

## Technical Data and Specifications

## Electrical Characteristics

Table 33-236. Electrical Characteristics — Sizes 00 – 4

	Size 00	Size 0	Size 1	Size 2	Size 3	Size 4
Max. Voltage Rating	600V	600V	600V	600V	600V	600V
Ampere Rating (Open)	10A	20A	30A	50A	100A	150A
Ampere Rating (Enclosed)	9A	18A	27A	45A	90A	135A

## Squirrel Cage Motor

Maximum Horsepower At:						
200V/60 Hz	1-1/2 hp	3 hp	7-1/2 hp	10 hp	25 hp	40 hp
230V/60 Hz	1-1/2 hp	3 hp	7-1/2 hp	15 hp	30 hp	50 hp
380V/50 Hz	1-1/2 hp	5 hp	10 hp	25 hp	50 hp	75 hp
460V – 575V/60 Hz	2 hp	5 hp	10 hp	25 hp	50 hp	100 hp

Resistive Heating kW <sup>①</sup>

Single-Phase, 2-Pole						
120V	—	—	3 kW	5 kW	10 kW	15 kW
240V	—	—	6 kW	10 kW	20 kW	30 kW
480V	—	—	12 kW	20 kW	40 kW	60 kW
600V	—	—	15 kW	25 kW	50 kW	75 kW
Three-Phase, 3-Pole						
120V	—	—	5 kW	8.5 kW	17 kW	26 kW
240V	—	—	10 kW	17 kW	34 kW	68 kW
480V	—	—	20 kW	34 kW	68 kW	105 kW
600V	—	—	25 kW	43 kW	86 kW	130 kW

## Capacitor Switching kVAR, Three-Phase

240V	—	—	—	12 kVAR	27 kVAR	40 kVAR
480V	—	—	—	25 kVAR	53 kVAR	80 kVAR
600V	—	—	—	31 kVAR	67 kVAR	100 kVAR

Transformer Switching kVA <sup>②</sup>

Single-Phase, 2-Pole						
120V	—	.6 kVA	1.2 kVA	2.1 kVA	4.1 kVA	6.8 kVA
240V	—	1.2 kVA	2.4 kVA	4.1 kVA	8.1 kVA	14 kVA
480V	—	2.4 kVA	4.9 kVA	8.3 kVA	16 kVA	27 kVA
600V	—	3 kVA	6.2 kVA	10 kVA	20 kVA	34 kVA
Three-Phase, 3-Pole						
120V	—	1.8 kVA	3.6 kVA	6.3 kVA	12 kVA	20 kVA
240V	—	2.1 kVA	4.3 kVA	7.2 kVA	14 kVA	23 kVA
480V	—	4.2 kVA	8.5 kVA	14 kVA	28 kVA	47 kVA
600V	—	5.2 kVA	11 kVA	18 kVA	35 kVA	59 kVA

① Resistive loads having inrush currents not exceeding 1.5 times continuous rating.

② These ratings are for transformers having inrush currents not more than 20 times peak of continuous current ratings. For inrush currents greater than 20 times, refer to factory.

Table 33-237. Electrical Characteristics — Sizes 5 – 9

	Size 5	Size 6	Size 7	Size 8	Size 9
Max. Voltage Rating	600V	600V	600V	600V	600V
Ampere Rating (Open)	300A	600A	900A	1350A	2500A
Ampere Rating (Enclosed)	270A	540A	810A	1215A	2250A

## Squirrel Cage Motor

Maximum Horsepower At:					
200V/60 Hz	75 hp	150 hp	—	—	—
230V/60 Hz	100 hp	200 hp	300 hp	450 hp	800 hp
380V/50 Hz	150 hp	300 hp	—	—	—
460V – 575V/60 Hz	200 hp	400 hp	600 hp	900 hp	1600 hp

Resistive Heating kW <sup>④</sup>

Single-Phase, 2-Pole					
120V	30 kW	60 kW	90 kW	③	③
240V	60 kW	120 kW	180 kW	③	③
480V	120 kW	240 kW	360 kW	③	③
600V	150 kW	300 kW	450 kW	③	③
Three-Phase, 3-Pole					
120V	52 kW	105 kW	155 kW	③	③
240V	105 kW	210 kW	315 kW	③	③
480V	210 kW	415 kW	625 kW	③	③
600V	260 kW	515 kW	775 kW	③	③

