



VOLUME 23 • ISSUE 2 • MARCH/APRIL 2022

TM

TOP DEALERS [AND MACHINERY MAKERS]

The Industry Works to Keep Things Moving

PLUS:
The Ins
and Outs
of Digital
Currencies

Keeping Up

These Days Machinery Manufacturers Work to Keep Their Heads Above Water

by Drew Vass

When it comes to door and window manufacturing, never has it been more important to speed up and maximize output. That has a lot of companies shopping automated machinery. But machinery manufacturers face many of the same issues plaguing door and window companies—most notably supply chain problems and labor shortages. For this reason, machinery companies have spent the bulk of their efforts over the past couple of years doing what the rest of the industry has done: trying to keep up.

“We’re the busiest we’ve ever been,” says Ryan McHugh, president of Integrated Automation Systems (IAS).

After a slight lull at the start of the COVID pandemic, McHugh and other manufacturers say any reservations about large investments in machinery were suddenly out—gobbled up by unprecedented demand for doors and windows.

“Everyone started buying machinery, trying to increase output,” he says, because, even with labor issues, “Our customers are breaking records in sales.”

With the industry going gangbusters, machinery manufacturers have no choice but to continue innovating, adding automation at every possible point in the process. “And space,” McHugh says. “We’re always looking at how we can increase output without using more space.”

Ghost Towns

Statistics show that the U.S. went through the biggest loss of jobs in 2020 since 1939. And while those numbers began to rebound quickly and there are indications that more people are coming back to work these days, the industry continues to struggle at finding good employees. That ongoing shortage has sounded the alarm for manufacturers in every sector—including machinery.

“One of our challenges is just the same as our customers’ challenges—you only have so much labor available,” says Morgan Donohue, president of Erdman Automation. As a result, “We’ve got to pick and choose, and our developments happen a little more

One of Oz Machine’s facilities where it creates fully automated machinery.

slowly than we would like to right now.”

The current conditions have been challenging, McHugh says—unlike anything he’s seen before. “Our general manager has been in the window industry for about 35 years and he said that at no time in his career has he seen it this difficult to hire good people. We’ve been able to maintain what we need, but we’ve put a lot of effort into it. We’re pretty much constantly interviewing and in the hiring phase. We don’t stop interviewing at this point and if we find someone good we just bring them on.”

On the doors and windows side, by now it’s clear: Pandemic or no pandemic, manufacturers must learn to operate with fewer employees going forward. That has some companies chasing a concept known as “lights out” manufacturing.

Leave the Lights On

“We have some projects where we decreased [human] interactions as much as we could,” says Adil Sasmaz, managing director for Oz Machine USA. A

Machinery manufacturers face many of the same issues as door and window companies, including labor shortages.

“Everyone started buying machinery, trying to increase output ... Our customers are breaking records in sales.”

– **Ryan McHugh, president of Integrated Automation Systems (IAS).**

number of manufacturers have come up with designs that utilize one or two employees to load and unload lines, where there used to be four or five people. “We designed a closed system where the Fanuc robots are loading and unloading profiles, giving a start to the machines, and reloading the machines when the machining is done,” Sasmaz says. “We call them ‘dark factory,’ where the production is fully automated and you don’t need to turn the lights on.”

With automation packages installed on each machine and robots placed alongside one another, machines are able to communicate and work like a team, sharing signals, optical signs and software, he says. Those levels of automation are more of an exception than the norm though—partly due to cost.

Keeping Up

continued from page 31

“These facilities are not very common, and for sure they are very expensive investments. I think we still need time to focus on that,” Sasmaz says. In the meantime, “Nowadays we are trying to finish as much as a possible in a single machine with a single operator, without any mistakes and high accuracy,” he adds.

Others say the concept of lights out manufacturing is a bit of a misnomer, pointing out that no matter how automated and self-sufficient door and window machinery becomes, there will always be a need for humans. Erdman Automation produces what it calls an “unmanned robot,” but, “It’s unmanned in the sense that no one is required to interface with the machine while it’s producing,” Donohue says. Erdman also produces a U-shaped production line for insulating glass that requires just one person to load and unload materials. In the future, that machine could ultimately become unmanned, Donohue says, but for now that’s stretching the concept.

Even if Erdman’s one-man line and other machines reach a point at which they load and unload themselves, you’ll still need to keep the lights on in door and window factories, he says, adding, “You’re always going to have maintenance people involved or people who take boxes away when they’re done, and those sorts of things.” When it comes to true lights out manufacturing, so far as doors and windows are concerned, in his opinion, “We’ll never really get there.” But that doesn’t make it a lost goal. “You just keep chipping away,” he adds.

