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Full-Load Current

Full-Load Current in Amperes
Direct-Current Motors

HP	90V	120V	180V	240V	500V	550V
1/4	4.0	3.1	2.0	1.6	—	—
1/3	5.2	4.1	2.6	2.0	—	—
1/2	6.8	5.4	3.4	2.7	—	—
3/4	9.6	7.6	4.8	3.8	—	—
1	12.2	9.5	6.1	4.7	—	—
1 1/2	—	13.2	8.3	6.6	—	—
2	—	17	10.8	8.5	—	—
3	—	25	16	12.2	—	—
5	—	40	27	20	—	—
7 1/2	—	58	—	29	13.6	12.2
10	—	76	—	38	18	16
15	—	—	—	55	27	24
20	—	—	—	72	34	31
25	—	—	—	89	43	38
30	—	—	—	106	51	46
40	—	—	—	140	67	61
50	—	—	—	173	83	75
60	—	—	—	206	99	90
75	—	—	—	255	123	111
100	—	—	—	341	164	148
125	—	—	—	425	205	185
150	—	—	—	506	246	222
200	—	—	—	675	330	294

Full-Load Current in Amperes
Single-Phase Alternating Current Motors

HP	115V	200V	208V	230V
1/6	4.4	2.5	2.4	2.2
1/4	5.8	3.3	3.2	2.9
1/3	7.2	4.1	4	3.6
1/2	9.8	5.6	5.4	4.9
3/4	13.8	7.9	7.6	6.9
1	16	9.2	8.8	8
1 1/2	20	11.5	11	10
2	24	13.8	13.2	12
3	34	19.6	18.7	17
5	56	32.2	30.8	28
7 1/2	80	46	44	40
10	100	57.5	55	50

The voltages listed are rated motor voltages. The listed currents are for system voltage ranges of 110 to 120 and 220 to 240.

Running Overload Units

Kind of Motor	Supply System	Number and Location of Over-Load Units, Such as Trip Coils or Relays
1-Phase AC or DC	2-wire, 1-phase AC or DC, ungrounded	1 in either conductor
1-Phase AC or DC	2-wire, 1-phase AC or DC, one conductor ungrounded	1 in ungrounded conductor
1-Phase AC or DC	3-wire, 1-phase AC or DC, grounded neutral	1 in either ungrounded conductor
1-Phase AC	Any 3-phase	1 in ungrounded conductor
2-Phase AC	3-wire, 2-phase AC, ungrounded	2, one in each phase
2-Phase AC	3-wire, 2-phase AC, one conductor grounded	2 in ungrounded conductors
2-Phase AC	4-wire, 2-phase AC, grounded or ungrounded	2, one per phase in ungrounded conductors
2-Phase AC	5-wire, 2-phase AC, grounded neutral or ungrounded	2, one per phase in any ungrounded phase wire
3-Phase AC	Any 3-phase	3, one in each phase*

* Exception: Where protected by other approved means.

Motor Branch—Circuit Protective Devices Maximum Rating or Setting

Type of Motor Inverse Breaker*	PERCENT OF FULL-LOAD CURRENT			
	Non-Time Delay Fuse**	Dual Element (Time-Delay) Fuse**	Instantaneous Trip Breaker	Time
Single-phase motors	300	175	800	250
AC polyphase motors other than wound-rotor Squirrel Cage:				
Other than design E	300	175	800	250
Design E	300	175	1100	250
Synchronous	300	175	800	250
Wound rotor	150	150	800	150
Direct-current (constant voltage)	150	150	250	150

* The values given in the last column also cover the ratings of non-adjustable inverse time types of circuit breakers that may be modified

** The values in the Non-time Delay Fuse column apply to time delay class CC fuses

Full-Load Current
Two-Phase Alternating-Current Motors (4 wire)

HP	115V	230V	460V	575V	2300V
1/2	4	2	1	0.8	—
3/4	4.8	2.4	1.2	1.0	—
1	6.4	3.2	1.6	1.8	—
1 1/2	9	4.5	2.3	1.8	—
2	11.8	5.9	3	2.4	—
3	—	8.3	4.2	3.3	—
5	—	13.2	6.6	5.3	—
7 1/2	—	19	9	8	—
10	—	24	12	10	—
15	—	36	18	14	—
20	—	47	23	19	—
25	—	59	29	24	—
30	—	69	35	28	—
40	—	90	45	36	—
50	—	113	56	45	—
60	—	133	67	53	14
75	—	166	83	66	18
100	—	218	109	87	23
125	—	270	135	108	28
150	—	312	156	125	32
200	—	416	208	167	43

For 90 and 80% power factor, the above figures should be multiplied by 1.1 and 1.25 respectively.

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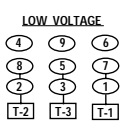
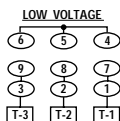
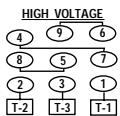
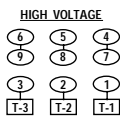
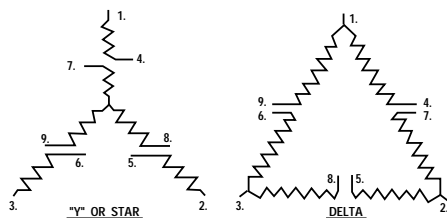
Full-Load Current

