

Table 24

Motor FLC (A)	Thermal Unit Number
88.2–95.1	DD 112.0
95.2–101.	DD 121.0
102.–111.	DD 128.0
112.–119.	DD 140.0
120.–131.	DD 150.0
132.–149.	DD 160.0
150.–170.	DD 185.0
171.–180.	DD 220.0
181.–197.	DD 240.0
198.–204.	DD 250.0
205.–213.	DD 265.0
214.–237.	DD 280.0
238.–243.	DD 300.0
244.–266.	DD 320.0

Table 25

Motor FLC (A)	Thermal Unit Number
0.28–0.30	AR .45
0.31–0.33	AR .49
0.34–0.36	AR .54
0.37–0.39	AR .59
0.40–0.42	AR .65
0.43–0.46	AR .71
0.47–0.50	AR .78
0.51–0.52	AR .86
0.53–0.56	AR .95
0.57–0.60	AR 1.05
0.61–0.66	AR 1.15
0.67–0.73	AR 1.26
0.74–0.81	AR 1.39
0.82–0.90	AR 1.53
0.91–1.05	AR 1.68
1.06–1.15	AR 1.85
1.16–1.25	AR 2.04
1.26–1.35	AR 2.24
1.36–1.47	AR 2.46
1.48–1.58	AR 2.71
1.59–1.74	AR 2.98
1.75–1.94	AR 3.28
1.95–2.20	AR 3.62
2.21–2.47	AR 3.98
2.48–2.76	AR 4.37
2.77–3.07	AR 4.80
3.08–3.45	AR 5.3
3.46–3.81	AR 5.8
3.82–4.20	AR 6.4
4.21–4.65	AR 7.0
4.66–5.29	AR 7.7
5.30–5.84	AR 8.5
5.85–6.27	AR 9.3
6.28–7.00	AR 10.2

Table 26

Size 7 Type J	Size 8 Type K	Thermal Unit Number
Current Transformer Ratio		
120/5	2000/5	
Motor FLC		
166.–187.	277.–312.	B 1.03
188.–211.	313.–352.	B 1.16
212.–232.	353.–388.	B 1.30
233.–267.	389.–445.	B 1.45
268.–301.	446.–503.	B 1.67
302.–336.	504.–561.	B 1.88
337.–383.	562.–640.	B 2.10
384.–425.	641.–708.	B 2.40
426.–466.	709.–777.	B 2.65
467.–522.	778.–870.	B 3.00
523.–587.	871.–978.	B 3.30
588.–656.	979.–1093.	B 3.70
657.–764.	1094.–1215.	B 4.15

Table 27

Motor FLC (A)		Thermal Unit Number
2 or 3 T.U.		
Large Enclosure	Small Enclosure	
4.32–4.93	4.14–4.71	AR 8.5
4.94–5.40	4.72–5.18	AR 9.3
5.41–5.95	5.19–5.74	AR 10.2
5.96–6.13	5.75–5.98	AR 11.2
6.14–6.81	5.99–6.47	AR 12.4
6.82–7.84	6.48–7.42	AR 13.6
7.85–8.97	7.43–8.46	AR 15.4
8.98–10.1	8.47–9.56	AR 17.6
10.2–11.6	9.57–10.9	AR 20.5
11.7–13.2	11.0–12.3	AR 23.0
13.3–15.0	12.4–14.0	AR 27.0
15.1–17.1	14.1–15.9	AR 30.0
17.2–19.6	16.0–18.1	AR 35.0
19.7–21.9	18.2–20.3	AR 40.0
22.0–23.8	20.4–22.0	AR 44.0
23.9–25.6	22.1–23.6	AR 47.0
25.7–27.9	23.7–25.5	AR 51.0
28.0–30.5	25.6–27.8	AR 55.0
30.6–33.0	27.9–30.0	AR 60.0
33.1–35.7	30.1–32.4	AR 66.0
35.8–39.5	32.5–35.7	AR 72.0
39.6–41.5	35.8–38.3	AR 79.0
41.6–45.0	38.4–40.9	AR 86.0
—	41.0–45.0	AR 94.0

Table 28

Motor FLC (A) 2 or 3 T.U.		Thermal Unit Number
Large Enclosure	Small Enclosure	
45.3–48.2	40.3–42.8	CC 64.3
48.3–52.4	42.9–46.2	CC 68.5
52.5–56.4	46.3–49.8	CC 74.6
56.5–61.2	49.9–54.9	CC 81.5
61.3–66.1	55.0–57.9	CC 87.7
66.2–71.4	58.0–62.5	CC 94.0
71.5–77.0	62.6–67.3	CC 103.0
77.1–80.7	67.4–73.4	CC 112.0
80.8–87.7	73.5–78.9	CC 121.0
87.8–94.9	79.0–84.9	CC 132.0
95.0–102.	85.0–91.0	CC 143.0
103.–110.	91.1–97.2	CC 156.0
111.–117.	97.3–104.	CC 167.0
118.–133.	105.–121.	CC 180.0
—	122.–133.	CC 196.0

Table 29

Motor FLC (A)	Thermal Unit Number
50.0–55.9	E 88
56.0–60.9	E 89
61.0–65.9	E 91
66.0–69.9	E 92
70.0–75.9	E 93
76.0–81.9	E 94
82.0–86.9	E 96
87.0–92.9	E 97
93.0–97.9	E 98
98.0–107.9	E 99
108.0–113.9	E 101
114.0–125.9	E 102

Table 30

Motor FLC (A)		Thermal Unit Number
Large Enclosure	Small Enclosure	
39.0–42.9	37.0–40.8	AU 44.0
43.0–48.0	40.9–45.6	AU 50.0
48.1–54.7	45.7–51.8	AU 56.0
54.8–62.2	51.9–58.8	AU 64.0
62.3–71.3	58.9–67.4	AU 72.0
71.4–76.0	67.5–70.4	AU 81.0
76.1–85.5	70.5–79.4	AU 88.0
85.6–92.4	79.5–86.3	AU 99.0
92.5–103.	86.4–96.7	AU 110.0
104.–111.	96.8–105.	AU 123.0
112.–123.	106.–117.	AU 135.0
124.–133.	118.–133.	AU 152.0

Table 31

Motor FLC (A)	Thermal Unit Number
0.31–0.35	B 0.44
0.36–0.39	B 0.51
0.40–0.44	B 0.57
0.45–0.50	B 0.63
0.51–0.61	B 0.71
0.62–0.68	B 0.81
0.69–0.73	B 0.92
0.74–0.82	B 1.03
0.83–0.92	B 1.16
0.93–1.03	B 1.30
1.04–1.19	B 1.45
1.20–1.34	B 1.67
1.35–1.50	B 1.88
1.51–1.74	B 2.10
1.75–1.97	B 2.40
1.98–2.14	B 2.65
2.15–2.47	B 3.00
2.48–2.91	B 3.30
2.92–3.31	B 3.70
3.32–3.75	B 4.15
3.76–4.05	B 4.85
4.06–4.94	B 6.25
4.95–5.52	B 6.90
5.53–6.11	B 7.70
6.12–6.52	B 8.20
6.53–7.31	B 9.10
7.32–8.43	B 10.2
8.44–9.83	B 11.5
9.84–10.7	B 12.8
10.8–11.6	B 14.0
11.7–12.9	B 15.5
13.0–14.3	B 17.5
14.4–15.7	B 19.5
15.8–17.8	B 22.0
17.9–20.3	B 25.0
20.4–23.3	B 28.0
23.4–26.6	B 32.0
26.7–30.3	B 36.0
30.4–35.3	B 40.0
35.4–41.5	B 45.0
41.6–45	B 50.0

Table 32

Motor FLC (A)	Thermal Unit Number
0.33–0.35	AR .45
0.36–0.39	AR .49
0.40–0.42	AR .54
0.43–0.46	AR .59
0.47–0.51	AR .65
0.52–0.56	AR .71
0.57–0.62	AR .78
0.63–0.68	AR .86
0.69–0.75	AR .95
0.76–0.83	AR 1.05
0.84–0.91	AR 1.15
0.92–1.00	AR 1.26
1.01–1.10	AR 1.39
1.11–1.21	AR 1.53
1.22–1.33	AR 1.68
1.34–1.47	AR 1.85
1.48–1.62	AR 2.04
1.63–1.77	AR 2.24
1.78–1.96	AR 2.46
1.97–2.16	AR 2.71
2.17–2.37	AR 2.98
2.38–2.62	AR 3.28
2.63–2.88	AR 3.62
2.89–3.17	AR 3.98
3.18–3.48	AR 4.37
3.49–3.83	AR 4.80
3.84–4.20	AR 5.3
4.21–4.62	AR 5.8
4.63–5.08	AR 6.4
5.09–5.57	AR 7.0
5.58–6.13	AR 7.7
6.14–6.83	AR 8.5
6.84–7.41	AR 9.3
7.42–8.05	AR 10.2
8.06–8.98	AR 11.2
8.99–9.93	AR 12.4
9.94–10.9	AR 13.6
11.0–12.4	AR 15.4
12.5–14.3	AR 17.6
14.4–15.8	AR 20.5
15.9–17.9	AR 23.0
18.0–20.0	AR 27.0
20.1–22.4	AR 30.0
22.5–25.0	AR 35.0

Table 33

Motor FLC (A)	Thermal Unit Number
0.28–0.30	AR .45
0.31–0.33	AR .49
0.34–0.36	AR .54
0.37–0.39	AR .59
0.40–0.42	AR .65
0.43–0.46	AR .71
0.47–0.50	AR .78
0.51–0.52	AR .86
0.53–0.56	AR .95
0.57–0.60	AR 1.05
0.61–0.66	AR 1.15
0.67–0.73	AR 1.26
0.74–0.81	AR 1.39
0.82–0.90	AR 1.53
0.91–1.05	AR 1.68
1.06–1.15	AR 1.85
1.16–1.25	AR 2.04
1.26–1.35	AR 2.24
1.36–1.47	AR 2.46
1.48–1.58	AR 2.71
1.59–1.74	AR 2.98
1.75–1.94	AR 3.28
1.95–2.20	AR 3.62
2.21–2.47	AR 3.98
2.48–2.76	AR 4.37
2.77–3.07	AR 4.80
3.08–3.45	AR 5.3
3.46–3.81	AR 5.8
3.82–4.20	AR 6.4
4.21–4.65	AR 7.0
4.66–5.29	AR 7.7
5.30–5.84	AR 8.5
5.85–6.27	AR 9.3
6.28–6.97	AR 10.2
6.98–7.59	AR 11.2
7.60–7.89	AR 12.4
7.90–8.95	AR 13.6
8.96–10.3	AR 15.4
10.4–11.7	AR 17.6
11.8–12.0	AR 20.5
Following Selections for Size 1 Only	
11.8–13.3	AR 20.5
13.4–15.2	AR 23.0
15.3–17.2	AR 27.0
17.3–19.7	AR 30.0
19.8–22.4	AR 35.0
22.5–26.0	AR 40.0

Table 34

Motor FLC (A)	Thermal Unit Number
15.1–16.2	CC 20.9
16.3–17.5	CC 22.8
17.6–19.1	CC 24.6
19.2–20.7	CC 26.3
20.8–22.2	CC 28.8
22.3–24.0	CC 31.0
24.1–25.7	CC 33.3
25.8–27.8	CC 36.4
27.9–30.1	CC 39.6
30.2–32.5	CC 42.7
32.6–35.1	CC 46.6
35.2–38.0	CC 50.1
38.1–41.1	CC 54.5
41.2–44.0	CC 59.4
44.1–47.2	CC 64.3
47.3–51.1	CC 68.5
51.2–55.8	CC 74.6
55.9–59.5	CC 81.5
59.6–64.5	CC 87.7
64.6–69.5	CC 94.0
69.6–75.0	CC 103.0
75.1–78.1	CC 112.0
78.2–82.3	CC 121.0
82.4–86.0	CC 132.0

Table 35

Motor FLC (A)		Thermal Unit Number
2 T.U.	3 T.U.	
36.3–39.9	34.7–37.1	AU 44.0
40.0–44.1	37.2–41.5	AU 50.0
44.2–50.0	41.6–47.1	AU 56.0
50.1–56.4	47.2–53.4	AU 64.0
56.5–64.4	53.5–60.7	AU 72.0
64.5–68.4	60.8–64.9	AU 81.0
68.5–77.7	65.0–73.4	AU 88.0
77.8–84.2	73.5–79.5	AU 99.0
84.3–94.8	79.6–89.0	AU 110.0
94.9–101.	89.1–96.9	AU 123.0
102.–115.	97.0–108.	AU 135.0
116.–122.	109.–115.	AU 152.0
123.–133.	116.–120.	AU 169.0
—	121.–133.	AU 183.0

Table 36

Motor FLC (A)	Thermal Unit Number
90.6–97.4	AF 110.0
97.5–111.	AF 123.0
112.–129.	AF 135.0
130.–149.	AF 150.0
150.–163.	AF 159.0
164.–189.	AF 168.0
190.–213.	AF 188.0
214.–240.	AF 205.0
241.–266.	AF 220.0

Table 37

Motor FLC (A)	Thermal Unit Number
27.1–30.0	E 67
30.1–33.2	E 69
33.3–35.7	E 70
35.8–39.4	E 71
39.5–43.4	E 72
43.5–46.9	E 73
47.0–51.5	E 74
51.6–57.0	E 76
57.1–62.8	E 77
62.9–69.1	E 78
69.2–75.0	E 79
75.1–83.3	E 80

Table 38

Motor FLC (A)	Thermal Unit Number
85.0–95.9	AF 123.0
96.0–108.	AF 135.0
109.–127.	AF 150.0
128.–136.	AF 159.0
137.–147.	AF 168.0
148.–162.	AF 188.0
163.–185.	AF 205.0
186.–202.	AF 220.0
203.–219.	AF 240.0
220.–233.	AF 260.0
234.–266.	AF 308.0

Table 39

Motor FLC (A)	Thermal Unit Number
148.–173.	AR 1.68
174.–189.	AR 1.85
190.–205.	AR 2.04
206.–222.	AR 2.24
223.–243.	AR 2.46
244.–261.	AR 2.71
262.–289.	AR 2.98
290.–324.	AR 3.28
325.–367.	AR 3.62
368.–389.	AR 3.98
390.–404.	AR 4.37
405.–451.	AR 4.80
452.–495.	AR 5.3
496.–520.	AR 5.8

Table 40

Motor FLC (A)	Thermal Unit Number
15.3–16.7	C 20.0
16.8–19.8	C 22.0
19.9–22.8	C 26.0
22.9–25.8	C 30.0
25.9–30.4	C 34.0
30.5–31.9	C 40.0
32.0–34.2	C 42.0
34.3–38.8	C 45.0
38.9–44.2	C 51.0
44.3–50.2	C 58.0
50.3–57.1	C 66.0
57.2–63.2	C 75.0
63.3–68.6	C 83.0
68.7–78.6	C 90.0
78.7–86.0	C 103.0

