

[ FEATURE STORY ]

# HANDS- OFF PRODUCTION

Italian panel  
processors thrive  
with investments  
in automation

**M**odern Woodworking tagged along with a large group of North American wood products manufacturers to attend the BiesseInside event in Pesaro, Italy. Visits to five Italian panel processors demonstrated how European companies are adapting to their own set of challenges through investment in technology and automation. Here are some of the highlights of the tour:

### Cut-band-bore

One would never guess from the dated exterior of Silwood's production building that inside was one of the largest and most modern panel processors in Italy. Headquartered in a small town on the outskirts of Pesaro, Italy, the company manufactures melamine particleboard components for a wide range of markets, including kitchen cabinetry and bedroom furniture. Earlier this year, Silwood began creating shaped profiles for bedroom furniture, and six months ago it invested in a Rover C machining center that allows the company to rout and edgeband contour profiles in a single operation, further expanding its market opportunities.

Like many Italian wood products manufacturers, Silwood has adapted its production approach by adding automation to offset high labor costs. The company's investment in automation is evident from the very beginning of the production process. After a forklift operator loads full particleboard sheets onto a table in front of the panel saw, manual material handling is essentially eliminated until the parts are ready for gluing in the assembly area. With the exception of a supervisor here and there, the aisles alongside the production line are virtually empty.

Once sheets are cut to size, an RBO Lifter automated offload system retrieves the panels and stacks them onto one of six sorting stations according to part size. Panel stacks are then transferred on conveyors to the edgebanding line where an RBO Winner automated feeding machine loads the panels into an Omnia SB1 9.0 combination machine. The first station squares the panel before the parts are banded. Rather than returning the parts to the head of the line to process the remaining two sides, the parts continue down a conveyor and are squared and banded on a second combination machine. To keep up with the capacity of the saw that feeds it, the combination line runs at speeds of 40 to 45 meters per minute to prevent a production bottleneck.

At the end of the edgebanding line, another RBO Winner stacker offloads and stacks parts. For parts requiring grooving, a second combination line, including a BiesseEdge Stream SB2, machines and squares parts. Then a RBO panel turner rotates the parts 90 degrees before being banded.

Just before the boring line, an RBO transfer machine flips every other part so that right and left side vertical cabinet walls can be machined without having to reset the boring machine.

Once parts have been machined and banded, an RBO Winner bridge-type stacker offloads the panels and stacks them onto transfer carts for further processing in the drilling and dowel insertion area. An Insider FT2 through-feed boring machine with two independent work centers, each equipped with two independent boring units, drills the tops and bottoms of the panels, and a Techno through-feed drill performs the horizontal drilling and dowel insertion operations.

### Robot retrieval

As a post-formed countertop manufacturer, Sintesi's challenge has been reclaiming and reusing remnants from its cross-cut operation. Its high-tech solution has resulted in material savings of 60 percent.

In a typical operation, post-formed countertop blanks are first placed in a storage area and sorted by color and size. An RBO feeder retrieves the countertop blanks and deposits them onto a conveyor that feeds directly into the automatic cross-cut operation. However, the operation is overridden by the remnant program to make the most use of the material whenever possible. If a cut program results in a scrap piece over 600mm in length, a Kuka robot retrieves the piece and stores it in a vertical storage system. (Anything less than 600mm is considered waste and is disposed of.) The cross-cut saw cell, depending on the job it needs to execute, receives information about the full-size counter blanks in storage as well as the remnants already in the racks. When applicable, the software defers to suitable parts in the remnant rack rather than the full-length blanks, and the robot retrieves the remnant from the vertical rack and places it on the conveyor for processing.

"There is obviously a limit to how big the vertical rack storage system can be, so there are some positions where the robot deposits the remnants into a staging area where a worker will manually load parts into the rack system when a

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space is freed up,” says Nicola Giombini, product area manager/project manager Biesse Systems, Biesse S.p.A.

After the countertop is cross-cut, an edgebanding operation simultaneously edges the trailing edge of the first piece and the leading edge of the second piece, in a different size and color if required.

After the countertop ends are banded, parts proceed to a Rover-Top through-feed machining center that handles the boring, drilling and routing for the sink holes, plumbing fixture holes and other applications. Once inside the router, braces support the countertop from the sides and the conveyor rollers lower and reverse direction. Any scrap from machining falls down onto the conveyor, which deposits the waste down a chute for disposal.

