

Manufacturing cost-effectively and with scalability in Germany:

Metz modernizes its SMT production with SIPLACE SX

“Made in Germany” — Metz produces its well-known television sets and flash units exclusively at its headquarters location in Zirndorf. With its quality- and value-oriented brand strategy, technical innovations and the cost advantage of a modern and flexible plant, this medium-sized maker of premium products is successfully holding its ground against far-eastern dominance. For its upcoming generation of models, Metz is currently upgrading its electronics production and investing in a new SIPLACE SMT line, which takes full advantage of the benefits of the scalable and highly flexible placement machines of the SIPLACE SX Series.

Today’s consumer electronics are dominated by Asia. While most manufacturers have their headquarters here, companies from other parts of the world also use Asia (and China in particular) as cheap production sites. But this is not the only way to be successful. “We focus on the premium segment and serve customers who value quality, technical innovation, easy operation and comprehensive service. To quickly translate ideas into innovative products, we put our trust in the shortest possible path from development to production — and on Germany as a business location” is how Thomas Hey, head of corporate communication, describes Metz’s brand strategy. Accompanied by a consistent focus on the specialty trade, the company sold €130 million worth of television sets and “mecablitz” flash units in 2009. Today, Metz’s has over 670 employees, 95 of whom work in product development.

Metz uses intelligent product and production concepts to counter the competitive pressure from Asia. “We are the only manufacturer that offers upgrades for its television sets. All the technicians in the specialty stores selling our products have to do is replace some modules. For example, customers who move and no longer receive their programming via satellite but via cable can keep their Metz television — all that needs to be done is to replace the internal satellite tuner with a cable tuner,” explains Manfred Billenstein, the chief technology officer at Metz.

The customers aren’t the only ones who benefit from this innovative concept. It also generates huge efficiencies on the production floor: Metz offers seven product families with screen sizes ranging from 26 to 55 inches, but thanks to the models’ modular design and shared components, the manufacturing complexity remains manageable. For example, all models use the same basic circuit board. The model families and feature variations are defined via their components and the number of expansion modules. This enables a niche brand like Metz to keep its production costs low despite its relatively low unit volume.

New generation of models requires updated production techniques

Always looking for innovations and potential improvements, Manfred Billenstein and his team started thinking about upgrading their production to be able to handle the latest generation of models, which was scheduled for 2010. “Previously we outsourced parts of our electronics production to a nearby EMS company and handled the rest in-house. When we calculated the costs for our new generation, however, we saw that we would be better off by

manufacturing in-house,” explains Billenstein. In addition, Metz believed such a move would speed up product innovations, improve quality, deliver more flexibility and make the company more independent.

As a result, Metz evaluated various suppliers and machines, and as an owner-operated, mid-sized company it paid close attention to costs. “Metz has lots of manufacturing experience. Our people know that process costs make the greatest impact,” says Billenstein. That’s why Metz focused heavily on factors like placement quality, throughput rates, scalability and the ability to place 0201 components as well as large ball grid arrays (BGAs) with a high degree of reliability.

SIPLACE SX: Flexible and scalable with lots of feeder slots

At the SMT show, the Metz people took a close look at the new SIPLACE SX series and asked the SIPLACE team to configure a production line that would meet their needs. The advantages of the SIPLACE SX compared to the products of other equipment makers became readily apparent. The SIPLACE SX is the world’s first platform that allows the user to scale placement performance and feeder capacity independently of each other. The Metz people were thrilled about being able to let their production “breathe” in accordance with their order volume and to be prepared for the future, thanks to the SIPLACE Multistar CPP head and the new series’ flexible setup and line concepts.

“Our SIPLACE SX line consists of four SIPLACE SX1 models. It provides precisely the level of performance we need for our production today. At the same time, the interchangeable gantries allow us to easily upgrade our line when demand rises without having to change the line layout or invest in more machines or more floor space. This means that we are ready for the future, thanks to SIPLACE’s intelligent Capacity-on-Demand concept,” says Karl-Heinz Limbeck, Metz’s ELW production manager, about the company’s decision.

Because of the new line, Metz also decided to thoroughly modernize its production facilities in Zirndorf. In addition to introducing more flexible shift models, Metz reconfigured the old line with its SIPLACE HF and HS-50 machines, which previously ran in three shifts, to serve as a buffer line for special requirements. The four new SIPLACE SX machines were set up as a separate, parallel line which will carry the main production load and churn out circuit boards for flash units and television sets in three shifts.

For the television sets alone, the SIPLACE SX line will process roughly 300 million components per year. The new, large TV mainboard alone has roughly 2,800 components, ranging from small 0201s to connectors and special components. Nevertheless, the new line has enough capacity for the flash unit production. The diversity of components and board sizes poses no problem, because the SIPLACE Multistar CPP heads adapt automatically to changing placement mode requirements. Another benefit of the new machines: each SX1 features 120 slots for 8mm X-feeders on a footprint of only 1.5 x 2.5 meters. In addition to various feeder types, Metz also uses SIPLACE waffle pack changers (WPCs). Fortunately, the SIPLACE SX was designed to leave room for 30 X-feeders on special component carts next to each WPC. Thanks to the exceptionally high feeder capacity of the SIPLACE SX,

Metz is able to operate very efficiently with fixed setups even when the products have to be changed.

Entire production modernized

Metz used the introduction of the SIPLACE SX to make additional improvements. With the company's new production concept, the component warehouse with its two Kardex systems is now located between the two lines. As a result, the distances over which the components have to be transported are extremely short and can be handled by the existing staff. Logistically, Metz's "insourcing" of its entire electronics production is no big problem, because the company supplied its EMS provider with the components anyway. All the component manufacturers and distributors had to do was change the delivery address. The signs of modernization are equally apparent away from the SMT lines: ergonomically designed, U-shaped workplace groups dominate the production facilities and demonstrate that Metz believes in innovation not only for its products, but also for its manufacturing concepts.

Lots of trust in the SIPLACE team

The quality orientation of the Franconian company is equally apparent. While still moving through the line, the circuit boards are inspected with AOI machines after each process phase. "The sooner we identify flaws, the sooner we can take corrective action and thus reduce our costs," explains production manager Karl-Heinz Limbeck. He adds: "Even during the break-in period, the SX line showed its qualities and exceeded its specifications – in some cases by significant margins. We believe that this will provide us with additional significant cost benefits." CTO Manfred Billenstein draws similarly positive conclusions: "Our experience with SIPLACE products and services as well as with the SIPLACE team has been very good, and we know that innovative strength pays for itself. We introduced the SIPLACE SX series to be able to manufacture our products with more flexibility and scalability and therefore more cost effectiveness in the future. The robust performance of the new SX line is proof that we made the right decision."

(Info box for SIPLACE SX)

The SIPLACE SX at a glance:

- Placement performance on demand: gantry replacement in less than 30 minutes
- Full modularity: gantries, placement heads, SIPLACE SX+ basic modules, X-feeders
- Performance and feeder capacity can be purchased or rented and transferred as needed
- SIPLACE Multistar CPP head for high-speed and end-of-line applications
- State-of-the-art software for processes ranging from NPI to volume production
- Independently scalable placement performance and feeder capacity