

Series CA9 Contactors

NEW

The modern contactor for demanding applications up to 900HP (@460V) - up to 1150HP (@ 575V)



Sprecher + Schuh's CA9 contactor line combines the simple function of our popular CA7 series with the rugged performance demanded in this wide horsepower range. CA9 contactors offer a smaller footprint than traditional contactors in this size class.

A broad selection for middle horsepower applications

The CA9 range consists of sixteen contactors in six frame sizes covering motors from 75 to 900HP at 460V and from 100 to 1150HP at 575V. This line is ideally suited for demanding applications such as steel mills, rock quarries, mines or for any middle horsepower application where a sturdy, durable contactor is needed.

Rugged and reliable

CA9 contactors conform to UL508, IEC 60947 and can be operated at rated voltages up to 600V (UL) and 1000V (IEC). High thermal and switching capacities guarantee reliable operation and long life.

Arc quenching extends contact life

All CA9 contactors are designed with sophisticated arc quenching techniques that extinguish damaging breaking arcs quickly. This is accomplished by guiding the arc away from the contacts and into "arc chambers", which are built-in to every CA9 cover.

Safety first

CA9 arc chambers are completely enclosed (without arc exhaust vents), offering the best protection against hot arcing gases.

A large safety distance in front of the contactor is unnecessary. CA9 contactors are also designed so that operation is impossible if the arc chambers are removed. Conversely, once the contactor is energized, the arc chambers cannot be removed.

Electronic coils offer many advantages

Behind the attractive outward appearance of the CA9 contactor are advanced engineering solutions that offer convenience and savings. The entire line is equipped with an electronically controlled coil that reduces pick-up currents by 80% on average. Holding current is also reduced.

Other advantages of the CA9 electronic coil include:

- Direct connection to a PLC. This is a standard feature in larger amp units and optional below 400A.
- Overvoltage protection and suppression circuits are standard, eliminating interference from the coil
- Smooth, even operation over the entire voltage range minimizes the possibility of contact bounce
- No safeguards are necessary to bridge brief supply interruptions
- Precisely defined pick-up and drop-out voltages, eliminate the possibility of chattering
- Universal Electronic coils operate over a much broader AC/DC voltage range, providing flexibility in applications and lower costs due to reduced inventory.

Four coils cover six contactor frame sizes from 24-500V AC and 24-500V DC.



90mm (3.54")	105mm (4.13")	140mm (5.51")	186mm (7.32")	210mm (8.27")
116A 146A	190A 205A	265A 305A 370A	400A 460A	580A 750A 1260A



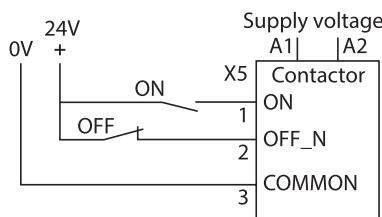
860A
1060A
2050A
2650A

Non-Reversing, Three Pole Contactors With AC/DC Coil, Series CA9 (Open type only) ①③

I _e [A]		Ratings for Switching AC Motors (AC2 / AC3)								Auxiliary Contacts per Contactor		Open Type		Catalog Number	Price	
		kW (50 Hz)				UL/CSA HP (60 Hz)										
AC-3	AC-1 (400V) (690V)	220- 240V	380- 400V	415V	440V	500V	690V	1000V	200V	230V	460V	575V	NO	NC		
116	160	37	55	55	75	75	55	~	30	40	75	100	1	1	CA9-116-11-*-L ②	760
															CA9-116-EL-11-*-L ②	810
146	225	45	75	75	90	90	90	75	40	50	100	125	1	1	CA9-146-11-*-L ②	913
															CA9-146-EL-11-*-L ②	963
190	275	55	90	90	110	90	132	110	50	60	125	150	1	1	CA9-190-11-*	1530
															CA9-190-EL-11-*	1580
205	350	55	110	110	132	110	160	132	60	75	150	200	1	1	CA9-205-11-*	1740
															CA9-205-EL-11-*	1790
265	400	75	132	132	160	160	200	132	75	100	200	250	1	1	CA9-265-11-*	1890
															CA9-265-EL-11-*	1940
305	500	90	160	160	160	200	250	132	100	125	250	300	1	1	CA9-305-11-*	2120
															CA9-305-EL-11-*	2170
370	600	110	200	200	200	220	315	132	125	150	300	350	1	1	CA9-370-11-*	2830
															CA9-370-EL-11-*	2880
400	600	110	200	220	220	250	315	220	125	150	350	400	1	1	CA9-400-EL-11-*	4150
															CA9-460-EL-11-*	5250
460	700	132	250	250	250	315	355	280	150	200	400	500	1	1	CA9-580-EL-11-*	7510
															CA9-750-EL-11-*	11000
480	800	160	315	355	355	400	500	355	200	250	500	600	1	1	CA9-860-EL-11-*	17000
															CA9-1060-EL-11-*	19300
750	1050	220	400	425	450	530	600	400	250	300	600	700	1	1	CA9-1260-EL-11-*	15900
															CA9-2050-EL-11-*	22600
860	1350	250	475	500	560	560	800	555	~	400	800	1000	1	1	CA9-2650-EL-11-*	25200
															CA9-860-EL contactor	
1060	1650	315	560	630	710	710	1000	600	~	450	900	1150	1	1		
~	1260	~	~	~	~	~	~	~	~	~	~	~	1	1		
~	2050	~	~	~	~	~	~	~	~	~	~	~	1	1		
~	2650	~	~	~	~	~	~	~	~	~	~	~	1	1		

CA9-_-El coils are electronically controlled coils with the following characteristics:

- Ability to connect directly to a low level signal source such as a PLC ~15VDC (6mA) to 33VDC (20mA)
- Very low pull-in and holding current for contactors in this size class
- Threshold voltages for pull-in and drop-out are very precisely defined, eliminating "chattering"
- Supply voltage dips are bridged without extra equipment



CA9-860-El contactor



PLC Interface "El" connection

Coil Codes

Electronic Coils	V	24-60V	48-130V	100-250V	250-500V
CA9-116...370	AC/DC with PLC Input	AC/DC	24W	48W	120W
CA9-116-El...370-El		~	~	120W	480W
CA9-400-El...750-El		24W ④	48W	120W	480W
CA9-860-El...1060-El		~	~	120W	~
CA9-1260-El		24W ④	48W	120W	480W
CA9-2050-El...2650-El		~	~	120W	~

Note: CA9-190...2650 open-type contactors include terminal bolts. If lugs are required, see page A94 for ordering information.

Ordering Instructions

Specify Catalog Number	See Coil Codes on this page
Replace (*) with Coil Code	

① "-El" designates contactor coil with PLC input.

② CA9-116(-El)...146(-El) include terminal lugs. To order with terminal bolts remove the letter "-L" at the end of the catalog number. For example CA9-116(-El)-*-11-L becomes CA9-116(-El)-*-11.

③ For UL/CSA Elevator duty rating, consult Technical Information on page A103.

④ Coil is rated 24V...60V DC only.

Discount Schedule B7

Reversing, Three Pole Contactors With AC/DC Coil, Series CA9 (Open type only) ①②

I _e [A]		Ratings for Switching AC Motors (AC2 / AC3)										Auxiliary Contacts per Contactor	Open Type	Catalog Number	Price	
		kW (50 Hz)					UL/CSA HP (60 Hz)									
AC-3 (400V) (690V)	AC-1 (220- 240V)	220-	380- 400V	415V	440V	500V	690V	1000V	200V	230V	460V	575V				
		220V	380V	415V	440V	500V	690V	1000V	200V	230V	460V	575V	NO	NC		
116	160	37	55	55	75	75	55	~	30	40	75	100	1	1	CAU9-116-22-*L ⑥	1940
															CAU9-116-EI-22-*L ⑥	2040
146	225	45	75	75	90	90	90	75	40	50	100	125	1	1	CAU9-146-22-*L ⑥	2150
															CAU9-146-EI-22-*L ⑥	2250
190	275	55	90	90	110	90	132	110	50	60	125	150	1	1	CAU9-190-22-*	3500
															CAU9-190-EI-22-*	3600
205	350	55	110	110	132	110	160	132	60	75	150	200	1	1	CAU9-205-22-*	3920
															CAU9-205-EI-22-*	4020
265	400	75	132	132	160	160	200	132	75	100	200	250	1	1	CAU9-265-22-*	4380
															CAU9-265-EI-22-*	4480
305	500	90	160	160	160	200	250	132	100	125	250	300	1	1	CAU9-305-22-*	4840
															CAU9-305-EI-22-*	4940
370	600	110	200	200	200	220	315	132	125	150	300	350	1	1	CAU9-370-22-*	6260
															CAU9-370-EI-22-*	6360
400	600	110	200	220	220	250	315	220	125	150	350	400	1	1	CAU9-400-EI-22-*	9190
460	700	132	250	250	250	315	355	280	150	200	400	500	1	1	CAU9-460-EI-22-*	11400
480	800	160	315	355	355	400	500	355	200	250	500	600	1	1	CAU9-580-EI-22-*	16100
750	1050	220	400	425	450	530	600	400	250	300	600	700	1	1	CAU9-750-EI-22-*	23100

Larger sizes are possible. Contact your Sprecher + Schuh representative.



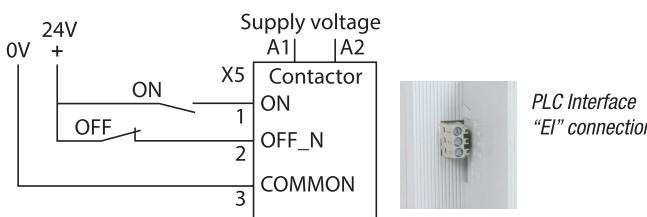
CAU9-190 Reversing Contactor

Includes:

- Mechanical and electrical Interlock
- Reversing power wiring (using Power Wiring Kit Cat.# CA9-PW...) ③
- Mounting plate (when required)
- Control wiring available; see footnote ④

CA9-_-EI coils are electronically controlled coils with the following characteristics:

- Ability to connect directly to a low level signal source such as a PLC ~15VDC (6mA) to 33VDC (20mA)
- Very low pull-in and holding current for contactors in this size class
- Threshold voltages for pull-in and drop-out are very precisely defined, eliminating "chattering"
- Supply voltage dips are bridged without extra equipment


 PLC Interface
"EI" connection

Coil Codes

Electronic Coils	V	24-60V	48-130V	100-250V	250-500V
CA9-116...370	AC/DC	24W	48W	120W	480W
CA9-116-EI...370-EI		~	~	120W	480W
CA9-400-EI...750-EI		24W ⑥	48W	120W	480W
CA9-860-EI...1060-EI		~	~	120W	~
CA9-1260-EI		24W ⑥	48W	120W	480W
CA9-2050-EI...2650-EI		~	~	120W	~

Note: CA9-190...2650 open-type contactors include terminal bolts. If lugs are required, see page A94 for ordering information.

③ For -LW Option Deduct the following from List Price

CA9-116...190	175
CA9-205...2650	360

④ For -CW Option Add the following to List Price

All CAU9	20
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- “-EI” designates contactor coil with PLC input.
- For UL/CSA Elevator duty rating, consult Technical Information on page A103.
- For Reversing Contactors *without* power wiring add suffix “-LW” to catalog number. For example: CAU9-116-22-* becomes CAU9-116-22-*-LW. Control wiring is not included.
- For control wiring, add suffix -CW to catalog number. For example: CAU9-116-22-* becomes CAU9-116-22-*-CW.
- Coil is rated 24V...60V DC only.
- CAU9-116(-EI)...146(-EI) include terminal lugs. To order with terminal bolts remove the letter “-L” at the end of the catalog number. For example CAU9-116(-EI)-22-*L becomes CAU9-116(-EI)-22-*.

Ordering Instructions

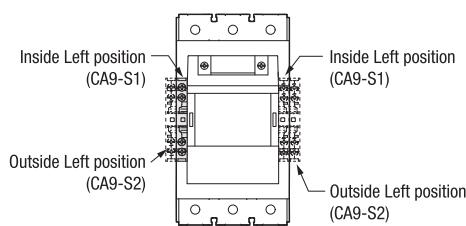
Specify Catalog Number	See Coil Codes on this page
Replace (*) with Coil Code	

Auxiliary Contact Blocks

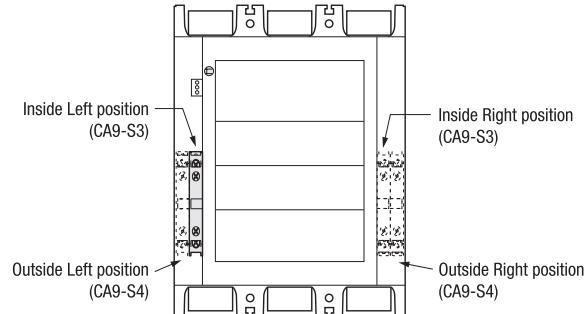
Auxiliary Contact Blocks	Description	NO	NC	Contact Arrangement	For use with...	Catalog Number	Price
	Auxiliary Contact Block for Side Mounting <ul style="list-style-type: none"> • 2-Pole • Two-way numbering for right or left mounting • Easy mounting without tools • Mirror contact performance to main contactor poles • Low power switching down to 24V 50mA 	1	1	NC 21 NO 44 NC 32 NO 43 NC 22 NO 31	CA9-116...370 Inside left or right	CA9-S1-11	19.50
		1	1	NC 19 NO 53 NC 72 NO 54 NC 69 NO 84 NC 71 NO 55 NC 62 NO 83	CA9-116...370 Outside left or right	CA9-S2-11	19.50
	Low Power Auxiliary Contact Block for Side Mounting <ul style="list-style-type: none"> • 1-Pole • Two-way numbering for right or left mounting • Easy mounting without tools • Mirror contact performance to main contactor poles • Electronic compatible, 3V 1mA 	1	0	NO 17 NO 28 NO 27 NO 26	CA9-116...370 Inside left or right	CA9-S1-B10 ①	46
		0	1	NC 15 NC 26 NC 25 NC 16	CA9-116...370 Inside left or right	CA9-S1-B01 ①	46
					CA9-400...2650 Inside left or right	CA9-S3-B01 ①	46

NOTE: Up to four auxiliary contact blocks (8 poles) may be mounted on the side of the CA9 contactor.

