

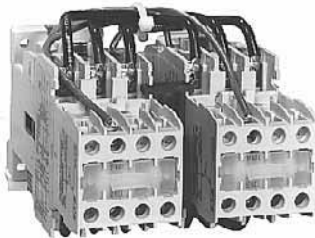
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Note: For more information, see CA03402001E.



IEC Size B
Cat. No. CE15BNS3AB



IEC Size D
Cat. No. CE55DN3AB

Product Description

Non-reversing

Contactors are most commonly used to switch motor loads in applications where running over current protection is either not required or is provided separately. Contactors consist of a magnetically actuated switch which can be remotely operated by a push-button station or pilot device such as a proximity switch, limit switch, float switch, auxiliary contacts, etc.

Reversing

Reversing contactors are used primarily for reversing single- or three-phase motors in applications where running over current protection is either not required or is provided separately. They consist of two contactors mechanically and electrically interlocked to prevent line shorts and energization of both contactors simultaneously.

Features

- **EN60947-4-1 IEC 947-4-1 Compliance** — new International Standard for low voltage switchgear and control devices.
- Long life twin break, silver cadmium oxide contacts — provide excellent conductivity and superior resistance to welding and arc erosion.
- Designed to 2,000,000 electrical and 20,000,000 mechanical operations at maximum hp ratings through 20 hp at 460V. Adequate for most general duty control applications.

Non-reversing

- UL listed and CSA certified.
- Highest horsepower rating in a compact, space-saving design, 45 mm frame rated maximum 20 hp at 460V, 65 mm frame rated maximum 50 hp, 90 mm frame rated 100 hp, 180 mm frame rated 200 hp, 220 mm frame rated 350 hp, 280 mm frame rated 600 hp, and 334 mm frame rated 900 hp.
- 45 mm open contactors, Sizes A – F, have DIN rail or universal base mounting, 65 mm open contactors have molded feet for panel mounting, and 90 mm to 334 mm have steel mounting plates (optional on smaller sizes).
- DIN rail release mechanism conveniently located on line side of contactor.

- IP20 finger protection shields available.
- Contactor and terminal markings conform to CENELEC EN50011.
- Holding circuit contact(s) supplied as standard:
 - Sizes A – N have a NO auxiliary contact block mounted on right hand side (on Sizes A – C, contact occupies 4th power pole position — no increase in width).
 - Sizes P – S have a NO-NC contact block mounted on the left hand side.
 - Sizes T – Z have a 2NO-2NC contact block mounted on the top left between arc chutes.
- Lugs supplied standard on Sizes A – S. On Sizes T – Z, lugs must be ordered separately.

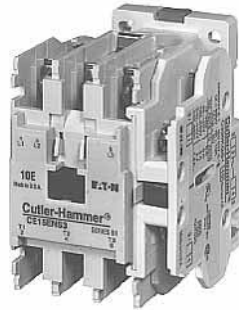
Reversing

- Highest horsepower rating in a compact, space-saving design, 45 mm frame rated maximum 20 hp, 65 mm frame rated maximum 50 hp and 90 mm frame rated maximum 75 hp at 460V. If larger devices are required, order components.
- 45 mm open type reversing contactors, Sizes A – F, have DIN rail or panel mounting capability. DIN rail release mechanism conveniently located on line side of contactor. A steel mounting plate is optional.
- 65 mm reversing contactors, Sizes G – K and 90 mm Sizes L – N are supplied with steel mounting plate as standard.
- Sizes A – K have a wired NC top mounted electrical interlock on each contactor. Sizes L – N have one NO-NC side mounted electrical interlock on each contactor.

Product Selection — 3-Pole Contactors

When Ordering Specify

- Select required contactor by Catalog Number and replace the magnet coil alpha designation in the Catalog Number () with the proper Code Suffix from **Tables 34-372 and 34-374**, on **Page 34-301**.
- For Sizes A – K, the magnet coil alpha designation is the second-to-last digit of the Catalog Number. Example: for a 240V/60 Hz coil, order CE15ANS3BB.