## Capacitor Switching kVAR, Three-Phase

240V	80 kVAR	160 kVAR	240 kVAR	360 kVAR	665 kVAR
480V	160 kVAR	320 kVAR	480 kVAR	720 kVAR	1325 kVAR
600V	200 kVAR	400 kVAR	600 kVAR	900 kVAR	1670 kVAR

Transformer Switching kVA <sup>⑤</sup>

Single-Phase, 2-Pole					
120V	14 kVA	27 kVA	41 kVA	61 kVA	112 kVA
240V	27 kVA	54 kVA	81 kVA	122 kVA	225 kVA
480V	54 kVA	108 kVA	162 kVA	244 kVA	450 kVA
600V	68 kVA	135 kVA	203 kVA	304 kVA	562 kVA
Three-Phase, 3-Pole					
120V	41 kVA	81 kVA	122 kVA	182 kVA	337 kVA
240V	47 kVA	94 kVA	140 kVA	210 kVA	342 kVA
480V	94 kVA	188 kVA	280 kVA	420 kVA	783 kVA
600V	117 kVA	234 kVA	351 kVA	526 kVA	975 kVA

③ For ratings refer to factory.

④ Resistive loads having inrush currents not exceeding 1.5 times continuous rating.

⑤ These ratings are for transformers having inrush currents not more than 20 times peak of continuous current ratings. For inrush currents greater than 20 times, refer to factory.

**DC Power Pole Ratings**

The following represent typical production test values and should not be interpreted as a guarantee of actual performance.

**Table 33-238. DC Operated 120 and 240V Coils**

Contactor Size	DC Contact Amp Rating 2 Poles in Series ①	
	120V	240V
0	—	—
1	20	10
2	45	30
3	75	40
4	90	70

① Non-inductive load.

**380V, 50 Hz Starter Maximum Horsepower Ratings**

**Table 33-239. 380V, 50 Hz Starters — Maximum Horsepower Ratings**

NEMA Size	00	0	1	2	3	4	5	6	7	8
Maximum Horsepower	1-1/2	5	10	25	50	75	150	300	450	700

**Operating Coil Characteristics at Rated Coil Volts, Sizes 00 – 9**

The following represent typical production test values and should not be interpreted as a guarantee of actual performance.

**Table 33-240. Operating Coil Characteristics**

	Sizes 00, 0, 1	Size 2	Size 3	Size 4 ②	Size 5	Size 6	Size 7	Size 8	Size 9
<b>AC Coil</b>									
Burden (Open VA)	160 VA	160 VA	625 VA	700 VA	1700 VA	2900 VA	③	③	③
(Closed VA)	25 VA	25 VA	50 VA	64 VA	180 VA	220 VA	③	③	③
(Closed Watts)	7.8 W	7.8 W	18 W	21 W	32 W	42 W	—	—	—
Pick-Up Volts ④	85%	85%	85%	85%	78%	70%	—	—	—
Drop-Out Volts ④	40 – 60%	40 – 60%	40 – 60%	40 – 60%	65 to 75%	60 to 70%	—	—	—
Pick-Up Time Hz ⑦⑧	1 – 1-1/2	1-1/2 – 2	2 – 2-1/2	1 – 1-1/2	1.5	4.0	—	—	—
Drop-Out Time Hz ⑦	3/4 – 1	3/4 – 1	3/4 – 1	3/4 – 1	.75	.75	—	—	—
<b>DC Coil</b>									
Burden (Open VA)	17 VA	17 VA	35 VA	35 VA	600 VA	2120 VA	400 VA	400 VA	2100 VA
(Closed VA)	17 VA	17 VA	35 VA	35 VA	22 VA	21 VA	400 VA	400 VA	350 VA
(Closed Watts)	18 W	18 W	35 W	35 W	20 W	20 W	400 W	400 W	350 W
Pick-Up Volts ④	80%	80%	80%	80%	64%	73%	45% – 65% ⑤	45% – 65% ⑤	50% – 65% ⑤
Drop-Out Volts ④	5 – 10%	5 – 10%	5 – 10%	5 – 10%	18%	13%	30% – 45% ⑤	30% – 45% ⑤	40% – 50% ⑤
Pick-Up Time Hz ⑧	—	25 – 75 mS	25 – 75 mS	25 – 75 mS	2.7 Hz ⑦	3 Hz ⑦	21 – 41 Hz ⑥⑦	17 – 29 Hz ⑥⑦	16 – 18 ⑥⑦
Drop-Out Time Hz ⑦	—	16 – 25 mS	16 – 25 mS	16 – 25 mS	9.3 Hz ⑦	17.5 Hz ⑦	7 – 12 Hz ⑥⑦	7 – 12 Hz ⑥⑦	18 – 20 Hz ⑥⑦

② AC coil data pertains to Model K, DC coil data pertains to Model J.

