KLÖCKNER DESMA is the market leader for automation in the shoemaking industry. Situated near Bremen in northern Germany, the company provides specialized injection machines, robots and automation technology to shoe manufacturers around the world – a business that generated over 37 million in 2002.

Case Study: Klöckner Desma

Footwear giant keeps automation technology on its toes

DESMA’s ambition to simplify robot operation has provided the perfect challenge for ABB, resulting in a new graphical teach pendant unit, aptly named FlexPendant. The FlexPendant is part of a brand new technology package – IRC5 – a control system that boasts new possibilities for cost-cutting production concepts.

A dominating partnership

Having integrated the industry’s first robot, KLÖCKNER DESMA chose to continue with – and become partner to – ABB. Now 60% of the robots in the shoe industry are from ABB. After 700 installations and almost twenty years, DESMA has sold no other robot.

How FlexPendant fits in

The FlexPendant that ABB was developing, when DESMA approached them in the start of the year 2002, offered the flexibility to generate a customized graphical user interface to the robot controller – dramatically simplifying operator interaction. Additionally, its touch screen facility is built to survive the often dirty hands that operate machinery on the shop floor. FlexPendant comes, together with the IRC5, as a breakthrough in robot control – and the answer to many a system integrator’s prayers.

IRC5 has the capacity to manipulate a team of robots working in unison on the same work piece (up to 36 axes). Subsequently, collaborating robots can handle larger and heavier jobs, and more efficient manufacturing processes are possible. FlexPendant’s user-friendly interface empowers the operator to manage automation concepts that are still being dreamt up.
Optimizing programs during production
Product range variations, dozens of sizes, left and right foot geometry, colors and materials all add up to a multitude of program variants for DESMA’s automated processes. Perhaps this industry accounts for some of the shortest production runs to be found – in a business where annual production exceeds 12 billion pairs of shoes. Typical robot applications include roughing, attaching steel soles, spraying release agent, cementing, handling de-lasting and sole extraction. DESMA’s FlexPendant application allows the operator to modify the robot program during production, a far more economical solution than shutting down and re-starting each time. For DESMA’s customers, this can happen on an hourly basis.

Plenty of support for the early adopter
René Kirsten is the application development specialist at ABB in Friedberg, Germany, whose job it has been to accommodate DESMA’s ideas. “They already knew what they needed, and even had sketches on paper. Our task was to help them realize their goals.” Supported by René and the FlexPendant development group in Västerås, DESMA’s programmer, Timo Brünings, was able to create a customer-specific user interface. By May 2003, at the SIMAC fair in Bologna, the German partner demonstrated the DESMA Graphical Robot Controlling System (GRC). René explains the reason for the positive feedback received at the fair:

“Thanks to its language of intuitive symbols and icons, just about anybody can use the DESMA GRC. Previous experience is no longer necessary.” He continues: “Although this is just one part of the IRC5 controller technology, it’s a leap forward for robotic solutions in the field.”

Closer to total control
While many automation integrators have the competence to create their own operator interface, ABB can help them visualize the process and guide programmers in making best use of the FlexPendant and its tools. “The programming environment itself provides plenty of opportunity to adapt the device to client needs,” says René. “Once the interface has been integrated with the controller, FlexPendant can make it very easy for an operator to handle information,” he concludes.