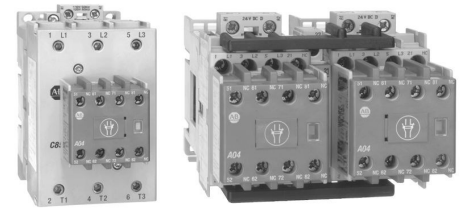


## Bulletin 100S-C/104S-C Safety Contactors

### Bulletin 100S-C/104S-C — IEC Safety Contactors

- Mechanically linked N.C. auxiliary contacts
- Front-mounted auxiliary contacts
  - Gold bifurcated
  - Permanently fixed
  - Protective cover to prevent manual operation
  - Red contact housing for easy identification
  - Incorporates IEC 60947-5-1 “Mechanically Linked” symbol
- AC and DC operating coils
- SUVA Third-Party certification



Bulletin 100S-C/104S-C safety contactors provide mechanically linked positively guided contacts, required in feedback circuits of modern safety applications. The mechanically linked N.C. auxiliary contacts will not change state when a power pole welds. In addition, the gold-plated bifurcated auxiliary contacts are ideally suited for low-energy applications or feedback control circuits with multiple series-connected N.C. auxiliary contacts.

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.



### Standards Compliance

EN50205  
CSA C22.2 No. 14  
UL 508  
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

### Certifications

SUVA Third-Party Certified  
CE Marked  
cULus Listed (File No. E3125;  
Guide NLDX, NLDX7)

### 3-Pole AC- and DC-Operated Contactors

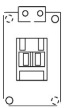
I <sub>e</sub> [A]		Ratings for Switching AC Motors – AC-2, AC-3, AC-4										Aux. Contacts		Cat. No.* ‡	
		3-Phase kW (50 Hz)				Hp (60 Hz)									
AC-3	AC-1	230V	400V/ 415V	500V	690V	1-Phase		3-Phase				N.O.	N.C.		
						115V	230V	200V	230V	460V	575V				
9	32	3	4	4	4	1/2	1-1/2	2	2	5	7-1/2	0	5	100S-C09®05BC	
												1	4	100S-C09®14BC	
12	32	4	5.5	5.5	5.5	1/2	2	3	3	7-1/2	10	0	5	100S-C12®05BC	
												1	4	100S-C12®14BC	
16	32	5.5	7.5	7.5	7.5	1	3	5	5	10	15	0	5	100S-C16®05BC	
												1	4	100S-C16®14BC	
23	32	7.5	11	13	10	2	3	5	7-1/2	15	15	0	5	100S-C23®05BC	
												1	4	100S-C23®14BC	
30	65	10	15	15	15	2	5	7-1/2	10	20	25	0	4	100S-C30®04BC	
												1	4	100S-C30®14BC	
37	65	11	18.5/20	20	18.5	3	5	10	10	25	30	0	4	100S-C37®04BC	
												1	4	100S-C37®14BC	
43	85	13	22	25	22	3	7-1/2	10	15	30	30	0	4	100S-C43®04BC	
												1	4	100S-C43®14BC	
60	100	18.5	32	37	32	5	10	15	20	40	50	0	4	§	100S-C60®04BC
												1	4	§	100S-C60®14BC
72	100	22	40	45	40	5	15	20	25	50	60	0	4	§	100S-C72®04BC
												1	4	§	100S-C72®14BC
85	100	25	45	55	45	7-1/2	15	25	30	60	60	0	4	§	100S-C85®04BC
												1	4	§	100S-C85®14BC
97	130	30	55	55	55	10	15	30	30	75	75	0	4	§	100S-C97®04BC
												1	4	§	100S-C97®14BC

\* For other contact configurations and full product details, please contact your local Rockwell Automation sales office or Allen-Bradley distributor.

‡ If standard cross-stamped front-mount auxiliary contacts are required, remove the letter "B" before the letter "C" in the cat. no. Example: Cat. No. 100S-C09®05BC becomes Cat. No. 100S-C09®05C.

§ Front- and side-mount auxiliary contacts on Cat. Nos. 100S-C60...C97 conform to mirror contact performance only.

⊗ Coil voltage code and terminal position—see ⊗ Coil Voltage Code and Terminal Position







Cat. No.  
100S-C09®05C  
Line Side



Cat. No.  
100S-C09U®05C  
Load Side

## 4-Pole AC- and DC-Operated Contactors

$I_e$ [A]		Ratings for Switching AC Motors										Contact Configuration				Cat. No.* §
		AC-2, AC-3, AC-4				Hp (60 Hz)						Main Pole		Auxiliary Contacts		
		3-Phase kW (50 Hz)‡				1-Phase			3-Phase ‡							
AC-3	AC-1	230V	400V/ 415V	500V	690V	115V	230V	200V	230V	460V	575V	N.O.	N.C.	N.O.	N.C.	
9	32	3	4	4	4	1/2	1-1/2	2	2	5	7-1/2	4	0	0	4	100S-C09Ⓞ404BC
												3	1	0	4	100S-C09Ⓞ304BC
12	32	4	5.5	5.5	5.5	1/2	2	3	3	7-1/2	10	4	0	0	4	100S-C12Ⓞ404BC
												3	1	0	4	100S-C12Ⓞ304BC
16	32	5.5	7.5	7.5	7.5	1	3	5	5	10	15	4	0	0	4	100S-C16Ⓞ404BC
												3	1	0	4	100S-C16Ⓞ304BC
23	32	7.5	11	13	10	2	3	5	7-1/2	15	15	4	0	0	4	100S-C23Ⓞ404BC
												3	1	0	4	100S-C23Ⓞ304BC

\* For other contact configurations, please contact your local Rockwell Automation sales office or Allen-Bradley distributor.

‡ Three-phase ratings only apply to contactors with at least three N.O. power poles.



§ If standard cross-stamped front-mount auxiliary contacts are required, remove the letter "B" before the letter "C" in the cat. no. Example: Cat. No. 100S-C09Ⓞ404BC becomes Cat. No. 100S-C09Ⓞ404C.

Ⓞ Coil voltage code and terminal position—see Ⓞ Coil Voltage Code and Terminal Position

## Reversing AC- and DC-Operated Contactors

- 3 Main Contacts
- Includes Mechanical/Electrical Interlock
- Includes Reversing Power Wiring



I <sub>e</sub> [A]		Ratings for Switching AC Motors											Aux. Contacts Installed per Contactor		Cat. No.* ‡	
		AC-2, AC-3, AC-4														
		3-Phase kW (50 Hz)					Hp (60 Hz)									
AC-3	AC-1	230V	400V/ 415V	500V	690V	1-Phase		3-Phase				N.O.	N.C. §			
						115V	230V	200V	230V	460V	575V					
9	32	3	4	4	4	1/2	1-1/2	2	2	5	7-1/2	0	6	104S-C09®012BC		
												1	5	104S-C09®210BC		
12	32	4	5.5	5.5	5.5	1/2	2	3	3	7-1/2	10	0	6	104S-C12®012BC		
												1	5	104S-C12®210BC		
16	32	5.5	7.5	7.5	7.5	1	3	5	5	10	15	0	6	104S-C16®012BC		
												1	5	104S-C16®210BC		
23	32	7.5	11	13	10	2	3	5	7-1/2	15	15	0	6	104S-C23®012BC		
												1	5	104S-C23®210BC		
30	65	10	15	15	15	2	5	7-1/2	10	20	25	0	5	104S-C30®010BC		
												1	5	104S-C30®210BC		
37	65	11	18.5/20	20	18.5	3	5	10	10	25	30	0	5	104S-C37®010BC		
												1	5	104S-C37®210BC		
43	85	13	22	25	22	3	7-1/2	10	15	30	30	0	5	104S-C43®010BC		
												1	5	104S-C43®210BC		
60	100	18.5	32	37	32	5	10	15	20	40	50	0	5	♣	104S-C60®010BC	
												1	5	♣	104S-C60®210BC	
72	100	22	40	45	40	5	15	20	25	50	60	0	5	♣	104S-C72®010BC	
												1	5	♣	104S-C72®210BC	
85	100	25	45	55	45	7-1/2	15	25	30	60	60	0	5	♣	104S-C85®010BC	
												1	5	♣	104S-C85®210BC	
97	130	30	55	55	55	10	15	30	30	75	75	0	5	♣	104S-C97®010BC	
												1	5	♣	104S-C97®210BC	

\* For other contact configurations, please contact your local Rockwell Automation sales office or Allen-Bradley distributor.

‡ If standard cross-stamped front-mount auxiliary contacts are required, remove the letter "B" before the letter "C" in the cat. no. Example: Cat. No. 104S-C09®05BC becomes Cat. No. 104S-C09®05C.

§ One of the N.C. auxiliary contacts is supplied as part of the mechanical/electrical interlock.

♣ Front- and side-mount auxiliary contacts on Cat. Nos. 104S-C60...C97 conform to mirror contact performance only.

### ⊗ 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. 100S-C09®05BC** becomes **Cat. No. 100S-C09D05BC**.

[V]	12	24	32	36	42	48	100	100-110	110	120	127	200	200-220	208	208-240	220-230
AC, 50 Hz	R	K	V	W	X	Y	KP	—	D	P	S	KG	L	—	—	F
AC, 60 Hz	Q	J	—	V	—	X	—	KP	—	D	—	—	KG	H	L	—
AC, 50/60 Hz	-	KJ	—	—	—	KY	KP	—	KD	—	—	KG	KLS	—	—	KLS

§ Not available on 100S/104S-C97 contactors.

