

Reversing AC- and DC-Operated Contactors



Cat. No. 104-C09D22



Cat. No. 104-C30ZJ22



Cat. No. 104-C85D22

I _e [A]		Ratings for Switching AC Motors — AC-2, AC-3, AC-4										Auxiliary Contacts Installed per Contactor		Cat. No.
		3-Phase kW (50 Hz)					Hp (60 Hz)					N.O.	N.C.*	
		AC-3	AC-1	230V	400V/415V	500V	690V	1-Phase		3-Phase				
						115V	230V	200V	230V	460V	575V			
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	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	15	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
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

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

⊗ Coil Voltage Code and Terminal Position

The Cat. No. as listed is incomplete. Select a coil voltage code from the table below to complete the Cat. No. Example: 120V, 60Hz:

Cat. No. 100-C09⊗10 becomes Cat. No. 100-C09D10.

[M]	12	24	32	36	42	48	100	100-110	110	120	127	200	200-220	208	208-240	220-230	230	230-240	240	277	347	380	380-400	400	400-415	440	480	500	550	600
50 Hz	R	K	V	W	X	Y	KP	—	D	P	S	KG	L	—	—	F	—	VA	T	—	—	—	N	—	G	B	—	M	C	—
60 Hz	Q	J	—	V	—	X	—	KP	—	D	—	—	KG	H	L	—	—	—	A	T	I	E	—	—	N	B	—	—	C	—
50/60 Hz	—	KJ	—	—	—	KY	KP	—	KD	—	—	KG	KL‡	—	—	KL‡	KF	—	KA	—	—	—	—	—	KN	—	KB	—	—	—

‡ Not available on 100/104-C90 or -C97 contactors.

DC Voltages [V]		9	12	24	36	48	48-72	60	64	72	80	110	110-125	115	125	220	220-250	230	250
100-C09...C43	Standard	ZR	ZQ	ZJ	ZW	ZY	—	ZZ	ZB	ZG	ZE	ZD	—	ZP	ZS	ZA	—	ZF	ZT
	with Integrated Diode	—	—	DJ	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Electronic with Integrated Diode	—	EQ	EJ	—	—	EY	—	—	—	—	—	ED	—	—	—	EA	—	—
100-C60...C97	with Integrated Diode	DR	DQ	DJ	DW	DY	—	DZ	DB	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



Bulletin 100-C/104-C — IEC Contactors

- Compact sizes from 4...55 kW/5...75 Hp (9...97 A)
- AC and DC coil control
- 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

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.

Your order must include: cat. no. of the contactor specified with coil voltage code and, if required, cat. no. of any accessories and/or replacement coils.

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Standards Compliance

EN/IEC 60947-4-1, 60947-5-1
 IEC 60947 Type “2”
 Coordination
 CSA C22.2 No. 14
 UL 508
 Meets the material restrictions
 for European Directive
 2002/95/IEC-EU-RoHS

Certifications

CE Marked
 cULus Listed (File No. E3125;
 Guide NLDX, NLDX7)
 CCC

Product Selection

3-Pole AC- and DC-Operated Contactors

I _e [A]		Ratings for Switching AC Motors — AC-2, AC-3, AC-4										Aux. Contacts		Cat. No.
		3-Phase kW (50 Hz)				Hp (60 Hz)						N.O.	N.C.	
AC-3	AC-1	230V	400V/415V	500V	690V	1-Phase		3-Phase						
						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
37	65	11	18.5/20	20	18.5	3	5	10	10	25	30	0	1	100-C30⊗01
												1	0	100-C37⊗10
43	85	13	22	25	22	3	7-1/2	10	15	30	30	0	0	100-C37⊗01
												1	0	100-C43⊗00
60	100	18.5	32	37	32	5	10	15	20	40	50	1	0	100-C43⊗10
												0	1	100-C43⊗01
72	100	22	40	45	40	5	15	20	25	50	60	0	0	100-C60⊗00
												1	0	100-C60⊗10
85	100	25	45	55	45	7-1/2	15	25	30	60	60	0	1	100-C60⊗01
												0	0	100-C72⊗00
97	130	30	55	55	55	10	15	30	30	75	75	1	0	100-C72⊗10
												0	1	100-C72⊗01
97	130	30	55	55	55	10	15	30	30	75	75	0	0	100-C85⊗00
												1	0	100-C85⊗10
97	130	30	55	55	55	10	15	30	30	75	75	0	1	100-C85⊗01
												0	0	100-C97⊗00
97	130	30	55	55	55	10	15	30	30	75	75	1	0	100-C97⊗10
												0	1	100-C97⊗01

‡ For screwless terminals, add an "R" after the letter "C" in the catalog number. Example: **Cat. No. 100-C09⊗10** becomes **Cat. No. 100-CR09⊗10**.

⊗ Coil voltage code and terminal position—see page 2-131

IEC Contactors

Specifications

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Coil Type :	Conventional Electronic — EI	100-KR		100/104-K			100/104-C, 100S/104S-C									
		05	09	05	09	12	09	12	16	23	30	37	40*200	40*400	43	60
		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

**AC-1 Active Power Load (50 Hz);
Ambient temperature 40 °C**

<i>I_e</i>	≤ 500V	[A]	10	10	20	20	20	32	32	32	32 (40)*	65	65	75	75	85	100
	690V	[A]	10	10	20	20	20	32	32	32	32 (40)*	65	65	75	75	85	100
	1000V	[A]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	230V	[kW]	4	4	8	8	8	13	13	13	13	26	26	30	30	34	40
	240V	[kW]	4	4	8.3	8.3	8.3	13	13	13	13	27	27	31	31	35	42
	400V	[kW]	6.9	6.9	14	14	14	22	22	22	22	45	45	52	52	59	69
	415V	[kW]	7	7	14	14	14	23	23	23	23	47	47	54	54	61	72
	500V	[kW]	8.7	8.7	17	17	17	28	28	28	28	56	56	65	65	74	87
	690V	[kW]	12	12	24	24	24	38	38	38	38	78	78	90	90	102	120
	1000V	[kW]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Ambient temperature 60 °C

<i>I_e</i>	≤ 500V	[A]	10	10	16	16	16	32	32	32	32	65	65	60	60	80	100
	690V	[A]	10	10	16	16	16	32	32	32	32	65	65	60	60	80	100
	1000V	[A]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	230V	[kW]	4	4	6.4	6.4	6.4	13	13	13	13	26	26	24	24	25	40
	240V	[kW]	4	4	6.7	6.7	6.7	13	13	13	13	27	27	25	25	26	42
	400V	[kW]	6.9	6.9	11	11	11	22	22	22	22	45	45	42	42	44	69
	415V	[kW]	7	7	12	12	12	23	23	23	23	47	47	43	43	45	72
	500V	[kW]	8.7	8.7	14	14	14	28	28	28	28	56	56	52	52	55	87
	690V	[kW]	12	12	19	19	19	38	38	38	38	78	78	72	72	75	120
	1000V	[kW]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Switching of 3-phase Motors; (50 Hz)

Ambient temperature 60 °C, AC-2, AC-3

	230V	[A]	6.3	8.5	6.3	11.3	11.3	12	15	20	26.5	35	38	38	38	44	62
	240V	[A]	6.3	8.5	6.3	11.3	11.3	12	15	20	26.5	35	38	38	38	44	62
	400V	[A]	4.9	8.5	4.9	8.5	11.5	9	12	16	23	30	37	37	37	43	60
	415V	[A]	4.9	8.5	4.9	8.5	11.5	9	12	16	23	30	37	37	37	43	60
	500V	[A]	3.9	6.8	3.9	6.8	9.2	7	10	14	20	25	30	29	30	38	55
	690V	[A]	2.8	4.9	2.8	4.9	6.7	5	7	9	12	18	21	9	21	25	34
	1000V	[A]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	230V	[kW]	1.5	2.2	1.5	3	3	3	4	5.5	7.5	10	11	11	11	13	18.5
	240V	[kW]	1.5	2.2	1.5	3	3	3	4	5.5	7.5	10	11	11	11	13	18.5
	400V	[kW]	2.2	4	2.2	4	5.5	4	5.5	7.5	11	15	18.5	18.5	18.5	22	32
	415V	[kW]	2.2	4	2.2	4	5.5	4	5.5	7.5	11	15	20	20	20	22	32
	500V	[kW]	2.2	4	2.2	4	5.5	4	5.5	7.5	13	15	20	18.5	20	25	37
	690V	[kW]	2.2	4	2.2	4	5.5	4	5.5	7.5	10	15	18.5	7.5	18.5	22	32
	1000V	[kW]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Load Carrying Capacity per UL/CSA

General Purpose Current (enclosed)

	[A]	9	9	12	15	18	25	25	30	30	55	60	60	60	75	90
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Rated power (enclosed)

1-phase	115V	[A]	7.2	7.2	9.8	9.8	13.8	9.8	9.8	16	24	24	34	34	34	34	56
	230V	[A]	6.9	8	8	10	12	10	12	17	17	28	28	28	28	40	50
	115V	[Hp]	1/3	1/3	0.5	0.5	0.75	0.5	0.5	1	2	2	3	3	3	3	5
	230V	[Hp]	3/4	1	1	1.5	2	1.5	2	3	3	5	5	5	5	7.5	10
3-phase	200V	[A]	6.9	7.8	6.9	7.8	11	7.8	11	17.5	17.5	25.3	32.2	32.2	32.2	32.2	48.3
	230V	[A]	6	6.8	6	6.8	9.6	6.8	9.6	15.2	22	28	28	28	28	42	54
	460V	[A]	4.8	7.6	4.8	7.6	11	7.6	11	14	21	27	34	34	34	40	52
	575V	[A]	3.9	6.1	3.9	6.1	9	9	11	17	17	27	32	17	32	32	52
	200V	[Hp]	1.5	2	1.5	2	3	2	3	5	5	7.5	10	10	10	10	15
	230V	[Hp]	1.5	2	1.5	2	3	2	3	5	5	7.5	10	10	10	10	15
	460V	[Hp]	3	5	3	5	7.5	5	7.5	10	15	20	25	25	25	30	40
575V	[Hp]	3	5	3	5	7.5	7.5	10	15	15	25	30	15	30	30	50	



100/104-C, 100S/104S-C					100/104-D, 100S-D										
72	85	90*200	90*400	97	115	140	140	180	180	210	250	300	420	630	860
X	X	X	X	X	X	X	—	X	—	—	—	—	—	—	—
—	—	—	—	—	X	—	X	—	X	X	X	X	X	X	X

AC-1 Active Power Load (50 Hz); Ambient temperature 40 °C

100	100	130	130	130	250	250	250	250	250	350	350	450	540	800	1000
100	100	130	130	130	250	250	250	250	250	350	350	450	540	800	1000
—	—	—	—	—	250	250	250	250	250	350	350	450	540	—	—
40	40	52	52	52	100	100	100	100	100	139	139	179	199	319	398
42	42	54	54	54	104	104	104	104	104	145	145	187	208	333	416
69	69	90	90	90	173	173	173	173	173	242	242	312	346	554	693
72	72	93	93	93	180	180	180	180	180	252	252	323	359	575	719
87	87	113	113	113	217	217	217	217	217	303	303	390	433	693	866
120	120	155	155	155	299	299	299	299	299	418	418	538	598	956	1195
—	—	—	—	—	433	433	433	433	433	606	606	779	866	—	—

Ambient temperature 60 °C

100	100	110	110	110	210	210	210	210	210	300	300	380	425	—	—
100	100	110	110	110	210	210	210	210	210	300	300	380	425	—	—
—	—	—	—	—	210	210	210	210	210	300	300	380	425	—	—
40	40	44	44	44	84	84	84	84	84	120	120	151	169	—	—
42	42	46	46	46	87	87	87	87	87	125	125	158	177	—	—
69	69	76	76	76	145	145	145	145	145	208	208	263	294	—	—
72	72	79	79	79	151	151	151	151	151	216	216	273	305	—	—
87	87	95	95	95	182	182	182	182	182	260	260	329	368	—	—
120	120	131	131	131	251	251	251	251	251	359	359	454	508	—	—
—	—	—	—	—	364	364	364	364	364	520	520	658	736	—	—

Switching of 3-phase Motors; (50 Hz) Ambient temperature 60 °C, AC-2, AC-3

72	85	85	85	96	115	140	140	180	180	210	250	300	420	630	860
72	85	85	85	95	115	140	140	180	180	210	250	300	420	630	860
72	85	85	85	97	115	140	140	180	180	210	250	300	420	630	860
72	85	85	85	97	115 (130)‡	140 (155)‡	140 (155)‡	180 (189)‡	180 (189)‡	210 (227)‡	250 (258)‡	300 (315)‡	420	630	860
67	80	80	80	78	115	115	140	140	180	210	250	300	420	630	753
42	49	22	49	57	115	115	140	140	180	210	250	300	420	492	—
—	—	—	—	—	46	55	55	65	65	80	95	115	160	—	—
22	25	25	25	30	37	45	45	57	57	67	80	97	135	200	250
22	25	25	25	30	38	47	47	60	60	70	83	101	141	200	250
40	45	45	45	55	64	78	78	101	101	118	140	170	238	355	500
40	45	45	45	55	66 (75)‡	82 (90)‡	82 (90)‡	105 (110)‡	105 (110)‡	122 (132)‡	145 (150)‡	176 (185)‡	250	355	500
45	55	55	55	55	80	80	98	98	126	147	177	213	298	450	560
40	45	18.5	45	55	111	111	135	135	176	205	250	293	424	500	—
—	—	—	—	—	63	75	75	90	90	110	132	160	225	—	—