One auxiliary contact block (1 NO + 1 NC) is mounted at the factory (inside left position).



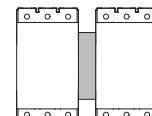
CA9-116...370



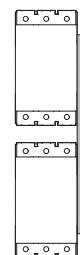
CA9-400...2650

Mechanical Interlocks

Accessory	Description	For use with...	Catalog Number	Price
	<ul style="list-style-type: none"> • Mechanical only, without auxiliary contacts • Interlocking of two same size contactors 	CA9-116...CA9-370	CA9-M1-00	74
		CA9-400...750, CA9-1260 ②	CA9-M2-00	198
		CA9-860...1060, CA9-2050...2650 ③	CA9-M3-00	629
	<ul style="list-style-type: none"> • Mechanical only, without auxiliary contacts • Interlocking of two different size contactors 	CA9-116...146 to CA9-190...205	CA9-M4-00	74
		CA9-190...205 to CA9-265...370	CA9-M5-00	74
		CA9-400...750	CA9-VR750	251



Horizontal
mechanical interlock
CA9-M-00



Vertical
mechanical interlock
CA9-VR750

① Contact blocks cannot be mounted on the outside of CA9-S1-B* or CA9-S3-B*.

② Mounting plate ordered separately.

③ Mounting plate included.

Terminal Lugs and Accessories

Lug or Accessory	Connection	Wire Sizes	For use with...	Catalog Number	Price
	Terminal Lug Kit - • Standard for CA9-116-__L...146-__L	2 x 6 AWG...3/0 AWG	CA9-116(-EI)...146(-EI)	CA9-CL146	26
	Terminal Lugs	6 AWG...300 MCM	CA9-190(-EI)...205(-EI)	CA9-TL205	78
		4 AWG...400 MCM	CA9-265(-EI)...370(-EI)	CA9-TL370	116
		2 x 4 AWG...500 MCM	CA9-265(-EI)...370(-EI)	CA9-TL370B	170
		3 x 2/0 AWG...500 MCM	CA9-400-EI...460-EI	CA9-TL580	300
		2 x 2/0 AWG...500 MCM	CA9-580-EI...750-EI, CA9-1260-EI	CA9-TL750	434
		4 x 4/0 AWG...500 MCM	CA9-860-EI	CA9-TL860	578
		4 x 1/0 AWG...750 MCM	CA9-1060-EI	CA9-TL1060	821
		6 x 1/0 AWG...750 MCM	CA9-1060-EI	CA9-TL1060B	1098
	Terminal Enlargements • Enlargement pieces designed to increase the width of the contactor terminal pads in order to allow larger connections to be mounted		CA9-116(-EI)...146(-EI) CA9-190(-EI)...205(-EI) CA9-265(-EI)...370(-EI) CA9-400-EI...460-EI CA9-580-EI...750-EI CA9-1260-EI	CA9-TE146 CA9-TE205 CA9-TE370 CA9-TE460 CA9-TE750 CA9-TE1260	94 119 184 236 315 418
	Terminal Extensions • Extension pieces designed to extend the main terminals of contactors for combined mounting of contactors and connection sets		CA9-116(-EI)...146(-EI) CA9-190(-EI)...205(-EI) CA9-265(-EI)...370(-EI) CA9-400-EI...460-EI CA9-580-EI...750-EI	CA9-TX146 CA9-TX205 CA9-TX370 CA9-TX460 CA9-TX750	67 82 149 161 220

Terminal Shrouds

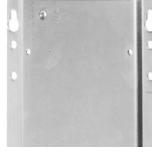
Accessory	Description	For use with...	Catalog Number	Price
	For contactors with Terminal Lugs	CA9-190(-EI)...205(-EI)	CA9-TS205C	57
		CA9-265(-EI)...370(-EI)	CA9-TS370C	57
		CA9-400-EI...460-EI	CA9-TS460C	85
		CA9-580-EI...750-EI, 1260-EI	CA9-TS750C	101
	For contactors with Compression Lugs	CA9-116(-EI)...146(-EI)	CA9-TS146L	59
		CA9-190(-EI)...205(-EI)	CA9-TS205L	59
		CA9-265(-EI)...370(-EI)	CA9-TS370L	59
		CA9-400-EI...460-EI	CA9-TS460L	87
		CA9-580-EI...750-EI	CA9-TS750L	103
	For IP20 protection between contactor and overload relay on a non-reversing starter	CAT9-116(-EI)...146(-EI)	CA9-TC146	42
		CAT9-190(-EI)...205(-EI)	CA9-TC205	54
	For IP20 protection between contactor and overload relay on a reversing starter	CAUT9-116(-EI)...146(-EI)	CA9-TCR146	74
		CAUT9-190(-EI)...205(-EI)	CA9-TCR205	84

See page A109 for terminal wire ranges.

Power Wiring Connection Kits

Connection Kits	Application	For use with...		Catalog Number	Price
 CA9-PW146	Reversing Power Wiring Kits	CA9-116(-El)...146(-El)	CA9-PW146	189	
		CA9-190(-El)...205(-El)	CA9-PW205 ①	249	
		CA9-265(-El)...370(-El)	CA9-PW370 ①	397	
		CA9-400-El...460-El	CA9-PW460 ②	549	
		CA9-580-El...750-El	CA9-PW750 ②	725	
	Wye-Delta Power Wiring Kits	Delta Contactor	Wye Contactor		
		CA9-116(-El)...146(-El)	CA9-116(-El)...146(-El)	CA9-PWD146	235
		CA9-190(-El)...205(-El)	CA9-116(-El)...146(-El)	CA9-PWD190	346
		CA9-190(-El)...205(-El)	CA9-190(-El)...205(-El)	CA9-PWD205	364
		CA9-265(-El)...370(-El)	CA9-190(-El)...205(-El)	CA9-PWD265	423
		CA9-265(-El)...370(-El)	CA9-265(-El)...370(-El)	CA9-PWD370	505
		CA9-400-El...460-El	CA9-400-El...460-El	CA9-PWD460	658
		CA9-580-El...750-El	CA9-400-El...460-El	CA9-PWD580	756
		CA9-580-El...750-El	CA9-580-El...750-El	CA9-PWD750	880
	Shorting Bar	CA9-116(-El)...146(-El)	CA9-PWY146	46	
		CA9-190(-El)...205(-El)	CA9-PWY205	97	
		CA9-265(-El)...370(-El)	CA9-PWY370	108	
		CA9-400-El...460-El	CA9-PWY460	109	
		CA9-580-El...750-El	CA9-PWY750	155	

Mounting Plates (For CA9-116...750 Contactors)

Application	Description	For use with...	Catalog Number	Price
	Non-Reversing Starters	CA9-116(-El)...146(-El)	CA9-MS146	43
		CA9-190(-El)...205(-El)	CA9-MS205	52
	Reversing Contactors	CA9-116(-El)...146(-El)	CA9-MR146	51
		CA9-190(-El)...205(-El)	CA9-MR205	63
		CA9-265(-El)...370(-El)	CA9-MR370	79
		CA9-400-El...460-El	CA9-MR460	93
		CA9-580-El...750-El	CA9-MR750	116
	Reversing Starters	CA9-116(-El)...146(-El)	CA9-MRS146	88
		CA9-190(-El)...205(-El)	CA9-MRS205	106

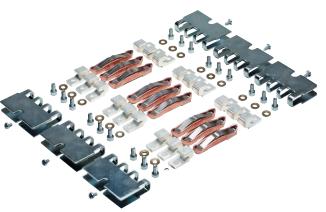
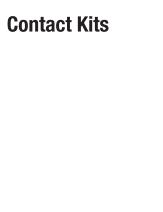
- ① Power wiring kit includes one set of terminal extensions CA9-TX_. If terminal lugs CA9-TL_ are to be used on line and load side of reversing contactor, a second set of CA9-TX_ terminal extensions is required.
 ② If terminal lugs CA9-TL_ are to be used on the line and load side of reversing contactor, two sets of terminal extensions CA9-TX_ are also required (none included).

Renewal Coils - AC/DC, Electronic Coil

Electronic Coil (typical)	For use with...	Voltage	Coil Code	Catalog Number	Price/ Set
	CA9-116	24-60V AC/DC	24W	CA9-TG913	97
		48-130V AC/DC	48W	CA9-TG914	
		100-250V AC/DC	120W	CA9-TG915	
		250-500V AC/DC	480W	CA9-TG916	
	CA9-116-EI	100-250V AC/DC w/ PLC Interface	120W	CA9-TGE913	
		250-500V AC/DC w/ PLC Interface	480W	CA9-TGE914	
	CA9-146	24-60V AC/DC	24W	CA9-TG901	
		48-130V AC/DC	48W	CA9-TG902	
		100-250V AC/DC	120W	CA9-TG903	
		250-500V AC/DC	480W	CA9-TG904	
	CA9-146-EI	100-250V AC/DC w/ PLC Interface	120W	CA9-TGE903	
		250-500V AC/DC w/ PLC Interface	480W	CA9-TGE904	
	CA9-190	24-60V AC/DC	24W	CA9-TG905	
		48-130V AC/DC	48W	CA9-TG906	
		100-250V AC/DC	120W	CA9-TG907	
		250-500V AC/DC	480W	CA9-TG908	
	CA9-190-EI	100-250V AC/DC w/ PLC Interface	120W	CA9-TGE915	
		250-500V AC/DC w/ PLC Interface	480W	CA9-TGE916	
	CA9-205-EI	100-250V AC/DC w/ PLC Interface	120W	CA9-TGE907	
		250-500V AC/DC w/ PLC Interface	480W	CA9-TGE908	
	CA9-265...370	24-60V AC/DC	24W	CA9-TG909	
		48-130V AC/DC	48W	CA9-TG910	
		100-250V AC/DC	120W	CA9-TG911	
		250-500V AC/DC	480W	CA9-TG912	
	CA9-265-EI	100-250V AC/DC w/ PLC Interface	120W	CA9-TGE917	
		250-500V AC/DC w/ PLC Interface	480W	CA9-TGE918	
	CA9-305-EI	100-250V AC/DC w/ PLC Interface	120W	CA9-TGE919	
		250-500V AC/DC w/ PLC Interface	480W	CA9-TGE920	
	CA9-370-EI	100-250V AC/DC w/ PLC Interface	120W	CA9-TGE911	
		250-500V AC/DC w/ PLC Interface	480W	CA9-TGE912	
	CA9-400-EI, CA9-460-EI	24-60V DC	24W	CA9-THE901	
		48-130V AC/DC	48W	CA9-THE902	
		100-250V AC/DC	120W	CA9-THE903	
		250-500V AC/DC	480W	CA9-THE904	
	CA9-580...750-EI, CA9-1260-EI	24-60V DC	24W	CA9-TJE901	
		48-130V AC/DC	48W	CA9-TJE902	
		100-250V AC/DC	120W	CA9-TJE903	
		250-500V AC/DC	480W	CA9-TJE904	
	CA9-860-EI...1060-EI, CA9-2050-EI	100-250V AC/DC	120W	CA9-TKE903 ①	
				CA9-TKE904 ②	
	CA9-2650-EI	100-250V AC/DC	120W	CA9-TLE903 ①	
				CA9-TLE904 ②	

① One set of two (2) coils.
 ② Printed circuit board.

Renewal Contact Kits and Arc Chutes

	Description	For use with...	Catalog Number	Price/ Set
	Contact Kits	CA9-116(-EI)	CA9-A116	292
		CA9-146(-EI)	CA9-A146	468
		CA9-190(-EI)	CA9-A190	582
		CA9-205(-EI)	CA9-A205	754
		CA9-265(-EI)	CA9-A265	945
		CA9-305(-EI)	CA9-A305	1130
		CA9-370(-EI)	CA9-A370	1350
		CA9-400-EI	CA9-A400	1620
		CA9-460-EI	CA9-A460	2000
		CA9-580-EI	CA9-A580	2910
		CA9-750-EI	CA9-A750	3930
		CA9-860-EI	CA9-A860	4840
		CA9-1060-EI	CA9-A1060	5590
		CA9-1260-EI	CA9-A1260	4150
		CA9-2050-EI	CA9-A2050	5910
		CA9-2650-EI	CA9-A2650 ①	6380
	Arc Chutes	CA9-400-EI...460-EI	CA9-C460	310
		CA9-580-EI...750-EI, CA9-1260-EI	CA9-C750	448
		CA9-860-EI...1060-EI, CA9-2050-EI	CA9-C1060	650
		CA9-2650-EI	CA9-C2650	938

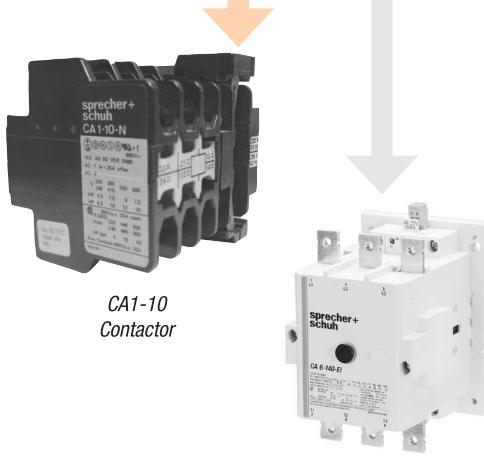
Replacement Terminal Hardware

	Description	For use with...	Catalog Number	Price/ Set
	Standard Screws and Washers	CA9-116...146(-EI)	CA9-HF146	39.80
		CA9-190...205(-EI)	CA9-HF205	52.80
		CA9-265...370(-EI)	CA9-HF370	67.10
		CA9-400...460-EI	CA9-HF460	80.80
		CA9-580, 750, 1060-EI	CA9-HF750	122.00
		CA9-2050-EI	CA9-HF2050	114.00
		CA9-2650-EI	CA9-HF2650	169.00

① Movable contacts only.

