

100-C/104-C, 100S-C/104S-C, 100Q-C Contactors

Product Selection—100-C/104-C Contactors

- Compact sizes from 4...55 kW/5...75 Hp (9...97 A)
- Common accessories for all contactor sizes
- Front and side mounting of auxiliary contacts
- Electronic and pneumatic timing modules
- Space-saving coil-mounted control modules
- Reversible coil terminations (line or load side)
- All devices can be attached to 35 mm DIN mounting Rail
- Environmentally friendly materials



100-C Contactor



104-C Reversing Contactor

The Bulletin 100-C/104-C IEC contactor family, along with a wide range of common accessories and Bulletin 193 solid-state overload relays, provides the most compact and flexible starter component system available.



3-Pole AC- and DC-operated Contactors

Rated Operational Current I_e [A]		Ratings for switching AC motors - AC-2, AC-3, AC-4										Auxiliary Contacts		Cat. No. ⁽¹⁾
		3-phase kW (50 Hz)				Hp (60 Hz)						N.O.	N.C.	
		40 °C		230V	400/415V	500V	690V	1-Phase		3-Phase				
AC-3	AC-1	115V	230V					200V	230V	460V	575V			
9	32	3	4	4	4	1/2	1-1/2	2	2	5	7-1/2	1	0	100-C09⊗10
												0	1	100-C09⊗01
12	32	4	5.5	5.5	5.5	1/2	2	3	3	7-1/2	10	1	0	100-C12⊗10
												0	1	100-C12⊗01
16	32	5.5	7.5	7.5	7.5	1	3	5	5	10	15	1	0	100-C16⊗10
												0	1	100-C16⊗01
23	32	7.5	11	13	10	2	3	5	7-1/2	15	15	1	0	100-C23⊗10
												0	1	100-C23⊗01
30	65	10	15	15	15	2	5	7-1/2	10	20	25	0	0	100-C30⊗00
												1	0	100-C30⊗10
												0	1	100-C30⊗01
37	65	11	18.5/20	20	18.5	3	5	10	10	25	30	0	0	100-C37⊗00
												1	0	100-C37⊗10
												0	1	100-C37⊗01
43	85	13	22	25	22	3	7-1/2	10	15	30	30	0	0	100-C43⊗00
												1	0	100-C43⊗10
												0	1	100-C43⊗01
55	85	15	30	30	30	5	10	15	20	40	40	0	0	100-C55⊗00
												1	0	100-C55⊗10
												0	1	100-C55⊗01
60	100	18.5	32	37	32	5	10	15	20	40	50	0	0	100-C60⊗00
												1	0	100-C60⊗10
												0	1	100-C60⊗01
72	100	22	40	45	40	5	15	20	25	50	60	0	0	100-C72⊗00
												1	0	100-C72⊗10
												0	1	100-C72⊗01
85	100	25	45	55	45	7-1/2	15	25	30	60	60	0	0	100-C85⊗00
												1	0	100-C85⊗10
												0	1	100-C85⊗01
97	130	30	55	55	55	10	20	30	30	75	75	0	0	100-C97⊗00
												1	0	100-C97⊗10
												0	1	100-C97⊗01

(1) For screwless terminals on 100-C09...C16, add an "R" after the letter "C" in the catalog number. Example: Cat. No. 100-C09⊗10 becomes 100-CR09⊗10. The AC-1 rating for the 100-CR is limited to 25 A.

⊗ Coil voltage code and terminal position—see [page 24](#)



4-Pole AC- and DC-Operated Contactors

Rated Operational Current I_e [A]		Ratings for switching AC motors - AC-2, AC-3										Contact Configuration, Main Poles		Cat. No. ⁽¹⁾
		3-phase kW (50 Hz) ⁽²⁾				Hp (60 Hz)								
		40 °C		230V	400/415V	500V	690V	1-Phase		3-Phase*				
AC-3	AC-1	115V	230V					200V	230V	460V	575V	N.O.	N.C.	
9	32	3	4	4	4	1/2	1-1/2	2	2	5	7-1/2	4	0	100-C09⊗400
												3	1	100-C09⊗300
												2	2	100-C09⊗200
12	32	4	5.5	5.5	5.5	1/2	2	3	3	7-1/2	10	4	0	100-C12⊗400
												3	1	100-C12⊗300
												2	2	100-C12⊗200
16	32	5.5	7.5	7.5	7.5	1	3	5	5	10	10	4	0	100-C16⊗400
												3	1	100-C16⊗300
												2	2	100-C16⊗200
23	32	7.5	11	13	10	2	3	5	7-1/2	15	15	4	0	100-C23⊗400
												3	1	100-C23⊗300
												2	2	100-C23⊗200
37	75	11	18.5/20	20	18.5	3	5	10	10	25	30	4	0	100-C40⊗400
												2	2	100-C40⊗200
85	130	25	45	55	45	7-1/2	15	25	30	60	50	4	0	100-C90⊗400
												2	2	100-C90⊗200

(1) For screwless terminals on 100-C09...C16, add an "R" after the letter "C" in the catalog number. Example: Cat. No. 100-C09⊗10 becomes 100-CR09⊗10. The AC-1 rating for the 100-CR is limited to 25 A.
 (2) Three-phase ratings apply only to contactors with at least three N.O. power poles.

⊗ Coil voltage code and terminal position— see [page 24](#).

Reversing AC- and DC-Operated Contactors

Rated Operational Current I_e [A]		Ratings for switching AC motors - AC-2, AC-3, AC-4										Auxiliary Contacts per Contactor		Cat. No.
		3-phase kW (50 Hz)				Hp (60 Hz)								
		40 °C		230V	400/415V	500V	690V	1-Phase		3-Phase				
AC-3	AC-1	115V	230V					200V	230V	460V	575V	N.O.	N.C. ⁽¹⁾	
9	32	3	4	4	4	1/2	1-1/2	2	2	5	7-1/2	1	1	104-C09⊗22
12	32	4	5.5	5.5	5.5	1	2	3	3	7-1/2	10	1	1	104-C12⊗22
16	32	5.5	7.5	7.5	7.5	1	3	5	5	10	15	1	1	104-C16⊗22
23	32	7.5	11	13	10	2	3	5	7-1/2	15	20	1	1	104-C23⊗22
30	65	10	15	15	15	2	5	7-1/2	10	20	25	0	1	104-C30⊗02
												1	1	104-C30⊗22
37	65	11	18.5/20	20	18.5	3	5	10	10	25	30	0	1	104-C37⊗02
												1	1	104-C37⊗22
43	85	13	22	25	22	3	7.5	10	15	30	30	0	1	104-C43⊗02
												1	1	104-C43⊗22
55	85	15	30	30	30	5	10	15	20	40	40	0	1	104-C55⊗02
												1	1	104-C55⊗22
60	100	18.5	32	37	32	5	10	15	20	40	50	0	1	104-C60⊗02
												1	1	104-C60⊗22
72	100	22	40	45	40	5	15	20	25	50	60	0	1	104-C72⊗02
												1	1	104-C72⊗22
85	100	25	45	55	45	7-1/2	15	25	30	60	60	0	1	104-C85⊗02
												1	1	104-C85⊗22
97	130	30	55	55	55	10	15	30	30	75	75	0	1	104-C97⊗02
												1	1	104-C97⊗22

(1) The N.C. auxiliary contact is supplied as part of the mechanical/electrical interlock.

⊗ Coil voltage code and terminal position — see [page 24](#).

Coil Voltage Codes

The Cat. No. as listed is incomplete. Select a coil voltage code from the table below to complete the Cat. No. Example: 120V, 60 Hz: Cat. No. 100-C09⊗10 becomes Cat. No.100-C09D10.

AC Voltages [V]	12	24	32	36	42	48	100	100... 110	110	120	127	200	200... 220	208	208... 240
50 Hz	R	K	V	W	X	Y	KP	—	D	P	S	KG	L	—	—
60 Hz	Q	J	—	V	—	X	—	KP	—	D	—	—	KG	H	L
50/60 Hz	—	KJ	—	—	—	KY	KP	—	KD	—	—	KG	KL ⁽¹⁾	—	—

(1) Not available on 100/104-C90 or -C97 contactors.

AC Voltages [V]	220... 230	230	230... 240	240	277	347	380	380... 400	400	400... 415	440	480	500	550	600
50 Hz	F	—	VA	T	—	—	—	N	—	G	B	—	M	C	—
60 Hz	—	—	—	A	T	I	E	—	—	—	N	B	—	—	C
50/60 Hz	KL ⁽¹⁾	KF	—	KA	—	—	—	—	KN	—	KB	—	—	—	—

(1) Not available on 100/104-C90 or -C97 contactors.

DC Voltages [V]		9	12	24	24	36	36...48	48	48...72	60	64
100-C09...C55	Electronic with Integrated Diode	—	EQ	EJ	QJ ⁽¹⁾	—	EW	—	EY	—	—
100-C60...C97	with Integrated Diode	DR	DQ	DJ	—	DW	—	DY	—	DZ	DB

(1) "QJ" coil has faster dropout time (16...21 ms).

DC Voltages [V]		72	80	110	110...125	115	125	220	220...250	230	250
100-C09...C55	Electronic with Integrated Diode	—	—	—	ED	—	—	—	EA	—	—
100-C60...C97	with Integrated Diode	DG	DE	DD	—	DP	DS	DA	—	DF	DT

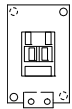
Coil Terminal Position

All contactors are delivered with the coil terminals located on the line side.

For load side coil terminations, insert a "U" prior to the coil voltage code. Ordering example: Cat. No. 100-C09UD10.



Cat. No.100-C09⊗10 Line Side



Cat. No.100-C09U⊗10 Load Side

Assignment of Contacts

Table valid for: AC / DC = 0.85...1.1 x U_s, T_{amb} = -25 °C...+60 °C, normal position (horizontal rail mounting)

Device Combinations in Accordance with IEC 60947-1 / -4-1

Auxiliary Contact Blocks		100-C Contactors (AC and DC Control)						
Circuit Diagram	Control	100-C09_⊗10	100-C09_⊗01	100-C30_⊗00 100-C37_⊗00 100-C43_⊗00 100-C55_⊗00 100-C60_⊗00 100-C72_⊗00 100-C85_⊗00 100-C97_⊗00	100-C09_⊗400 100-C12_⊗400 100-C16_⊗400 100-C23_⊗400 100-C40_⊗400 100-C90_⊗400	100-C09_⊗300 100-C12_⊗300 100-C16_⊗300 100-C23_⊗300	100-C09_⊗200 100-C12_⊗200 100-C16_⊗200 100-C23_⊗200 100-C40_⊗200 100-C90_⊗200	
Side Mounting ⁽¹⁾								
100-SB01		AC/DC	10 + 01 = 11	01 + 01 = 02 ⁽³⁾	00 + 01 = 01	00 + 01 = 01	00 + 01 = 01	00 + 01 = 01
100-SB10		AC/DC	10 + 10 = 20 ⁽³⁾	01 + 10 = 11	00 + 10 = 10	00 + 10 = 10	00 + 10 = 10	00 + 10 = 10
100-SB02		AC/DC	10 + 02 = 12 ⁽³⁾	—	00 + 02 = 02	00 + 02 = 02	00 + 02 = 02	00 + 02 = 02
100-SB11		AC/DC	10 + 11 = 21 ⁽³⁾	01 + 11 = 12 ⁽³⁾	00 + 11 = 11	00 + 11 = 11	00 + 11 = 11	00 + 11 = 11
100-SB20		AC/DC	10 + 20 = 30 ⁽³⁾	01 + 20 = 21 ⁽³⁾	00 + 20 = 20	00 + 20 = 20	00 + 20 = 20	00 + 20 = 20
100-SBL11 ⁽²⁾		AC/DC	10 + L11 = L21 ⁽³⁾	01 + L11 = L12 ⁽³⁾	00 + L11 = L11	00 + L11 = L11	00 + L11 = L11	00 + L11 = L11

(1) Up to 8 auxiliary contacts possible: contactor + front mounted (AC max. 4 N.C. / DC max. 4 N.C.), side mounted (AC max. 2 N.O. / DC max. 2 N.O. and max. 2 N.C.).

(2) Early make and/or late break.

(3) Double numbering: because of double numbering only left-side mounting is recommended.

Device Combinations in Accordance with IEC 60947-1 / -4-1

Auxiliary Contact Blocks		100-C Contactors (AC and DC Control)						
Circuit Diagram	Control	100-C09_⊗10	100-C09_⊗01	100-C30_⊗00 100-C37_⊗00 100-C43_⊗00 100-C55_⊗00 100-C60_⊗00 100-C72_⊗00 100-C85_⊗00 100-C97_⊗00	100-C09_⊗400 100-C12_⊗400 100-C16_⊗400 100-C23_⊗400 100-C40_⊗400 100-C90_⊗400	100-C09_⊗300 100-C12_⊗300 100-C16_⊗300 100-C23_⊗300	100-C09_⊗200 100-C12_⊗200 100-C16_⊗200 100-C23_⊗200 100-C40_⊗200 100-C90_⊗200	
Front Mounting ⁽¹⁾								
100-FA02, 100-FAB02		AC/DC	10 + 02 = 12	01 + 02 = 03	00 + 02 = 02	00 + 02 = 02	00 + 02 = 02	00 + 02 = 02
100-FA11, 100-FAB11		AC/DC	10 + 11 = 21	01 + 11 = 12	00 + 11 = 11	00 + 11 = 11	00 + 11 = 11	00 + 11 = 11
100-FB11, 100-FBB11		AC/DC	—	—	00 + 11 = 11	00 + 11 = 11	00 + 11 = 11	00 + 11 = 11
100-FC11, 100-FCB11		AC/DC	10 + 11 = 21	—	—	—	—	—
100-FA20, 100-FAB20		AC/DC	10 + 20 = 30	01 + 20 = 21	00 + 20 = 20	00 + 20 = 20	00 + 20 = 20	00 + 20 = 20
100-FBL11 ⁽²⁾		AC/DC	—	—	00 + L11 = L11	00 + L11 = L11	00 + L11 = L11	00 + L11 = L11
100-FA22, 100-FAB22		AC/DC	10 + 22 = 32	01 + 22 = 23	00 + 22 = 22	00 + 22 = 22	00 + 22 = 22	00 + 22 = 22
100-FB22, 100-FBB22		AC/DC	—	—	00 + 22 = 22	00 + 22 = 22	00 + 22 = 22	00 + 22 = 22
100-FC22, 100-FCB22		AC/DC	10 + 22 = 32	—	—	—	—	—
100-FA31, 100-FAB31		AC/DC	10 + 31 = 41	01 + 31 = 32	00 + 31 = 31	00 + 31 = 31	00 + 31 = 31	00 + 31 = 31
100-FA40, 100-FAB40		AC/DC	10 + 40 = 50	01 + 40 = 41	00 + 40 = 40	00 + 40 = 40	00 + 40 = 40	00 + 40 = 40
100-FAL22 ⁽²⁾		AC/DC	10 + L22 = L32	01 + L22 = L23	00 + L22 = L22	00 + L22 = L22	00 + L22 = L22	00 + L22 = L22
100-FA04, 100-FAB04		AC/DC	10 + 04 = 14	01 + 04 = 05	00 + 04 = 04	00 + 04 = 04	00 + 04 = 04	00 + 04 = 04

Auxiliary Contact Blocks		100-C Contactors (AC and DC Control)						
Circuit Diagram	Control	100-C09_⊗10	100-C09_⊗01	100-C30_⊗00 100-C37_⊗00 100-C43_⊗00 100-C55_⊗00 100-C60_⊗00 100-C72_⊗00 100-C85_⊗00 100-C97_⊗00	100-C09_⊗400 100-C12_⊗400 100-C16_⊗400 100-C23_⊗400 100-C40_⊗400 100-C90_⊗400	100-C09_⊗300 100-C12_⊗300 100-C16_⊗300 100-C23_⊗300	100-C09_⊗200 100-C12_⊗200 100-C16_⊗200 100-C23_⊗200 100-C40_⊗200 100-C90_⊗200	
100-FA13, 100-FAB13		AC/DC	10 + 13 = 23	01 + 13 = 14	00 + 13 = 13	00 + 13 = 13	00 + 13 = 13	00 + 13 = 13
100-FB02, 100-FBB02		AC/DC	10 + 02 = 12	01 + 02 = 03	00 + 02 = 02	00 + 02 = 02	00 + 02 = 02	00 + 02 = 02
100-FB20, 100-FBB20		AC/DC	10 + 20 = 30	01 + 20 = 21	00 + 20 = 20	00 + 20 = 20	00 + 20 = 20	00 + 20 = 20
100-FC31, 100-FCB31		AC/DC	10 + 31 = 41	01 + 31 = 32	00 + 31 = 31	00 + 31 = 31	00 + 31 = 31	00 + 31 = 31

- (1) Up to 8 auxiliary contacts possible: contactor + front mounted (AC max. 4 N.C. / DC max. 4 N.C.), side mounted (AC max. 2 N.O. / DC max. 2 N.O. and max. 2 N.C.).
- (2) Early make and/or late break.


