



Injection Moulding

Case study: Dashboards, Peguform, Germany

Applications in Plastics

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

The introduction of additional robots has helped automobile parts supplier Peguform increase the speed, efficiency and quality of production at its plant in Neustadt, in southern Germany.

Expert extracters

The orange metal arm works in a continuous cycle, extending its reach, grasping a plastic part and depositing it on a conveyor belt. It's a familiar scene on the factory floor at Peguform GmbH's Neustadt plant. Peguform is an auto parts supplier, providing interior and exterior plastic products to leading auto manufacturers, including Audi, BMW,



Volkswagen, DaimlerChrysler, Ford and Opel. Automating processes at its factories have helped the company become the European market leader in painted bumpers, winning new and follow-up orders worth 1.2 billion euros in 2005, with annual sales of 850 million euros in Germany.

The company operates globally as a full-service supplier, developing, producing and delivering fenders and spoilers, door panels, side door and interior cladding, cockpits and instrument panels. The company has 5,500 employees in Germany, including 1,700 employees at its Neustadt plant. Peguform has been operating ABB robots at Neustadt since it set up the southern German plant in 1986. It now has about 50 ABB robots in use. "We use robots for all possible types of applications," says Franz Vogt, who is in charge of robots and robot operators at Neustadt.

The company recently introduced two IRB 6650 shelf robots with an IRC5 robot controller to automate and improve the extraction process. Once a part has been formed in an injection moulding machine, the robot extracts the piece and places it on a conveyor belt before picking up a new piece and repeating the process.

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Switch to 6-axis

“Formerly we used gantry robots with just three axes,” says Vogt. “We have replaced these with two 6-axis ABB robots. This makes for much more flexible handling of parts, as the robots can move around, rotate and grasp parts lying beneath them. They don’t simply move up and down like the gantry machines.” The two IRB 6650 industrial robots have a range of 3.5 meters and can handle parts weighing as much as 125 kilograms. The cycle time for the extraction is 60 seconds, an improvement over a cycle time of 64 seconds before the robots were installed. This works out to be some 1,440 work pieces per day, compared with the previous rate of 1,350, an improvement of 90 pieces.

100,000 parts a day

The robots’ excellent performance has encouraged Peguform to order four more of the same robot. “We are expecting two more IRB 6650 robots in four weeks and then another two in six weeks,” says Vogt. “That means we will have a total of 11 robots of this type.” Peguform has a range of other types of ABB robots, including IRB 2400 and IRB 4400 robots, at various stages of production, supported by various types of ABB program software, says Vogt. “We’ve added more robots as we’ve grown,” says Vogt. “The robots’ reliability and ease of maintenance, their operability and ABB’s flexible customer service have continually impressed us.” The Neustadt plant uses the ABB robots to produce 100,000 plastic car parts a day. The robots operate 24 hours a day, five days a week. Maintenance is carried out on weekends.

Human benefits

The robots’ main tasks involve handling the various auto parts as they are being flame-treated, milled or as holes are being drilled into them.

“Using the robots guarantees a high level of accuracy, repeatability and speed,” says Vogt. “These robots can move at 2,500 millimeters per second. It also means that we know we will get exactly the same high-quality part each time. You just can’t get that with manual labor.” Employing the robots has brought a number of human benefits, he adds. Not only can the robots carry heavy parts, but they can also handle heat-treated components. “There are a lot of safety aspects,” says Vogt. “The robots can perform the dangerous jobs and carry out tasks that are beyond human capability. It all adds up to better health and safety for our employees.”

What’s more, using robots frees up time for employees to conduct quality assurance. “Now the employees have time to check all parts thoroughly, whereas previously they simply had to do that along the way,” says Vogt. That can only be good news for all those involved.

About Peguform

- Number of Peguform employees in Germany: 5,500, including 1,700 in Neustadt
- Ownership: U.S.-based Cerberus took over the Peguform Group (Germany, Spain, Mexico, Brazil) in 2005
- Peguform turnover in Germany in 2005: 850 million euros
- Peguform supplies car parts to: Audi A4/TT, BMW 1/3 series, Daimler-Chrysler Crossfire, Fiat Stilo, Ford Sport Ka, Seat Leon/Ibiza/Altea, VW Bora/Fox/Golf/Jetta/Passat, Mitsubishi Colt/Spacestar and Smart ForFour/Roadster.

ABB and the Plastics Industry

ABB’s wide range of plastics robots can handle many of the tasks involved in and around injection moulding 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.