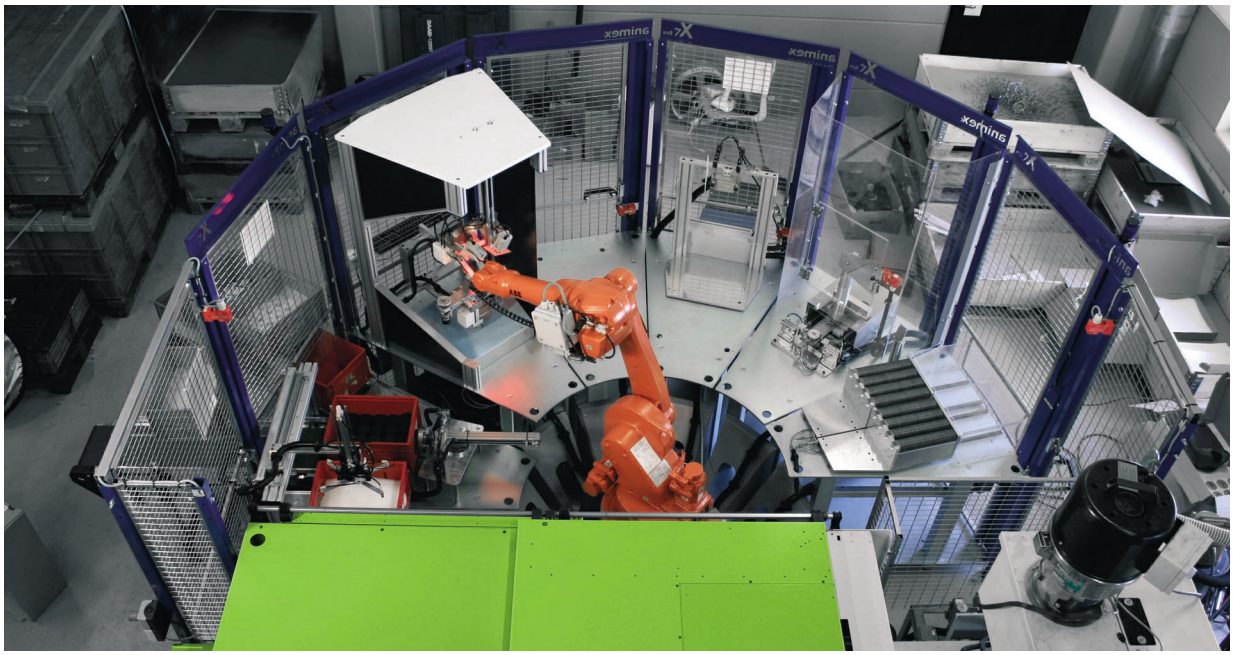
The heart of Robotics

Injection Moulding

Case study: Emblems, Peter Ernst, Sweden

Applications in Plastics

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



When Swedish thermoplastics specialist Peter Ernst wanted to increase its flexibility and competitiveness, robotization was the answer.

Emblems of distinction

Peter Ernst AB works with thermoplastic and supplies industrial products to both small local manufacturers and global companies such as General Motors. “All of our customers have stringent demands on precision, both in regards to quality and delivery times, but they also require that production be cost-effective,” says Björn Ernst, the company’s managing director. “To increase our flexibility and competitiveness, we’ve invested in a robotized facility for production of various emblems for automobile aluminum rims with the Saab and Cadillac trademarks.”

When the company saw the opportunity to begin producing emblems for Cadillac, it realized that it was time to invest in robotization, according to a concept developed by Animex, says Ernst. “We were already aware of their solutions in that they are one of our well-established suppliers. We needed to invest in maximum flexibility for the future,” Ernst says. “With the robot cell we chose, we use six function modules full out to handle all the operations the emblems require.”

The modules resemble pieces of cake arranged in a half-circle around an ABB robot, with the injection molding machine occupying the opposite half of the circle. Each module has a special function that can be docked in or removed from the cell when making switchovers.

“With new customers, the emblems often differ in size or function from what we have previously produced, but it’s easy to shift one or more ‘pieces of the cake’ to accommodate new production,” says Ernst. “This means shorter lead times, and switchover times can often be held to less than ten minutes. If a product has been ‘on ice’ for a while, but returns to production, it’s easy to reintroduce the necessary module into the production cycle.”

When the company manually produced emblems, tape was commonly used in assembly. With the robot cell, glue is used, which provides improved adhesion. It is also a

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method suitable for robotizing in order to provide a good production flow throughout the cell. One of the six function modules contains a complete camera system that keeps an eye on production to ensure that all emblems are correctly assembled and free from defects. A 100 percent inspection rate results in high outgoing quality for the products, which means that the robot can place them directly in transport packages for delivery to the respective factories or parts warehouses.

Investing for the future

"The largest single investment that the company has made during the past five years is the Xflex facility from Animex," says Ernst. "It gives us experience and a platform for developing even more efficient production methods with lower costs, greater flexibility and more consistent quality for increasingly tougher market conditions."

Easy to use

"The new and easy-to-use software RobotWare Plastics Mold enables operators to easily get information on events so that they can quickly make decisions on what should be done to minimize downtime as much as possible," says. Svensson. "We run three shifts and the operators are responsible for their particular shifts. The cell that produces emblems involves many new and interesting tasks for them." Besides the operators, personnel who work with material flow to and from the cell can jump in if extra resources are needed.

When several persons are working with the robot, it's good that RobotWare Plastics features user authorization, says Svensson: no one needs to be afraid of conducting incorrect operations that damage the mould or injection molding machinery. The robot's flexibility is necessary for being able to conduct the varying tasks in the six Xflex modules, which each have their own specific functions: handling and exposure of the emblems, installation of springs, gluing of emblems, cooling, as well as quality control with vision and packaging of finished products.

"With robotization, we've gained new experience of how the springs' properties should be for automated assembly and how the glue should be applied to attain the best possible adhesion," says Svensson. "The new production cell is running at full capacity and we are pleased with our investment. We are our now well prepared for continued automation when the time comes."

About Animex
Specialists in customized robot based automation for the plastics industry.
Location: Bredaryd, Sweden.
Website: www.animex.se

About Peter Ernst AB
Owner: The Peter Ernst family
Number of employees: 25
Sales: SEK 30 million (USD 3.77 million)
Website: www.peterernst.se

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.