

GLOSSARY

Air over - Motors intended for fan and blower service. Motor must be located in the air stream to provide motor cooling.

AC - Abbreviation for alternating current. The current flow in the circuit alternates back and forth continuously. It does this 60 times per second with 60 Hz power.

Amps - The amount of electrical current flowing in an electrical circuit.

Ambient Temperature - The air temperature surrounding the motor.

Blast Cooled - A term used to describe a motor having an external fan and cooling case that forces cooling air over the motor. Similar to totally enclosed fan cooled.

Bonderize - A process in which zinc phosphate is applied to the motor shaft to help the shaft resist corrosion.

BTU - An abbreviation for British Thermal Unit. 12,000 BTUs equals 1 ton air conditioning.

CSA - An abbreviation for Canadian Standards Association. They set safety standards for motors and electrical equipment used in Canada. All Fasco 60 hertz motors meet CSA standards and display the CSA logo on the nameplate.

CFM - Abbreviation for Cubic Feet per Minute of air which the fan or blower is moving.

Continuity - A term used to describe a circuit that is complete. That is, the circuit is able to pass electric current.

Cooling Degree Days - Each degree that the average temperature is above 65 degrees F produces one cooling degree day.

CW/CCW - Abbreviation for Clockwise/Counter-Clockwise rotation. CWSE means Clockwise rotation viewing the motor from the Shaft End. CWLE means Clockwise rotation when viewing the motor from the Lead End.

Cycling (tripping) - Motor overload is interrupting power to motor due to excessive heat rise. It then turns the motor back on when the motor cools. Condition repeats continuously.

DC - An abbreviation for direct current. Current flows in one direction through the circuit.



Efficiency - The ratio or comparison of power output to power input.

End Bell / End Shield - The plates at each end of the motor which support the bearings.

End Play - This term refers to the in and out movement the rotor has in the motor. Excessive end play can result in problems such as fan blades hitting the fan guards. No end play can result in a tight motor.

Fractional Horsepower - Horsepower less than 1.

Frame or Frame Size - A designation that controls certain specifications that a motor will be built to if it is to be called a particular frame size. Specifications such as motor diameter are controlled.

Free Air - The blower or fan blade operates at free air when there are no effective restrictions to air flow at the outlet or inlet.

Full Load Torque - This is the amount of torque produced by a motor when it is running a full load speed at rated horsepower.

Full Load Amps - Amperage drawn by a motor when operating at rated load, voltage, and frequency.

General Purpose Motor - It is designed with standard operating characteristics and mechanical construction for use under usual service conditions. Has a service factor rating.

Grounding - The connection of a motor to an earth ground to reduce the possibility of electrical shock.

Heating Degree Days - Each degree that the average temperature is below 65 degrees F produces one heating degree day.

Hertz - Frequency in cycles per second of an AC power supply. The U.S. operates on 60 hertz (HZ).

Hi Pot (High Potential) - This is a motor test used to detect conditions where electrical conductors (IE lead wires, magnet wire) may have come in contact with the non-electrical parts of the motor (IE stator laminations, shell).

Horsepower - The rating of a motor's ability to do work.

HP = watts output / 746.

HP = (RPM x Torque in ounce-inches) / 1,000,000.

One HP = 746 watts.

GLOSSARY

HVAC - An abbreviation for heating, ventilation, and air conditioning.

Inch-Ounce - A measure of torque (twist). One-inch ounce is equal to one ounce of force applied 1" out away from center line of the shaft.

Insulation Classes - Insulation in a motor is rated by its temperature capability for providing reasonable motor life. The two most common are Class A - 105 degrees C, Class B - 130 degrees C. These are total temperatures, not temperature rises over ambient.

Integral - Whole number. Used to describe horsepowers of motors over one horsepower.

Lead - The hook-up wire brought out from the internal winding to make the external connections.

Load Factor - A rating used by Fasco to show the motor's actual horsepower compared with nameplate rating. For example, if a 1/4 HP motor has a load factor of 1.3, it is actually 30% stronger than the 1/4 HP rating.

Lug - Mounting bracket extending from the motor shell, usually three or four.

Mechanical Duty - Cooling by means of a fan inside or outside the motor housing.

Microfarad (MFD) - Capacitor rating

Motor - A machine that converts electrical energy into mechanical energy.

Mounting: Rigid - Motor base welded solidly to the motor shell.

Resilient - Motor mounted in a bracket or a base using rubber rings on each end of the motor to isolate vibration.