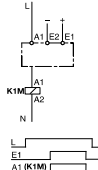

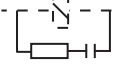
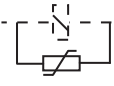

Accessories

Auxiliary Contact Blocks

	Description ⁽¹⁾	Connection Diagrams			For Use With	Cat. No.		
			N.O.	N.C.		Standard Auxiliary Contact ⁽²⁾	Bifurcated Auxiliary Contact	
 <p>Auxiliary Contact Blocks for Front Mounting</p> <ul style="list-style-type: none"> • 2- and 4-pole • Quick and easy mounting without tools • Electronic-compatible contacts down to 17V, 5mA • Mechanically linked performance between N.O. and N.C. poles and to the main contactor poles (except for L types) • Models with equal function with several terminal numbering choices • 1L = Late break N.C. / early make N.O. • Bifurcated version for switching down to 5V, 3 mA also available 		0	2	100-C all	100-FA02	100-FAB02		
						C30×00...C97×00	100-FB02	100-FBB02
		1	1	100-C all	100-FA11	100-FAB11		
						C30×00...C97×00	100-FB11	100-FBB11
						C09×10...C23×10	100-FC11	100-FCB11
		2	0	100-C all	100-FA20	100-FAB20		
						C30×00...C97×00	100-FB20	100-FBB20
		1L	1L	100-C all	100-FAL11	—		
						C30×00...C97×00	100-FBL11	—
		0	4	100-C all	100-FA04	100-FAB04		
		1	3	100-C all	100-FA13	100-FAB13		
		2	2	100-C all	100-FA22	100-FAB22		
						C30×00...C97×00	100-FB22	100-FBB22
						C09×10...C23×10	100-FC22	100-FCB22
3	1	100-C all	100-FA31	100-FAB31				
				C09×10...C23×10	100-FC31	100-FCB31		
4	0	100-C all	100-FA40	100-FAB40				
1+1L	1+1L	100-C all	100-FAL22	—				
 <p>Auxiliary Contact Blocks for Side Mounting without Sequence Terminal Designations</p> <ul style="list-style-type: none"> • 1- and 2-pole • Two-way numbering for right or left mounting on the contactor • Quick and easy mounting without tools • Electronic-compatible contacts down to 17V, 10 mA • Mirror contact performance to the main contactor poles • 1L = Late break N.C. / early make N.O. 		0	1	100-C all	100-SA01	—		
		1	0	100-C all	100-SA10	—		
		0	2	100-C all	100-SA02	—		
		1	1	100-C all	100-SA11	—		
		2	0	100-C all	100-SA20	—		
		1L	1L	100-C all	100-SAL11	—		
 <p>Auxiliary Contact Blocks for Side Mounting with Sequence Terminal Designations</p> <ul style="list-style-type: none"> • 1- and 2-pole • Two-way numbering for right or left mounting on the contactor • Quick and easy mounting without tools • Electronic-compatible contacts down to 17V, 10 mA • Mirror contact performance to the main contactor poles • 1L = Late break N.C. / early make N.O. 		0	1	100-C	100-SB01	—		
		1	0	100-C ⁽³⁾	100-SB10	—		
		0	2	100-C ⁽³⁾	100-SB02	—		
		1	1	100-C ⁽³⁾	100-SB11	—		
		2	0	100-C ⁽³⁾	100-SB20	—		
		1L	1L	100-C ⁽³⁾	100-SBL11	—		


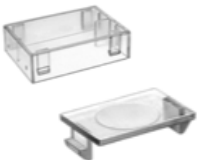


(1) Max. number of auxiliary contacts that may be mounted:
 AC and 24V DC electronic coil contactors—max. 4 N.O. contacts on the front of the contactor, 2 N.O. contacts on the side, 4 N.C. front or side, 6 total. DC Coil contactors—max. 4 N.O. contacts on the front of the contactor or max. 2 N.O. contacts on the side, 4 N.C. front or side, 4 total.
 (2) For screwless terminals (front mount only), insert "CR" after the "100-" in the catalog number. Example: Cat. No. 100-FA02 becomes Cat. No. 100-CRFA02.
 (3) Double numbering—Left-side mounting only is recommended for Cat. No. 100-C09...100-C23 due to double numbering.

Control Modules (For 100-C09...C97 contactors), Continued

	Description		Voltage Range	Connection Diagrams	For Use With	Cat. No.
	DC Interface (Electronic) <ul style="list-style-type: none"> Interface between the DC control signal (PLC) and the AC operating mechanism of the contactor. Requires no additional surge suppression on the relay coils. 		Input: 12V DC Output: 110...240V AC		100-C with AC coils 110...240V AC	100-JE12
			Input: 18...30V DC Output: 110...240V AC			100-JE
			Input: 48V DC Output: 110...240V AC			100-JE48
	RC Module AC operating mechanism	24...48V AC, 50/60 Hz		100-C with Coils	100-FSC48 ⁽¹⁾	
		110...280V AC, 50/60 Hz			100-FSC280 ⁽¹⁾	
		380...480V AC, 50/60 Hz			100-FSC480 ⁽¹⁾	
	Varistor Module AC/DC operating mechanism	12...55V AC, 12...77V DC		100-C with AC coils or 100-C09...-C43 with DC coils	100-FSV55 ⁽¹⁾	
		56...136V AC/78...180V DC			100-FSV136 ⁽¹⁾	
		137...277V AC/181...350V DC			100-FSV277 ⁽¹⁾	
		278...575V AC			100-FSV575 ⁽¹⁾	
	Diode Module DC operating mechanism	1...30 s 10...180 s		100-C09...-C43 with DC coils	100-FSD250 ⁽¹⁾	

(1) For screwless terminals, insert "CR" after the "100-" in the catalog number. Example: Cat No. 100-FSC48 becomes Cat. No.-CRFSC48.


Assembly Components (For 100-C09...C97 contactors)

	Description	For Use With	Pkg. Qty.	Cat. No.
	Dovetail Connectors <ul style="list-style-type: none"> For use in contactor and starter assemblies Single Connector — 0 mm spacing 	100-C	10	100-S0
	Dovetail Connectors <ul style="list-style-type: none"> For use in contactor and starter assemblies Single Connector — 9mm spacing 		10	
	Protective Covers <ul style="list-style-type: none"> Provides protection against unintended manual operation For contactors and front-mounted auxiliary contacts, pneumatic timers, and latches 	100-C all	1	100-SCCA
		100-FA, -FB, -FC, -FP, -FL	10	100-SCFA
	Reversing Power Wiring Kits <ul style="list-style-type: none"> For reversing connection with a solid-state or thermal overload relay 	100-C09...C23	1	105-PW23
		100-C30...C37	1	105-PW37
		100-C43...C55	1	105-PW55
		100-C60...C97	1	105-PW85
	DIN (#3) symmetrical hat rail <ul style="list-style-type: none"> 35 x 7.5 x 1 m 	140M-D 140M-F 100-C all	10	199-DR1



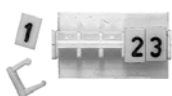
Wye-Delta/Star-Delta Starter Kits

Wye-Delta power wiring kits are designed to aid in the field assembly of open-transition wye-delta starters that use Bulletin 100-C contactors. These kits include line, load, and start-point (shorting) connections. Assembling a wye-delta starter requires the use of the following additional components:

- Contactors
- Overload Relay
- Cat. No. 100-MCA02 Mechanical/Electrical Interlock Cat. No. 100-ETY30 Electronic Y- Timer
- Cat. No. 100-S9 Base Coupler for 1M to 2M contactor (optional)






	3-Phase Rating											Pkg Qty.	Cat. No.
	kW (50 Hz)				Hp (60 Hz)				Use with Cat. No. 100-				
	230V	380/ 415V	500V	690V	200V	230V	460V	575V	Delta		Wye		
									1M	2M	1S		
	5.5	7.5	7.5	7.5	5	5	10	10	C09	C09	C09	1	170-PW23
	7.5	11	11	10	5	7.5	15	15	C12	C12	C09	1	170-PW23
	10	15	15	13	7.5	10	20	20	C16	C16	C12	1	170-PW23
	13	22	22	18.5	7.5	10	25	25	C23	C23	C12	1	170-PW23
	17	25	25	25	10	15	30	30	C30	C30	C16	1	170-PW37
	20	37	32	32	15	20	40	40	C37	C37	C23	1	170-PW37
	22	40	40	40	20	25	50	50	C43	C43	C30	1	170-PW55
	30	45	45	45	25	30	60	60	C55	C55	C37	1	170-PW55
	32	55	55	55	30	40	75	75	C60	C60	C37	1	170-PW72
	40	63	63	63	40	50	100	100	C72	C72	C43	1	170-PW72
	50	80	80	80	50	60	125	125	C85	C85	C60	1	170-PW85
	50	90	90	90	50	60	125	125	C97	C97	C60	1	170-PW85

Marking Systems (For 100-C09...C97 contactors)

	Description	Pkg. Qty. ⁽¹⁾	Cat. No.
	Label Sheet • 105 self-adhesive paper labels each, 6 x 17 mm	10	100-FMS
	Marking Tag Sheet • 106 perforated paper labels each, 6 x 17 mm, to be used with a transparent cover	10	100-FMP
	Transparent Cover • To be used with marking tag sheets	100	100-FMC
	Marking Tag Adapters • To be used with marking tag: System V7	100	100-FMA1
	Marking Tag Adapters • To be used with marking tag: System 1492 W	100	100-FMA2


(1) Must be ordered in multiples of package quantities

Terminal Kits (For 100-C09...C97 contactors)

	Description	Max. Current Ratings and Wire Sizes	Pkg. Qty ⁽²⁾	Cat. No.	
	Stab Connector Kit • Dual stab (0.250 in.) for 100-C coil terminals • For 100-C09...C97 contactors		20	199-SC2	
	Stab Connector Kit • Dual stab (0.250 in.) for 100-C power terminals • For 100-C09...C23 contactors		100	199-SC10	
	3-Pole Terminal Lug Kit • For Cat. No. 100-C09...C23 (Line side)	IEC @ 40 °C IEC @ 40 °C UL/CSA (Encl.)	45 A (4...16 mm ² , fine stranded w/ ferrule) ⁽¹⁾ 45 A (4...25 mm ² , coarse stranded/solid) 40 A (#10...4 AWG, stranded/solid)	1	100-CTN23
	3-Pole Terminal Lug Kit • For Cat. No. 100-C09...C23 (Load side)	IEC @ 40 °C IEC @ 40 °C UL/CSA (Encl.)	45 A (4...16 mm ² , fine stranded w/ ferrule) 45 A (4...25 mm ² , coarse stranded/solid) 40 A (#10...4 AWG, stranded/solid)	1	100-CTL23
	3-Pole Terminal Lug Kit • For Cat. No. 100-C30...C37 (Line and load side)	IEC @ 40 °C IEC @ 40 °C UL/CSA (Encl.)	60 A (4...16 mm ² , fine stranded w/ ferrule) 60 A (4...25 mm ² , coarse stranded/solid) 55 A (#10...4 AWG, stranded/solid)	1	100-CT37
	1-Pole Terminal Lug Kit • For Cat. No. 100-C43	IEC @ 40 °C IEC @ 40 °C UL/CSA (Encl.)	90 A (6...35 mm ² , fine stranded w/ ferrule) 90 A (6...50 mm ² , coarse stranded/solid) 75 A (#8...2 AWG, stranded/solid)	3	100-CT43
	1-Pole Terminal Lug Kit • For Cat. No. 100-C60...C97	IEC @ 40 °C IEC @ 40 °C UL/CSA (Encl.)	130 A (10...70 mm ² , fine stranded w/ ferrule) 130 A (10...95 mm ² , coarse stranded/solid) 130 A (#8...2/0 AWG, stranded/solid)	3	100-CT85
	3-Pole Paralleling Kit • For Cat. No. 100-C09...C23	IEC @ 40 °C IEC @ 40 °C UL/CSA (Encl.)	100 A (35...70 mm ² , fine stranded w/ ferrule) 100 A (35...95 mm ² , coarse stranded/solid) 100 A (#0...2/0 AWG, stranded/solid)	2	100-CP23
	3-Pole Paralleling Kit • For Cat. No. 100-C30...C37	IEC @ 40 °C IEC @ 40 °C UL/CSA (Encl.)	150 A (35...70 mm ² , fine stranded w/ ferrule) 150 A (35...95 mm ² , coarse stranded/solid) 150 A (#0...2/0 AWG, stranded/solid)	2	100-CP37

(1) 16 mm² max. according to IEC 60947; actual max. 25 mm²
 (2) Must be ordered in multiples of the package quantity.

SEMI-F47 Voltage Sag Immunity Module

	Description	Input Voltage	For Use With ⁽¹⁾	Options	Cat. No.
	SEMI-F47 Module • Meets SEMI-F47 voltage sag immunity requirements • Direct mounting to coil terminals of 100-C contactors and 700-CF control relays • Requires DC coil contactor • Optional 1...30 s ON-delay timer version	24...240V AC	100-C60...C97	without timer	100-CSF47
		110...240V AC	100-C60...C97	with 1...30 s ON-delay timer	100-CSF47A30

(1) Contactor must have DC coil at the same voltage as AC input. Example: for 24V AC control, select Cat. No. 100-C09ZJ10 (24V DC coil).

Renewal Parts

Replacement Coils for AC Contactors



AC Standard Control Voltages [V]			AC Coil Code	100-C09...100-C16	100-C23...100-C37, 100L-C20	100-C40, -C43	100-C60...100-C85	100-C90...100-C97
50 Hz	60 Hz	50/60 Hz		Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.
—	12	—	Q	TA006	TC006	TD006	TE006	TF006
12	—	—	R	TA404	TC404	TD404	TE404	TF404
—	24	—	J	TA013	TC013	TD013	TE013	TF013
24	—	—	K	TA407	TC407	TD407	TE407	TF407
—	—	24	KJ	TA855	TC855	TD855	TE855	TF855
32	36	—	V	TA481	TC481	TD481	TE481	TF481
36	42	—	W	TA410	TC410	TD410	TE410	TF410
42	48	—	X	TA482	TC482	TD482	TE482	TF482
48	—	—	Y	TA414	TC414	TD414	TE414	TF414
—	—	48	KY	TA860	TC860	TD860	TE860	TF860
100	100...110	100	KP	TA861	TC861	TD861	TE861	TF861
110	120	—	D	TA473	TC473	TD473	TE473	TF473
—	—	110	KD	TA856	TC856	TD856	TE856	TF856
120	—	—	P	TA425	TC425	TD425	TE425	TF425
127	—	—	S	TA428	TC428	TD428	TE428	TF428
200	200...220	200	KG	TA862	TC862	TD862	TE862	TF862
—	208	—	H	TA049	TC049	TD049	TE049	TF049
200...220	208...240	—	L	TA296	TC296	TD296	TE296	TF296
—	—	200...230	KL	TA864	TC864	TD864	TE864	—
220	240	—	A	TA474	TC474	TD474	TE474	TF474
220...230	260	—	F	TA441	TC441	TD441	TE441	TF441
—	—	230	KF	TA851	TC851	TD851	TE851	TF851
230...240	—	—	VA	TA440	TC440	TD440	TE440	TF440
240	277	—	T	TA480	TC480	TD480	TE480	TF480
—	—	240	KA	TA858	TC858	TD858	TE858	TF858
—	347	—	I	TA065	TC065	TD065	TE065	TF065
—	380	—	E	TA067	TC067	TD067	TE067	TF067
380...400	440	—	N	TA071	TC071	TD071	TE071	TF071
—	—	400	KN	TA863	TC863	TD863	TE863	TF863
400...415	—	—	G	TA457	TC457	TD457	TE457	TF457
440	480	—	B	TA475	TC475	TD475	TE475	TF475
—	—	440	KB	TA859	TC859	TD859	TE859	TF859
500	—	—	M	TA479	TC479	TD479	TE479	TF479
550	600	—	C	TA476	TC476	TD476	TE476	TF476

Replacement Coils for DC Contactors



DC Control Voltage [V]	DC Coil Code	100-C09...100-C16, 100Q-C16	100-C23...100-C37, 100Q-C37	100-C40...100-C55 (Series A)	100-C40...100-C55 (Series B)	100-C60...100-C85	100-C90...100-C97
		Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.
9V Diode ⁽¹⁾	DR	—	—	—	—	TE766M	TF766M
12V Electronic ⁽²⁾	EQ	TC708E	TC708E	TD708E	TD708E2	—	—
12V Diode	DQ	—	—	—	—	TE708M	TF708M
24V Electronic ⁽²⁾	EJ	TC714E	TC714E	TD714E	TD714E2	—	—
24V Electronic ⁽³⁾	QJ	TC714Q	TC714Q	TD714Q	TD714Q2	—	—
24V Diode ⁽²⁾	DJ	—	—	—	—	TE714M	TF714M
36...48V Electronic ⁽²⁾	EW	TC719E	TC719E	TD719E	TD719E2	—	—
36V Diode	DW	—	—	—	—	TE719M	TF719M
48...72V Electronic	EY	TC724E	TC724E	TD724E	TD724E2	—	—
48V Diode	DY	—	—	—	—	TE724M	TF724M
60V Diode	DZ	—	—	—	—	TE774M	TF774M
64V Diode	DB	—	—	—	—	TE727M	TF727M
72V Diode	DG	—	—	—	—	TE728M	TF728M
80V Diode	DE	—	—	—	—	TE729M	TF729M
110...125V Electronic ⁽⁴⁾	ED	TC733E	TC733E	TD733E	TD733E2	—	—
110V Diode	DD	—	—	—	—	TE733M	TF733M
115V Diode	DP	—	—	—	—	TE734M	TF734M
125V Diode	DS	—	—	—	—	TE737M	TF737M
220...250V Electronic	EA	TC747E	TC747E	TD747E	TD747E2	—	—
220V Diode	DA	—	—	—	—	TE747M	TF747M
230V Diode	DF	—	—	—	—	TE749F	TF749F
250V Diode	DT	—	—	—	—	TE751F	TF751F