IEC Size E
Cat. No. CE15ENS3AB



IEC Size N
Cat. No. CE15NN3A

Table 34-370. Type CE15/CE55 IEC Product Selection — 3-Pole Contactors

Max. UL AC-3 Amp. Rating 600V AC	IEC 947 AC-1 Thermal Current 600V	Maximum kW Rating					Maximum UL Horsepower						3-Pole — Non-reversing ^{①②}		3-Pole — Reversing ^③	
		3-Phase					1-Phase		3-Phase				Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$
		220V	380V	415/440V	500/550V	660V	115V	230V	200V	230V	460V	575V				
7	20	1.1	2.2	2.2	4	1.5	1/4	1/2	1-1/2	1-1/2	3	5	CE15ANS3_B		CE55AN3_B	
10	20	1.5	4	4	5.5	2.2	1/2	1	2	2	5	7-1/2	CE15BNS3_B		CE55BN3_B	
12	20	2.2	5.5	5.5	7.5	4	1/2	2	3	3	7-1/2	10	CE15CNS3_B		CE55CN3_B	
18	32	4	7.5	7.5	11	5.5	1	3	5	5	10	15	CE15DNS3_B		CE55DN3_B	
25	32	5.5	11	11	15	7.5	2	3	5	7-1/2	15	20	CE15ENS3_B		CE55EN3_B	
32	32	7.5	15	15	18.5	10	2	5	7-1/2	10	20	25	CE15FNS3_B		CE55FN3_B	
37	50	—	18.5	18.5	22	11	3	5	7-1/2	10	25	30	CE15GNS3_B		CE55GN3_B	
44	60	11	22	22	30	15	3	7-1/2	10	15	30	40	CE15HNS3_B		CE55HN3_B	
60	75	15	30	30	30	18.5	5	10	15	20	40	40	CE15JNS3_B		CE55JN3_B	
73	80	18.5	37	37	37	22	5	10	20	25	50	50	CE15KNS3_B		CE55KN3_B	
85	100	22	45	45	55	37	7-1/2	10	25	30	60	75	CE15LN3_		CE55LN3_	
105	135	30	55	55	75	45	10	10	30	40	75	100	CE15MN3_		CE55MN3_	
140	175	37	75	75	90	45	10	10	40	50	100	125	CE15NN3_		CE55NN3_	
170	185	45	90	90	90	45	—	—	50	60	125	125	CE15PN3_		—	
200	220	55	110	110	110	55	—	—	60	75	150	150	CE15RN3_		—	
300	315	90	160	160	160	75	—	—	75	100	200	200	CE15SN3_		—	
420	600	129	220	240	300	300	—	—	125	125	250	250	CE15TN3_80		—	
520	760	160	280	315	375	375	—	—	150	150	350	350	CE15UN3_80		—	
550	1000	220	375	—	500	500	—	—	150	200	400	400	CE15VN3_80		—	
700	1000	220	375	—	500	500	—	—	200	250	500	500	CE15WN3_80		—	
810	1100	270	475	—	600	600	—	—	250	300	600	600	CE15XN3_80		—	
1215	1350	380	650	—	840	840	—	—	450	450	900	900	CE15ZN3_80		—	

- ① IEC Sizes A – N are supplied with a NO auxiliary contact. On IEC Sizes A – C, the 4th power pole position is used as the auxiliary contact and adds no additional width. Open type Sizes A – K can be ordered with a top mounted auxiliary contact instead of a side mounted contact. To order, change the 7th digit of the listed Catalog Number from “S” to “T”. Example: CE15ANT3AB. On open type Sizes A – K, if the NO auxiliary contact is not required, drop the “S” from the listed Catalog Number.
- ② Auxiliary contacts: Sizes P – S have 1NO-1NC, Sizes T – X have 2NO-2NC, Size Z has 2NO-1NC. Sizes T – Z are supplied without lugs — order appropriate lug kits from **Table 34-373** on **Page 34-301**.
- ③ Sizes A – K IEC contactors do not include holding circuit contacts. For factory installed NO auxiliary contacts, insert “S” (side mounted) or “T” (top mounted) after 6th digit of listed Catalog Number. Example: Change CE55AN3AB to CE55ANS3AB. For “T”, top mounted NC contact blocks are replaced with NO-NC blocks — for “S”, they are replaced with NO-NC side mounted blocks.

