



SACARDANDE ENGINEERS PVT. LTD.

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 | 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.



SACARDANDE ENGINEERS PVT. LTD. Full Load Current

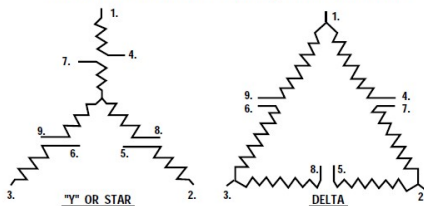
Full-Load Current Three-Phase Alternating Current Motors

| 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 3/4 | — | 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



HIGH VOLTAGE



LOW VOLTAGE



HIGH VOLTAGE



LOW VOLTAGE



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 | 230 460 | 3.2 1.6 | 15 1/2 | 00 00 | 3.680 1.840 | 12 12 | 3/4" |
| 1 | 230 460 | 4.2 2.1 | 15 15 | 00 00 | 4.830 2.415 | 12 12 | 3/4" |
| 1 1/2 | 230 460 | 6.0 3.0 | 15 15 | 00 00 | 6.900 3.450 | 12 12 | 3/4" |
| 2 | 230 460 | 6.8 3.4 | 15 15 | 0 00 | 7.820 3.910 | 12 12 | 3/4" |
| 3 | 230 460 | 9.6 4.8 | 15 15 | 0 0 | 11.040 5.520 | 12 12 | 3/4" |
| 5 | 230 460 | 15.2 7.6 | 15 15 | 1 0 | 17.480 8.740 | 12 12 | 3/4" |
| 7 1/2 | 230 460 | 22 11 | 40 30 | 1 1 | 25.300 12.650 | 10 12 | 3/4" |
| 10 | 230 460 | 28 14 | 50 30 | 2 1 | 32.200 16.100 | 10 12 | 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.