(1) Voltage operating range: 0.65...1.3 U_s

(2) Voltage operating range: 0.7...1.25 U_s

(3) Faster drop-out time (16...21 ms)

(4) Voltage operating range: 0.7...1.25 U_s at 110V DC

Specifications

			100/104-C, 100S/104S-C															
			09	12	16	23	30	37	40*200	40*400	43	55	60	72	85	90*200	90*400	97
Coil Type:	Conventional	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Electronic — EI	X	X	X	X	X	X	X	X	X	X	X	—	—	—	—	—	—
AC-1 Active Power Load (50 Hz); Ambient temperature 40 °C																		
Rated Operational Current, I_e	≤500V	[A]	32	32	32	32(40) ⁽¹⁾	65	65	75	75	85	85	100	100	100	130	130	130
	690V	[A]	32	32	32	32(40) ⁽¹⁾	65	65	75	75	85	85	100	100	100	130	130	130
Rated Operational Power, P_e	230V	[kW]	13	13	13	13	26	26	30	30	34	34	40	40	40	52	52	52
	240V	[kW]	13	13	13	13	27	27	31	31	35	35	42	42	42	54	54	54
	400V	[kW]	22	22	22	22	45	45	52	52	59	59	69	69	69	90	90	90
	415V	[kW]	23	23	23	23	47	47	54	54	61	61	72	72	72	93	93	93
	500V	[kW]	28	28	28	28	56	56	65	65	74	74	87	87	87	113	113	113
	690V	[kW]	38	38	38	38	78	78	90	90	102	102	120	120	120	155	155	155
AC-1 Active Power Load (50 Hz); Ambient temperature 60 °C																		
Rated Operational Current, I_e	≤500V	[A]	32	32	32	32	65	65	60	60	75	75	100	100	100	110	110	110
	690V	[A]	32	32	32	32	65	65	60	60	75	75	100	100	100	110	110	110
Rated Operational Power, P_e	230V	[kW]	13	13	13	13	26	26	24	24	25	25	40	40	40	44	44	44
	240V	[kW]	13	13	13	13	27	27	25	25	26	26	42	42	42	46	46	46
	400V	[kW]	22	22	22	22	45	45	42	42	44	44	69	69	69	76	76	76
	415V	[kW]	23	23	23	23	47	47	43	43	45	45	72	72	72	79	79	79
	500V	[kW]	28	28	28	28	56	56	52	52	55	55	87	87	87	95	95	95
	690V	[kW]	38	38	38	38	78	78	72	72	75	75	120	120	120	131	131	131
Switching of 3-phase Motors; (50 Hz) Ambient temperature 60 °C, AC-2, AC-3																		
Rated Operational Current, I_e	230V	[A]	12	15	20	26.5	35	38	38	38	44	56	62	72	85	85	85	96
	240V	[A]	12	15	20	26.5	35	38	38	38	44	56	62	72	85	85	85	95
	400V	[A]	9	12	16	23	30	37	37	37	43	55	60	72	85	85	85	97
	415V	[A]	9	12	16	23	30	37	37	37	43	55	60	72	85	85	85	97
	500V	[A]	7	10	14	20	25	30	29	30	38	44	55	67	80	80	80	78
	690V	[A]	5	7	9	12	18	21	9	21	25	25	34	42	49	22	49	57
Rated Operational Power, P_e	230V	[kW]	3	4	5.5	7.5	10	11	11	11	13	15	18.5	22	25	25	25	30
	240V	[kW]	3	4	5.5	7.5	10	11	11	11	13	15	18.5	22	25	25	25	30
	400V	[kW]	4	5.5	7.5	11	15	18.5	18.5	18.5	22	30	32	40	45	45	45	55
	415V	[kW]	4	5.5	7.5	11	15	20	20	20	22	30	32	40	45	45	45	55
	500V	[kW]	4	5.5	7.5	13	15	20	18.5	20	25	30	37	45	55	55	55	55
	690V	[kW]	4	5.5	7.5	10	15	18.5	7.5	18.5	22	22	32	40	45	18.5	45	55
Load Carrying Capacity per UL/CSA																		
General Purpose Current (enclosed)	[A]	25	25	30	30	55	60	60	60	75	75	90	90	100	125	130	120	
Rated power (enclosed) 1-phase	115V	[A]	9.8	9.8	16	24	24	34	34	34	34	56	56	56	80	80	80	100
	230V	[A]	10	12	17	17	28	28	28	28	40	50	50	68	68	68	68	88
	115V	[Hp]	0.5	0.5	1	2	2	3	3	3	3	5	5	5	7.5	7.5	7.5	10
	230V	[Hp]	1.5	2	3	3	5	5	5	5	7.5	10	10	15	15	15	15	20
Rated power (enclosed) 3-phase	200V	[A]	7.8	11	17.5	17.5	25.3	32.2	32.2	32.2	32.2	48.3	48.3	62.1	78.2	78.2	78.2	92
	230V	[A]	6.8	9.6	15.2	22	28	28	28	28	42	54	54	68	80	80	80	80
	460V	[A]	7.6	11	14	21	27	34	34	34	40	52	52	65	77	65	77	96
	575V	[A]	9	11	17	17	27	32	17	32	32	41	52	62	62	22	52	77
	200V	[Hp]	2	3	5	5	7.5	10	10	10	10	15	15	20	25	25	25	30
	230V	[Hp]	2	3	5	7.5	10	10	10	10	15	20	20	25	30	30	30	30
	460V	[Hp]	5	7.5	10	15	20	25	25	25	30	40	40	50	60	50	60	75
575V	[Hp]	7.5	10	15	15	25	30	15	30	30	40	50	60	60	20	50	75	

(1) Values in () with increased cross-section and cable lug

			100/104-C, 100S/104S-C											
			09	12	16	23	30	37	43	55	60	72	85	97
Coil Type:	Conventional	X	X	X	X	X	X	X	X	X	X	X	X	
	Electronic — EI	X	X	X	X	X	X	X	X	X	—	—	—	—
Switching of 3-phase Motors, (50 Hz); Ambient temperature 60 °C, AC-4														
Rated Operational Current, I_e	230V	[A]	12	15	20	26.5	35	38	44	56	62	72	85	96
	240V	[A]	12	15	20	26.5	35	38	44	56	62	72	85	95
	400V	[A]	9	12	16	23	30	37	43	55	60	72	85	97
	415V	[A]	9	12	16	23	30	37	43	55	60	72	85	97
	500V	[A]	7	10	14	20	25	30	38	44	55	67	80	78
	690V	[A]	5	7	9	12	18	21	25	25	34	42	49	57
Rated Operational Power, P_e	230V	[kW]	3	4	5.5	7.5	10	11	13	15	18.5	22	25	30
	240V	[kW]	3	4	5.5	7.5	10	11	13	15	18.5	22	25	30
	400V	[kW]	4	5.5	7.5	11	15	18.5	22	30	32	40	45	55
	415V	[kW]	4	5.5	7.5	11	15	20	22	30	32	40	45	55
	500V	[kW]	4	5.5	7.5	13	15	20	25	30	37	45	55	55
	690V	[kW]	4	5.5	7.5	10	15	18.5	22	22	32	40	45	55
AC-4 at approximately 200,000 operations														
Rated Operational Current, I_e	230V	[A]	4.3	6.6	9	9	12	14	16.5	22	25.5	31	38	44
	240V	[A]	4.3	6.6	9	9	12	14	16.5	22	25.5	31	38	44
	400/415V	[A]	4.3	6.6	9	9	12	14	16.5	22	25.5	31	38	44
	500V	[A]	4.3	6.6	9	9	12	14	16.5	22	25.5	31	38	44
	690V	[A]	4.3	6.6	9	9	12	14	16.5	22	25.5	31	38	44
Rated Operational Power, P_e	230V ⁽¹⁾	[kW]	0.75	1.5	2.2	2.2	3	3.7	4	5.5	6.3	7.5	11	11
	240V ⁽¹⁾	[kW]	0.75	1.5	2.2	2.2	3	4	4	5.5	7.5	7.5	11	11
	400V ⁽¹⁾	[kW]	1.8	3	4	4	5.5	6.3	7.5	11	13	15	20	22
	415V ⁽¹⁾	[kW]	1.8	3	4	4	5.5	6.3	7.5	11	13	17	20	22
	500V ⁽¹⁾	[kW]	2.2	3.7	5.5	5.5	7.5	7.5	10	11	15	20	25	30
	690V ⁽¹⁾	[kW]	3	5.5	7.5	7.5	10	11	15	18.5	22	25	32	37
Max. switching frequency	Ops/hour	250	250	220	200	200	200	200	200	200	120	120	120	120
Wye-Delta (60 Hz)	200V	[Hp]	5	5	7½	7½	10	15	20	25	30	40	50	50
	230V	[Hp]	5	7½	10	10	15	20	25	30	40	50	60	60
	460V	[Hp]	10	15	20	25	30	40	50	60	75	100	125	125
	575V	[Hp]	10	15	20	25	30	40	50	60	75	100	125	125
UL/CSA Elevator Duty	200V	[A]	7.8	11.0	11.0	17.5	25.3	25.3	32.2	TBD	32.2	48.3	62.1	TBD
	230V	[A]	6.8	9.6	15.2	15.2	22.0	28.0	28.0	TBD	42.0	54.0	68.0	TBD
	460V	[A]	7.6	11.0	04.0	21.0	27.0	27.0	34.0	TBD	40.0	52.0	65.0	TBD
	575V	[A]	6.1	9.0	11.0	17.0	22.0	27.0	32.0	TBD	41.0	52.0	62.0	TBD
	200V	[Hp]	2	3	3	5	7-1/2	7-1/2	10	TBD	10	15	20	TBD
	230V	[Hp]	2	3	5	5	7-1/2	10	10	TBD	15	20	25	TBD
	460V	[Hp]	5	7-1/2	10	15	20	20	25	TBD	30	40	50	TBD
	575V	[Hp]	5	7-1/2	10	15	20	25	30	TBD	40	50	60	TBD

(1) Power ratings at 50 Hz: Preferred values according to IEC 60072-1

		100/104-C, 100S/104S-C											
		09	12	16	23	30	37	43	55	60	72	85	97
Coil Type:	Conventional	X	X	X	X	X	X	X	X	X	X	X	X
	Electronic — EI	X	X	X	X	X	X	X	X	X	—	—	—

Star-Delta Starting (50 Hz)														
Rated Operational Current, I_e	≤ 230V	[A]	21	26	35	46	61	66	76	96	107	125	147	166
	≤ 240V	[A]	21	26	35	46	61	66	76	96	107	125	147	165
	400V	[A]	16	21	28	40	52	64	74	95.3	104	125	147	168
	415V	[A]	16	21	28	40	52	64	74	95.3	104	125	147	168
	500V	[A]	12	17	24	35	43	52	66	76.2	95	116	139	135
	690V	[A]	8.6	12	16	21	31	36	43	55.4	59	73	85	99
Rated Operational Power, P_e	230V ⁽¹⁾	[kW]	5.5	7.5	10	13	17	20	22	30	32	37	45	50
	240V ⁽¹⁾	[kW]	5.5	7.5	10	13	18.5	20	22	30	32	40	50	50
	400V ⁽¹⁾	[kW]	7.5	10	13	20	25	32	40	45	55	63	80	90
	415V ⁽¹⁾	[kW]	7.5	11	15	22	25	32	40	45	55	63	80	90
	500V ⁽¹⁾	[kW]	7.5	11	15	22	25	32	45	45	63	80	90	90
	690V ⁽¹⁾	[kW]	7.5	10	13	18.5	25	32	40	45	55	63	80	90

Switching of Power Transformers, AC-6a (50 Hz)

Inrush Current
 Rated transformer current = n

n=30	≤ 230V	[A]	10.9	10.9	10.9	10.9	20	20	23	23	40.8	40.8	40.8	48.5
	≤ 240V	[A]	10.9	10.9	10.9	10.9	20	20	23	23	40.8	40.8	40.8	48.5
	≤ 400V	[A]	10.9	10.9	10.9	10.9	20	20	23	23	40.8	40.8	40.8	48.5
	≤ 415V	[A]	10.9	10.9	10.9	10.9	20	20	23	23	40.8	40.8	40.8	48.5
	≤ 500V	[A]	10.9	10.9	10.9	10.9	20	20	23	23	40.8	40.8	40.8	48.5
	≤ 690V	[A]	10.9	10.9	10.9	10.9	20	20	23	23	40.8	40.8	40.8	48.5
Apparent Power	230V	[kVA]	4.3	4.3	4.3	4.3	8	8	9.2	9.2	16	16	16	19.3
	240V	[kVA]	4.5	4.5	4.5	4.5	8.3	8.3	10	10	17	17	17	20.2
	400V	[kVA]	7.5	7.5	7.5	7.5	14	14	16	16	28	28	28	33.6
	415V	[kVA]	7.8	7.8	7.8	7.8	14	14	17	17	29	29	29	34.9
	500V	[kVA]	9.4	9.4	9.4	9.4	17	17	20	20	35	35	35	42
	690V	[kVA]	13	13	13	13	24	24	27	27	49	49	49	58
n=20	≤ 690V	[A]	16.3	16.3	16.3	16.3	30	30	34.5	34.5	61.3	61.3	61.3	72.8
n=15	≤ 690V	[A]	22	22	22	22	40	40	46	46	82	82	82	97

60 Hz Peak Inrush/peak rated transformer current

n=30		[A]	10.9	10.9	10.9	10.9	20	20	23	23	40.8	40.8	40.8	48.5
Apparent Power	200V	[kVA]	3.8	3.8	3.8	3.8	6.9	6.9	8.0	8	14.1	14.4	14.4	16.8
	208V	[kVA]	3.9	3.9	3.9	3.9	7.2	7.2	8.3	8.3	14.7	14.7	14.7	17.5
	240V	[kVA]	4.5	4.5	4.5	4.5	8.3	8.3	9.6	9.6	17.0	17.0	17.0	20.2
	480V	[kVA]	9.1	9.1	9.1	9.1	16.6	16.6	19.1	19.1	33.9	33.9	33.9	40.3
	600V	[kVA]	11.3	11.3	11.3	11.3	20.8	20.8	23.9	23.9	42.4	42.4	42.4	50.4
	660V	[kVA]	12.5	12.5	12.5	12.5	22.9	22.9	26.3	26.3	46.6	46.6	46.6	55.4

60 Hz Peak Inrush/peak rated transformer current

n=20		[A]	16.3	16.3	16.3	16.3	30	30	34.5	34.5	61.3	61.3	61.3	72.8
Apparent Power	200V	[kVA]	5.6	5.6	5.6	5.6	10.4	10.4	12.0	12	21.2	21.2	21.2	25.2
	208V	[kVA]	5.9	5.9	5.9	5.9	10.8	10.8	12.4	12.4	22.1	22.1	22.1	26.2
	240V	[kVA]	6.8	6.8	6.8	6.8	12.5	12.5	14.3	14.3	25.5	25.5	25.5	30.3
	480V	[kVA]	13.6	13.6	13.6	13.6	24.9	24.9	28.7	28.7	51.0	51.0	51.0	60.5
	600V	[kVA]	16.9	16.9	16.9	16.9	31.2	31.2	35.9	35.9	63.7	63.7	63.7	75.7
	660V	[kVA]	18.6	18.6	18.6	18.6	34.3	34.3	39.4	39.4	70.1	70.1	70.1	83.2

(1) Power ratings at 50 Hz: Preferred values according to IEC 60072-1

		100/104-C, 100S/104S-C											
		09	12	16	23	30	37	43	55	60	72	85	97
Coil Type:	Conventional	X	X	X	X	X	X	X	X	X	X	X	X
	Electronic — EI	X	X	X	X	X	X	X	X	X	—	—	—
60 Hz Peak Inrush/peak rated transformer current													
n=15	[A]	22	22	22	22	40	40	46	46	82	82	82	97
Apparent Power	200V [kVA]	7.5	7.5	7.5	7.5	13.9	13.9	15.9	15.9	28.4	28.4	28.4	33.6
	208V [kVA]	7.8	7.8	7.8	7.8	14.4	14.4	16.6	16.6	29.5	29.5	29.5	34.9
	240V [kVA]	9.0	9.0	9.0	9.0	16.6	16.6	19.1	19.1	34.1	34.1	34.1	40.3
	480V [kVA]	18.1	18.1	18.1	18.1	33.3	33.3	38.2	38.2	68.2	68.2	68.2	80.6
	600V [kVA]	22.6	22.6	22.6	22.6	41.6	41.6	47.8	47.8	85.2	85.2	85.2	100.8
	660V [kVA]	24.9	24.9	24.9	24.9	45.7	45.7	52.6	52.6	93.7	93.7	93.7	110.9