Product Selection — 2-, 4- and 5-Pole Contactors

When Ordering Specify

- Select required contactor by Catalog Number and replace the magnet coil alpha designation in the Catalog Number () with the proper Code Suffix from the adjacent table.
- For Sizes A – K, the magnet coil alpha designation is the second-to-last digit of the Catalog Number.
Example: for a 240V/60 Hz coil, order CE15ANS3BB.
- For **DC Magnet Coils**, see Accessories, **Page 34-315**.



IEC Size G
4-Pole Contactor
Cat. No. CE15GN4AB

Table 34-371. Type CE15 IEC Product Selection — 2-, 4- and 5-Pole Contactors — Non-reversing

Max. UL AC-3 Ampere Rating 600V AC	IEC 947 AC-1 Thermal Current 600V	Maximum kW Rating					Maximum UL Horsepower						Catalog Number	Price U.S. \$	
		3-Phase					1-Phase		3-Phase						
		220V	380V	415/ 440V	500/ 550V	660V	115V	230V	200V	230V	460V	575V			
2-Pole ①															
7	20	1.1	2.2	2.2	4	1.5	1/4	1/2	1-1/2	1-1/2	3	5	CE15ANS2_B		
10	20	1.5	4	4	5.5	2.2	1/2	1	2	2	5	7-1/2	CE15BNS2_B		
12	20	2.2	5.5	5.5	7.5	4	1/2	2	3	3	7-1/2	10	CE15CNS2_B		
18	32	4	7.5	7.5	11	5.5	1	3	5	5	10	15	CE15DNS2_B		
25	32	5.5	11	11	15	7.5	2	3	5	7-1/2	15	20	CE15ENS2_B		
32	32	7.5	15	15	18.5	10	2	5	7-1/2	10	20	25	CE15FNS2_B		
37	50	—	18.5	18.5	22	11	3	5	7-1/2	10	25	30	CE15GNS2_B		
44	60	11	22	22	30	15	3	7-1/2	10	15	30	40	CE15HNS2_B		
60	75	15	30	30	30	18.5	5	10	15	20	40	40	CE15JNS2_B		
73	80	18.5	37	37	37	22	5	10	20	25	50	50	CE15KNS2_B		
85	100	22	45	45	55	37	7-1/2	10	25	30	60	75	CE15LN2_		
105	135	30	55	55	75	45	10	10	30	40	75	100	CE15MN2_		
140	175	37	75	75	90	45	10	10	40	50	100	125	CE15NN2_		
4-Pole															
7	20	1.1	2.2	2.2	4	1.5	1/4	1/2	1-1/2	1-1/2	3	5	CE15AN4_B		
10	20	1.5	4	4	5.5	2.2	1/2	1	2	2	5	7-1/2	CE15BN4_B		
12	20	2.2	5.5	5.5	7.5	4	1/2	2	3	3	7-1/2	10	CE15CN4_B		
18	32	4	7.5	7.5	11	5.5	1	3	5	5	10	15	—		
25	32	5.5	11	11	15	7.5	2	3	5	7-1/2	15	20	—		
32	32	7.5	15	15	18.5	10	2	5	7-1/2	10	20	25	—		
37	50	—	18.5	18.5	22	11	3	5	7-1/2	10	25	30	CE15GN4_B		
44	60	11	22	22	30	15	3	7-1/2	10	15	30	40	CE15HN4_B		
60	75	15	30	30	30	18.5	5	10	15	20	40	40	CE15JN4_B		
73	80	18.5	37	37	37	22	5	10	20	25	50	50	—		
5-Pole															
32	32	7.5	15	15	18.5	10	2	5	7-1/2	10	20	25	—		
37	50	—	18.5	18.5	22	11	3	5	7-1/2	10	25	30	CE15GN5_B		
44	60	11	22	22	30	15	3	7-1/2	10	15	30	40	CE15HN5_B		
60	75	15	30	30	30	18.5	5	10	15	20	40	40	CE15JN5_B		
73	80	18.5	37	37	37	22	5	10	20	25	50	50	—		