Table 41

Motor FLC (A)	Thermal Unit Number
0.81–0.92	B 1.16
0.93–1.07	B 1.30
1.08–1.14	B 1.45
1.15–1.26	B 1.67
1.27–1.49	B 1.88
1.50–1.73	B 2.10
1.74–1.89	B 2.40
1.90–2.16	B 2.65
2.17–2.37	B 3.00
2.38–2.66	B 3.30
2.67–2.99	B 3.70
3.00–3.40	B 4.15
3.41–3.94	B 4.85
3.95–4.15	B 5.50
4.16–4.49	B 6.25
4.50–5.15	B 6.90
5.16–5.77	B 7.70
5.78–6.61	B 8.20
6.62–7.14	B 9.10
7.15–7.97	B 10.2
7.98–8.15	B 11.5
8.16–9.32	B 12.8
9.33–9.97	B 14.0
9.98–10.7	B 15.5
10.8–12.0	B 17.5
12.1–13.9	B 19.5
14.0–15.7	B 22.0
15.8–18.4	B 25.0
18.5–21.6	B 28.0
21.7–24.0	B 32.0
24.1–28.6	B 36.0
28.7–30.7	B 40.0
30.8–33.5	B 45.0
33.6–36.0	B 50.0

Table 42

Motor FLC (A)	Thermal Unit Number
0.28–0.30	AR .45
0.31–0.33	AR .49
0.34–0.36	AR .54
0.37–0.39	AR .59
0.40–0.42	AR .65
0.43–0.46	AR .71
0.47–0.50	AR .78
0.51–0.52	AR .86
0.53–0.56	AR .95
0.57–0.60	AR 1.05
0.61–0.66	AR 1.15
0.67–0.73	AR 1.26
0.74–0.81	AR 1.39
0.82–0.90	AR 1.53
0.91–1.05	AR 1.68
1.06–1.15	AR 1.85
1.16–1.25	AR 2.04
1.26–1.35	AR 2.24
1.36–1.47	AR 2.46
1.48–1.58	AR 2.71
1.59–1.74	AR 2.98
1.75–1.94	AR 3.28
1.95–2.20	AR 3.62
2.21–2.47	AR 3.98
2.48–2.76	AR 4.37
2.77–3.07	AR 4.80
3.08–3.45	AR 5.3
3.46–3.81	AR 5.8
3.82–4.20	AR 6.4
4.21–4.65	AR 7.0
4.66–5.29	AR 7.7
5.30–5.84	AR 8.5
5.85–6.27	AR 9.3
6.28–6.97	AR 10.2
6.98–7.59	AR 11.2
7.60–7.89	AR 12.4
7.90–8.95	AR 13.6
8.96–10.3	AR 15.4
10.4–11.7	AR 17.6
11.8–13.3	AR 20.5
13.4–15.2	AR 23.0
15.3–17.2	AR 27.0
17.3–19.7	AR 30.0
19.8–22.4	AR 35.0
22.5–26.0	AR 40.0

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Table 43

Motor FLC (A)	Thermal Unit Number
0.41–0.44	A .49
0.45–0.49	A .54
0.50–0.53	A .59
0.54–0.58	A .65
0.59–0.65	A .71
0.66–0.71	A .78
0.72–0.78	A .86
0.79–0.85	A .95
0.86–0.96	A 1.02
0.97–1.04	A 1.16
1.05–1.16	A 1.25
1.17–1.29	A 1.39
1.30–1.37	A 1.54
1.38–1.47	A 1.63
1.48–1.56	A 1.75
1.57–1.65	A 1.86
1.66–1.79	A 1.99
1.80–1.95	A 2.15
1.96–2.15	A 2.31
2.16–2.38	A 2.57
2.39–2.75	A 2.81
2.76–2.84	A 3.61
2.85–3.06	A 3.95
3.07–3.45	A 4.32
3.46–3.70	A 4.79
3.71–4.07	A 5.30
4.08–4.32	A 5.78
4.33–4.90	A 6.20
4.91–5.35	A 6.99
5.36–5.85	A 7.65
5.86–6.41	A 8.38
6.42–6.79	A 9.25
6.80–7.57	A 9.85
7.58–8.15	A 11.0
8.16–8.98	A 11.9
8.99–9.67	A 13.2
9.68–9.95	A 14.1
9.96–10.8	A 14.8
10.9–12.1	A 16.2
12.2–13.1	A 17.9
13.2–13.9	A 19.8
14.0–15.0	A 21.3
15.1–16.0	A 25.2

Table 44

Motor FLC (A)	Thermal Unit Number
0.34–0.38	B 0.44
0.39–0.43	B 0.51
0.44–0.48	B 0.57
0.49–0.53	B 0.65
0.54–0.62	B 0.71
0.63–0.69	B 0.81
0.70–0.78	B 0.92
0.79–0.88	B 1.03
0.89–0.99	B 1.16
1.00–1.10	B 1.30
1.11–1.26	B 1.45
1.27–1.43	B 1.67
1.44–1.59	B 1.88
1.60–1.81	B 2.10
1.82–2.00	B 2.40
2.01–2.28	B 2.65
2.29–2.52	B 3.00
2.53–2.87	B 3.30
2.88–3.28	B 3.70
3.29–3.75	B 4.15
3.76–4.27	B 4.85
4.28–4.77	B 5.50
4.78–5.27	B 6.25
5.28–5.91	B 6.90
5.92–6.25	B 7.70
6.26–6.83	B 8.20
6.84–7.65	B 9.10
7.66–8.55	B 10.2
8.56–9.56	B 11.5
9.57–10.3	B 12.8
10.4–11.3	B 14.0
11.4–12.4	B 15.5
12.5–14.1	B 17.5
14.2–15.7	B 19.5
15.8–17.9	B 22.0
18.0–20.1	B 25.0
20.2–22.5	B 28.0
22.6–25.0	B 32.0

Table 45

Size 7 Type J	Size 8 Type K	Thermal Unit Number
Current Transformer Ratio		
1200/5	2000/5	
Motor FLC (A)		
Non-Compensated		
136.–150.	227.–251.	AR 1.05
151.–165.	252.–276.	AR 1.15
166.–183.	277.–305.	AR 1.26
184.–202.	306.–337.	AR 1.39
203.–224.	338.–373.	AR 1.53
225.–267.	374.–445.	AR 1.68
268.–293.	446.–489.	AR 1.85
294.–319.	490.–532.	AR 2.04
320.–349.	533.–582.	AR 2.24
350.–381.	583.–636.	AR 2.46
382.–418.	637.–697.	AR 2.71
419.–459.	698.–766.	AR 2.98
460.–509.	767.–849.	AR 3.28
510.–565.	850.–942.	AR 3.62
566.–604.	943.–1007.	AR 3.98
605.–697.	1008.–1133.	AR 4.37
698.–753.	—	AR 4.80
Compensated		
161.–177.	268.–295.	AR 1.26
178.–196.	296.–327.	AR 1.39
197.–217.	328.–363.	AR 1.53
218.–253.	364.–423.	AR 1.68
254.–277.	424.–463.	AR 1.85
278.–301.	464.–503.	AR 2.04
302.–325.	504.–543.	AR 2.24
326.–354.	544.–592.	AR 2.46
355.–381.	592.–635.	AR 2.71
382.–419.	636.–699.	AR 2.98
420.–467.	700.–779.	AR 3.28
468.–529.	780.–883.	AR 3.62
530.–594.	884.–991.	AR 3.98
595.–664.	992.–1107.	AR 4.37
665.–738.	1108.–1231.	AR 4.80
739.–829.	—	AR 5.3

Table 46

Motor FLC (A)	Thermal Unit Number
105.–116.	AR 3.28
117.–132.	AR 3.62
133.–148.	AR 3.98
149.–165.	AR 4.37
166.–184.	AR 4.80
185.–207.	AR 5.3
208.–229.	AR 5.8
230.–266.	AR 6.4

Table 47

Motor FLC (A)	Thermal Unit Number
146.–169.	AR 1.68
170.–185.	AR 1.85
186.–201.	AR 2.04
202.–217.	AR 2.24
218.–236.	AR 2.46
237.–253.	AR 2.71
254.–279.	AR 2.98
280.–311.	AR 3.28
312.–353.	AR 3.62
354.–396.	AR 3.98
397.–442.	AR 4.37
443.–492.	AR 4.80
493.–520.	AR 5.3

Table 48

Motor FLC (A)	Thermal Unit Number
158.–187.	AR 1.68
188.–206.	AR 1.85
207.–224.	AR 2.04
225.–244.	AR 2.24
245.–267.	AR 2.46
268.–289.	AR 2.71
290.–324.	AR 2.98
325.–361.	AR 3.28
362.–406.	AR 3.62
407.–445.	AR 3.98
446.–463.	AR 4.37
464.–520.	AR 4.80

Table 49

Motor FLC (A)	Thermal Unit Number
82.5–88.2	DD 112.0
88.3–95.9	DD 121.0
96.0–102.	DD 128.0
103.–109.	DD 140.0
110.–121.	DD 150.0
122.–139.	DD 160.0
140.–154.	DD 185.0
155.–163.	DD 220.0
164.–175.	DD 240.0
176.–184.	DD 250.0
185.–195.	DD 265.0
196.–215.	DD 280.0
216.–224.	DD 300.0
225.–243.	DD 320.0
244.–266.	DD 340.0

Table 50

Motor FLC (A)	Thermal Unit Number
14.4–16.1	AU 20.0
16.2–18.6	AU 23.0
18.7–20.5	AU 26.0
20.6–23.4	AU 29.0
23.5–26.9	AU 33.0
27.0–28.3	AU 38.0
28.4–30.8	AU 40.0
30.9–35.0	AU 44.0
35.1–38.8	AU 50.0
38.9–44.3	AU 56.0
44.4–49.3	AU 64.0
49.4–55.5	AU 72.0
55.6–61.0	AU 81.0
61.1–68.6	AU 88.0
68.7–76.3	AU 99.0
76.4–86.0	AU 110.0

Table 51

Motor FLC (A)	Thermal Unit Number
15.7–17.7	AU 20.0
17.8–19.9	AU 23.0
20.0–22.7	AU 26.0
22.8–25.7	AU 29.0
25.8–29.1	AU 33.0
29.2–30.8	AU 38.0
30.9–34.3	AU 40.0
34.4–38.3	AU 44.0
38.4–42.3	AU 50.0
42.4–47.5	AU 56.0
47.6–53.0	AU 64.0
53.1–60.5	AU 72.0
60.6–64.9	AU 81.0
65.0–71.5	AU 88.0
71.6–77.3	AU 99.0
77.4–86.0	AU 110.0

Table 52

Motor FLC (A)	Thermal Unit Number
92.0–103.	AF 123.0
104.–116.	AF 135.0
117.–139.	AF 150.0
140.–150.	AF 159.0
151.–167.	AF 168.0
168.–177.	AF 188.0
178.–205.	AF 205.0
206.–222.	AF 220.0
223.–232.	AF 240.0
233.–247.	AF 260.0
248.–266.	AF 308.0

Table 53

Motor FLC (A)		Thermal Unit Number
1 T. U.	3 T. U.	
0.31–0.33	0.29–0.31	B 0.44
0.34–0.36	0.32–0.36	B 0.51
0.37–0.40	0.37–0.38	B 0.57
0.41–0.48	0.39–0.46	B 0.63
0.49–0.57	0.47–0.55	B 0.71
0.58–0.64	0.56–0.61	B 0.81
0.65–0.70	0.62–0.66	B 0.92
0.71–0.77	0.67–0.75	B 1.03
0.78–0.85	0.76–0.83	B 1.16
0.86–0.99	0.84–0.93	B 1.30
1.00–1.10	0.94–1.06	B 1.45
1.11–1.28	1.07–1.18	B 1.67
1.29–1.41	1.19–1.31	B 1.88
1.42–1.58	1.32–1.47	B 2.10
1.59–1.80	1.48–1.67	B 2.40
1.81–2.03	1.68–1.83	B 2.65
2.04–2.25	1.84–2.04	B 3.00
2.26–2.51	2.05–2.38	B 3.30
2.52–2.83	2.39–2.60	B 3.70
2.84–3.29	2.61–3.13	B 4.15
3.30–3.75	3.14–3.59	B 4.85
3.76–4.22	3.60–3.94	B 5.50
4.23–4.65	3.95–4.19	B 6.25
4.66–5.16	4.20–4.72	B 6.90
5.17–5.53	4.73–5.21	B 7.70
5.54–6.09	5.22–5.51	B 8.20
6.10–6.80	5.52–6.17	B 9.10
6.81–7.60	6.18–7.00	B 10.2
7.61–8.35	—	B 11.5
8.36–9.00	—	B 12.8

Table 54

Motor FLC (A)		Thermal Unit Number
2 T. U.	3 T. U.	
43.6–45.5	41.1–43.5	CC 64.3
45.6–49.6	43.6–46.8	CC 68.5
49.7–53.1	46.9–50.0	CC 74.6
53.2–57.6	50.1–54.9	CC 81.5
57.7–62.4	55.0–57.5	CC 87.7
62.5–67.5	57.6–61.8	CC 94.0
67.6–71.1	61.9–66.2	CC 103.0
71.2–75.9	66.3–72.4	CC 112.0
76.0–81.9	72.5–78.1	CC 121.0
82.0–84.6	78.2–80.7	CC 132.0
84.7–90.7	80.8–86.5	CC 143.0
90.8–98.4	86.6–93.9	CC 156.0
98.5–105.	94.0–100.	CC 167.0
106.–117.	101.–112.	CC 180.0
118.–123.	113.–117.	CC 196.0
124.–133.	118.–123.	CC 208.0
—	124.–133.	CC 219.0

Table 55

Motor FLC (A)		Thermal Unit Number
2 T. U.	3 T. U.	
0.38–0.40	0.31–0.33	AR .45
0.41–0.43	0.34–0.36	AR .49
0.44–0.48	0.37–0.39	AR .54
0.49–0.52	0.40–0.43	AR .59
0.53–0.56	0.44–0.47	AR .65
0.57–0.61	0.48–0.51	AR .71
0.62–0.67	0.52–0.56	AR .78
0.68–0.73	0.57–0.58	AR .86
0.74–0.81	0.59–0.64	AR .95
0.82–0.89	0.65–0.70	AR 1.05
0.90–0.97	0.71–0.77	AR 1.15
0.98–1.07	0.78–0.85	AR 1.26
1.08–1.17	0.86–0.94	AR 1.39
1.18–1.31	0.95–1.03	AR 1.53
1.32–1.49	1.04–1.22	AR 1.68
1.50–1.69	1.23–1.34	AR 1.85
1.70–1.83	1.35–1.46	AR 2.04
1.84–2.00	1.47–1.58	AR 2.24
2.01–2.17	1.59–1.76	AR 2.46
2.18–2.35	1.77–1.85	AR 2.71
2.36–2.60	1.86–2.08	AR 2.98
2.61–2.87	2.09–2.27	AR 3.28
2.88–3.14	2.28–2.51	AR 3.62
3.15–3.47	2.52–2.90	AR 3.98
3.48–3.90	2.91–3.23	AR 4.37
3.91–4.36	3.24–3.58	AR 4.80
4.37–4.88	3.59–4.02	AR 5.3
4.89–5.37	4.03–4.43	AR 5.8
5.38–5.97	4.44–4.86	AR 6.4
5.98–6.55	4.87–5.37	AR 7.0
6.56–7.50	5.38–6.12	AR 7.7
7.51–8.23	6.13–6.65	AR 8.5
8.24–9.00	6.66–7.00	AR 9.3