[V]	230	230-240	240	277	347	380	380-400	400	400-415	440	480	500	550	600
AC, 50 Hz	—	VA	T	—	—	—	N	—	G	B	—	M	C	—
AC, 60 Hz	—	—	A	T	I	E	—	—	—	N	B	—	—	C
AC, 50/60 Hz	KF	—	KA	—	—	—	—	KN	—	KB	—	—	—	—

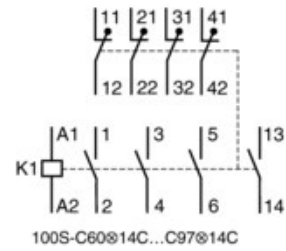
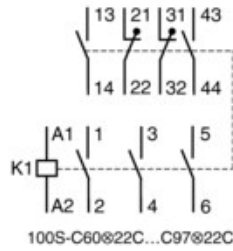
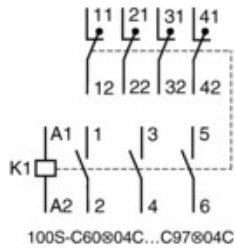
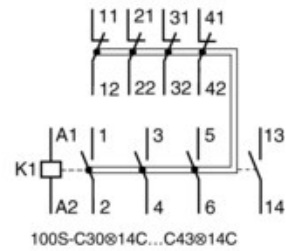
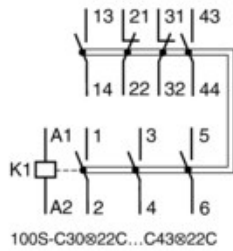
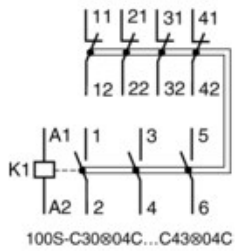
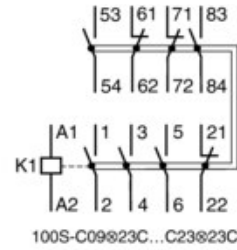
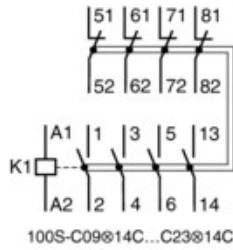
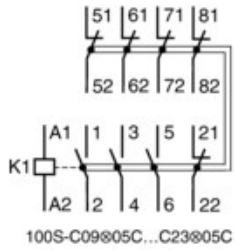
		[V]	9	12	24	36	48	48-72	60	64	72	80	110	110-125	115	125	220	220-250	230	250
100S-C09...C43	Standard	DC	ZR	ZQ	ZJ	ZW	ZY	—	ZZ	ZB	ZG	ZE	ZD	—	ZP	ZS	ZA	—	ZF	ZT
	with Integrated Diode		—	—	DJ	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Electronic with Integrated Diode		—	EQ	EJ	—	—	EY	—	—	—	—	—	ED	—	—	—	EA	—	—
100S-C60...C97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

## Coil Terminal Position

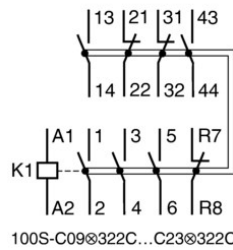
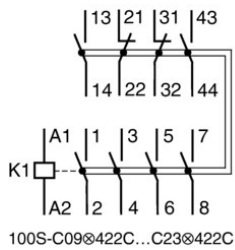
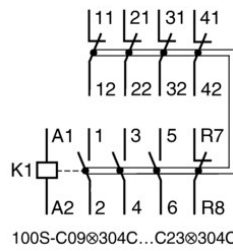
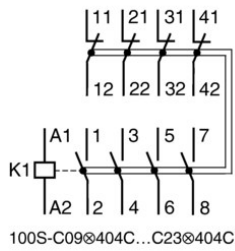
- All contactors are delivered with the coil terminals located on the **line side**.
- For **load side** coil terminations, insert a “U” prior to the coil voltage code.  
Example: Cat. No. 100S-C09UD05BC.

## Assignment of Contacts

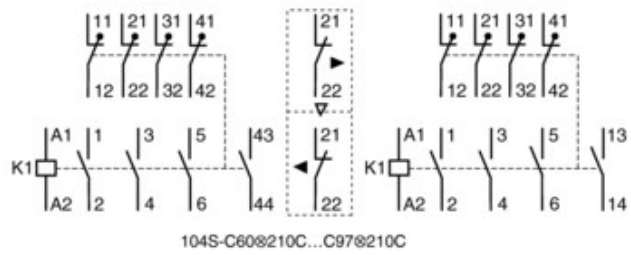
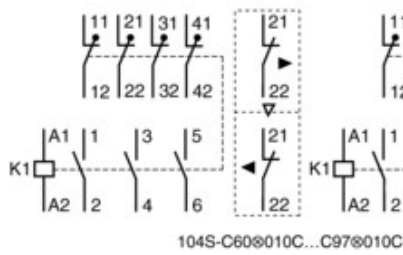
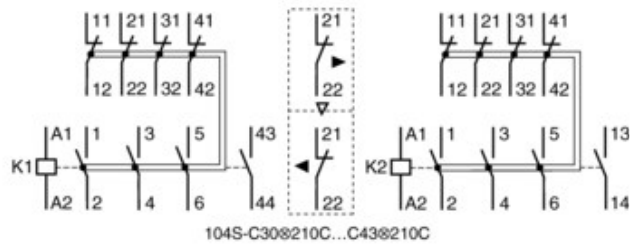
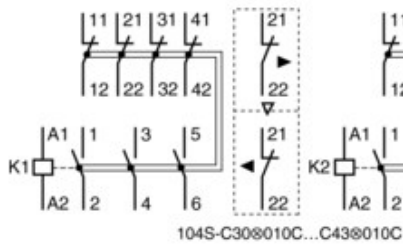
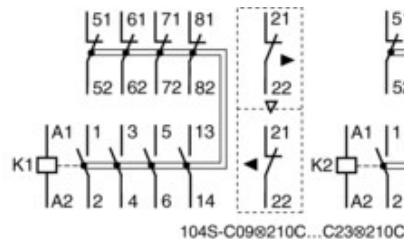
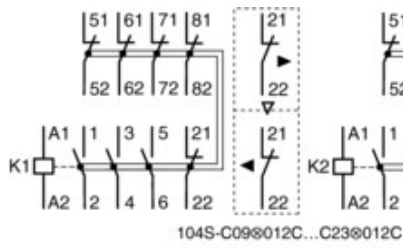
### Safety Contactors with 3 Main Contacts and Standard Front-Mount Auxiliary Contacts



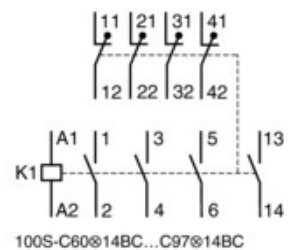
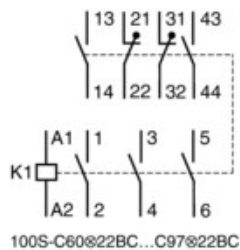
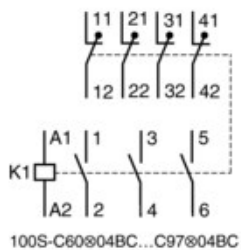
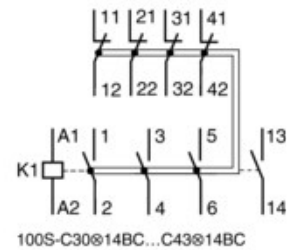
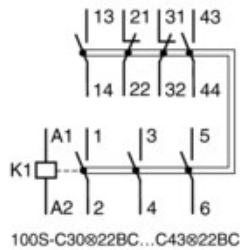
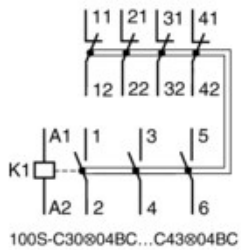
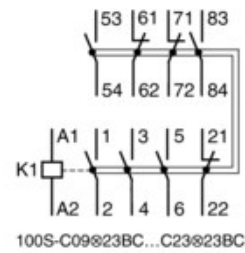
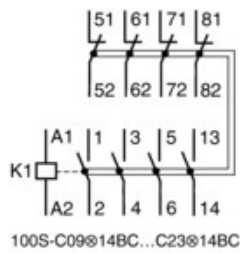
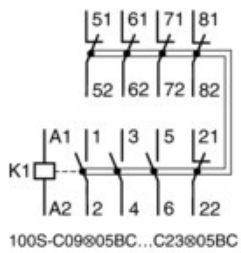
### Safety Contactors with 4 Main Contacts and Standard Front-Mount Auxiliary Contacts



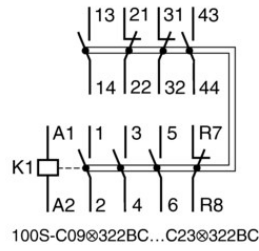
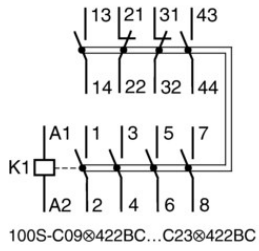
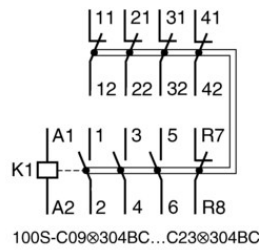
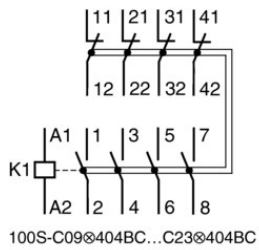
### Safety Reversing Contactors with 3 Main Contacts and Standard Front-Mount Auxiliary Contacts