① Sizes A – N 2-pole contactors are supplied with a NO auxiliary contact. On Sizes A – C, the 4th power pole is used as the auxiliary contact and adds no additional width. Open type Sizes A – K can be ordered with a top mounted auxiliary contact instead of a side mounted contact. To order, change the "S" to a "T".

For **DC Magnet Coils**, see Accessories, **Page 34-315**.

Table 34-372. AC Coil Suffixes

Coil Volts and Hertz	Code Suffix
120/60 or 110/50	A
240/60 or 220/50	B
480/60 or 440/50	C
600/60 or 550/50	D
208/60	E
277/60	H
208-240/60 ①	J
240/50	K
380-415/50	L
550/50	N
380/60	P
24/60, 24/50 ②	T
24/50	U
32/50	V
48/60	W
48/50	Y

① IEC Sizes A – F only.

② IEC Sizes A – F only. Sizes G – V are 24/60 only.

Table 34-373. Line/Load Lug Kits — IEC Sizes T – Z Only

Lugs come standard on all contactors except sizes T – Z. If lugs are required, order separately from below. Each kit consists of three line and three load side lugs and hardware.			
Contactor Size	Cable Range	Catalog Number	Price U.S. \$
T	(2) #2/0 – 600 kcmil	C325KAL15	
U	(2) #2/0 – 600 kcmil	C325KAL16	
V – W	(2) #3/0 – 750 kcmil	C325KAL17	
X	(3) #3/0 – 750 kcmil	C325KAL18	
Z	(4) #1/0 – 750 kcmil	C325KAL19	

Table 34-374. DC Coil Suffixes

Contactor or Starter Size — IEC	Volts	NCI Interlock	Code Suffix
Non-reversing			
A – F	12	C320KGD1	R1
	24	C320KGD1	T1
	48	C320KGD1	W1
	120	C320KGD1	A1
A – F	12	C320KGD2 ③	R4
	24	C320KGD2 ③	T4
	48	C320KGD2 ③	W4
	120	C320KGD2 ③	A4
G – K	12	C320KGD5	R4
	24	C320KGD5	T4
	48	C320KGD5	W4
	120	C320KGD5	A4
L – N	12	C320KGD3	R1
	24	C320KGD3	T1
	48	C320KGD3	W1
	120	C320KGD3	A1
P – S	24	C320KGD3	T1B
	48	C320KGD3	W1B
	120	C320KGD3	A1B
	240	C320KGD3	B1B
Reversing			
A – F	12	(2) C320KGD1	R1 ④
	24	(2) C320KGD1	T1 ④
	48	(2) C320KGD1	W1 ④
	120	(2) C320KGD1	A1 ④
G – K	12	(2) C320KGD3	R1 ④
	24	(2) C320KGD3	T1 ④
	48	(2) C320KGD3	W1 ④
	120	(2) C320KGD3	A1 ④

③ These kits are supplied with a NO/NCI side mounted auxiliary contact in place of the NCI contact.

④ Factory installed DC coils on IEC contactors and starters include a NC top mounted auxiliary contact on each contactor for electrical interlocking.