③ DC Operated only.

④ Percent of rated coil voltage.

⑤ Lower figure when coil is cold. Higher figure when coil is hot.

⑥ Drop-out time to clear arc. Time varies with type of load and contact wear.

⑦ At 60 Hz base.

⑧ To contact touch.

## Technical Data and Specifications

### Mechanical Characteristics

#### NEMA Standard ICS 2-110

Direct-current operated contactors shall withstand 110% of their rated voltage continuously without injury to the operating coils and shall close successfully at 80% of their rated voltage.

Alternating-current operated contactors shall withstand 110% of their rated voltage continuously without injury to the operating coils and shall close successfully at 85% of their rated voltage.

**Table 33-241. Mechanical Characteristics, Sizes 00 – 9**

	Sizes 00, 0, 1	Size 2	Size 3	Size 4	Size 5	Size 6	Size 7	Size 8	Size 9
<b>Dimensions in Inches (mm)</b>									
Height	6.45 (163.8)	7.16 (181.9)	9.93 (252.2)	9.93 (252.2)	12.00 (304.8) ①	13.50 (342.9) ①	18.62 (472.9) ①	19.25 (489) ①	25.00 (635) ①
Width	3.31 (84.1)	3.31 (84.1)	4.62 (117.3)	4.62 (117.3)	7.00 (177.8) ①	7.00 (177.8) ①	23.50 (596.9) ①	23.50 (596.9) ①	32.00 (812.8) ①
Depth	4.61 (117.1)	4.96 (126)	6.75 (171.5)	6.75 (171.5)	7.75 (196.9) ①	8.75 (222.3) ①	11.00 (279.4) ①	11.00 (279.4) ①	13.00 (330.2) ①
Panel Area — Square Inches	21.35	23.7	46.0	46.0	84.0	94.5	437.5	452.4	800
Weight — Pounds	3.5 Lbs.	3.5 Lbs.	11.5 Lbs.	11.5 Lbs.	25 Lbs.	42 Lbs.	215 Lbs.	265 Lbs.	315 Lbs.
Cable Connection	—	—	—	—	Front	Front	Front/Rear	Front/Rear	Front/Rear
Maximum Cable Size/Phase Copper (AWG/MCM)	6 AWG	3 AWG	1/0	4/0	1-500 MCM	2-500 MCM	3-500 MCM	4-500 MCM	8-500 MCM
Auxiliary Electrical Circuits Available	8	6	6	6	4	4	3	3	4
Latched Version Available	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
<b>Mechanical Interlock Combinations Available</b>									
Sizes 00, 0, 1, 2, 3, 4	Vert., Horiz.	Vert., Horiz.	Vert., Horiz.	Vert., Horiz.	Vert., Horiz.	—	—	—	—
5	—	—	—	—	Vert., Horiz.	Vert., Horiz.	—	—	—
6	—	—	—	—	Vert., Horiz.	Vert., Horiz.	Vertical	Vertical	—
7, 8	—	—	—	—	—	Vertical	Vertical	Vertical	Vertical
9	—	—	—	—	—	—	Vertical	Vertical	Vertical

① For Sizes 5 – 9 contactors only; for starter Sizes 5 – 9, refer to factory.