### The end of the line

For Fabel, a kitchen cabinet manufacturer, high labor costs in Italy have led the company on a search for better efficiency at its hardware insertion and assembly facility. By adding automation in its drilling operation and order routing software in its shipping department, the company realized it could achieve greater productivity without adding labor.

Trying to achieve the same success in its hardware insertion department, Fabel recently added a Comil Insider CNC through-feed machining center for drilling and hardware insertion for vertical panels. Prior to entering the line, panels are stacked in reverse order of when they will be needed in assembly, and complementing left and right panels are sequenced together in the stack.

As the panels make their way down the line, a measuring device checks each piece to ensure they are in the right order. They are first machined for necessary hardware and assembly holes, then the hinges, drawer slides, shelf pins and any other hardware is automatically inserted and fastened. In the final step, a point-to-point gluing operation applies glue in the necessary holes. The glue has an open time of 20 minutes, so the panels must be in the assembly area within that time.

An RBO stacker removes the panels as they come off the Insider hinge insertion line and stacks them by job order, sorted into four different lines depending on if the job is high-end, custom or stock.

As the vertical panels arrive in the assembly area, they meet up with the appropriate top and bottom box components and are placed in a Comil case clamp where the assem-

# Impressions from Italy

**U.S. and Canadian wood products manufacturer attendees weigh in on what they took away from their plant visits in Italy, answering the question, “What new process or production method interested you the most, and why?”**

“In Europe, manufacturers use a totally different philosophy than we do here. It was great to see how they manufacture in bulk in a make-to-stock environment. Our market and product offering is more diverse. We have to look how we can use the technology we’ve seen on this trip in a make-to-order environment. The way they use automation was interesting and positive for us to look at. What really interested me was the way they used automated feeders and stackers in the manufacturing environment.”

**– Werner Botha, Can Am Kitchens, Calgary, Alberta, Canada**

“We were very impressed how automation is taking over these plants. The loading and unloading of parts is really what stood out to me.”

**– Ryan Larkin, Solid Performance, Fargo, N.D.**

“Fabel was the most interesting tour for me. It shows that we can produce a fairly high volume of cabinets with very few people if you push the automation to hardware insertion and glue injection.”

**– Jocelyn Genest, Roy & Breton (Teknion), Saint Vallier, Quebec, Canada**





Silwood's investment in automated material handling and a Rover C machining center have allowed the company to offset high labor costs and expand market opportunities.

bled box is pinned while the glue sets. Doors and drawers are installed, and then the cabinets are cleaned, packaged and routed to the shipping area.

Fabel's shipping department is a marvel in automation. Each box receives a barcode label upon packaging. Once they are scanned, the automated system routes the packages to the automated warehouse, which stores the boxes for each job in a row on a multi-tier storage rack. Once a truck route is determined, an elevator system retrieves the boxes by job

and delivers them to the truck in reverse sequence of delivery, so that the first kitchen to be delivered is the last one loaded onto the truck.

"Fabel's current production volume is 50 to 60 kitchens a day," says Giombini, "but they have the capacity to do more than 70 in a day. They are working in one shift now, and the potential is there to increase capacity to about 150 kitchens a day by adding a second shift without adding much labor cost since everything is so automated." **MW**

"The use of the Kuka robots and the Biesse Skipper and Rover made the biggest impression on me. The robot at the Marinelli factory was feeding panels to a Skipper for drilling operations. The cell was running parts, and it seemed like there wasn't anybody watching it. The cell was very flexible in that it would run a large variety of parts without setup or changeover times causing downtime. The ability to do that is very important in lean manufacturing."

**– Skip Landes, American Woodmark, Winchester, Va.**

"I thought the companies that were able to assemble different-size cabinets from one to the next with no setup were very functional. It makes your company very versatile. We find ourselves doing more custom work on every job, and it is critical to be able to do this with little or no setup."

**– Jim Tharp, Artone Manufacturing, Jamestown, N.Y.**

"Although it was all very interesting, the automation and material handling systems were of the most interest as the integration from machine to machine can be used in many applications."

**– Bill Carroll, Sierra Pacific Industries, Richfield, Calif.**

"We still aren't experiencing the high cost and lack of space they face, but when it comes to human resources, we share a lot of the same issues. Finding people to fill repetitive work that could be done with robotics is particularly difficult. I don't think the time is right yet for us to use robotics, but I think the day is coming."

**– Jim Senn, Bertch Cabinet, Waterloo, Iowa**

"Seeing the Skipper in action was very impressive. The time saved by drilling right and left panels at the same time should make this machine easy to justify."

**– Steve Brutlag, Craftsmen in Wood, Phoenix, Ariz.**