

What Type of Air Compressor Is Right for You?

We all know that compressed air is an absolute necessity in most frame shops. Following are some facts about the average “shop” compressor you’ll find in the marketplace. There are basically three types of air compressors on the market today.

The first is the oilless diaphragm type which does not require lubrication. Usually, these units do not come with an air tank and tend to pulsate and run constantly. This means they heat up quickly and need to be manually turned off every 20 to 30 minutes. They generally put out relatively low pressures (psi) and low volumes of cubic feet of air per minute (cfm). These are not suitable for use with computerized mat cutters, underpinners, or other framemaking equipment.

The piston type compressor is much more powerful and may or may not require lubrication. Most models have an air tank and gauges. Some have an automatic shut-off feature which turns the compressor off and on as air is depleted and replenished in the tank. These units are usually very noisy.

Despite the noise, the piston type compressor described above is the most popular choice for most framers. The primary reason is their moderate price. However, these compressors which are sold at retail stores like Home Depot or Sears are usually designed for occasional home shop use, not everyday commercial use. Therefore, if they are used in a busy frame shop, the life expectancy of these units is relatively short—sometimes just a year or so.



A primary consideration in choosing a compressor is how many pieces of equipment you'll operate. Double pump models offer increased pressure capacity over the single pump model shown here.

On a recent shopping expedition, I reviewed piston compressor models available in discount stores. When I checked many of these models against their factory specifications, there were some discrepancies. The most notable were dramatic differences between volume of air (cfm) ratings and actual performance. This factor is most crucial for optimal performance especially with framing equipment. It is important to check and

double check the abilities of the machine when shopping.

Another type of compressor is the rotary piston compressor which features virtually noiseless operation. It includes an automatic shut-off switch, pressure regulator, moisture trap and gauge, air tank, pressure relief valve, thermal overload switch, and tank gauge.

There are many models to choose from. There are fully enclosed or “open-architecture” no cover (all components are exposed within a metal frame) styles, different horsepower and cfm ratings, and stationary or mobile units.

When choosing an air compressor, your choice should primarily depend on the type of framing equipment you use and how many pieces you need to operate simultaneously. The duration of time you'll want to operate your equipment is also important when considering your compressor needs.

For example, if you intend to operate a computerized mat cutter, underpinner, and dust-off equipment from a single compressor (on a continuous basis: 6 to 8 hours), it's probably best to use a double-pump unit. This is because each piece of equipment requires a specific volume of air to operate efficiently. The combination puts excess demand on a small compressor. In order to operate all three, the compressor must produce a larger amount of cfm which requires more horsepower and an air tank with a large storage capacity.

Conversely, if you only need to operate one piece of equipment at a time or will dedicate one compressor to one specific task such as mat cutting, a smaller compressor would be adequate. Also, if you're interested in operating individual pieces of equipment

for shorter time periods (30 to 60 minutes), a smaller unit would do.

Compressors are designed to operate ideally at a 50% duty cycle. Duty cycle is the running time vs. the resting time of the compressor motor (pump). For example, a 50% duty cycle is when the motor “runs” and rests equal amounts of the time the compressor is turned on. Air is drawn from the air tank when the compressor is “at rest.”

If the compressor is constantly running to replenish the air supply in the tank, it will overheat because it is overworked. This dramatically shortens the life expectancy of the compressor. Eventually, it will become damaged or stop working entirely. That’s why it is extremely important to match your equipment appropriately.

Another consideration is if you will need to move the compressor around your shop. You may have equipment in different locations that require air. A permanent airline system can be expensive. Purchasing more than one compressor may be something you can avoid if you select a portable unit.

It really all depends on your specific situation. Dale and Kay Wright of Showcase USA, located in Tampa, Florida, shared some of their opinions with me about

their experiences with their compressors. Their framing operation includes a wholesale facility, as well as three retail locations.

Initially, they had considered running a long air hose from a conventional compressor in a remote location. However, they determined that this would be impractical and inconvenient. It also would have caused their compressor to be overworked because a long air hose can create a loss of pressure and moisture problems, as well as overheating.

The Wrights were concerned not only with eliminating the noise factor, but also with space. They now have a rotary piston compressor which they like because of the “compact” size. Dale also commented that he could barely hear the silent compressor. “Before we got the compressor, we’d run around turning off three or four machines in order to answer the phone. This compressor is an extremely worthwhile investment,” he says.

While price is certainly a consideration, features, quality, and performance deserve serious consideration. Most of us would agree that the work environment is extremely important. That’s why the right equipment can make the difference in productivity and efficiency. ■