Load Carrying Capacity per UL/CSA

General Purpose Current (enclosed)															
90	100	125	130	120	160	220	220	220	220	300	300	340	420	630	860

Rated power (enclosed)															
56	80	80	80	100	100	135	135	—	—	—	—	—	—	—	—
68	68	68	68	88	110	136	136	176	176	216	—	—	—	—	—
5	7.5	7.5	7.5	10	10	15	15	—	—	—	—	—	—	—	—
15	15	15	15	20	25	30	30	40	40	50	—	—	—	—	—
62.1	78.2	78.2	78.2	92	120	120	120	150	150	177	221	285	414	552	692
68	80	80	80	80	104	130	130	154	154	192	248	312	420	602	720
65	77	65	77	96	96	124	124	180	180	180	240	302	414	590	702
62	62	22	52	77	99	125	125	144	144	192	242	289	382	562	651
20	25	25	25	30	40	40	40	50	50	60	75	100	150	200	250
25	30	30	30	30	40	50	50	60	60	75	100	125	175	250	300
50	60	50	60	75	75	100	100	150	150	150	200	250	350	500	600
60	60	20	50	75	100	125	125	150	150	200	250	300	400	600	700

‡ 415 V: values in () AC-2 and AC-3 lifespan -25 %

IEC Contactors

Specifications

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		100/104-K			100/104-C, 100S/104S-C							
		05	09	12	09	12	16	23	30	37	43	60
Conventional		X	X	X	X	X	X	X	X	X	X	X
Coil Type :	Electronic — EI	—	—	—	—	—	—	—	—	—	—	—
Switching of 3-phase Motors, (50Hz); Ambient temperature 60 °C, AC-4												
230V	[A]	6.3	11.3	11.3	12	15	20	26.5	35	38	44	62
240V	[A]	6.3	11.3	11.3	12	15	20	26.5	35	38	44	62
400V	[A]	4.9	8.5	11.5	9	12	16	23	30	37	43	60
415V	[A]	4.9	8.5	11.5	9	12	16	23	30	37	43	60
500V	[A]	3.9	6.8	9.2	7	10	14	20	25	30	38	55
690V	[A]	2.8	4.9	6.7	5	7	9	12	18	21	25	34
1000V	[A]	—	—	—	—	—	—	—	—	—	—	—
230V	[kW]	1.5	3	3	3	4	5.5	7.5	10	11	13	18.5
240V	[kW]	1.5	3	3	3	4	5.5	7.5	10	11	13	18.5
400V	[kW]	2.2	4	5.5	4	5.5	7.5	11	15	18.5	22	32
415V	[kW]	2.2	4	5.5	4	5.5	7.5	11	15	20	22	32
500V	[kW]	2.2	4	5.5	4	5.5	7.5	13	15	20	25	37
690V	[kW]	2.2	4	5.5	4	5.5	7.5	10	15	18.5	22	32
1000V	[kW]	—	—	—	—	—	—	—	—	—	—	—
AC-4 at approximately 200,000 operations												
230V	[A]	2.3	3.9	3.9	4.3	6.6	9	9	12	14	16.5	25.5
240V	[A]	2.3	3.9	3.9	4.3	6.6	9	9	12	14	16.5	25.5
400/415V	[A]	2	3.6	3.6	4.3	6.6	9	9	12	14	16.5	25.5
500V	[A]	1.9	3.2	3.2	4.3	6.6	9	9	12	14	16.5	25.5
690V	[A]	—	—	—	4.3	6.6	9	9	12	14	16.5	25.5
1000V	[A]	—	—	—	—	—	—	—	—	—	—	—
230V*	[kW]	0.37	0.75	0.75	0.75	1.5	2.2	2.2	3	3.7	4	6.3
240V*	[kW]	0.37	0.75	0.75	0.75	1.5	2.2	2.2	3	4	4	7.5
400V*	[kW]	0.75	1.5	1.5	1.8	3	4	4	5.5	6.3	7.5	13
415V*	[kW]	0.75	1.5	1.5	1.8	3	4	4	5.5	6.3	7.5	13
500V*	[kW]	0.75	1.5	1.5	2.2	3.7	5.5	5.5	7.5	7.5	10	15
690V*	[kW]	—	—	—	3	5.5	7.5	7.5	10	11	15	22
1000V*	[kW]	—	—	—	—	—	—	—	—	—	—	—
Max. switching frequency	Ops/h	250	250	250	250	250	220	200	200	200	200	120
Wye-Delta (60 Hz)												
200V	[Hp]	2.2	3	5	5	5	7½	7½	10	15	20	30
230V	[Hp]	2.2	3	5	5	7½	10	10	15	20	25	40
460V	[Hp]	5	7.5	10	10	15	20	25	30	40	50	75
575V	[Hp]	5	7.5	10	10	15	20	25	30	40	50	75
UL/CSA Elevator Duty†												
200V	[A]	—	—	—	7.8	11.0	11.0	17.5	25.3	25.3	32.2	32.2
230V	[A]	—	—	—	6.8	9.6	15.2	15.2	22.0	28.0	28.0	42.0
460V	[A]	—	—	—	7.6	11.0	14.0	21.0	27.0	27.0	34.0	40.0
575V	[A]	—	—	—	6.1	9.0	11.0	17.0	22.0	27.0	32.0	41.0
200V	[Hp]	—	—	—	2	3	3	5	7½	7½	10	10
230V	[Hp]	—	—	—	2	3	5	5	7½	10	10	15
460V	[Hp]	—	—	—	5	7½	10	15	20	20	25	30
575V	[Hp]	—	—	—	5	7½	10	15	20	25	30	40
Star-Delta Starting (50 Hz)												
≤ 230V	[A]	11.3	20	20	21	26	35	46	61	66	76	107
≤ 240V	[A]	11.3	20	20	21	26	35	46	61	66	76	107
400V	[A]	8.5	15.5	15.5	16	21	28	40	52	64	74	104
415V	[A]	8.5	15.5	15.5	16	21	28	40	52	64	74	104
500V	[A]	6.8	12.4	12.4	12	17	24	35	43	52	66	95
690V	[A]	4.9	8.9	8.9	8.6	12	16	21	31	36	43	59
1000V	[A]	—	—	—	—	—	—	—	—	—	—	—
230V*	[kW]	3	5.5	5.5	5.5	7.5	10	13	17	20	22	32
240V*	[kW]	3	5.5	5.5	5.5	7.5	10	13	18.5	20	22	32
400V*	[kW]	4	7.5	10	7.5	10	13	20	25	32	40	55
415V*	[kW]	4	7.5	11	7.5	11	15	22	25	37	40	55
500V*	[kW]	4	7.5	7.5	7.5	11	15	22	25	32	45	63
690V*	[kW]	4	7.5	7.5	7.5	10	13	18.5	25	32	40	55
1000V*	[kW]	—	—	—	—	—	—	—	—	—	—	—

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

† Approval pending on Cat. No. 100-D210...D860.



100/104-C, 100S/104S-C			100/104-D, 100S-D										
72	85	97	115	140	140	180	180	210	250	300	420	630	860
X	X	X	X	X	—	X	—	—	—	—	—	—	—
—	—	—	X	—	X	—	X	X	X	X	X	X	X
Switching of 3-phase Motors, (50 Hz); Ambient temperature 60 °C, AC-4													
72	85	96	115	140	140	180	180	210	250	300	420	—	—
72	85	95	115	140	140	180	180	210	250	300	420	—	—
72	85	97	115	140	140	180	180	210	250	300	420	—	—
72	85	97	115 (130)*	140 (155)*	140 (155)*	180 (189)‡	180 (189)‡	210 (227)*	250 (258)*	300 (315)*	420	—	—
67	80	78	115	115	140	140	170	210	250	300	360	—	—
42	49	57	115	115	140	140	170	210	250	300	360	—	—
—	—	—	46	55	55	65	65	80	95	115	160	—	—
22	25	30	37	45	45	57	57	67	80	97	135	—	—
22	25	30	39	47	47	60	60	70	83	101	141	—	—
40	45	55	63	78	78	100	100	118	140	170	238	—	—
40	45	55	66 (75)*	82 (90)*	82 (90)*	105 (110)*	105 (110)*	125 (132)*	145 (150)*	176 (185)*	250	—	—
45	55	55	80	80	98	98	119	147	177	213	255	—	—
40	45	55	110	110	135	135	167	205	250	293	356	—	—
—	—	—	63	75	75	90	90	110	132	160	225	—	—
AC-4 at approximately 200,000 operations													
31	38	44	53	60	60	67	67	85	105	140	170	—	—
31	38	44	53	60	60	67	67	85	105	140	170	—	—
31	38	44	53	60	60	67	67	85	105	140	170	—	—
31	38	44	53	60	60	67	67	85	105	140	170	—	—
31	38	44	53	60	60	67	67	85	105	140	170	—	—
—	—	—	25	37	37	43	43	60	72	85	105	—	—
7.5	11	11	15	17	17	20	20	25	32	45	55	—	—
7.5	11	11	15	18.5	18.5	22	22	25	32	45	55	—	—
15	20	22	25	32	32	37	37	45	55	75	90	—	—
17	20	22	25	32	32	37	37	50	55	80	100	—	—
20	25	30	32	40	40	45	45	55	75	100	110	—	—
25	32	37	45	55	55	63	63	80	100	132	160	—	—
—	—	—	30	50	50	55	55	80	100	110	150	—	—
120	120	120	120	120	120	100	100	120	100	70	70	—	—
Wye-Delta (60 Hz)													
40	50	50	60	60	60	75	75	100	125	175	250	—	—
50	60	60	60	75	75	100	100	125	175	200	250	—	—
100	125	125	125	175	175	200	200	250	350	450	600	—	—
100	125	125	150	200	200	250	250	300	450	500	650	—	—
UL/CSA Elevator Duty‡													
48.3	62.1	TBD	78	92	92	120	120	150	150	177	221	—	—
54.0	68.0	TBD	80	104	104	130	130	130	154	192	248	—	—
52.0	65.0	TBD	77	96	96	124	124	156	180	180	240	—	—
52.0	62.0	TBD	77	77	77	99	99	125	144	192	242	—	—
15	20	TBD	25	30	30	40	40	50	50	60	75	—	—
20	25	TBD	30	40	40	50	50	50	60	75	100	—	—
40	50	TBD	60	75	75	100	100	125	150	150	200	—	—
50	60	TBD	75	75	75	100	100	125	150	200	250	—	—
Star-Delta Starting (50 Hz)													
125	147	166	199	242	242	312	312	364	433	520	727	—	—
125	147	165	199	242	242	312	312	364	433	520	727	—	—
125	147	168	199	242	242	312	312	364	433	520	727	—	—
125	147	168	199 (225)*	242 (268)*	242 (268)*	312 (332)*	312 (332)*	364 (393)*	433 (447)*	520 (546)*	727	—	—
116	139	135	199	199	242	312	312	364	433	520	727	—	—
73	85	99	199	199	242	312	312	364	433	520	727	—	—
—	—	—	80	95	95	113	113	139	165	200	277	—	—
37	45	50	63	75	75	90	90	110	132	160	220	—	—
40	50	50	66	80	80	100	100	125	150	160	250	—	—
63	80	90	110	132	132	160	160	200	250	300	425	—	—
63	80	90	114 (132)*	132 (160)*	132 (160)*	160	160	220	250	315 (335)*	425	—	—
80	90	90	132	132	160	200	200	250	315	375	530	—	—
63	80	90	192	200	220	300	300	355	425	530	750	—	—
—	—	—	110	132	132	160	160	200	220	280	400	—	—

* 415V: Values in () AC-3 and AC-4 lifespan -25%

‡ Approval pending on Cat. No. 100-D210...D860.