**Table 33-242. Data from Tables 430 — 147 Through 150 of 1996 NEC: Motor Amperes at Full Load ②, Three-Phase AC**

hp	Single-Phase AC		Induction Type Squirrel-Cage and Wound-Rotor Amperes				DC		hp	Single-Phase AC		Induction Type Squirrel-Cage and Wound-Rotor Amperes				DC	
	115V	230V	200V	230V	460V	575V	120V	240V		115V	230V	200V	230V	460V	575V	120V	240V
1/6	4.4	2.2	—	—	—	—	—	—	30	—	—	92	80	40	32	—	106
1/4	5.8	2.9	—	—	—	—	3.1	1.6	40	—	—	120	104	52	41	—	140
1/3	7.2	3.6	—	—	—	—	4.1	2.0	50	—	—	150	130	65	52	—	173
1/2	9.8	4.9	2.5	2.2	1.1	.9	5.4	2.7	60	—	—	177	154	77	62	—	206
3/4	13.8	6.9	3.7	3.2	1.6	1.3	7.6	3.8	75	—	—	221	192	96	77	—	255
1	16	8	4.8	4.2	2.1	1.7	9.5	4.7	100	—	—	285	248	124	99	—	341
1-1/2	20	10	6.9	6.0	3.0	2.4	13.2	6.6	125	—	—	359	312	156	125	—	425
2	24	12	7.8	6.8	3.4	2.7	17	8.5	150	—	—	414	360	180	144	—	506
3	34	17	11.0	9.6	4.8	3.9	25	12.2	200	—	—	552	480	240	192	—	675
5	56	28	17.5	15.2	7.6	6.1	40	20	250	—	—	—	—	302	242	—	—
7-1/2	80	40	25.3	22	11	9	58	29	300	—	—	—	—	361	289	—	—
10	100	50	32.2	28	14	11	76	38	350	—	—	—	—	414	336	—	—
15	—	—	48.3	42	21	17	—	55	400	—	—	—	—	477	382	—	—
20	—	—	62.1	54	27	22	—	72	450	—	—	—	—	515	412	—	—
25	—	—	78.2	68	34	27	—	89	500	—	—	—	—	590	472	—	—

② These current values are for motors running at usual speeds and with normal torque characteristics. Motors for special low speed or high torque may require higher current. In all cases, heaters should be selected on basis of information on motor nameplate or motor card data.

**Combination Ratings**

**Table 33-243. Combination Ratings — Sizes 00 – 2**

Short-Circuit Protective Device (SCPD)	Max. Rating SCPD	Circuit Breaker Interrupting Rating	Short-Circuit Withstand Capability	
			Current	Voltage
<b>Sizes 00, 0, 1</b>				
Class H Fuse	60A	—	5,000A	600V
Class J Fuse	60A	—	100,000A	600V
Class R Fuse	60A	—	100,000A	600V
Class T Fuse	60A	—	100,000A	600V
Magnetic Only ① Type CB ②	30A	Marked HMCP	100,000A	480V
			50,000A	600V
Thermal/Mag. Type CB ③	50A	65,000A	65,000A	480V
		25,000A	25,000A	600V
		100,000A	100,000A	480V
		35,000A	35,000A	600V
Magnetic Only Type CB + CL ④	30A	HMCP + Current Limiter	100,000A	600V
Thermal/Mag. Type CLB ⑤	50A	150,000A	100,000A	480V

**Size 2**

Class H Fuse	100A	—	5,000A	600V
Class J Fuse	100A	—	100,000A	600V
Class R Fuse	100A	—	100,000A	600V
Class T Fuse	100A	—	100,000A	600V
Magnetic Only ① Type CB ②	50A	Marked HMCP	100,000A	480V
			50,000A	600V
Thermal/Mag. Type CB ③	90A	65,000A	65,000A	480V
		25,000A	25,000A	600V
		100,000A	100,000A	480V
		35,000A	35,000A	600V
Magnetic Only Type CB + CL ④	50A	HMCP + Current Limiter	100,000A	600V
Thermal/Mag. Type CLB ⑤	50A	150,000A	100,000A	480V

- ① Instantaneous Adjustable Trip.
- ② Circuit Breaker.
- ③ Inverse Time Circuit Breaker.
- ④ Instantaneous Adjustable Trip with Current Limiting Attachment.
- ⑤ Inverse Time with Built-In Current Limiting Attachment.