Table 56

Motor FLC (A)		Thermal Unit Number
1 or 2 T. U.	3 T. U.	
3.29–3.74	3.18–3.40	B 4.85
3.75–4.23	3.41–3.76	B 5.50
4.24–4.68	3.77–4.00	B 6.25
4.69–5.22	4.01–4.57	B 6.90
5.23–5.67	4.58–5.03	B 7.70
5.68–6.13	5.04–5.32	B 8.20
6.14–6.91	5.33–5.97	B 9.10
6.92–7.70	5.98–6.88	B 10.2
7.71–8.56	6.89–7.82	B 11.5
8.57–9.39	7.83–8.47	B 12.8
9.40–10.4	8.48–9.15	B 14.0
10.5–11.6	9.16–10.1	B 15.5
11.7–12.9	10.2–11.2	B 17.5
13.0–14.6	11.3–12.0	B 19.5
14.7–16.5	12.1–13.6	B 22.0
16.6–18.5	13.7–15.2	B 25.0
18.6–21.0	15.3–17.1	B 28.0
21.1–23.6	17.2–19.0	B 32.0
23.7–26.3	19.1–21.5	B 36.0
26.4–29.3	21.6–24.1	B 40.0
29.4–35.1	24.2–27.0	B 45.0
35.2–36.1	27.1–28.7	B 50.0
36.2–39.1	28.8–30.4	B 56.0
39.2–41.5	30.5–32.2	B 62.0
41.6–45.0	32.3–35.4	B 70.0
—	35.5–38.2	B 79.0
—	38.3–45.0	B 88.0

Table 57

Motor FLC (A))		Thermal Unit Number
2 T. U.	3 T. U.	
5.09–5.59	5.15–5.97	AR 8.5
5.60–6.11	5.98–6.50	AR 9.3
6.12–6.72	6.51–7.04	AR 10.2
6.73–7.37	7.05–7.59	AR 11.2
7.38–7.67	7.60–7.93	AR 12.4
7.68–8.68	7.94–9.04	AR 13.6
8.69–9.94	9.05–10.2	AR 15.4
9.95–11.1	10.3–11.5	AR 17.6
11.2–12.9	11.6–13.2	AR 20.5
13.0–14.7	13.3–14.9	AR 23.0
14.8–16.9	15.0–16.9	AR 27.0
17.0–19.2	17.0–19.3	AR 30.0
19.3–21.9	19.4–21.7	AR 35.0
22.0–24.4	21.8–25.0	AR 40.0
24.5–26.3	25.1–27.0	AR 44.0
26.4–28.0	27.1–29.1	AR 47.0
28.1–30.3	29.2–30.8	AR 51.0
30.4–32.2	30.9–32.9	AR 55.0
32.3–34.4	33.0–35.0	AR 60.0
34.5–36.6	35.1–37.1	AR 66.0
36.7–39.5	37.2–39.1	AR 72.0
39.6–45.0	39.2–41.5	AR 79.0
—	41.6–45.0	AR 86.0

Table 58

Motor FLC (A)		Thermal Unit Number
1 or 2 T. U.	3 T. U.	
3.37–3.82	3.28–3.51	B 4.85
3.83–4.33	3.52–3.89	B 5.50
4.34–4.79	3.90–4.14	B 6.25
4.80–5.33	4.15–4.73	B 6.90
5.34–5.79	4.74–5.22	B 7.70
5.80–6.27	5.23–5.53	B 8.20
6.28–7.03	5.54–6.21	B 9.10
7.04–7.88	6.22–7.17	B 10.2
7.89–8.73	7.18–8.19	B 11.5
8.74–9.55	8.20–8.90	B 12.8
9.56–10.6	8.91–9.57	B 14.0
10.7–11.8	9.58–10.6	B 15.5
11.9–13.1	10.7–11.8	B 17.5
13.2–14.9	11.9–12.7	B 19.5
15.0–16.9	12.8–14.4	B 22.0
17.0–18.8	14.5–16.1	B 25.0
18.9–21.5	16.2–18.2	B 28.0
21.6–24.1	18.3–20.2	B 32.0
24.2–26.8	20.3–22.8	B 36.0
26.9–29.9	22.9–25.6	B 40.0
30.0–35.5	25.7–28.8	B 45.0
35.6–36.5	28.9–30.6	B 50.0
36.6–39.6	30.7–32.4	B 56.0
39.7–41.5	32.5–34.6	B 62.0
41.6–45.0	34.7–38.6	B 70.0
—	38.7–45.0	B 79.0

Table 59

Motor FLC (A)		Thermal Unit Number
1 or 2 T. U.	3 T. U.	
0.34–0.38	0.29–0.31	B 0.44
0.39–0.43	0.32–0.35	B 0.51
0.44–0.47	0.36–0.38	B 0.57
0.48–0.53	0.39–0.46	B 0.63
0.54–0.60	0.47–0.55	B 0.71
0.61–0.68	0.56–0.62	B 0.81
0.69–0.76	0.63–0.67	B 0.92
0.77–0.86	0.68–0.75	B 1.03
0.87–0.97	0.76–0.84	B 1.16
0.98–1.07	0.85–0.95	B 1.30
1.08–1.23	0.96–1.09	B 1.45
1.24–1.39	1.10–1.21	B 1.67
1.40–1.55	1.22–1.35	B 1.88
1.56–1.77	1.36–1.53	B 2.10
1.78–1.96	1.54–1.73	B 2.40
1.97–2.15	1.74–1.90	B 2.65
2.16–2.41	1.91–2.14	B 3.00
2.42–2.71	2.15–2.34	B 3.30
2.72–3.03	2.35–2.67	B 3.70
3.04–3.53	2.68–3.22	B 4.15
3.54–4.01	3.23–3.48	B 4.85
4.02–4.56	3.49–3.87	B 5.50
4.57–5.03	3.88–4.14	B 6.25
5.04–5.59	4.15–4.73	B 6.90
5.60–5.95	4.74–5.28	B 7.70
5.96–6.58	5.29–5.64	B 8.20
6.59–7.31	5.65–6.39	B 9.10
7.32–8.15	6.40–7.43	B 10.2
8.16–9.13	7.44–8.55	B 11.5
9.14–9.91	8.56–9.40	B 12.8
9.92–10.7	9.41–10.0	B 14.0
10.8–12.1	10.1–11.2	B 15.5
12.2–13.5	11.3–12.5	B 17.5
13.6–15.1	12.6–13.5	B 19.5
15.2–17.0	13.6–15.4	B 22.0
17.1–18.9	15.5–17.5	B 25.0
19.0–21.5	17.6–19.9	B 28.0
21.6–24.0	20.0–22.2	B 32.0
24.1–26.0	22.3–25.5	B 36.0
—	25.6–26.0	B 40.0

Table 60

Motor FLC (A)	Thermal Unit Number
6.84–7.49	AR 9.3
7.50–8.05	AR 10.2
8.06–9.10	AR 11.2
9.11–9.99	AR 12.4
10.0–11.1	AR 13.6
11.2–12.7	AR 15.4
12.8–14.8	AR 17.6
14.9–16.6	AR 20.5
16.7–19.3	AR 23.0
19.4–21.4	AR 27.0
21.5–25.1	AR 30.0
25.2–28.3	AR 35.0
28.4–31.2	AR 40.0
31.3–33.3	AR 44.0
33.4–35.7	AR 47.0
35.8–38.5	AR 51.0
38.6–41.5	AR 55.0
41.6–45.0	AR 60.0

Table 61

Motor FLC (A)		Thermal Unit Number
2 T. U.	3 T. U.	
46.8–50.0	45.3–48.2	CC 64.3
50.1–54.2	48.3–52.4	CC 68.5
54.3–58.3	52.5–56.4	CC 74.6
58.4–63.6	56.5–61.2	CC 81.5
63.7–68.5	61.3–66.1	CC 87.7
68.6–74.0	66.2–71.4	CC 94.0
74.1–79.8	71.5–77.0	CC 103.0
79.9–83.0	77.1–79.0	CC 112.0
83.1–88.9	79.1–84.7	CC 121.0
89.0–95.6	84.8–91.1	CC 132.0
95.7–102.	91.2–98.1	CC 143.0
103.–109.	98.2–104.	CC 156.0
110.–119.	105.–113.	CC 167.0
120.–133.	114.–123.	CC 180.0
—	124.–133.	CC 196.0

Table 62

Motor FLC (A)		Thermal Unit Number
2 T. U.	3 T. U.	
4.83–5.33	4.90–5.68	AR 8.5
5.34–5.84	5.69–6.19	AR 9.3
5.85–6.43	6.20–6.71	AR 10.2
6.44–7.03	6.72–7.14	AR 11.2
7.04–7.30	7.15–7.49	AR 12.4
7.31–8.29	7.50–8.48	AR 13.6
8.30–9.49	8.49–9.66	AR 15.4
9.50–10.7	9.67–10.8	AR 17.6
10.8–12.3	10.9–12.4	AR 20.5
12.4–14.0	12.5–13.9	AR 23.0
14.1–16.0	14.0–15.7	AR 27.0
16.1–18.4	15.8–18.1	AR 30.0
18.5–21.0	18.2–20.3	AR 35.0
21.1–23.0	20.4–23.0	AR 40.0
23.1–25.5	23.1–25.2	AR 44.0
25.6–26.7	25.3–26.6	AR 47.0
26.8–28.3	26.7–28.2	AR 51.0
28.4–30.3	28.3–30.2	AR 55.0
30.4–32.5	30.3–32.3	AR 60.0
32.6–34.5	32.4–34.3	AR 66.0
34.6–37.6	34.4–36.7	AR 72.0
37.7–39.7	36.8–39.3	AR 79.0
39.8–41.4	39.4–45.0	AR 86.0
41.5–45.0	—	AR 94.0

Table 63

Motor FLC (A)	Thermal Unit Number
1 or 2 T. U.	3 T. U.
15.1–17.0	AU 20.0
17.1–19.1	AU 23.0
19.2–21.8	AU 26.0
21.9–24.5	AU 29.0
24.6–27.9	AU 33.0
28.0–29.5	AU 38.0
29.6–32.9	AU 40.0
33.0–36.6	AU 44.0
36.7–40.3	AU 50.0
40.4–45.1	AU 56.0
45.2–50.4	AU 64.0
50.5–57.3	AU 72.0
57.4–62.4	AU 81.0
62.5–68.3	AU 88.0
68.4–73.9	AU 99.0
74.0–80.6	AU 110.0
80.7–86.0	AU 123.0

Table 64

Motor FLC (A)			Thermal Unit No.
2 T. U. 1Ø	2 T. U. 2Ø	3 T. U.	
0.38–0.40	0.38–0.40	0.31–0.33	AR .45
0.41–0.43	0.41–0.43	0.34–0.36	AR .49
0.44–0.48	0.44–0.48	0.37–0.39	AR .54
0.49–0.52	0.49–0.52	0.40–0.43	AR .59
0.53–0.56	0.53–0.56	0.44–0.47	AR .65
0.57–0.61	0.57–0.61	0.48–0.51	AR .71
0.62–0.67	0.62–0.67	0.52–0.56	AR .78
0.68–0.73	0.68–0.73	0.57–0.58	AR .86
0.74–0.81	0.74–0.81	0.59–0.64	AR .95
0.82–0.89	0.82–0.89	0.65–0.70	AR 1.05
0.90–0.97	0.90–0.97	0.71–0.77	AR 1.15
0.98–1.07	0.98–1.07	0.78–0.85	AR 1.26
1.08–1.17	1.08–1.17	0.86–0.94	AR 1.39
1.18–1.31	1.18–1.31	0.95–1.03	AR 1.53
1.32–1.49	1.32–1.49	1.04–1.22	AR 1.68
1.50–1.69	1.50–1.69	1.23–1.34	AR 1.85
1.70–1.83	1.70–1.83	1.35–1.46	AR 2.04
1.84–2.00	1.84–2.00	1.47–1.58	AR 2.24
2.01–2.17	2.01–2.17	1.59–1.76	AR 2.46
2.18–2.35	2.18–2.35	1.77–1.85	AR 2.71
2.36–2.60	2.36–2.60	1.86–2.08	AR 2.98
2.61–2.87	2.61–2.87	2.09–2.27	AR 3.28
2.88–3.14	2.88–3.14	2.28–2.51	AR 3.62
3.15–3.47	3.15–3.47	2.52–2.90	AR 3.98
3.48–3.90	3.48–3.90	2.91–3.23	AR 4.37
3.91–4.36	3.91–4.36	3.24–3.58	AR 4.80
4.37–4.88	4.37–4.88	3.59–4.02	AR 5.3
4.89–5.37	4.89–5.37	4.03–4.43	AR 5.8
5.38–5.97	5.38–5.97	4.44–4.86	AR 6.4
5.98–6.55	5.98–6.55	4.87–5.37	AR 7.0
6.56–7.50	6.56–7.50	5.38–6.12	AR 7.7
7.51–8.23	7.51–8.23	6.13–6.65	AR 8.5
8.24–8.99	8.24–8.99	6.66–7.31	AR 9.3
9.00–9.86	9.00–9.86	7.32–7.96	AR 10.2
9.87–10.7	9.87–10.7	7.97–8.69	AR 11.2
10.8–11.2	10.8–11.2	8.70–8.99	AR 12.4
11.3–12.8	11.3–12.0	9.00–10.1	AR 13.6
12.9–14.8	—	10.2–11.5	AR 15.4
14.9–16.7	—	11.6–12.0	AR 17.6
16.8–18.0	—	—	AR 20.5
Following Selections for Size 1 Only.			
—	11.3–12.8	—	AR 13.6
—	12.9–14.8	—	AR 15.4
—	14.9–16.7	11.6–13.0	AR 17.6
16.8–19.0	16.8–19.0	13.1–14.6	AR 20.5
19.1–22.0	19.1–22.0	14.7–16.5	AR 23.0
22.1–24.9	22.1–24.9	16.6–18.5	AR 27.0
25.0–26.0	25.0–26.0	18.6–21.0	AR 30.0
—	—	21.1–23.6	AR 35.0
—	—	23.7–26.0	AR 40.0

Table 65

Motor FLC (A)	Thermal Unit Number
0.31–0.35	B 0.44
0.36–0.39	B 0.51
0.40–0.44	B 0.57
0.45–0.50	B 0.63
0.51–0.58	B 0.71
0.59–0.65	B 0.81
0.66–0.73	B 0.92
0.74–0.82	B 1.03
0.83–0.92	B 1.16
0.93–1.03	B 1.30
1.04–1.19	B 1.45
1.20–1.34	B 1.67
1.35–1.50	B 1.88
1.51–1.67	B 2.10
1.68–1.89	B 2.40
1.90–2.14	B 2.65
2.15–2.36	B 3.00
2.37–2.65	B 3.30
2.66–2.97	B 3.70
2.98–3.47	B 4.15
3.48–3.94	B 4.85
3.95–4.44	B 5.50
4.45–4.94	B 6.25
4.95–5.52	B 6.90
5.53–5.88	B 7.70
5.89–6.52	B 8.20
6.53–7.31	B 9.10
7.32–8.21	B 10.2
8.22–9.18	B 11.5
9.19–9.90	B 12.8
10.0–11.0	B 14.0
11.1–12.4	B 15.5
12.5–13.9	B 17.5
14.0–15.7	B 19.5
15.8–17.8	B 22.0
17.9–20.0	B 25.0
20.1–22.9	B 28.0
23.0–25.0	B 32.0
Following Selections for Size 2 Only.	
23.0–25.7	B 32.0
25.8–28.6	B 36.0
28.7–32.2	B 40.0
32.3–35.8	B 45.0
35.9–40.1	B 50.0
40.2–44.4	B 56.0
44.5–50.0	B 62.0