IEC Contactors

Specifications

Conventional Coil Type : Electronic — EI	100/104-K			100/104-C, 100S/104S-C							
	05	09	12	09	12	16	23	30	37	43	60
	X	X	X	X	X	X	X	X	X	X	X
	—	—	—	—	—	—	—	—	—	—	—

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

Inrush Current

Rated transformer current = n

n = 30	Rated transformer current	05	09	12	09	12	16	23	30	37	43	60
	≤ 230V [A]	2.9	5.4	5.4	10.9	10.9	10.9	10.9	20	20	23	40.8
≤ 240V [A]	2.9	5.4	5.4	10.9	10.9	10.9	10.9	20	20	23	40.8	
≤ 400V [A]	2.4	4.1	5.4	10.9	10.9	10.9	10.9	20	20	23	40.8	
≤ 415V [A]	2.4	4.1	5.4	10.9	10.9	10.9	10.9	20	20	23	40.8	
≤ 500V [A]	1.8	3.2	3.2	10.9	10.9	10.9	10.9	20	20	23	40.8	
≤ 690V [A]	—	—	—	10.9	10.9	10.9	10.9	20	20	23	40.8	
≤ 1000V [A]	—	—	—	—	—	—	—	—	—	—	—	
230V [kVA]	1.2	2	2	4.3	4.3	4.3	4.3	8	8	9.2	16	
240V [kVA]	1.2	2	2	4.5	4.5	4.5	4.5	8.3	8.3	10	17	
400V [kVA]	1.7	2.8	3.4	7.5	7.5	7.5	7.5	14	14	16	28	
415V [kVA]	1.7	2.8	3.4	7.8	7.8	7.8	7.8	14	14	17	29	
500V [kVA]	1.7	2.8	3.4	9.4	9.4	9.4	9.4	17	17	20	35	
690V [kVA]	2	4	5	13	13	13	13	24	24	27	49	
1000V [kVA]	—	—	—	—	—	—	—	—	—	—	—	
n = 20	≤ 690V [A]	—	—	—	16.3	16.3	16.3	16.3	30	30	34.5	61.3
n = 15	≤ 690V [A]	—	—	—	22	22	22	22	40	40	46	82

60 Hz Peak Inrush/peak rated transformer current

n = 30 [A]	—	—	—	10.9	10.9	10.9	10.9	20	20	23	40.8
200V [kVA]	—	—	—	3.8	3.8	3.8	3.8	6.9	6.9	8.0	14.1
208V [kVA]	—	—	—	3.9	3.9	3.9	3.9	7.2	7.2	8.3	14.7
240V [kVA]	—	—	—	4.5	4.5	4.5	4.5	8.3	8.3	9.6	17.0
480V [kVA]	—	—	—	9.1	9.1	9.1	9.1	16.6	16.6	19.1	33.9
600V [kVA]	—	—	—	11.3	11.3	11.3	11.3	20.8	20.8	23.9	42.4
660V [kVA]	—	—	—	12.5	12.5	12.5	12.5	22.9	22.9	26.3	46.6

60 Hz Peak Inrush/peak rated transformer current

n = 20 [A]	—	—	—	16.3	16.3	16.3	16.3	30	30	34.5	61.3
200V [kVA]	—	—	—	5.6	5.6	5.6	5.6	10.4	10.4	12.0	21.2
208V [kVA]	—	—	—	5.9	5.9	5.9	5.9	10.8	10.8	12.4	22.1
240V [kVA]	—	—	—	6.8	6.8	6.8	6.8	12.5	12.5	14.3	25.5
480V [kVA]	—	—	—	13.6	13.6	13.6	13.6	24.9	24.9	28.7	51.0
600V [kVA]	—	—	—	16.9	16.9	16.9	16.9	31.2	31.2	35.9	63.7
660V [kVA]	—	—	—	18.6	18.6	18.6	18.6	34.3	34.3	39.4	70.1

60 Hz Peak Inrush/peak rated transformer current

n=15 [A]	—	—	—	22	22	22	22	40	40	46	82
200V [kVA]	—	—	—	7.5	7.5	7.5	7.5	13.9	13.9	15.9	28.4
208V [kVA]	—	—	—	7.8	7.8	7.8	7.8	14.4	14.4	16.6	29.5
240V [kVA]	—	—	—	9.0	9.0	9.0	9.0	16.6	16.6	19.1	34.1
480V [kVA]	—	—	—	18.1	18.1	18.1	18.1	33.3	33.3	38.2	68.2
600V [kVA]	—	—	—	22.6	22.6	22.6	22.6	41.6	41.6	47.8	85.2
660V [kVA]	—	—	—	24.9	24.9	24.9	24.9	45.7	45.7	52.6	93.7



100/104-C, 100S/104S-C			100/104-D, 100S-D										
72	85	97	115	140	140	180	180	210	250	300	420	630	860
X	X	X	X	X	—	X	—	—	—	—	—	—	—
—	—	—	X	—	X	—	X	X	X	X	X	X	X

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

40.8	40.8	48.5	60	70	70	85	85	105	125	150	210	—	—
40.8	40.8	48.5	60	70	70	85	85	105	125	150	210	—	—
40.8	40.8	48.5	60	70	70	85	85	105	125	150	210	—	—
40.8	40.8	48.5	60	70	70	85	85	105	125	150	210	—	—
40.8	40.8	48.5	60	70	70	85	85	105	125	150	210	—	—
—	—	—	46	70	70	85	85	105	125	150	210	—	—
16	16	19.3	24	28	28	34	34	42	50	60	84	—	—
17	17	20.2	26	29	29	35	35	44	52	62	87	—	—
28	28	33.6	42	48	48	59	59	73	87	104	145	—	—
29	29	34.9	43	50	50	61	61	75	90	108	151	—	—
35	35	42	52	61	61	74	74	91	108	130	182	—	—
49	49	58	72	84	84	102	102	125	149	179	251	—	—
—	—	—	80	121	121	147	147	182	217	260	364	—	—
61.3	61.3	72.8	90	105	105	128	128	158	188	225	315	—	—
82	82	97	120	140	140	170	170	210	250	300	420	—	—

60 Hz Peak Inrush/peak rated transformer current

40.8	40.8	48.5	60	70	70	85	85	105	125	150	210	—	—
14.4	14.4	16.8	20.8	24.2	24.2	29.4	29.4	36.4	43.3	52.0	72.7	—	—
14.7	14.7	17.5	21.6	25.2	25.2	30.6	30.6	37.8	45.0	54.0	75.7	—	—
17.0	17.0	20.2	24.9	29.1	29.1	35.3	35.3	43.6	52.0	62.4	87.3	—	—
33.9	33.9	40.3	49.9	58.2	58.2	70.7	70.7	87.3	104	125	175	—	—
42.4	42.4	50.4	62.4	72.7	72.7	88.3	88.3	109	130	156	218	—	—
46.6	46.6	55.4	68.6	80.0	80.0	97.2	97.2	120	143	171	240	—	—

60 Hz Peak Inrush/peak rated transformer current

61.3	61.3	72.8	90	105	105	128	128	158	188	225	315	—	—
21.2	21.2	25.2	31.2	36.4	36.4	44.3	44.3	54.7	65.1	77.9	109	—	—
22.1	22.1	26.2	32.4	37.8	37.8	46.1	46.1	56.9	67.7	81.1	113	—	—
25.5	25.5	30.3	37.4	43.6	43.6	53.2	53.2	65.7	78.2	93.5	131	—	—
51.0	51.0	60.5	74.8	87.3	87.3	106	106	131	156	187	262	—	—
63.7	63.7	75.7	93.5	109	109	133	133	164	195	234	327	—	—
70.1	70.1	83.2	103	120	120	146	146	181	215	257	360	—	—

60 Hz Peak Inrush/peak rated transformer current

82	82	97	120	140	140	170	170	210	250	300	420	—	—
28.4	28.4	33.6	41.6	48.5	48.5	58.9	58.9	72.7	86.6	104	145	—	—
29.5	29.5	34.9	43.2	50.4	50.4	61.2	61.2	75.7	90.1	108	151	—	—
34.1	34.1	40.3	49.9	58.2	58.2	70.7	70.7	87.3	104	125	175	—	—
68.2	68.2	80.6	99.8	116	116	141	141	175	208	249	349	—	—
85.2	85.2	100.8	125	145	145	177	177	218	260	312	436	—	—
93.7	93.7	110.9	137	160	160	194	194	240	286	343	480	—	—

2

IEC Contactors

Specifications

2

		100/104-K			100/104-C, 100S/104S-C									
		05	09	12	09	12	16	23	30	37	40*200	40*400	43	60
Coil Type :	Conventional	X	X	X	X	X	X	X	X	X	X	X	X	X
	Electronic — EI	—	—	—	—	—	—	—	—	—	—	—	—	
Switching of 3-phase Capacitors, AC-6b (50 Hz)*														
Single capacitor 40 °C	230V [kVar]	—	—	—	8	8	8.5	9	14	14	—	—	24	28
	240V [kVar]	—	—	—	8	8	8.5	9	14	14	—	—	25	29
	400V [kVar]	—	—	—	8	8	10	12.5	20	24	—	—	35	48
	415V [kVar]	—	—	—	8	8	10	12.5	20	25	—	—	35	50
	500V [kVar]	—	—	—	8	8	10	12.5	20	25	—	—	35	50
	690V [kVar]	—	—	—	8	8	10	12.5	20	25	—	—	35	50
	1000V [kVar]	—	—	—	—	—	—	—	—	—	—	—	—	—
60 °C	230V [kVar]	—	—	—	8	8	8.5	9	12.5	12.5	—	—	18	28
	240V [kVar]	—	—	—	8	8	8.5	9	12.5	12.5	—	—	18	29
	400V [kVar]	—	—	—	8	8	10	12.5	20	21.5	—	—	30	42
	415V [kVar]	—	—	—	8	8	10	12.5	20	22	—	—	30	42
	500V [kVar]	—	—	—	8	8	10	12.5	20	25	—	—	30	42
	690V [kVar]	—	—	—	8	8	10	12.5	20	25	—	—	30	42
	1000V [kVar]	—	—	—	—	—	—	—	—	—	—	—	—	—
Group capacitors 40 °C	230V [kVar]	—	—	—	5	5	8	9	12.5	14	—	—	20	28
	240V [kVar]	—	—	—	5	5	8	9	12.5	14	—	—	20	29
	400V [kVar]	—	—	—	5	5	8	10	15	20	—	—	25	40
	415V [kVar]	—	—	—	5	5	8	10	15	20	—	—	25	40
	500V [kVar]	—	—	—	5	5	8	10	15	20	—	—	25	40
	690V [kVar]	—	—	—	5	5	8	10	15	20	—	—	25	40
	1000V [kVar]	—	—	—	—	—	—	—	—	—	—	—	—	—
60 °C	230V [kVar]	—	—	—	5	5	8	9	12.5	12.5	—	—	18	28
	240V [kVar]	—	—	—	5	5	8	9	12.5	12.5	—	—	18	29
	400V [kVar]	—	—	—	5	5	8	10	15	20	—	—	25	40
	415V [kVar]	—	—	—	5	5	8	10	15	20	—	—	25	40
	500V [kVar]	—	—	—	5	5	8	10	15	20	—	—	25	40
	690V [kVar]	—	—	—	5	5	8	10	15	20	—	—	25	40
	1000V [kVar]	—	—	—	—	—	—	—	—	—	—	—	—	—
60 Hz Single Capacitor — 40 °C														
	200V [kVar]	—	—	—	5	5	8	9	12.5	14	—	—	20	28
	230V [kVar]	—	—	—	5	5	8	9	12.5	14	—	—	20	29
	460V [kVar]	—	—	—	5	5	8	10	15	20	—	—	25	40
	600V [kVar]	—	—	—	5	5	8	10	15	20	—	—	25	40
60 Hz Group Capacitors — 40 °C														
	200V [kVar]	—	—	—	5	5	8	9	12.5	12.5	—	—	18	28
	230V [kVar]	—	—	—	5	5	8	9	12.5	12.5	—	—	18	29
	460V [kVar]	—	—	—	5	5	8	10	15	20	—	—	25	40
	600V [kVar]	—	—	—	5	5	8	10	15	20	—	—	25	40
Switching of Lamps														
Gas discharge lamps AC-5a, 40 °C	open [A]	18	18	18	22.5	25	28	29	40.5	45	65	65	77	81
	enclosed [A]	14.5	14.5	14.5	22.5	25	28	29	37	41	54	54	57	77
Individually compensated:														
Max. capacitance at expected														
Short-circuit current of	10 kA [μF]	750	750	750	1 000	1 000	1 000	1 000	2 700	2 700	—	—	3 200	4 000
	20 kA [μF]	400	400	400	500	500	500	500	1 350	1 350	—	—	1 600	2 000
	50 kA [μF]	—	—	—	200	200	200	200	540	540	—	—	640	800
Filament AC-5b	230/240V [A]	5	9	9	12	16	18	22	30	37	18	25	43	60
Switching of Low Inductive Loads in Home Appliances and Similar Applications per IEC 61095 (50 Hz)														
AC-7a	230V [A]	20	20	20	32	32	32	32	45	45	—	—	63	—
	400V [A]	20	20	20	32	32	32	32	45	45	—	—	63	—
	440V [A]	—	—	—	32	32	32	32	45	45	—	—	63	—
Switching of Motor Load for Home Appliances (50 Hz)														
AC-7b	230V [A]	6	11	11	10.5	14	19	23	30	—	—	—	—	—
	400V [A]	6	11	11	9	12	16	20	30	—	—	—	—	—
	440V [A]	—	—	—	7.5	10	13.5	18	27	—	—	—	—	—

