



Assembly

Case study: Plastics welding, Itech, US

Applications in Plastics

- Cutting/Finishing
- Glueing/Sealing/Dispensing
- Flaming/Painting
- Assembly
- Packing/Palletizing
- Inspection/Quality control
- Machine Tending

When Carl Morris figured out how long it would take him to get his return on investment for “Abby,” his company’s 6-axis IRB 4400 robot, he couldn’t believe what he was seeing. “It was 7.8 months,” he recalls. In Morris’ experience, recouping an investment on capital expenditures takes at least two years.

Morris is president of Injection Technology Corp., Itech, and “Abby” is the nickname his employees stuck on ABB’s 6-axis robot shortly after it arrived in October 2004. Itech is a custom molder for a variety of clients that require precision plastic parts for such products as electric meter covers, dental appliance cases and spools. With 95 employees, the company operates 23 injection molding machines in its 30,000-square-foot plant in Arden, in the mountains of western North Carolina.

Saving money from the start

Morris and Itech Vice President Van Durham learned about ABB’s machine at a seminar in Greenville, South Carolina. As part of the course, the two men visited the BMW plant in nearby Spartanburg, where they watched closely as ABB’s 6-axis robots painted new cars with consistent, even strokes. “We can use that motion in our operation,” Morris told Durham. Morris, a mechanical engineer, sketched out the required motions and talked to a robotics salesman back in Arden. The salesman, who works for ABB partner and system integrator ACS, pitched a system that employed two gantry robots and other machinery, saying that the

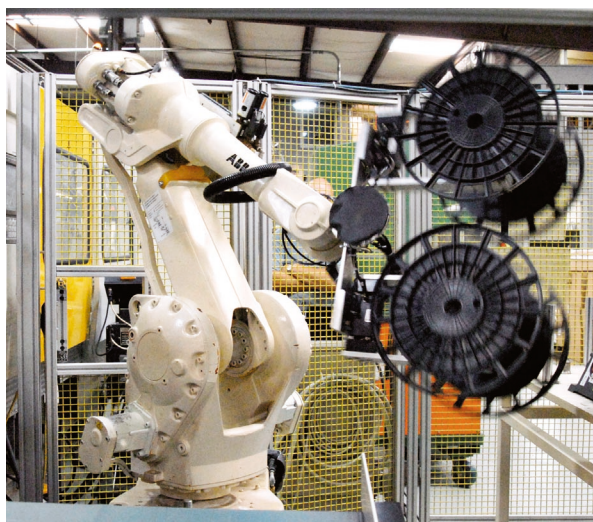
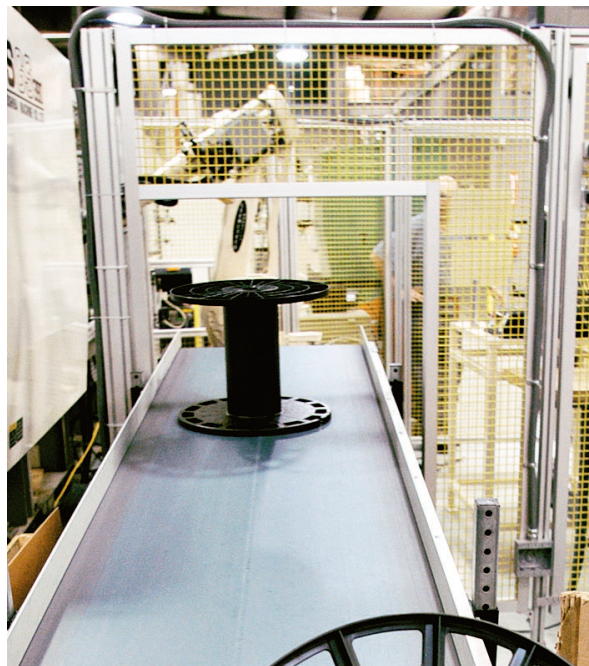


ABB robot cost more than a gantry robot. Morris wanted the ABB robot, noting that “I saved money from the start.” Since, then he has saved much more. “We have to be better,” he says of his decision. “We have to keep abreast of technology, materials and new applications.” The integrator sent engineers and a programmer to install the robot, a process that took about 14 weeks from start to finish.

Reduced cycle time

Morris and Durham tallied the numbers that underscore Abby’s record in building one of Itech’s products, 15-inch spools. The robot’s 6-axis arms with grippers remove two spool halves from the 390-ton Toshiba injection molding machine, swing it around to an assembly table, flip it over and fit the two spool halves together. The robot then inserts the assembled spool into an ultrasonic welding



machine that welds the halves together. With the robot, the cycle time has been reduced by a whopping 23 percent. "Before the robot," says Morris, "we filled a tractor trailer in two and a half days. With the robot it takes 27 hours." That's a saving of 33 man-hours. In addition, productivity has risen dramatically because of consistency and the 23 percent reduction in cycle time.

"With the reduced molding time on spools," says Morris, "we are able to mold additional products on the molding machine and use the robot for these, too."

In addition to these benefits, the robot, housed in a yellow wire cage, has reduced worker fatigue, which fits with Itech's award-winning safety record. "For me, it's very reliable, very consistent," says Robert Hudson, a nine-year Itech employee and robot operator. "It doesn't complain, there are no missed welds, and it's here every day." Previously, welds were made by hand with glue.

Consistency

Durham adds, "Consistency is very important in our business. The robot doesn't get tired at the end of the day. It doesn't take vacation. There're no sick days. It makes our customers' jobs easier. We can meet their demands, and we can maintain prices on our products in a time of rising material prices."

Abby's help in meeting these demands gave Itech a growth rate of 9 percent in 2004, 12 percent in 2005 and an expected 25 percent in 2006. "We love it," says Morris. He emphasizes his point by explaining how he plans to employ a 6-axis robot to serve two injection molding machines at the same time. In fact, Abby will soon have company. Itech has already ordered a second robot.

By the numbers:

- Reduced man-hours by 45 percent
- Reduced cycle time by 23 percent
- Added capacity to mold other products on same machine
- Helped maintain award-winning safety record
- Return on investment: less than eight months

Facts, ACS Group

- ACS Group is comprised of separate companies including AEC, Sterling, Cumberland and Colortronic, serving the plastics industry with auxiliary equipment and automation systems.
- Based in New Berlin, WI
- Web sites: www.aecinternet.com, www.sterlco.com

Facts, Itech

Injection Technology Corporation

- Custom molder of thermoplastics
- Founded in 1987
- President and CEO Carl Morris
- Located in Arden, North Carolina, U.S.
- Annual revenues: 2005, 10 million U.S. dollars
- Employs 95 people
- Operates 23 injection molding machines
- Web site: www.injtech.com

ABB and the Plastics Industry

ABB's wide range of plastics robots can handle most of the tasks involved in and around injection mould machines, regardless of required cycle time or size of the machine. Together with our partners, we provide automation solutions for most manufacturing processes in the plastics industry.