Table 66

Motor FLC (A)	Thermal Unit Number
0.31–0.32	B 0.44
0.33–0.36	B 0.51
0.37–0.41	B 0.57
0.42–0.49	B 0.63
0.50–0.54	B 0.71
0.55–0.61	B 0.81
0.62–0.67	B 0.92
0.68–0.76	B 1.03
0.77–0.87	B 1.16
0.88–0.98	B 1.30
0.99–1.05	B 1.45
1.06–1.25	B 1.67
1.26–1.33	B 1.88
1.34–1.56	B 2.10
1.57–1.71	B 2.40
1.72–1.97	B 2.65
1.98–2.15	B 3.00
2.16–2.42	B 3.30
2.43–2.78	B 3.70
2.79–3.28	B 4.15
3.29–3.88	B 4.85
3.89–4.13	B 5.5
4.14–4.43	B 6.25
4.44–4.96	B 6.90
4.97–5.35	B 7.70
5.36–5.91	B 8.20
5.92–6.79	B 9.10
6.80–7.56	B 10.2
7.57–7.83	B 11.5
7.84–8.09	B 12.8
8.10–9.51	B 14.0
9.52–10.1	B 15.5
10.2–11.3	B 17.5
11.4–13.1	B 19.5
13.2–14.9	B 22.0
15.0–16.1	B 25.0
16.2–17.8	B 28.0
17.9–19.1	B 32.0
19.2–22.4	B 36.0
22.5–23.5	B 40.0
23.6–26.0	B 45.0

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Table 67

Motor FLC (A)	Thermal Unit Number
3.79–4.14	B 5.50
4.15–4.44	B 6.25
4.45–5.22	B 6.90
5.23–5.29	B 7.70
5.30–5.99	B 8.20
6.00–6.82	B 9.10
6.83–7.68	B 10.2
7.69–7.92	B 11.5
7.93–8.47	B 12.8
8.48–9.99	B 14.0
10.0–10.8	B 15.5
10.9–12.3	B 17.5
12.4–12.9	B 19.5
13.0–15.1	B 22.0
15.2–16.7	B 25.0
16.8–17.9	B 28.0
18.0–20.1	B 32.0
20.2–23.8	B 36.0
23.9–25.8	B 40.0
25.9–28.3	B 45.0
28.4–29.6	B 50.0
29.7–32.1	B 56.0
32.2–34.4	B 62.0
34.5–38.3	B 70.0
38.4–39.9	B 79.0
40.0–45.0	B 88.0

Table 68

Motor FLC (A)	Thermal Unit Number
14.9–16.1	CC 20.9
16.2–17.3	CC 22.8
17.4–19.5	CC 24.6
19.6–20.7	CC 26.3
20.8–22.4	CC 28.8
22.5–23.9	CC 31.0
24.0–25.8	CC 33.3
25.9–27.6	CC 36.4
27.7–29.7	CC 39.6
29.8–31.8	CC 42.7
31.9–34.2	CC 46.6
34.3–37.0	CC 50.1
37.1–39.6	CC 54.5
39.7–42.5	CC 59.4
42.6–45.0	CC 64.3
45.1–48.6	CC 68.5
48.7–51.2	CC 74.6
51.3–56.0	CC 81.5
56.1–60.1	CC 87.7
60.2–64.3	CC 94.0
64.4–68.9	CC 103.0
69.0–71.9	CC 112.0
72.0–75.4	CC 121.0
75.5–78.9	CC 132.0
79.0–82.1	CC 143.0
82.2–86.0	CC 156.0

Table 69

Motor FLC (A)		Thermal Unit Number
1 or 2 T. U.	3 T. U.	
3.46–3.90	3.38–3.65	B 4.85
3.91–4.44	3.66–4.07	B 5.50
4.45–4.91	4.08–4.36	B 6.25
4.92–5.51	4.37–5.19	B 6.90
5.52–5.84	5.20–5.59	B 7.70
5.85–6.54	5.60–5.98	B 8.20
6.55–7.33	5.99–6.78	B 9.10
7.34–8.31	6.79–7.91	B 10.2
8.32–9.22	7.92–9.12	B 11.5
9.23–10.0	9.13–10.0	B 12.8
10.1–11.2	10.1–10.7	B 14.0
11.3–12.5	10.8–12.0	B 15.5
12.6–14.2	12.1–13.5	B 17.5
14.3–16.1	13.6–14.6	B 19.5
16.2–18.4	14.7–16.7	B 22.0
18.5–20.5	16.8–18.9	B 25.0
20.6–23.2	19.0–21.6	B 28.0
23.3–26.6	21.7–24.1	B 32.0
26.7–29.6	24.2–27.6	B 36.0
29.7–33.5	27.7–31.2	B 40.0
33.6–37.2	31.3–35.5	B 45.0
37.3–41.5	35.6–37.8	B 50.0
41.6–45.0	37.9–41.5	B 56.0
—	41.6–45.0	B 62.0

Table 70

Motor FLC (A)	Thermal Unit Number
4.24–4.62	AR 8.5
4.63–5.05	AR 9.3
5.06–5.54	AR 10.2
5.55–6.13	AR 11.2
6.14–6.44	AR 12.4
6.45–7.48	AR 13.6
7.49–8.55	AR 15.4
8.56–9.74	AR 17.6
9.75–11.1	AR 20.5
11.2–12.7	AR 23.0
12.8–14.4	AR 27.0
14.5–16.4	AR 30.0
16.5–18.9	AR 35.0
19.0–21.6	AR 40.0
21.7–23.3	AR 44.0
23.4–24.9	AR 47.0
25.0–26.9	AR 51.0
27.0–29.1	AR 55.0
29.2–31.3	AR 60.0
31.4–33.5	AR 66.0
33.6–36.9	AR 72.0
37.0–39.1	AR 79.0
39.2–40.9	AR 86.0
41.0–45.0	AR 94.0

Table 71

Motor FLC (A)	Thermal Unit Number
3.98–4.53	AR 8.5
4.54–5.03	AR 9.3
5.04–5.46	AR 10.2
5.47–6.01	AR 11.2
6.02–6.31	AR 12.4
6.32–7.19	AR 13.6
7.20–8.29	AR 15.4
8.30–9.49	AR 17.6
9.50–11.0	AR 20.5
11.1–12.6	AR 23.0
12.7–14.3	AR 27.0
14.4–16.5	AR 30.0
16.6–19.2	AR 35.0
19.3–21.9	AR 40.0
22.0–23.8	AR 44.0
23.9–25.5	AR 47.0
25.6–27.7	AR 51.0
27.8–30.1	AR 55.0
30.2–32.5	AR 60.0
32.6–34.8	AR 66.0
34.9–38.5	AR 72.0
38.6–41.5	AR 79.0
41.6–45.0	AR 86.0

Table 72

Motor FLC (A)		Thermal Unit Number
1 T. U.	3 T. U.	
2.38–2.62	2.38–2.62	FB 3.33
2.63–2.94	2.63–2.94	FB 3.71
2.95–3.31	2.95–3.31	FB 4.1
3.32–3.43	3.32–3.43	FB 4.5
3.44–3.81	3.44–3.81	FB 4.75
3.82–4.32	3.82–4.32	FB 5.3
4.33–4.75	4.33–4.75	FB 6.1
4.76–5.38	4.76–5.38	FB 6.75
5.39–5.75	5.39–5.75	FB 7.45
5.76–5.97	5.76–5.97	FB 7.8
5.98–6.30	5.98–6.30	FB 8.21
6.31–6.55	6.31–6.55	FB 8.6
6.56–6.89	6.56–6.89	FB 9.0
6.90–7.14	6.90–7.14	FB 9.5
7.15–7.36	7.15–7.36	FB 10.0
7.37–8.30	7.37–8.30	FB 10.6
8.31–8.59	8.31–8.59	FB 11.2
8.60–9.01	8.60–9.01	FB 12.1
9.02–9.68	9.02–9.68	FB 13.1
9.69–9.99	9.69–9.99	FB 13.9
10.0–10.9	10.0–10.9	FB 14.8
11.0–11.3	11.0–11.3	FB 15.6
11.4–12.4	11.4–12.0	FB 16.4
12.5–12.9	—	FB 17.6
13.0–14.0	—	FB 18.4
14.1–14.5	—	FB 19.4
14.6–15.7	—	FB 21.1
15.8–16.6	—	FB 22.6
16.7–18.0	—	FB 23.6
Following Selections for Size M–1 & M–1P Only.		
—	11.4–12.4	FB 16.4
—	12.5–12.9	FB 17.6
—	13.0–14.0	FB 18.4
—	14.1–14.5	FB 19.4
—	14.6–15.7	FB 21.1
—	15.8–16.6	FB 22.6
16.7–17.6	16.7–17.6	FB 23.6
17.7–18.3	17.7–18.3	FB 24.8
18.4–19.4	18.4–19.4	FB 26.7
19.5–20.5	19.5–20.5	FB 28.3
20.6–21.7	20.6–21.7	FB 29.6
21.8–22.8	21.8–22.8	FB 30.5
22.9–24.3	22.9–24.3	FB 32.5
24.4–24.7	24.4–24.7	FB 34.1
24.8–25.4	24.8–25.4	FB 35.0
25.5–26.0	25.5–26.0	FB 36.6
Following Selections for Size M–1P Only.		
26.1–27.7	—	FB 38.3
27.8–28.9	—	FB 40.2
29.0–30.6	—	FB 42.0
30.7–32.5	—	FB 44.0
32.6–36.0	—	FB 46.0

Table 73

Motor FLC (A)		Thermal Unit Number
1 T. U.	3 T. U.	
2.42–2.67	2.42–2.67	FB 3.33
2.68–3.00	2.68–3.00	FB 3.71
3.01–3.36	3.01–3.36	FB 4.1
3.37–3.53	3.37–3.53	FB 4.5
3.54–3.91	3.54–3.91	FB 4.75
3.92–4.41	3.92–4.41	FB 5.3
4.42–4.83	4.42–4.83	FB 6.1
4.84–5.45	4.84–5.45	FB 6.75
5.46–5.89	5.46–5.89	FB 7.45
5.90–6.04	5.90–6.04	FB 7.8
6.05–6.55	6.05–6.55	FB 8.21
6.56–6.72	6.56–6.72	FB 8.6
6.73–7.00	6.73–7.00	FB 9.0
7.01–7.39	7.01–7.39	FB 9.5
7.40–7.54	7.40–7.54	FB 10.0
7.55–8.41	7.55–8.41	FB 10.6
8.42–8.91	8.42–8.91	FB 11.2
8.92–9.16	8.92–9.16	FB 12.1
9.17–10.0	9.17–10.0	FB 13.1
10.1–10.3	10.1–10.3	FB 13.9
10.4–11.4	10.4–11.4	FB 14.8
11.5–11.8	11.5–11.8	FB 15.6
11.9–12.9	11.9–12.9	FB 16.4
13.0–13.4	—	FB 17.6
13.5–14.2	—	FB 18.4
14.3–15.1	—	FB 19.4
15.2–18.0	—	FB 21.1
Following Selections for Size M–1 & M–1P Only.		
—	11.5–11.8	FB 15.6
—	11.9–12.9	FB 16.4
—	13.0–13.4	FB 17.6
—	13.5–14.2	FB 18.4
—	14.3–15.1	FB 19.4
15.2–17.1	15.2–17.1	FB 21.1
17.2–18.0	17.2–18.0	FB 22.6
18.1–18.9	18.1–18.9	FB 23.6
19.0–19.7	19.0–19.7	FB 24.8
19.8–20.9	19.8–20.9	FB 26.7
21.0–21.9	21.0–21.9	FB 28.3
22.0–23.1	22.0–23.1	FB 29.6
23.2–24.3	23.2–24.3	FB 30.5
24.4–25.5	24.4–25.5	FB 32.6
25.6–26.0	25.6–26.0	FB 34.1
Following Selections for Size M–1P Only.		
26.1–26.8	—	FB 35.0
26.9–27.3	—	FB 36.6
27.4–28.7	—	FB 38.3
28.8–30.2	—	FB 40.2
30.3–31.9	—	FB 42.0
32.0–36.0	—	FB 44.0

Table 74

Motor FLC (A)		Thermal Unit Number
1 T. U.	3 T. U.	
2.23–2.47	2.23–2.47	FB 3.33
2.48–2.76	2.48–2.76	FB 3.71
2.77–3.04	2.77–3.04	FB 4.1
3.05–3.24	3.05–3.24	FB 4.5
3.25–3.61	3.25–3.61	FB 4.75
3.62–4.19	3.62–4.19	FB 5.3
4.20–4.62	4.20–4.62	FB 6.1
4.63–5.14	4.63–5.14	FB 6.75
5.15–5.39	5.15–5.39	FB 7.45
5.40–5.69	5.40–5.69	FB 7.8
5.70–5.99	5.70–5.99	FB 8.21
6.00–6.29	6.00–6.29	FB 8.6
6.30–6.64	6.30–6.64	FB 9.0
6.65–6.99	6.65–6.99	FB 9.5
7.00–7.39	7.00–7.39	FB 10.0
7.40–7.79	7.40–7.79	FB 10.6
7.80–7.94	7.80–7.94	FB 11.2
7.95–8.49	7.95–8.49	FB 12.1
8.50–8.99	8.50–8.99	FB 13.1
9.00–9.59	9.00–9.59	FB 13.9
9.60–10.1	9.60–10.1	FB 14.8
10.2–10.6	10.2–10.6	FB 15.6
10.7–11.3	10.7–11.3	FB 16.4
11.4–12.0	11.4–12.0	FB 17.6
12.0–12.6	—	FB 18.4
12.7–13.8	—	FB 19.4
13.9–14.7	—	FB 21.1
14.8–15.2	—	FB 22.6
15.3–16.2	—	FB 23.6
16.3–18.0	—	FB 24.8
Following Selections for Size 1 Only.		
—	12.0–12.6	FB 18.4
—	12.7–13.8	FB 19.4
13.9–14.7	13.9–14.7	FB 21.1
14.8–15.2	14.8–15.2	FB 22.6
15.3–16.2	15.3–16.2	FB 23.6
16.3–17.4	16.3–17.4	FB 24.8
17.5–18.5	17.5–18.5	FB 26.7
18.6–19.6	18.6–19.6	FB 28.3
19.7–20.2	19.7–20.2	FB 29.6
20.3–21.5	20.3–21.5	FB 30.5
21.6–22.4	21.6–22.4	FB 32.6
22.5–23.2	22.5–23.2	FB 34.1
23.3–24.3	23.3–24.3	FB 35.0
24.4–25.4	24.4–25.4	FB 36.6
25.5–26.0	25.5–26.0	FB 38.3