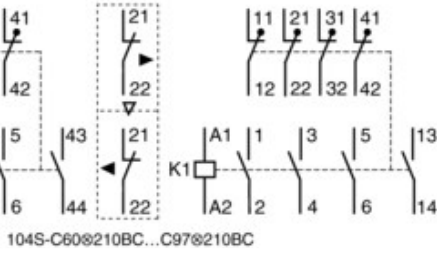
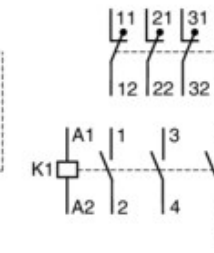
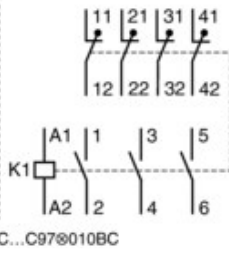
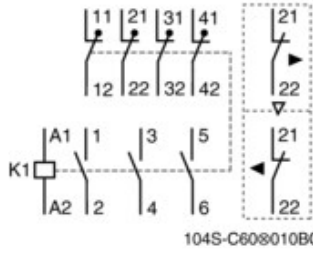
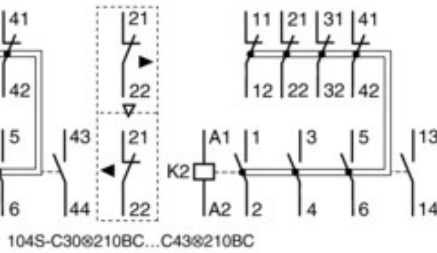
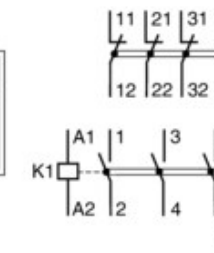
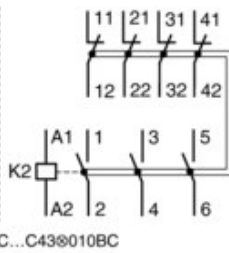
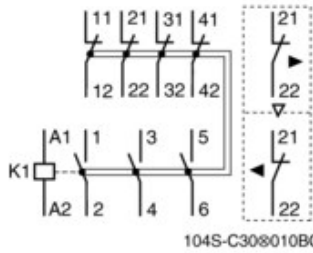
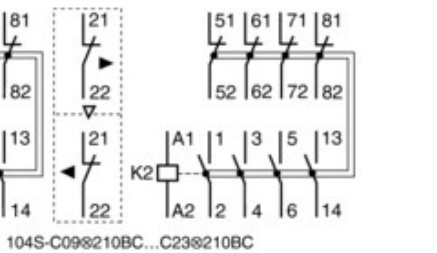
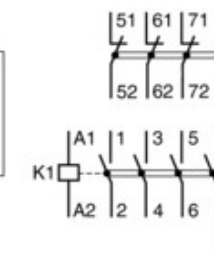
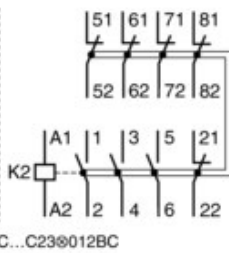
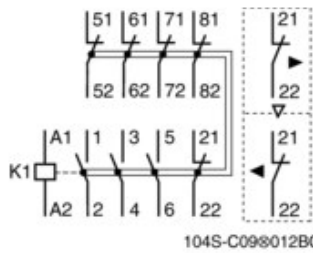
### Safety Contactors with 3 Main Contacts and Bifurcated Front-Mount Auxiliary Contacts



### Safety Contactors with 4 Main Contacts and Bifurcated Front-Mount Auxiliary Contacts



### Safety Reversing Contactors with 3 Main Contacts and Bifurcated Front-Mount Auxiliary Contacts



### Bul. 100-K/104-K, 100-C/104-C, 100-D/104-D, 100S-C/104S-C, 100S-D Specifications

		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	55	60	
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	—	
AC-1 Active Power Load (50 Hz); Ambient temperature 40 °C																		
$I_e$	≤ 500V	[A]	10	10	20	20	20	32	32	32	32 (40)*	65	65	75	75	85	85	100
	690V	[A]	10	10	20	20	20	32	32	32	32 (40)*	65	65	75	75	85	85	100
	1000V	[A]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	230V	[kW]	4	4	8	8	8	13	13	13	13	26	26	30	30	34	34	40
	240V	[kW]	4	4	8.3	8.3	8.3	13	13	13	13	27	27	31	31	35	35	42
	400V	[kW]	6.9	6.9	14	14	14	22	22	22	22	45	45	52	52	59	59	69
	415V	[kW]	7	7	14	14	14	23	23	23	23	47	47	54	54	61	61	72

	500V	[kW]	8.7	8.7	17	17	17	28	28	28	28	56	56	65	65	74	74	87
	690V	[kW]	12	12	24	24	24	38	38	38	38	78	78	90	90	102	102	120
	1000V	[kW]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

**Ambient temperature 60 °C**

$I_e$	≤ 500V	[A]	10	10	16	16	16	32	32	32	32	65	65	60	60	75	75	100
	690V	[A]	10	10	16	16	16	32	32	32	32	65	65	60	60	75	75	100
	1000V	[A]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	230V	[kW]	4	4	6.4	6.4	6.4	13	13	13	13	26	26	24	24	25	25	40
	240V	[kW]	4	4	6.7	6.7	6.7	13	13	13	13	27	27	25	25	26	26	42
	400V	[kW]	6.9	6.9	11	11	11	22	22	22	22	45	45	42	42	44	44	69
	415V	[kW]	7	7	12	12	12	23	23	23	23	47	47	43	43	45	45	72
	500V	[kW]	8.7	8.7	14	14	14	28	28	28	28	56	56	52	52	55	55	87
	690V	[kW]	12	12	19	19	19	38	38	38	38	78	78	72	72	75	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	56	62
	240V	[A]	6.3	8.5	6.3	11.3	11.3	12	15	20	26.5	35	38	38	38	44	56	62
	400V	[A]	4.9	8.5	4.9	8.5	11.5	9	12	16	23	30	37	37	37	43	55	60
	415V	[A]	4.9	8.5	4.9	8.5	11.5	9	12	16	23	30	37	37	37	43	55	60
	500V	[A]	3.9	6.8	3.9	6.8	9.2	7	10	14	20	25	30	29	30	38	44	55
	690V	[A]	2.8	4.9	2.8	4.9	6.7	5	7	9	12	18	21	9	21	25	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	15	18.5
	240V	[kW]	1.5	2.2	1.5	3	3	3	4	5.5	7.5	10	11	11	11	13	15	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	30	32
	415V	[kW]	2.2	4	2.2	4	5.5	4	5.5	7.5	11	15	20	20	20	22	30	32
	500V	[kW]	2.2	4	2.2	4	5.5	4	5.5	7.5	13	15	20	18.5	20	25	30	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	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	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	56
	230V	[A]	6.9	8	8	10	12	10	12	17	17	28	28	28	28	40	50	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	5
	230V	[Hp]	3/4	1	1	1.5	2	1.5	2	3	3	5	5	5	5	7.5	10	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	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	54
	460V	[A]	4.8	7.6	4.8	7.6	11	7.6	11	14	21	27	34	34	34	40	52	52
	575V	[A]	3.9	6.1	3.9	6.1	9	9	11	17	17	27	32	17	32	32	41	52
	200V	[Hp]	1.5	2	1.5	2	3	2	3	5	5	7.5	10	10	10	10	15	15
	230V	[Hp]	1.5	2	1.5	2	3	2	3	5	7.5	10	10	10	10	15	20	20
	460V	[Hp]	3	5	3	5	7.5	5	7.5	10	15	20	25	25	25	30	40	40
	575V	[Hp]	3	5	3	5	7.5	7.5	10	15	15	25	30	15	30	30	40	50

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

		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	
Coil Type :	Conventional	X	X	X	X	X	X	X	—	X	—	—	—	—	—	—	—	
	Electronic — EI	—	—	—	—	—	X	—	X	—	X	X	X	X	X	X	X	
<b>AC-1 Active Power Load (50 Hz); Ambient temperature 40 °C</b>																		
$I_e$	≤ 500V	[A]	100	100	130	130	130	250	250	250	250	250	350	350	450	540	800	1000
	690V	[A]	100	100	130	130	130	250	250	250	250	250	350	350	450	540	800	1000
	1000V	[A]	—	—	—	—	—	250	250	250	250	250	350	350	450	540	—	—





**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	56	62
240V	[A]	6.3	11.3	11.3	12	15	20	26.5	35	38	44	56	62
400V	[A]	4.9	8.5	11.5	9	12	16	23	30	37	43	55	60
415V	[A]	4.9	8.5	11.5	9	12	16	23	30	37	43	55	60
500V	[A]	3.9	6.8	9.2	7	10	14	20	25	30	38	44	55
690V	[A]	2.8	4.9	6.7	5	7	9	12	18	21	25	25	34
1000V	[A]	—	—	—	—	—	—	—	—	—	—	—	—
230V	[kW]	1.5	3	3	3	4	5.5	7.5	10	11	13	15	18.5
240V	[kW]	1.5	3	3	3	4	5.5	7.5	10	11	13	15	18.5
400V	[kW]	2.2	4	5.5	4	5.5	7.5	11	15	18.5	22	30	32
415V	[kW]	2.2	4	5.5	4	5.5	7.5	11	15	20	22	30	32
500V	[kW]	2.2	4	5.5	4	5.5	7.5	13	15	20	25	30	37
690V	[kW]	2.2	4	5.5	4	5.5	7.5	10	15	18.5	22	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	22	25.5
240V	[A]	2.3	3.9	3.9	4.3	6.6	9	9	12	14	16.5	22	25.5
400/415V	[A]	2	3.6	3.6	4.3	6.6	9	9	12	14	16.5	22	25.5
500V	[A]	1.9	3.2	3.2	4.3	6.6	9	9	12	14	16.5	22	25.5
690V	[A]	—	—	—	4.3	6.6	9	9	12	14	16.5	22	25.5
1000V	[A]	—	—	—	—	—	—	—	—	—	—	—	—
230V*	[kW]	0.37	0.75	0.75	0.75	1.5	2.2	2.2	3	3.7	4	5.5	6.3
240V*	[kW]	0.37	0.75	0.75	0.75	1.5	2.2	2.2	3	4	4	5.5	7.5
400V*	[kW]	0.75	1.5	1.5	1.8	3	4	4	5.5	6.3	7.5	11	13
415V*	[kW]	0.75	1.5	1.5	1.8	3	4	4	5.5	6.3	7.5	11	13
500V*	[kW]	0.75	1.5	1.5	2.2	3.7	5.5	5.5	7.5	7.5	10	11	15
690V*	[kW]	—	—	—	3	5.5	7.5	7.5	10	11	15	18.5	22
1000V*	[kW]	—	—	—	—	—	—	—	—	—	—	—	—

Max. switching frequency Ops/h 250 250 250 250 250 220 200 200 200 200 200 200 120

