

# Air system improves plant efficiency

A new air compressor improves all aspects of the manufacturing process at new woodworking plant.

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## plant facts

**Barsanti Woodworking Corp.**  
Chicago, Illinois

- **Annual sales:** \$8.5 million
- **Plant size:** 54,000 square feet
- **Number of employees:** 60+
- **Product:** High-end architectural millwork for commercial, residential, institutional and industrial

**W**hen Barsanti Woodwork Corp., Chicago, moved to its new 54,000-square-foot plant in December 2001, the timing was right to upgrade the compressed air system. "Everything is tied into the compressor," says Gene Barsanti, the company's president. The compressor is an integral part of a number of machining operations, as well as dust control, sanding and finishing process-

es. So a high-capacity system was integral to the smooth operation of the new plant.

Barsanti produces a wide range of high-end architectural millwork for many large nationally known corporations and has been involved in a number of high-profile projects in Chicago such as the Harold Washington Library, the Navy Pier renovation and Midway Airport.

## Dependability a must

"The biggest problem had been maintaining and holding consistent air pressure," says Barsanti. He says there were just too many fluctuations. The wide variety of materials Barsanti works with, especially the solid woods and exotic veneers, requires a consistency and reliability in machining and finishing.

A Boge 50 hp oil-flooded rotary screw air compressor was chosen to replace at least five smaller units that had been used throughout the shop.

The volume of customized commercial work that Barsanti does can result in a number of sanders being used in conjunction with the finishing equipment, the Biesse 24 CNC router, a DMC sander, a recently purchased Kuper veneer splicer and the Brandt

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The DMC sander by SCM Group is an example of modern equipment at Barsanti that benefits from a stable air pressure supply.

edgebander. When all this equipment is being used at the same time, the compressor has to be able to handle it with a high degree of reliability, says Barsanti.

Barsanti also wanted to have a system that would handle the additional machinery he intends to purchase in the future. Although the Boge compressor originally appeared to be a more expensive alternative, Barsanti liked its adaptability and felt that alone was worth the price.

The compressor system consists of a 50 hp control unit, air dryer and wet tank kept in a separate room with the vacuum equipment for the CNC router. A large dry tank is kept in another area and holds the air, so it is ready to meet the demands of the plant.

Many small shops and light industrial shops use a piston air compressor, when the power required is 25 hp or less. The rotary screw compressor makes more sense for larger power needs. Both compressors produce air, but the piston compressor produces more heat than the rotary type and

## How it works

**W**hen air is compressed, ambient air is drawn in through pre-filters and is squeezed by a piston or rotary pump to create compressed air. This process creates heat up to 180 F, although the piston compressor usually produces up to 400 F of heat.

Before the air is discharged to the wet tank, it goes through an after-cooler, similar to a car radiator that brings the air temperature down to about 15 degrees above the ambient temperature. The air is then dis-

charged from the unit to a wet tank that allows all the moisture that resulted from the cooling process to drop to the bottom of the tank. In this receiver tank a filter is built in that traps any oil so it can't travel downstream to the refrigerant air dryer or further down the line.

Once all the moisture and oil are removed, the compressed air moves to the refrigerant dryer. When the air leaves the dryer, it travels to a large dry tank where it waits until it is required in some area of the plant.

therefore will produce more moisture in the compressed air.

### Moving the air

Most systems use galvanized piping to move the air from the dry storage tank to the areas air is needed. The galvanized pipe usually used requires threaded connectors that are either threaded on the job site or purchased in pre-threaded 21-foot sections that can then be cut to fit. Then the pipes need to be coupled together and sealed off tightly. Galvanized, or black pipe, as it is commonly called, also has a rougher surface that can slow the air down and even redirect it, thus creating a pressure drop in the plant.

At Barsanti Woodwork air is brought to the plant areas where it's needed with aluminum piping and connectors from Transair Products. Although this aluminum piping is initially more expensive than galvanized piping, it has a smoother surface and is not subject to corrosion.