CE15 Contactor Specifications

45 mm Cutler-Hammer CE15 Contactor Specifications								
Contactor Model			CE15AN	CE15BN	CE15CN	CE15DN	CE15EN	CE15FN
Insulation Voltage	AC	(V)	690 Volts AC					
Ampere Rating	Max. UL Current (AC3) note 1	(A)	7	10	12	18	25	32
	AC1 Thermal Current (600V) note 2	(A)	20	20	20	32	32	32
Maximum Power (hp) of Three-Phase Motors	200V	(hp)	1.5	2	3	5	5	7.5
	230/240V	(hp)	1.5	2	3	5	7.5	10
	460/480V	(hp)	3	5	7.5	10	15	20
	575V	(hp)	5	7.5	10	15	20	25
Maximum Power (hp) of Single-Phase Motors	115V	(hp)	0.25	0.5	0.5	1	2	2
	230/240V	(hp)	0.5	1	2	3	3	5
Maximum Power (kw) of Three-Phase Motors AC3 Category note 1	230/240V	(kW)	1.1	1.5	2.2	4	5.5	7.5
	415/440V	(kW)	2.2	4	5.5	7.5	11	15
	500/550V	(kW)	2.2	4	5.5	7.5	11	15
	500V	(kW)	4	5.5	7.5	11	15	18.5
	600V	(kW)	1.5	2.2	4	5.5	7.5	10
Auxiliary Contacts Electrical Capacity			A600 note 4					
Coil Voltage Operating Limits			A.C.Pick-Up 85-110% Rated Control Voltage / A.C. Drop-Out 20-75% Rated Control Voltage					
Average Coil Power Requirements / Coil current (A) = VA/Coil Voltage			A.C. Pick-Up (VA) 80-100 / A.C. Sealed (VA) 9-12					
Power Factor			Pick-Up .65 / Sealed .35					
Coil Operating Time at Rated Coil Voltage			Pick-Up (ms) 10-25 / Drop-Out (ms) 6-18					
Maximum Operating Frequency (No-Load Operation)			3000 Operations / Hour					
Mechanical Durability			10,000,000 Operations					
Electrical Durability			1,000,000 Operations					
Operating Ambient Temperature			-25° to +55°C					
Electrical Protection Degree			IP20 (IP10 for GH15ET and GH15FT)					
Mounting			Screw or 35mm DIN Rail					
Wire Sizes	Line / Load		#10 - #14 AWG stranded recommended			#14 - #8 stranded recommended		
	Control & Auxiliary Contacts		#12 - #14 AWG (stranded recommended)					
Line/Load Tighting Torque	Nm (Inch Pounds)		7	7	7	15	15	15

Notes

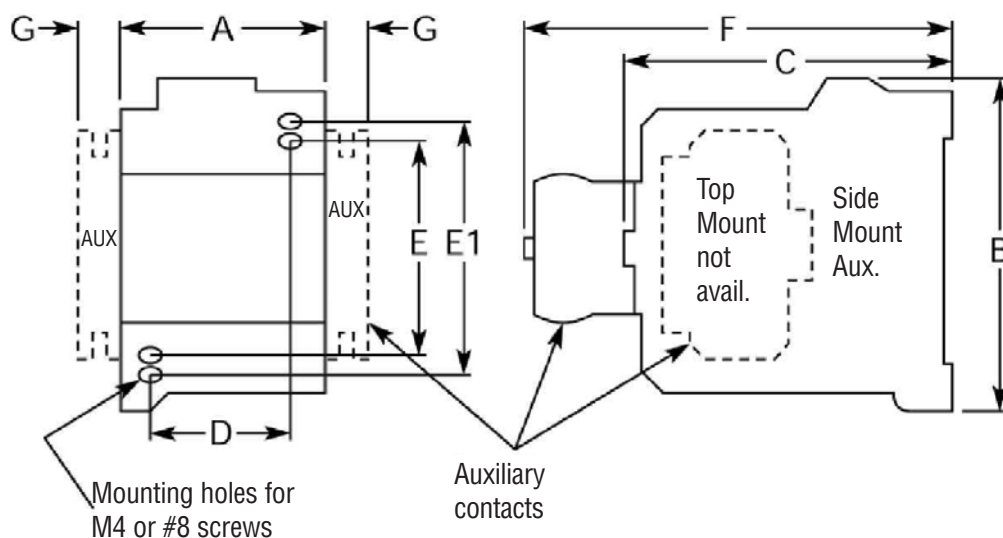
- AC3 type loads consist of squirrel cage three phase motors.
- AC1 non-inductive or slightly inductive loads. Typically resistive loads (i.e. furnaces, ovens, etc.)
- Type 2 coordination is a protection category for IEC 60947-4-1. Section 8.2.5.1 specifies that Type 2 coordination requires that, under short circuit conditions, the contactor or starter shall cause no danger to persons or installations and shall be suitable for further use. The risk of minor contact welding is possible.
- NEMA ICS 5-2000. For more information, refer to Control Circuit Contact Electrical Ratings, page 16-75.