**Wye-Delta (60 Hz)**

200V	[Hp]	2.2	3	5	5	5	7½	7½	10	15	20	25	30
230V	[Hp]	2.2	3	5	5	7½	10	10	15	20	25	30	40
460V	[Hp]	5	7.5	10	10	15	20	25	30	40	50	60	75
575V	[Hp]	5	7.5	10	10	15	20	25	30	40	50	60	75

**UL/CSA Elevator Duty5**

200V	[A]	—	—	—	7.8	11.0	11.0	17.5	25.3	25.3	32.2	TBD	32.2
230V	[A]	—	—	—	6.8	9.6	15.2	15.2	22.0	28.0	28.0	TBD	42.0
460V	[A]	—	—	—	7.6	11.0	14.0	21.0	27.0	27.0	34.0	TBD	40.0
575V	[A]	—	—	—	6.1	9.0	11.0	17.0	22.0	27.0	32.0	TBD	41.0
200V	[Hp]	—	—	—	2	3	3	5	7½	7½	10	TBD	10
230V	[Hp]	—	—	—	2	3	5	5	7½	10	10	TBD	15
460V	[Hp]	—	—	—	5	7½	10	15	20	20	25	TBD	30
575V	[Hp]	—	—	—	5	7½	10	15	20	25	30	TBD	40

**Star-Delta Starting (50 Hz)**

≤ 230V	[A]	11.3	20	20	21	26	35	46	61	66	76	96	107
≤ 240V	[A]	11.3	20	20	21	26	35	46	61	66	76	96	107
400V	[A]	8.5	15.5	15.5	16	21	28	40	52	64	74	95.3	104
415V	[A]	8.5	15.5	15.5	16	21	28	40	52	64	74	95.3	104
500V	[A]	6.8	12.4	12.4	12	17	24	35	43	52	66	76.2	95
690V	[A]	4.9	8.9	8.9	8.6	12	16	21	31	36	43	55.4	59
1000V	[A]	—	—	—	—	—	—	—	—	—	—	—	—
230V*	[kW]	3	5.5	5.5	5.5	7.5	10	13	17	20	22	30	32
240V*	[kW]	3	5.5	5.5	5.5	7.5	10	13	18.5	20	22	30	32
400V*	[kW]	4	7.5	10	7.5	10	13	20	25	32	40	45	55
415V*	[kW]	4	7.5	11	7.5	11	15	22	25	37	40	45	55
500V*	[kW]	4	7.5	7.5	7.5	11	15	22	25	32	45	45	63

	690V*	[kW]	4	7.5	7.5	7.5	10	13	18.5	25	32	40	45	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
Coil Type :	Conventional	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

	230V	[A]	72	85	96	115	140	140	180	180	210	250	300	420	–	–
	240V	[A]	72	85	95	115	140	140	180	180	210	250	300	420	–	–
	400V	[A]	72	85	97	115	140	140	180	180	210	250	300	420	–	–
	415V	[A]	72	85	97	115 (130)‡	140 (155)‡	140 (155)‡	180 (189)§	180 (189)§	210 (227)‡	250 (258)‡	300 (315)‡	420	–	–
	500V	[A]	67	80	78	115	115	140	140	170	210	250	300	360	–	–
	690V	[A]	42	49	57	115	115	140	140	170	210	250	300	360	–	–
	1000V	[A]	–	–	–	46	55	55	65	65	80	95	115	160	–	–
	230V	[kW]	22	25	30	37	45	45	57	57	67	80	97	135	–	–
	240V	[kW]	22	25	30	39	47	47	60	60	70	83	101	141	–	–
	400V	[kW]	40	45	55	63	78	78	100	100	118	140	170	238	–	–
	415V	[kW]	40	45	55	66 (75)‡	82 (90)‡	82 (90)‡	105 (110)‡	105 (110)‡	125 (132)‡	145 (150)‡	176 (185)‡	250	–	–
	500V	[kW]	45	55	55	80	80	98	98	119	147	177	213	255	–	–
	690V	[kW]	40	45	55	110	110	135	135	167	205	250	293	356	–	–
	1000V	[kW]	–	–	–	63	75	75	90	90	110	132	160	225	–	–

AC-4 at approximately 200,000 operations

	230V	[A]	31	38	44	53	60	60	67	67	85	105	140	170	–	–
	240V	[A]	31	38	44	53	60	60	67	67	85	105	140	170	–	–
	400/415V	[A]	31	38	44	53	60	60	67	67	85	105	140	170	–	–
	500V	[A]	31	38	44	53	60	60	67	67	85	105	140	170	–	–
	690V	[A]	31	38	44	53	60	60	67	67	85	105	140	170	–	–
	1000V	[A]	–	–	–	25	37	37	43	43	60	72	85	105	–	–
	230V*	[kW]	7.5	11	11	15	17	17	20	20	25	32	45	55	–	–
	240V*	[kW]	7.5	11	11	15	18.5	18.5	22	22	25	32	45	55	–	–
	400V*	[kW]	15	20	22	25	32	32	37	37	45	55	75	90	–	–
	415V*	[kW]	17	20	22	25	32	32	37	37	50	55	80	100	–	–
	500V*	[kW]	20	25	30	32	40	40	45	45	55	75	100	110	–	–
	690V*	[kW]	25	32	37	45	55	55	63	63	80	100	132	160	–	–
	1000V*	[kW]	–	–	–	30	50	50	55	55	80	100	110	150	–	–
Max. switching frequency	Ops/h		120	120	120	120	120	120	100	100	120	100	70	70	–	–

Wye-Delta (60 Hz)

	200V	[Hp]	40	50	50	60	60	60	75	75	100	125	175	250	–	–
	230V	[Hp]	50	60	60	60	75	75	100	100	125	175	200	250	–	–
	460V	[Hp]	100	125	125	125	175	175	200	200	250	350	450	600	–	–
	575V	[Hp]	100	125	125	150	200	200	250	250	300	450	500	650	–	–

UL/CSA Elevator Duty‡

	200V	[A]	48.3	62.1	TBD	78	92	92	120	120	150	150	177	221	–	–
	230V	[A]	54.0	68.0	TBD	80	104	104	130	130	130	154	192	248	–	–
	460V	[A]	52.0	65.0	TBD	77	96	96	124	124	156	180	180	240	–	–
	575V	[A]	52.0	62.0	TBD	77	77	77	99	99	125	144	192	242	–	–
	200V	[Hp]	15	20	TBD	25	30	30	40	40	50	50	60	75	–	–
	230V	[Hp]	20	25	TBD	30	40	40	50	50	50	60	75	100	–	–
	460V	[Hp]	40	50	TBD	60	75	75	100	100	125	150	150	200	–	–
	575V	[Hp]	50	60	TBD	75	75	75	100	100	125	150	200	250	–	–

Star-Delta Starting (50 Hz)

	≤ 230V	[A]	125	147	166	199	242	242	312	312	364	433	520	727	–	–
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≤ 240V	[A]	125	147	165	199	242	242	312	312	364	433	520	727	–	–
400V	[A]	125	147	168	199	242	242	312	312	364	433	520	727	–	–
415V	[A]	125	147	168	199 (225)‡	242 (268)‡	242 (268)‡	312 (332)‡	312 (332)‡	364 (393)‡	433 (447)‡	520 (546)‡	727	–	–
500V	[A]	116	139	135	199	199	242	312	312	364	433	520	727	–	–
690V	[A]	73	85	99	199	199	242	312	312	364	433	520	727	–	–
1000V	[A]	–	–	–	80	95	95	113	113	139	165	200	277	–	–
230V*	[kW]	37	45	50	63	75	75	90	90	110	132	160	220	–	–
240V*	[kW]	40	50	50	66	80	80	100	100	125	150	160	250	–	–
400V*	[kW]	63	80	90	110	132	132	160	160	200	250	300	425	–	–
415V*	[kW]	63	80	90	114 (132)‡	132 (160)‡	132 (160)‡	160	160	220	250	315 (335)‡	425	–	–
500V*	[kW]	80	90	90	132	132	160	200	200	250	315	375	530	–	–
690V*	[kW]	63	80	90	192	200	220	300	300	355	425	530	750	–	–
1000V*	[kW]	–	–	–	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.

		100/104-K			100/104-C, 100S/104S-C								
		05	09	12	09	12	16	23	30	37	43	55	60
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	–

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

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

**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
	200V [kVA]	–	–	–	3.8	3.8	3.8	3.8	6.9	6.9	8.0	8	14.1
	208V [kVA]	–	–	–	3.9	3.9	3.9	3.9	7.2	7.2	8.3	8.3	14.7
	240V [kVA]	–	–	–	4.5	4.5	4.5	4.5	8.3	8.3	9.6	9.6	17.0
	480V [kVA]	–	–	–	9.1	9.1	9.1	9.1	16.6	16.6	19.1	19.1	33.9
	600V [kVA]	–	–	–	11.3	11.3	11.3	11.3	20.8	20.8	23.9	23.9	42.4
	660V [kVA]	–	–	–	12.5	12.5	12.5	12.5	22.9	22.9	26.3	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	34.5	61.3
	200V [kVA]	–	–	–	5.6	5.6	5.6	5.6	10.4	10.4	12.0	12	21.2
	208V [kVA]	–	–	–	5.9	5.9	5.9	5.9	10.8	10.8	12.4	12.4	22.1
	240V [kVA]	–	–	–	6.8	6.8	6.8	6.8	12.5	12.5	14.3	14.3	25.5
	480V [kVA]	–	–	–	13.6	13.6	13.6	13.6	24.9	24.9	28.7	28.7	51.0
	600V [kVA]	–	–	–	16.9	16.9	16.9	16.9	31.2	31.2	35.9	35.9	63.7
	660V [kVA]	–	–	–	18.6	18.6	18.6	18.6	34.3	34.3	39.4	39.4	70.1

