

# AIR, VIBRATING AND SERIAL MOTORS

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Air Motors



Air Motors

**Air Motor** is a type of motor which does mechanical work by expanding compressed air. Air motors generally convert the compressed air to mechanical work through either linear or rotary motion. Linear motion can come from either a diaphragm or piston actuator, while rotary motion is supplied by either a vane type air motor or piston air motor.

Air motors have existed in many forms over the past two centuries, ranging in size from hand held turbines to engines of up to several hundred horsepower. Some types rely on pistons and cylinders, others use turbines.

Many compressed air engines improve their performance by heating the incoming air or the engine itself. Air motors have found widespread success in the hand-held tool industry and continual attempts are being made to expand their use to the transportation industry. However, air motors must overcome inefficiencies before being seen as a viable option in the transportation industry.

## **Application**

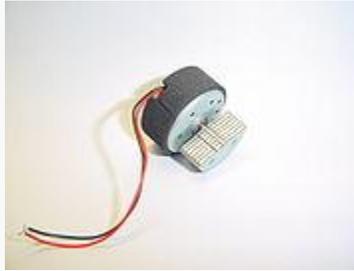
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A widespread application of small air motors is in hand-held tools, power ratchet wrenches, drills, sanders, grinders, cutters, and so on. Though overall energy efficiency of pneumatics tools is low and they require access to a compressed-air source, there are several advantages over electric tools. They offer greater power density (a smaller pneumatic motor can provide the same amount of power as a larger electric motor), do not require an auxiliary speed controller (adding to its compactness), generate less heat, and can be used in more volatile atmospheres as they do not require electric power.

Historically, many individuals have tried to apply air motors to the transportation industry. Guy Negre, CEO and founder of Zero Pollution Motors, has pioneered this field since the late 1980s. Recently Engine air has also developed a rotary motor for use in automobiles. Engine air places the motor immediately beside the wheel of the vehicle and uses no intermediate parts to transmit motion which means almost all of the motor's energy is used to rotate the wheel.

## Vibrating Motors

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Vibrating Motors

**Vibrating Motor** is essentially a motor that is improperly balanced. In other words, there is an off-centered weight attached to the motor's rotational shaft that causes the motor to wobble. The amount of wobble can be changed by the amount of weight that you attach, the weight's distance from the shaft, and the speed at which the motor spins. This type of motor can be used affixed to all kinds of objects, which will cause them to vibrate and move freely about. This is a quick and dirty way to get a simple bot to move about, but not exactly the most elegant. Vibrating motors can be found inside cell phones, pagers, gaming controllers, and personal massagers.

## Working Principle

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During rotation, the eccentric weights mounted on the two shaft ends generate a circular vibration, causing a vibrating motion to be impressed onto the components coupled to the motor base - such as trough conveyors or screening machines. Two counter-rotating vibrating motors generate directed vibrations.

The vibrating motors are selected according to the required centrifugal force and the desired speed.

## Serial Motors

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**Serial Motor** allows to control up to two DC motors using a serial command interface. The serial interface is easy to use and it lets the user select an individual motor, the direction, and the desired speed constant .Serial Motor is a powerful motor controller for use of low-voltage motor movement needs. The serial command interface used to control the motors is very straight forward. A command consists of four characters: the motor number, the direction indicator, the speed constant, and a carriage return. The baud rate of the serial motor is set to 115200bps.

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