		100/104-C, 100S/104S-C															
		09	12	16	23	30	37	40*200	40*400	43	55	60	72	85	90*200	90*400	97
Coil Type:	Conventional	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Electronic — EI	X	X	X	X	X	X	X	X	X	X	—	—	—	—	—	—

Switching of 3-phase Capacitors, AC-6b (50 Hz)⁽¹⁾																	
Single capacitor 40°C	230V [kVar]	8	8	8.5	9	14	14	—	—	24	24	28	28	28	—	—	28
	240V [kVar]	8	8	8.5	9	14	14	—	—	25	25	29	29	29	—	—	29
	400V [kVar]	8	8	10	12.5	20	24	—	—	35	35	48	48	48	—	—	48
	415V [kVar]	8	8	10	12.5	20	25	—	—	35	35	50	50	50	—	—	50
	500V [kVar]	8	8	10	12.5	20	25	—	—	35	35	50	55	60	—	—	60
	690V [kVar]	8	8	10	12.5	20	25	—	—	35	35	50	55	60	—	—	60
Single capacitor 60 °C	230V [kVar]	8	8	8.5	9	12.5	12.5	—	—	18	18	28	28	28	—	—	28
	240V [kVar]	8	8	8.5	9	12.5	12.5	—	—	18	18	29	29	29	—	—	29
	400V [kVar]	8	8	10	12.5	20	21.5	—	—	30	30	42	48	48	—	—	48
	415V [kVar]	8	8	10	12.5	20	22	—	—	30	30	42	50	50	—	—	50
	500V [kVar]	8	8	10	12.5	20	25	—	—	30	30	42	50	55	—	—	55
	690V [kVar]	8	8	10	12.5	20	25	—	—	30	30	42	50	55	—	—	55
Group capacitors 40°C	230V [kVar]	5	5	8	9	12.5	14	—	—	20	20	28	28	28	—	—	28
	240V [kVar]	5	5	8	9	12.5	14	—	—	20	20	29	29	29	—	—	29
	400V [kVar]	5	5	8	10	15	20	—	—	25	25	40	48	48	—	—	48
	415V [kVar]	5	5	8	10	15	20	—	—	25	25	40	50	50	—	—	50
	500V [kVar]	5	5	8	10	15	20	—	—	25	25	40	50	50	—	—	50
	690V [kVar]	5	5	8	10	15	20	—	—	25	25	40	50	50	—	—	50
Group capacitors 60 °C	230V [kVar]	5	5	8	9	12.5	12.5	—	—	18	18	28	28	28	—	—	28
	240V [kVar]	5	5	8	9	12.5	12.5	—	—	18	18	29	29	29	—	—	29
	400V [kVar]	5	5	8	10	15	20	—	—	25	25	40	48	48	—	—	48
	415V [kVar]	5	5	8	10	15	20	—	—	25	25	40	50	50	—	—	50
	500V [kVar]	5	5	8	10	15	20	—	—	25	25	40	50	50	—	—	50
	690V [kVar]	5	5	8	10	15	20	—	—	25	25	40	50	50	—	—	50
60 Hz Single Capacitor — 40 °C	200V [kVar]	5	5	8	9	12.5	14	—	—	20	20	28	28	28	—	—	28
	230V [kVar]	5	5	8	9	12.5	14	—	—	20	20	29	29	29	—	—	29
	460V [kVar]	5	5	8	10	15	20	—	—	25	25	40	50	50	—	—	50
	600V [kVar]	5	5	8	10	15	20	—	—	25	25	40	50	50	—	—	50
60 Hz Group Capacitors — 40 °C	200V [kVar]	5	5	8	9	12.5	12.5	—	—	18	18	28	28	28	—	—	28
	230V [kVar]	5	5	8	9	12.5	12.5	—	—	18	18	29	29	29	—	—	29
	460V [kVar]	5	5	8	10	15	20	—	—	25	25	40	50	50	—	—	50
	600V [kVar]	5	5	8	10	15	20	—	—	25	25	40	50	50	—	—	50

(1) Inductance of leads between capacitors in parallel: min. 6 μH (100-C09...C30 contactors: min 30 μH)

		100/104-C, 100S/104S-C																
		09	12	16	23	30	37	40*200	40*400	43	55	60	72	85	90*200	90*400	97	
Coil Type:	Conventional	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Electronic — EI	X	X	X	X	X	X	X	X	X	X	X	—	—	—	—	—	
Switching of Lamps																		
Gas discharge lamps AC-5a, 40 °C																		
open	[A]	22.5	25	28	29	40.5	45	65	65	77	77	81	85	90	115	115	115	
enclosed	[A]	22.5	25	28	29	37	41	54	54	57	57	77	81	90	95	95	100	
Individually compensated:																		
Max. capacitance at expected																		
Short-circuit current of	10 kA	[μF]	1000	1000	1000	1000	2700	2700	—	—	3200	3200	4000	4000	4700	—	—	4700
	20 kA	[μF]	500	500	500	500	1350	1350	—	—	1600	1600	2000	2000	2350	—	—	2350
	50 kA	[μF]	200	200	200	200	540	540	—	—	640	640	800	800	940	—	—	940
Filament AC-5b	230/240V	[A]	12	16	18	22	30	37	18	25	43	51	60	70	76	60	75	90
Switching of Low Inductive Loads in Home Appliances and Similar Applications per IEC 61095 (50 Hz)																		
AC-7a	230V	[A]	32	32	32	32	45	45	—	—	63	63	—	—	—	—	—	—
	400V	[A]	32	32	32	32	45	45	—	—	63	63	—	—	—	—	—	—
	440V	[A]	32	32	32	32	45	45	—	—	63	63	—	—	—	—	—	—
Switching of Motor Load for Home Appliances (50 Hz)																		
AC-7b	230V	[A]	10.5	14	19	23	30	—	—	—	—	—	—	—	—	—	—	—
	400V	[A]	9	12	16	20	30	—	—	—	—	—	—	—	—	—	—	—
	440V	[A]	7.5	10	13.5	18	27	—	—	—	—	—	—	—	—	—	—	—
Switching of Hermetically Sealed Cooling Compressor Motors - manual reset of overload release (50 Hz)																		
AC-8a	400V	[A]	12	16	22	32	38	45	—	—	63	63	72	85	100	—	—	115
	500V	[A]	12	16	22	32	38	45	—	—	63	63	72	85	100	—	—	115
	690V	[A]	8	10	14	20	28	35	—	—	42	42	56	67	80	—	—	90
- automatic reset of overload release																		
AC-8b	400V	[A]	5.5	7	9.3	12	13	14	—	—	16	16	24	30	35	—	—	35
	500V	[A]	5.5	7	9.3	12	13	14	—	—	16	16	24	30	35	—	—	35
	690V	[A]	5.5	7	9.3	12	13	14	—	—	16	16	24	30	35	—	—	35
Switching of DC Loads																		
Non-inductive or slightly inductive loads or resistance furnaces DC-1, 60 °C																		
1 pole	24V	[A]	25	25	32	32	45	45	45	45	50	50	70	80	80	80	80	80
	48/60V	[A]	20	20	20	20	25	25	25	25	30	30	40	40	40	40	40	40
	110V	[A]	6	6	6	6	8	8	10	10	9	9	11	11	11	11	11	11
	220V	[A]	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2	2	2	1.8	1.8	2
	440V	[A]	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
2 poles in series	24V	[A]	25	25	32	32	45	45	45	45	50	50	70	80	80	80	80	80
	48/60V	[A]	25	25	32	32	45	45	45	45	50	50	70	80	80	80	80	80
	110V	[A]	25	25	32	32	45	45	45	45	50	50	70	80	80	80	80	80
	220V	[A]	8	8	8	10	10	10	10	10	10	10	15	15	15	15	15	15
	440V	[A]	1	1	1	1	1	1	1	1	1	1	1.5	1.5	1.5	1.5	1.5	1.5
3 poles in series	24V	[A]	25	25	32	32	45	45	—	—	63	63	90	90	100	—	100	100
	48/60V	[A]	25	25	32	32	45	45	—	—	50	50	70	90	100	—	100	100
	110V	[A]	20	20	25	25	30	30	—	—	35	35	70	90	100	—	100	100
	220V	[A]	6	6	6	10	15	15	—	—	20	20	25	80	80	—	80	80
	440V	[A]	0.6	0.6	0.6	0.6	0.6	0.6	—	—	0.6	0.6	0.6	5	5	—	5	5

		100/104-C, 100S/104S-C															
		09	12	16	23	30	37	40*200	40*400	43	55	60	72	85	90*200	90*400	97
Coil Type:	Conventional	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Electronic — EI	X	X	X	X	X	X	X	X	X	X	X	—	—	—	—	—

Switching of DC Loads, Continued

Shunt-wound Motors, Starting, reverse current braking, reversing, stepping DC-3, 60 °C

3 poles in series	24V	[A]	25	25	32	32	45	45	—	—	63	63	90	90	100	—	—	100
	48/60V	[A]	25	25	32	32	45	45	—	—	50	50	70	70	80	—	—	80
	110V	[A]	20	20	25	25	30	30	—	—	35	35	70	70	80	—	—	80
	220V	[A]	6	6	6	10	15	15	—	—	20	20	25	25	30	—	—	30
	440V	[A]	0.6	0.6	0.6	0.6	0.6	0.6	—	—	0.6	0.6	0.6	0.6	0.6	—	—	0.6

Series-wound Motors, Starting, reverse current braking, reversing, stepping DC-5, 60 °C

3 poles in series	24V	[A]	25	25	32	32	45	45	—	—	63	63	90	90	100	—	—	100
	48/60V	[A]	25	25	32	32	45	45	—	—	50	50	70	70	80	—	—	80
	110V	[A]	20	20	25	25	30	30	—	—	35	35	70	70	80	—	—	80
	220V	[A]	6	6	6	10	15	15	—	—	20	20	25	25	30	—	—	30
	440V	[A]	0.6	0.6	0.6	0.6	0.6	0.6	—	—	0.6	0.6	0.6	0.6	0.6	—	—	0.6

Short Time Withstand
I_{CW}, 60 °C

10 s	[A]	170	170	170	215	300	304	304	304	375	375	700	700	700	700	700	840
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Resistance and Power Dissipation




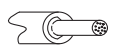
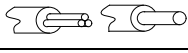

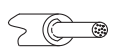
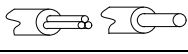
Main current circuit resistance	[mΩ]	2.7	2.7	2.7	2	2	2	2	1.5	1.5	1	0.9	0.9	0.9	0.8	0.7	0.6	
Power dissipation by all circuits at I _e AC-3/400V	[W]	0.66	1.2	2.1	3.2	5.4	8.2	11.3	8.4	8.3	9.1	9.7	14	19.5	11.6	20.2	17	
Total power dissipation At I _e AC-3/400V	AC control	[W]	3.4	3.9	4.8	6.3	8.5	11.3	8.8	9.5	11.6	12.4	14.2	18.5	24	20.6	29.2	26
	DC control (conv.)	[W]	—	—	—	—	—	—	—	—	—	—	13.7	18	23.5	16.6	25.2	22
	DC control (elect.)	[W]	2.4	2.9	3.8	4.9	7.1	9.9	8	8.7	10.8	11.6	—	—	—	—	—	—

Lifespan

Mechanical AC control	[Million ops.]	13	13	13	13	13	13	10	10	12	12	6	6	6	6	6	6
Mechanical DC control	[Million ops.]	13	13	13	13	13	13	10	10	13	13	6	6	6	6	6	6
Electrical AC-3 (400 V)	[Million ops.]	1.3	1.3	1.3	1.3	1.3	1.3	—	—	1	0.8	1	1	1	—	—	1

Weight

AC	Non-Rev.	[kg (lbs)]	0.39 (0.86)	0.39 (0.86)	0.39 (0.86)	0.39 (0.86)	0.48 (1.06)	0.49 (1.08)	0.63 (1.39)	0.63 (1.39)	0.51 (1.12)	0.51 (1.12)	1.45 (3.20)	1.45 (3.20)	1.45 (3.20)	—	—	1.45 (3.20)
	Rev.	[kg (lbs)]	0.85 (1.89)	0.85 (1.89)	0.85 (1.89)	0.85 (1.89)	1.08 (2.39)	1.08 (2.39)	—	—	1.15 (2.54)	1.15 (2.54)	3.14 (6.92)	3.14 (6.92)	3.14 (6.92)	—	—	3.14 (6.92)
DC	Non-Rev.	[kg (lbs)]	0.6 (1.32)	—	—	—	—	—	—	—	—	—	1.47 (3.24)	1.47 (3.24)	1.47 (3.24)	—	—	1.47 (3.24)
	Rev.	[kg (lbs)]	1.27 (2.81)	—	—	—	—	—	—	—	—	—	3.22 (7.1)	3.22 (7.1)	3.22 (7.1)	—	—	3.22 (7.1)
DC (Electronic-EQ, EJ)	Non-Rev.	[kg (lbs)]	—	0.40 (0.88)	0.40 (0.88)	0.40(0.88)	0.40 (0.88)	0.49 (1.08)	0.49 (1.08)	0.57 (1.25)	0.57 (1.25)	0.57 (1.25)	0.57 (1.25)	—	—	—	—	—
	Rev.	[kg (lbs)]	—	0.87 (1.91)	0.87 (1.91)	0.87(1.91)	0.87 (1.91)	1.08 (2.39)	1.08 (2.39)	—	—	1.27 (2.79)	1.27 (2.79)	—	—	—	—	—
DC (Electronic- EW, EY, ED, EA)	Non-Rev.	[kg (lbs)]	—	0.43 (0.95)	0.43 (0.95)	0.43(0.95)	0.43 (0.95)	0.52 (1.14)	0.52 (1.14)	0.60 (1.32)	0.60 (1.32)	0.60 (1.32)	0.60 (1.32)	—	—	—	—	—
	Rev.	[kg (lbs)]	—	0.93 (2.05)	0.93 (2.05)	0.93(2.05)	0.93 (2.05)	1.14 (2.51)	1.14 (2.51)	—	—	1.33 (2.93)	1.33 (2.93)	—	—	—	—	—

			100/104-C, 100S/104S-C													
			09	12	16	23	30	37	40	43	55	60	72	85	90	97
Coil Type:	Conventional		X	X	X	X	X	X	X	X	X	X	X	X	X	
	Electronic — EI		X	X	X	X	X	X	X	X	X	—	—	—	—	
Conductor Cross Sections - Main Contacts Terminal type																
	1 conductor	[mm ²]	1...4				2.5...10		2.5...16			2.5...35				
	2 conductors	[mm ²]	1...4				2.5...10		2.5...10			2.5...25				
	1 conductor	[mm ²]	1.5...6				2.5...16		2.5...25			2.5...50				
	2 conductors	[mm ²]	1.5...6				2.5...16		2.5...16			2.5...35				
Recommended torque		[N•m]	1.5...2.0				2.5...3.5		2.5...3.5			4.5...6				
Cross section per UL/CSA		[AWG]	16...10				14...4		14...6	14...4		14...1				
Recommended torque		[lb-in]	13.3...17.7				22...31		22...31			40...53				
Conductor Cross Sections - Coil Terminal type																
	1 conductor	[mm ²]							1...2.5							
	2 conductors	[mm ²]							1...2.5							
	1 conductor	[mm ²]							1...4							
	2 conductors	[mm ²]							1...4							
Recommended torque		[N•m]							1...1.5							
Cross section per UL/CSA		[AWG]							16...12							
Recommended torque		[lb-in]							9...13							

- (1) Pozidriv No. 2 / Blade No. 3 screw
- (2) Pozidriv No. 2 / Blade No. 4 screw
- (3) Hexagonal socket screw

Short-Circuit Coordination Data

See <http://www.rockwellautomation.com/global/support/global-sccr.page?> for complete short-circuit current ratings.

