



The new door line installed at WoodHarbor Doors & Cabinetry starts with two separate Koch in-feeds, one for the door stiles and one for the rails and mullions.

Expansion improves efficiency

Cabinet and door manufacturer adds new machines and a new plant to build its capacity.

by Linda Ohm, Managing Editor
lohm@chartcomm.com

plant facts

WoodHarbor Doors & Cabinetry
Mason City & Northwood, Iowa

Product: cabinetry, interior doors, trims, mantels and millwork

Employees: 450

Annual sales: \$55 million

Plant size: 2 plants at 180,000 square feet each

Web site: www.woodharbor.com

WoodHarbor Doors & Cabinetry, located in Mason City, Iowa, is intent on being a company that works smarter, not harder. To that end WoodHarbor expanded its product lines, changed manufacturing methods, added machinery in its passage door and cabinetry production and set up each operation in its own plant. This three-year expansion was completed last year.

In 2004, the company saw a 27 percent increase in sales and expects to see 20 percent growth in 2005. The goal is to achieve continued growth through

2008, using what's been set in place.

WoodHarbor makes custom wood passage doors, cabinetry and millwork for the entire home. The company has manufactured custom passage doors since November 1993, the custom WoodHarbor line since 1997, the semi-custom CastPointe line since 2001 and the stock Rockglen line since 2003. It also manufactures a less-customized door line, Prairie Lake, and is considering adding a standard door line that it could produce more efficiently.

It's important to provide employees with the right tools and equipment to



There are three Gabbiani panel lines between the two plants, two at the cabinetry plant and a new machine with barcode scanning and a return feed conveyor at the passage door plant.

This Mission-style kitchen has slab drawer fronts in quarter-sawn white oak with a hazelnut/coffee glaze. WoodHarbor does a wide variety of cabinetry along with passage doors to create a unified look in a home.

get the job done, says Curtis Lewerke, president. But it doesn't stop with equipment.

"We're striving to be as efficient as we can be, and to eliminate every known cost we can that is not necessary for a product," he says.

Taking doors to a new level

"We actually ran the door operation using some extremely primitive systems for a long time," says Todd M. Piper, plant manager. "We got to the point where, if we were going to produce a large volume of doors, we had to do something different."

All of the processes for each piece of the door were done on different pieces of equipment. "Much of the equipment was simple shapers with feeders, fixtures and jigs, and clamping systems that our own maintenance people made," says Piper. "Everything was one process at a time. So somebody was picking it up, doing a process and then putting it back down."

The new machinery setup mixes custom-made and standardized machines tailored to the company's needs with some modifications, says Jon Lewerke, vice president. "The line

uses a concept that's widespread in Europe now," he says.

The Koch/Weinig/Systematix line installed in the fall of 2003 includes two Koch SPNCs, two Weinig Univars, two Systematix gasket inserters, a Systematix door press and a Weber top/bottom sander. The manufacturers of the individual machines worked together to modify and customize the machines to meet WoodHarbor's needs and were coordinated by Koch to create a line that functions as a single system.

A new Gabbiani panel line, with two separate tenoners tied together with a conveyor, squares, sizes, profiles and profile sands the panels for all passage doors and is positioned adjacent to the new door line.

The line is connected by Koch material-handling conveyors that move parts from one machine to the next and require only three employees. The line starts with two separate Koch in-feeds, one for the door stiles and one for the rails and mullions. One of the machines trims parts and drills for dowels, while the second positions the parts for trimming to size, trims, drills for dowels, profiles for tenons,

and injects glue and dowels in the other end of the part. The second line has a chop station that cuts door stiles to length followed by a B-50 stile boring center. After the stiles, rails and mullions merge back together on one line, parts are transferred to the Weinig Univars to be profiled and grooved. Finally, the Systematix gasket inserters insert rubber gaskets between the panels and frame.

It not only can handle custom doors, but standard doors using just-in-time manufacturing, says Piper. "It produces one the same as it would produce 500 of the same, because of the way the system is set up and the technology."

"We're getting to the point now where we are producing more than we were before we started expansion, and we're probably at about 40 percent capacity," says Curtis.

A Busellato CNC router is not part of the new door line, but is also a recent purchase and is used for highly customized applications.

Adding cabinet equipment

The cabinet production line already had quite a bit of equipment in place.

continued



The RE.M CNC machining center, above, handles parts using a head that travels vertically with parts being secured with a roller system.

Parts are fed into the RE.M machining center, left, through a vertical conveyor system. The machining center is designed to handle a wide variety of part sizes and shapes easily.

“We were adding equipment to the cabinet operations as it was needed,” says Piper. Since space opened up in the cabinet manufacturing plant, the company bought an RE.M CNC machining center.