Contactors Cross Reference, Series CA1 & CA6 to Series CA9 (Open Type Only) ①

I _e [A]		Ratings for Switching AC Motors (AC2 / AC3 / AC4)										Series CA1 Obsolete	Series CA6 Obsolete	Series CA9 Equivalent			
		kW (50 Hz)				UL/CSA HP (60 Hz)											
		230V	400V / 415V	500V	690V	115V	230V	200V	230V	460V	575V						
AC-3	AC-1	115	250	37	64/66	80	111	10	25	40	40	75	100	CA6-115			
116	160	116	160	30	55	75	55			30	40	75	100		CA9-116		
								10	25	40	40	75	100	CA1-60			
140	250	140	250	45	78/82	80	111	15	30	40	50	100	125	CA6-140			
146	225	146	225	45	75	90	90			40	50	100	125		CA9-146		
								15	30	50	50	100	125	CA1-100			
180	250	180	250	57	101/105	98	135	~	40	50	60	150	150	CA6-180			
190	275	190	275	55	90	90	132			50	60	125	150		CA9-190		
								~	~	60	60	150	150	CA1-150			
205	350	205	350	55	110	110	160			60	75	150	200		CA9-205		
210	350	210	350	67	118/122	147	205	~	50	60	75	150	200	CA6-210			
								~	~	75	100	200	250	CA1-250			
250	350	250	350	80	140/145	177	250	~	~	75	100	200	250	CA6-250			
265	400	265	400	75	132	160	200			75	100	200	250		CA9-265		
300	450	300	450	97	170/176	213	293	~	~	100	125	250	300	CA6-300			
305	500	305	500	90	160	200	250			100	125	250	300		CA9-305		
								~	~	150	150	350	400	CA1-480			
400	600	400	600	110	200/220	250	315			125	150	350	400		CA9-400		
420	500	420	500	135	238/250	298	424	~	~	150	175	350	400	CA6-420			
460	700	460	700	132	250	315	355			150	200	400	500		CA9-460		
580	800	580	800	160	315/355	400	500			200	250	500	600		CA9-580		
630	800	630	800	200	355	450	500	~	~	200	250	500	600	CA6-630			
750	1050	750	1050	220	400/425	520	600			250	300	600	700		CA9-750		
860	1000	860	1000	250	500	560	~	~	~	250	300	600	700	CA6-860			
860	1350	860	1350	257	475/500	560	800			~	400	800	1000		CA9-860		



① Available auxiliary contacts may vary. See selection pages for more information.

General Data

CA9-116...2650		
Rated Isolation Voltage U_i		
IEC	[V]	1000V
UL; CSA	[V]	600V
Rated Voltage U_{imp}	(kV)	8
Rated Voltage U_e - Main Contacts		
AC 50/60Hz	[V]	115,200,230,240,400,415,460,500,575,690,1000
DC	[V]	24, 48, 110, 220, 440
Operating Frequency for AC Loads	[Hz]	50/60Hz
Electromagnetic compatibility		
IEC 60947-1 - Environment A		
Insulation Class of the Coil		
Class F per IEC 60947-4-1		
Rated Coil Frequency		AC 50/60 Hz, DC
Ambient Temperature		
Storage	[°C]	-40...+70
Operation at rated voltage	[°C]	-40...+70
Max. Altitude of Installation Site	[m]	3000
Climatic Withstand		IEC 60068-2-30 Test Db & IEC 60068-2-2 test Bd & IEC 60068-2-1 test Ab (report 1314369)
CA9-116...370:		IEC 60068-2-2 test Ba & Bb & IEC 60068-2-1 test Aa & Ab, IEC 60068-2-30
Resistance to Shock		IEC 60068-2-27
Resistance to Vibration		IEC 60068-2-6
Protection Class		
Contactor main contacts		IP00
Contactor coil terminals		P2X (in connected state)
Auxiliary contacts		P2X (in connected state)

Standards	IEC/EN 60947-1, Low-voltage switch gear and control gear; IEC/EN 60947-4-1, Low-voltage switch gear and control gear, Contactors and motor starters; IEC/EN 60947-5-1, Low-voltage switch gear and control gear, Control circuit devices and switching elements; UL 60947-4-1, Industrial Control Equipment (USA); CSA C22.2 No. 14, Industrial Control Equipment (Canada) Mechanically Linked Contacts: IEC 60947-5-1, Annex L
	Mirror Contacts: IEC 60947-4-1, Annex F
	CA9-116...750 with all CA9-ES* side mounted NC auxiliary contacts
Approvals	cULus, File No. E41850/E196120 (contactors, reversing contactors) CCC, EAC, RINA, ABS, C-Tick
Certifications	CE, SUVA

● Usable for ISO 13849-1 and IEC 62061. Data is based on the B10 value given and
mission time/proof test interval of 20 years.

Electrical Data, Main Circuits

Coil Type:	Electronic	CA9-116	CA9-146	CA9-190	CA9-205	CA9-265	CA9-305	CA9-370	CA9-400	CA9-460	CA9-580	CA9-750	CA9-860	CA9-1060	CA9-1260	CA9-2050	CA9-2650
AC-1 Active Power Load (50/60Hz)																	
Ambient temperature 40°C	690V [A]	160	225	275	350	400	500	600	600	700	800	1050	1350	1650	1260	2050	2650
	1000V [A]	~	225	250	275	350	375	400	600	700	800	1000	1350	1650	1260	2050	2650
	230V [kW]	64	90	110	136	159	199	239	239	279	319	418	538	657	502	817	1056
	240V [kW]	67	94	114	145	166	208	249	249	291	333	436	561	686	524	852	1102
	400V [kW]	111	156	191	242	277	346	416	416	485	554	727	935	1143	873	1420	1836
	415V [kW]	115	162	198	252	288	359	431	431	503	575	755	970	1186	906	1474	1905
	500V [kW]	139	195	238	303	346	433	520	520	606	693	909	1169	1429	1091	1775	2295
	690V [kW]	191	269	329	148	478	598	717	717	837	956	1255	1613	1972	1506	2450	3167
	1000V [kW]	~	390	433	476	606	650	693	1039	1212	1386	1732	2338	2858	2182	3551	4590
Ambient temperature 60°C	690V [A]	145	200	250	300	350	400	500	500	600	700	875	1150	1450	1040	1750	2350
	1000V [A]	~	200	225	250	300	325	350	500	600	700	875	1150	1450	1040	1750	2350
	230V [kW]	58	80	100	120	139	159	199	199	239	279	349	458	578	414	697	936
	240V [kW]	60	83	104	125	145	166	208	208	249	291	364	478	603	432	727	977
	400V [kW]	100	139	173	208	242	277	346	346	416	485	606	797	1005	721	1212	1628
	415V [kW]	104	144	180	216	252	288	359	359	431	503	629	827	1042	748	1258	1689
	500V [kW]	126	173	217	260	303	346	433	433	520	606	758	996	1259	901	1516	2035
	690V [kW]	173	239	299	359	418	478	598	598	717	837	1046	1374	1733	1243	2091	2809
	1000V [kW]	~	346	390	433	520	563	606	866	1039	1212	1516	1992	2511	1801	3031	4070
Ambient temperature 70°C	690V [A]	130	175	200	240	290	325	400	400	480	580	720	1000	1270	875	1500	2120
	1000V [A]	~	175	185	200	240	260	290	400	480	580	720	1000	1270	875	1500	2120
	230V [kW]	52	70	80	96	116	129	159	159	191	231	287	398	506	349	598	845
	240V [kW]	54	73	83	100	121	135	166	166	200	241	299	416	528	364	624	881
	400V [kW]	90	121	139	166	201	225	277	277	333	402	499	693	880	606	1039	1469
	415V [kW]	93	126	144	173	208	234	288	288	345	417	518	719	913	629	1078	1524
	500V [kW]	113	152	173	208	251	281	346	346	416	502	624	866	1100	758	1299	1836
	690V [kW]	155	209	239	287	347	388	478	478	574	693	860	1195	1518	1046	1793	2534
	1000V [kW]	~	303	320	346	416	450	502	693	831	1005	1247	1732	2200	1516	2598	3672
With conductor sizes	[mm²]	70	95	150	240①	240	300②	2x185②	2x185	2x240	2x240	800③	1000④	1500④	1000③	2000④	3000④

- ① For currents above 275A, use terminal extensions.
- ② For currents above 450A, use terminal extensions.
- ③ Maximum connection bar width 50mm.
- ④ Maximum connection bar width 100mm.

Electrical Data, Main Circuits

Coil Type:	Electronic	CA9-116	CA9-146	CA9-190	CA9-205	CA9-265	CA9-305	CA9-370	CA9-400	CA9-460	CA9-580	CA9-750	CA9-860	CA9-1060	CA9-1260	CA9-2050	CA9-2650
Switching of 3-phase Motors; (50Hz)																	
Ambient temperature 60°C, AC-2, AC-3	220-240V 380-400V 415V 440V 500V 690V 1000V	[A] 116 [A] 116 [A] 116 [A] 116 [A] 110 [A] 65 [A] ~	146 146 146 146 130 93 85	190 190 190 190 135 135 100	205 205 205 205 165 165 100	265 265 265 265 250 250 100	305 305 305 305 290 290 100	370 370 370 370 315 315 100	400 400 400 400 400 350 155	460 460 460 460 460 500 200	580 580 580 580 580 650 250	750 750 750 750 750 800 300	860 860 860 860 800 970 375	1060 1060 1060 1060 970 970 400	~ ~ ~ ~ ~ ~ ~	~ ~ ~ ~ ~ ~ ~	~ ~ ~ ~ ~ ~ ~
	220-240V 380-400V 415V 440V 500V 690V 1000V	[kW] 37 [kW] 55 [kW] 55 [kW] 75 [kW] 75 [kW] 55 [kW] ~	45 75 75 90 90 90 75	55 90 90 110 110 132 110	55 110 132 160 160 160 132	75 132 132 160 160 160 132	90 160 160 200 200 220 132	110 200 200 220 220 250 132	110 200 220 220 250 315 220	132 250 250 355 355 425 280	160 315 355 355 400 500 355	220 400 425 150 530 600 400	250 457 500 560 560 710 555	315 560 630 710 710 1000 600	~ ~ ~ ~ ~ ~ ~	~ ~ ~ ~ ~ ~ ~	~ ~ ~ ~ ~ ~ ~

Load Carrying Capacity per UL/CSA

General Purpose Current (enclosed)

	[A]	160	200	250	300	350	400	520	550	650	750	900	1350	1650	1210	2100	2700
Rated Power (enclosed)																	
3-Phase	200V	[A] 92	120	150	177	221	285	359	359	414	552	692	954	1030	~	~	~
	230V	[A] 104	130	154	192	248	312	360	360	480	604	722	954	1030	~	~	~
	460V	[A] 96	124	156	180	240	302	361	414	477	590	722	954	1030	~	~	~
	575V	[A] 99	125	144	192	242	289	336	382	472	578	672	944	1050	~	~	~
with 3 poles in series	200V	[HP] 30	40	50	60	75	100	125	125	150	200	250	~	~	~	~	~
	230V	[HP] 40	50	60	75	100	125	150	150	200	250	300	400	150	~	~	~
	460V	[HP] 75	100	125	150	200	250	300	350	400	500	600	800	900	~	~	~
	575V	[HP] 100	125	150	200	250	300	350	400	500	600	700	1000	1150	~	~	~
	260V DC	[A] 160	200	~	~	~	~	~	~	~	~	~	~	~	~	~	~
	300V DC	[A] ~	~	230	250	~	~	~	~	~	~	~	~	~	~	~	~
	340V DC	[A] ~	~	~	~	350	400	520	~	~	~	~	~	~	~	~	~
	600V DC	[A] ~	~	~	~	~	~	~	500	650	750	900	1050	1350	1210	1900	~

Electrical Data, Main Circuits

Coil Type:	Electronic	CA9-116	CA9-146	CA9-190	CA9-205	CA9-265	CA9-305	CA9-370	CA9-400	CA9-460	CA9-580	CA9-750	CA9-860	CA9-1060	CA9-1260	CA9-2050	CA9-2650
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Switching of 3-phase Motors, (50Hz)

Ambient temperature 60°C, AC-4	230V [A]	84	103	128	156	195	230	280	307	377	~	~	~	~	~	~	~
	240V [A]	84	103	125	156	195	230	280	307	377	~	~	~	~	~	~	~
	400V [A]	84	103	128	156	195	230	280	307	377	~	~	~	~	~	~	~
	415V [A]	84	103	128	156	195	230	280	307	377	~	~	~	~	~	~	~
	500V [A]	84	103	128	156	195	230	280	307	377	~	~	~	~	~	~	~
	690V [A]	66	80	93	104	153	162	188	313	350	~	~	~	~	~	~	~
	1000V [A]	~	48	72	85	90	95	100	141	155	~	~	~	~	~	~	~
	230V [kW]	22	30	37	45	55	75	90	90	110	~	~	~	~	~	~	~
	240V [kW]	22	30	37	45	55	75	90	90	110	~	~	~	~	~	~	~
	400V [kW]	45	55	55	75	110	132	160	160	200	~	~	~	~	~	~	~
	415V [kW]	45	55	75	90	110	132	160	160	200	~	~	~	~	~	~	~
	500V [kW]	58	71	90	110	137	163	200	218	267	~	~	~	~	~	~	~
	690V [kW]	63	77	90	100	150	157	185	335	346	~	~	~	~	~	~	~
	1000V [kW]	~	67	100	119	126	133	140	200	220	~	~	~	~	~	~	~