Table 75

Motor FLC (A)	Thermal Unit Number
3.22–3.57	FB 4.75
3.58–4.14	FB 5.3
4.15–4.56	FB 6.1
4.57–5.10	FB 6.75
5.11–5.39	FB 7.45
5.40–5.64	FB 7.8
5.65–5.96	FB 8.21
5.97–6.25	FB 8.6
6.26–6.58	FB 9.0
6.59–6.91	FB 9.5
6.92–7.41	FB 10.0
7.42–7.82	FB 10.6
7.83–8.32	FB 11.2
8.33–8.89	FB 12.1
8.90–9.47	FB 13.1
9.48–10.0	FB 13.9
10.1–10.5	FB 14.8
10.6–11.1	FB 15.6
11.2–12.0	FB 16.4
12.1–12.7	FB 17.6
12.8–13.5	FB 18.4
13.6–14.6	FB 19.4
14.7–15.7	FB 21.1
15.8–16.5	FB 22.6
16.6–17.4	FB 23.6
17.5–18.8	FB 24.8
18.9–20.1	FB 26.7
20.2–21.0	FB 28.3
21.1–21.6	FB 29.6
21.7–23.3	FB 30.5
23.4–24.3	FB 32.6
24.4–25.0	FB 34.1
25.1–26.3	FB 35.0
26.4–27.6	FB 36.6
27.7–29.1	FB 38.3
29.2–30.4	FB 40.2
30.5–32.0	FB 42.0
32.1–33.3	FB 44.0
33.4–35.2	FB 46.0
35.3–37.0	FB 48.0
37.1–38.5	FB 50.5
38.6–40.7	FB 52.5
40.8–45.0	FB 55.5

Table 76

Motor FLC (A)	Thermal Unit Number
19.9–20.8	FB 26.7
20.9–22.2	FB 28.3
22.3–23.8	FB 29.6
23.9–25.4	FB 30.5
25.5–27.2	FB 32.6
27.3–29.2	FB 34.1
29.3–31.9	FB 38.3
32.0–33.8	FB 40.2
33.9–36.1	FB 42.0
36.2–38.5	FB 44.0
38.6–41.4	FB 46.0
41.5–43.6	FB 48.0
43.7–45.9	FB 50.5
46.0–48.2	FB 52.5
48.3–50.7	FB 55.5
50.8–53.9	FB 58.0
54.0–56.7	FB 60.0
56.8–60.8	FB 63.5
60.9–67.6	FB 69.0
67.7–73.6	FB 77.0
73.7–82.9	FB 84.0
83.0–86.0	FB 92.0

Table 77

Motor FLC (A)	Thermal Unit Number
48.0–50.9	FB 50.5
51.0–53.7	FB 52.5
53.8–57.0	FB 55.5
57.1–60.4	FB 58.0
60.5–64.0	FB 60.0
64.1–71.9	FB 63.5
72.0–83.9	FB 69.0
84.0–93.1	FB 77.0
93.2–104	FB 84.0
105–109	FB 92.0
110–123	FB 105.0
124–133	FB 115.0

Table 78

Motor FLC (A)		Thermal Unit Number
1 T. U.	2 T. U. or 3 T. U.	
2.26–2.51	2.26–2.51	FB 3.33
2.52–2.82	2.52–2.82	FB 3.71
2.83–3.09	2.83–3.09	FB 4.1
3.10–3.30	3.10–3.30	FB 4.5
3.31–3.69	3.31–3.69	FB 4.75
3.70–4.27	3.70–4.27	FB 5.3
4.28–4.72	4.28–4.72	FB 6.1
4.73–5.25	4.73–5.25	FB 6.75
5.26–5.53	5.26–5.53	FB 7.45
5.54–5.81	5.54–5.81	FB 7.8
5.82–6.14	5.82–6.14	FB 8.21
6.15–6.44	6.15–6.44	FB 8.6
6.45–6.81	6.45–6.81	FB 9.0
6.82–7.19	6.82–7.19	FB 9.5
7.20–7.59	7.20–7.59	FB 10.0
7.60–7.99	7.60–7.99	FB 10.6
8.00–8.17	8.00–8.17	FB 11.2
8.18–8.74	8.18–8.74	FB 12.1
8.75–9.31	8.75–9.31	FB 13.1
9.32–9.94	9.32–9.94	FB 13.9
9.95–10.5	9.95–10.5	FB 14.8
10.6–11.1	10.6–11.1	FB 15.6
11.2–11.9	11.2–12.0	FB 16.4
12.0–12.4	—	FB 17.6
12.5–13.1	—	FB 18.4
13.2–14.3	—	FB 19.4
14.4–15.3	—	FB 21.1
15.4–15.9	—	FB 22.6
16.0–18.0	—	FB 23.6
Following Selections for Size 1 Only.		
—	12.0–12.4	FB 17.6
—	12.5–13.1	FB 18.4
—	13.2–14.3	FB 19.4
14.4–15.3	14.4–15.3	FB 21.1
15.4–15.9	15.4–15.9	FB 22.6
16.0–16.9	16.0–16.9	FB 23.6
17.0–18.3	17.0–18.3	FB 24.8
18.4–19.5	18.4–19.5	FB 26.7
19.6–20.5	19.6–20.5	FB 28.3
20.6–21.1	20.6–21.1	FB 29.6
21.2–22.6	21.2–22.6	FB 30.5
22.7–23.7	22.7–23.7	FB 32.6
23.8–24.3	23.8–24.3	FB 35.0
24.4–26.0	24.4–26.0	

Table 79

Motor FLC (A)	Thermal Unit Number
3.31–3.67	FB 4.75
3.68–4.23	FB 5.3
4.24–4.69	FB 6.1
4.70–5.21	FB 6.75
5.22–5.49	FB 7.45
5.50–5.74	FB 7.8
5.75–6.07	FB 8.21
6.08–6.35	FB 8.6
6.36–6.71	FB 9.0
6.72–7.03	FB 9.5
7.04–7.53	FB 10.0
7.54–7.91	FB 10.6
7.92–8.53	FB 11.2
8.54–9.14	FB 12.1
9.15–9.71	FB 13.1
9.72–10.2	FB 13.9
10.3–10.8	FB 14.8
10.9–11.5	FB 15.6
11.6–12.3	FB 16.4
12.4–13.0	FB 17.6
13.1–13.9	FB 18.4
14.0–15.1	FB 19.4
15.2–16.1	FB 21.1
16.2–16.9	FB 22.6
17.0–17.9	FB 23.6
18.0–19.4	FB 24.8
19.5–20.7	FB 26.7
20.8–21.7	FB 28.3
21.8–22.3	FB 29.6
22.4–23.9	FB 30.5
24.0–25.1	FB 32.6
25.2–25.9	FB 34.1
26.0–27.1	FB 35.0
27.2–28.6	FB 36.6
28.7–30.1	FB 38.3
30.2–31.7	FB 40.2
31.8–33.3	FB 42.0
33.4–34.5	FB 44.0
34.6–36.5	FB 46.0
36.6–38.5	FB 48.0
38.6–39.9	FB 50.5
40.0–45.0	FB 52.5

Table 80

Motor FLC (A)	Thermal Unit Number
20.5–21.7	FB 26.7
21.8–23.1	FB 28.3
23.2–24.8	FB 29.6
24.9–26.5	FB 30.5
26.6–28.4	FB 32.6
28.5–30.4	FB 34.1
30.5–32.8	FB 38.3
32.9–34.9	FB 40.2
35.0–37.3	FB 42.0
37.4–39.8	FB 44.0
39.9–42.5	FB 46.0
42.6–45.8	FB 48.0
45.9–48.2	FB 50.5
48.3–50.6	FB 52.5
50.7–53.1	FB 55.5
53.2–56.5	FB 58.0
56.6–59.4	FB 60.0
59.5–63.4	FB 63.5
63.5–71.0	FB 69.0
71.1–78.8	FB 77.0
78.9–86.0	FB 84.0

Table 81

Motor FLC (A)	Thermal Unit Number
52.2–55.6	FB 50.5
55.7–58.8	FB 52.5
58.9–62.5	FB 55.5
62.6–66.0	FB 58.0
66.1–70.1	FB 60.0
70.2–78.6	FB 63.5
78.7–92.0	FB 69.0
92.1–102	FB 77.0
103–114	FB 84.0
115–123	FB 92.0
124–133	FB 105.0

Table 82

Motor FLC (A)	Thermal Unit Number
2.36–2.63	FB 3.33
2.64–2.96	FB 3.71
2.97–3.23	FB 4.1
3.24–3.45	FB 4.5
3.46–3.86	FB 4.75
3.87–4.44	FB 5.3
4.45–4.95	FB 6.1
4.96–5.47	FB 6.75
5.48–5.75	FB 7.45
5.76–6.09	FB 7.8
6.10–6.42	FB 8.21
6.43–6.75	FB 8.6
6.76–7.16	FB 9.0
7.17–7.43	FB 9.5
7.44–7.99	FB 10.0
8.00–8.46	FB 10.6
8.47–9.19	FB 11.2
9.20–9.74	FB 12.1
9.75–10.3	FB 13.1
10.4–10.8	FB 13.9
10.9–11.6	FB 14.8
11.7–12.2	FB 15.6
12.3–13.1	FB 16.4
13.2–13.7	FB 17.6
13.8–14.3	FB 18.4
14.4–15.5	FB 19.4
15.6–16.7	FB 21.1
16.8–17.6	FB 22.6
17.7–18.6	FB 23.6
18.7–19.9	FB 24.8
20.0–21.1	FB 92.0
21.2–25.0	FB 105.0

Table 83

Motor FLC (A)	Thermal Unit Number
2.30–2.60	FB 3.33
2.61–2.87	FB 3.71
2.88–3.17	FB 4.1
3.18–3.37	FB 4.5
3.38–3.76	FB 4.75
3.77–4.29	FB 5.3
4.30–4.75	FB 6.1
4.76–5.26	FB 6.75
5.27–5.51	FB 7.45
5.52–5.78	FB 7.8
5.79–6.13	FB 8.21
6.14–6.41	FB 8.6
6.42–6.75	FB 9.0
6.76–7.09	FB 9.5
7.10–7.57	FB 10.0
7.58–7.90	FB 10.6
7.91–8.81	FB 11.2
8.82–9.47	FB 12.1
9.48–10.0	FB 13.1
10.1–10.7	FB 13.9
10.8–11.4	FB 14.8
11.5–12.1	FB 15.6
12.2–13.1	FB 16.4
13.2–13.7	FB 17.6
13.8–14.7	FB 18.4
14.8–16.0	FB 19.4
16.1–17.3	FB 21.1
17.4–18.2	FB 22.6
18.3–19.4	FB 23.6
19.5–20.7	FB 24.8
20.8–22.3	FB 26.7
22.4–23.5	FB 28.3
23.6–24.2	FB 29.6
24.3–26.0	FB 30.5

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Table 84

Motor FLC (A)	Thermal Unit Number
3.38–3.78	FB 4.75
3.79–4.37	FB 5.3
4.38–4.87	FB 6.1
4.88–5.51	FB 6.75
5.52–5.73	FB 7.45
5.74–6.09	FB 7.8
6.10–6.44	FB 8.21
6.45–6.75	FB 8.6
6.76–7.15	FB 9.0
7.16–7.57	FB 9.5
7.58–8.07	FB 10.0
8.08–8.47	FB 10.6
8.48–8.81	FB 11.2
8.82–9.46	FB 12.1
9.47–10.1	FB 13.1
10.2–10.8	FB 13.9
10.9–11.4	FB 14.8
11.5–12.1	FB 15.6
12.2–13.1	FB 16.4
13.2–13.8	FB 17.6
13.9–14.8	FB 18.4
14.9–16.1	FB 19.4
16.2–17.4	FB 21.1
17.5–18.3	FB 22.6
18.4–19.5	FB 23.6
19.6–21.0	FB 24.8
21.1–22.5	FB 26.7
22.6–23.7	FB 28.3
23.8–24.5	FB 29.6
24.6–26.4	FB 30.5
26.5–27.7	FB 32.6
27.8–28.7	FB 34.1
28.8–29.9	FB 35.0
30.0–31.8	FB 36.6
31.9–33.5	FB 38.3
33.6–35.1	FB 40.2
35.2–37.1	FB 42.0
37.2–38.8	FB 44.0
38.9–41.1	FB 46.0
41.2–45.0	FB 48.0

Table 85

Motor FLC (A)	Thermal Unit Number
42.9–45.4	FB 44.0
45.6–48.3	FB 46.0
48.4–52.4	FB 48.0
52.5–55.9	FB 50.5
56.0–59.8	FB 52.5
59.9–63.8	FB 55.5
63.9–67.9	FB 58.0
68.0–72.6	FB 60.0
72.7–83.2	FB 63.5
83.3–94.7	FB 69.0
94.8–105	FB 77.0
106–116	FB 84.0
117–121	FB 92.0
122–133	FB 105.0

Table 86

Motor FLC (A)	Thermal Unit Number
0.43–0.44	A .49
0.45–0.47	A .54
0.48–0.53	A .59
0.54–0.61	A .65
0.62–0.65	A .71
0.66–0.71	A .78
0.72–0.79	A .86
0.80–0.86	A .95
0.87–0.96	A 1.02
0.97–1.04	A 1.16
1.05–1.17	A 1.25
1.18–1.31	A 1.39
1.32–1.38	A 1.54
1.39–1.47	A 1.63
1.48–1.57	A 1.75
1.58–1.65	A 1.86
1.66–1.77	A 1.99
1.78–1.93	A 2.15
1.94–2.18	A 2.31
2.19–2.46	A 2.57
2.47–2.68	A 2.81
2.69–2.87	A 3.61
2.88–3.07	A 3.95
3.08–3.59	A 4.32
3.60–3.79	A 4.79
3.80–4.27	A 5.30
4.28–4.59	A 5.78
4.60–4.90	A 6.20
4.91–5.06	A 6.99
5.07–5.44	A 7.65
5.45–6.24	A 8.38
6.25–7.21	A 9.25
7.22–7.69	A 9.85
7.70–8.24	A 11.0
8.25–8.81	A 11.9
8.82–9.32	A 132
9.33–9.99	A 14.1
10.0–10.5	A 14.8
10.6–11.5	A 16.2
11.6–12.2	A 17.9
12.3–13.3	A 21.3
13.4–15.8	A 25.2
15.9–18.4	A 27.1
18.5–20.5	A 29.5
20.6–21.5	A 31.9
21.6–23.9	A 33.8
24.0–26.8	A 35.9
26.9–28.2	A 40.0
28.3–29.8	A 42.3
29.9–32.0	A 44.7