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



100/104-C, 100S/104S-C					100/104-D, 100S-D										
72	85	90*200	90*400	97	115	140	140	180	180	210	250	300	420	630	860
X	X	X	X	X	X	X	—	X	—	—	—	—	—	—	—
—	—	—	—	—	X	—	X	—	X	X	X	X	X	X	X
Switching of 3-phase Capacitors, AC-6b (50 Hz)															
28	28	—	—	28	45	70	70	70	70	98	98	125	139	—	—
29	29	—	—	29	47	73	73	73	73	102	102	131	145	—	—
48	48	—	—	48	78	121	121	121	121	170	170	218	242	—	—
50	50	—	—	50	81	126	126	126	126	176	176	226	252	—	—
55	60	—	—	60	97	152	152	152	152	212	212	273	303	—	—
55	60	—	—	60	134	209	209	209	209	293	293	376	418	—	—
—	—	—	—	—	194	303	303	303	303	424	424	546	606	—	—
28	28	—	—	28	38	59	59	59	59	84	84	106	119	—	—
29	29	—	—	29	39	61	61	61	61	87	87	111	124	—	—
48	48	—	—	48	65	102	102	102	102	145	145	184	206	—	—
50	50	—	—	50	68	106	106	106	106	151	151	191	214	—	—
50	55	—	—	55	82	127	127	127	127	182	182	230	258	—	—
50	55	—	—	55	113	176	176	176	176	251	251	318	356	—	—
—	—	—	—	—	164	255	255	255	255	364	364	461	515	—	—
28	28	—	—	28	45	70	70	70	70	98	98	125	139	—	—
29	29	—	—	29	47	73	73	73	73	102	102	131	145	—	—
48	48	—	—	48	56	76	76	111	111	170	170	218	242	—	—
50	50	—	—	50	56	76	76	112	112	170	176	226	252	—	—
50	50	—	—	50	56	76	76	113	113	172	212	273	303	—	—
50	50	—	—	50	57	78	78	114	114	174	247	356	418	—	—
—	—	—	—	—	58	79	79	116	116	177	251	361	606	—	—
28	28	—	—	28	38	59	59	59	59	84	84	106	119	—	—
29	29	—	—	29	39	61	61	61	61	87	87	111	124	—	—
48	48	—	—	48	56	76	76	102	102	145	145	184	206	—	—
50	50	—	—	50	56	76	76	106	106	151	151	191	214	—	—
50	50	—	—	50	56	76	76	113	113	172	182	230	258	—	—
50	50	—	—	50	57	78	78	114	114	174	247	318	356	—	—
—	—	—	—	—	58	79	79	116	116	177	251	361	515	—	—
60 Hz Single Capacitor — 40 °C															
28	28	—	—	28	39	61	61	61	61	85	85	109	121	—	—
29	29	—	—	29	45	70	70	70	70	98	98	125	139	—	—
50	50	—	—	50	89	139	139	139	139	195	195	251	279	—	—
50	50	—	—	50	116	182	182	182	182	255	255	327	364	—	—
60 Hz Group Capacitor — 40 °C															
28	28	—	—	28	39	61	61	61	61	85	85	109	121	—	—
29	29	—	—	29	45	70	70	70	70	98	98	125	139	—	—
50	50	—	—	50	56	76	76	112	112	171	195	251	279	—	—
50	50	—	—	50	57	77	77	114	114	173	246	327	364	—	—
Switching of Lamps															
85	90	115	115	115	144	225	225	225	225	315	315	405	450	—	—
81	90	95	95	100	122	189	189	189	189	270	270	342	383	—	—
Individually compensated:															
Max. capacitance at expected															
4 000	4 700	—	—	4 700	—	—	—	—	—	—	—	—	—	—	—
2 000	2 350	—	—	2 350	—	—	—	—	—	—	—	—	—	—	—
800	940	—	—	940	—	—	—	—	—	—	—	—	—	—	—
70	76	60	75	90	120	140	140	170	170	210	250	300	420	—	—
Switching of Low Inductive Loads in Home Appliances and Similar Applications per IEC 61095 (50 Hz)															
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Switching of Motor Load for Home Appliances (50 Hz)															
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

IEC Contactors

Specifications

2

Coil Type :		100/104-K			100/104-C, 100S/104S-C										
		05	09	12	09	12	16	23	30	37	40*200	40*400	43	60	
		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Conventional		X	X	X	X	X	X	X	X	X	X	X	X	X	
Electronic — EI		—	—	—	—	—	—	—	—	—	—	—	—	—	
Switching of Hermetically Sealed Cooling Compressor Motors - manual reset of overload release (50 Hz)															
AC-8a	400V	[A]	11	18	18	12	16	22	32	38	45	—	—	63	72
	500V	[A]	10	15	15	12	16	22	32	38	45	—	—	63	72
	690V	[A]	—	—	—	8	10	14	20	28	35	—	—	42	56
- automatic reset of overload release															
AC-8b	400V	[A]	—	—	—	5.5	7	9.3	12	13	14	—	—	16	24
	500V	[A]	—	—	—	5.5	7	9.3	12	13	14	—	—	16	24
	690V	[A]	—	—	—	5.5	7	9.3	12	13	14	—	—	16	24
Switching of DC Loads															
Non-inductive or slightly inductive loads or resistance furnaces DC-1, 60 °C															
1 pole	24V	[A]	6	9	9	25	25	32	32	45	45	45	45	50	70
	48/60V	[A]	4/1	6/1.5	6/1.5	20	20	20	20	25	25	25	25	30	40
	110V	[A]	0.6	1	1	6	6	6	6	8	8	10	10	9	11
	220V	[A]	0.2	0.3	0.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2
	440V	[A]	0.08	0.1	0.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5
2 poles in series	24V	[A]	6	9	9	25	25	32	32	45	45	45	45	50	70
	48/60V	[A]	6	8	8	25	25	32	32	45	45	45	45	50	70
	110V	[A]	4	6	6	25	25	32	32	45	45	45	45	50	70
	220V	[A]	0.8	1.2	1.2	8	8	8	10	10	10	10	10	10	15
3 poles in series	440V	[A]	0.2	0.3	0.3	1	1	1	1	1	1	1	1	1	1.5
	24V	[A]	6	9	9	25	25	32	32	45	45	—	45	63	90
	48/60V	[A]	6	9	9	25	25	32	32	45	45	—	45	63	90
	110V	[A]	6	9	9	25	25	32	32	45	45	—	45	63	90
3 poles in series	220V	[A]	3	4	4	25	25	32	32	45	45	—	45	50	70
	440V	[A]	0.4	0.6	0.6	3	3	3	3	3.5	3.5	—	3.5	4	5
	Shunt-wound Motors														
Starting, reverse current braking, reversing, stepping DC-3, 60 °C															
3 poles in series	24V	[A]	5	9	9	25	25	32	32	45	45	—	—	63	90
	48/60V	[A]	4	6	6	25	25	32	32	45	45	—	—	50	70
	110V	[A]	2	3	3	20	20	25	25	30	30	—	—	35	70
	220V	[A]	0.8	1.2	1.2	6	6	6	10	15	15	—	—	20	25
	440V	[A]	0.15	0.2	0.2	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]	5	9	9	25	25	32	32	45	45	—	—	63	90
	48/60V	[A]	2	3	3	25	25	32	32	45	45	—	—	50	70
	110V	[A]	0.6	1	1	20	20	25	25	30	30	—	—	35	70
	220V	[A]	0.1	0.1	0.1	6	6	6	10	15	15	—	—	20	25
	440V	[A]	—	—	—	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]	60	96	96	170	170	170	215	300	304	304	304	375	700
Resistance and Power Dissipation															
Main current circuit resistance		[mΩ]	2.2	2.2	2.2	2.7	2.7	2.7	2	2	2	2	1.5	1.5	0.9
Power dissipation by all circuits at I_e AC-3/400V		[W]	0.3	0.9	0.9	0.66	1.2	2.1	3.2	5.4	8.2	11.3	8.4	8.3	9.7
Total power dissipation															
At I_e AC-3/400V	AC	[W]	2.1	2.7	2.7	3.3	3.8	4.7	6.2	8.4	11.2	26.1	37.4	11.5	11
	DC	[W]	2.9	3.5	3.5	6.7	7.2	8.1	12.4	14.6	17.4	32.6	43.9	18.4	11
Lifespan															
Mechanical AC control		[Mil. operations]	15	15	15	13	13	13	13	13	13	10	10	12	6
Mechanical DC control		[Mil. operations]	15	15	15	13	13	13	13	13	13	10	10	13	6
Electrical AC-3 (400 V)		[Mil. operations]	0.7	0.7	0.7	1.3	1.3	1.3	1.3	1.3	1.3	—	—	1	1
Weight															
AC	Non-Rev.	kg (lbs.)	0.16 (0.35)	0.16 (0.35)	0.16 (0.35)	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)	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)	3.14 (6.92)
DC	Non-Rev.	kg (lbs.)	0.2 (0.44)	0.2 (0.44)	0.2 (0.44)	0.6 (1.32)	0.6 (1.32)	0.6 (1.32)	0.73 (1.61)	0.85 (1.87)	0.85 (1.87)	1.12 (2.46)	1.12 (2.46)	1.0 (2.20)	1.47 (3.24)
	Rev.	kg (lbs.)	—	—	—	1.27 (2.81)	1.27 (2.81)	1.27 (2.81)	1.53 (3.39)	1.81 (4.0)	1.81 (4.0)	—	—	2.13 (4.7)	3.22 (7.1)

100/104-C, 100S/104S-C					100/104-D, 100S-D										
72	85	90*200	90*400	97	115	140	140	180	180	210	250	300	420	630	860
X	X	X	X	X	X	X	—	X	—	—	—	—	—	—	—
—	—	—	—	—	X	—	X	—	X	X	X	X	X	X	X
Switching of Hermetically Sealed Cooling Compressor Motors - manual reset of overload release (50 Hz)															
85	100	—	—	115	192	210	210	—	—	—	—	—	—	—	—
85	100	—	—	115	192	192	210	—	—	—	—	—	—	—	—
67	80	—	—	90	192	192	210	—	—	—	—	—	—	—	—
- automatic reset of overload release															
30	35	—	—	35	—	—	—	—	—	—	—	—	—	—	—
30	35	—	—	35	—	—	—	—	—	—	—	—	—	—	—
30	35	—	—	35	—	—	—	—	—	—	—	—	—	—	—
Switching of DC Loads															
Non-inductive or slightly inductive loads or resistance furnaces DC-1, 60 °C															
80	80	80	80	80	135	210	210	210	210	300	300	380	425	—	—
40	40	40	40	40	135	210	210	210	210	300	300	380	425	—	—
11	11	11	11	11	135	210	210	210	210	300	300	380	425	—	—
2	2	1.8	1.8	2	3	3.3	3.3	3.3	3.3	4.9	4.9	4.9	5.2	—	—
0.5	0.5	0.5	0.5	0.5	0.6	0.75	0.75	0.75	0.75	1	1	1	1.2	—	—
80	80	80	80	80	135	210	210	210	210	300	300	380	425	—	—
80	80	80	80	80	135	210	210	210	210	300	300	380	425	—	—
80	80	80	80	80	135	210	210	210	210	300	300	380	425	—	—
15	15	15	15	15	135	210	210	210	210	300	300	380	425	—	—
1.5	1.5	1.5	1.5	1.5	3	3.3	3.3	3.3	3.3	4.9	4.9	4.9	5.2	—	—
90	100	—	100	100	135	210	210	210	210	300	300	380	425	—	—
90	100	—	100	100	135	210	210	210	210	300	300	380	425	—	—
90	100	—	100	100	135	210	210	210	210	300	300	380	425	—	—
80	80	—	80	80	135	210	210	210	210	300	300	380	425	—	—
5	5	—	5	5	11	11	11	11	11	14	14	14	15	—	—
Shunt-wound Motors															
Starting, reverse current braking, reversing, stepping DC-3, 60 °C															
90	100	—	—	100	135	210	210	210	210	300	300	380	425	—	—
70	80	—	—	80	135	210	210	210	210	300	300	380	425	—	—
70	80	—	—	80	135	210	210	210	210	300	300	380	425	—	—
25	30	—	—	30	135	210	210	210	210	300	300	380	425	—	—
0.6	0.6	—	—	0.6	3	3.5	3.5	3.5	3.5	4.1	4.1	4.1	5.8	—	—
Series-wound Motors															
Starting, reverse current braking, reversing, stepping DC-5, 60 °C															
90	100	—	—	100	135	210	210	210	210	300	300	380	425	—	—
70	80	—	—	80	135	210	210	210	210	300	300	380	425	—	—
70	80	—	—	80	135	210	210	210	210	300	300	380	425	—	—
25	30	—	—	30	135	210	210	210	210	300	300	380	425	—	—
0.6	0.6	—	—	0.6	1.2	2.1	2.1	2.1	2.1	2.4	2.4	2.4	3	—	—
Short Time Withstand I_{CW} , 60 °C															
700	700	700	700	840	1040	1240	1360	1480	1480	2360	2520	2840	4700	6300	7000
Resistance and Power Dissipation															
0.9	0.9	0.8	0.7	0.6	0.4	0.42	0.42	0.42	0.42	0.22	0.22	0.18	0.15	0.19	0.14
14	19.5	13.5	11.8	17	14.5	24.6	24.6	40.8	40.8	29.4	41.7	48.6	79.5	78.4	103.2
Total power dissipation															
13.8	17.5	36	56.3	26	24.5 (20.5)	34.6	30.6	50.8	46.8	35.4	47.7	54.6	86.5	105.4	133.2
13.8	17.5	32.5	52.8	23	22.5 (20.5)	32.6	30.6	48.8	46.8	35.4	47.7	54.6	86.5	105.4	133.2
Lifespan															
6	6	6	6	6	10	10	10	10	10	10	10	10	10	2	2
6	6	6	6	6	10	10	10	10	10	10	10	10	10	2	2
1	1	—	—	1	1	1	1	1	1	1	1	1	1	—	—
Weight															
1.45 (3.2)	1.45 (3.2)	—	—	1.45 (3.2)	3.3 (7.28) [3.8 (8.38)]*	3.3 (7.28)	3.8 (8.38)	3.3 (7.28)	3.8 (8.38)	7.5 (16.53)	7.5 (16.53)	7.5 (16.53)	7.5 (16.53)	28.6 (63)	28.6 (63)
3.14 (6.92)	3.14 (6.92)	—	—	3.14 (6.92)	—	—	—	—	—	—	—	—	—	—	—
1.47 (3.24)	1.47 (3.24)	—	—	1.47 (3.24)	3.3 (7.28) [3.8 (8.38)]*	3.3 (7.28)	3.8 (8.38)	3.3 (7.28)	3.8 (8.38)	7.5 (16.53)	7.5 (16.53)	7.5 (16.53)	7.5 (16.53)	28.6 (63)	28.6 (63)
3.22 (7.1)	3.22 (7.1)	—	—	3.22 (7.1)	—	—	—	—	—	—	—	—	—	—	—