AC-4 at approximately 200,000 operations

230V [A]	40	40	49	55	77	89	100	118	135	~	~	~	~	~	~	~
240V [A]	40	40	49	55	77	89	100	118	135	~	~	~	~	~	~	~
400/415V [A]	40	40	49	55	77	89	100	118	135	~	~	~	~	~	~	~
500V [A]	28	33	36	45	53	60	69	80	87	~	~	~	~	~	~	~
690V [A]	28	33	36	45	53	60	69	80	87	~	~	~	~	~	~	~
1000V [A]	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
230V [kW]	11	11	11	15	22	22	30	37	37	~	~	~	~	~	~	~
240V [kW]	11	11	15	15	22	22	30	37	45	~	~	~	~	~	~	~
400V [kW]	18.5	18.5	22	30	37	45	55	63	75	~	~	~	~	~	~	~
415V [kW]	22	22	22	30	45	45	55	55	75	~	~	~	~	~	~	~
500V [kW]	18.5	22	22	30	37	37	45	55	55	~	~	~	~	~	~	~
690V [kW]	22	30	30	37	50	55	63	75	80	~	~	~	~	~	~	~
1000V [kW]	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~

Max. switching frequency	[ops/hr]	150	150	150	150	150	150	150	60	60	~	~	~	~	~	~
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Wye-Delta (60Hz)

200V [HP]	60	75	75	100	150	150	200	250	300	350	450	600	600	~	~	~
230V [HP]	60	75	100	125	150	200	250	250	350	450	500	700	700	~	~	~
460V [HP]	150	150	200	250	350	450	500	600	800	1000	1250	1500	~	~	~	~
575V [HP]	150	200	250	300	450	500	600	700	800	1000	1250	1750	~	~	~	~

Electrical Data, Main Circuits

Coil Type:	Electronic	CA9-116	CA9-146	CA9-190	CA9-205	CA9-265	CA9-305	CA9-370	CA9-400	CA9-460	CA9-580	CA9-750	CA9-860	CA9-1060	CA9-1260	CA9-2050	CA9-2650
UL/CSA Elevator Duty																	
200V	[A]	54	54			~	~	~	~	~	~	~	~	~	~	~	~
230V	[A]	54	54	②	②	~	~	~	~	~	~	~	~	~	~	~	~
460V	[A]	54	54			~	~	~	~	~	~	~	~	~	~	~	~
575V	[A]	54	54			~	~	~	~	~	~	~	~	~	~	~	~
200V	[HP]	15	15			~	~	~	~	~	~	~	~	~	~	~	~
230V	[HP]	20	20	②	②	~	~	~	~	~	~	~	~	~	~	~	~
460V	[HP]	40	40			~	~	~	~	~	~	~	~	~	~	~	~
575V	[HP]	50	50			~	~	~	~	~	~	~	~	~	~	~	~

UL/CSA HVAC Applications

Definite purpose rating (3-Phase)

FLA	[A]	116	160	200	250	300	350	520	~	~	~	~	~	~	~	~	~
230V	[A]	700	960	1200	1500	1800	2100	3120	~	~	~	~	~	~	~	~	~
LRA	460V	[A]	580	800	1000	1250	1500	1750	2600	~	~	~	~	~	~	~	~
	575V	[A]	470	640	800	1000	1200	1400	2080	~	~	~	~	~	~	~	~
AC resistance heating	600V	[A]	160	200	250	300	400	450	520	~	~	~	~	~	~	~	~
Star-Delta Starting (50Hz)																	
①	≥230V	[A]	200	252	329	355	458	528	640	692	796	1004	1299	1489	1835	~	~
	≥240V	[A]	200	252	329	355	458	528	640	692	796	1004	1299	1489	1835	~	~
	400V	[A]	200	252	329	355	458	528	640	692	796	1004	1299	1489	1835	~	~
	415V	[A]	200	252	329	355	458	528	640	692	796	1004	1299	1489	1835	~	~
	500V	[A]	190	225	233	285	433	502	545	692	796	1004	1299	1385	1680	~	~
	690V	[A]	112	161	233	285	433	502	545	692	796	1004	1299	1385	1680	~	~
	1000V	[A]	~	103	147	173	173	173	268	346	433	519	~	~	~	~	~
①	230V	[kW]	55	75	90	110	132	160	200	200	250	315	400	500	560	~	~
	240V	[kW]	55	75	110	110	132	160	200	200	250	315	400	500	630	~	~
	400V	[kW]	110	132	160	200	250	250	355	400	400	560	710	800	1000	~	~
	415V	[kW]	110	132	160	200	250	315	355	400	400	560	800	900	1100	~	~
	500V	[kW]	132	160	160	200	315	355	355	500	500	713	800	1000	1300	~	~
	690V	[kW]	90	132	200	250	400	500	500	560	710	800	1100	1400	1700	~	~
	1000V	[kW]	~	132	200	250	250	250	250	355	500	630	710	~	~	~	~

① Power rating at 50Hz. Preferred values according to IEC 60947-4-1.

② Data not available at time of printing.

Electrical Data, Main Circuits

Coil Type:	Electronic	CA9-116	CA9-146	CA9-190	CA9-205	CA9-265	CA9-305	CA9-370	CA9-400	CA9-460	CA9-580	CA9-750	CA9-860	CA9-1060	CA9-1260	CA9-2050	CA9-2650
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Switching of Power Transformers, AC-6a (50Hz)

	Inrush Current Rated transformer current = n	≥230V [A]	70	79	111	115	143	143	165	200	252	263	286	430	254	362	~	~
n = 30	≥240V [A]	70	79	111	115	143	143	165	200	252	263	286	430	254	362	~	~	
	≥400V [A]	70	79	111	115	143	143	165	200	252	263	286	430	254	362	~	~	
	≥415V [A]	70	79	111	115	143	143	165	200	252	263	286	430	254	362	~	~	
	≥500V [A]	70	79	111	115	143	143	165	200	252	263	286	~	~	362	~	~	
	≥690V [A]	70	79	111	115	143	143	165	200	252	263	286	~	~	362	~	~	
	≥1000V [A]	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	
n = 20	230V [kW]	28	31	44	46	57	57	66	80	100	105	114	171	209	144	~	~	
	240V [kW]	29	33	46	48	59	59	69	83	105	109	119	179	218	150	~	~	
	400V [kW]	48	55	77	80	99	99	114	139	175	182	198	298	363	251	~	~	
	415V [kW]	50	56	79	82	102	102	117	142	179	187	203	305	372	257	~	~	
	500V [kW]	61	68	96	100	124	124	143	173	218	228	248	~	~	314	~	~	
	690V [kW]	84	94	133	137	171	171	197	239	301	314	342	~	~	433	~	~	
	1000V [kW]	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	
n = 15	≥690V [A]	140	158	222	230	286	286	330	400	504	526	572	~	~	724	~	~	

60 Hz Peak Inrush/peak rated transformer current

	≥660V [A]	70	79	111	115	143	143	165	200	252	263	286	430	524	562	~	~
n = 30	200V [kVA]	24	27	38	40	50	50	57	69	87	91	99	149	182	125	~	~
	208V [kVA]	25	28	40	41	52	52	59	72	91	95	103	155	189	130	~	~
	240V [kVA]	29	33	46	48	59	59	69	83	105	109	119	179	218	150	~	~
	480V [kVA]	58	66	92	96	119	119	137	166	210	219	238	357	436	301	~	~
	600V [kVA]	73	82	115	120	149	149	171	208	262	273	297	447	545	376	~	~
	660V [kVA]	80	90	127	131	163	163	189	229	288	301	327	492	599	414	~	~
n = 20	≥660V [A]	105	119	167	173	215	215	248	300	378	395	429	645	786	543	~	~
	200V [kVA]	36	41	58	60	74	74	86	104	131	137	149	223	272	188	~	~
	208V [kVA]	38	43	60	62	77	77	89	108	136	142	155	232	283	196	~	~
	240V [kVA]	44	49	69	72	89	89	103	125	157	164	178	268	327	226	~	~
	480V [kVA]	87	99	139	144	179	179	206	249	314	328	357	536	653	451	~	~
	600V [kVA]	109	124	174	180	223	223	258	312	393	410	446	670	817	564	~	~
	660V [kVA]	120	136	191	198	246	246	284	343	432	452	490	737	899	621	~	~
n = 15	≥660V [A]	140	158	222	230	286	286	330	400	504	526	572	860	1048	724	~	~
	200V [kVA]	48	55	77	80	99	99	114	139	175	182	198	298	363	251	~	~
	208V [kVA]	50	57	80	83	103	103	119	144	182	190	206	310	378	261	~	~
	240V [kVA]	58	66	92	96	119	119	137	166	210	219	238	357	436	301	~	~
	480V [kVA]	116	131	185	191	238	238	274	333	419	437	476	715	871	602	~	~
	600V [kVA]	145	164	231	239	297	297	343	416	524	547	594	894	1089	752	~	~
	660V [kVA]	160	181	254	263	327	327	377	457	576	601	654	983	1198	828	~	~

Electrical Data, Main Circuits

Coil Type:	Electronic	CA9-116	CA9-146	CA9-190	CA9-205	CA9-265	CA9-305	CA9-370	CA9-400	CA9-460	CA9-580	CA9-750	CA9-860	CA9-1060	CA9-1260	CA9-2050	CA9-2650
Switching of 3-Phase Capacitors, AC-6b (50Hz)																	
Single capacitor 40°C	230V [kVar]	40	50	60	75	85	100	110	120	140	170	220	250	300	~	~	~
	240V [kVar]	40	50	60	75	85	100	110	120	140	170	220	250	300	~	~	~
	400V [kVar]	75	90	110	130	145	165	200	210	240	285	400	450	500	~	~	~
	415V [kVar]	75	90	110	130	145	165	200	210	240	285	400	450	500	~	~	~
	500V [kVar]	83	110	140	160	180	210	240	260	325	350	490	550	600	~	~	~
	690V [kVar]	80	110	135	170	200	240	280	300	325	440	600	650	800	~	~	~
	1000V [kVar]	~	100	140	150	155	160	170	250	300	350	450	~	~	~	~	~
Single capacitor 55°C	230V [kVar]	40	50	60	75	85	100	110	120	140	170	220	250	300	~	~	~
	240V [kVar]	40	50	60	75	85	100	110	120	140	170	220	250	300	~	~	~
	400V [kVar]	75	90	110	130	145	165	200	210	240	285	400	450	500	~	~	~
	415V [kVar]	75	90	110	130	145	165	200	210	240	285	400	450	500	~	~	~
	500V [kVar]	83	110	140	160	180	210	240	260	325	350	490	550	600	~	~	~
	690V [kVar]	80	110	135	170	200	240	280	300	325	440	600	650	800	~	~	~
	1000V [kVar]	~	100	140	150	155	160	170	250	300	350	450	~	~	~	~	~
Single capacitor 70°C	230V [kVar]	35	42	45	57	70	85	100	105	120	160	190	230	280	~	~	~
	240V [kVar]	35	42	45	57	70	85	100	105	120	160	190	230	280	~	~	~
	400V [kVar]	65	74	83	105	135	155	180	195	225	275	370	430	480	~	~	~
	415V [kVar]	65	74	83	105	135	155	180	195	225	275	370	430	480	~	~	~
	500V [kVar]	78	96	102	130	165	196	220	241	300	340	435	530	570	~	~	~
	690V [kVar]	75	110	135	160	200	240	260	300	325	440	600	630	750	~	~	~
	1000V [kVar]	~	95	120	130	140	150	160	220	270	300	400	~	~	~	~	~
60Hz Single Capacitor - 40°C	200V [kVar]	33	41.569	50	66.683	83	100	125.05	114	137	171	205	~	346	~	~	~
	230V [kVar]	38	47.804	57	76.686	95	115	143.81	131	157	196	236	~	398	~	~	~
	460V [kVar]	75	100	125	150	200	250	300	274	329	411	494	~	832	~	~	~
	600V [kVar]	100	125	150	200	250	300	350	343	410	514	618	~	1040	~	~	~

Switching of Lamps

Gas discharge lamps AC-5a (Open)	[A]	116	146	190	205	265	305	370	400	460	580	750	877	1072	812	1332	1722	
UL Ballast Ratings	[A]	160	200	250	300	400	450	520	~	~	~	~	~	~	~	~	~	
Filament AC-5b	230/240V	[A]	116	146	190	205	265	305	370	400	460	580	750	877	1072	812	1332	1722

Electrical Data, Main Circuits

Coil Type:	Electronic	CA9-116	CA9-146	CA9-190	CA9-205	CA9-265	CA9-305	CA9-370	CA9-400	CA9-460	CA9-580	CA9-750	CA9-860	CA9-1060	CA9-1260	CA9-2050	CA9-2650
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Switching of DC Loads