**60 Hz Peak Inrush/peak rated transformer current**

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

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

Inrush Current

Rated transformer current

n = 30	≤ 230V	[A]	40.8	40.8	48.5	60	70	70	85	85	105	125	150	210	—	—
	≤ 240V	[A]	40.8	40.8	48.5	60	70	70	85	85	105	125	150	210	—	—
	≤ 400V	[A]	40.8	40.8	48.5	60	70	70	85	85	105	125	150	210	—	—
	≤ 415V	[A]	40.8	40.8	48.5	60	70	70	85	85	105	125	150	210	—	—
	≤ 500V	[A]	40.8	40.8	48.5	60	70	70	85	85	105	125	150	210	—	—
	≤ 690V	[A]	40.8	40.8	48.5	60	70	70	85	85	105	125	150	210	—	—
	≤ 1000V	[A]	—	—	—	46	70	70	85	85	105	125	150	210	—	—
	230V	[kVA]	16	16	19.3	24	28	28	34	34	42	50	60	84	—	—
	240V	[kVA]	17	17	20.2	26	29	29	35	35	44	52	62	87	—	—
	400V	[kVA]	28	28	33.6	42	48	48	59	59	73	87	104	145	—	—
	415V	[kVA]	29	29	34.9	43	50	50	61	61	75	90	108	151	—	—
	500V	[kVA]	35	35	42	52	61	61	74	74	91	108	130	182	—	—
	690V	[kVA]	49	49	58	72	84	84	102	102	125	149	179	251	—	—
1000V	[kVA]	—	—	—	80	121	121	147	147	182	217	260	364	—	—	
n = 20	≤ 690V	[A]	61.3	61.3	72.8	90	105	105	128	128	158	188	225	315	—	—
n = 15	≤ 690V	[A]	82	82	97	120	140	140	170	170	210	250	300	420	—	—

60 Hz Peak Inrush/peak rated transformer current

n = 30	[A]	40.8	40.8	48.5	60	70	70	85	85	105	125	150	210	—	—
	200V [kVA]	14.4	14.4	16.8	20.8	24.2	24.2	29.4	29.4	36.4	43.3	52.0	72.7	—	—
	208V [kVA]	14.7	14.7	17.5	21.6	25.2	25.2	30.6	30.6	37.8	45.0	54.0	75.7	—	—
	240V [kVA]	17.0	17.0	20.2	24.9	29.1	29.1	35.3	35.3	43.6	52.0	62.4	87.3	—	—
	480V [kVA]	33.9	33.9	40.3	49.9	58.2	58.2	70.7	70.7	87.3	104	125	175	—	—
	600V [kVA]	42.4	42.4	50.4	62.4	72.7	72.7	88.3	88.3	109	130	156	218	—	—
	660V [kVA]	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

n = 20	[A]	61.3	61.3	72.8	90	105	105	128	128	158	188	225	315	—	—
	200V [kVA]	21.2	21.2	25.2	31.2	36.4	36.4	44.3	44.3	54.7	65.1	77.9	109	—	—
	208V [kVA]	22.1	22.1	26.2	32.4	37.8	37.8	46.1	46.1	56.9	67.7	81.1	113	—	—
	240V [kVA]	25.5	25.5	30.3	37.4	43.6	43.6	53.2	53.2	65.7	78.2	93.5	131	—	—
	480V [kVA]	51.0	51.0	60.5	74.8	87.3	87.3	106	106	131	156	187	262	—	—
	600V [kVA]	63.7	63.7	75.7	93.5	109	109	133	133	164	195	234	327	—	—
	660V [kVA]	70.1	70.1	83.2	103	120	120	146	146	181	215	257	360	—	—

60 Hz Peak Inrush/peak rated transformer current

n=15	[A]	82	82	97	120	140	140	170	170	210	250	300	420	—	—
	200V [kVA]	28.4	28.4	33.6	41.6	48.5	48.5	58.9	58.9	72.7	86.6	104	145	—	—
	208V [kVA]	29.5	29.5	34.9	43.2	50.4	50.4	61.2	61.2	75.7	90.1	108	151	—	—
	240V [kVA]	34.1	34.1	40.3	49.9	58.2	58.2	70.7	70.7	87.3	104	125	175	—	—
	480V [kVA]	68.2	68.2	80.6	99.8	116	116	141	141	175	208	249	349	—	—
	600V [kVA]	85.2	85.2	100.8	125	145	145	177	177	218	260	312	436	—	—
	660V [kVA]	93.7	93.7	110.9	137	160	160	194	194	240	286	343	480	—	—

		100/104-K			100/104-C, 100S/104S-C										
		05	09	12	09	12	16	23	30	37	40*200	40*400	43	55	60
Coil Type :	Conventional	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)\***

Single capacitor 40 °C	230V	[kVar]	—	—	—	8	8	8.5	9	14	14	—	—	24	24	28
	240V	[kVar]	—	—	—	8	8	8.5	9	14	14	—	—	25	25	29

	400V	[kVar]	–	–	–	8	8	10	12.5	20	24	–	–	35	35	48
	415V	[kVar]	–	–	–	8	8	10	12.5	20	25	–	–	35	35	50
	500V	[kVar]	–	–	–	8	8	10	12.5	20	25	–	–	35	35	50
	690V	[kVar]	–	–	–	8	8	10	12.5	20	25	–	–	35	35	50
	1000V	[kVar]	–	–	–	–	–	–	–	–	–	–	–	–	–	–
60 °C	230V	[kVar]	–	–	–	8	8	8.5	9	12.5	12.5	–	–	18	18	28
	240V	[kVar]	–	–	–	8	8	8.5	9	12.5	12.5	–	–	18	18	29
	400V	[kVar]	–	–	–	8	8	10	12.5	20	21.5	–	–	30	30	42
	415V	[kVar]	–	–	–	8	8	10	12.5	20	22	–	–	30	30	42
	500V	[kVar]	–	–	–	8	8	10	12.5	20	25	–	–	30	30	42
	690V	[kVar]	–	–	–	8	8	10	12.5	20	25	–	–	30	30	42
	1000V	[kVar]	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Group capacitors 40 °C	230V	[kVar]	–	–	–	5	5	8	9	12.5	14	–	–	20	20	28
	240V	[kVar]	–	–	–	5	5	8	9	12.5	14	–	–	20	20	29
	400V	[kVar]	–	–	–	5	5	8	10	15	20	–	–	25	25	40
	415V	[kVar]	–	–	–	5	5	8	10	15	20	–	–	25	25	40
	500V	[kVar]	–	–	–	5	5	8	10	15	20	–	–	25	25	40
	690V	[kVar]	–	–	–	5	5	8	10	15	20	–	–	25	25	40
	1000V	[kVar]	–	–	–	–	–	–	–	–	–	–	–	–	–	–
60 °C	230V	[kVar]	–	–	–	5	5	8	9	12.5	12.5	–	–	18	18	28
	240V	[kVar]	–	–	–	5	5	8	9	12.5	12.5	–	–	18	18	29
	400V	[kVar]	–	–	–	5	5	8	10	15	20	–	–	25	25	40
	415V	[kVar]	–	–	–	5	5	8	10	15	20	–	–	25	25	40
	500V	[kVar]	–	–	–	5	5	8	10	15	20	–	–	25	25	40
	690V	[kVar]	–	–	–	5	5	8	10	15	20	–	–	25	25	40
	1000V	[kVar]	–	–	–	–	–	–	–	–	–	–	–	–	–	–
60 Hz Single Capacitor – 40 °C																
	200V	[kVar]	–	–	–	5	5	8	9	12.5	14	–	–	20	20	28
	230V	[kVar]	–	–	–	5	5	8	9	12.5	14	–	–	20	20	29
	460V	[kVar]	–	–	–	5	5	8	10	15	20	–	–	25	25	40
	600V	[kVar]	–	–	–	5	5	8	10	15	20	–	–	25	25	40
60 Hz Group Capacitors – 40 °C																
	200V	[kVar]	–	–	–	5	5	8	9	12.5	12.5	–	–	18	18	28
	230V	[kVar]	–	–	–	5	5	8	9	12.5	12.5	–	–	18	18	29
	460V	[kVar]	–	–	–	5	5	8	10	15	20	–	–	25	25	40
	600V	[kVar]	–	–	–	5	5	8	10	15	20	–	–	25	25	40
<b>Switching of Lamps</b>																
Gas discharge lamps AC-5a, 40 °C	open	[A]	18	18	18	22.5	25	28	29	40.5	45	65	65	77	77	81
	enclosed	[A]	14.5	14.5	14.5	22.5	25	28	29	37	41	54	54	57	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	3200	4 000
	20 kA	[μF]	400	400	400	500	500	500	500	1 350	1 350	–	–	1 600	1600	2 000
	50 kA	[μF]	–	–	–	200	200	200	200	540	540	–	–	640	640	800
Filament AC-5b	230/240V	[A]	5	9	9	12	16	18	22	30	37	18	25	43	51	60
<b>Switching of Low Inductive Loads in Home Appliances and Similar Applications per IEC 61095 (50 Hz)</b>																
AC-7a	230V	[A]	20	20	20	32	32	32	32	45	45	–	–	63	63	–
	400V	[A]	20	20	20	32	32	32	32	45	45	–	–	63	63	–
	440V	[A]	–	–	–	32	32	32	32	45	45	–	–	63	63	–
<b>Switching of Motor Load for Home Appliances (50 Hz)</b>																
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)





	400V	[A]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	440V	[A]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

		100/104-K			100/104-C, 100S/104S-C										
		05	09	12	09	12	16	23	30	37	40*200	40*400	43	55	60
Coil Type :	Conventional	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 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	63	72
	500V	[A]	10	15	15	12	16	22	32	38	45	–	–	63	63	72
	690V	[A]	–	–	–	8	10	14	20	28	35	–	–	42	42	56