* Values in brackets refer to electronic coil (EI) version.

IEC Contactors

Specifications




Coil Type : Conventional Electr. — EI			100-KR		100/104-K			100/104-C, 100S/104S-C											
			05	09	05	09	12	09	12	16	23	30	37	40	43	60	72	85	97
			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
			—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Conductor Cross Sections - Main Contacts																			
Terminal type					*	*												‡	
	(1) conductor	[mm ²]	0.50...2.5	0.75...2.5	1...4	2.5...10	2.5...16	2.5...35	2.5...35										
	(2) conductors	[mm ²]	0.50...2.5	0.75...2.5	1...4	2.5...10	2.5...10	2.5...25	2.5...35										
	(1) conductor	[mm ²]	0.75...2.5§	1...4	1.5...6	2.5...16	2.5...25	2.5...50	2.5...50										
	(2) conductors	[mm ²]	0.75...2.5§	1...2.5+ 1...4	1.5...6	2.5...16	2.5...16	2.5...35	2.5...50										
	b max.	[mm]	—	—	—	—	—	—	—										
	c max.	[mm]	—	—	—	—	—	—	—										
	s max.	[mm]	—	—	—	—	—	—	—										
	Ø min.	[mm]	—	—	—	—	—	—	—										
	Recommended torque	[N•m]	—	1.2	1.5...2.0	2.5...3.5	2.5...3.5	4.5...6											
	Cross section per UL/CSA	[AWG]	18...14§	18...12	16...10	14...6	14...6	14...4	14...1										
	Recommended torque	[lb-in]	—	10.6	13.3...17.7	22...31	22...31	40...53											
With terminal lug kit			—	—	—	—	—	—	—										
	Cross section per UL/CSA	[AWG]	—	—	—	—	—	—	—										
	Recommended torque	[lb-in]	—	—	—	—	—	—	—										
With Frame Terminal Block			—	—	—	—	—	—	—										
	top opening	[mm ²]	—	—	—	—	—	—	—										
	bottom opening	[mm ²]	—	—	—	—	—	—	—										
	top opening	[mm ²]	—	—	—	—	—	—	—										
	bott. opening	[mm ²]	—	—	—	—	—	—	—										
	b max.	[mm ²]	—	—	—	—	—	—	—										
	s top	[mm ²]	—	—	—	—	—	—	—										
	s bottom	[mm ²]	—	—	—	—	—	—	—										
	Recommended torque	[N•m]	—	—	—	—	—	—	—										
	Cross section per UL/CSA	[AWG]	—	—	—	—	—	—	—										
	top	[AWG]	—	—	—	—	—	—	—										
	bottom	[AWG]	—	—	—	—	—	—	—										
	Recommended torque	[lb-in]	—	—	—	—	—	—	—										

* Pozidriv No. 2 / Blade No. 3 screw

‡ Pozidriv No. 2 / Blade No. 4 screw

‡ Hexagonal socket screw

§ Fine- or coarse-stranded only

100/104-D, 100S-D								
115	140	180	210	250	300	420	630	860
X	X	X	—	—	—	—	—	—
X	X	X	X	X	X	X	X	X
								
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
25	—	—	—	30	—	—	52	52
12.5	—	—	—	15	—	—	22	22
5	—	—	—	6	—	—	2 x 8	2 x 8
8.3	—	—	—	10.5	—	—	13	13
22	—	—	—	43	—	—	68	68
—	—	—	—	—	—	—	—	—
195	—	—	—	380	—	—	600	600
100-DL180‡	—	—	—	100-DL420‡	—	—	100-DL630	100-DL860
6...300 MCM	—	—	—	(2x) 4...350 MCM	—	—	(2X) 2/0...500MCM	(4X) 2/0...500MCM
88...106	—	—	—	375	—	—	400	400
100-DTB180‡	—	—	—	100-DTB420*	—	—	—	—
16...35	—	—	—	25...185*	—	—	—	—
16...95	—	—	—	25...185	—	—	—	—
16...50	—	—	—	25...240	—	—	—	—
16...120	—	—	—	25...240	—	—	—	—
20	—	—	—	25	—	—	—	—
3...9	—	—	—	6...20	—	—	—	—
3...14	—	—	—	6...20	—	—	—	—
14	—	—	—	25	—	—	—	—
6...1 / 0 AWG	—	—	—	4 AWG...600 MCM	—	—	—	—
6 AWG...250 MCM	—	—	—	4 AWG...600 MCM	—	—	—	—
124	—	—	—	220	—	—	—	—

* Pozidriv No. 2 / Blade No. 3 screw
 * Pozidriv No. 2 / Blade No. 4 screw
 ‡ Hexagonal socket screw
 § Hexagonal screw

IEC Contactors

Specifications

Short-Circuit Coordination Data†

Coil Type :	Conventional Electronic - EI	100/104-K						100/104-C, 100S/104S-C												
		05	09	12	09	12	16	23	30	37	40*200	40*400	43	60	72	85	90*200	90*400	97	
		X	X	X	X	X	X	X	X	X	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		50 kA Available Fault Current																	
Type "1" (690V)	[A]	35	35	35	50	50	50	80	125	125	160	160	160	250	250	250	250	250	250
Type "2" (400V)	[A]	16	20	20	25	35	35	40	80	80	63	80	100	160	160	160	160	100	200
Type "2" (690V)	[A]	—	—	—	25	35	35	40	80	80	63	80	100	160	160	160	160	100	200
BS88 Fuses		65 kA Available Fault Current																	
Type "1" (415V)	[A]	—	—	—	25	32	40	50	63	80	—	—	80	100	160	160	—	—	TBD
Type "2" (415V)	[A]	—	—	—	20	25	32	50	63	80	—	—	80	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		5 kA Available Fault Current																	
UL Listed Combination (600V)	[A]	40	40	40	35	40	70	90	110	125	125	125	150	200	—	—	—	—	—
UL Class K5 and RK5 Fuses		10 kA Available Fault Current																	
UL Listed Combination (600V)	[A]	—	—	—	—	—	—	—	—	—	—	—	—	—	250	300	300	300	350
UL Class L Fuses		18 kA Available Fault Current																	
UL Listed Combination (600V)	[A]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
UL Class L Fuses		30 kA Available Fault Current																	
UL Listed Combination (600V)	[A]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
UL Class L Fuses		42 kA Available Fault Current																	
UL Listed Combination (600V)	[A]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
UL Class CC and CSA HRCI-MISC Fuses		50 kA Available Fault Current																	
UL Listed Combination (600V)	[A]	30	30	30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
UL Class J and CSA HRCI-J Fuses		50 kA Available Fault Current																	
UL Listed Combination (600V)	[A]	30	30	30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
UL Class CC and CSA HRCI-MISC Fuses		100 kA Available Fault Current																	
UL verified combination to IEC 60947-4-1 "Type 2"	[A]	—	—	—	20§	20	30	40	—	—	—	—	—	—	—	—	—	—	—
UL Class J and CSA HRCI-J Fuses		100 kA Available Fault Current																	
UL verified combination to IEC 60947-4-1 "Type 2"	[A]	—	—	—	20§	20	30	40	50	50	—	—	70	80	100	150	—	—	TBD
UL Inverse-Time Circuit Breaker		5 kA Available Fault Current																	
UL Listed Combination (480V)	[A]	—	—	—	30	30	50	50	125	125	—	—	125	250	—	—	—	—	—
UL Listed Combination (600V)	[A]	—	—	—	—	—	—	—	125	125	—	—	125	250	—	—	—	—	—
UL Inverse-Time Circuit Breaker		10 kA Available Fault Current																	
UL Listed Combination (600V)	[A]	—	—	—	—	—	—	—	—	—	—	—	—	—	250	250	—	—	250
UL Inverse-Time Circuit Breaker		18 kA Available Fault Current																	
UL Listed Combination (600V)	[A]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
UL Inverse-Time Circuit Breaker		30 kA Available Fault Current																	
UL Listed Combination (600V)	[A]	—	—	—	—	—	—	—	50	50	—	—	50	110	110	110	—	—	TBD
UL Inverse-Time Circuit Breaker		42 kA Available Fault Current																	
UL Listed Combination (600V)	[A]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
UL Inverse-Time Circuit Breaker		50 kA Available Fault Current																	
UL Listed Combination (480V)	[A]	—	—	—	—	—	—	—	50	50	—	—	50	—	—	—	—	—	—
UL Inverse-Time Circuit Breaker		65 kA Available Fault Current																	
UL Listed Combination (480V)	[A]	—	—	—	—	—	—	—	—	—	—	—	—	110	110	110	—	—	TBD

§ 15 A max. fuse for Type 2 coordination.

† See www.ab.com/certifications/ul508a for complete short-circuit current ratings.



100/104-D, 100S-D									
115	140/180	140	180	210	250	300	420	630	860
X	X	—	—	—	—	—	—	—	—
X	—	X	X	X	X	X	X	X	X

50 kA Available Fault Current									
250	315	315	355	500	500	630	630	*	*
200	250	250	315	400	400	500	500	*	*
200	250	250	315	400	400	500	500	*	*

65 kA Available Fault Current									
200	250	250	250	355	355	450	630	*	*
200	250	250	250	355	355	450	560	*	*

5 kA Available Fault Current									
—	—	—	—	—	—	—	—	—	—

10 kA Available Fault Current									
250	350/450	350	450	500	—	—	—	—	—

18 kA Available Fault Current									
—	—	—	—	—	700	700	1000	—	—

30 kA Available Fault Current									
—	—	—	—	—	—	—	—	2000	—

42 kA Available Fault Current									
—	—	—	—	—	—	—	—	—	2500

50 kA Available Fault Current									
—	—	—	—	—	—	—	—	—	—

50 kA Available Fault Current									
—	—	—	—	—	—	—	—	—	—

100 kA Available Fault Current									
—	—	—	—	—	—	—	—	—	—

100 kA Available Fault Current									
200	250/300	250	300	400	400	500	600	*	*

5 kA Available Fault Current									
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—

10 kA Available Fault Current									
150	200/250	200	250	300	—	—	—	—	—

18 kA Available Fault Current									
—	—	—	—	—	400	400	600	—	—

30 kA Available Fault Current									
125	200	200	200	250	400	400	600	1200	—

42 kA Available Fault Current									
—	—	—	—	—	—	—	—	—	1200

50 kA Available Fault Current									
—	—	—	—	—	—	—	—	—	—

65 kA Available Fault Current									
125	200	200	200	250	400	400	600	*	*

* To be determined.