Full-Load Current Three-Phase Alternating Current Motors

HP	Induction Type Squirrel-Cage and Wound-Rotor Amperes						Synchronous Type Unity Power Factor* Amperes				
	115 Volts	200 Volts	208 Volts	230 Volts	460 Volts	575 Volts	2300 Volts	230 Volts	460 Volts	575 Volts	2300 Volts
1/2	4.4	2.5	2.4	2.2	1.1	0.9	—	—	—	—	—
3/4	6.4	3.7	3.5	3.2	1.6	1.3	—	—	—	—	—
1	8.4	4.8	4.6	4.2	2.1	1.7	—	—	—	—	—
1 1/2	12.0	6.9	6.6	6.0	3.0	2.4	—	—	—	—	—
2	13.6	7.8	7.5	6.8	3.4	2.7	—	—	—	—	—
3	—	11.0	10.6	9.6	4.8	3.9	—	—	—	—	—
5	—	17.5	16.7	15.2	7.6	6.1	—	—	—	—	—
7 1/4	—	25.3	24.2	22	11	9	—	—	—	—	—
10	—	32.2	30.8	28	14	11	—	—	—	—	—
15	—	48.3	46.2	42	21	17	—	—	—	—	—
20	—	62.1	59.4	54	27	22	—	—	—	—	—
25	—	78.2	74.8	68	34	27	—	53	26	21	—
30	—	92	88	80	40	32	—	63	32	26	—
40	—	120	114	104	52	41	—	83	41	33	—
50	—	150	143	130	65	52	—	104	52	42	—
60	—	177	169	154	77	62	16	123	61	49	12
75	—	221	211	192	96	77	20	155	78	62	15
100	—	285	273	248	124	99	26	202	101	81	20
125	—	359	343	312	156	125	31	253	126	101	25
150	—	414	396	360	180	144	37	302	151	121	30
200	—	552	528	480	240	192	49	400	201	161	40
250	—	—	—	—	302	242	60	—	—	—	—
300	—	—	—	—	361	289	72	—	—	—	—
350	—	—	—	—	414	336	83	—	—	—	—
400	—	—	—	—	477	382	95	—	—	—	—
450	—	—	—	—	515	412	103	—	—	—	—
500	—	—	—	—	590	472	118	—	—	—	—

The voltages listed are rated motor voltages. The currents listed shall be permitted for system voltage ranges of 110 to 120, 220 to 240, 440 to 480, and 550-600 volts.
* For 90 and 80 percent power factor, the above figures shall be multiplied by 1.1 and 1.25, respectively.

Three Phase AC Motor Windings and Connections



NOTE

- THE MOST IMPORTANT PART OF ANY MOTOR IS THE NAME-PLATE. CHECK THE DATA GIVEN ON THE PLATE BEFORE MAKING THE CONNECTIONS.
- TO CHANGE ROTATION DIRECTIONS OF 3 PHASE MOTOR, SWAP ANY 2 T-LEADS

Full-Load Current and Other Data Three Phase AC Motors

Motor Horsepower	Motor Ampere	Size Breaker	Size Starter	Heater Ampere	Size Wire	Size Conduit	
1/2	230V 460	2.2 1.1	15 15	00 00	2.530 1.265	12 12	3/4" 3/4"
3/4	230 460	3.2 1.6	15 15	00 00	3.680 1.840	12 12	3/4" 3/4"
1	230 460	4.2 2.1	15 15	00 00	4.830 2.415	12 12	3/4" 3/4"
1 1/2	230 460	6.0 3.0	15 15	00 00	6.900 3.450	12 12	3/4" 3/4"
2	230 460	6.8 3.4	15 15	0 00	7.820 3.910	12 12	3/4" 3/4"
3	230 460	9.6 4.8	15 15	0 0	11.040 5.520	12 12	3/4" 3/4"
5	230 460	15.2 7.6	15 15	1 0	17.480 8.740	12 12	3/4" 3/4"
7 1/2	230 460	22 11	40 30	1 1	25.300 12.650	10 12	3/4" 3/4"
10	230 460	28 14	50 30	2 1	32.200 16.100	10 12	3/4" 3/4"
15	230 460	42 21	70 40	2 2	48.300 24.150	6 10	1 3/4"
20	230 460	54 27	100 50	3 2	62.100 31.050	6 10	1 3/4"
25	230 460	68 34	100 50	3 2	78.200 39.100	4 8	1 1/2" 1"
30	230 460	80 40	125 70	3 3	92.000 46.000	3 8	1 1/2" 1"
40	230 460	104 52	175 100	4 3	119.600 59.800	1 6	1 1/2" 1"
50	230 460	130 65	200 150	4 3	149.500 74.750	00 4	2 1 1/2"
60	230 460	154 77	250 200	5 4	177.100 88.55	000 3	2 1 1/2"
75	230 460	192 96	300 200	5 4	220.80 110.40	250 2	2 1/2" 1 1/2"
100	230 460	248 124	400 200	5 4	285.20 142.60	350 0	3 2"
125	230 460	312 156	500 250	6 5	358.80 179.40	600 000	3 1/2" 2"
150	230 460	360 180	600 300	6 5	414.00 207.00	700 0000	4 2 1/2"

Note:

1. Wire and conduit size will vary depending on type of insulation and termination listing.
2. The preceding calculations apply to induction type, squirrel-cage, and wound-rotor motors only.
3. The voltages listed are rated motor voltages; corresponding nominal system voltages are 220V to 240V, and 440V to 480V
4. Hertz: Preferred terminology for cycles per second.
5. Form coil: Coil made with rectangular or square wire.
6. Mush coil: Coil made with round wire.
7. Slip: Percentage difference between synchronous and operating speeds.
8. Synchronous speed: Maximum speed for A.C. motors or (Frequency x 120)/ Poles.
9. Full load: Speed at which rated horsepower is developed.
10. Poles: Number of magnetic poles set up inside the motor by the placement and connection of the windings.