SIPLACE Case Study
SIPLACE X Series

SIPLACE and Miele

Miele produces its electronics in Germany

Miele is the only major appliance maker with a long tradition who remains loyal to Germany as a manufacturing location on a grand scale. Miele's electronics production is still housed at the company's main plant in Gütersloh where it is taking advantage of its domestic location and continues to grow — like all of Miele. Profitably continuing to build major appliances in Germany requires the selection of the right SMT equipment in electronics production. At Miele, SIPLACE placement machines ensure that the company is able to produce topquality appliances with an outstanding price-performance ratio in Germany.

"We have a very high level of automation, highly qualified and motivated employees and excellent machines" is how Walter Kifmann, head of production at Miele's electronics plant, summarizes his company's secret for success. Most of Miele's facilities are located in and around the home base of Gütersloh, which has the advantage that people in all departments can communicate quickly and personally. Miele's product development in particular is closely linked to its electronics development and subsequently to its electronics production.

Nevertheless, there is no set rule that electronics must be manufactured in-house. Rather, Miele's in-house production must constantly compete against outside electronics manufacturers. But they don't present the winning bid very often, as Walter Kifmann points out: "All in all, we can offer significant advantages. But occasionally the production department itself contracts with other electronics manufacturers in order to meet the parent company's steadily rising demand.".

The close cooperation between the product and electronics development departments makes it much easier to optimize the component placement designs. Over the years the engineers and technicians have managed to raise the share of SMT components to 90 percent while reducing the overall component spectrum to approximately 400. “This allows us to optimize our SIPLACE placement lines so quickly that other vendors have a hard time to compete in terms of price. In addition, nobody is faster than we are when it comes to delivery dates.” Most electronics manufacturers require a lead time of three to four weeks. Miele’s electronics production on the other hand is able to start a new job and ship completed modules to an assembly plant within a single day.

Highest Flexibility with SIPLACE Placement System

Since Miele does not produce with high-volume production runs, the electronics plant runs lot sizes that average less than 200 units. Nevertheless, it churns out about 10,000 modules with roughly two million components for a wide spectrum of Miele appliances each day, which is why having exceptional flexibility with respect to people and equipment is so important. Miele’s qualified staff keeps four pure SMT lines, one combined SMT-THT line and two pure THT lines running around the clock in three shifts. All SMT placement machines are from the same manufacturer, namely Siemens with its modular SIPLACE hardware and software. Miele electronics engineer Bernadin Fatzkämper and production preparation specialist Frank Hermbecker agree: “We have been working with placement machines from Siemens for 20 years now. We constantly compare them against machines from other suppliers, but we haven’t seen any that offer a superior price-performance ratio.”

In addition to high productivity and flexibility, the factor “placement performance per square meter” is also quite important for Miele’s electronics production, because each square meter costs money, and the current facilities cannot be easily expanded. But since the job volume keeps rising, the company prefers solutions that produce more output in virtually the same space. This is what happened once again in the winter of 2005/2006: In November 2005, Miele selected the machines best suited for

its needs at Munich's Productronica trade show. In December, the company ordered two SIPLACE X4 and two SIPLACE X3, enabling Miele to move up to Siemens's premium machine class with two of its lines. Where previously a SIPLACE S20-S20-F4 line and a SIPLACE HS-50-F4 churned out populated circuit boards, two X4-X3 lines now do their job.

After the successful final acceptance procedure in Munich, Siemens delivered the first X4/X3 line to Gütersloh already in early February 2006. The replacement and commissioning took place on the next weekend, and volume production started on Monday. Two weeks later the next X4/X3 line went into operation. Production manager Kifmann still gets excited when he talks about the trouble-free transition and the reliability of all parties involved: "It is really unbelievable how everything came together in such a short time and without any problems. Our line team and Siemens's sales and service people worked together like a well-oiled clock."

Since the X-Series also required a software upgrade, line operators, programmers and production preparation specialists had attended training seminars prior to the transition. After the production start, a SIPLACE trainer remained at the plant for three more weeks and helped to optimize the workflows and answer questions.

SIPLACE X-Series: Efficiency Targets Exceeded

The performance jump of this upgrade made it possible to continue meeting Miele's rising demand. Bernadin Fatzkämper explains: "With our previous lines we managed a real-life output of more than 20,000 cph and more than 30,000 cph with the HS-50-F4. Our goal for the new equipment was 45,000 cph on each line, for which Siemens gave us a guarantee. Today we even manage 50,000 to 55,000 cph. Actually, the Xlines still have room for improvement because they are not equipped with the superfast 20-nozzle heads. We currently use six 12-nozzle Collect & Place heads and one Twin Pick & Place head on each line." Walter Kifmann explains the reason: "The new 20-nozzle Collect & Place heads require the new intelligent feeder modules, but we still had large numbers of conventional feeders and didn't require more output than the current configuration provides when we made the purchase. But we like that we

still have the option to upgrade in stages, which we plan to do in the not-to-distant future."

In addition to machine performance, Miele places great value on reliability and availability. Since there are no unscheduled downtimes, Miele's electronics specialists have no complaints in this regard either. To keep it this way, they strictly comply with all recommended maintenance intervals. Their in-house staff always performs its maintenance at the best production time — in the morning — because that's when all specialists are present and can do the work in a scheduled maintenance window.

SIPLACE Pro checks placement irregularities fast and reliably

Along with the SIPLACE X-Series, Miele introduced the new SIPLACE Pro software. While Bernadin Fatzkämper had no problems with the old Unix line software, he clearly sees the advantages of SIPLACE Pro: "Compared with the Unix line software we can now generate the programs much more efficiently, administer them more logically and avoid more mistakes thanks to SIPLACE Pro's graphical user interface." In addition, the basic package includes the Operator Information System (OIS), which enables machine operators to visually check the machine status in order to quickly find any errors and optimize the lines. Dieter Rentzsch, sales manager of Siemens A&D EA, explains: "The software constantly checks for any placement irregularities. If it finds something, it displays it on the line monitor. The line operator can respond instantly and take appropriate countermeasures." At this time, Miele uses SIPLACE Pro only on its X-lines. But this will soon change, says Walter Kifmann, so that the benefits of this modern software can be used everywhere with additional features such as SIPLACE Explorer, EDM or Traceability.

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