Non-inductive or slightly inductive loads or resistance furnaces DC-1 at 60°C

1-Pole	24V	[A]	160	200	250	350	400	500	520	600	700	800	1050	1350	1650	1250	2050	~
	48/60V	[A]	160	200	250	350	400	500	520	600	700	800	1050	1350	1650	1250	2050	~
	110V	[A]	~	~	~	~	400	500	520	600	700	800	1050	1250	1350	1650	2050	~
	220V	[A]	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
2 Poles in series	24V	[A]	160	200	250	350	400	500	520	600	700	800	1050	1350	1650	1250	2050	~
	48/60V	[A]	160	200	250	350	400	500	520	600	700	800	1050	1350	1650	1250	2050	~
	110V	[A]	160	200	250	350	400	500	520	600	700	800	1050	1350	1650	1250	2050	~
	220V	[A]	~	~	~	~	400	500	520	600	700	800	1050	~	~	~	~	~
3-Poles in series	24V	[A]	160	200	250	350	400	500	520	600	700	800	1050	1350	1650	1250	2050	~
	48/60V	[A]	160	200	250	350	400	500	520	600	700	800	1050	1350	1650	1250	2050	~
	110V	[A]	160	200	250	350	400	500	520	600	700	800	1050	1350	1650	1250	2050	~
	220V	[A]	~160	200	250	350	400	500	520	600	700	800	1050	1250	1350	1650	2050	~
440V [A]	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~

Shunt-wound motors

Starting, reverse current breaking, reversing, stepping DC-3, 60°C

3-Poles in series	24V	[A]	145	160	250	275	350	400	500	520	600	700	800	1050	1350	1650	1250	2050	~
	48/60V	[A]	145	160	250	275	350	400	500	520	600	700	800	1050	1350	1650	1250	2050	~
	110V	[A]	145	160	250	275	350	400	500	520	600	700	800	1050	~	~	~	~	~
	220V	[A]	145	160	250	275	350	400	500	520	600	700	800	1050	~	~	~	~	~
440V [A]	~	~	~	~	~	~	~	~	~	~	600	700	800	1050	~	~	~	~	~

Series-wound motors

Starting, reverse current breaking, reversing, stepping DC-5, 60°C

3-Poles in series	24V	[A]	145	160	250	275	350	400	450	600	700	800	1050	~	~	~	~	~	~
	48/60V	[A]	145	160	250	275	350	400	450	600	700	800	1050	~	~	~	~	~	~
	110V	[A]	145	160	250	275	350	400	450	600	700	800	1050	~	~	~	~	~	~
	220V	[A]	145	160	250	275	350	400	450	600	700	800	1050	~	~	~	~	~	~
440V [A]	~	~	~	~	~	~	~	~	~	600	700	800	1050	~	~	~	~	~	~

Short Time Withstand I_{cw} 60°C

1 s	[A]	1300	1460	1900	2050	2650	3050	3700	4600	4600	7000	7000	10000	12000	8000	12000	12000
10 s	[A]	928	1168	1520	1640	2120	2446	2960	4400	4400	6400	6400	8000	10000	7200	10000	10000
30 s	[A]	536	674	878	947	1224	1409	1709	3100	3100	4500	4500	6000	7500	5200	7500	7500
1 min	[A]	379	477	621	670	865	996	1208	2500	2500	3500	3500	4500	5500	4000	5500	5500
15 min	[A]	160	225	275	350	400	500	600	840	840	1300	1300	1600	2200	1500	2200	2800

Resistance and Power Dissipation

Main current circuit resistance	[mΩ]	0.469	0.454	0.198	0.204	0.200	0.200	0.200	0.083	0.086	0.050	0.045	0.044	0.029	0.050	0.030	0.028
Power dissipation per pole at I_e AC-1, 400V	[W]	12	23	15	25	32	50	72	30	42	32	50	80	80	125	200	
Power dissipation per pole at I_e AC-3, 400V	[W]	6	10	7	8	14	19	27	16	21	17	28	50	50	~	~	

Total power dissipation at:

I_e AC3, 400V; AC/DC control 120-250V	[W]	21	33	23.5	26.5	46.5	61.5	85.5	53	68	56	89	171	171	~	~	~
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Maximum Switching Frequency

AC-1 ops/hr	300	300	300	300	300	300	300	300	300	300	300	60	60	300	60	15
AC-3 ops/hr	300	300	300	300	300	300	300	300	300	300	300	60	60	~	~	~
AC-2, AC-4 ops/hr	150	150	150	150	150	150	150	60	60	60	60	60	60	~	~	~

Weight

AC/DC (Electronic)	kg	1.5	1.5	3	3	4.64	4.64	4.64	12	12	15	15	34	35	16	35	45
with bar connections	(lbs)	(3.3)	(3.3)	(6.6)	(6.6)	(10.2)	(10.2)	(10.2)	(26.4)	(26.4)	(33)	(33)	(74.8)	(77)	(35.2)	(77)	(99)
with built-in cable clamps	kg	1.75	1.75	~	~	~	~	~	~	~	~	~	~	~	~	~	
	(lbs)	(3.85)	(3.85)														

Short Circuit Ratings

CA9- 116	CA9- 146	CA9- 190	CA9- 205	CA9- 265	CA9- 305	CA9- 370	CA9- 400	CA9- 460	CA9- 580	CA9- 750	CA9- 860	CA9- 1060	CA9- 1260	CA9- 2050	CA9- 2650
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Short Circuit Coordination (Max. Fuse or Circuit Breaker Rating)

per IEC 60947-4-1

DIN Fuses -gG	100 kA Available Fault Current														
Type "2" (400V)	[A] 250	250	315	315	400	500	630	630	630	800	800	1000	1250	~	~
DIN Fuses -gG	80 kA Available Fault Current														
Type "2" (690V)	[A] 160	200	315	315	400	425	500	500	630	800	800	1000	1600	~	~
MCCB	70 kA Available Fault Current														
Type "2" (400V)	[A] 160	160	320	320	400	630	630	630	630	800	1000	1600	1600	~	~

Short Circuit Coordination (Max. Fuse or Circuit Breaker Rating)

per UL 60947 and CSA 22.2 No. 14 (contactor and fuses or circuit breaker only)

UL Class RK5 Fuses	10 kA Available Fault Current														
Type 1 Combination (600V)	[A] 250	250	400	400	~	~	~	~	~	~	~	~	~	~	~
UL Class J and CSA HRCI-J Fuses	82 kA Available Fault Current														
Type 1 Combination (600V)	[A] ~	~	~	~	~	~	~	600	600	1200	1200	~	~	~	~
UL Class J and CSA HRCI-J Fuses	100 kA Available Fault Current														
Type 1 Combination (600V)	[A] 250	250	400	400	600	600	800	600	600	~	~	~	~	~	~
Type 2 Combination (600V)	[A] 200	200	400	400	600	600	600	600	600	~	~	~	~	~	~
UL Class L Fuses	18 kA Available Fault Current														
Type 1 Combination (600V)	[A] ~	~	~	~	800	800	800	~	~	~	~	~	~	~	~
UL Class L Fuses	30 kA Available Fault Current														
Type 1 Combination (600V)	[A] ~	~	~	~	~	~	~	1000	1000	~	~	~	~	~	~
UL Class L Fuses	85 kA Available Fault Current														
Type 1 Combination (600V)	[A] ~	~	~	~	~	~	~	~	~	~	~	1600	1600	~	~
UL Class L Fuses	100 kA Available Fault Current														
Type 1 Combination (600V)	[A] ~	~	~	~	~	~	~	800	800	1200	1200	~	~	1600	~
Type 2 Combination (600V)	[A] ~	~	~	~	~	~	~	~	~	1200	1200	~	~	~	~
UL Inverse-Time Circuit	42 kA Available Fault Current														
Type 1 Combination (480V)	[A] ~	~	~	~	~	~	~	~	~	1200	1200	~	~	~	~
UL Inverse-Time Circuit	65 kA Available Fault Current														
Type 1 Combination (480V)	[A] 250	250	400	400	800	800	800	800	800	800	800	~	~	~	~
UL Inverse-Time Circuit	84 kA Available Fault Current														
Type 1 Combination (480V)	[A] ~	~	~	~	~	~	~	600	800	~	~	~	~	~	~
UL Inverse-Time Circuit	89 kA Available Fault Current														
Type 1 Combination (480V)	[A] ~	~	~	~	~	~	~	~	~	800	800	~	~	~	~
UL Inverse-Time Circuit	100 kA Available Fault Current														
Type 1 Combination (480V)	[A] 250	250	400	400	800	800	800	~	~	~	~	~	~	~	~
UL Inverse-Time Circuit	25 kA Available Fault Current														
Type 2 Combination (600V)	[A] 250	250	~	~	~	~	~	~	~	~	~	~	~	~	~
UL Inverse-Time Circuit	35 kA Available Fault Current														
Type 2 Combination (600V)	[A] ~	~	400	400	800	800	800	600	800	800	800	~	~	~	~
UL Inverse-Time Circuit	42 kA Available Fault Current														
Type 1 Combination (600V)	[A] ~	~	~	~	800	800	800	600	800	800	800	~	~	~	~
UL Inverse-Time Circuit	50 kA Available Fault Current														
Type 1 Combination (600V)	[A] 250	250	~	~	~	~	~	~	~	800	800	~	~	~	~
UL Inverse-Time Circuit	65 kA Available Fault Current														
Type 1 Combination (600V)	[A] ~	~	400	400	400	400	400	400	~	~	~	~	~	~	~

Coil Data

Coil type: Electronic	CA9-116...146	CA9-190...205	CA9-265...370	CA9-400...460	CA9-580...750	CA9-860...1060	CA9-1260	CA9-2050...2650
Operating Limits								
50/60 Hz	pick-up [xUs] dropout [xUs]				0.85...1.1 0.55			
DC control	pick-up [xUs] dropout [xUs]				0.80...1.1 0.55			
24...60V AC	pick-up [VA] hold-in [VA]	225 5.5	165 6	475 8.5	~ ~	~ ~	~ ~	~ ~
48...130V AC	pick-up [VA] hold-in [VA]	170 4	175 4	340 17	1215 12	1100 12	~ ~	1100 12 ~
100...250V AC	pick-up [VA] hold-in [VA]	130 6	220 7	385 17.5	955 12	880 12	2450 48	880 12 48
250...500V AC	pick-up [VA] hold-in [VA]	205 16	185 16	420 21	950 12	985 12	~ ~	985 12 ~
24...60V DC	pick-up [W] hold-in [W]	210 2.5	205 2.5	400 3.5	900 5	785 5.5	~ ~	785 5.5 ~
48...130V DC	pick-up [W] hold-in [W]	130 2.5	130 2.5	360 2.5	1150 5	1020 5	~ ~	120 5 ~
100...250V DC	pick-up [W] hold-in [W]	135 3	190 2.5	410 4.5	895 5	880 5	2290 20.5	880 5 20.5
250...500V DC	pick-up [W] hold-in [W]	205 4	190 4	600 4.7	885 7.5	910 7.5	~ ~	910 7.5 ~
Operating Times								
AC or DC	closing delay [ms] opening delay [ms]	20...55 40...70	25...60 45...80	30...60 45...80	50...120 33...70	50...120 33...70	50...80 35...55	50...120 33...70 35...55
With PLC Interface	closing delay [ms] opening delay [ms]	20...31 24...34	25...45 25...45	25...45 25...45	40...60 10...30	40...90 10...30	40...65 10...30	40...65 10...30 10...30

Mechanical Data

Main Terminals	CA9-116	CA9-146	CA9-190	CA9-205	CA9-265	CA9-305	CA9-370	CA9-400	CA9-460	CA9-580	CA9-750	CA9-860	CA9-1060	CA9-1260	CA9-2050	CA9-2650
Conductor Cross Sections - Main Contacts Terminal Type																
(1) conductor Clamp Type [mm²]	10...95 CA9-CL146	10...150 CA9-TL205	6...150 CA9-TL370													
Recommended torque [Nm]	8	34	42													
(2) conductors Clamp Type [mm²]	10...95 CA9-CL146	~	~	16...500 CA9-TL370B	70...500 CA9-TL580	70...500 CA9-TL750	120...500 CA9-TL860	70...750 CA9-TL1060	70...750 CA9-TL1060	~	~					
Recommended torque [Nm]	8	~	~	42	31	43	43	57	~							
(3) conductors Clamp Type [mm²]	~	~	~	~	~	70...500 CA9-TL750	120...500 CA9-TL860	70...750 CA9-TL1060	70...750 CA9-TL1060	~	~					
Recommended torque [Nm]	~	~	~	~	~	43	43	57	43	~	~					
(4) conductors Clamp Type [mm²]	~	~	~	~	~	~	120...500 CA9-TL860	70...750 CA9-TL1060	~	~	~					
Recommended torque [Nm]	~	~	~	~	~	~	~	~	43	57	~	~				
(6) conductors Clamp Type [mm²]	~	~	~	~	~	~	~	~	~	70...750 CA9-TL1060B	~	~				
Recommended torque [Nm]	~	~	~	~	~	~	~	~	~	~	57	~	~			
L max. [mm]	22	24	32	47	50	100	100	100	100	100	100	100	100	100	100	100
Ø min. [mm]	6	8	10	10	12	12	12	12	12	12	12	12	12	12	12	12
Recommended torque [Nm]	9	18	28	35	45	45	45	45	45	45	45	45	45	45	45	45