**Coil Suffix**

**Table 33-245. Other Available Coil Voltages — AC and DC Coils ⑦**

Coils	Catalog Number Suffix	Coil Rating (Volts/Hertz)	Catalog Number Suffix	Coil Rating (Volts/Hertz)
<b>AC</b>	<b>A</b>	120/60, 110/50	<b>N</b>	110/50
	<b>B</b>	200-208/60	<b>P</b>	48/60
	<b>C ⑩</b>	240/60 and 480/60	<b>Q ⑩</b>	AC/DC Volts Specified
	<b>D</b>	440/50	<b>R ⑩</b>	120/60 and 240/60
	<b>E</b>	600/60 Hz	<b>U</b>	440-480/50 or 60 Rect. to DC
	<b>G</b>	220/50	<b>V</b>	110/60
	<b>H</b>	380/50	<b>W</b>	240/60
	<b>I</b>	24/60	<b>X</b>	480/60
	<b>J</b>	110-120/50 or 60 Rect. to DC	<b>Y</b>	415/50
	<b>K</b>	220-240/50 or 60 Rect. to DC	<b>Z</b>	277/60
	<b>DC ⑬⑭⑮</b>	<b>L</b>	24V DC	<b>S</b>
<b>M</b>		48V DC	<b>T</b>	250V DC

- ⑦ List Price Addition for dual voltage coils. See **Table 33-247**.
- ⑩ List Price Addition for DC coils. See **Table 33-247**.
- ⑬ DC coils for Size 5 and 6 contactors and starters are intermittent duty rated only. A mechanical latch is required.
- ⑭ DC coils. Use only on contactors originally supplied with a DC coil.
- ⑮ For Q suffixes "order by description" consult Technical Support Center.
- ⑯ Availability may be limited.

**Table 33-244. Combination Ratings — Sizes 3 and 4**

Short-Circuit Protective Device (SCPD)	Max. Rating SCPD	Circuit Breaker Interrupting Rating	Short-Circuit Withstand Capability	
			Current	Voltage
<b>Size 3</b>				
Class H Fuse	60A	—	5,000A	600V
Class J Fuse	60A	—	100,000A	600V
Class R Fuse	60A	—	100,000A	600V
Class T Fuse	60A	—	100,000A	600V
Magnetic Only ⑥ Type CB ⑦	100A	Marked HMCP	100,000A	480V
			50,000A	600V
Thermal/Mag. Type CB ⑧	150A	65,000A	65,000A	480V
		25,000A	25,000A	600V
		100,000A	100,000A	480V
		35,000A	35,000A	600V
Magnetic Only Type CB + CL ⑨	100A	HMCP + Current Limiter	100,000A	600V
Thermal/Mag. Type CLB ⑩	150A	50,000A	100,000A	480V

**Size 4**

Class H Fuse	400A	—	10,000A	600V
Class J Fuse	400A	—	100,000A	600V
Class R Fuse	400A	—	100,000A	600V
Class T Fuse	400A	—	100,000A	600V
Magnetic Only ⑥ Type CB ⑦	150A	Marked HMCP	100,000A	480V
			50,000A	600V
Thermal/Mag. Type CB ⑧	250A	65,000A	65,000A	480V
		25,000A	25,000A	600V
		100,000A	100,000A	480V
		35,000A	35,000A	600V
Magnetic Only Type CB + CL ⑨	150A	HMCP + Current Limiter	100,000A	600V
Thermal/Mag. Type CB + CL ⑩	250A	200,000A	100,000A	600V
Thermal/Mag. Type CLB ⑪	250A	150,000A	100,000A	480V

- ⑥ Instantaneous Adjustable Trip.
- ⑦ Circuit Breaker.
- ⑧ Inverse Time Circuit Breaker.
- ⑨ Instantaneous Adjustable Trip with Current Limiting Attachment.
- ⑩ Inverse Time with Built-In Current Limiting Attachment.
- ⑪ Inverse Time Current Limiting Breaker.

**Table 33-246. Other DC Coils Available (For Q Suffix) ⑮**

Voltages	Size 0 & 1		Voltages	Size 2	
	1- to 4-Pole Style Number	1- to 3-Pole		1- to 4-Pole Style Number	1- to 3-Pole
12	1268C86G07		79	1268C86G08	
28	1268C86G06		96	1268C86G15	
32	1268C86G09		200	1268C86G11	
34	1268C86G16		300	1268C86G14	
37.5	1268C86G17		315	1268C86G12	
40	1268C86G13		125/250	1268C86G03	
50	1268C86G10			—	

- ⑮ For Q suffixes "order by description" consult Technical Support Center. Availability may be limited.

**Table 33-247. Other Available Coil Voltage Adders**

NEMA Size	Coil	
	Dual Voltage AC Coil Adder Price, U.S. \$	DC Coil (24, 48, 125, 250V DC) Adder Price, U.S. \$
0, 1		
2		
3		
4		
5, 6		

Discount Symbol ..... **1CD1C**