- automatic reset of overload release

AC-8b	400V	[A]	–	–	–	5.5	7	9.3	12	13	14	–	–	16	16	24
	500V	[A]	–	–	–	5.5	7	9.3	12	13	14	–	–	16	16	24
	690V	[A]	–	–	–	5.5	7	9.3	12	13	14	–	–	16	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	50	70
	48/60V	[A]	4/1	6/1.5	6/1.5	20	20	20	20	25	25	25	25	30	30	40
	110V	[A]	0.6	1	1	6	6	6	6	8	8	10	10	9	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	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	0.5
2 poles in series	24V	[A]	6	9	9	25	25	32	32	45	45	45	45	50	50	70
	48/60V	[A]	6	8	8	25	25	32	32	45	45	45	45	50	50	70
	110V	[A]	4	6	6	25	25	32	32	45	45	45	45	50	50	70
	220V	[A]	0.8	1.2	1.2	8	8	8	10	10	10	10	10	10	10	15
	440V	[A]	0.2	0.3	0.3	1	1	1	1	1	1	1	1	1	1	1.5
3 poles in series	24V	[A]	6	9	9	25	25	32	32	45	45	–	45	63	63	90
	48/60V	[A]	6	9	9	25	25	32	32	45	45	–	45	63	63	90
	110V	[A]	6	9	9	25	25	32	32	45	45	–	45	63	63	90
	220V	[A]	3	4	4	25	25	32	32	45	45	–	45	50	50	70
	440V	[A]	0.4	0.6	0.6	3	3	3	3	3.5	3.5	–	3.5	4	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	63	90
	48/60V	[A]	4	6	6	25	25	32	32	45	45	–	–	50	50	70
	110V	[A]	2	3	3	20	20	25	25	30	30	–	–	35	35	70
	220V	[A]	0.8	1.2	1.2	6	6	6	10	15	15	–	–	20	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	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	63	90
	48/60V	[A]	2	3	3	25	25	32	32	45	45	–	–	50	50	70
	110V	[A]	0.6	1	1	20	20	25	25	30	30	–	–	35	35	70
	220V	[A]	0.1	0.1	0.1	6	6	6	10	15	15	–	–	20	20	25
	440V	[A]	–	–	–	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]	60	96	96	170	170	170	215	300	304	304	304	375	375	700
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**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	1	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	9.1	9.7

**Total power dissipation**

At $I_e$ AC-3/400V	AC control	[W]	2.1	2.7	2.7	3.4	3.9	4.8	6.3	8.5	11.3	8.8	9.5	11.6	12.4	16.2
	DC control (conventional)	[W]	–	–	–	–	–	–	–	–	–	–	–	–	–	13.7
	DC control (electronic)	[W]	2.9	3.5	3.5	2.4	2.9	3.8	4.9	7.1	9.9	8	8.7	10.8	11.6	–

Lifespan																
Mechanical AC control	[Mil. operations]	15	15	15	13	13	13	13	13	13	10	10	12	12	6	
Mechanical DC control	[Mil. operations]	15	15	15	13	13	13	13	13	13	10	10	13	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	0.5	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)	0.51 (1.12)	1.45 (3.20)
	Rev.	kg (lbs.)	0.4 (0.88)	0.4 (0.88)	0.4 (0.88)	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)
DC	Non-Rev.	kg (lbs.)	0.2 (0.44)	0.2 (0.44)	0.2 (0.44)	0.6 (1.32)	—	—	—	—	—	—	—	—	—	1.47 (3.24)
	Rev.	kg (lbs.)	0.48 (1.06)	0.48 (1.06)	0.48 (1.06)	1.27 (2.81)	—	—	—	—	—	—	—	—	—	3.22 (7.1)
DC (Electronic -EQ, EJ)	Non-Reversing	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)
	Reversing	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-Reversing	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)
	Reversing	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					100/104-D, 100S-D											
			72	85	90*200	90*400	97	115	140	140	180	180	210	250	300	420	630	860
Coil Type :	Conventional	X	X	X	X	X	X	X	—	X	—	—	—	—	—	—	—	—
	Electronic — EI	—	—	—	—	—	X	—	X	—	X	X	X	X	X	X	X	X

**Switching of Hermetically Sealed Cooling Compressor Motors - manual reset of overload release (50 Hz)**

AC-8a		[A]	400V		500V		690V		400V		500V		690V		400V		500V		690V	
			85	100	85	100	67	80	115	192	115	192	90	192	115	192	90	192	115	192
	400V	[A]	85	100	—	—	115	192	210	210	—	—	—	—	—	—	—	—	—	—
	500V	[A]	85	100	—	—	115	192	192	210	—	—	—	—	—	—	—	—	—	—
	690V	[A]	67	80	—	—	90	192	192	210	—	—	—	—	—	—	—	—	—	—

- automatic reset of overload release

AC-8b		[A]	400V		500V		690V		400V		500V		690V		400V		500V		690V	
			30	35	30	35	30	35	35	—	35	—	35	—	35	—	35	—	35	—
	400V	[A]	30	35	—	—	35	—	—	—	—	—	—	—	—	—	—	—	—	—
	500V	[A]	30	35	—	—	35	—	—	—	—	—	—	—	—	—	—	—	—	—
	690V	[A]	30	35	—	—	35	—	—	—	—	—	—	—	—	—	—	—	—	—

**Switching of DC Loads**

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

Poles	Voltage	[A]	24V		48/60V		110V		220V		440V		24V		48/60V		110V		220V		440V	
			80	80	40	40	11	11	2	2	0.5	0.5	80	80	40	40	11	11	2	2	0.5	0.5
1 pole	24V	[A]	80	80	40	40	11	11	2	2	0.5	0.5	80	80	40	40	11	11	2	2	0.5	0.5
	48/60V	[A]	40	40	11	11	2	2	0.5	0.5	80	80	40	40	11	11	2	2	0.5	0.5	80	80
	110V	[A]	11	11	2	2	0.5	0.5	80	80	40	40	11	11	2	2	0.5	0.5	80	80	40	40
	220V	[A]	2	2	0.5	0.5	80	80	40	40	11	11	2	2	0.5	0.5	80	80	40	40	11	11
	440V	[A]	0.5	0.5	80	80	40	40	11	11	2	2	0.5	0.5	80	80	40	40	11	11	2	2
2 poles in series	24V	[A]	80	80	40	40	11	11	2	2	0.5	0.5	80	80	40	40	11	11	2	2	0.5	0.5
	48/60V	[A]	40	40	11	11	2	2	0.5	0.5	80	80	40	40	11	11	2	2	0.5	0.5	80	80
	110V	[A]	11	11	2	2	0.5	0.5	80	80	40	40	11	11	2	2	0.5	0.5	80	80	40	40
	220V	[A]	2	2	0.5	0.5	80	80	40	40	11	11	2	2	0.5	0.5	80	80	40	40	11	11
	440V	[A]	0.5	0.5	80	80	40	40	11	11	2	2	0.5	0.5	80	80	40	40	11	11	2	2
3 poles in series	24V	[A]	90	100	45	50	15	15	5	5	1.5	1.5	90	100	45	50	15	15	5	5	1.5	1.5
	48/60V	[A]	45	50	15	15	5	5	1.5	1.5	90	100	45	50	15	15	5	5	1.5	1.5	90	100
	110V	[A]	15	15	5	5	1.5	1.5	90	100	45	50	15	15	5	5	1.5	1.5	90	100	45	50
	220V	[A]	5	5	1.5	1.5	90	100	45	50	15	15	5	5	1.5	1.5	90	100	45	50	15	15
	440V	[A]	1.5	1.5	90	100	45	50	15	15	5	5	1.5	1.5	90	100	45	50	15	15	5	5

**Shunt-wound Motors**

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

Poles	Voltage	[A]	24V		48/60V		110V		220V		440V		24V		48/60V		110V		220V		440V	
			90	100	45	50	15	15	5	5	1.5	1.5	90	100	45	50	15	15	5	5	1.5	1.5
3 poles in series	24V	[A]	90	100	45	50	15	15	5	5	1.5	1.5	90	100	45	50	15	15	5	5	1.5	1.5
	48/60V	[A]	45	50	15	15	5	5	1.5	1.5	90	100	45	50	15	15	5	5	1.5	1.5	90	100
	110V	[A]	15	15	5	5	1.5	1.5	90	100	45	50	15	15	5	5	1.5	1.5	90	100	45	50
	220V	[A]	5	5	1.5	1.5	90	100	45	50	15	15	5	5	1.5	1.5	90	100	45	50	15	15
	440V	[A]	1.5	1.5	90	100	45	50	15	15	5	5	1.5	1.5	90	100	45	50	15	15	5	5

**Series-wound Motors**

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

Series-wound Motors																						
---------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

3 poles in series	24V	[A]	90	100	—	—	100	135	210	210	210	210	300	300	380	425	—	—	
	48/60V	[A]	70	80	—	—	80	135	210	210	210	210	300	300	380	425	—	—	
	110V	[A]	70	80	—	—	80	135	210	210	210	210	300	300	380	425	—	—	
	220V	[A]	25	30	—	—	30	135	210	210	210	210	300	300	380	425	—	—	
	440V	[A]	0.6	0.6	—	—	0.6	1.2	2.1	2.1	2.1	2.1	2.4	2.4	2.4	3	—	—	
<b>Short Time Withstand <math>I_{CW}</math>, 60 °C</b>																			
	10 s	[A]	700	700	700	700	840	1040	1240	1360	1480	1480	2360	2520	2840	4700	6300	7000	
<b>Resistance and Power Dissipation</b>																			
Main current circuit resistance	230V	[mΩ]	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	
Power dissipation by all circuits at $I_E$ AC-3/400V	460V	[W]	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																			
At $I_E$ AC-3/400V	AC control	[W]	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	
	DC control	[W]	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	
<b>Lifespan</b>																			
Mechanical AC control	600V	[Mil. operations]	6	6	6	6	6	10	10	10	10	10	10	10	10	10	10	2	2
DC control	600V	[Mil. operations]	6	6	6	6	6	10	10	10	10	10	10	10	10	10	10	2	2
Electrical AC-3 (400 V)	600V	[Mil. operations]	1	1	—	—	1	1	1	1	1	1	1	1	1	1	1	—	—
<b>Weight</b>																			
AC	Non-Reversing	kg (lbs.)	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)	
	Reversing	kg (lbs.)	3.14 (6.92)	3.14 (6.92)	—	—	3.14 (6.92)	—	—	—	—	—	—	—	—	—	—	—	
DC (Conventional)	Non-Reversing	kg (lbs.)	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)	
	Reversing	kg (lbs.)	3.22 (7.1)	3.22 (7.1)	—	—	3.22 (7.1)	—	—	—	—	—	—	—	—	—	—	—	
DC (Electronic - EQ, EJ)	Non-Reversing	kg (lbs.)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	Reversing	kg (lbs.)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
DC (Electronic - EY, ED, EA)	Non-Reversing	kg (lbs.)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	Reversing	kg (lbs.)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	