Cross Section per UL/CSA

(1) conductor Clamp Type [AWG]	6...3/0 CA9-CL146	6...300 MCM CA9-TL205	4...400 MCM CA9-TL370	~	~	~	~	~	~	~	~	~	~	~	~	~
Recommended torque [lb-in]	80	300	375	~	~	~	~	~	~	~	~	~	~	~	~	~
(2) conductors Clamp Type [AWG]	6...3/0 CA9-CL146	~	4...500 MCM CA9-TL370B	2/0...500 MCM CA9-TL580	2/0...500 MCM CA9-TL750	4/0...500 MCM CA9-TL860	1/0...750 MCM CA9-TL1060	2/0...500 MCM CA9-TL750	~	~	~	~	~	~	~	~
Recommended torque [lb-in]	80	~	375	275	375	375	500	375	~	~	~	~	~	~	~	~
(3) conductors Clamp Type [AWG]	~	~	~	~	2/0...500 MCM CA9-TL750	4/0...500 MCM CA9-TL860	1/0...750 MCM CA9-TL1060	2/0...500 MCM CA9-TL750	~	~	~	~	~	~	~	~
Recommended torque [lb-in]	~	~	~	~	~	375	375	500	375	500	375	500	375	500	~	~
(4) conductors Clamp Type [AWG]	~	~	~	~	~	~	4/0...500 MCM CA9-TL860	1/0...750 MCM CA9-TL1060	~	~	~	~	~	~	~	~
Recommended torque [lb-in]	~	~	~	~	~	~	~	~	375	500	~	~	~	~	~	~
(6) conductors Clamp Type [AWG]	~	~	~	~	~	~	~	~	~	1/0...750 MCM CA9-TL1060B	~	~	~	~	~	~
Recommended torque [lb-in]	~	~	~	~	~	~	~	~	~	500	~	~	~	~	~	~
L max. [in]	0.866	0.945	1.26	1.85	1.97	3.94	3.94	3.94	3.94	3.94	1.97	1.97	1.97	1.97	3.94	3.94
Ø min. [in]	0.236	0.315	0.394	0.394	0.472	0.472	0.472	0.472	0.472	0.472	0.472	0.472	0.472	0.472	0.472	0.472
Recommended torque [lb-in]	80	160	248	310	398	398	398	398	398	398	398	398	398	398	398	398

Conductor Cross Sections

Coil Terminals	Terminal Type	
(1) conductor	[mm²]	0.75...2.5
(2) conductors	[mm²]	0.75...2.5
(1) conductor	[mm²]	1...4
(2) conductors	[mm²]	1...4
Recommended torque	[Nm]	1...1.2
Cross section per UL/CSA	[AWG]	18...14
Recommended torque	[lb-in]	8.9...10.6

Electrical Data, Auxiliary Contacts

For Reversing and Non-Reversing		CA9-S1/2*	CA9-S3/4*	CA9-S*-B*
Switching of AC Loads				
Rated Insulation voltage U_i		690V	690V	250V
Rated Operational voltage U_e		690V	690V	125V
Rated Impulse Withstand voltage U_{imp}		6kV	6kV	1.5kV
AC-12 I_{th}	at 40°C [A]	16	16	0.1
	at 60°C [A]	~	~	~
AC-14 at rated voltage of	24V [A]	~	~	0.1
	42/48V [A]	~	~	0.1
	120V [A]	~	~	0.1
AC-15 at rated voltage of	24V [A]	6	6	~
	42/48V [A]	6	6	~
	120V [A]	6	6	~
	230V [A]	4	4	~
	240V [A]	4	4	~
	400V [A]	3	3	~
	415V [A]	3	3	~
	500V [A]	2	2	~
	690V [A]	2	2	~
Switching of DC Loads				
DC-12 L/R < 1 ms resistive loads at	24V DC [A]	~	~	0.1
	48V DC [A]	~	~	0.1
	110V DC [A]	~	~	0.1
	220V DC [A]	~	~	~
	440V DC [A]	~	~	~
DC-12 L/R < 15 ms inductive loads with economy resistor in series at	24V DC [A]	~	~	~
	48V DC [A]	~	~	~
	110V DC [A]	~	~	~
	220V DC [A]	~	~	~
	440V DC [A]	~	~	~
DC-13 switching electromagnetics at	24V DC [A]	3	6	~
	48V DC [A]	1.5	2.8	~
	110V DC [A]	0.55	0.55	~
	220V DC [A]	0.3	0.3	~
	440V DC [A]	~	~	~
Fuse gG				
Short-circuit protection with no welding of contacts per IEC 60947-5-2	 [A]	10	10	0.1
	 [A]	10	10	0.1
Protective Separation per IEC 60947-1, Annex N				
Min. Switching capacity at 24V IEC 60947-5-4	[mA]	50	50	~
Min. Switching capacity at 3V IEC 60947-5-4	[kVA]	~	~	1
Load Carrying Capacity per UL/CSA				
Rated voltage	AC [V]	600	600	125
Continuous rating	40°C [A]	10	10	0.1
Switching capacity	AC	A 600	A 600	~
Rated voltage	DC [V]	250	250	125
Continuous rating	40°C [A]	2.5	2.5	0.1
Switching capacity	DC	P 600	Q 300	~
	660V [kVA]	160	181	254

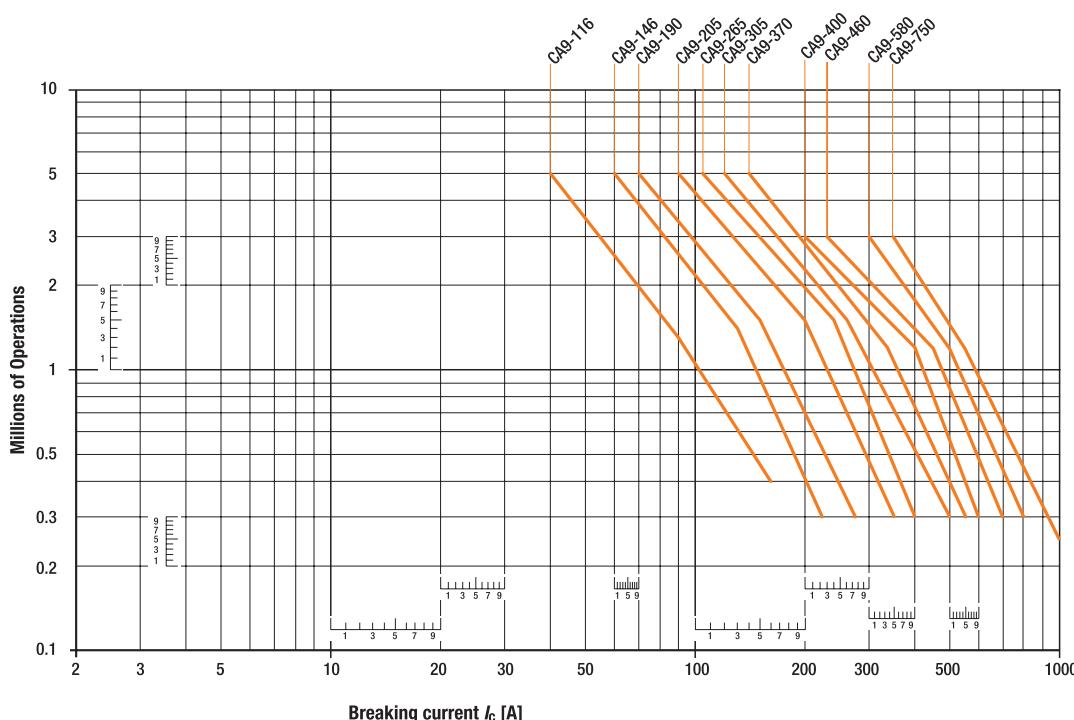
Life-Load Curves

3-Pole Contactors
Electrical Durability

Electrical durability for AC-1 utilization category - $U_e \leq 690V$ ⓘ

Switching non-inductive or slightly inductive loads.

The breaking current I_c for AC-1 is equal to the rated operational current of the load.



Instructions on

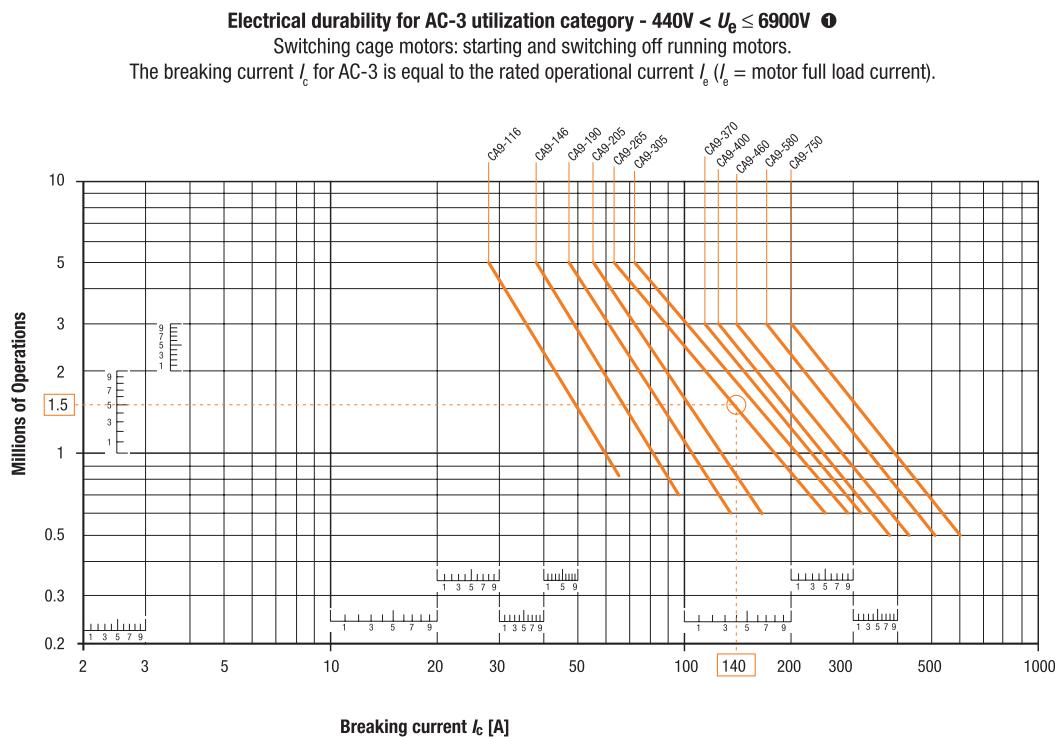
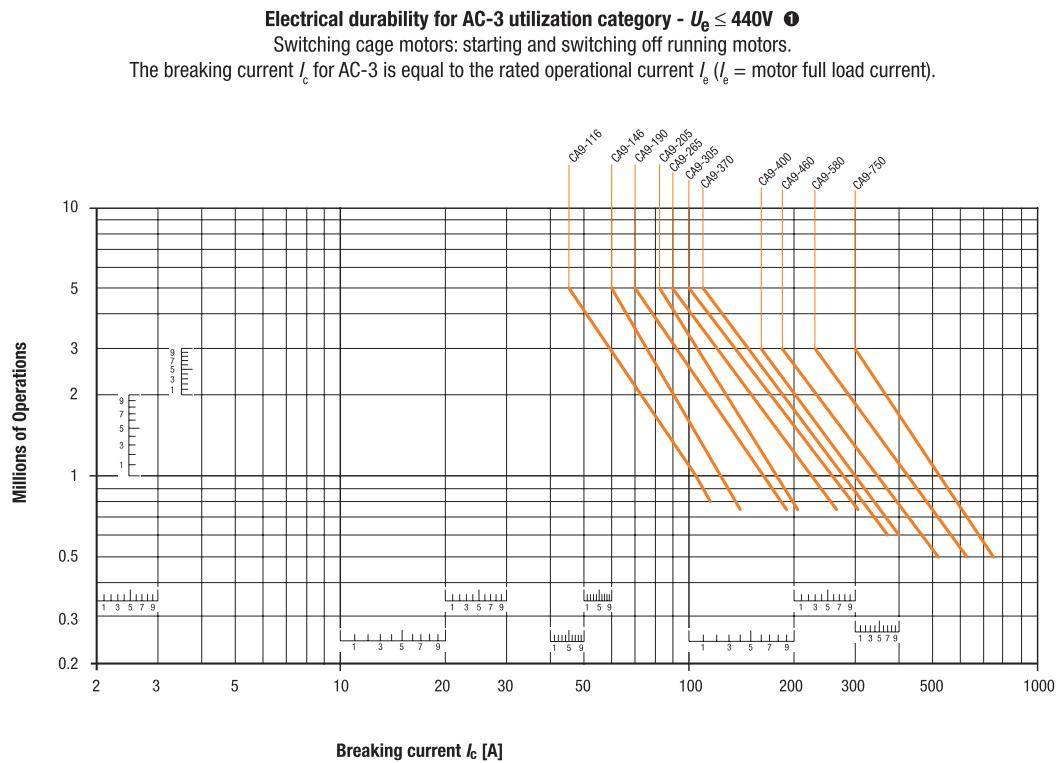
How to read Life Curves

can be found on page A8

ⓘ CA9-860 and CA9-1060 electrical durability at the rated current is 50,000 operating cycles.

Life-Load Curves

3-Pole Contactors
Electrical Durability



① CA9-860 and CA9-1060 electrical durability at the rated current is 50,000 operating cycles.