		100/104-C, 100S/104S-C																
		09	12	16	23	30	37	40*200	40*400	43	55	60	72	85	90*200	90*400	97	
Coil Type:	Conventional	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Electronic - EI	X	X	X	X	X	X	X	X	X	X	—	—	—	—	—	—	
Short Circuit Coordination (Max. Fuse or Circuit Breaker Rating) Per IEC 60947-4-1 (contactor and fuses only)																		
DIN Fuses- gG, gL	Type"1"(690V)	[A]	50 kA Available Fault Current															
	Type"2"(400V)	[A]	50	50	50	80	125	125	160	160	160	160	250	250	250	250	250	250
	Type"2"(690V)	[A]	25	35	35	40	80	80	63	80	100	100	160	160	160	160	100	200
BS88Fuses	Type"1"(415V)	[A]	65kA Available Fault Current															
	Type"2"(415V)	[A]	25	32	40	50	63	80	—	—	80	TBD	100	160	160	—	—	TBD
	Type"2"(415V)	[A]	20	25	32	50	63	80	—	—	80	TBD	100	125	160	—	—	TBD
Per UL 508 and CSA 22.2 No. 14 (contactor and fuses or circuit breaker only)																		
UL Class K5 and RK5 Fuses	UL Listed Combination (600V)	[A]	5 kA Available Fault Current															
		[A]	35	40	70	90	110	125	125	125	150	200	200	—	—	—	—	—
UL Class CC and CSA HRCI-MISC Fuses	UL verified combination to IEC60947-4-1 "Type2"	[A]	10 kA Available Fault Current															
		[A]	—	—	—	—	—	—	—	—	—	—	—	250	300	300	300	350
UL Class J and CSA HRCI-J Fuses	UL verified combination to IEC60947-4-1 "Type2"	[A]	100 kA Available Fault Current															
		[A]	20 ⁽¹⁾	20	30	40	—	—	—	—	—	—	—	—	—	—	—	—
UL Inverse-Time Circuit Breaker	UL Listed Combination (480V)	[A]	5 kA Available Fault Current															
		[A]	30	30	50	50	125	125	—	—	125	150	250	—	—	—	—	—
	UL Listed Combination (600V)	[A]	10 kA Available Fault Current															
		[A]	—	—	—	—	—	—	—	—	—	—	—	250	250	—	—	250
	UL Listed Combination (600Y/347V)	[A]	18 kA Available Fault Current															
		[A]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	UL Listed Combination (600V)	[A]	25 kA Available Fault Current															
		[A]	30 ⁽²⁾	30 ⁽²⁾	30 ⁽²⁾	30 ⁽²⁾	50 ⁽³⁾	50 ⁽³⁾	—	—	50 ⁽³⁾	—	110	110	110	—	—	—
	UL Listed Combination (480V)	[A]	50 kA Available Fault Current															
		[A]	—	—	—	—	50 ⁽³⁾	50 ⁽³⁾	—	—	50 ⁽³⁾	—	—	—	—	—	—	—
UL Listed Combination (480Y/277V)	[A]	65 kA Available Fault Current																
	[A]	30 ⁽²⁾	30 ⁽²⁾	30 ⁽²⁾	30 ⁽²⁾	—	—	—	—	—	—	—	—	—	—	—	—	
UL Listed Combination (480V)	[A]	50 kA Available Fault Current																
	[A]	—	—	—	—	100 ⁽⁴⁾	100 ⁽⁴⁾	—	—	100 ⁽⁴⁾	125	200 ⁽⁴⁾	225 ⁽⁴⁾	225 ⁽⁴⁾	—	—	225 ⁽⁴⁾	



- (1) 15 A max. fuse for Type 2 coordination.
- (2) Ratings apply when used with Bulletin 140U-D circuit breakers only.
- (3) Minimum enclosure size 12-3/8 x 7-5/8 s 7-1/4 inches
- (4) Minimum enclosure size 20 x 12 x 8 inches with two latches.

Coil Data

		100/104-C, 100S/104S-C															
		09	12	16	23	30	37	40*200	40*400	43	55	60	72	85	90*200	90*400	97
Coil Type:	Conventional	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Electronic - EI	X	X	X	X	X	X	X	X	X	X	—	—	—	—	—	—
Operating Limits																	
50 Hz, 60 Hz, 50/60 Hz	pick-up	[x U _s]	0.85...1.1				0.85...1.1				0.85...1.1						
	dropout	[x U _s]	0.3...0.6				0.3...0.6				0.3...0.6						
DC (conventional)	pick-up	[x U _s]	—				—				0.8...1.1						
	dropout	[x U _s]	—				—				0.1...0.6						
DC (electronic—EQ, EJ, EW, QJ)	pick-up	[x U _s]	0.7...1.25				—				—						
	dropout	[x U _s]	0.3...0.4				—				—						
DC (electronic—EY)	pick-up	[x U _s]	0.8...1.25				—				—						
	dropout	[x U _s]	0.3...0.4				—				—						
DC (electronic—ED)	pick-up	[x U _s]	0.7...1.12 ⁽¹⁾				—				—						
	dropout	[x U _s]	0.3...0.4				—				—						
DC (electronic—EA)	pick-up	[x U _s]	0.8...1.1				—				—						
	dropout	[x U _s]	0.3...0.4				—				—						
Coil Consumption																	
50 Hz, 60 Hz, 50/60 Hz	pick-up	[VA]	75	105		135		235		400							
	hold-in	[VA/W]	9.5/2.7	12.3/3.1		13.3/3.3		19.6/5		24/9							
DC (conventional)	pick-up	[W]	—	—		—		200		325							
	hold-in	[W]	—	—		—		4		5							
DC (electronic—EQ, EJ, QJ)	pick-up (avg/peak)	[W]	10/17		16/25		—		—								
	hold-in	[W]	1.7		2.5		—		—								
DC (electronic—EY, EW)	pick-up (avg/peak)	[W]	10/17		16/25		—		—								
	hold-in	[W]	1.9		2.7		—		—								
DC (electronic—ED)	pick-up (avg/peak)	[W]	12/19		16/26		—		—								
	hold-in	[W]	2.1		2.8		—		—								
DC (electronic—EA)	pick-up (avg/peak)	[W]	14/22		18/29		—		—								
	hold-in	[W]	3.0		4.0		—		—								
Operating Times																	
AC	closing delay	[ms]	15...30	15...30	15...30	15...30		20...40		20...40							
	opening delay	[ms]	10...60	10...60	10...60	10...60		10...60		20...40							
With RC module	closing delay	[ms]	10...60	10...60	10...60	10...60		10...60	10...60		20...40						
DC (conventional)	opening delay	[ms]	—	—	—	—		50...80	20...40	15...25	20...25	20...25					
	closing delay	[ms]	—	—	—	—		7...15	—		—						
With integrated diode	opening delay	[ms]	—	—	—	—		17...23	≤ 220V 20...35		≤ 220V 20...35						
With external diode	opening delay	[ms]	—	—	—	—		80...125	—		—						
DC (electronic—EQ, EJ)	closing delay	[ms]	20...50				—		—		—						
	opening delay	[ms]	20...50				—		—		—						
	Max. Ripple		±15%				—		—		—						
	min. OFF time	[ms]	50				—		—		—						
DC (electronic—EW, EY, ED, EA)	closing delay	[ms]	20...50				—		—		—						
	opening delay	[ms]	23...33				—		—		—						
	Max. Ripple		±15%				—		—		—						
	min. OFF time	[ms]	50				—		—		—						
DC (electronic—QJ)	closing delay	[ms]	20...50				—		—		—						
	opening delay	[ms]	16...21				—		—		—						
	Max. Ripple		±15%				—		—		—						
	min. OFF time	[ms]	50				—		—		—						

(1) 0.7...1.25 at 110V DC

Auxiliary Contacts, Auxiliary Contact Blocks, and Pneumatic Timers

			Internal	Front mounted	Front mounted (Bifurcated)	Side-mounted
Switching of AC Loads						
AC-12 I_{th}	at 40 °C	[A]	20	10	10	10
	at 60 °C	[A]	20	6	6	6
AC-15 at rated voltage of	24V	[A]	10	6	3	6
	42/48V	[A]	10	6	3	6
	120V	[A]	10	6	3	6
	230V	[A]	10	5.5	3	5.5
	240V	[A]	10	5	3	5
	400V	[A]	6	3	2	3
	415V	[A]	6	3	2	3
	500V	[A]	2.5	1.6	1.2	1.6
	690V	[A]	1	1	0.7	1
Switching of DC Loads						
DC-12 L/R < 1 ms resistive loads at	24V DC	[A]	12	12	6	6
	48V DC	[A]	9	9	3.2	3.2
	110V DC	[A]	3.5	3.5	1	1
	220V DC	[A]	0.55	0.55	0.5	0.5
	440V DC	[A]	0.2	0.2	0.2	0.2
DC-14L/R <15 ms inductive loads with economy resistor in series at	24V DC	[A]	9	9	2	2
	48V DC	[A]	5	5	1.6	1.6
	110V DC	[A]	2	2	0.3	0.3
	220V DC	[A]	0.4	0.4	0.12	0.12
DC-13 switching electromagnets at	440V DC	[A]	0.16	0.16	0.05	0.05
	24V DC	[A]	5	5	2.5	5
	48V DC	[A]	3	3	1.5	2.5
	110V DC	[A]	1.2	1.2	0.6	0.68
	220V DC	[A]	0.6	0.6	0.3	0.32
DC-13 switching electromagnets at	440V DC	[A]	0.3	0.15	0.15	0.15
	Fuse gG					
Short-circuit protection with no welding of contacts per IEC 60947-5-1		[A]	20	10	10	10
		[A]	20	10	10	10
Protective Separation per IEC 60947-1, Annex N			between load and auxiliary circuit 320V	between load and auxiliary circuit 440V		
Min. switching capacity according to IEC 60947-5-4			17V/10mA	17V/5mA	5V/3mA	17V/10mA
Load Carrying Capacity per UL/CSA						
Rated voltage	AC	[V]	max.600			
Continuous rating	40 °C	[A]	10	10	10	10
Switching capacity	AC	[A]	A600			
Rated voltage	DC	[V]	max.600			
Switching capacity	DC	[A]	P600	Q600	Q600	

General

Attribute		Value
Rated Isolation Voltage U_i		
IEC	[V]	690
UL, CSA	[V]	600
Rated Impulse Voltage Withstand U_{imp}	[kV]	6
Rated Voltage U_e		
AC 50/60 Hz	[V]	115, 200, 230, 240, 400, 415, 460, 500, 575, 690
DC	[V]	24, 48, 110, 220, 440
Insulation Class of the Coil		Class F per IEC 60085, UL Class 105
Rated coil frequency		AC 50/60Hz, DC
Ambient Temperature		
Storage	[°C]	-55...+80
Operation at rated voltage	[°C]	-25...+60
at 70 °C		15% current reduction against 60 °C values
Climatic Withstand		IEC 60068-2-1/-2/-30
Max. Altitude of Installation Site	[m]	2000 NN, per IEC60947-1
Protection Class		100-C09...C23: IP2X from all directions 100-C30...C55: IP2X from front with front (upper) terminal wired 100-C60...C97: IP2X from front with front (upper) terminal wired (min. wire size 16 mm ² or #6 AWG)
Single contactor cover		—
Contactor with frame terminal block		—
Auxiliary contact		IP2X
Protection against Accidental Contact		Finger- and back-of-hand proof per VDE0106, part100
Resistance to Shock		IEC60068-2-27
Resistance to Vibration		IEC60068-2-6
Mechanically Linked Contacts IEC60947-5-1, Annex L		100-/100S-C09...C55+100-FA/-FB/-FC, (except L11, L22), 100-/100S-C09...C55+ 100-FAB/-FBB/-FCB
Mirror Contacts IEC60947-4 Annex F		100-/100S-C09...C97+100-FA/-FB/-FC, (except L11, L22), 100-/100S-C09...C97+ 100-SA/SB, 100-/100S-C09...C97+100-FAB/-FBB/-FCB

Standards Compliance and Certifications

100-C IEC Contactors

Standards Compliance	Certifications
EN/IEC 60947-4-1, 60947-5-1	CE Marked
IEC 60947 Type "2" Coordination	CCC
CSA 22.2. No. 14	cULus Listed (File No. E3125; Guide NLDX, NLDX7)
UL 508	
Meets the material restrictions for European Directive 2002/95/IEC-EU-RoHS	

100S-C IEC Safety Contactors

Standards Compliance	Certifications
EN50205	CE Marked
CSA C22.2 No. 14	SUVA Third-Party Certified
UL 508	cULus Listed (File No. E3125; Guide NLDX, NLDX7)
EN/IEC 60947-4	
IEC 60947-4-1 Annex F — Mirror Contacts	
IEC 60947-5-1 Annex L — Mechanically Linked Contacts	
Meets the material restrictions for European Directive 2002/95/IEC-EU-RoHS	

100Q-C Capacitor-switching Contactors

Standards Compliance	Certifications
IEC 60947-4	CE Marked
CSA C22.2 No. 14	cULus Listed (File No. E 41850, Guide NLDX, NLDX7)
UL 508	
Meets the material restrictions for European Directive 2002/95/IEC-EU-RoHS	

Life-Load Curves

Bulletin 100-C/104-C IEC contactors are designed for superior performance in a wide variety of applications. When selecting IEC products, the user must give consideration to the specific load, utilization category, and required electrical life of the application. The life-load curves shown here are based on Rockwell Automation tests according to the requirements defined in IEC 60947-4-1. Since contact life in application is dependent on environmental conditions and duty cycle, actual application contact life may vary from that indicated by the curves shown here.

To find the contactor's estimated electrical life, follow these guidelines:

1. Identify the appropriate utilization category from [Table 1](#).
2. Choose the graph for the utilization category selected.
3. Locate the intersection of the life-load curve for the appropriate contactor with the application's operational current (I_e) found on the horizontal axis.
4. Read the estimated contact life along the vertical axis.

Contact Life for Mixed Utilization Categories AC-3 and AC-4:

In many applications, the utilization category cannot be defined as either purely AC-3 or AC-4. In those applications, the electrical life of the contactor can be estimated from the following equation:

$$L_{\text{mixed}} = L_{\text{ac3}} / [1 + P_{\text{ac4}} * (L_{\text{ac3}} / L_{\text{ac4}} - 1)], \text{ where:}$$

L_{mixed} = Approximate contact life in operations for a mixed AC-3/AC-4 utilization category application

L_{ac3} = Approximate contact life in operations for a pure AC-3 utilization category (from the AC-3 life-load curves)

L_{ac4} = Approximate contact life in operations for a pure AC-4 utilization category (from the AC-4 life-load curves)

P_{ac4} = Percentage of AC-4 operations

Table 1 - Utilization Category Determination

Test Conditions		Making			Breaking			
		I/I_e	U/U_e	$\cos \phi$	I_c/I_e	U_r/U_e	$\cos \phi$	
AC-1	Resistance Furnaces: Non inductive or slightly inductive loads	1	1	0.95	1	1	0.95	
AC-2	Slip-ring motors: Starting and reversing	2.5	1	0.65	2.5	1	0.65	
AC-3	Squirrel-cage motors: Starting and stopping of running motors	$I_e < 17\text{ A}$	6	1	0.65	1	0.17	0.65
		$I_e > 17\text{ A}$	6	1	0.35	1	0.17	0.35
AC-4	Squirrel-cage motors: Starting, plugging ⁽¹⁾ , inching ⁽²⁾	$I_e < 17\text{ A}$	6	1	0.65	6	1	0.65
		$I_e > 17\text{ A}$	6	1	0.35	6	1	0.35
AC-15	Solenoids: Contactors, valves and lifting magnets	10	1	0.7	1	1	0.4	

- (1) Plugging is understood as stopping or reversing the motor rapidly by reversing motor primary connections while the motor is running.
- (2) Inching (jogging) is understood as energizing a motor once or repeatedly for short periods to obtain small movements of the driven mechanism.

I_e Rated operational current
 I Making Current
 I_c Breaking Current
 U Off-load voltage
 U_e Rated voltage
 U_r Recovery voltage

Figure 5 - AC-1, 40 °C Non- or slightly inductive loads, resistance furnaces; $U_e = 230...690\text{V}$

