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Productivity in the Palmetto State

A story of robots, machine monitoring and the power of partnerships

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Ten years ago, Billy Hogge had a bad taste in his mouth for robotics. The vice president at Screwmatics of South Carolina Inc. had overseen the company's \$130,000 investment in a machine-tending robot and, after a long struggle with implementation, decided they'd made a mistake.

"We had a high-volume part that seemed perfect for robotic loading and

felt it was time to dip our toes into the water,” Hogge says. “Unfortunately, we did not have a good experience, and eventually took the robot off the machine and shoved it into a corner.”

Hogge’s quick to note that there was nothing wrong with the robot.

“I’m getting an extra couple hundred parts per day now and figure my ROI is under 10 months.”

–Billy Hogge, Screwomatics

The problem, he says, was the support. “Every time the robot hiccupped (hiccupped), we called the integrator, who would then send someone down to fix it and charge us for a service call. But they wouldn’t show us what they did and were unwilling to train us beyond the basics, so we were at their mercy. After many months of this, during which they were here almost weekly, we finally pulled the plug.”

Adding insult to injury, Hogge found that humans were faster than the robot—even when it was operational—so the business case for fighting what seemed like a losing battle wasn’t there. The return on investment (ROI) equation has begun to change over the past couple of years, however. The skilled labor shortage affecting the manufacturing industry is even worse in the rural town of Pageland, a South Carolina community whose Facebook page lays claim to 3,000 residents. “The labor situation is terrible here, especially since several large companies have moved into the area.”

A Second Look

Screwomatics has grown significantly since Hogge’s father Tom started the business in 1988. The younger Hogge came to the family business full-time in 2011 after earning a bachelor’s degree in business administration. Today, the ISO 9001- and ISO 13845-certified company employs more than 100 workers and produces parts for the medical, aerospace, automotive, HVAC

and plumbing industries.

The company also owns three collaborative robots, each tending a pair of gang-style lathes. Hogge explains he was forced to reevaluate robotic machine tending due to labor difficulties. “I have no problem finding the work, it’s finding the workers that’s become my biggest problem, so I decided to take another look.”

It was around this time that Hogge received a cold call from Productive Robotics of Carpinteria, Calif., makers of the OB7 cobots that now sit on Screwomatics’ production floor. “I couldn’t believe the price. Compared to what we’d spent on our first robot, I doubted it would work at all, but then I figured it was cheap enough that I’d take a chance and see what happens.”

Hogge ordered a single OB7, but skeptical of getting burned by another integrator, decided that he and his maintenance team could probably install it themselves. After a week or two, however, he reached out to his local Productive Robotics distributor, Ohio-based Absolute Machine Tools, for a helping hand.

“We were quite close, but I wanted to avoid using the cobot to open the door and push cycle start, so we needed some assistance,” says Hogge. “Absolute was fantastic. Even though the part we were trying to run was very complicated, their technician had everything just how we wanted it within a couple of hours. Better yet, they gave us extensive training, so we’re much more self-sufficient now. It was an instant home run.”

Proof in the Pudding

That was in late 2023. Hogge ordered two more OB7s and plans to order more. He says the cobots “greatly outpace what a human can do” and keep making parts once everyone has gone home. Now a true believer, he “cleaned the cobwebs” off his first robot, hired a different integration company to install it, and has put the once-failed automation experiment back to work doing the job it was slated for—loading and unloading a medical component on one of Screwomatics’ 200-plus machine tools.

“Several salespeople have told me that cobots are cheap and won’t hold up, and that I should have stuck with industrial robots, especially given my production volumes.” Hogge laughs. “My response is, ‘Who cares?’ I’m getting an extra couple hundred parts per day now and figure my ROI is under 10 months, so even if they only last a few years, which is doubtful, I will have easily made my money back. Best of all, we can now run nights and weekends unattended. It’s pretty neat.”

SMART FACT:

Screwomatics has made another investment, one that has nothing to do with robots and cobots but is in many ways more of a money-maker for this small manufacturer: machine monitoring. About one year before Hogge embarked on his robot reboot, he wanted to get a better idea of what his hundred or so CNC mills and lathes are doing each day but quickly found the subscription-based offerings available on the market would be cost-prohibitive for the large number of machines on his shop floor. “At a few hundred bucks per machine, I was looking at tens of thousands of dollars monthly in monitoring costs. Then I heard about MT-LINKi.”

Connecting the Shop Floor

According to the FANUC website, its MT-LINKi software “connects the equipment, collects the data, monitors machine performance and communicates the data to an upper host system. With the MT-LINKi Integration Server, data from multiple sites/locations can be consolidated for enterprise-wide data collection solutions.”

Most of Hogge’s CNC machines have FANUC controls, and he was quite pleased to discover he could connect up to 200 of them for a fraction of the monthly subscription fee he’d contemplated earlier. He turned his maintenance team loose stringing CAT-5 Ethernet cable throughout the shop, hired an IT consultant to set up the integration server and assign IP (internet protocol) addresses for each machine control, and soon found himself awash in production data, much of it surprising.

“It quickly became obvious that roughly half the shop was leaving for break a few minutes early and coming back a few minutes late each day.” Hogge laughs. “That’s no longer the case. But even more alarming was the downtime we had due to material handling. Our shop is spread out across multiple buildings, and I saw some machines waiting close to an hour for bar stock to arrive. We’ve since added another stocking location.”



Meet WALL-E, with his counterparts WALL-E #2 and WALL-E #3 in the background. They represent the first of many robotic arms soon to be in use at Screwmatics of South Carolina Inc.

MT-LINKi also analyzes spindle load, tool life and percent of cut time data, so it becomes quite easy to spot improvement opportunities. The Screwmatics team has used the data to reduce air cutting, for example, and in one instance, found that an operator had set a machine’s feedrate override to 80% and left it there. Says Hogge, “Who knows how long ago that happened?”

Equally important is his ability to keep tabs on the production floor from anywhere. In addition to MT-LINKi and multiple robots, he's also installed cameras—while making a sales call in Arizona, he opened his laptop and connected via VPN to check on an order, then showed his customer the parts being made in real time.

“Everything is on the cloud, including our ERP system, and we've seen so many improvements since implementing both it and the monitoring software that I haven't even bothered calculating the ROI. We're very tech-forward here and I didn't have to spend a fortune to get that way.”