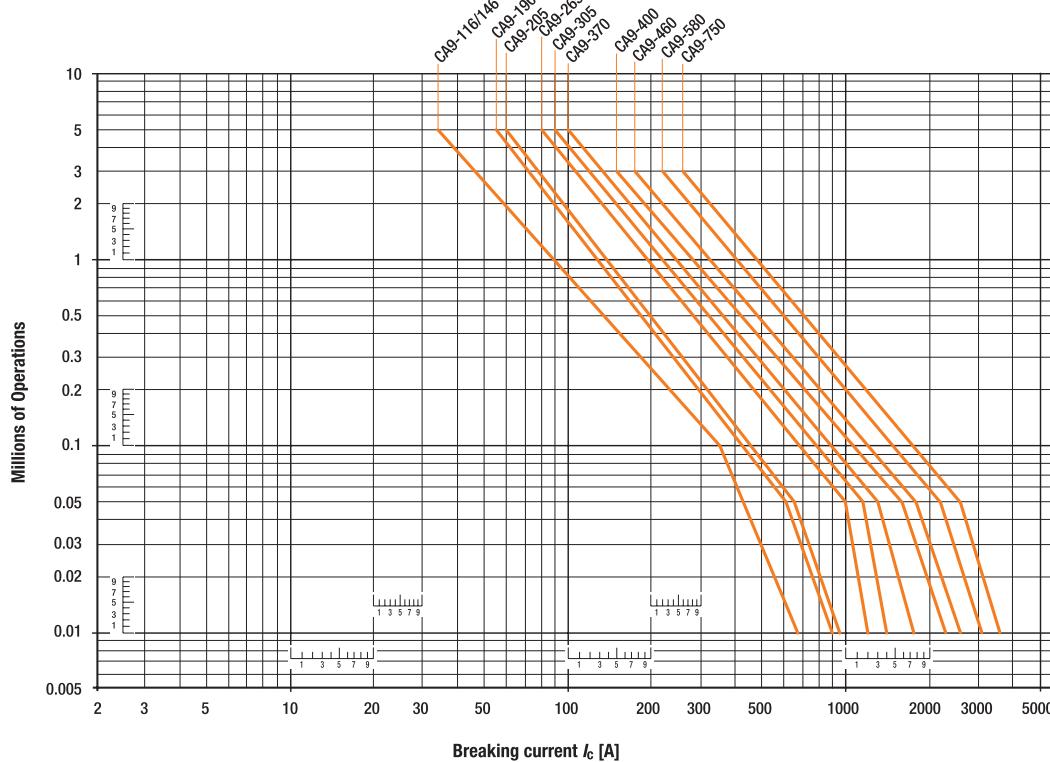
Life-Load Curves

3-Pole Contactors
Electrical Durability

Electrical durability for AC-2 or AC-4 utilization category - $U_e \leq 440V$

Switching cage motors: starting/reversing, and step-by-step operation.

The breaking current I_c is equal to $2.5 \times I_e$ for AC-2 and $6 \times I_e$ for AC-4, keeping in mind that I_e is the motor rated operational current ($I_e =$ motor full load current).


A
CA9 Contactors

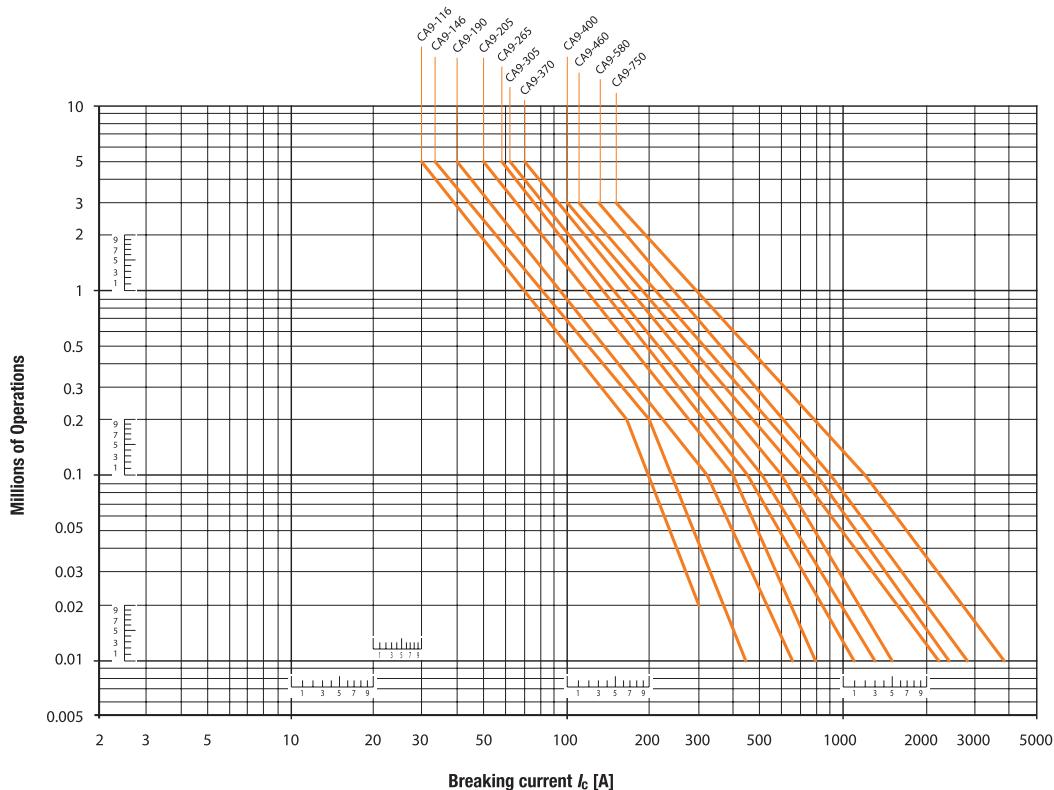
Life-Load Curves

3-Pole Contactors
Electrical Durability

Electrical durability for AC-2 or AC-4 utilization category - $440V < U_e \leq 690V$

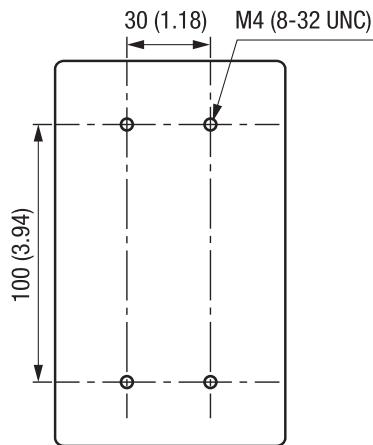
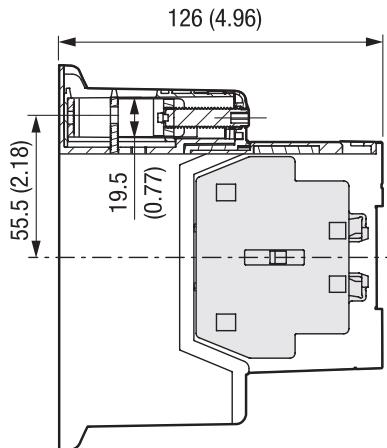
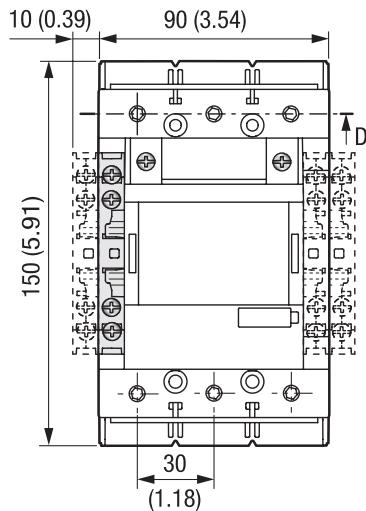
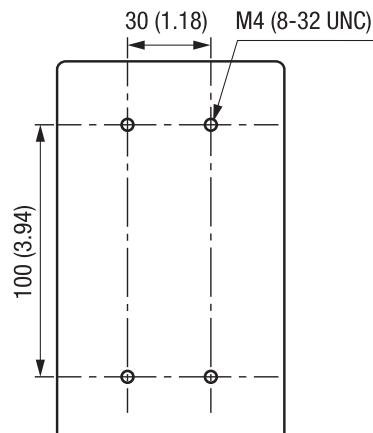
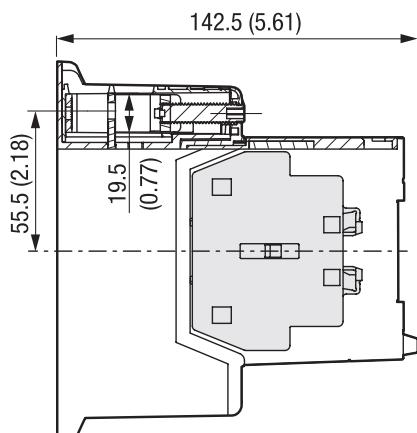
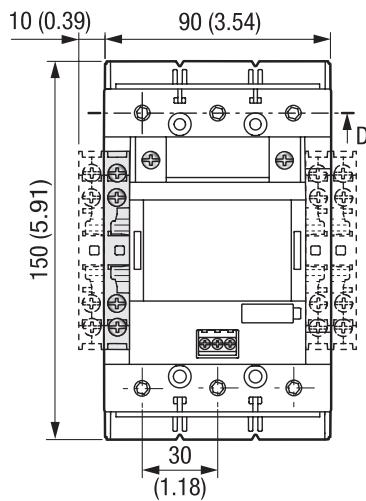
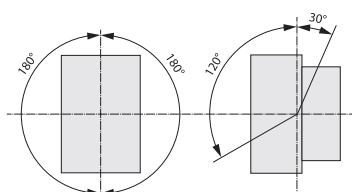
Switching cage motors: starting/reversing, and step-by-step operation.

The breaking current I_c is equal to $2.5 \times I_e$ for AC-2 and $6 \times I_e$ for AC-4, keeping in mind that I_e is the motor rated operational current (I_e = motor full load current).



Series CA9-116...146-_L (Contactors/Reversing Contactors)

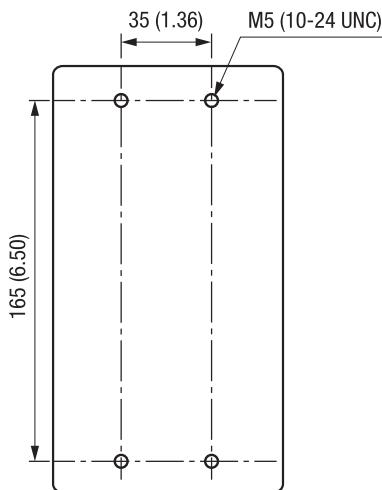
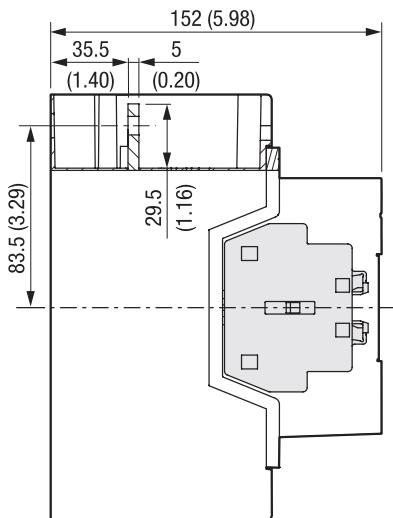
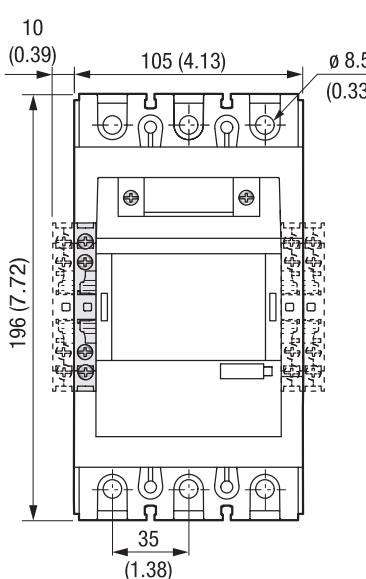
Dimensions are in millimeters (inches). Dimensions not intended for manufacturing purposes.


Series CA9-116-EI...146-EI-_L (Contactors/Reversing Contactors with PLC Interface)

Mounting Position


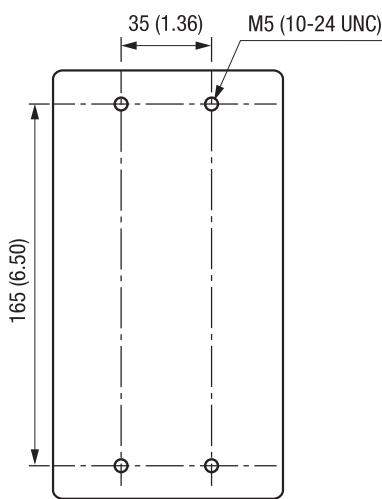
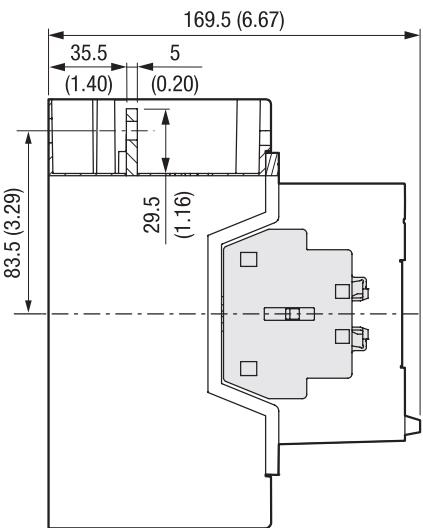
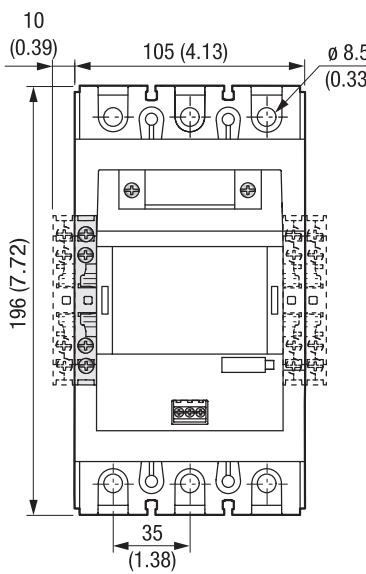
A

Series CA9-190...205 (Contactors/Reversing Contactors)

Dimensions are in millimeters (inches). Dimensions not intended for manufacturing purposes.

