



MOTOR SELECTION

When selecting a replacement motor using current (amp) rating comparisons, it is important to choose a replacement motor that has the correct load carrying capability. An overloaded motor will overheat causing the thermal protector to trip. Selecting too strong a motor will also cause overheating.

The table below gives the amp range of an acceptable replacement. For instance, a defective motor with a nameplate rating of 2.35 amps would be closest to 2.4 amps and can be replaced with a motor of the same voltage having a nameplate current rating between 2.4 and 3.0 amps.

| Nameplate Amps of the Defective Motor | Nameplate Amp Range of an Acceptable Replacement |
|---------------------------------------|--|
| 1.0 | 1.0-1.25 |
| 1.1 | 1.1-1.37 |
| 1.2 | 1.2-1.52 |
| 1.3 | 1.3-1.62 |
| 1.4 | 1.4-1.75 |
| 1.5 | 1.5-1.87 |
| 1.6 | 1.6-2.0 |
| 1.7 | 1.7-2.13 |
| 1.9 | 1.9-2.37 |
| 2.0 | 2.0-2.5 |
| 2.2 | 2.2-2.75 |
| 2.4 | 2.4-3.0 |
| 2.6 | 2.6-3.25 |
| 2.8 | 2.8-3.5 |
| 3.0 | 3.0-3.75 |
| 3.3 | 3.3-4.12 |
| 3.6 | 3.6-4.5 |
| 4.0 | 4.0-5.0 |
| 4.4 | 4.4-5.5 |
| 4.8 | 4.8-6.0 |
| 5.0 | 5.0-6.25 |
| 5.5 | 5.5-6.87 |
| 6.0 | 6.0-7.5 |
| 6.5 | 6.5-8.12 |
| 7.0 | 7.0-8.75 |
| 7.5 | 7.5-9.37 |
| 8.0 | 8.0-10.0 |
| 8.5 | 8.5-10.62 |
| 9.0 | 9.0-11.25 |
| 9.5 | 9.5-11.87 |
| 10.0 | 10.0-12.5 |
| 10.5 | 10.5-13.12 |
| 11.0 | 11.0-13.75 |
| 11.5 | 11.5-14.4 |
| 12.0 | 12.0-15.0 |

MOTOR SELECTION (continued)

Matching ampere rating is usually more accurate than matching horsepower.

Speed and voltage of the replacement motor must always match the speed and voltage of the replaced motor.

A Permanent-Split Capacitor motor can replace an equivalent Shaded-Pole motor since it is twice as efficient and its amp draw is about 1/2 as great. Shaded-Pole motors should not be used to replace Permanent-Split Capacitor motors.

It is important to realize that motor amps are actually related to how fast the shaft is spinning at the instant a reading is taken. At the instant a motor is energized and before the shaft even begins to spin, the magnetic flux created by the windings sweep through the rotor bars and produce currents through them. This rotor bar current produces its own invisible magnetic flux lines. As soon as the rotor begins to spin, its own magnetic flux lines will begin to cut through the motor windings. This action will generate a voltage in the winding that actually opposes the line voltage. This action actually pushes back the flow of motor amperage. As the rotor approaches full speed such as 1075 RPM, the rotor bar flux is sweeping through the winding so fast that the opposing voltage generated suppresses the motor amperage down to the nameplate rating.

MOTOR SELECTION VERIFICATION

When a Fasco replacement motor has been selected and installed, a final check of the current draw of the motor running in the unit should be made. This check is particularly beneficial when the motor in the application has been replaced before, since the previous replacement motor may not have been correct for the application. The table below will help this procedure as it shows the range within which the motor should be operating under load. For instance, if