

SIPLACE X-Series at the Amberg Electronics Manufacturing Plant (EWA):

Technology partner “Best European Factory”

Siemens’s Amberg Electronics Manufacturing Plant (EWA) won the coveted “Best European Factory” award this spring, making it a model for factories of the future. Employees and management are justifiably proud of this honor and the financial success of the EWA. With standardized improvement processes in all departments and on all levels, the plant has steadily raised its quality and productivity over the years. One of the many factors for its success: state-of-the-art SIPLACE placement equipment.

True to the motto “Stopping to improve means stopping to be good”, the “Best European Factory 2007” pursues an ambitious process improvement strategy. “Making improvements in all areas is a fixed component of our corporate philosophy and matter-of-course for everyone in Amberg. Because at EWA, the improvement processes have been institutionalized,” says plant manager Hans Schneider. Many areas use special tools and prepare reports that directly support the plant’s process improvement activities. By contributing to improvement, the employees of the EWA turn the above motto into reality and contribute to the operation’s growing success.

“Our willingness to learn from mistakes enables us to continuously improve our production systems and key performance indicators and remain competitive against international competitors in a high-cost country like Germany,” says Dieter Mussemann, who is in charge of process technology at the EWA. The plant, which manufactures predominantly programmable SIMATIC controllers, processes almost two billion components per year. For 2008, additional output increases between 15 and 20 percent are planned.

Goal: More productivity per square foot

The introduction of the SIPLACE X-Series in Amberg is proof that even processes that have already been optimized can be improved further in terms of quality and productivity by deploying innovative manufacturing technologies.

Prior to its installation of the SIPLACE X-Series in the fall of 2005, the EWA's SMT production consisted of 15 lines whose manufacturing capacity was barely able to meet the demand, even while running around the clock in three shifts. To meet the market's rising requirements, the plant's staff decided to develop innovative manufacturing solutions together with the SIPLACE team. The goal: Installing the latest SMT placement equipment in order to improve the productivity per square foot and reach a manufacturing capacity of 2 billion components per year.

"Here at the EWA we have worked with the SIPLACE team from the very start. I have no doubt that this was the right decision at the time, and things haven't changed. We benefit from working with a company that has a contemporary view of itself as a technology partner for its customers and that works closely with us to raise our productivity and quality through innovation – just as we do for our customers," says Dieter Mussemann. In the fall of 2005, the project team presented a solution on the basis of the new SIPLACE X-Series that even exceeded the high expectations. According to the project team's calculations, the output quantity of the five older S-20/F4 lines was to be replaced with only three lines equipped with SIPLACE X machines, leading to a significant improvement in productivity per square foot.

SIPLACE X-Series: Higher performance reduces the number of lines by two

The upgrade to the new placement machines in the winter of 2005 not only saved two SMT lines and freed up space for future expansions. "Since we can reach the previous output in a much shorter period of time now, we have more

flexibility to handle short term order peaks,” says Reiner Thiele, who was in charge of introducing the SIPLACE X-Series at the EWA.

The introduction of the SIPLACE X-Series improved a lot more than the plant’s productivity. One central aspect that was equally critical for its employees was customer satisfaction. “Our top priority is the out-of-the-box quality our customers receive,” says Thiele. “With our SIMATIC products we come pretty close to zero-fault production. The exceptional process quality, for which SIPLACE is responsible to a large extent, raises our customer satisfaction significantly.”

This was also the reason why the EWA’s management was immediately impressed by the SIPLACE X-Series. The combination of a new 20-nozzle high-performance head with significantly improved placement quality and an integrated component sensor, the new X-feeders with their more accurate positioning and their setup verification options, and the digital vision system with improved component recognition and off-line teaching opened up new room for significant quality and performance improvements.

“With the X-Series we provided the prerequisites for the latest placement technologies such as 01005 processes while setting the basis for 100-percent setup control with options for perpetual inventory management and traceability,” says Reiner Thiele. “Our online quality data reporting system showed very quickly that we actually managed to exceed the anticipated improvements on the factory floor.”

For example, the EWA replaced its SMT Line 8 (S-20/S-20/F4) with a line consisting of a SIPLACE X4 and a SIPLACE X3. With their combination of 20-nozzle, 12-nozzle and 6-nozzle heads and a Twin Head, the new line features high flexibility paired with excellent performance and quality. Its placement quality rose within only a few months after its installation from 41 dpm to 25 dpm, and its real-life placement performance increased by 72 percent.

Only eight months after the start of the project, the introduction of the SIPLACE X-Series and the required software updates were complete. What's particularly remarkable about this project is that the X-Series was integrated into the plant's operation with no production interruption and that the new equipment ran at 100 percent from day one. All major performance indicators of the new lines exceeded the EWA's ambitious targets.

Flexible setups speed up orders

Thanks to its quick deliveries and reliability, the EWA has earned an excellent reputation among its customers. In fiscal 2006/2007, the plant achieved a delivery reliability of 99 percent for a total of 2.0 million items shipped. Continuing to meet customers' demands for ever more product versions and smaller lots, particularly flexible setup concepts are needed.

One important innovation project that resulted from the EWA's close cooperation with SIPLACE enables the plant to meet these requirements. By introducing the SIPLACE X-Series with its new feeders and component carts, the plant achieved significant time and cost savings. The majority of the entire production volume can now be set up on a single line, and the number of permanently set up PCB programs rose by 60 percent. Today, more than half of all PCBs can be produced with a single low-maintenance setup.

Thanks to this high level of setup flexibility, the plant is now able to ship within 24 hours despite its broad product spectrum.

Amberg Electronics Manufacturing Plant (EWA)

Since 1989, the Amberg Electronics Manufacturing Plant (EWA) produced programmable logic controllers and other SIMATIC components. The plant's annual placement performance is approaching the 2-billion mark.

More than 800 people work in the "Best European Factory" (title awarded in 2007). The plant won this honor for its distinctive culture of quality, its technological leadership position, and its implementation and maintenance of a "learning" production system with highly qualified employees.

For many years, the EWA's productivity improvements have beaten the targets, thanks to permanent process improvements, its use of state-of-the-art information technology in its production facilities, and its global sourcing of components.

Managers and employees strive to improve their leading position in quality, costs and logistics faster and more sustainably than their competitors – a goal which they manage to achieve year after year.

*For more information, go to
www.siemens.de/amberg*