No Time to Innovate

Chipping might be the key word these days, as innovation is often at odds with keeping up. Machinery companies expect demand to remain high for the foreseeable future, partly due to COVID-19. Amid the pandemic, “A lot of manufacturing has been reshored to the states and customers need high quality equipment, quickly, and they can’t afford to be down,” says Elizabeth Dick, sales and marketing director for TigerStop. Those conditions have also brought smaller companies into the mix for automation, increasing demand.

“After the pandemic, with the high demand and labor shortages, we saw that small and mid-sized producers focused on automation, too,” says Sasmaz. “We started to receive calls from producers who have never used any CNC solutions, looking to speed up

“One of our challenges is just the same as for our customers’ challenges—you only have so much labor available.”

— Morgan Donohue,
president of Erdman Automation

their production.” Where in the past production numbers haven’t always supported the notion for automating, as labor shortages coincide with record sales, some companies have no choice but to make those investments. “Industry 4.0 is here,” Sasmaz says. “Machines, software, operators, profitability—you need to invest in automation and software to survive.” Post COVID-19, traditional production methods may no longer be viable, he and others suggest.

As a result, “There are a lot of companies in the industry, customers of ours, that wanted automation in the past but they didn’t necessarily want to pay for all of it,” McHugh says. “I think now the combination of how busy the industry is, along with labor shortages, people are able to justify a higher cost for automation than they could in the past.”

Under pressure to produce more product, “Customers will justify these additional costs anyway they can,” says Kirstie Ratzer-Farley, marketing coordinator for Formtek and Mestek Machinery.

As machinery providers work to keep up with orders, it’s harder to conduct research and development for next generation machinery. Most say they’re still working on new developments, but the rate of advancement has slowed significantly.

Those challenges have no doubt cut into advancements, but most say they continue to work at reducing the number of human interactions required for manufacturing. Taking people out of the picture doesn’t necessarily mean higher or faster output, Donohue says. In fact, it can be just the opposite, he suggests.

“On a fully robotic line, you’re going to pay a similar price to high-speed lines, with just one person interfacing,” Donohue says. “That’s nice, but you don’t get the same volume unless you buy three of those [machines].”

Automation is also more difficult to deploy in fen-

Keeping Up

continued from page 32

estration than it is in other types of manufacturing, he suggests, because there are so many variables.

“Certain products lend themselves well to automation,” Donohue says. “This isn’t one of them ... [windows] aren’t easy to automate because there are so many variables compared to other manufacturing, like, say for insulating glass.”

With every added SKU the list of variables goes up. In this way, “Automations begin to multiply with every option,” Donohue points out. “As an industry, we have this tendency to say, ‘Yeah, we can offer that.’ And pretty soon it expands and multiplies to the point that we have companies that would be better served by simplifying, therefore making it easier to automate.” For this reason, among those that need to increase volume, “You’ve got to simplify your options,” he suggests. “Instead of 45 sizes, maybe you narrow it down to eight. Then you narrow your colors down to three. I think there’s going to be more of this going forward.”

The Cost of Human Error

There are more reasons to automate beyond just high-speed, high-volume production. The same technologies can also improve processes and cut down on wasted materials, especially for “non-value-adding processes,” Dick says. “Cutting a piece of material doesn’t add value to the end product,” she says, “but miscutting material immediately negatively impacts a bottom line and requires added dollars to fix ... If we can automate a task that doesn’t add value to the end product we have succeeded.”

For example, a laser scanning system on the company’s TigerSaw 1000 and TigerSaw 2000 machines includes lasers and an ultraviolet (UV) crayon to mark defects in material. A pusher then scans and identifies the crayon marks to cut out defects. That’s one example for how companies look to replace the human eye and eliminate errors, but, “It’s quite a game changer and allows businesses to drop an entire grade of lumber and reduce raw material costs,” Dick suggests.

The automatic intelligence behind TigerStop’s system is a small example of how the industry might work its way toward a concept that’s so far evaded machinery: true artificial intelligence. But that will likely happen in small increments, some suggest. In the meantime, “The next frontier in my mind is a more connected shop,” Dick says. From design and build to prefabrication, there are opportunities for more cross



A welder at Integrated Automation Systems works to assemble one of the company’s machines.

talk and communications among machines to further automation, she suggests.

“When this high demand ends, we will see that only automated facilities will be able to survive,” Sasmaz says. “The next frontier is the fully autonomous production facilities, where the human and machine interaction will be as low as possible. It isn’t close, but I am sure that we will see many examples in the fenestration industry 10 years later.” That’s when we’ll find out which companies are the Tesla’s of doors and windows, he says.

[DWM]



Drew Vass is editor of *Door and Window Market* [DWM] magazine.
➤ dvass@glass.com