“The first thing we started looking at is the cabinet components, what are all the different parts and pieces that we have to produce,” says Piper. “We came up with a list of all kinds of different parts and pieces, different dimensions and different requirements to each one of those. Actually, this is the only piece of equipment in the world that’s capable of doing all the functions to all those pieces.”

The concept of the RE.M is to move the material, since it is lighter, rather than move the cutting head. The parts can be moved more precisely. “All we do is feed parts in and tell it what programs we want it to do and those parts come out. There are no fixtures, no jigs, no clamps,” says Piper. The machine head moves vertically to reduce vibration and wear and tear on the cutting parts.

WoodHarbor also bought a used Cefla finishing system as a seal and topcoat line. The plan is to eventually further streamline the finishing area. Jon says the line would be ideal for

finishing passage doors as well.

Some other equipment on the cabinet line includes a Biesse Rover, a Gabbiani panel machine and a Giben beam saw.

Two products, two plants

The logical answer to the addition of the new door production machines along with the added cabinet lines was to have two separate plants. The new door *continued*



Cabinets are set up as they will be installed in a kitchen to visually check that everything matches. Even with standards, there are variations and the company checks everything before it leaves the building.

Ensuring consistent quality

WoodHarbor Doors & Cabinetry is an ISO-certified company because the company believes ISO is a good way to guarantee a consistent, quality product.

“As long as people are following the same procedures, today, next week and next year at this time, then you know you’re going to have consistency in your product,” says Jon Lewerke, vice president. “And if you always continue to rewrite your procedures at times of change and train your people so they always do things the same way, you’re going to get that.”

WoodHarbor uses ISO primarily as an internal check to control quality. Standards have been set on

everything, from wood knots, to color, construction requirements, machining, operator fatigue, etc. Outside auditors come in to make sure the company is following its own procedure, but the biggest value to the company is the constant scrutiny its employees put on everything using the ISO standards in place.



Door parts are assembled and clamped on the Systematix door press, directly across from the intricate door parts automated system.

machines, along with lumber processing, are located in the Northwood facility, while cabinet production remains in the Mason City plant.

Although the company could eventually expand its Mason City plant, the Northwood plant just makes sense. The company has roots in the community from when the Lewerkes owned and operated Fieldstone Cabinets, before selling it to Masco. The new door plant is in the building that once housed Fieldstone. WoodHarbor bought and renovated the building with three goals: to provide additional space for growth, to divide the product lines and to be

able to acquire more state-of-the-art equipment.

With all the expansion changes, the company will be able to expand both product lines, without significantly increasing the number of employees. As an added benefit, the two locations provide the company with a larger labor pool, says Curtis.

continued

FDM

expansion

For more information on these products visit fdmonline.com or contact the company directly.

Allwood Machinery Inc.
RE.M CNC machinery center
365/665-0001

Biesse America, Rover CNC router
704/357-3131 www.biesseamerica.com

Giben America Inc., CNC Beam saw
770/448-9140 www.giben.com

Cefla Finishing America Inc.
Flat-line finishing system
336/662-9813 www.ceflaamerica.com

Delmac Machinery Group
Busellato CNC router, Gabbiani panel line
336/854-1211 www.delmac.com

Koch Machinery and Systems
Koch SPNC door system, Systematix door press, Weber sander
678/444-5000 www.kochma.com

Weinig Group, Univar moulder
704/799-0100 www.weinigusa.com

FDM expansion

Going lean

In addition to the changes in equipment and space, WoodHarbor put lean manufacturing into the mix. As part of the lean concept, the plant is set up with marketplaces between each work station. A marketplace of product, usually representing about two hours worth of work, is at each machining area. When work is finished, it's moved



Curtis Lewerke, president of WoodHarbor Doors & Cabinetry, and his brothers, Jon and Dennis, co-owners, bring a wealth of experience to the company. Curtis credits their work and experience with Masco as a big factor in the success of WoodHarbor.

to the next station's marketplace, until the part is complete.

"With a visual system, people on the floor see it and can move to that area," says Jon. "They flex their labor and go to those areas to try to balance production flow and not allow bottlenecks to occur."

For WoodHarbor lean means flexibility. It's about using whatever gives you the ability to manufacture what a customer wants, using the equipment and employees you have, says Piper. But the process doesn't happen overnight.

The company strives to improve efficiency. In the past, for example, the rubber gaskets were applied manually and variations in the gasket were not an issue. With the new machinery, the gaskets can't be even slightly out of tolerance. "There are little things like that, which force you to get your vendors to do a better job as well. Everybody has to comply. Everybody has to be a part of it," says Curtis.

The changes aren't finished yet. The company is working to install Friedman software to connect all systems, from order entry to machining. The company uses more of a distribution system now, rather than a true manufacturing system. The current system relies on paper documents and doesn't provide real-time tracking. The new system will use barcoding and communicate directly with the machines. ▲