IEC Contactors

Specifications

2



Coil Type			100/104-K			100/104-C, 100S/104S-C																				
			05	09	12	09	12	16	23	30	37	40*200	40*400	43	60	72	85	90*200	90*400	97						
			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
Conventional			Electronic — EI																							
Operating Limits																										
50 Hz, 60 Hz, 50/60 Hz	pick-up	[x Us]	0.85...1.1			0.85...1.1			0.85...1.1			0.85...1.1														
	dropout	[x Us]	0.2...0.75			0.3...0.6			0.3...0.6			0.3...0.6														
DC (conventional)	pick-up	[x Us]	0.8...1.1 0.7...1.25§			0.8...1.1			0.8...1.1			0.8...1.1														
	dropout	[x Us]	0.1...0.75			0.1...0.6			0.1...0.6			0.1...0.6														
DC (electronic)	pick-up	[x Us]	—			0.7...1.25			—																	
	dropout	[x Us]	—			0.4			—																	
Coil Consumption																										
50 Hz, 60 Hz, 50/60 Hz	pick-up	[VA/W]	35/32			70/50			70/50			80/60			130/90			130/90			200/110			400/240		
	hold-in	[VA/W]	5/1.8			8/2.6			9/3			9/3			12/3.6			10/3.2			16/4.5			24/9		
DC (conventional)	pick-up	[W]	cold 3.0, warm 2.6			6.5			9.2			9.2			10.1			10.1			200			325		
	hold-in	[W]	cold 3.0, warm 2.6			6.5			9.2			9.2			10.1			10.1			4.5			5.5		
DC (electronic)	pick-up (avg/peak)	[W]	—			10/17			10/17			16/25			—			—								
	hold-in	[W]	—			1.7			1.7			2.5			—			—								
Operating Times																										
AC	closing delay	[ms]	15...40			15...30			15...30			15...30			15...30			20...40			20...40					
	opening delay	[ms]	15...33			10...60			10...60			10...60			10...60			10...60			20...40					
With RC module	opening delay	[ms]	15...28			10...60			10...60			10...60			10...60			10...60			20...40					
DC (conventional)	closing delay	[ms]	18...40			40...70			40...70			50...80			50...80			20...40			15...25 20...25 20...25					
	opening delay	[ms]	6...12			7...15			7...15			7...15			7...15			—			—					
With integ. diode	opening delay	[ms]	8...12			14...20			17...23			17...23			—			17...23			≤ 220V 20...35 ≤ 220V 20...35					
With external diode	opening delay	[ms]	35...50			70...95			80...125			80...125			—			80...125			—					
DC (electronic)	closing delay	[ms]	—			—			25...50			—			—			—								
	opening delay	[ms]	—			—			25...50			—			—			—								
Max. Ripple		—			—			± 15%			—			—			—									
Min. OFF time	[ms]	—			—			200			—			—			—									

§ For 9, 12, 24, and 110V DC coils

Coil Type			100/104-D, 100S-D											
			95/110	140/180	115	140	180	210	250	300	420	630	860	
			X	X	—	—	—	—	—	—	—	—	—	—
Conventional			Electronic — EI											
Operating Limits														
50 Hz, 60 Hz, 50/60 Hz	pick-up	[x Us]	0.85...1.1			0.85...1.1			0.85...1.1			0.8...1.1		
	dropout	[x Us]	0.3...0.6			0.3...0.5			0.3...0.5			0.1...0.8		
DC control	pick-up	[x Us]	0.85...1.1			0.85...1.1			0.85...1.1			0.85...1.1		
	dropout	[x Us]	0.3...0.6			0.3...0.5			0.3...0.5			0.1...0.8		
Coil Consumption														
50 Hz, 60 Hz, 50/60 Hz	pick-up	[VA/W]	650/310			380/240*			490/270*			1915/1720		
	hold-in	[VA/W]	50/10			13/6			18/7			33/30		
DC control	pick-up	[W]	540			265*			340*			1980*		
	hold-in	[W]	8			6			7			30		
Operating Times														
AC	closing delay	[ms]	20...47			20...45			20...45			60...100		
	opening delay	[ms]	6...12			25...110			25...110			70...145		
With RC module	opening delay	[ms]	9...18			—			—			—		
DC	closing delay	[ms]	27...47			25...50			25...50			60...100		
	opening delay	[ms]	12...20			35...110			35...110			70...145		
Integrated diode	opening delay	[ms]	12...20			—			—			—		
External diode	opening delay	[ms]	—			—			—			—		

* Electronic coil drives are designed to minimize power requirements, but this control may exhibit a higher inrush (540 W, < 10 ms) when energizing. This must be taken into account for the proper sizing of supply devices, all-or-nothing relays and cross-sections of coil supply lines. Please contact your local Rockwell Automation sales office or Allen-Bradley distributor for detailed information.

Auxiliary Contacts, Auxiliary Contact Blocks, and Pneumatic Timers

	100-K		100-C, 100S-C				100-D, 100S-D			
	Internal	Front-mounted	Internal	Front-mounted	Front-mounted (Bifurcated)	Side-mounted	Side-mounted			
							Convent'l	Bifurcated	Electronically compatible	
Switching of AC Loads										
AC-12 I _{th}	at 40 °C [A]	10	10	20	10	10	10	16	10	0.1
	at 60 °C [A]	6	6	20	6	6	6	12	6	at 250V
AC-15 at rated voltage of										
	24V [A]	6	3	10	6	3	6	5.5	3	(1...100 mA) at 3...125V
	42/48V [A]	6	3	10	6	3	6	5.5	3	
	120V [A]	6	3	10	6	3	6	5.5	3	
	230V [A]	3	2	10	5.5	3	5.5	5.5	3	
	240V [A]	3	2	10	5	3	5	5	3	
	400V [A]	1.8	1.2	6	3	2	3	3	2	
	415V [A]	1.8	1.2	6	3	2	3	2.5	2	
	500V [A]	1.4	1.0	2.5	1.6	1.2	1.6	1.6	1.2	
	690V [A]	1.0	0.6	1	1	0.7	1	1	0.7	
Switching of DC Loads										
DC-12 L/R < 1 ms resistive loads at										
	24V DC [A]	6	—	12	12	6	6	16	16	—
	48V DC [A]	4	—	9	9	3.2	3.2	9	9	—
	110V DC [A]	0.6	—	3.5	3.5	0.45	0.45	3.5	3.5	—
	220V DC [A]	0.2	—	0.55	0.55	0.18	0.18	0.55	0.55	—
	440V DC [A]	0.08	—	0.2	0.2	0.1	0.1	0.2	0.2	—
DC-14 L/R < 15 ms inductive loads with economy resistor in series at										
	24V DC [A]	4	—	9	9	2	2	9	9	—
	48V DC [A]	2.5	—	5	5	1.6	1.6	5	5	—
	110V DC [A]	0.4	—	2	2	0.3	0.3	2	2	—
	220V DC [A]	0.12	—	0.4	0.4	0.12	0.12	0.4	0.4	—
	440V DC [A]	0.05	—	0.16	0.16	0.05	0.05	0.16	0.1	—
DC-13 switching electromagnets at										
	24V DC [A]	2.8	2.3	5	5	2.5	5	5	5	(1...100 mA) at 3...125V
	48V DC [A]	1.2	1	3	3	1.5	2.5	2	2	
	110V DC [A]	0.55	0.55	1.2	1.2	0.6	0.68	0.7	0.7	
	220V DC [A]	0.27	0.27	0.6	0.6	0.3	0.32	0.25	0.25	
	440V DC [A]	0.15	0.15	0.3	0.15	0.15	0.15	0.12	0.12	
Fuse gG										
Short-circuit protection with no welding of contacts per IEC 60947-5-1										
	 [A]	10	10	20	10	10	10	16	16	—
	 [A]	10	10	20	10	10	10	16	16	—
Protective Separation per IEC 60947-1, Annex N	—	—	between load and auxiliary circuit 320V	between load and auxiliary circuit 440V	between load and auxiliary circuit 440V					
Min. switching capacity according to IEC 60947-5-4	15V/10 mA	15V/2 mA	17V/10 mA	17V/5 mA	5V/3 mA	17V/10 mA	17V/10 mA	5V/2 mA (1 Mio. ops.)	3V/1 mA	
Failure rate	—	—	—	—	—	—	—	<10-8 (less than 1 failure to 100 Mio. operations)	—	
Load Carrying Capacity per UL/CSA										
Rated voltage	AC [V]	max. 600		max. 600			max. 600		max. 250	
Continuous rating	40 °C [A]	10		10	10	10	10	10 General purpose		0.1
Switching capacity	AC [A]	A 600	B 600	A 600			Heavy pilot duty (A 600)		0.1	
Rated voltage	DC [V]	max. 600		max. 600			max. 600		max. 250	
Switching capacity	DC [A]	Q 600		P 600	Q 600	Q 600		Standard pilot duty (P 600)	Standard pilot duty (Q 600)	0.1

IEC Contactors

Specifications

General

	100-K	100-C, 100S-C	100-D, 100S-D
	05...12	09...97	95...420
Rated Isolation Voltage U_i			
IEC [V]	690	690	1000
UL, CSA [V]	600	600	600
Rated Impulse Voltage Withstand U_{imp} [kV]	6	6	12
Rated Voltage U_e			
AC 50/60 Hz [V]	230, 240, 400, 415, 460, 500, 575, 690	115, 200, 230, 240, 400, 415, 460, 500, 575, 690	230, 240, 400, 415, 500, 690, 1000
DC [V]	24, 48, 110, 220, 440	24, 48, 110, 220, 440	24, 48, 110, 220, 440
Insulation Class of the Coil	Class F per IEC 60085 Class 105 insulation system per UL 508	Class F per IEC 60085	Class B per VDE 0660, Table 22
Rated coil frequency	AC 50/60 Hz, DC	AC 50/60 Hz, DC	AC 50 Hz, 50/60 Hz, DC
Ambient Temperature			
Storage [°C]	-55...+80	-55...+80	-40...+80
Operation at rated voltage [°C]	-25...+60	-25...+60	-25...+60
at 70 °C	15% current reduction against 60°C values		
Climatic Withstand	IEC 60068-2-30	IEC 60068-2-1 / -2 / -30	IEC 60068-2-30
Max. Altitude of Installation Site [m]	2000 NN, per IEC 60947-4	2000 NN, per IEC 60947-1	2000 NN, per IEC 60947-4
Protection Class	IP2X	IP2X	IP00 IEC 60529 / DIN 40 050
Single contactor cover	—	—	IP10 IEC 60529 / DIN 40 050
Contactors with frame terminal block	—	—	IP20 IEC 60529 / DIN 40 050
Auxiliary contact	IP2X	—	IP20 IEC 60529 / DIN 40 050
Protection against Accidental Contact	—	Finger and back-of-hand proof per VDE 0106, part 100	Finger and back-of-hand proof per VDE 0106, part 100
Resistance to Shock	IEC 60068-2	IEC 60068-2-27	IEC 60068-2-27
Resistance to Vibration	IEC 60068-2	IEC 60068-2-6	IEC 60068-2-6
Mechanically Linked Contacts IEC 60947-5-1, Annex L	100-K... (on main device)	100- / 100S-C09...C97 + 100-FA/-FB/-FC, (except L11, L22), 100- / 100S-C09...C43 + 100-FAB/-FBB/-FCB	—
Mirror Contacts IEC 60947-4 Annex F	100-K... + 100-KF...	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	100-D... + 2 x 100-DS1-11 100S-D... + 2 x 100S-DS1-11
Standards Compliance	IEC/EN 60947-1/-4-1/-5-1; UL 508; CSA 22.2. No. 14	IEC/EN 60947-1/-4-1/-5-1; UL 508; CSA 22.2. No. 14	IEC/EN 60947-1/-4-1/-5-1; UL 508; CSA 22.2. No. 14
Certifications	CE, cULus CCC	CE, cULus, CCC	CE, cULus, CCC

2



IEC Contactors

Specifications

Electrical Life in Utilization Category

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 the table below.
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:

$L_{mixed} = Lac3/[1 + Pac4*(Lac3/Lac4 - 1)]$, where:

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

$Lac3$ = Approximate contact life in operations for a pure AC-3 utilization category (from the AC-3 life-load curves)

$Lac4$ = Approximate contact life in operations for a pure AC-4 utilization category (from the AC-4 life-load curves)

$Pac4$ = Percentage of AC-4 operations

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*, inching*	$I_e < 17\text{ A}$	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	