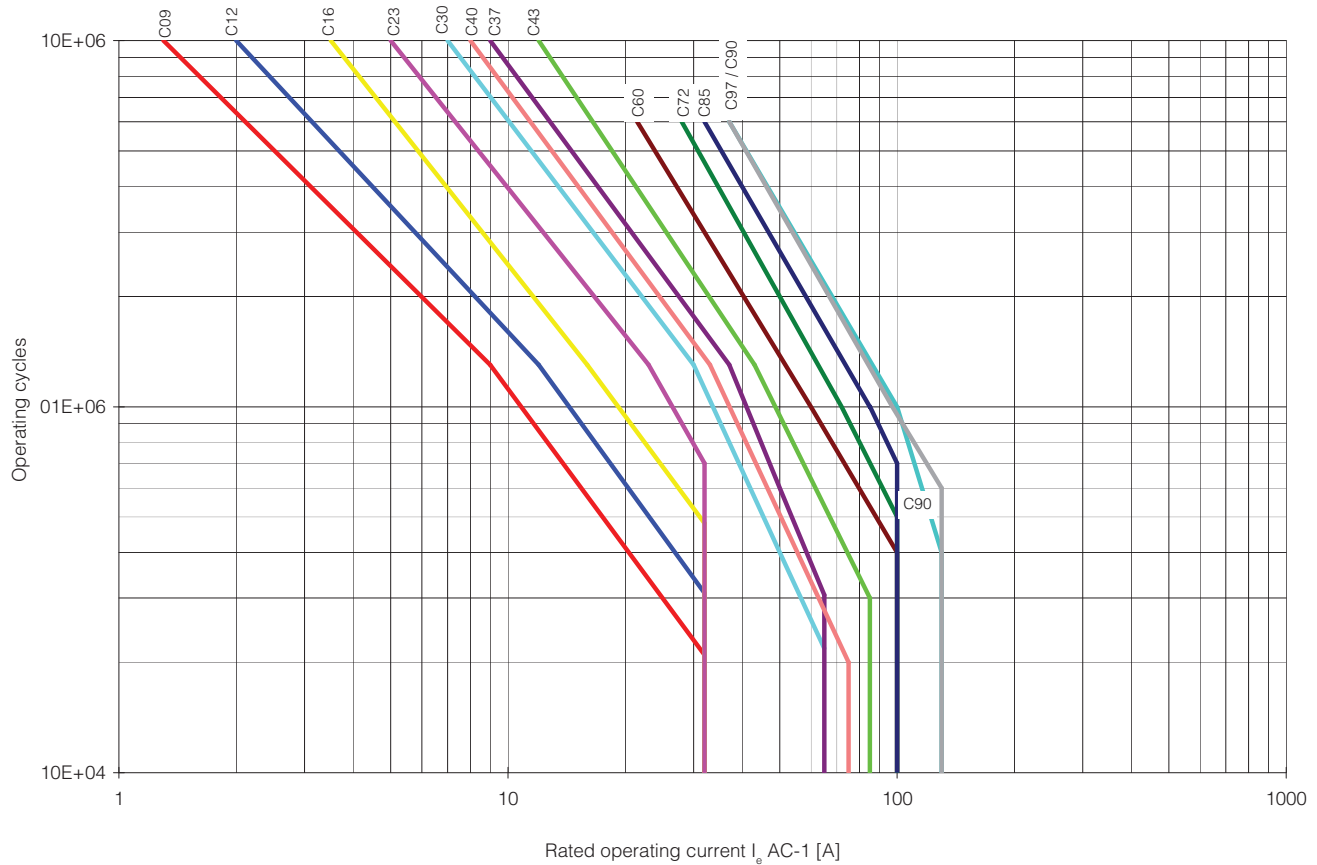


Figure 6 - AC-2, Switching of slip-ring motors; $U_e = 230...400...460V$

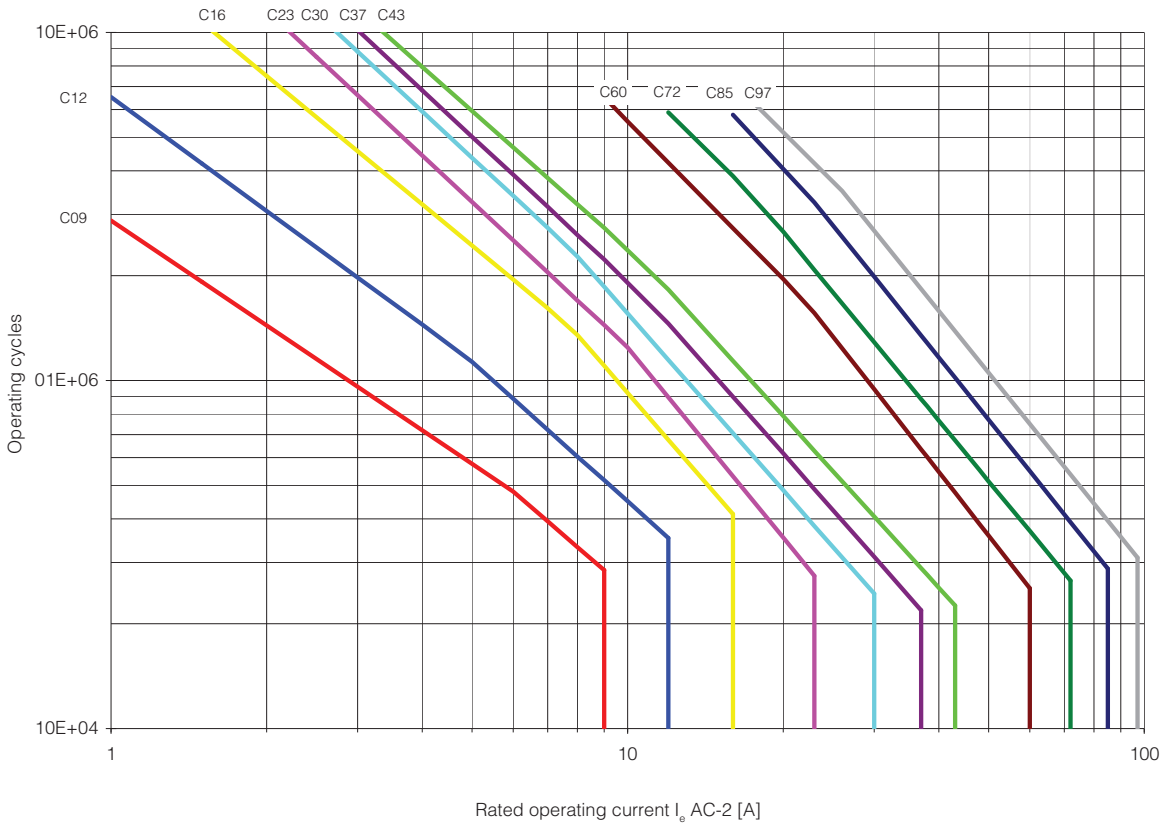


Figure 7 - AC-3, Switching of squirrel-cage motors while starting; $U_e = 230...400...460V$

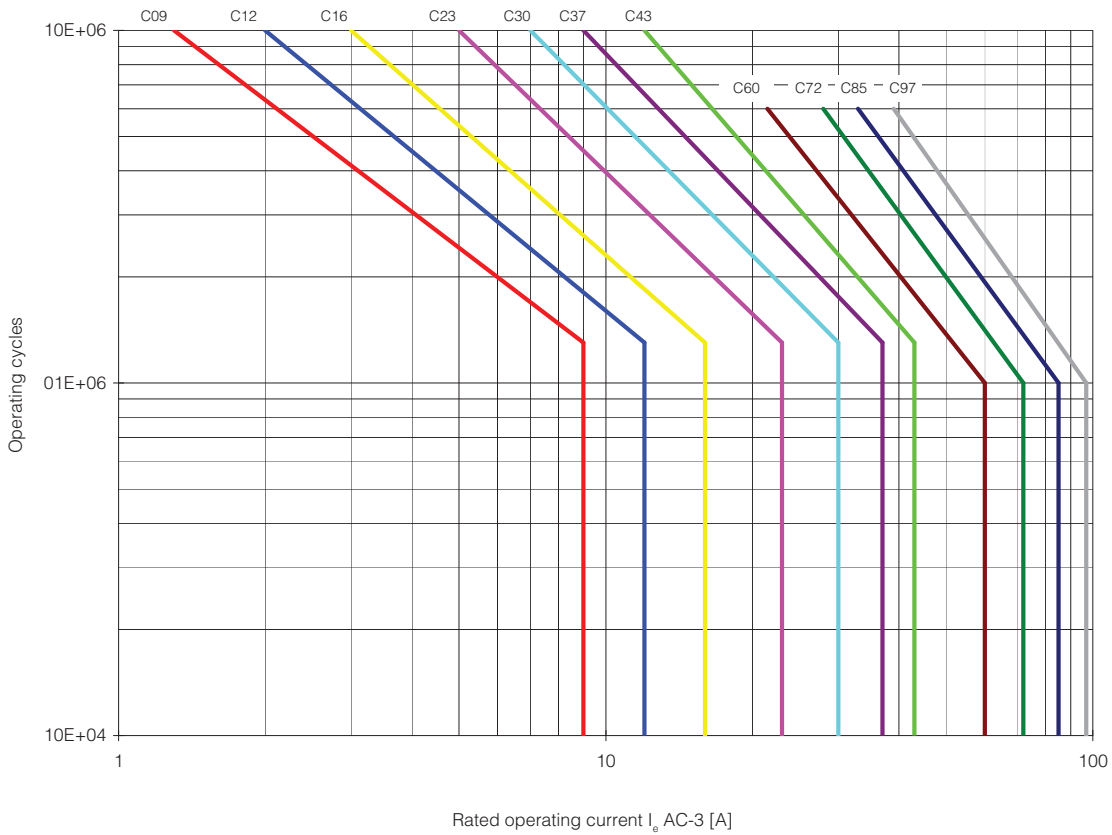


Figure 8 - AC-3, Switching of squirrel-cage motors while starting; $U_e = 500...575V$

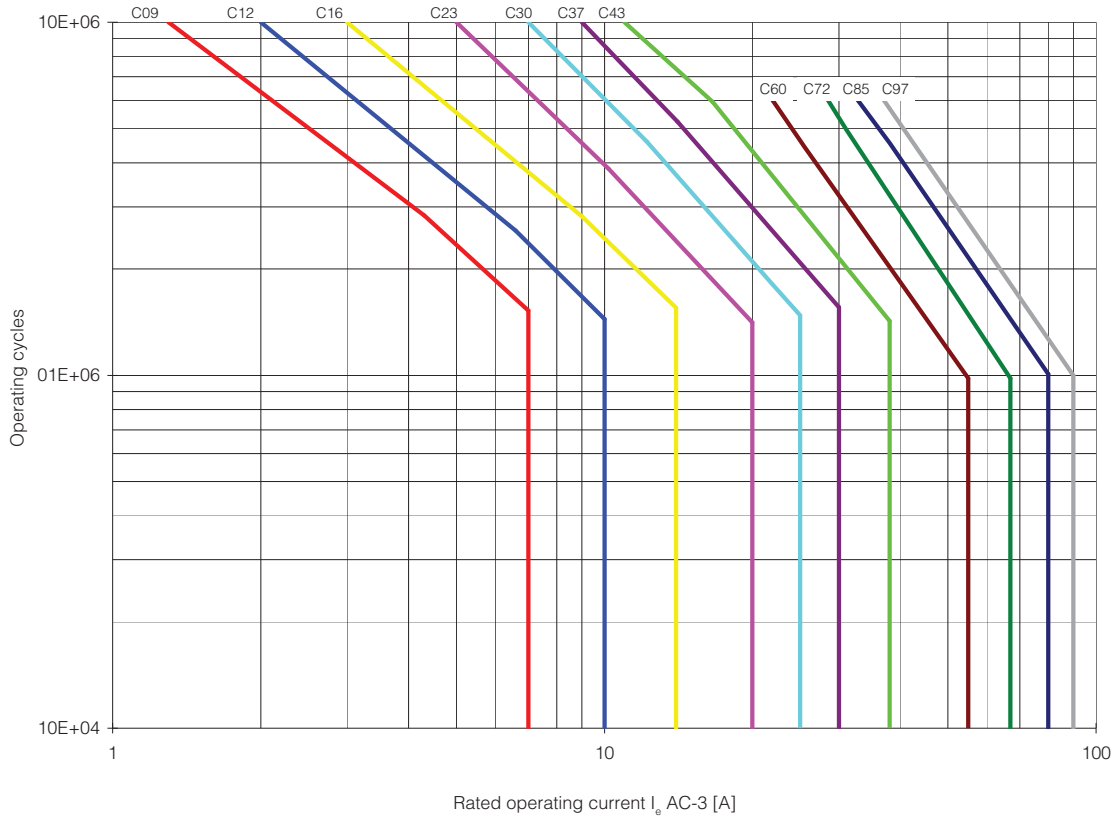


Figure 9 - AC-3, Switching of squirrel-cage motors while starting; $U_e = 690V$

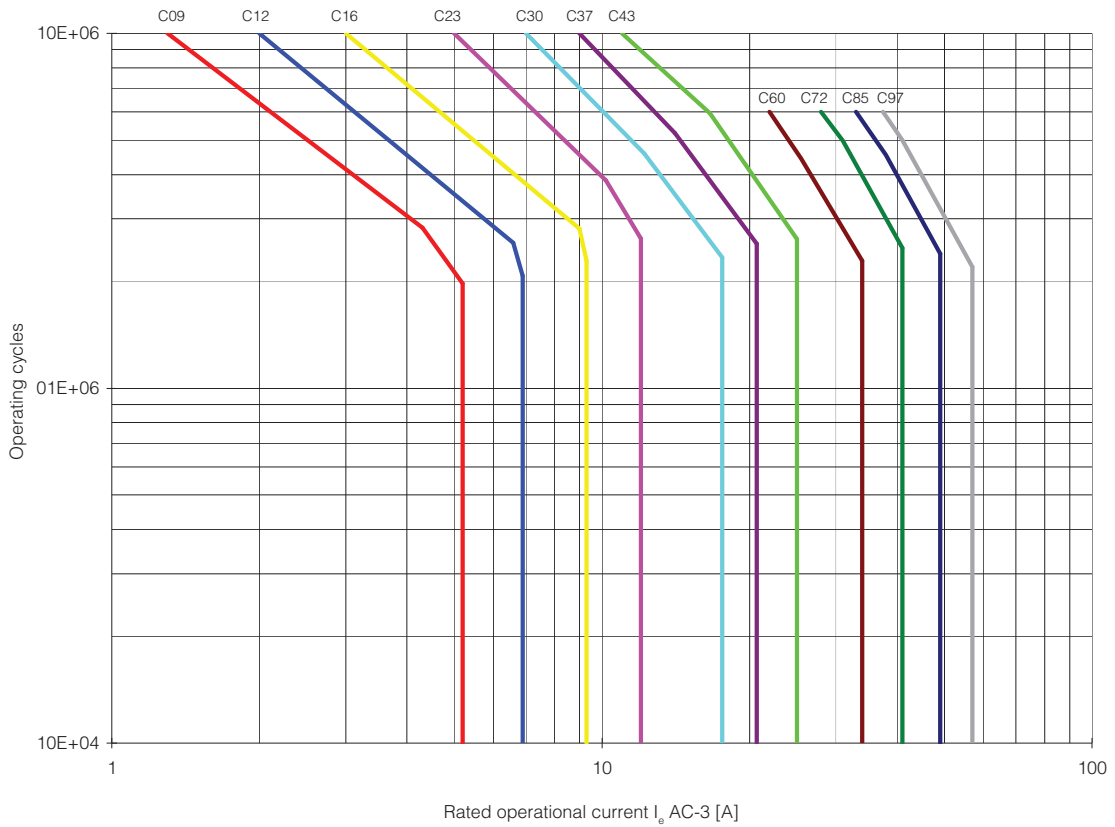


Figure 10 - AC-4, Switching of squirrel-cage motors; $U_e = 230...690V$

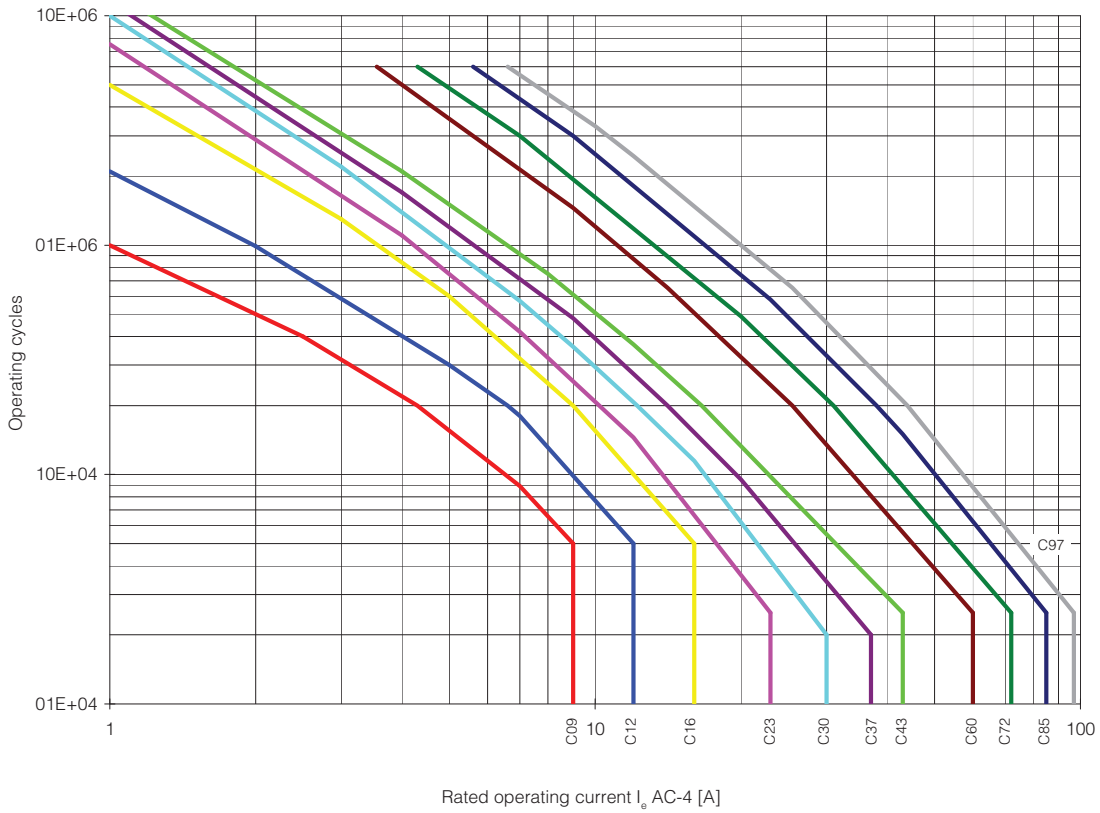


Figure 11 - AC-3 & AC-4, 10% AC-4 Mixed operation of squirrel-cage motors; $U_e = 230...400...460V$

