

Tech Talk

Navigating the world of technology one gadget at a time
A service of the Hinsdale Public Library

Air Compressors

Volume 4, Number 2

What is an air compressor and why would I need one?

In simple terms, an air compressor is a device which forcefully pushes air through a hose. Because they serve so many functions, they can be useful to have around the house.

What can I do with an air compressor?

As you might expect, you can inflate basketballs, footballs, soccer balls, air mattresses and tires. But you can also attach a blowgun to remove sawdust from your woodworking projects, apply paint or stain with an airbrush, and power a surprising array of tools.



I inflate my tires at the gas station. What's wrong with that?

Gas station air compressors certainly do the job, though an increasing number of locations are charging for the service. If you have a compressor at home, you can top off your tires in five minutes instead of driving several blocks to find a gas station with an air machine. Anything which makes you more likely to keep your tires at the proper pressure pays dividends in increased fuel economy and longer tire tread life.

Air compressors can be surprisingly useful around the house. This portable model from Hitachi weighs in at about 65 lbs.

What kinds of air tools are available?

Air-powered tools (sometimes called pneumatic tools) include nail guns, palm nailers, staplers, drills, screwdrivers, grinders, cutting tools, sanders, polishers, socket wrenches, impact wrenches and paint sprayers, among many others.

What are the benefits of air tools?

Since air tools share a centralized power source (the compressor), they tend to cost less than standalone electric tools. For example, you can get an air-powered nail gun for as little as \$100. A similar standalone model powered by gas cartridges costs over \$250. Having a unified power source will also improve reliability, as there's a single centralized motor which might fail instead of one motor inside each tool.

Another benefit is increased power. Air tools can generate more force than standard tools. For example, a pneumatic impact wrench can loosen lug nuts frozen in place by years of rust buildup, while the lug wrench in your car wouldn't break them free.

A final advantage of air tools lies in their modular nature; if you upgrade the air compressor, nearly all of your tools will benefit, either from additional speed, torque, or runtime. Upgrading traditional power tools would require replacing each one.



An air-powered stapler attaches molding in a jiffy.



Pneumatic impact wrenches can break free stubborn lug nuts.



An air-powered sander preps wood for finishing.



Pneumatic palm nailers allow you to quickly drive nails in awkward locations.

What should I look for in a home air compressor?

There are a few key dimensions on which air compressors differ:

- **CFM (cubic-feet-per-minute) rating:** This measure of airflow delivered by a compressor should be the most critical factor in your selection. Most air compressor specifications will provide CFM at common pressure levels, such as at 90 pounds per square inch (PSI).

Before you select a compressor, gather information regarding the CFM requirements of the tools you are likely to use, and pick an air compressor which exceeds the requirements of your most air-hungry tool by a fair margin (about 40%). CFM requirements are typically listed on the packaging of air tools or on the manufacturers' websites. A 6.0 CFM @ 90 PSI air compressor should be adequate for many home improvement projects. When in doubt, always buy a higher-CFM unit than you think you need.

- **Horsepower:** Powerful air compressors tend to have high horsepower ratings. However, you should buy a compressor based on its CFM rating, not its horsepower.
- **Gasoline or Electric:** Unless you'll be working in a location without electricity, an Electric compressor is the way to go.
- **Oil-Lubricated or Oil-free:** In comparison to oil-lubricated compressors, oil-free models tend to be louder (often significantly so) and to have a shorter lifespan. As a result, most pros insist upon oiled units for their job sites.

There are downsides, though. Oiled models can only be used on a level surface, and they emit a small amount of oil in a mist through the hose. This is great for lubricating air tools but can make a mess if you're trying to spray paint. Additionally, these models require periodic oil changes to keep them running, whereas oil-less models are essentially maintenance-free.

Generally speaking, if you're planning to use a compressor on a daily basis or as part of your livelihood, consider an oil-lubricated model. Otherwise, most home users will find an oil-free compressor to be a good choice.

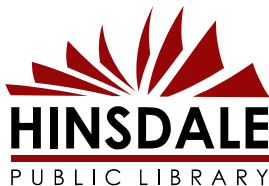
- **Size of Tank:** Air compressors have tanks so that they don't have to run continuously. When you start the air compressor, it fills the tank up until it reaches operating pressure, after which time the motor stops running. Then, when the air pressure in the tank drops below a certain point, the motor compresses the air until it is back to the proper PSI.

Having a large tank is a poor substitute for a higher-CFM unit, as it will take a long time to fill up before you can operate your tools, and once you use up all of the air in the tank, you will force the motor to run continuously. Still, a large tank is perfect for tools which use air intermittently (e.g., nail guns and impact wrenches).

- **Portable or Stationary:** Portable models usually have a handle and/or wheels to ease their transportation. They often have small tanks (less than five gallons). Of course "portable" is a relative term, as some of these models weigh as much as 65 or 70 pounds. Perhaps "luggable" is a more apt description. A stationary compressor often has a much larger tank (ten or more gallons) and a more capable motor. The tanks may be horizontally or vertically oriented. Simply pick the type which will fit best in your home.

If you have questions, comments or suggestions, you can visit me at the Reference Desk, contact me via email (moetting@hinsdalelibrary.info), or call me at 630-986-1976.

Mike Oetting, Reference Librarian
3/15/2008



20 East Maple St.
Hinsdale IL 60521
630-986-1976
www.hinsdalelibrary.info
reference@hinsdalelibrary.info