I_e Rated operational current / Making Current

U_e Rated voltage / I_c Breaking Current

U_r Recovery voltage / U Off-load voltage

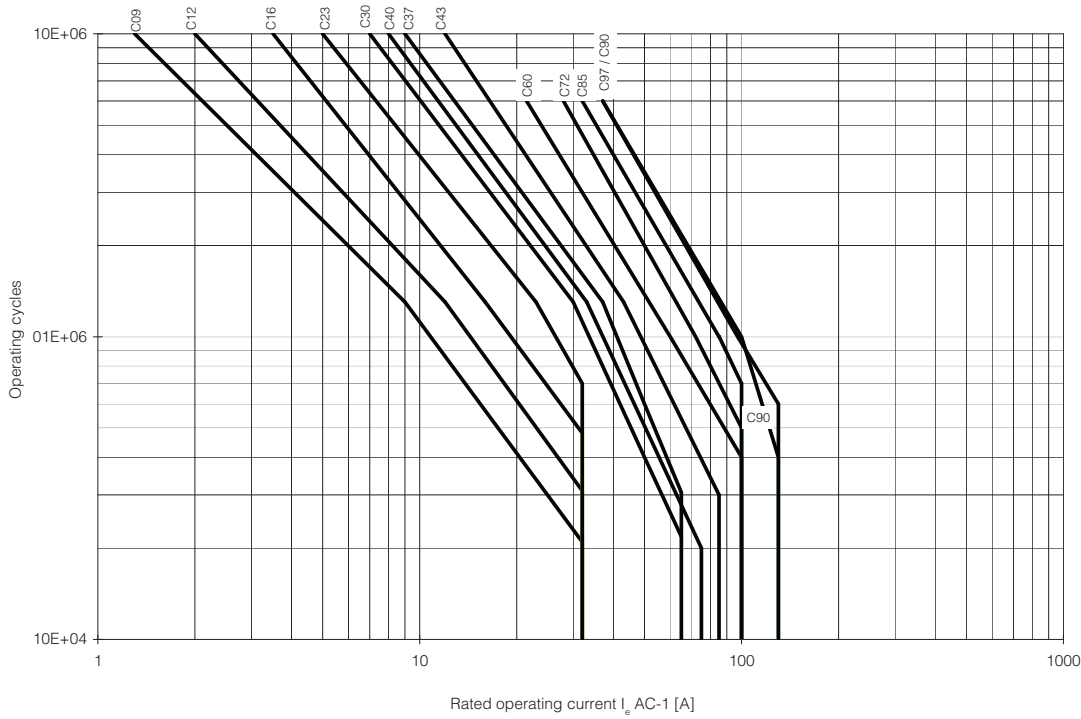
* Plugging is understood as stopping or reversing the motor rapidly by reversing motor primary connections while the motor is running.

* Inching (jogging) is understood as energizing a motor once or repeatedly for short periods to obtain small movements of the driven mechanism.

Life-Load Curves

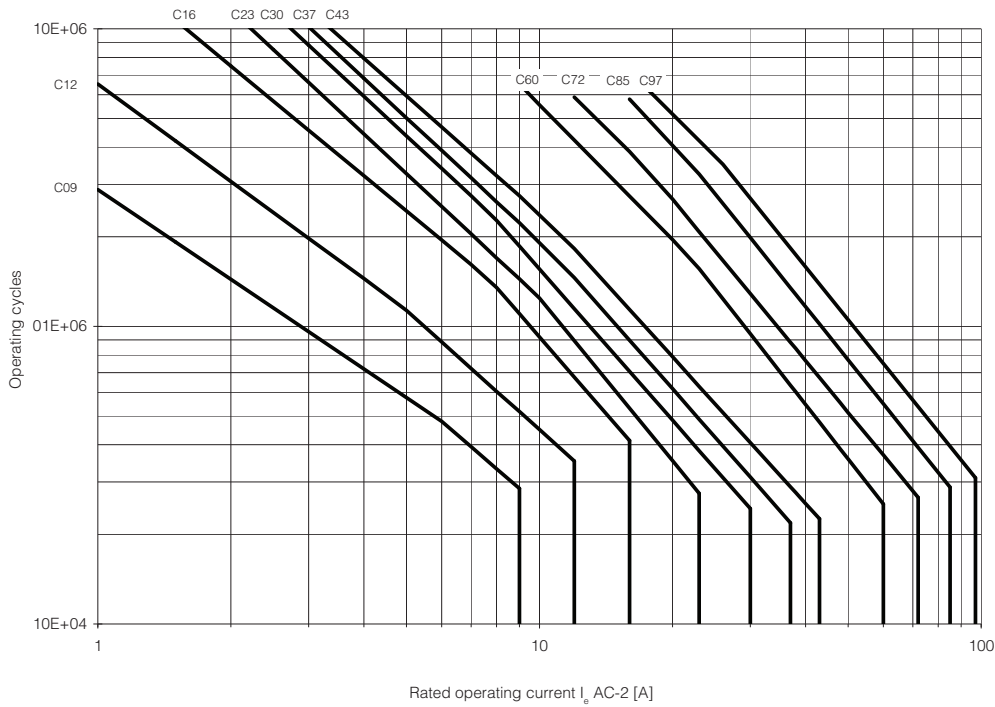
AC-1

40 °C Non- or slightly inductive loads, resistance furnaces; $U_e = 230...690V$



AC-2

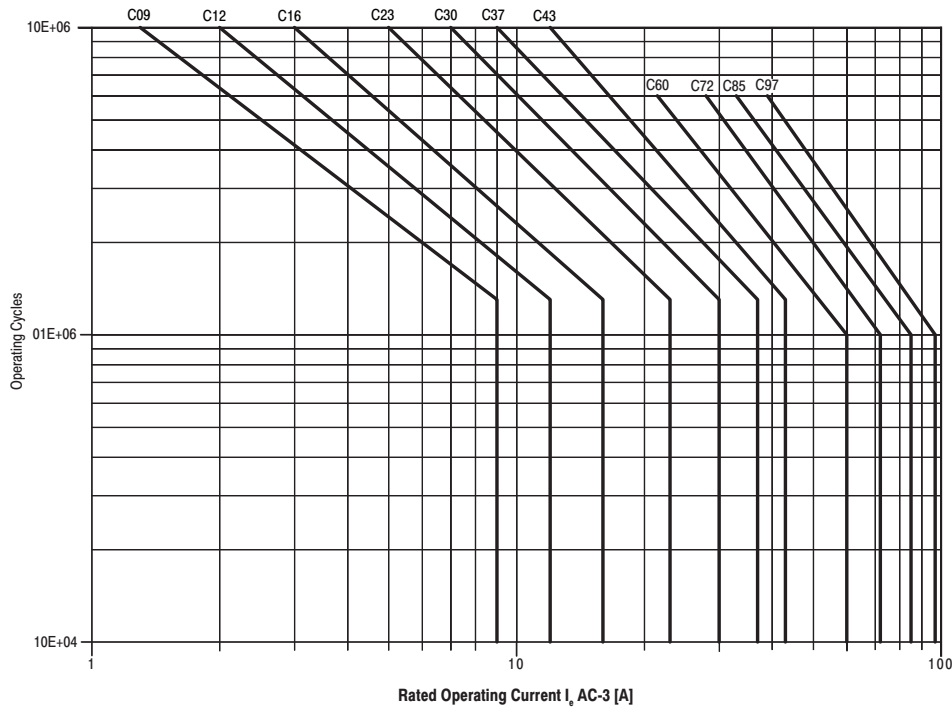
Switching of slip-ring motors; $U_e = 230...400...460V$



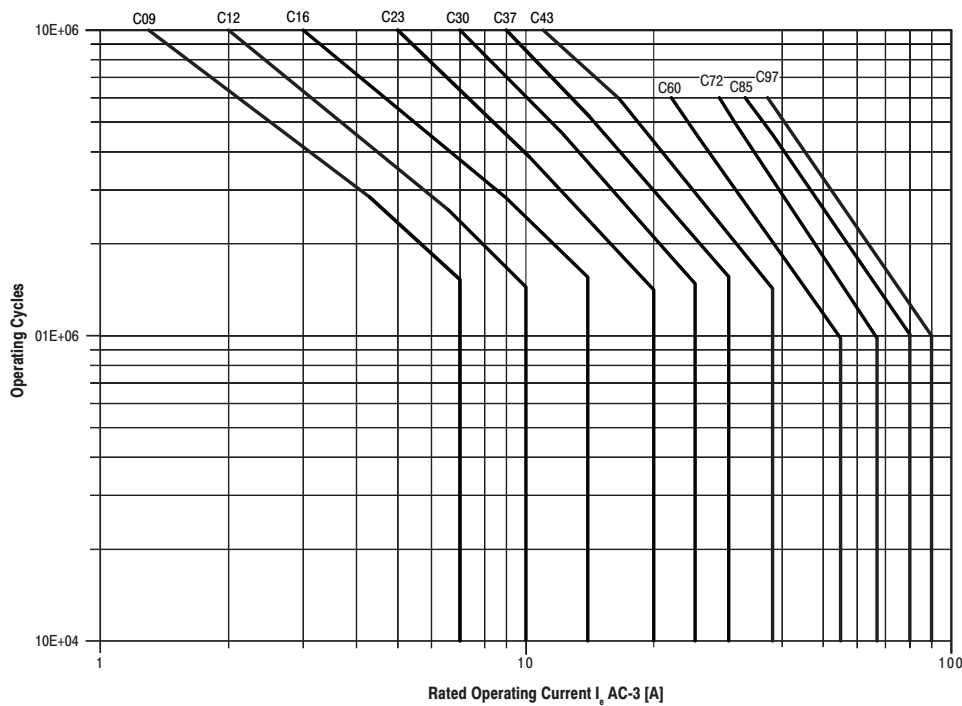
Life-Load Curves

AC-3

Switching of squirrel-cage motors while starting; $U_e = 230...400...460V$



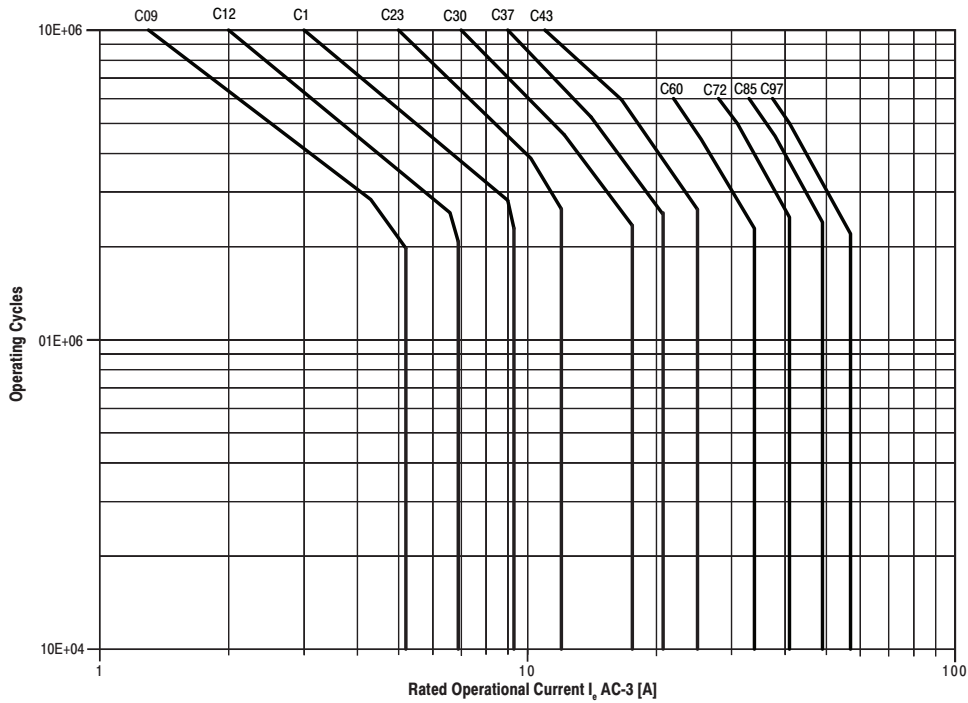
Switching of squirrel-cage motors while starting; $U_e = 500...575V$



