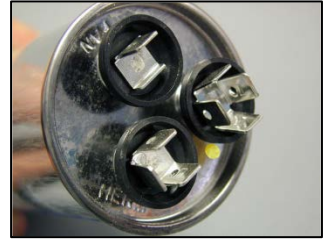


Finding the Right Replacement Motor

1. Identify the motor type. If it had a Run capacitor it is a PSC motor, shaded pole, or CSR motors will not have a run capacitor.



Single and Dual Run Capacitors

2. Was the motor sealed or did it have vents? A motor with vents is typically used as a blower motor, and a sealed motor is typically used as a condenser fan motor.



Sealed Condenser fan Motor

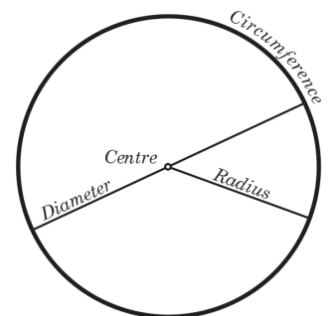


Vented Blower Motor

3. What type of bearings does it have? The bearing types used in our industry are sleeve or ball bearing. Sleeve bearings are low cost bearings, but they cannot handle much load. So it is best to replace them with a motor with ball bearings that can handle additional load, that's why all first choice motors are equipped with ball bearings.

4. What is the frame size? To find this, measure the diameter of the motor and use the chart below as a reference:

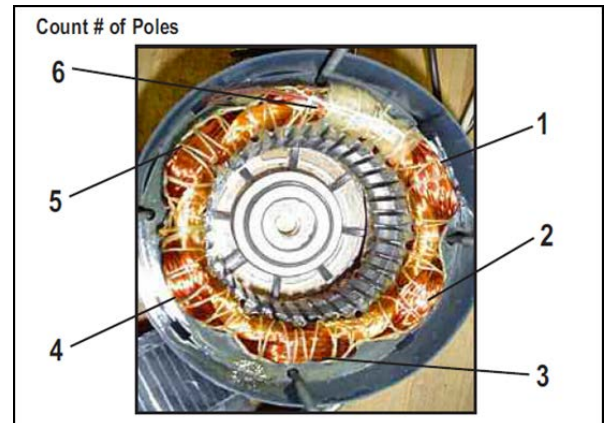
- a. Diameter 4.9"= NEMA frame 42
- b. Diameter 5.6"= NEMA frame 48
- c. Diameter 6.5"= NEMA Frame 56



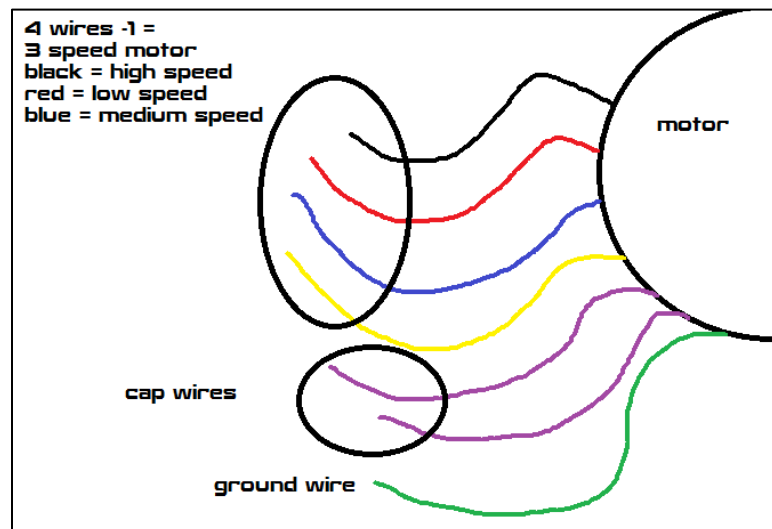
5. What is the motor's RPM? Remove the motor end bells and count the number of poles to determine the motor's RPM (a pole in a motor is a loop of wire that starts in one place of the stator and then loops back in).

Remember, in each motor there are two different windings, the start and run windings. Only count the loops in one of the windings. See the image below, then refer to the chart to find the motor's RPM:

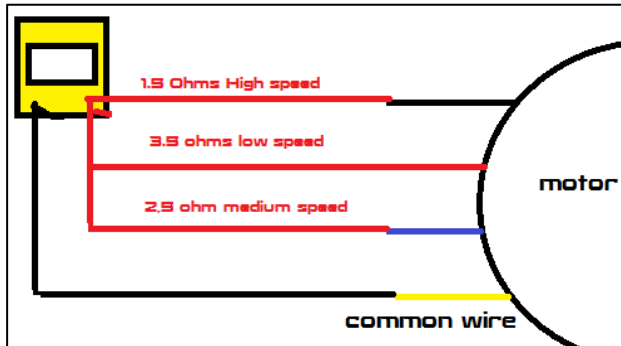
- a. 4 poles = 1625
- b. 6 poles = 1075
- c. 8 poles = 825



6. How many speeds does the motor have? Set aside the green wire which is used for ground, and the brown or purple wires which are typically used for the capacitors. Count the remaining wires (minus one which will be used as the neutral or common wire) and you have found the number of speeds the replacement motor should have.



7. How do you know what color each speed tap is? This chart is an industry standard. Some OEMs may differ, but it is a good rule. Another test is to use an ohm meter to test the resistance of each wire to its common wire (yellow or orange). The highest speed will have the lowest resistance; as the resistance increases the speed of the motor will decrease.



Color	Designation
Green	Ground
White	120 V Neutral
Yellow/Orange	230 V Common
Black	High Speed
Blue	Medium Speed
Yellow	Medium-low
Red	Low Speed
Brown/Purple	Capacitor

8. What is the motor's horsepower? Take the rotor out of the stator, measure the height of the stack and use the chart below to find the horsepower of the motor. Note that the height of the stack is an approximate height and some interpolation may be needed. Do not oversize the horsepower as this will cause the new motor to fail prematurely.

Horsepower & Stack Lengths:

4 & 6 Pole Open Motors

HP	Approx. Stack Length
1/4	1.25"
1/3	1.50"
1/2	2.25"
3/4	2.50"

4 & 6 Pole Closed Motors

HP	Approx. Stack Length
1/4	1.25"
1/3	1.75"
1/2	2.50"
3/4	3.00"

8 Pole Open Motors

HP	Approx. Stack Length
1/8	1.13"
1/6	1.25"
1/4	1.62"
1/3	2.25"

8 Pole Closed Motors

HP	Approx. Stack Length
1/8	1.25"
1/6	1.38"
1/4	1.75"
1/3	2.50"