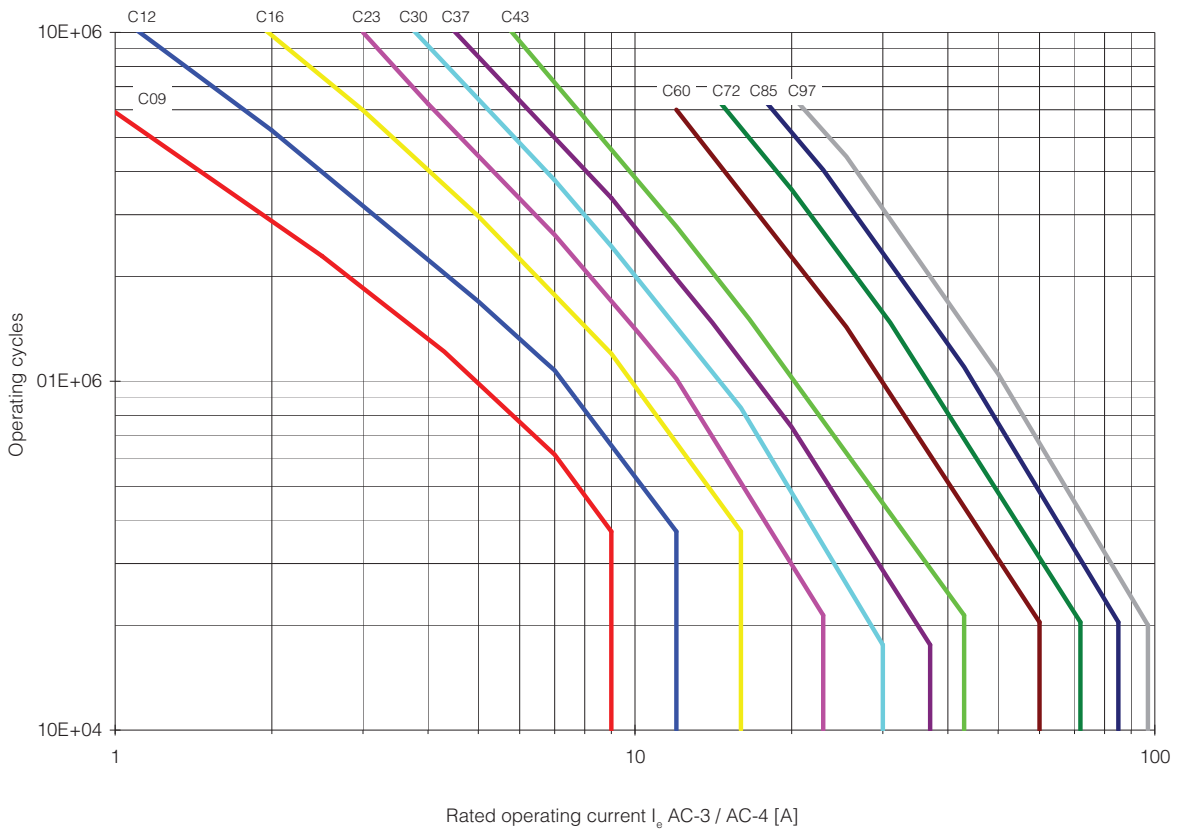
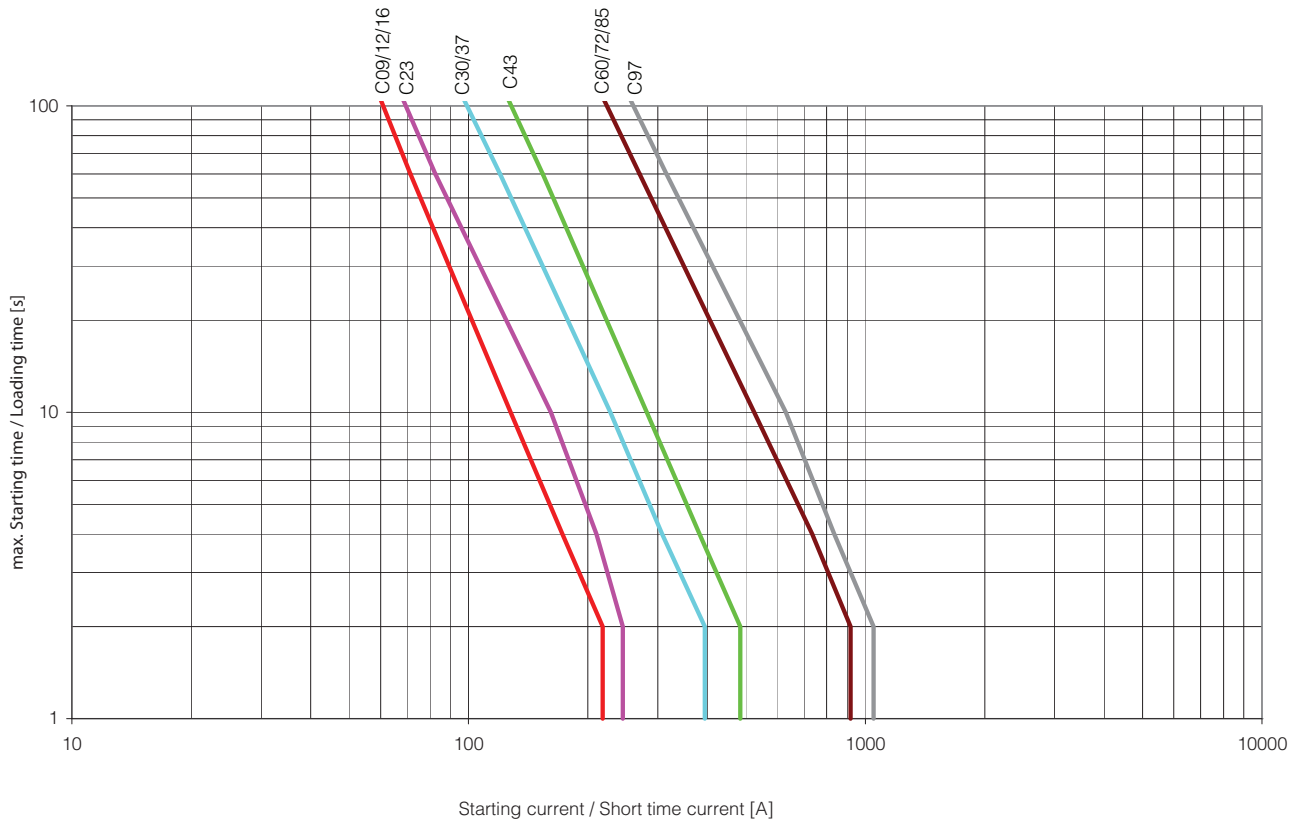


Figure 12 - Heavy Duty Starting and Regular Short-time Operation



Maximum Operating Rates

Figure 13 - AC-1, 40 °C Non- or slightly inductive loads, resistance furnaces; $U_e = 230 \dots 690V$

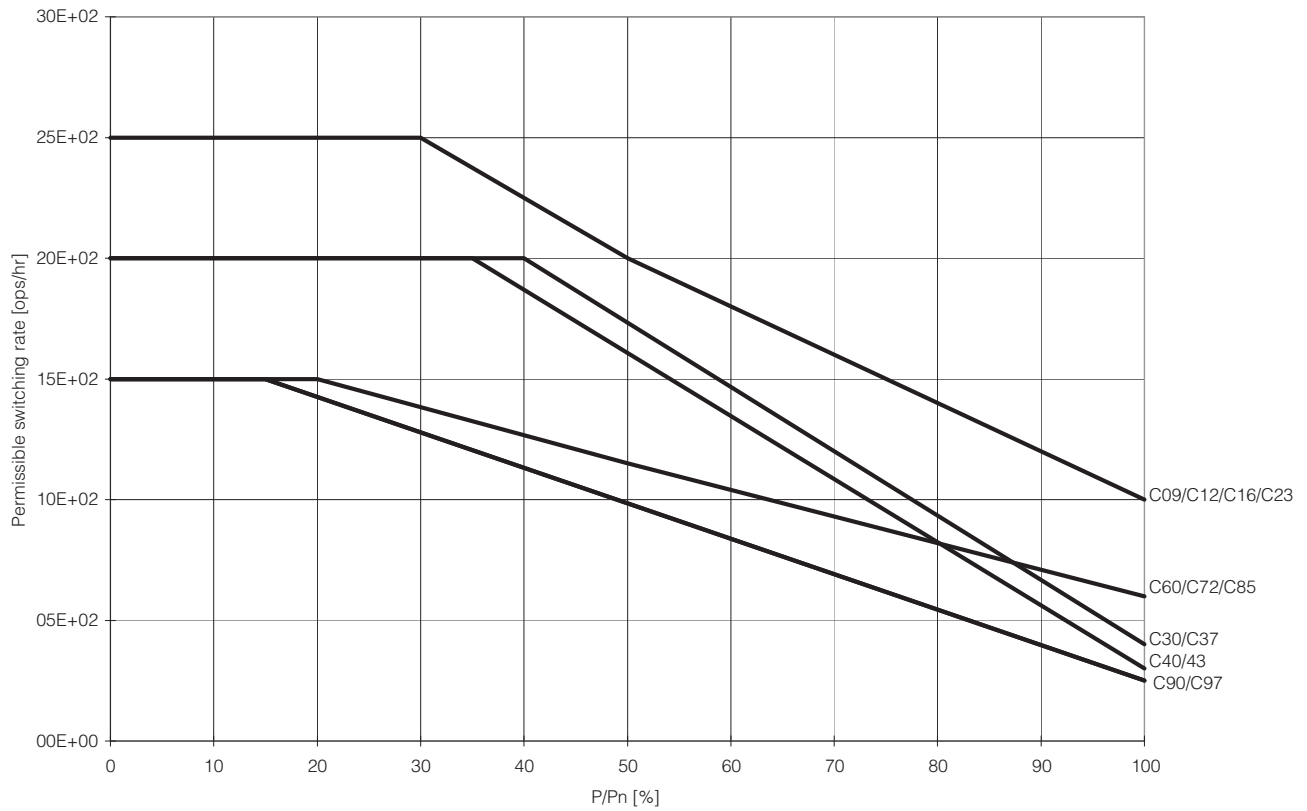


Figure 14 - AC-2, Stepping of slip-ring motors; $U_e = 230...460V$

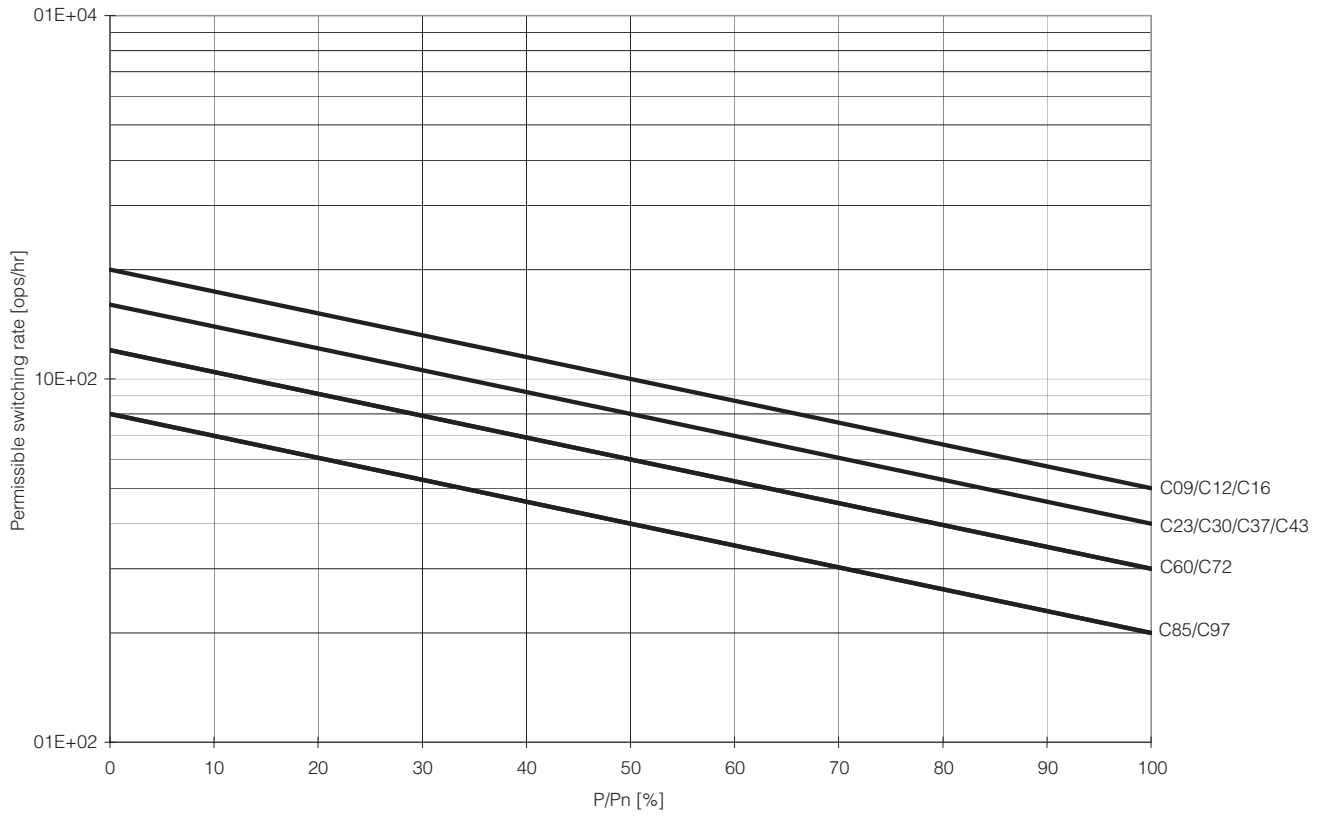


Figure 15 - AC-3, Switching of squirrel-cage motors while starting; $U_e = 230...460V$; Relative operating time 40%, Starting time $t_A = 0.25 s$

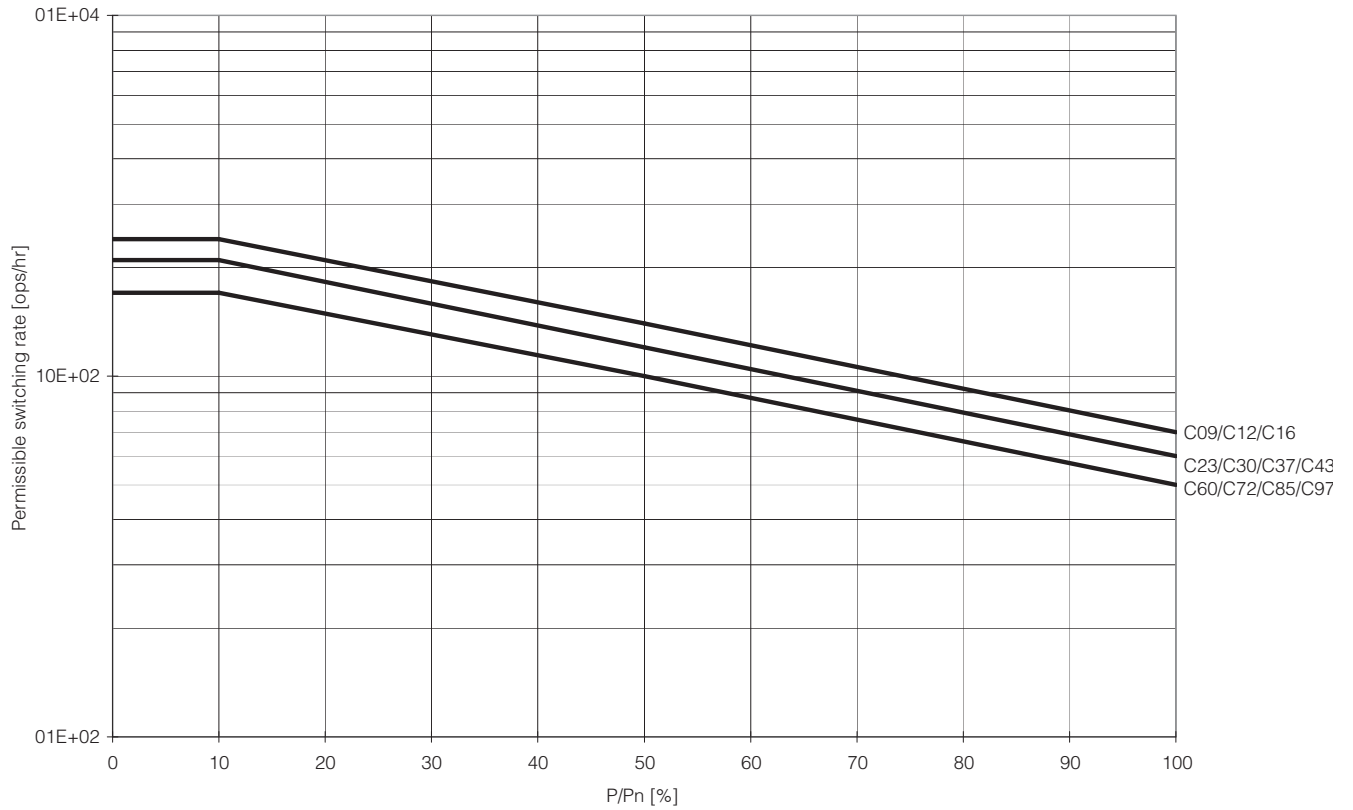
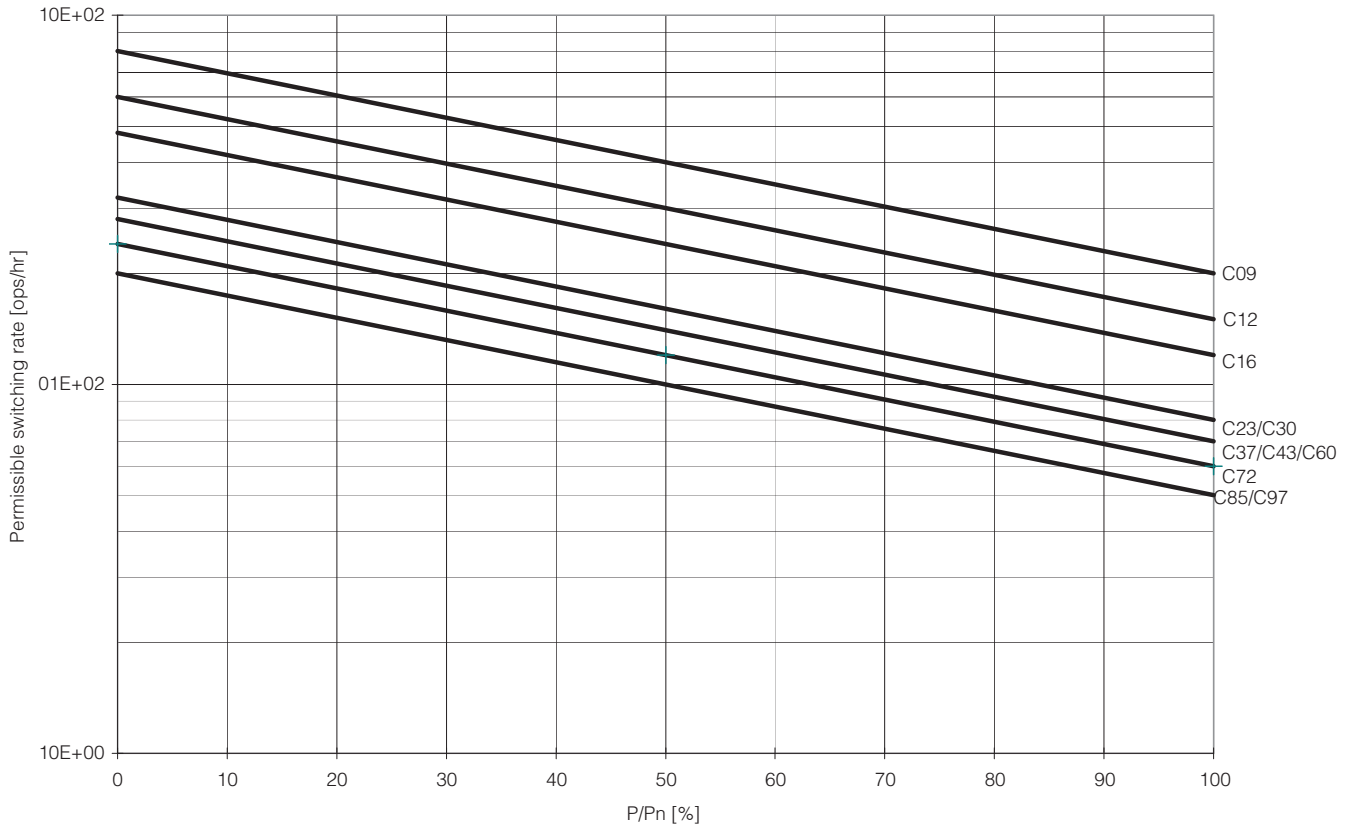