Life-Load Curves

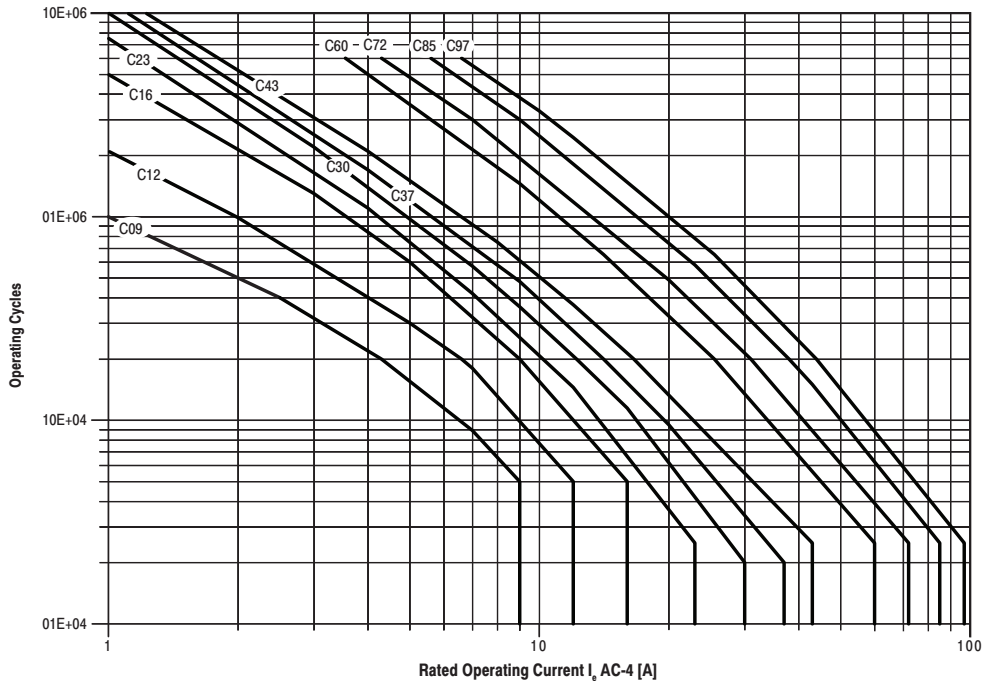
AC-3

Switching of squirrel-cage motors while starting; $U_e = 690V$



AC-4

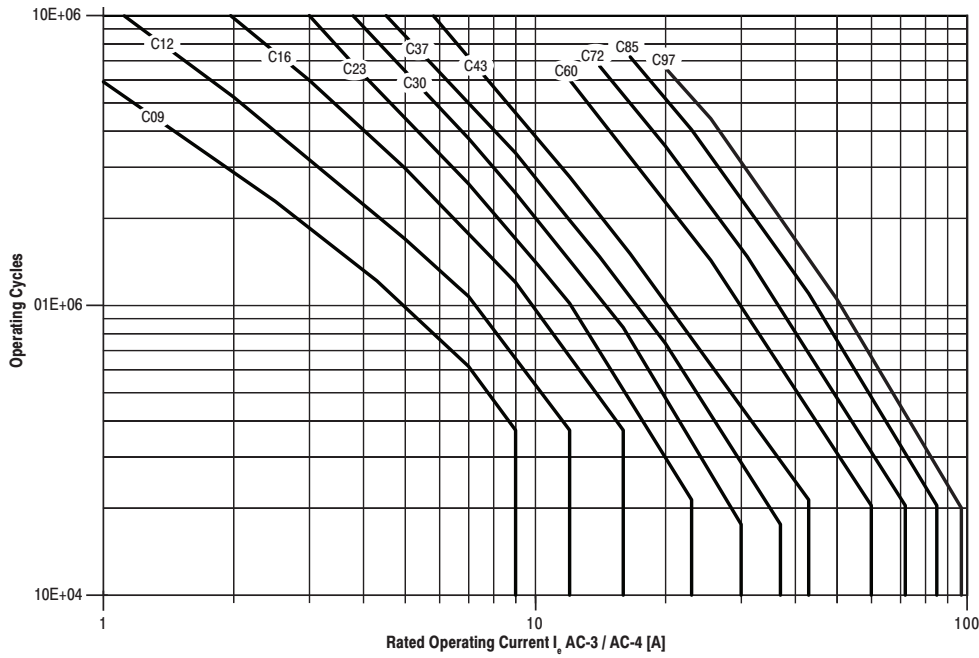
Switching of squirrel-cage motors; $U_e = 230...690V$



Life-Load Curves

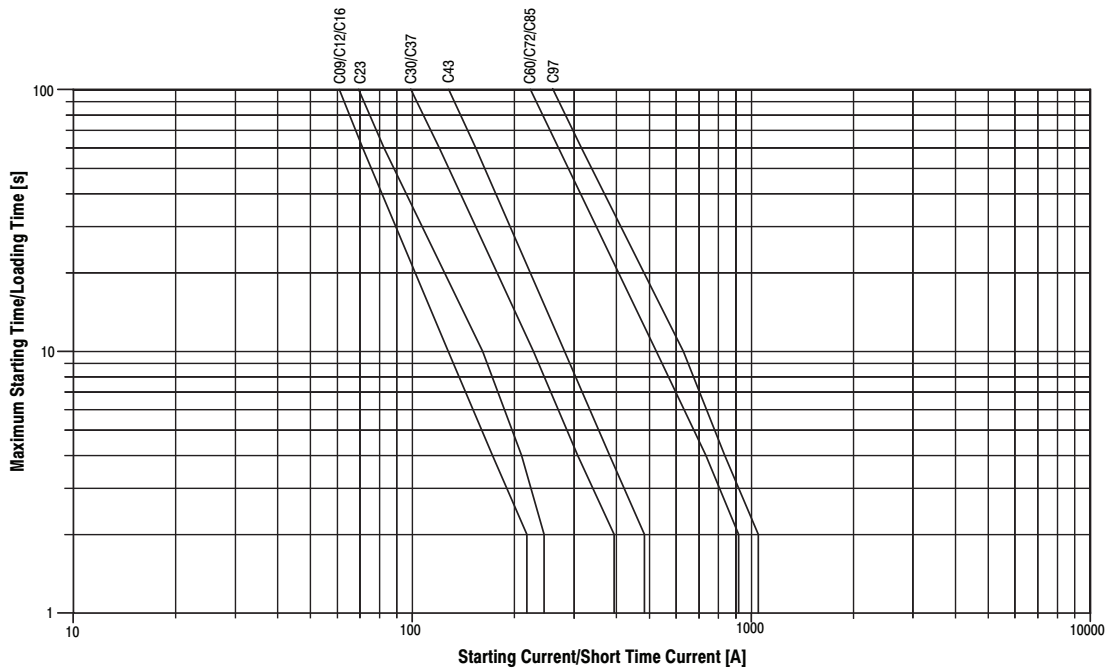
AC-3 & AC-4

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



Heavy Duty Starting and Regular Short-time Operation

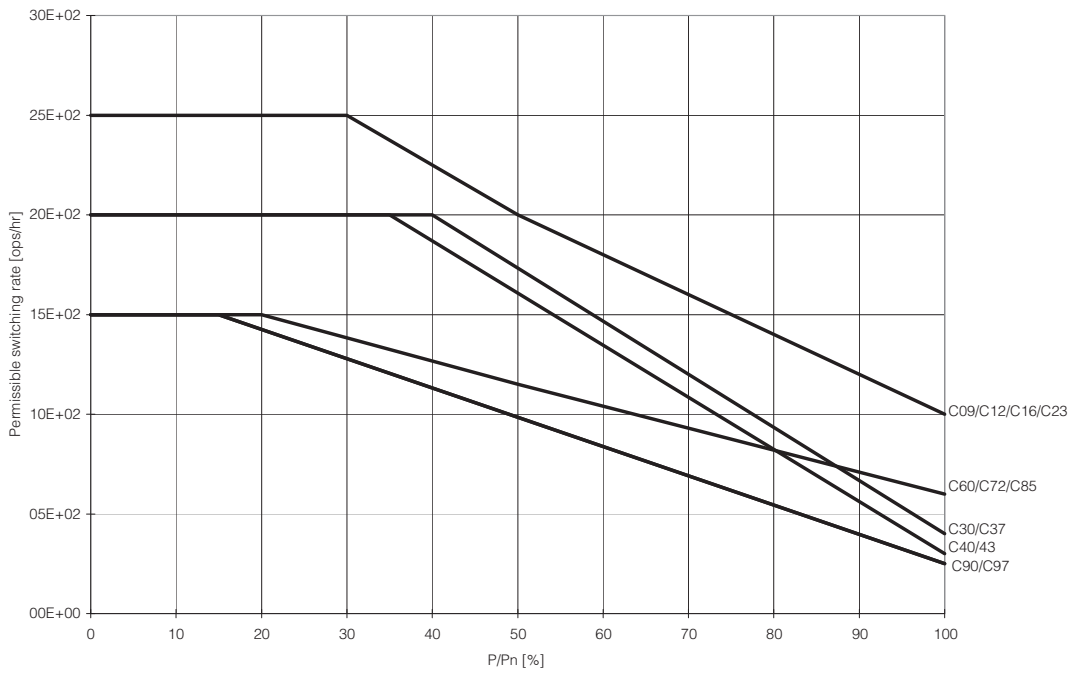
Bulletin 100-C Contactors



Maximum Operating Rates

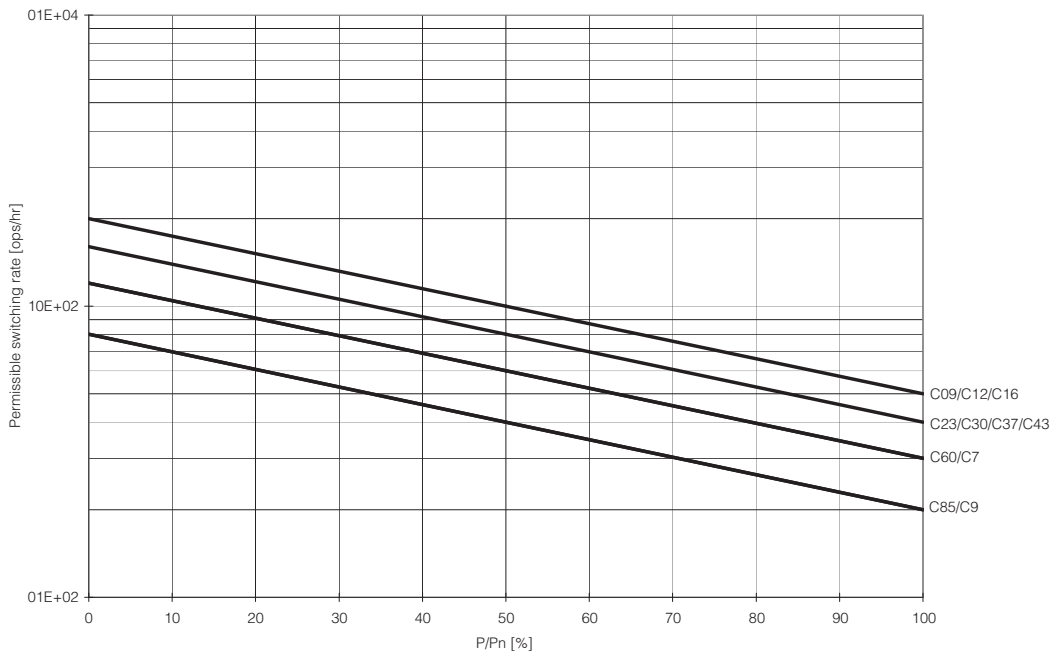
AC-1

40 °C Non- or slightly inductive loads, resistance furnaces; $U_e = 230...690V$



AC-2

Stepping of slip-ring motors; $U_e = 230...460V$

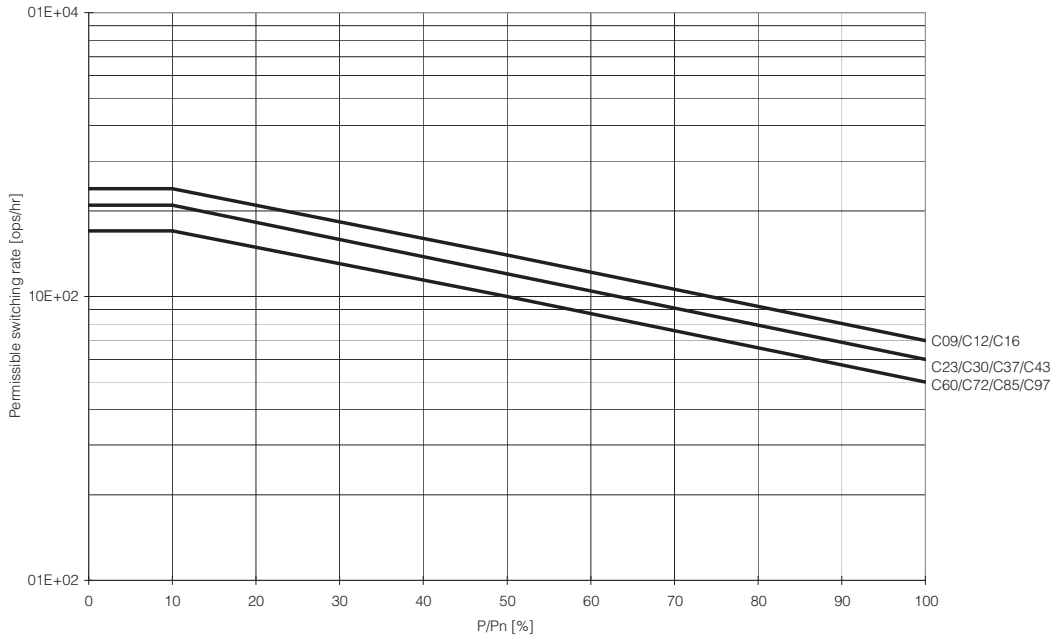


Maximum Operating Rates

AC-3

Switching of squirrel-cage motors while starting; $U_e = 230...460V$

Relative operating time 40%, Starting time $t_A = 0.25 s$



AC-4

Inching of squirrel-cage motors; $U_e = 230...460V$

Starting time $t_A = 0.25 s$