Table 87

Motor FLC (A)	Thermal Unit Number
0.40–0.41	A .49
0.42–0.45	A .54
0.46–0.51	A .59
0.52–0.58	A .65
0.59–0.63	A .71
0.64–0.68	A .78
0.69–0.76	A .86
0.77–0.83	A .95
0.84–0.93	A 1.02
0.94–1.01	A 1.16
1.02–1.14	A 1.25
1.15–1.28	A 1.39
1.29–1.34	A 1.54
1.35–1.44	A 1.63
1.45–1.55	A 1.75
1.56–1.61	A 1.86
1.62–1.71	A 1.99
1.72–1.85	A 2.15
1.86–2.04	A 2.31
2.05–2.38	A 2.57
2.39–2.60	A 2.81
2.61–2.77	A 3.61
2.78–2.98	A 3.95
2.99–3.40	A 4.32
3.41–3.64	A 4.79
3.65–4.08	A 5.30
4.09–4.38	A 5.78
4.39–4.68	A 6.20
4.69–4.79	A 6.99
4.80–5.11	A 7.65
5.12–5.84	A 8.38
5.85–6.70	A 9.25
6.71–7.18	A 9.85
7.19–7.70	A 11.0
7.71–8.14	A 11.9
8.15–8.56	A 13.2
8.57–9.15	A 14.1
9.16–9.80	A 14.8
9.81–10.6	A 16.2
10.7–11.0	A 17.9

Table 88

Motor FLC (A)	Thermal Unit Number
0.39–0.40	A .49
0.41–0.44	A .54
0.45–0.49	A .59
0.50–0.57	A .65
0.58–0.61	A .71
0.62–0.66	A .78
0.67–0.73	A .86
0.74–0.80	A .95
0.81–0.90	A 1.02
0.91–0.97	A 1.16
0.98–1.09	A 1.25
1.10–1.23	A 1.39
1.24–1.57	A 1.86
1.58–1.66	A 1.99
1.67–1.79	A 2.15
1.80–1.99	A 2.31
2.00–2.31	A 2.57
2.32–2.50	A 2.81
2.51–2.66	A 3.61
2.67–2.85	A 3.95
2.86–3.26	A 4.32
3.27–3.49	A 4.79
3.50–3.92	A 5.30
3.93–4.20	A 5.78
4.21–4.49	A 6.20
4.50–4.64	A 6.99
4.65–4.94	A 7.65
4.95–5.62	A 8.38
5.63–6.39	A 9.25
6.40–6.82	A 9.85
6.83–7.27	A 11.0
7.28–7.71	A 11.9
7.72–8.13	A 13.2
8.14–8.64	A 14.1
8.65–9.15	A 14.8
9.16–9.97	A 16.2
9.98–11.0	A 17.9

Table 89

Motor FLC (A)	Thermal Unit Number
10.0–11.1	B 17.5
11.2–12.0	B 19.5
12.1–13.3	B 22.0
13.4–15.1	B 25.0
15.2–17.1	B 28.0
17.2–18.6	B 32.0
18.7–21.4	B 36.0
21.5–25.7	B 40.0
25.8–28.2	B 45.0
28.3–29.7	B 50.0
29.8–31.2	B 56.0
31.3–32.1	B 62.0
32.2–35.7	B 70.0
35.8–40.7	B 79.0
40.8–48.0	B 88.0

Table 90

Motor FLC (A)	Thermal Unit Number
4.88–5.13	A 7.65
5.14–5.85	A 8.38
5.86–6.67	A 9.25
6.68–7.09	A 9.85
7.10–7.62	A 11.0
7.63–8.04	A 11.9
8.05–8.46	A 13.2
8.47–9.11	A 14.1
9.12–9.69	A 14.8
9.70–10.5	A 16.2
10.6–11.6	A 17.9
11.7–12.3	A 21.3
12.4–14.6	A 25.2
14.7–16.8	A 27.1
16.9–17.9	A 29.5
18.0–18.7	A 31.9
18.8–19.8	A 33.8
19.9–21.4	A 35.9
21.5–22.8	A 40.0
22.9–23.8	A 42.3
23.9–26.0	A 44.7

Table 91

Motor FLC (A)	Thermal Unit Number
4.80–5.07	A 7.65
5.08–5.73	A 8.38
5.74–6.48	A 9.25
6.49–6.90	A 9.85
6.91–7.25	A 11.0
7.26–7.81	A 11.9
7.82–8.29	A 13.2
8.30–8.81	A 14.1
8.82–9.40	A 14.8
9.41–10.0	A 16.2
10.1–11.1	A 17.9
11.2–11.7	A 21.3
11.8–13.7	A 25.2
13.8–16.0	A 27.1
16.1–16.9	A 29.5
17.0–17.7	A 31.9
17.8–18.7	A 33.8
18.8–20.2	A 35.9
20.3–21.4	A 40.0
21.5–22.5	A 42.3
22.6–23.8	A 44.7
23.9–26.0	A 48.0

Table 92

Motor FLC (A)	Thermal Unit Number
10.5–11.7	B 17.5
11.8–12.5	B 19.5
12.6–14.0	B 22.0
14.1–15.8	B 25.0
15.9–18.0	B 28.0
18.1–19.6	B 32.0
19.7–23.5	B 36.0
23.6–27.4	B 40.0
27.5–30.5	B 45.0
30.6–32.2	B 50.0
32.3–34.0	B 56.0
34.1–35.2	B 62.0
35.3–39.5	B 70.0
39.6–43.9	B 79.0
44.0–48.0	B 88.0

Table 93

Motor FLC (A)	Thermal Unit Number
23.8–25.2	CC 36.4
25.3–26.8	CC 39.6
26.9–28.4	CC 42.7
28.5–30.3	CC 46.6
30.4–32.1	CC 50.1
32.2–34.2	CC 54.5
34.3–36.3	CC 59.4
36.4–40.2	CC 64.3
40.3–43.1	CC 68.5
43.2–45.9	CC 74.6
46.0–49.2	CC 81.5
49.3–51.6	CC 87.7
51.7–54.2	CC 94.0
54.3–55.7	CC 103.0
55.8–60.3	CC 112.0
60.4–63.5	CC 121.0
63.6–67.1	CC 132.0
67.2–70.3	CC 143.0
70.4–74.1	CC 156.0
74.2–78.3	CC 167.0
78.4–83.3	CC 180.0
83.4–86.0	CC 196.0

Table 94

Motor FLC (A)	Thermal Unit Number
25.8–27.5	CC 36.4
27.6–29.4	CC 39.6
29.5–31.4	CC 42.7
31.5–33.2	CC 46.6
33.3–36.2	CC 50.1
36.3–38.8	CC 54.5
38.9–41.6	CC 59.4
41.7–44.7	CC 64.3
44.8–47.9	CC 68.5
48.0–50.9	CC 74.6
51.0–54.4	CC 81.5
54.5–57.4	CC 87.7
57.5–60.6	CC 94.0
60.7–63.9	CC 103.0
64.0–68.4	CC 112.0
68.5–73.4	CC 121.0
73.5–78.7	CC 132.0
78.8–83.8	CC 143.0
83.9–86.0	CC 156.0

Table 95

Motor FLC (A)	Thermal Unit Number
42.5–44.7	CC 64.3
44.8–47.9	CC 68.5
48.0–51.2	CC 74.6
51.3–55.2	CC 81.5
55.3–59.4	CC 87.7
59.5–63.8	CC 94.0
63.9–68.8	CC 103.0
68.9–73.8	CC 112.0
73.9–77.7	CC 121.0
77.8–82.5	CC 132.0
82.6–86.6	CC 143.0
86.7–91.9	CC 156.0
92.0–97.2	CC 167.0
97.3–104	CC 180.0
105–114	CC 196.0
115–123	CC 208.0
124–150	CC 219.0

Table 96

Motor FLC (A)	Thermal Unit Number
49.5–52.0	CC 64.3
52.1–54.8	CC 68.5
54.9–58.7	CC 74.6
58.8–63.3	CC 81.5
63.4–68.3	CC 87.7
68.4–73.6	CC 94.0
73.7–79.4	CC 103.0
79.5–85.5	CC 112.0
85.6–89.7	CC 121.0
89.8–94.8	CC 132.0
94.9–99.9	CC 143.0
100–105	CC 156.0
106–111	CC 167.0
112–126	CC 180.0
127–131	CC 196.0
132–141	CC 208.0
142–150	CC 219.0

Table 97

Motor FLC (A)	Thermal Unit Number
0.57–0.60	AR 1.05
0.61–0.66	AR 1.15
0.67–0.73	AR 1.26
0.74–0.81	AR 1.39
0.82–0.90	AR 1.53
0.91–1.05	AR 1.68
1.06–1.15	AR 1.85
1.16–1.25	AR 2.04
1.26–1.35	AR 2.24
1.36–1.47	AR 2.46
1.48–1.58	AR 2.71
1.59–1.74	AR 2.98
1.75–1.94	AR 3.28
1.95–2.20	AR 3.62
2.21–2.47	AR 3.98
2.48–2.76	AR 4.37
2.77–3.07	AR 4.80
3.08–3.45	AR 5.3
3.46–3.81	AR 5.8
3.82–4.20	AR 6.4
4.21–4.65	AR 7.0
4.66–5.29	AR 7.7
5.30–5.84	AR 8.5
5.85–6.27	AR 9.3
6.28–6.97	AR 10.2
6.98–7.59	AR 11.2
7.60–7.89	AR 12.4
7.90–8.95	AR 13.6
8.96–10.3	AR 15.4
10.4–11.7	AR 17.6
11.8–13.3	AR 20.5
13.4–15.2	AR 23.0
15.3–17.2	AR 27.0
17.3–19.7	AR 30.0
19.8–22.4	AR 35.0
22.5–26.0	AR 40.0

Table 98

Motor FLC (A)	Thermal Unit Number
4.24–4.62	AR 8.5
4.63–5.05	AR 9.3
5.06–5.54	AR 10.2
5.55–6.13	AR 11.2
6.14–6.44	AR 12.4
6.45–7.48	AR 13.6
7.49–8.55	AR 15.4
8.56–9.74	AR 17.6
9.75–11.1	AR 20.5
11.2–12.7	AR 23.0
12.8–14.4	AR 27.0
14.5–16.4	AR 30.0
16.5–18.9	AR 35.0
19.0–21.6	AR 40.0
21.7–23.3	AR 44.0
23.4–24.9	AR 47.0
25.0–26.9	AR 51.0
27.0–29.1	AR 55.0
29.2–31.3	AR 60.0
31.4–33.5	AR 66.0
33.6–36.9	AR 72.0
37.0–39.1	AR 79.0
39.2–40.9	AR 86.0
41.0–45.0	AR 94.0

Table 99

Motor FLC (A)	Thermal Unit Number
27.1–30.0	E 67
30.1–33.2	E 69
33.3–35.7	E 70
35.8–39.4	E 71
39.5–43.4	E 72
43.5–46.9	E 73
47.0–51.5	E 74
51.6–57.0	E 76
57.1–62.8	E 77
62.9–69.1	E 78
69.2–75.0	E 79
75.1–83.3	E 80

Table 100

Motor FLC (A)	Thermal Unit Number
50–55.9	E 88
56–60.9	E 89
91–65.9	E 91
66–69.9	E 92
70–75.9	E 93
76–81.9	E 94
82–86.9	E 96
87–92.9	E 97
93–97.9	E 98
98–107.9	E 99
108–113.9	E 101
114–125.9	E 102

Table 101

Motor FLC (A)	Thermal Unit Number
105–116	AR 3.28
117–132	AR 3.62
133–148	AR 3.98
149–165	AR 4.37
166–184	AR 4.80
185–207	AR 5.3
208–229	AR 5.8
230–266	AR 6.4

Table 102

Motor FLC (A)	Thermal Unit Number
146–169	AR 1.68
170–185	AR 1.85
186–201	AR 2.04
202–217	AR 2.24
218–236	AR 2.46
237–253	AR 2.71
254–279	AR 2.98
280–311	AR 3.28
312–353	AR 3.62
354–396	AR 3.98
397–442	AR 4.37
443–492	AR 4.80
493–520	AR 5.3

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Table 103

Motor FLC (A)	Thermal Unit Number
40.8–45.5	B 1.03
45.6–49.9	B 1.16
51.0–57.5	B 1.30
57.6–65.9	B 1.45
66.0–73.1	B 1.67
73.2–81.5	B 1.88
81.6–92.3	B 2.10
92.4–104	B 2.40
105–114	B 2.65
115–128	B 3.00
129–140	B 3.30
141–160	B 3.70
161–193	B 4.15
194–209	B 4.85
210–232	B 5.50
233–248	B 6.25
249–266	B 6.90

Table 104

Motor FLC (A)	Thermal Unit Number	Max. Fuse Rating (A)	
		600 V Max.	250 V Max.
0.65–0.73	B 1.03	1.50	
0.74–0.82	B 1.16	1.50	
0.93–0.91	B 1.30	1.60	
0.92–1.04	B 1.45	2.00	
1.05–1.16	B 1.67	2.00	
1.17–1.26	B 1.88	2.25	
1.27–1.47	B 2.10	2.60	
1.48–1.65	B 2.40	3.00	
1.66–1.89	B 2.65	3.50	
1.90–2.17	B 3.00	4.00	
2.18–2.49	B 3.30	4.50	
2.50–2.79	B 3.70	5.00	
2.80–3.13	B 4.15	5.60	
3.14–3.36	B 4.85	6.00	
3.37–3.69	B 5.50	7.00	
3.70–3.92	B 6.25	7.00	
3.93–4.42	B 6.90	8.00	
4.43–4.99	B 7.70	9.00	
5.00–5.27	B 8.20	10.0	
5.28–5.84	B 9.10	12.0	
5.85–6.61	B 10.2	12.0	
6.62–7.42	B 11.5	15.0	
7.43–8.02	B 12.8	15.0	
8.03–8.53	B 14.0	15.0	
8.54–9.34	B 15.5	17.5	
9.35–10.1	B 17.5	17.5	
10.2–10.8	B 19.5	20.0	
10.9–12.0	B 22.0	25.0	
12.1–13.0	B 25.0	25.0	
13.1–15.5	B 28.0	30.0	
15.6–17.9	B 32.0	30	30
18.0–21.4	B 36.0	30	40
21.5–25.1	B 40.0	30	40
25.2–27.0	B 45.0	30	40

Table 105

Motor FLC (A)	Thermal Unit Number
105–112	CC 74.6
113–122	CC 81.5
123–131	CC 87.7
132–142	CC 94.0
143–153	CC 103.0
154–157	CC 112.0
158–169	CC 121.0
170–181	CC 132.0
182–195	CC 143.0
196–209	CC 156.0
210–227	CC 167.0
228–247	CC 180.0
248–266	CC 196.0

Table 109

Motor FLC (A)	Thermal Unit Number
0.56–0.63	B 0.81
0.64–0.68	B 0.92
0.69–0.77	B 1.03
0.78–0.85	B 1.16
0.86–0.97	B 1.30
0.98–1.09	B 1.45
1.10–1.21	B 1.67
1.22–1.33	B 1.88
1.34–1.53	B 2.10
1.54–1.73	B 2.40
1.74–1.89	B 2.65
1.90–2.17	B 3.00
2.18–2.53	B 3.30
2.54–2.87	B 3.70
2.88–3.22	B 4.15
3.23–3.49	B 4.85
3.50–3.85	B 5.50
3.86–4.11	B 6.25
4.12–4.70	B 6.90
4.71–5.21	B 7.70
5.22–5.53	B 8.20
5.54–6.17	B 9.10
6.18–7.02	B 10.2
7.03–7.92	B 11.5
7.93–8.61	B 12.8
8.62–9.17	B 14.0
9.18–10.0	B 15.5
10.1–11.0	B 17.5
11.1–11.8	B 19.5
11.9–13.5	B 22.0
13.6–15.3	B 25.0
15.4–17.4	B 28.0
17.5–19.4	B 32.0
19.5–22.2	B 36.0
22.3–25.1	B 40.0
25.2–27.0	B 45.0

