



Wednesday, October 3, 2007 WoodDigest.com | Magazine Article

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## When compressed Air is Crucial

*Without the optimum air compressor technology, shops face costly rework, high maintenance and replacement costs, exorbitant downtime — and very unhappy customers*

Given the technological age we live in, the preferences for a specific air compressor design might seem a bit argumentative. Yet, for companies that are highly dependent on compressed air, especially those with demanding applications, choosing the right compressor technology may be crucial.

In the finishing business, for example, the continuous availability of unfaltering, high-volume compressed air is vital to support various tools as well as the filtered breathing air system.

“When the air goes down, the woodworking shop is dead in the water,” says Stuart Silverman, president of Lans Company in Glendora, Calif. “Without the right compressor technology, some of our woodworking and finishing shop customers would be down every week, waiting for service technicians to get them back up and running.”

To Silverman, with over 40 years in the industry, a finishing shop customer having air compressor problems is unacceptable.

“This situation becomes intensified by the finishing shop’s need for clean air, including providing a pure supply to the paint/varnish spray systems and tools as well as the breathing system that delivers fresh air via respiratory masks to spray finish technicians,” says Silverman.

### Choosing the right technology

Over the years, many finishing shops had tried several types of air compressor systems, including piston-driven models and rotary screw designs.

“Everybody is familiar with the old piston-style of compressor,” Silverman says. “It’s a fairly simple concept, a piston running up and down and turning a crankshaft. But, of course, that motor also relies on intake and exhaust valves, which tend to wear and then leak. Once that happens, oil can get into the air system. That is definitely a drawback to the purity of the system and causes maintenance headaches.”

Many finishing shops have used rotary screw compressors, but were disappointed with the inherent volumetric

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and efficiency problems due to the “blow hole” and air leakage (back to the intake) characteristics of those compressors. Moreover, in order to make up for inefficiencies and keep up air volume, designers of rotary screw compressors incorporate higher speed, which is detrimental to service life.

Silverman says more and more finishing shops are changing over to rotary vane compressors, a more sophisticated technology with one major moving part. The rotary vane design is far more efficient and cleaner than the piston or rotary screw technologies. Also the vanes (or blades) are held outwardly by centrifugal force. A film of oil between the blades and the stator (housing) wall forms a practically perfect seal. Importantly, the performance of a rotary vane compressor does not degrade over time because during rotation the vanes slide on an oil film preventing direct contact with the internal surface of the stator. This means there is virtually no wear on the vanes.

“One problem with rotary vane compressors was the use of Bakelite vanes,” explains Silverman. “But the Mattei models are cast iron, and because of the oil system, there is virtually no wear. I would say they last three times longer than the rotary screw models. Also, the Mattei rotary vane compressor uses no bearings, but instead use a bushing, so it lasts much longer than other models.”

Silverman adds that the volumetric efficiency of these compressors is approximately 90 percent, supplying a reliable continuous volume of air while also providing a substantial savings in energy, wear-life and maintenance costs.

## **Wide-ranging improvements**

Since installing the rotary vane compressors at every location, Lans’ finishing customers have experienced very few problems. “I may get a call once a month,” says Silverman, “which is music to my ears, compared with the many calls I used to get all the time from shops that were down because of inadequate compressor technologies.”

Silverman notes that stains, varnishes and paints have become very expensive. “You don’t want to have to finish wood materials, such as cabinetry twice because of an air pressure problem. Not only will it cost the time to remove and redo the finish, but the material itself is now very expensive.”

## **Plus savings**

While the cost of electric power needed to drive its compressors is not a major issue with some users, excessive use of power may be a significant cost that is often swept under the rug. For example, older models of compressors often cause a spike in the electric power load during peak usage periods, resulting in a demand profile that could cost many thousands of dollars per year.

“In some businesses, such as body shops, the air compressor is the biggest piece of equipment,” says Silverman. “Relatively speaking, it can cause a lot of expense. With the Mattei compressors, which are very efficient to begin with, we install a ‘part winding start’ at no extra charge. That allows the motor to ramp up to speed, which lowers the usage spike during peak periods. By making the peak smaller, we can lower a sizable electric bill. And the savings will be more than enough to justify the cost of a high-efficiency air compressor. Finishing shops that are running 60-hp compressor motors could save as much as \$1,000 per month.”

For more information, contact Lans Company by phone at (888) 596-5267 or visit its website at [www.lanscompany.com](http://www.lanscompany.com).