Figure 16 - AC-4, Inching of squirrel-cage motors; $U_e = 230...460V$, Starting time $t_A = 0.25 s$



Approximate Dimensions

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

Bulletin 100-C/104-C, 100S-C/104S-C Approximate Dimensions

Figure 17 - Bulletin 100-C/100S-C Contactors and Accessories

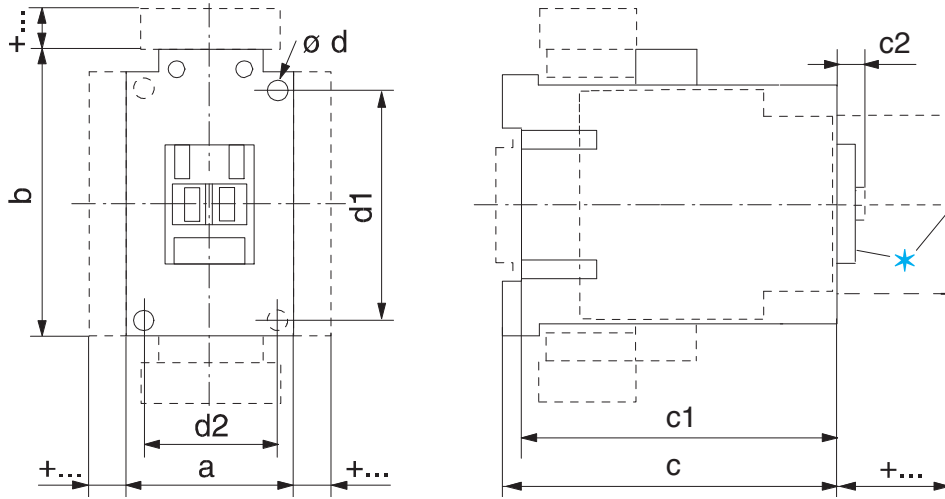


Figure 18 - Mounting Position — 100-C Contactors; 100S-C AC Contactors and DC contactors with electronic coils

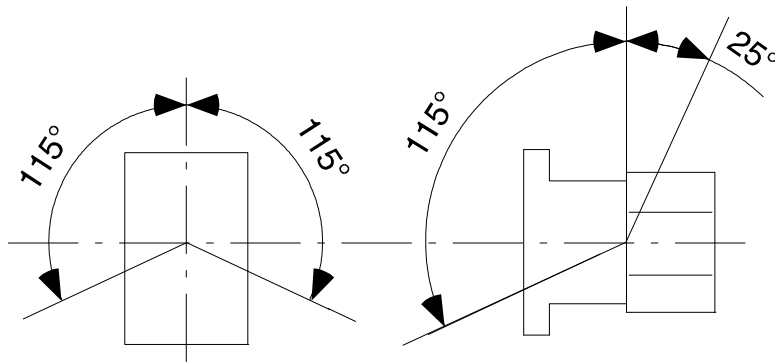


Figure 19 - Mounting Position — 100S-C DC contactors

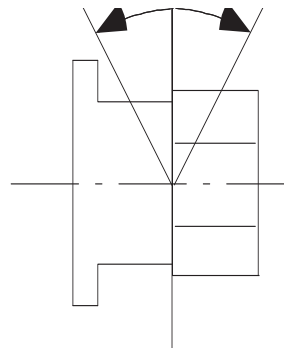


Table 2 - AC Contactors and DC Contactors with 12V or 24V Electronic Coils

Cat. No.	a	b	c	c1	c2	∅ d	d1	d2
100-C09...100-C23	45 (1-25/32)	81 (3-3/16)	80.5 (3-11/64)	75.5 (2-31/32)	6 (15/64)	2 - 4.5 (2-3/16)	60 (2-23/64)	35 (1-3/8)
100-C30, 100-C37	45 (1-25/32)	81 (3-3/16)	97.5 (4)	92.5 (3-41/64)	6.5 (1/4)	2 - 4.5 (2-3/16)	60 (2-23/64)	35 (1-3/8)
100-C40	59 (2-21/64)	81 (3-3/16)	100.5 (3-61/64)	95.5 (3-49/64)	6.5 (1/4)	2 - 4.5 (2-3/16)	60 (2-23/64)	45 (1-25/32)
100-C43, 100-C55	54 (2-1/8)	81 (3-3/16)	100.5 (3-61/64)	95.5 (3-49/64)	6.5 (1/4)	2 - 4.5 (2-3/16)	60 (2-23/64)	45 (1-25/32)
100-C60...100-C97	72 (2-53/64)	122 (4-51/64)	117 (4-39/64)	111.5 (4-25/64)	8.5 (21/64)	4 - 5.4 (4 - 7/32)	100 (3-15/16)	55 (2-11/64)
100-C90	95 (3-47/64)	122 (4-51/64)	117 (4-39/64)	111.5 (4-25/64)	8.5 (21/64)	4 - 5.4 (4 - 7/32)	100 (3-15/16)	55 (2-11/64)
100S-C09...100S-C23	45 (1-25/32)	81 (3-3/16)	119.5 (4-3/4)	114.5 (4-43/64)	6 (15/64)	2 - 4.5 (2-3/16)	60 (2-23/64)	35 (1-3/8)
100S-C30, 100S-C37	45 (1-25/32)	81 (3-3/16)	136.5 (5-37/64)	131.6 (5-11/32)	6.5 (1/4)	2 - 4.5 (2-3/16)	60 (2-23/64)	35 (1-3/8)
100S-C43, 100S-C55	54 (2-1/8)	81 (3-3/16)	139.5 (5-11/16)	134.6 (5-29/64)	6.5 (1/4)	2 - 4.5 (2-3/16)	60 (2-23/64)	45 (1-25/32)
100S-C60...100S-C97	72 (2-53/64)	122 (4-51/64)	156 (6-11/32)	150.5 (6-1/8)	8.5 (21/64)	4 - 5.4 (4 - 7/32)	100 (3-15/16)	55 (2-11/64)

Table 3 - DC Contactors with Conventional Coils

Cat. No.	a	b	c	c1	c2	∅ d	d1	d2
100-C60D...100-C97D	72 (2-53/64)	122 (4-51/64)	117 (4-39/64)	111.5 (4-25/64)	8.5 (21/64)	4 - 5.4 (4 - 7/32)	100 (3-15/16)	55 (2-11/64)
100-C90D	95 (3-47/64)	81 (3-3/16)	117 (4-39/64)	111.5 (4-25/64)	8.5 (21/64)	4 - 5.4 (4 - 7/32)	100 (3-15/16)	55 (2-11/64)
100S-C60D...100S-C97D	72 (2-53/64)	122 (4-51/64)	156 (6-11/32)	150.5 (6-1/8)	8.5 (21/64)	4 - 5.4 (4 - 7/32)	100 (3-15/16)	55 (2-11/64)

Table 4 - DC Contactors with 36...48V, 48...72V, 110...125V, or 200...250V DC Electronic Coils

Cat. No.	a	b	c	c1	c2	∅ d	d1	d2
100-C09E...100-C23E	45 (1-25/32)	105 (4-1/8)	80.5 (3-11/64)	75.5 (2-31/32)	6 (15/64)	2 - 4.5 (2-3/16)	60 (2-23/64)	35 (1-3/8)
100-C30E...100-C37E	45 (1-25/32)	105 (4-1/8)	97.5 (4)	92.5 (3-41/64)	6.5 (1/4)	2 - 4.5 (2-3/16)	60 (2-23/64)	35 (1-3/8)
100-C40E	59 (2-21/64)	105 (4-1/8)	100.5 (3-61/64)	95.5 (3-49/64)	6.5 (1/4)	2 - 4.5 (2-3/16)	60 (2-23/64)	45 (1-25/32)
100-C43E...100-C55E	54 (2-1/8)	105 (4-1/8)	100.5 (3-61/64)	95.5 (3-49/64)	6.5 (1/4)	2 - 4.5 (2-3/16)	60 (2-23/64)	45 (1-25/32)
100S-C09E...100S-C23E	45 (1-25/32)	105 (4-1/8)	119.5 (4-3/4)	114.5 (4-43/64)	6 (15/64)	2 - 4.5 (2-3/16)	60 (2-23/64)	35 (1-3/8)
100S-C30E...100S-C37E	45 (1-25/32)	105 (4-1/8)	136.5 (5-37/64)	131.6 (5-11/32)	6.5 (1/4)	2 - 4.5 (2-3/16)	60 (2-23/64)	35 (1-3/8)
100S-C43E...100S-C55E	54 (2-1/8)	105 (4-1/8)	139.5 (5-11/16)	134.6 (5-29/64)	6.5 (1/4)	2 - 4.5 (2-3/16)	60 (2-23/64)	45 (1-25/32)

Table 5 - 100-C/104-C Accessories

Contactors with		mm	(inches)
Auxiliary contact block for front mounting	2- or 4-pole	c/c1 + 39	(c/c1 + 1-37/64)
Auxiliary contact block for side mounting	1- or 2-pole	a + 9	(a + 23/64)
Pneumatic Timing Module		c/c1 + 58	(c/c1 + 2-23/64)
Electronic Timing Module	on coil terminal side	b + 24	(b + 15/16)
Mechanical Interlock	on side of contactor	a + 9	(a + 23/64)
Mechanical Latch		c/c1 + 61	(c/c1 + 2-31/64)
Interface Module	on coil terminal side	b + 9	(b + 23/64)
Surge Suppressor	on coil terminal side	b + 3	(b + 1/8)
Labeling with . . .	label sheet	+ 0	(+ 0)
	marking tag sheet with clear cover	+ 0	(+ 0)
	marking tag adapter for System V4 / V5	+ 5.5	(+ 7/32)
	marking tag adapter for System Bul. 1492W	+ 5.5	(+ 7/32)
Terminal Lug Kit	100-C09 . . . C23	b + 53	(b + 2-3/32)
	100-C30 . . . C37	b + 44	(b + 1-47/64)
	100-C43 . . . C55	b + 52	(b + 2-3/64)
	100-C60 . . . C97	b + 99	(b + 3-7/8)
Paralleling Links	100-C09 . . . C23	b + 78	(b + 3-1/16)
		c + 9/5	(c + 3/8)
	100-C30 . . . C37	b + 85	(b + 3-11/32)

Table 6 - 100S-C/104S-C Accessories

Contactors with		mm	(inches)
Auxiliary contact block for side mounting	1- or 2-pole	a + 9	(a + 23/64)
Electronic Timing Module	on coil terminal side	b + 24	(b + 15/16)
Mechanical Interlock	on side of contactor	a + 9	(a + 23/64)
Interface Module	on coil terminal side	b + 9	(b + 23/64)
Surge Suppressor	on coil terminal side	b + 3	(b + 1/8)
Labeling with	label sheet	+ 0	(+ 0)
	marking tag sheet with clear cover	+ 0	(+ 0)
	marking tag adapter for System V4 / V5	+ 5.5	(+ 7/32)
	marking tag adapter for System Bul. 1492W	+ 5.5	(+ 7/32)

Bulletin 100Q-C Approximate Dimensions

Figure 20 - Bulletin 100Q- Contactors

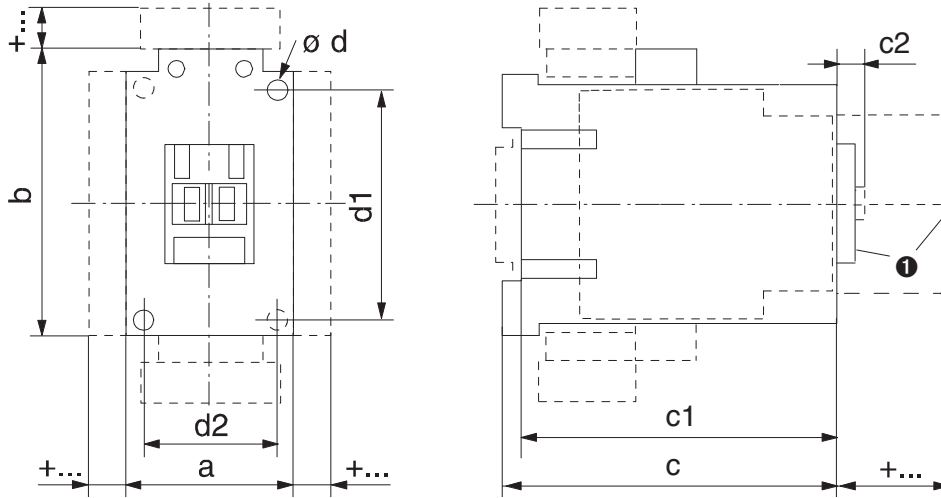


Table 7 - AC Contactors and DC Contactors with 12V or 24V Electronic Coils

Cat. No.	a	b	c	c1	c2	Ø d	d1	d2
100Q-C16	45 (1-25/32)	81 (3-3/16)	119.5 (4-3/4)	114.5 (4-43/64)	6 (15/64)	2 - 4.5 (2 -3/16)	60 (2-23/64)	35 (1-3/8)
100Q-C37	45 (1-25/32)	81 (3-3/16)	136.5 (5-37/64)	131.6 (5-11/32)	6.5 (1/4)	2 - 4.5 (2 -3/16)	60 (2-23/64)	35 (1-3/8)

Table 8 - DC Contactors with Conventional Coils

Cat. No.	a	b	c	c1	c2	Ø d	d1	d2
100Q-C16	45 (1-25/32)	81 (3-3/16)	145.5 (5-49/64)	140.5 (5-37/64)	6 (15/64)	2 - 4.5 (2 -3/16)	60 (2-23/64)	35 (1-3/8)
100Q-C37	45 (1-25/32)	81 (3-3/16)	180.5 (7-5/32)	175.5 (6-61/64)	6.5 (1/4)	2 - 4.5 (2 -3/16)	60 (2-23/64)	35 (1-3/8)

Table 9 - DC Contactors with 36...48V, 48...72V, 110...125V, or 200...250V DC Electronic Coils

Cat. No.	a	b	c	c1	c2	Ø d	d1	d2
100Q-C16EA, -ED, or -EY	45 (1-25/32)	105 (4-1/8)	119.5 (4-3/4)	114.5 (4-43/64)	6 (15/64)	2 - 4.5 (2 -3/16)	60 (2-23/64)	35 (1-3/8)
100Q-C37EA, -ED, or -EY	45 (1-25/32)	105 (4-1/8)	136.5 (5-37/64)	131.6 (5-11/32)	6.5 (1/4)	2 - 4.5 (2 -3/16)	60 (2-23/64)	35 (1-3/8)