Table 110

Motor FLC (A)	Thermal Unit Number
3.94–4.45	B 6.90
4.46–4.97	B 7.70
4.98–5.28	B 8.20
5.29–5.97	B 9.10
5.98–6.89	B 10.2
6.90–7.92	B 11.5
7.93–8.71	B 12.8
8.72–9.27	B 14.0
9.28–10.2	B 15.5
10.3–11.4	B 17.5
11.5–12.3	B 19.5
12.4–13.9	B 22.0
14.0–15.8	B 25.0
15.9–17.9	B 28.0
18.0–19.9	B 32.0
20.0–22.8	B 36.0
22.9–25.4	B 40.0
25.5–28.9	B 45.0
29.0–30.8	B 50.0
30.9–32.5	B 56.0
32.6–34.9	B 62.0
35.0–39.7	B 70.0
39.8–44.7	B 79.0

Table 111

Motor FLC (A)	Thermal Unit Number
14.0–14.9	CC 20.9
15.0–16.2	CC 22.8
16.3–17.2	CC 24.6
17.3–18.7	CC 26.3
18.8–20.2	CC 28.8
20.3–21.7	CC 31.0
21.8–23.3	CC 33.3
23.4–25.2	CC 36.4
25.3–27.1	CC 39.6
27.2–29.4	CC 42.7
29.5–31.6	CC 46.6
31.7–34.0	CC 50.1
34.1–36.8	CC 54.5
36.9–39.8	CC 59.4
39.9–42.3	CC 64.3
42.4–45.7	CC 68.5
45.8–49.2	CC 74.6
49.3–52.8	CC 81.5
52.9–56.8	CC 87.7
56.9–61.2	CC 94.0
61.3–66.1	CC 103.0
66.2–71.2	CC 112.0
71.3–76.7	CC 121.0
76.8–82.9	CC 132.0
83.0–90.0	CC 143.0

Table 112

Motor FLC (A)	Thermal Unit Number
44.0–46.8	CC 64.3
46.9–50.6	CC 68.5
50.7–54.5	CC 74.6
54.6–58.4	CC 81.5
58.5–62.9	CC 87.7
63.0–67.7	CC 94.0
67.8–72.9	CC 103.0
73.0–78.1	CC 112.0
78.2–83.9	CC 121.0
84.0–91.1	CC 132.0
91.2–97.5	CC 143.0
97.6–104	CC 156.0
105–113	CC 167.0
114–133	CC 180.0

Table 113

Motor FLC (A)	Thermal Unit Number
88.2–95.1	DD 112.0
95.2–101	DD 121.0
102–111	DD 128.0
112–119	DD 140.0
120–131	DD 150.0
132–149	DD 160.0
150–170	DD 185.0
171–180	DD 220.0
181–197	DD 240.0
198–204	DD 250.0
205–213	DD 265.0
214–237	DD 280.0
238–243	DD 300.0
244–266	DD 320.0

Table 114

Motor FLC (A)	Thermal Unit Number
133–148	B 1.30
149–174	B 1.45
175–195	B 1.67
196–219	B 1.88
220–239	B 2.10
240–271	B 2.40
272–308	B 2.65
309–348	B 3.00
349–397	B 3.30
398–429	B 3.70
430–495	B 4.15
496–520	B 4.85

Table 115

Motor FLC (A)	Thermal Unit Number
176–190	DD 112.0
191–203	DD 121.0
203–223	DD 128.0
224–239	DD 140.0
240–253	DD 150.0
254–299	DD 160.0
300–341	DD 185.0
342–361	DD 220.0
362–395	DD 240.0
396–409	DD 250.0
410–427	DD 265.0
428–475	DD 289.0
476–487	DD 300.0
488–532	DD 320.0

Table 116

Motor FLC (A))	Thermal Unit Number
81.6–91.1	B 1.03
91.2–101	B 1.16
102–115	B 1.30
116–131	B 1.45
132–146	B 1.67
147–163	B 1.88
164–184	B 2.10
185–209	B 2.40
210–229	B 2.65
230–257	B 3.00
258–281	B 3.30
282–321	B 3.70
322–387	B 4.15
388–419	B 4.35
420–465	B 5.60
466–497	B 6.25
496–532	B 6.90

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Table 117

Motor FLC (A)	Thermal Unit Number
100–111.9	E 88
112–121.9	E 89
122–131.9	E 91
132–139.9	E 92
140–151.9	E 93
152–163.9	E 94
164–173.9	E 96
174–185.9	E 97
186–195.9	E 98
196–215.9	E 99
216–227.9	E 101
228–251.9	E 102

Table 118

Motor FLC (A)	Thermal Unit Number
210–233	AR 3.28
234–265	AR 3.62
266–297	AR 3.98
298–331	AR 4.37
332–369	AR 4.8
370–415	AR 5.3
416–459	AR 5.8
460–532	AR 6.4

Table 121

Motor FLC (A)	Thermal Unit Number
1.14–1.21	AR 1.05
1.22–1.33	AR 1.15
1.34–1.47	AR 1.26
1.48–1.63	AR 1.39
1.64–1.81	AR 1.53
1.82–2.11	AR 1.68
2.12–2.31	AR 1.85
2.32–2.51	AR 2.04
2.52–2.71	AR 2.24
2.72–2.95	AR 2.46
2.96–3.17	AR 2.71
3.18–3.49	AR 2.98
3.50–3.89	AR 3.28
3.90–4.41	AR 3.62
4.42–4.95	AR 3.98
4.96–5.53	AR 4.37
5.54–6.15	AR 4.80
6.16–6.91	AR 5.3
6.92–7.63	AR 5.8
7.64–8.41	AR 6.4
8.42–9.31	AR 7.0
9.32–10.59	AR 7.7
10.60–11.69	AR 8.5
11.70–12.55	AR 9.3
12.56–13.95	AR 10.2
13.96–15.19	AR 11.2
15.20–15.79	AR 12.4
15.80–17.91	AR 13.6
17.92–20.7	AR 15.4
20.8–23.5	AR 17.6
23.6–26.7	AR 20.5
26.8–30.5	AR 23.0
30.6–34.5	AR 27.0
34.6–39.5	AR 30.0
39.6–44.9	AR 35.0
45.0–52.0	AR 40.0

Table 122

Motor FLC (A)	Thermal Unit Number
8.48–9.25	AR 8.5
9.26–10.11	AR 9.3
10.12–11.09	AR 10.2
11.10–12.27	AR 11.2
12.28–12.89	AR 12.4
12.90–14.97	AR 13.6
14.98–17.11	AR 15.4
17.12–19.49	AR 17.6
19.50–22.3	AR 20.5
22.4–22.5	AR 23.0
22.6–28.9	AR 27.0
29.0–32.9	AR 30.0
33.0–37.9	AR 35.0
38.0–43.3	AR 40.0
43.4–46.7	AR 44.0
46.8–49.9	AR 47.0
50.0–53.9	AR 51.0
54.0–58.3	AR 55.0
58.4–62.7	AR 60.0
62.8–67.1	AR 66.0
67.2–73.8	AR 72.0
74.0–78.3	AR 79.0
78.4–81.9	AR 86.0
82.0–90.0	AR 94.0

Table 123

Motor FLC (A)	Thermal Unit Number
54.2–60.1	E 67
60.2–66.5	E 69
66.6–71.5	E 70
71.6–78.9	E 71
79.0–86.9	E 72
87.0–93.9	E 73
94.0–103.1	E 74
103.2–114.1	E 76
114.2–125.7	E 77
125.8–138.3	E 78
138.4–150.1	E 79
150.2–166.6	E 80

Table 127

Motor FLC (A)	Thermal Unit Number
1.12–1.27	B 0.81
1.28–1.37	B 0.92
1.38–1.55	B 1.03
1.56–1.71	B 1.16
1.72–1.95	B 1.30
1.96–2.19	B 1.45
2.20–2.43	B 1.67
2.44–2.67	B 1.88
2.68–3.07	B 2.10
3.08–3.47	B 2.40
3.48–3.79	B 2.65
3.80–4.35	B 3.00
4.36–5.07	B 3.30
5.08–5.75	B 3.70
5.76–6.45	B 4.15
6.46–6.99	B 4.85
7.00–7.71	B 5.50
7.72–8.23	B 6.25
8.24–9.41	B 6.90
9.42–10.43	B 7.70
10.44–11.07	B 8.20
11.08–12.35	B 9.10
12.36–14.05	B 10.2
14.06–15.85	B 11.5
15.86–17.23	B 12.8
17.24–18.35	B 14.0
18.36–20.1	B 15.5
20.2–22.1	B 17.5
22.2–23.7	B 19.5
23.8–27.1	B 22.0
27.2–30.7	B 25.0
30.8–34.9	B 28.0
35.0–38.9	B 32.0
39.0–44.5	B 36.0
44.6–50.3	B 40.0
50.4–54.0	B 45.0

Table 128

Motor FLC (A)	Thermal Unit Number
7.88–8.91	B 6.90
8.92–9.95	B 7.70
9.96–10.57	B 8.20
10.58–11.95	B 9.10
11.96–13.79	B 10.2
13.80–15.85	B 11.5
15.86–17.43	B 12.8
17.44–18.55	B 14.0
18.56–20.5	B 15.5
20.6–22.9	B 17.5
23.0–24.7	B 19.5
24.8–27.9	B 22.0
28.0–31.7	B 25.0
31.8–35.9	B 28.0
36.0–39.9	B 32.0
40.0–45.7	B 36.0
45.8–50.9	B 40.0
51.0–61.7	B 45.0
61.8–65.1	B 50.0
65.2–69.9	B 56.0
70.0–79.5	B 62.0
79.6–89.4	B 70.0

Table 129

Motor FLC (A)	Thermal Unit Number
28.0–29.9	CC 20.9
30.0–32.5	CC 22.8
32.6–34.5	CC 24.6
34.6–37.5	CC 26.3
37.6–40.5	CC 28.8
40.6–43.5	CC 31.0
43.6–46.7	CC 33.3
46.8–50.5	CC 36.4
50.6–54.3	CC 39.6
54.4–58.9	CC 42.7
59.0–63.3	CC 46.6
63.4–68.1	CC 50.1
68.2–73.7	CC 54.5
73.8–79.7	CC 59.4
79.8–84.7	CC 64.5
84.8–91.5	CC 68.5
91.6–98.5	CC 74.6
98.6–105.7	CC 81.5
105.8–113.7	CC 87.7
113.8–122.5	CC 94.0
122.6–132.3	CC 103.0
132.4–142.5	CC 112.0
142.6–153.5	CC 121.0
153.6–165.9	CC 132.0
166.0–180.0	CC 143.0

Table 133

Motor FLC (A)	Thermal Unit Number
4.60–5.23	B 6.90
5.24–5.86	B 7.70
5.87–6.25	B 8.20
6.26–7.09	B 9.10
7.10–8.25	B 10.2
8.26–9.49	B 11.5
9.50–10.3	B 12.8
10.4–11.2	B 14.0
11.3–12.5	B 15.5
12.6–13.8	B 17.5
13.9–15.0	B 19.5
15.1–16.9	B 22.0
17.0–19.1	B 25.0
19.2–22.0	B 28.0
22.1–24.4	B 32.0
24.5–28.0	B 36.0
28.1–31.8	B 40.0
31.9–36.0	B 45.0
36.1–38.5	B 50.0
38.6–41.2	B 56.0
41.3–44.4	B 62.0
44.5–50.3	B 70.0
50.4–56.9	B 79.0
57.0–59.0	B 88.0

Table 134

Motor FLC (A)	Thermal Unit Number
4.30–4.98	B 6.90
4.99–5.57	B 7.70
5.58–5.94	B 8.20
5.95–6.71	B 9.10
6.72–7.79	B 10.2
7.80–8.93	B 11.5
8.94–9.77	B 12.8
9.78–10.5	B 14.0
10.6–11.7	B 15.5
11.8–13.0	B 17.5
13.1–14.0	B 19.5
14.1–15.0	B 22.0
15.1–17.2	B 25.0
17.3–19.9	B 28.0
20.0–22.3	B 32.0
22.4–26.0	B 36.0
26.1–29.8	B 40.0
29.9–34.0	B 45.0
34.1–36.7	B 50.0
36.8–39.5	B 56.0
39.6–42.1	B 62.0
42.2–46.6	B 70.0
46.7–51.5	B 79.0
51.6–54.0	B 88.0

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Table 135

Motor FLC (A)		Thermal Unit Number
1 T. U.	3 T. U.	
0.77–0.88	0.85–0.95	B 1.30
0.89–1.02	0.96–1.09	B 1.45
1.03–1.19	1.10–1.21	B 1.67
1.20–1.37	1.22–1.35	B 1.88
1.38–1.62	1.36–1.56	B 2.10
1.63–1.90	1.57–1.76	B 2.40
1.91–2.12	1.77–1.94	B 2.65
2.13–2.46	1.95–2.22	B 3.00
2.47–2.83	2.23–2.57	B 3.30
2.84–3.19	2.58–2.87	B 3.70
3.20–3.61	2.88–3.21	B 4.15
3.62–3.89	3.22–3.50	B 4.85
3.90–4.32	3.51–3.79	B 5.50
4.33–4.57	3.80–4.04	B 6.25
4.58–5.19	4.05–4.53	B 6.90
5.20–5.79	4.54–5.03	B 7.70
5.80–6.16	5.04–5.36	B 8.20
6.17–6.94	5.37–5.97	B 9.10
6.95–7.99	5.98–6.89	B 10.2
7.80–8.99	6.90–7.79	B 11.5
9.00–9.98	7.80–8.53	B 12.8
9.99–10.6	8.54–9.09	B 14.0
10.7–11.6	9.10–9.99	B 15.5
11.7–13.1	10.0–10.9	B 17.5
13.2–14.2	11.0–11.7	B 19.5
14.3–15.4	11.8–13.4	B 22.0
15.5–17.6	13.5–15.4	B 25.0
17.7–20.0	15.5–17.9	B 28.0
–	18.0–20.0	B 32.0
For Type DPSG12 & DPSG13, 20 A Starter. Select Thermal Units from above.		
20.1–22.7	18.0–20.2	B 32.0
22.8–25.0	20.3–23.2	B 36.0
–	23.3–25.0	B 40.0
For Type DPSG22 & DPSG23, 25 A Starter. Select any of the Thermal Units from above.		
22.8–26.1	–	B 36.0
26.2–29.6	23.3–25.8	B 40.0
29.7–30.0	25.9–28.6	B 45.0
For Type DPSG32 & DPSG33, 30 A Starter. Select any of the Thermal Units from above.		