One of the most attractive characteristics of the Boge system, according to Barsanti, is that it is easy to bring the air anywhere in the plant. The Transair aluminum piping, quick assembly and drop brackets that are part of this system all work together to make the transfer of air through the plant an easy setup.

The system was purchased through Cochrane, one of Boge's distributors. Cochrane worked with Barsanti to dia-



Adding piping is simple. Cut the appropriate length of piping, grab the appropriate Transair connector or bracket, line the pieces up and twist for a tight, secure connection. It can be easily disconnected.

gram the placement of the equipment and advise the company of the requirements of the system. However, the planning and final placement of the pipes and connections was the work of Scott Navis, computer specialist at Barsanti.

Overhead pipes run throughout the shop. Adding additional piping horizontally requires the appropriate length of piping and a Transair connector. Connecting the piping to the connector requires lining the pieces up and twisting for a tight, secure connection. It can be disconnected easily as well making it very adaptable.

If a vertically dropped line is required, a hole is drilled on the top of a horizontal pipe running over the area, a drop bracket is positioned over the hole and the pipe is connected to the bracket. Within minutes the line is in place and ready to use. The air travels up through the hole and is then directed down to where it's needed without the possibility of moisture since any possible moisture would stay at the bottom of the horizontal piping.

The compressor at Barsanti is taking on approximately 35 percent of the air needs of the plant. Although the vacuum table for the CNC router is taken care of by a separate unit, the air power provided by the Boge compressor is used to control the tool change operation.

The compressor is also used to

power the sander and edgebander. Air power is also used as a blower to clear dust from all surfaces, for the spraying and finishing operation and for numerous small air-powered tools.

Barsanti says that the compressor has worked very effectively to provide all the power needs of the plant.

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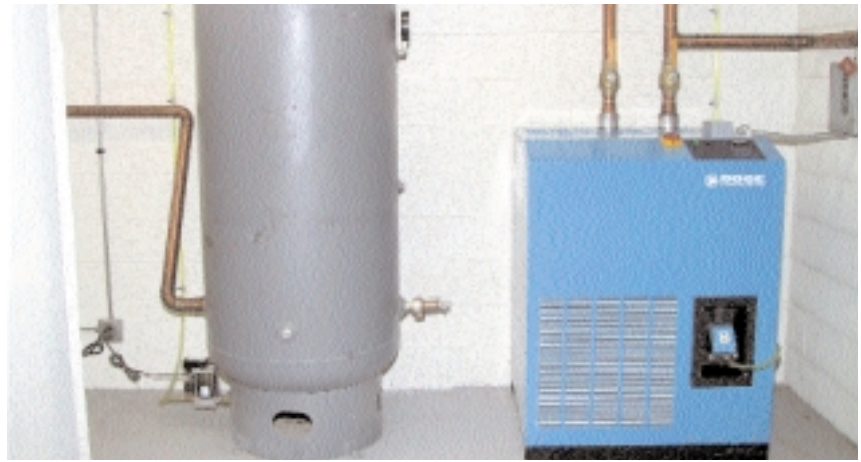
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air power



A Boge 50 hp oil-flooded rotary screw air compressor was chosen to meet the air power needs for Barsanti Woodworking. Everything starts here with the compressor control unit that takes the ambient air and produces compressed air.



After the air goes through a partial cooling in the compressor unit, it is then discharged to a wet tank that allows all the moisture that resulted from the cooling process to drop to the bottom of the tank. In this receiver tank a filter is built in that traps any oil. It then goes to the refrigerant air dryer, right, that removes the remaining moisture.

When the compressor was first put into action, it was set at 100 psi. Experimentation and experience led the company to change the setting to 97 psi, a more efficient use of the system.

Currently the plant setup works to move parts through the plant effi-

ciently, says Barsanti, but that can change quickly. He says that a system like the Boge makes moving the piping an easy part of any plant redesign or modification, which makes this adaptable system ideal for his company. ▲

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