Cutler-Hammer CE15 Series Contactor Part Numbers									
IEC FRAME SIZE	Cutler-Hammer Contactor Model	Part Number	Price	Number of Contacts			Coil Voltage and Frequency	Additional Contacts	
				Main	Auxiliary Contacts Included			Maximum Contact Block Arrangement	Type of Additional Contact Block
					N.O	N.C.			
45 mm	CE15AN	CE15AN4AB	<--->	4			110-120VAC 50-60Hz	Up to two auxiliary contact blocks may be added to CE15 contactors (one per side).	Side mount C320KGS3: 1 N.O. / 1 N.C. C320KGS1: 1 N.O. / 1 N.C.
		CE15AN4BB	<--->	4			220-240VAC 50-60Hz		
	CE15BN	CE15BN4AB	<--->	4			110-120VAC 50-60Hz		
		CE15BN4BB	<--->	4			220-240VAC 50-60Hz		
	CE15CN	CE15CN4AB	<--->	4			110-120VAC 50-60Hz		
		CE15CN4BB	<--->	4			220-240VAC 50-60Hz		
	CE15DN	CE15DNS3AB	<--->	3	1		110-120VAC 50-60Hz		
		CE15DNS3BB	<--->	3	1		220-240VAC 50-60Hz		
	CE15EN	CE15ENS3AB	<--->	3	1		110-120VAC 50-60Hz		
		CE15ENS3BB	<--->	3	1		220-240VAC 50-60Hz		
	CE15FN	CE15FNS3AB	<--->	3	1		110-120VAC 50-60Hz		
		CE15FNS3BB	<--->	3	1		220-240VAC 50-60Hz		

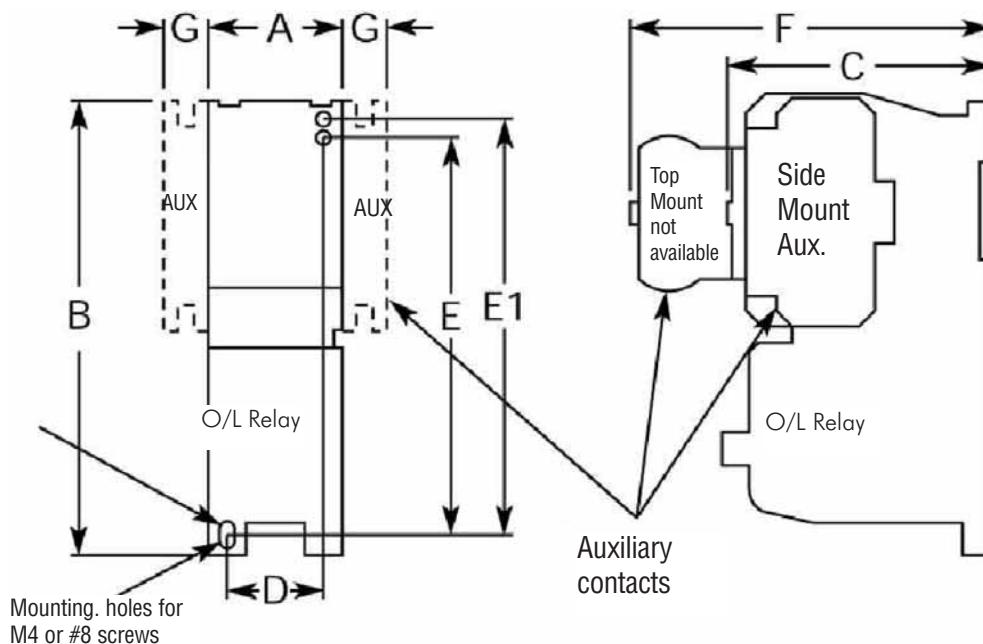
Note: Holding circuit contact(s) supplied standard: a N.O. auxiliary contact block is mounted on the right-hand side. (On Sizes A-C, contact occupies fourth power pole position - no increase in width.)