Table 136

Motor FLC (A)		Thermal Unit Number
1 T. U.	3 T. U.	
0.98–1.09	0.88–0.98	B 1.30
1.10–1.24	0.99–1.13	B 1.45
1.25–1.41	1.14–1.26	B 1.67
1.42–1.59	1.27–1.38	B 1.88
1.60–1.81	1.39–1.62	B 2.10
1.82–2.04	1.63–1.82	B 2.40
2.05–2.19	1.83–2.04	B 2.65
2.20–2.52	2.05–2.36	B 3.00
2.53–2.90	2.37–2.72	B 3.30
2.91–3.29	2.73–3.07	B 3.70
3.30–3.69	3.08–3.44	B 4.15
3.70–3.99	3.45–3.69	B 4.85
4.00–4.42	3.70–4.11	B 5.50
4.43–4.69	4.12–4.34	B 6.25
4.70–5.37	4.35–4.89	B 6.90
5.38–5.94	4.90–5.44	B 7.70
5.95–6.34	5.45–5.80	B 8.20
6.35–7.05	5.81–6.47	B 9.10
7.06–8.14	6.48–7.45	B 10.2
8.15–9.39	7.46–8.49	B 11.5
9.40–10.3	8.50–9.29	B 12.8
10.4–11.1	9.30–9.99	B 14.0
11.2–12.2	10.0–10.8	B 15.5
12.3–13.5	10.9–12.1	B 17.5
13.6–14.7	12.2–13.1	B 19.5
14.8–16.1	13.2–14.6	B 22.0
16.2–18.3	14.7–16.4	B 25.0
18.4–20.0	16.5–18.9	B 28.0
–	19.0–20.0	B 32.0
For Type DPSO12 & DPSO13, 20 A Starter. Select Thermal Units from above.		
18.4–20.9	–	B 28.0
21.0–23.6	19.0–20.9	B 32.0
23.7–25.0	21.0–24.1	B 36.0
–	24.2–25.0	B 40.0
For Type DPSO22 & DPSO23, 25 A Starter. Select any of the Thermal Units from above.		
23.7–27.2	–	B 36.0
27.3–30.0	24.2–27.2	B 40.0
	27.3–30.0	B 45.0
For Type DPSO32 & DPSO33, 30 A Starter. Select any of the Thermal Units from above.		

Table 137

Motor FLC (A)	Thermal Unit Number
50–55.9	E 88
56–60.9	E 89
61–65.9	E 91
66–69.9	E 92
70–75.9	E 93
76–81.9	E 94
82–86.9	E 96
87–92.9	E 97
93–97.9	E 98
98–107	E 99
108–113	E 101
114–125	E 102
126–138	E 103
139–153	E 104
154–163	E 106
164–180	E 107

Table 138

Motor FLC (A)	Thermal Unit Number
22.6–25.5	E 62
25.6–26.4	E 65
26.5–28.9	E 66
29.0–31.9	E 67
32.0–34.5	E 69
34.6–36.9	E 70
37.0–40.6	E 71
40.7–44.0	E 72
44.1–47.4	E 73
47.5–53.1	E 74
53.2–58.3	E 76
58.4–63.5	E 77
63.6–69.9	E 78
70.0–77.1	E 79
77.2–83.3	E 80
83.4–86.9	E 96
87.0–92.9	E 97
93.0–100	E 98

Table 139

Motor FLC (A)	Thermal Unit Number
13.7–15.2	E 57
15.3–16.8	E 59
16.9–18.7	E 60
18.8–20.0	E 61
20.1–22.5	E 62
22.6–23.3	E 65
23.4–25.5	E 66
25.6–27.9	E 67
28.0–30.8	E 69
30.9–33.2	E 70
33.3–36.6	E 71
36.7–38.9	E 72
39.0–43.1	E 73
43.2–47.4	E 74
47.5–50.0	E 76
50.1–55.2	E 77
55.3–60.0	E 78

Table 140

Motor FLC (A)	Thermal Unit Number
0.34–0.36	E 3
0.37–0.40	E 4
0.41–0.43	E 5
0.44–0.47	E 6
0.48–0.51	E 7
0.52–0.56	E 8
0.57–0.62	E 9
0.63–0.67	E 11
0.68–0.73	E 12
0.74–0.77	E 13
0.78–0.84	E 14
0.85–0.93	E 16
0.94–1.00	E 17
1.01–1.08	E 18
1.09–1.15	E 19
1.16–1.27	E 23
1.28–1.45	E 24
1.46–1.61	E 26
1.62–1.81	E 27
1.82–2.00	E 28
2.01–2.12	E 29
2.13–2.29	E 31
2.30–2.43	E 32
2.44–2.66	E 33
2.67–2.98	E 34
2.99–3.16	E 36
3.17–3.39	E 37
3.40–3.69	E 38
3.70–4.00	E 39
4.01–4.48	E 41
4.49–5.00	E 42
5.01–5.44	E 44
5.45–5.99	E 46
6.00–6.60	E 47
6.61–6.96	E 48
6.97–7.26	E 49
7.27–7.99	E 50
8.00–8.89	E 51
8.90–9.74	E 52
9.75–10.50	E 53
10.6–11.5	E 54
11.6–12.3	E 55
12.4–13.4	E 56
13.5–15.2	E 57
15.3–17.2	E 60
17.3–18.4	E 61
18.5–20.6	E 62
20.7–21.3	E 65
21.4–23.4	E 66
23.5–24.0	E 67

Table 141

Motor FLC (A)	Thermal Unit Number	Max. Fuse Rating (A)	
12.2–14.4	E56	25	
14.5–17.8	E57	30	
17.9–18.8	E60	40	
18.9–21.4	E61	40	
21.5–23.0	E62	45	
23.1–25.7	E65	50	
25.8–28.0	E66	50	
28.1–31.0	E67	60	
31.1–32.7	E69	60	
32.8–35.5	E70	70	
35.6–38.2	E71	80	
38.3–43.3	E73	80	
43.4–46.9	E73A	90	
47.0–50.1	E74	100	
		600 V Max.	250 V Max.
50.2–54.0	E76	100	110
54.1–58.0	E77	100	110
58.1–60.0	E78	100	125
60.1–67.0	E79	100	125
67.1–70.5	E80	100	125
70.6–75.9	E94	100	125
76.0–82.0	E96	100	125
82.1–86.0	E97	100	125

Table 142

Motor FLC (A)	Thermal Unit Number	Max. Fuse Rating (A)	
11.7–13.5	E56	25	
13.6–16.7	E57	30	
16.8–18.1	E60	35	
18.2–20.0	E61	40	
20.1–21.9	E62	40	
22.0–24.2	E65	45	
24.3–26.2	E66	50	
26.3–29.2	E67	50	
29.3–32.0	E69	60	
32.1–34.3	E70	70	
34.4–36.2	E71	70	
36.3–39.9	E73	80	
40.0–43.8	E73A	90	
43.9–46.2	E74	90	
46.3–50.0	E76	100	
		600 V Max.	250 V Max.
50.1–53.9	E77	100	110
54.0–56.0	E78	100	110
56.1–61.0	E79	100	125
61.1–65.9	E80	100	125
66.0–72.0	E94	100	125
72.1–75.9	E96	100	125
76.0–79.9	E98	100	125
80.0–86.0	E101	100	125

Table 143

Motor FLC (A)	Thermal Unit Number	Max. Fuse Rating (A)
18.9–20.0	E60	40
20.1–22.8	E61	45
22.9–24.7	E62	50
24.8–26.9	E65	50
27.0–29.2	E66	60
29.3–32.8	E67	60
32.9–34.9	E69	70
35.0–37.5	E70	70
37.6–39.6	E72	80
39.7–46.1	E73	80
46.2–49.9	E73A	100
50.0–56.3	E74	110
56.4–61.0	E76	125
61.1–64.0	E77	125
64.1–66.0	E78	125
66.1–72.4	E79	125
72.5–78.2	E80	150
78.3–83.9	E94	175
84.0–86.0	E96	175
86.1–92.8	E97	175
92.9–97.9	E98	200
98.0–105.0	E101	200
105.1–117.0	E102	200
117.1–133.0	E103	200

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Table 144

Motor FLC (A)	Thermal Unit Number	Max. Fuse Rating (A)
18.2–19.1	E60	40
19.2–22.1	E61	40
22.2–23.1	E62	45
23.2–25.7	E65	50
25.8–27.7	E66	50
27.8–31.3	E67	60
31.4–33.3	E69	70
33.4–35.9	E70	70
36.0–38.4	E71	80
38.5–44.2	E73	80
44.3–46.8	E73A	90
46.9–52.6	E74	100
52.7–56.0	E76	110
56.1–58.4	E77	125
58.5–61.9	E78	125
62.0–67.1	E79	125
67.2–72.3	E80	150
72.4–75.9	E94	150
76.0–85.6	E96	150
85.7–91.2	E98	175
91.3–100.0	E101	200
100.1–108.9	E102	200
109.0–119.9	E103	200
120.0–133.0	E104	200

Table 145

Motor FLC (A)		Thermal Unit Number
1 T.U.	3 T.U.	
1.00–1.11	0.91–1.02	B1.30
1.12–1.27	1.03–1.15	B1.45
1.28–1.36	1.16–1.27	B1.67
1.37–1.53	1.28–1.39	B1.88
1.54–1.78	1.40–1.61	B2.10
1.79–2.02	1.62–1.84	B2.40
2.03–2.20	1.85–2.03	B2.65
2.21–2.52	2.04–2.34	B3.00
2.53–2.94	2.35–2.69	B3.30
2.95–3.30	2.70–3.02	B3.70
3.31–3.70	3.03–3.39	B4.15
3.71–4.02	3.40–3.65	B4.85
4.03–4.46	3.66–4.04	B5.50
4.47–4.69	4.05–4.28	B6.25
4.70–5.37	4.29–4.85	B6.90
5.38–5.94	4.86–5.38	B7.70
5.95–6.34	5.39–5.71	B8.20
6.35–7.09	5.72–6.39	B9.10
7.10–8.46	6.40–7.53	B10.2
8.47–9.32	7.54–8.34	B11.5
9.33–10.2	8.35–9.14	B12.8
10.3–10.9	9.15–9.74	B14.0
11.0–12.1	9.75–10.7	B15.5
12.2–13.4	10.8–11.8	B17.5
13.5–14.2	11.9–12.2	B19.5
14.3–16.0	12.3–14.4	B22.0
16.1–18.1	14.5–16.4	B25.0
18.2–20.5	16.5–18.9	B28.0
20.6–23.5	19.0–21.3	B32.0
23.6–27.2	21.4–23.3	B36.0
27.3–30.8	23.4–27.9	B40.0
30.9–35.0	28.0–31.4	B45.0
35.1–37.2		B50.0
37.3–40.0		B56.0

For Type DPSG42 & DPSG43, 40 A Starter.
Select any of the Thermal Units from above.

Table 146

Motor FLC (A)		Thermal Unit Number
1 T.U.	3 T.U.	
3.90–4.22	3.60–3.89	B5.50
4.23–4.49	3.90–4.15	B6.25
4.50–5.14	4.16–4.76	B6.90
5.15–5.78	4.77–5.30	B7.70
5.79–6.23	5.31–5.70	B8.20
6.24–7.03	5.71–6.46	B9.10
7.04–8.23	6.47–7.65	B10.2
8.24–9.31	7.66–8.55	B11.5
9.32–10.1	8.56–9.36	B12.8
10.2–10.7	9.37–9.9	B14.0
10.8–11.9	10.0–10.9	B15.5
12.0–13.1	11.0–12.0	B17.5
13.2–13.9	12.1–12.8	B19.5
14.0–15.9	12.9–14.2	B22.0
16.0–18.0	14.3–16.0	B25.0
18.1–20.8	16.1–18.5	B28.0
20.9–23.1	18.6–21.2	B32.0
23.2–26.9	21.3–24.9	B36.0
27.0–31.4	25.0–28.0	B40.0
31.5–36.0	28.1–31.7	B45.0
36.1–38.8	31.8–34.6	B50.0
38.9–41.7	34.7–37.4	B56.0
41.8–46.3	37.5–40.0	B62.0
46.4–50.0	40.1–46.4	B70.0
—	46.5–50.0	B79.0

For Type DPSG52 & DPSG53, 50 A Starter.
Select any of the Thermal Units from above.

Table 147

Motor FLC (A)		Thermal Unit Number
1 T.U.	3 T.U.	
1.04–1.14	0.93–1.04	B1.30
1.15–1.29	1.05–1.18	B1.45
1.30–1.43	1.19–1.33	B1.67
1.44–1.56	1.34–1.43	B1.88
1.57–1.79	1.44–1.67	B2.10
1.80–2.03	1.68–1.88	B2.40
2.04–2.26	1.89–2.09	B2.65
2.27–2.51	2.10–2.41	B3.00
2.52–3.03	2.42–2.79	B3.30
3.04–3.31	2.80–3.15	B3.70
3.32–3.73	3.16–3.54	B4.15
3.74–4.07	3.55–3.75	B4.85
4.08–4.49	3.76–4.22	B5.50
4.50–4.76	4.23–4.46	B5.25
4.77–5.44	4.47–5.09	B6.90
5.45–6.04	5.10–5.61	B7.70
6.05–6.46	5.62–5.99	B8.20
6.47–7.24	6.00–6.70	B9.10
7.25–8.64	6.71–8.19	B10.20
8.65–9.59	8.20–8.79	B11.5
9.60–10.5	8.80–9.66	B12.8
10.6–11.3	9.67–10.2	B14.0
11.4–12.6	10.3–11.4	B15.5
12.7–13.9	11.5–12.6	B17.5
14.0–14.9	12.7–13.5	B19.5
15.0–16.5	13.6–15.1	B22.0
16.6–18.9	15.2–17.2	B25.0
19.0–22.2	17.3–19.9	B28.0
22.3–24.6	20.0–22.5	B32.0
24.7–28.6	22.6–26.2	B36.0
28.7–32.4	26.3–29.9	B40.0
32.5–37.3		B45.0
37.4–39.5		B50.0
39.6–40.0		B56.0

For Type DPSO42 & DPSO43, 40 A Starter.
Select any of the Thermal Units from above.

Table 148

Motor FLC (A)		Thermal Unit Number
1 T.U.	3 T.U.	
4.14–4.45	3.70–4.09	B5.50
4.46–4.88	4.10–4.35	B6.25
4.89–5.44	4.36–5.07	B6.90
5.45–6.08	5.08–5.79	B7.70
6.09–6.42	5.80–6.27	B8.20
6.43–7.28	6.28–7.16	B9.10
7.29–8.42	7.17–8.58	B10.2
8.43–9.64	8.59–9.55	B11.5
9.65–10.4	9.56–10.2	B12.8
10.5–11.2	10.3–10.9	B14.0
11.3–12.3	11.0–11.9	B15.5
12.4–13.7	12.0–13.1	B17.5
13.8–14.8	13.2–14.0	B19.5
14.9–16.5	14.1–14.8	B22.0
16.6–18.7	14.9–17.0	B25.0
18.8–21.4	17.1–19.6	B28.0
21.5–24.3	19.7–22.1	B32.0
24.4–28.0	22.2–26.0	B36.0
28.1–33.3	26.1–29.4	B40.0
33.4–37.6	29.5–34.0	B45.0
37.7–41.1	34.1–36.4	B50.0
41.2–44.1	36.5–39.2	B56.0
44.2–47.8	39.3–42.4	B62.0
47.9–50.0	42.5–49.3	B70.0
—	49.4–50.0	B79.0

For Type DPSO52 & DPSO53, 50 A Starter.
Select any of the Thermal Units from above.