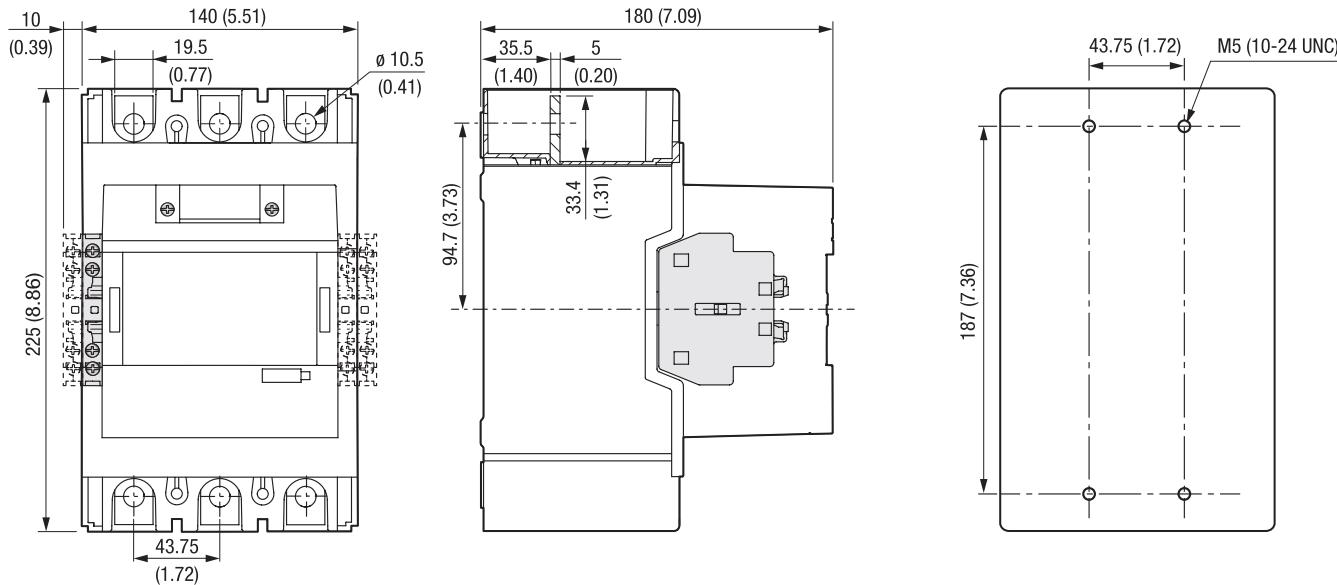
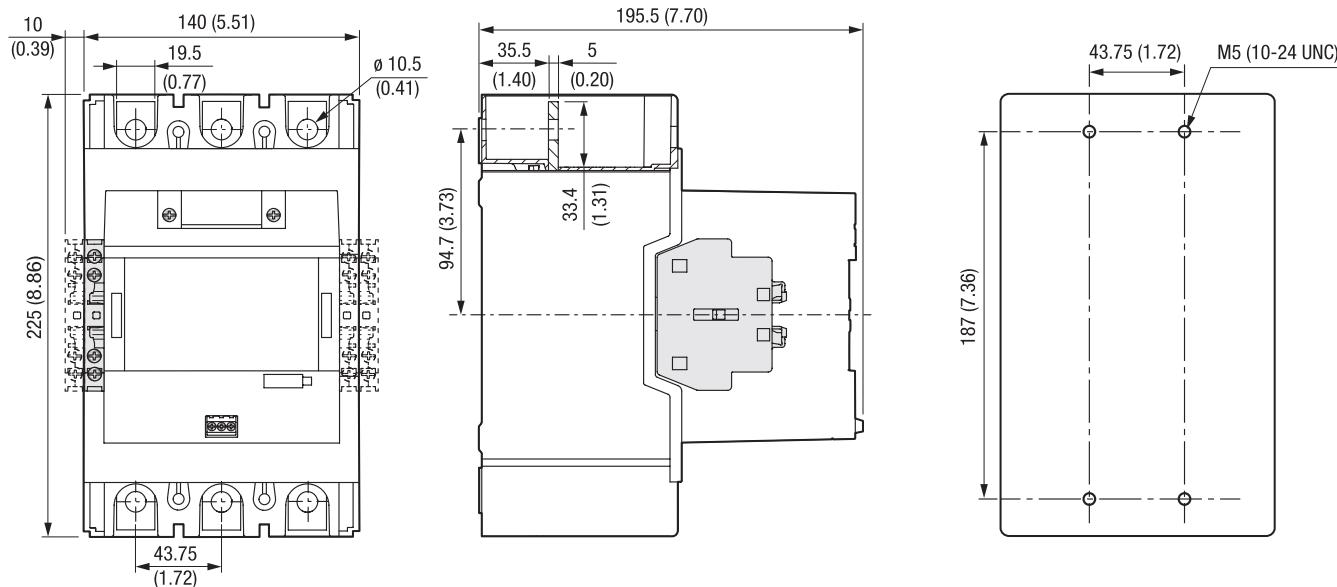


Series CA9-190-EI...205-EI (Contactors/Reversing Contactors with PLC Interface)



Series CA9-265...370 (Contactors/Reversing Contactors)

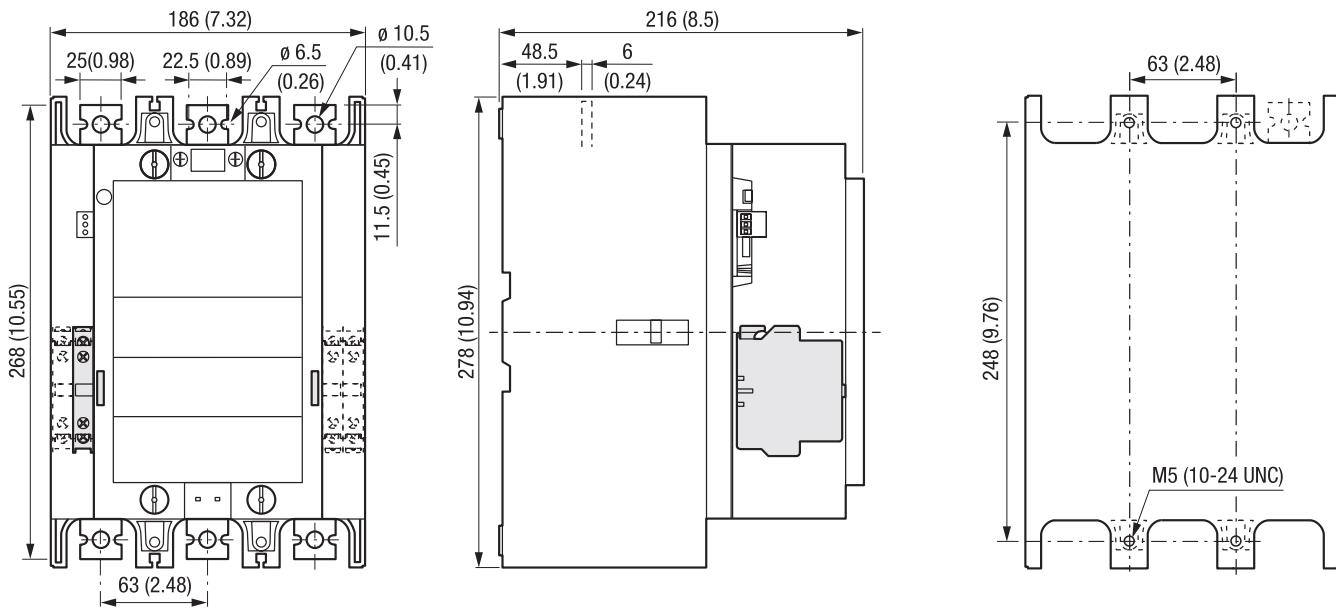
Dimensions are in millimeters (inches). Dimensions not intended for manufacturing purposes.


Series CA9-265-EI...370-EI (Contactors/Reversing Contactors with PLC Interface)


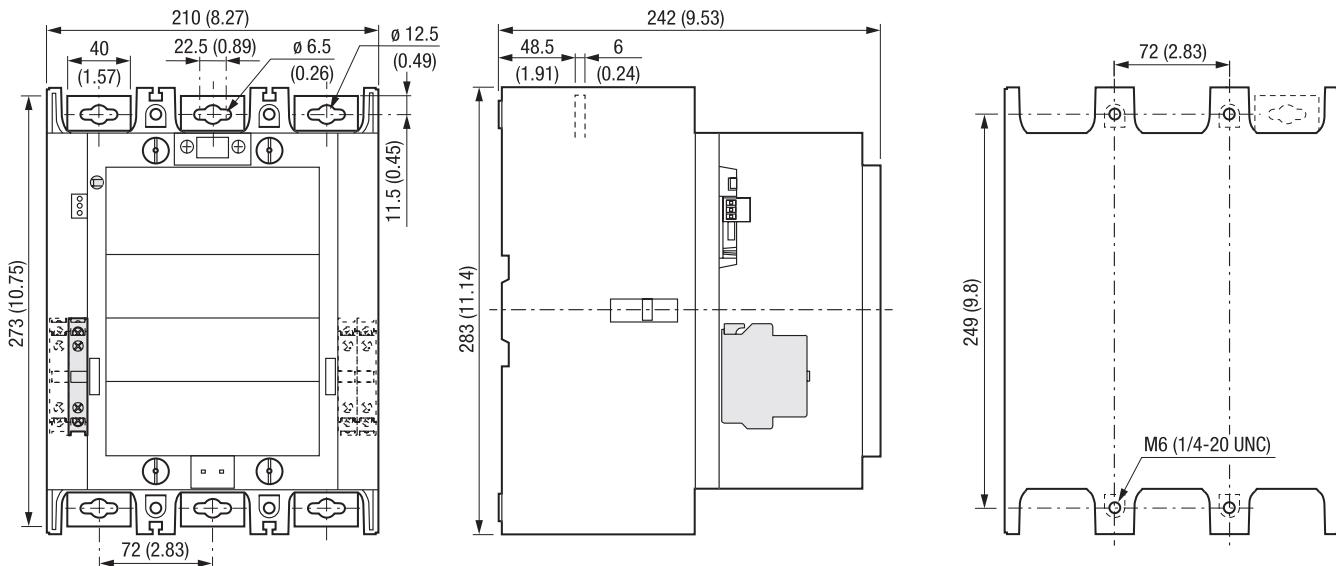
A

Series CA9-400-EI...460-EI (Contactors/Reversing Contactors with PLC Interface)

Dimensions are in millimeters (inches). Dimensions not intended for manufacturing purposes.

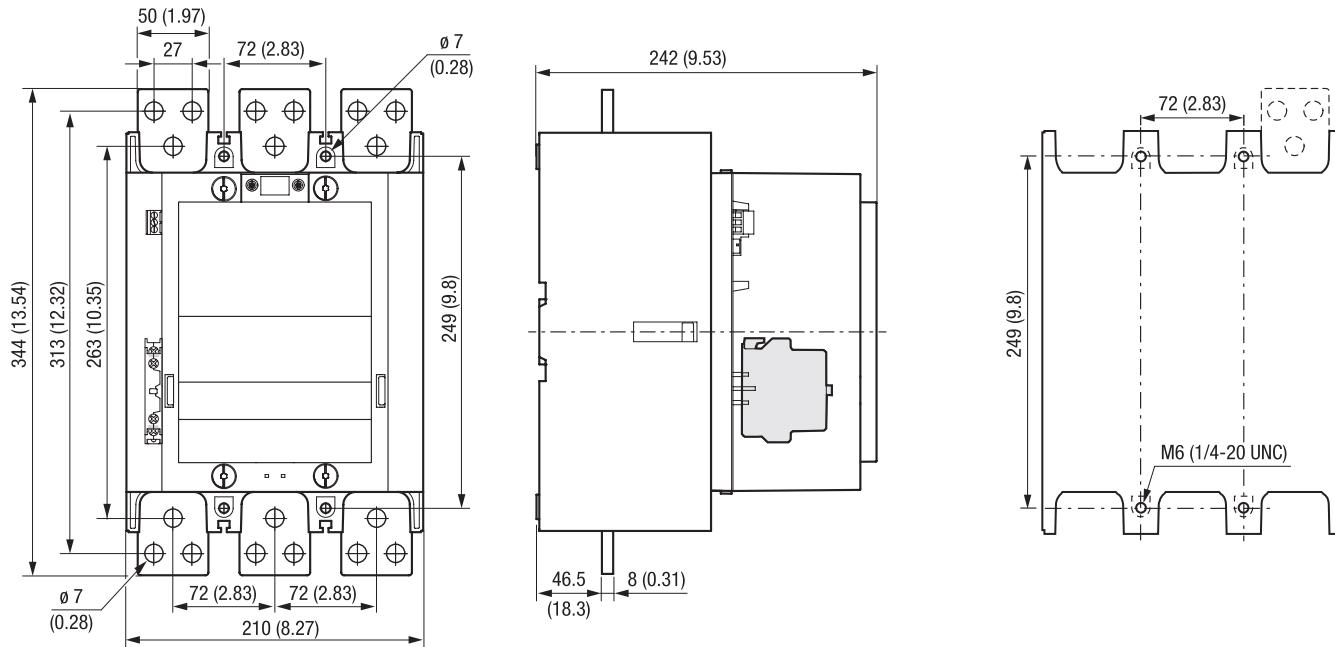
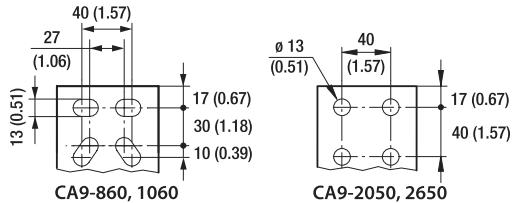


Series CA9-580-EI, CA9-750-EI (Contactors/Reversing Contactors with PLC Interface)



Series CA9-1260-EI (Contactors with PLC Interface)

Dimensions are in millimeters (inches). Dimensions not intended for manufacturing purposes.


Series CA9-860-EI, CA9-1060-EI, CA9-2050-EI, CA9-2650-EI (Contactors with PLC Interface)


Dim	CA9-860, 1060, 2050	CA9-2650
A	392 (15.43)	422 (16.61)
B	47 (1.85)	53 (2.09)
C	10 (0.39)	25 (0.98)