Size and Dimensions (Inches)										
Product	IEC Size	Contactor Type								Ship Weight in Pounds
		Wide	High	Deep	Mounting					
		A	B	C	D	E	E1	F	G	
Starters	A-F	1.80	5.86	3.28	1.36	5.19	5.39	-	54	1.75
Contactors	A-C	1.80	2.96	3.26	1.36	1.96	-	-	54	1.3
Contactors	D-F	1.80	2.96	3.26	1.36	1.96	-	-	54	1.4
Overload Relays	32 Amp	1.77	4.13	3.69	1.36	3.74	-	-	-	0.8

IEC contactor sizes A-F, CE15



IEC starter sizes A-F, AE16



Electrical Ratings Charts

Motor Current Ratings

Full Load Ampere (FLA) Rating for AC Induction Motors							
Motor HP	115 VAC		200 VAC		230 VAC		460 VAC
	1-Phase (A)	3-Phase (A)	1-Phase (A)	3-Phase (A)	1-Phase (A)	3-Phase (A)	3-Phase (A)
1/10	3.0	---	---	---	1.5	---	---
1/8	3.8	---	---	---	1.9	---	---
1/6	4.4	---	2.5	---	2.2	---	---
1/4	5.8	---	3.3	---	2.9	---	---
1/3	7.2	---	4.1	---	3.6	---	---
1/2	9.8	4.4	5.6	2.5	4.9	2.2	1.1
3/4	13.8	6.4	7.9	3.7	6.9	3.2	1.6
1	16.0	8.4	9.2	4.8	8.0	4.2	2.1
1 1/2	20.0	12.0	11.5	6.9	10	6.0	3.0
2	24.0	13.6	13.8	7.8	12	6.8	3.4
3	34.0	19.2	19.6	11.0	17	9.6	4.8
5	56.0	30.4	32.2	17.5	28	15.2	7.6
7 1/2	80.0	44.0	46.0	25.3	40	22	11
10	100.0	56.0	57.5	32.2	50	28	14
15	---	84.0	---	48.3	---	42	21
20	---	108.0	---	62.1	---	54	27
25	---	136.0	---	78.2	---	68	34
30	---	160.0	---	92	---	80	40
40	---	208.0	---	120	---	104	52
50	---	260.0	---	150	---	130	65
60	---	---	---	177	---	154	77
75	---	---	---	221	---	192	96
100	---	---	---	285	---	248	124

The motor currents are approximate and not guaranteed to be accurate. This chart is provided as a guideline only. Values were extrapolated from NEC Tables 430-148 and 430-150. Motor currents should be taken from the motor's nameplate. It is the user's responsibility to properly size their motor control devices.

Control Circuit Contact Electrical Ratings

NEMA Mechanical Switching Ratings and Test Values for DC Control Circuit Contacts

Contact Rating Designation	Thermal Continuous Test Current (A)	Maximum Make or Break DC Current (A)			Voltamperes
		125 Volts	250 Volts	301 to 600 Volts	
P300	5.0	1.1	0.55	---	138
P600	5.0	1.1	0.55	0.20	138
Q300	2.5	0.55	0.27	---	69
Q600	2.5	0.55	0.27	0.10	69
R300	1.0	0.22	0.11	---	28

This chart is provided as a guideline only, and the ratings and values are not guaranteed to be accurate. It is the users' responsibility to properly size their control circuit devices. The chart values are from NEMA Standard ICS 5-2000, Table 1-4-2.