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

















		100-KR		100/104-K			100/104-C, 100S/104S-C													
		05	09	05	09	12	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	X	X	X	X	X	X
	Electr. – EI	–	–	–	–	–	X	X	X	X	X	X	X	X	X	–	–	–	–	–
Conductor Cross Sections - Main Contacts Terminal type				*		*		‡		§		§		§		§		§		§
		(1) conductor	[mm <sup>2</sup> ]	0.50...2.5	0.75...2.5	1...4					2.5...10	2.5...16	2.5...35							
		(2) conductors	[mm <sup>2</sup> ]	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 <sup>2</sup> ]	0.75...2.5♣	1...4	1.5...6					2.5...16	2.5...25	2.5...50							
		(2) conductors	[mm <sup>2</sup> ]	0.75...2.5♣	1...2.5+ 1...4	1.5...6					2.5...16	2.5...16	2.5...35							
		b max.	[mm]	–	–	–					–	–	–							
		c max.	[mm]	–	–	–					–	–	–							
		s max.	[mm]	–	–	–					–	–	–							
		∅ 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...4	14...6 14...4	14...1							
Recommended torque	[lb-in]			–	10.6	13.3...17.7					22...31	22...31	40...53							
<b>With terminal lug kit</b>				–	–	–					–	–	–							
Cross section per UL/CSA	[AWG]			–	–	–					–	–	–							
Recommended torque	[lb-in]			–	–	–					–	–	–							
<b>With Frame Terminal Block</b>				–	–	–					–	–	–							
		top opening	[mm <sup>2</sup> ]	–	–	–					–	–	–							
		bottom opening	[mm <sup>2</sup> ]	–	–	–					–	–	–							
		top opening	[mm <sup>2</sup> ]	–	–	–					–	–	–							
		bott. opening	[mm <sup>2</sup> ]	–	–	–					–	–	–							
		b max. s top s bottom	[mm <sup>2</sup> ]	–	–	–					–	–	–							
Recommended torque	[N•m]			–	–	–					–	–	–							
Cross section per UL/CSA 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
Coil Type :	Conventional	X	X	X	—	—	—	—	—	—
	Electronic – EI	X	X	X	X	X	X	X	X	X
Conductor Cross Sections - Main Contacts Terminal type										
		(1) conductor	[mm <sup>2</sup> ]	—	—	—	—	—	—	
		(2) conductors	[mm <sup>2</sup> ]	—	—	—	—	—	—	
		(1) conductor	[mm <sup>2</sup> ]	—	—	—	—	—	—	
		(2) conductors	[mm <sup>2</sup> ]	—	—	—	—	—	—	
		b max.	[mm]	25	30	52	52			
		c max.	[mm]	12.5	15	22	22			
		s max.	[mm]	5	6	2 x 8	2 x 8			
		∅ min.	[mm]	8.3	10.5	13	13			
Recommended torque		[Nm]		22	43	68	68			
Cross section per UL/CSA		[AWG]		—	—	—	—			
Recommended torque		[lb-in]		195	380	600	600			
<b>With terminal lug kit</b>				100-DL180S	100-DL420S	100-DL630	100-DL860			
Cross section per UL/CSA		[AWG]		6...300 MCM	(2x) 4...350 MCM	(2X) 2/0...500MCM	(4X) 2/0...500MCM			
Recommended torque		[lb-in]		88...106	375	400	400			
<b>With Frame Terminal Block</b>				100-DTB180S	100-DTB420*	—	—			
		top opening	[mm <sup>2</sup> ]	16...35	25...185Δ	—	—			
		bottom opening	[mm <sup>2</sup> ]	16...95	25...185	—	—			
		top opening	[mm <sup>2</sup> ]	16...50	25...240	—	—			
		bottom opening	[mm <sup>2</sup> ]	16...120	25...240	—	—			
		b max.	[mm]	20	25	—	—			
		s top	[mm]	3...9	6...20	—	—			
		s bottom	[mm]	3...14	6...20	—	—			
Recommended torque		[Nm]		14	25	—	—			
Cross section per UL/CSA top		[AWG]		6...1 / 0 AWG	4 AWG...600 MCM	—	—			
bottom		[AWG]		6 AWG...250 MCM	4 AWG...600 MCM	—	—			
Recommended torque		[lb-in]		124	220	—	—			

\* Pozidriv No. 2 / Blade No. 3 screw

‡ Pozidriv No. 2 / Blade No. 4 screw

§ Hexagonal socket screw

♣ Hexagonal screw

## Short-Circuit Coordination Data§

		100/104-K		100/104-C, 100S/104S-C																	
		05	09	12	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	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		50 kA Available Fault Current																			
Type "1" (690V)	[A]	35	35	35	50	50	50	80	125	125	160	160	160	160	250	250	250	250	250	250	250
Type "2" (400V)	[A]	16	20	20	25	35	35	40	80	80	63	80	100	100	160	160	160	160	100	200	200
Type "2" (690V)	[A]	-	-	-	25	35	35	40	80	80	63	80	100	100	160	160	160	160	100	200	200
BS88 Fuses		65 kA Available Fault Current																			
Type "1" (415V)	[A]	-	-	-	25	32	40	50	63	80	-	-	80	TBD	100	160	160	-	-	TBD	TBD
Type "2" (415V)	[A]	-	-	-	20	25	32	50	63	80	-	-	80	TBD	100	125	160	-	-	TBD	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	200	-	-	-	-	-	-
UL Class K5 and RK5 Fuses		10 kA Available Fault Current																			
UL Listed Combination (600V)	[A]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	250	300	300	300	350	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	TBD	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	150	250	-	-	-	-	-	-
UL Listed Combination (600V)	[A]	-	-	-	-	-	-	-	125	125	-	-	125	150	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		25 kA Available Fault Current																			
UL Listed Combination (600Y/347V)	[A]	-	-	-	30‡	30‡	30‡	30‡	50	50	-	-	50	TBD	110	110	110	-	-	-	-
UL Inverse-Time Circuit Breaker		25 kA Available Fault Current																			
UL Listed Combination (600V)	[A]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	200
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	TBD	-	-	-	-	-	-	-	-
UL Inverse-Time Circuit Breaker		65 kA Available Fault Current																			
UL Listed Combination (480Y/277V)	[A]	-	-	-	30‡	30‡	30‡	30‡	-	-	-	-	-	TBD	110	110	110	-	-	-	-
UL Inverse-Time Circuit Breaker		65 kA Available Fault Current																			
UL Listed Combination (480V)	[A]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	200

♣ 15 A max. fuse for Type 2 coordination.

§ See [www.ab.com/certifications/ul508a](http://www.ab.com/certifications/ul508a) for complete short-circuit current ratings.

‡ Ratings apply when used with Bulletin 140U-D circuit breakers only.

		100/104-D, 100S-D									
		115	140/180	140	180	210	250	300	420	630	860
Coil Type :	Conventional	X	X	—	—	—	—	—	—	—	—
	Electronic - El	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	[kVar]	50 kA Available Fault Current									
Type "1" (690V)	[A]	250	315	315	355	500	500	630	630	‡	‡
Type "2" (400V)	[A]	200	250	250	315	400	400	500	500	‡	‡
Type "2" (690V)	[A]	200	250	250	315	400	400	500	500	‡	‡
BS88 Fuses		65 kA Available Fault Current									
Type "1" (415V)	[A]	200	250	250	250	355	355	450	630	‡	‡
Type "2" (415V)	[A]	200	250	250	250	355	355	450	560	‡	‡
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]	—	—	—	—	—	—	—	—	—	—
UL Class K5 and RK5 Fuses		10 kA Available Fault Current									
UL Listed Combination (600V)	[A]	250	350/450	350	450	500	—	—	—	—	—
UL Class L Fuses		18 kA Available Fault Current									
UL Listed Combination (600V)	[A]	—	—	—	—	—	700	700	1000	—	—
UL Class L Fuses		30 kA Available Fault Current									
UL Listed Combination (600V)	[A]	—	—	—	—	—	—	—	—	2000	—
UL Class L Fuses		42 kA Available Fault Current									
UL Listed Combination (600V)	[A]	—	—	—	—	—	—	—	—	—	2500
UL Class CC and CSA HRCI-MISC Fuses		50 kA Available Fault Current									
UL Listed Combination (600V)	[A]	—	—	—	—	—	—	—	—	—	—
UL Class J and CSA HRCI-J Fuses		50 kA Available Fault Current									
UL Listed Combination (600V)	[A]	—	—	—	—	—	—	—	—	—	—
UL Class CC and CSA HRCI-MISC Fuses		100 kA Available Fault Current									
UL verified combination to IEC 60947-4-1 "Type 2"	[A]	—	—	—	—	—	—	—	—	—	—
UL Class J and CSA HRCI-J Fuses		100 kA Available Fault Current									
UL verified combination to IEC 60947-4-1 "Type 2"	[A]	200	250/300	250	300	400	400	500	600	‡	‡
UL Inverse-Time Circuit Breaker		5 kA Available Fault Current									
UL Listed Combination (480V)	[A]	—	—	—	—	—	—	—	—	—	—
UL Listed Combination (600V)	[A]	—	—	—	—	—	—	—	—	—	—
UL Inverse-Time Circuit Breaker		10 kA Available Fault Current									
UL Listed Combination (600V)	[A]	150	200/250	200	250	300	—	—	—	—	—
UL Inverse-Time Circuit Breaker		18 kA Available Fault Current									
UL Listed Combination (600V)	[A]	—	—	—	—	—	350	400	500	—	—
UL Inverse-Time Circuit Breaker		25 kA Available Fault Current									
UL Listed Combination (600Y/347V)	[A]	125	200	200	200	250	—	—	—	—	—
UL Inverse-Time Circuit Breaker		30 kA Available Fault Current									
UL Listed Combination (600V)	[A]	—	—	—	—	—	400	400	600	1200	—
UL Inverse-Time Circuit Breaker		42 kA Available Fault Current									
UL Listed Combination (600V)	[A]	—	—	—	—	—	—	—	—	—	1200
UL Inverse-Time Circuit Breaker		50 kA Available Fault Current									
UL Listed Combination (480V)	[A]	—	—	—	—	—	—	—	—	—	—
UL Inverse-Time Circuit Breaker		65 kA Available Fault Current									
UL Listed Combination (480V)	[A]	125	200	200	200	250	400	400	600	‡	‡
UL Inverse-Time Circuit Breaker		65 kA Available Fault Current									
UL Listed Combination (480Y/277V)	[A]	—	—	—	—	—	—	—	—	—	—
UL Inverse-Time Circuit Breaker		65 kA Available Fault Current									
UL Listed Combination (480V)	[A]	125	200	200	200	250	400	400	600	‡	‡

‡ To be determined.