Stud - Motor uses its extended thru-bolts (studs) to mount motor.

National Electric Code (NEC) - A national code written for the purpose of safeguarding persons and property from the hazards arising from the improper use of electricity. Sponsored by the National Fire Protection Institute. Used by insurance inspectors and by many government bodies regulating building codes.



NEMA - The National Electric Manufacturers Association. Construction and performance standards for motors, controls, and most electrical machines in the U.S. originate from this organization.

OEM - Abbreviation for Original Equipment Manufacturer.

O.D. (Outside Diameter) - The abbreviation for Outside Diameter. The dimension of a round object measured across the outer edges at locations 180 degrees apart.

Ohms Law - The basic relationship between the voltage, current, and resistance in a circuit. $Voltage = Current \times Resistance$.

Overload Protector - A temperature detecting device built into the motor that disconnects the motor from the power source if the temperature rise becomes excessive.

Permawick - The oil-soaked cellulose fiber material that is packed into the motor end plates for sleeve-bearing lubrication. These fibers are made of 80 - 90% ground wood fibers and 10 - 20% sulfite fibers.

Pitch - Referring to the angle of the wings on a fan blade.

PSC - Permanent-Split Capacitor

Resilient Mounting Ring - This is a rubber ring that is part of the end plate assembly on some motors. Its primary function is to provide the customer a means of mounting the motor to a base or bracket on the equipment. This ring isolates vibration.

Resistance - This is the measure of a conductor's ability to conduct current. Resistance is measured in ohms. One ohm of resistance will allow one amp to flow through a conductor that has a voltage of one volt impressed on it.

Rotor - The rotating member of a motor. It is constructed from stacked iron laminations. There are channels in the stack that are filled with molten aluminum. These aluminum bars get currents induced in them from the winding magnetic flux. The currents produce their own magnetic flux. This rotor flux interacts with the winding flux to produce rotation. The shaft is securely pressed on the rotor.

RPM - Shaft revolutions per minute.

GLOSSARY

Service Factor - Pertains to self-cooled motors. A measurement which states the percent horsepower the motor can carry beyond its nameplate rating and remain self-cooled. A service factor of 1.3 has a 30% horsepower margin built into the motor.

Short - This is a condition in the motor windings or conductors where the absence of insulation causes currents to by-pass their normal circuit path.

Sleeve-Bearing - A sleeve style bushing used to support a rotor in a motor. This style provides quiet motor operation as compared to ball bearings.

Slip - A term describing the difference between the rotor speed and the speed of the motor's rotating magnetic field. Rotors always drag behind the speed of a magnetic field.

Slot Insulation - Also called Slot Liner. The insulation material used in the stator slots to protect the motor windings from scraping the laminations. It also provides winding protection against grounding to the laminations.

Special Purpose Motor - Designed for a specific application. Developed when an OEM has refined the operating characteristics or construction features of the motor. Does not have standard operating characteristics or standard mechanical features.

Squirrel Cage Blower / Centrifugal Blower / Forward Curve Blower - Air-moving devices consisting of a wheel made of many fins. The wheel is contained within a housing.

Stack - Thickness of a motor stator.

Starting Torque - The amount of turning force produced by a motor as it begins to turn from a standstill. Also called locked rotor torque.

Static Balancing - Balancing without rotation.

Static Pressure - The amount of resistance a system introduces to an air mover like a blower or fan blade. A blower seldom operates at free air. It generally is installed in a system that naturally creates resistance to air flow. The measured resistance is called static pressure. Fans and blowers are designed to deliver different amounts of air at different static pressure points.



Stator - The stack of iron laminations on which the coils are wound.

Strobe - An RPM measuring device that flashes light pulses at a rotating shaft. The pulses are adjusted until an optical illusion of the shaft standing still is obtained. At this point, the RPM reading is taken.

Submersible Motor - A motor whose housing is designed so that the motor can run under water; completely submerged. These are commonly used in water pumps.

Synchronous Motor - A motor that runs at synchronous speed without slip.

Tachometer - RPM measuring device.

Temperature Rise - Amount of heat a motor generates above the ambient temperature.

Torque - The twisting or turning force produced by the motor shaft.

Voltage - The measure of electromotive force that causes current to flow in a circuit.

UL (Underwriter's Laboratories) - An agency who establishes safety standards for manufacturers to adhere to.

Watts Output - The measure of mechanical power available from a motor. 746 watts equals one horsepower.