NEMA Mechanical Switching Ratings and Test Values for AC Control Circuit Contacts

Contact Rating Designation	Thermal Continuous Test Current (A)	Maximum AC Current, 50/60Hz (A)								Voltamperes	
		120 Volts		240 Volts		480 Volts		600 Volts			
		Make	Break	Make	Break	Make	Break	Make	Break	Make	Break
A300	10	60	6.00	30	3.00	---	---	---	---	7200	720
A600	10	60	6.00	30	3.00	15	1.50	12	1.20	7200	720
B300	5	30	3.00	15	1.50	---	---	---	---	3600	360
B600	5	30	3.00	15	1.50	7.5	0.75	6	0.60	3600	360
C600	2.5	15	1.5	7.5	0.75	3.75	0.375	3.00	0.30	1800	180

This chart is provided as a guideline only, and the ratings and values are not guaranteed to be accurate. It is the users' responsibility to properly size their control circuit devices. The chart values are from NEMA Standard ICS 5-2000, Table 1-4-1.

IEC Utilization Categories

IEC Utilization Categories for Low Voltage Switchgear and Control Gear			
Current	Category	Typical Applications	Relevant IEC Product Standard (3)
AC	AC-1	Non inductive or slightly inductive loads, resistance furnaces, heaters	60947-4
	AC-2	Slip-ring motors: switching off	
	AC-3	Squirrel-cage motors: starting, switching off motors during running most typical industrial application	
	AC-4	Squirrel-cage motors: starting, plugging (1), inching (2)	
	AC-5a	Switching of electric discharge lamps	
	AC-5b	Switching of incandescent lamps	
	AC-6a	Switching of transformers	
	AC-6b	Switching of capacitor banks	
	AC-7a	Slightly inductive load in household appliances: mixers, blenders	
	AC-7b	Motor-loads for household applications: fans, central vacuum	
	AC-8a	Hermetic refrigerant compressor motor control with manual resetting overloads	
	AC-8b	Hermetic refrigerant compressor motor control with automatic resetting overloads	
	AC-12	Control of resistive loads and solid state loads with opto-coupler isolation	60947-5
	AC-13	Control of solid state loads with transformer isolation	
	AC-14	Control of small electromagnetic loads	
	AC-15	Control of AC electromagnetic loads	60947-3
	AC-20	Connecting and disconnecting under no-load conditions	
	AC-21	Switching of resistive loads, including moderate loads	
	AC-22	Switching of mixed resistive and inductive loads, including moderate overloads	
	AC-23	Switching of motor loads or other highly inductive loads	
AC and DC	A	Protection of circuits, with no rated short-time withstand current	60947-2
	B	Protection of circuits, with a rated short-time withstand current	
DC	DC-1	Non-Inductive or slightly inductive loads, resistance furnaces, heaters	60947-4
	DC-3	Shunt-motors, starting, plugging (1), inching (2), dynamic breaking of motors	
	DC-5	Series-motors, starting, plugging (1), inching (2), dynamic breaking of motors	
	DC-6	Switching of incandescent lamps	
	DC-12	Control of resistive loads and solid state loads with opto-coupler isolation	60947-5
	DC-13	Control of DC electromagnetics	
	DC-14	Control of D.C. electromagnetic loads having economy resistors in the circuit	
	DC-20	Connecting and disconnecting under no-load conditions	60947-3
	DC-21	Switching of resistive loads, including moderate overloads	
	DC-22	Switching of mixed resistive and inductive loads, including moderate overloads (i.e. shunt motors)	
	DC-23	Switching of highly inductive loads (i.e. series motors)	