# Coil Data

			100/104-K			100/104-C, 100S/104S-C																				
			05	09	12	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	X	X					
	Electronic – EI		–	–	–	X	X	X	X	X	X	X	X	X	X	–	–	–	–	–	–	–				
<b>Operating Limits</b>																										
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											
	dropout	[x Us]	0.1...0.75			–						–			0.1...0.6											
DC (electronic – EQ, EJ, EW)	pick-up	[x Us]	–			0.7...1.25						–			–											
	dropout	[x Us]	–			0.3...0.4						–			–											
DC (electronic – EY)	pick-up	[x Us]	–			0.8...1.25						–			–											
	dropout	[x Us]	–			0.3...0.4						–			–											
DC (electronic – ED)	pick-up	[x Us]	–			0.7...1.12						–			–											
	dropout	[x Us]	–			0.3...0.4						–			–											
DC (electronic – EA)	pick-up	[x Us]	–			0.7...1.1						–			–											
	dropout	[x Us]	–			0.3...0.4						–			–											
<b>Coil Consumption</b>																										
50 Hz, 60 Hz, 50/60 Hz	pick-up	[VA]	35			75			105			135			235			400/240								
	hold-in	[VA/W]	5/1.8			9.5/2.7			12.3/3.1			13.3/3.3			19.6/5			24/9								
DC (conventional)	pick-up	[W]	cold 3.0, warm 2.6			–			–			–			200			325								
	hold-in	[W]	cold 3.0, warm 2.6			–			–			–			4			5								
DC (electronic – EQ, EJ, EW)	pick-up (avg/peak)	[W]	–			10/17						16/25			–			–								
	hold-in	[W]	–			1.7						2.5			–			–								
DC (electronic – EY)	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			–			–								
<b>Operating Times</b>																										
AC	closing delay	[ms]	15...40			15...30			15...30			15...30			20...40			20...40								
	opening delay	[ms]	15...33			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			20...40								
DC (conventional)	closing delay	[ms]	18...40			–			–			–			50...80			20...40			15...25		20...25		20...25	
	opening delay	[ms]	6...12			–			–			–			7...15			–			–					
With integ. diode	opening delay	[ms]	8...12			–			–			–			17...23			≤ 220V 20...35			≤ 220V 20...35					
With external diode	opening delay	[ms]	35...50			–			–			–			80...125			–			–					
DC (electronic – EQ, EJ, EW)	closing delay	[ms]	–			25...50						–			–			–								
	opening delay	[ms]	–			27...45						–			–			–								
	Max. Ripple		–			± 15%						–			–			–								
	Min. OFF time	[ms]	–			50						–			–			–								
DC (electronic – EW, EY, ED, EA)	closing delay	[ms]	–			25...50						–			–			–								
	opening delay	[ms]	–			23...33						–			–			–								
	Max. Ripple		–			± 15%						–			–			–								
	Min. OFF time	[ms]	–			50						–			–			–								

♣ For 9, 12, 24, and 110V DC coils



			100/104-D, 100S-D										
			115	140/180	115	140	180	210	250	300	420	630	860
Coil Type	Conventional		X	X	—	—	—	—	—	—	—	—	—
	Electronic – EI		—	—	X	X	X	X	X	X	X	X	X

#### Operating Limits

50 Hz, 60 Hz, 50/60 Hz	pick-up	[x $\mathcal{L}$ s]	0.85...1.1	0.85...1.1	0.8...1.1
	dropout	[x $\mathcal{L}$ s]	0.3...0.6	0.3...0.5	0.1...0.8
DC control	pick-up	[x $\mathcal{L}$ s]	0.85...1.1	0.85...1.1	0.85...1.1
	dropout	[x $\mathcal{L}$ s]	0.3...0.6	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	60...100
	opening delay	[ms]	6...12	25...110	70...145
With RC module	opening delay	[ms]	9...18	—	—
DC	closing delay	[ms]	27...47	25...50	60...100
	opening delay	[ms]	12...20	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 AllenBradley 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	
<b>Switching of AC Loads</b>												X
AC-12 I <sub>th</sub>	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			
<b>Switching of DC Loads</b>												
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	1	1	3.5	3.5	—	
	220V DC	[A]	0.2	—	0.55	0.55	0.5	0.5	0.55	0.55	—	
	440V DC	[A]	0.08	—	0.2	0.2	0.2	0.2	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		
	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		
<b>Fuse gG</b>												
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)	—	
<b>Load Carrying Capacity per UL/CSA</b>												
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

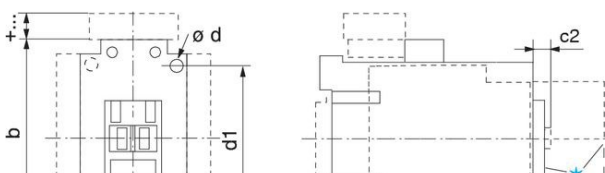
## General

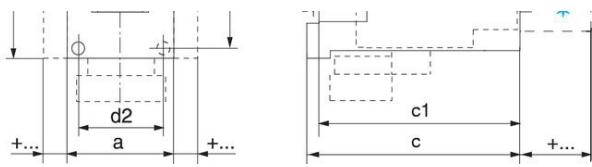
		100-K	100-C, 100S-C	100-D, 100S-D
		05...12	09...97	115...420
<b>Rated Isolation Voltage <math>U_i</math></b>				
IEC	[V]	690	690	1000
UL, CSA	[V]	600	600	600
<b>Rated Impulse Voltage Withstand <math>U_{imp}</math></b>	[kV]	6	6	12
<b>Rated Voltage <math>U_e</math></b>				
AC 50/60 Hz	[V]	230, 240, 400, 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
<b>Insulation Class of the Coil</b>		Class F per IEC 60085 Class 105 insulation system per UL 508	Class F per IEC 60085	Class B per VDE 0660, Table 22
<b>Rated coil frequency</b>		AC 50/60 Hz, DC	AC 50/60 Hz, DC	AC 50 Hz, 50/60 Hz, DC
<b>Ambient Temperature</b>				
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		
<b>Climatic Withstand</b>		IEC 60068-2-30	IEC 60068-2-1 / -2 / -30	IEC 60068-2-30
<b>Max. Altitude of Installation Site</b>	[m]	2000 NN, per IEC 60947-4	2000 NN, per IEC 60947-1	2000 NN, per IEC 60947-4
<b>Protection Class</b>		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	IP2X	IP20 IEC 60529 / DIN 40 050
<b>Protection against Accidental Contact</b>		—	Finger and back-of-hand proof per VDE 0106, part 100	Finger and back-of-hand proof per VDE 0106, part 100
<b>Resistance to Shock</b>		IEC 60068-2	IEC 60068-2-27	IEC 60068-2-27
<b>Resistance to Vibration</b>		IEC 60068-2	IEC 60068-2-6	IEC 60068-2-6
<b>Mechanically Linked Contacts IEC 60947-5-1, Annex L</b>		100-K... (on main device)	100- / 100S-C09...C55 + 100-FA/-FB/-FC, (except L11, L22), 100- / 100S-C09...C55 + 100-FAB/-FBB/-FCB	—
<b>Mirror Contacts IEC 60947-4 Annex F</b>		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
<b>Standards Compliance</b>		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
<b>Certifications</b>		CE, cULus CCC	CE, cULus, CCC	CE, cULus, CCC

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

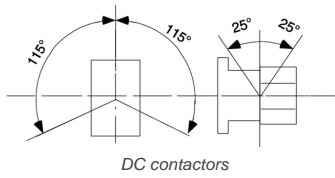
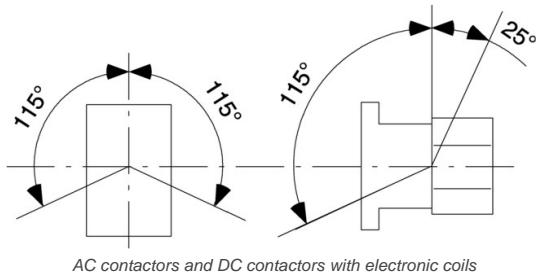
## Bulletin 100S-C/104S-C Contactors and Accessories

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





## Mounting Position



## AC Contactors and DC Contactors with 12V or 24V Electronic Coils

Cat. No.	a	b	c	c1	c2	Ød	d1	d2
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	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)

## DC Contactors with Conventional Coils

Cat. No.	a	b	c	c1	c2	Ød	d1	d2
100S-C09Z...100S-C16Z	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)
100S-C23Z	45 (1-25/32)	81 (3-3/16)	162.5 (6-7/16)	158 (6-1/4)	6 (15/64)	2-4.5 (2-3/16)	60 (2-23/64)	35 (1-3/8)
100S-C30Z...100S-C37Z	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)
100S-C43Z	54 (2-1/8)	81 (3-3/16)	183.5 (7-17/64)	179 (7-3/32)	6.5 (1/4)	2-4.5 (2-3/16)	60 (2-23/64)	45 (1-25/32)
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)

## DC Contactors with 48...72V, 110...125V, or 200...250V DC Electronic Coils

Cat. No.	a	b	c	c1	c2	Ød	d1	d2
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-C43EA, -ED, or -EY	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)

## 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)