

# Cool Solution for Hot-plate Production



The reliability and throughput on a hot-plate production line at Slovenia's leading high-tech foundry has been improved with the installation of 36 axes of servo control – six four-axis SCARA robots and four three-axis bending machines – provided by Control Techniques' local drive centre, PS Logatec.

The bending and welding production line at ETA Cerkno was suffering with reliability problems and unacceptable levels of downtime. Breakdowns meant that bending or welding had to be carried out manually, a costly exercise and taking labour away from other areas of production. Availability of spare parts was a further issue, yet the prospect of replacing the six machines with new ones was prohibitively expensive.

"The mechanical side of the machines was fundamentally good, with some minor replacements," says Marko Vrabl, Manager of PS Logatec, "and so ETA brought us in to upgrade the electrical control system."

In four of the six production cells, there is a three-dimensional wire bending machine and a four-dimensional SCARA robot for assembling and welding the wire contact onto the heating plate. Two other cells have just a SCARA robot. Before the retrofit, the program was written in a low-level programming language and was loaded from a PC that was wheeled between cells as required.

Now, the system is much easier to program and to use. Each cell has its own control cabinet complete with seven Unidrive SP AC drives, working in servo mode (two cells have just four Unidrive SP servo-drives) and complete with a position controller and touch-screen terminal. To program a bending machine is now a simple matter of programming in a set of parameters. The robot is programmed using a teach-in feature.

Each motor was also replaced, the majority with UM servo Unimotors from Control Techniques Dynamics. Programming is very much easier and is consistent throughout.

All of the panels were designed and built at PS Logatec in Kalce in Slovenia and PS Logatec was responsible for the installation, programming and commissioning of each cell controller.

Each cell has a high-level of security and safety, with power immediately turned off if the door is opened. One feature that has proved very popular with ETA is the 'teach-in' mode on the Unidrive SP drives. An operator is able to safely go into a cell, with the mains power turned off and, using just a 48 volt power supply, drive through all of the robot axes using a hand-held control unit rehearsing the movements and actions that are needed – grasp, weld, release, etc. Then, when the operator is out of the cell and the door is secured, the full power can be restored and the robot is ready to go!

Unidrive SP is the world's most advanced 'solutions platform' AC drive, configurable into five operating modes – open and closed loop, vector, servo and regenerating modes - connectivity to most industry standard networks, configurable for all types of AC motors, including linear motors, and accepting 14 position feedback protocols.

ETA Cerkno has a close working relationship with PS Logatec using Control Techniques drives, particularly servo-drives. The company is a medium-sized foundry with an annual capacity of 12,000 tones and is the most advanced in Slovenia. The products are grey iron castings up to 800x800-mm in size and up to 30kg in weight. This production line produces classic iron heating plates.

## KEY BENEFITS

- IMPROVED RELIABILITY
- INCREASED THROUGHPUT
- SIMPLIFIED PROGRAMMING
- HIGH LEVEL SECURITY & SAFETY



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