



CASE STUDY

BRINGING TOMORROW'S LIGHTING TECHNOLOGY TO TODAY'S MARKET

LED lighting has been widely advanced as a key to a sustainable energy-efficient future. When a leading global lighting company needed a manufacturer able to launch advanced LED lighting products, it turned to Sanmina for the development and production of quality products built to exacting specifications.

THE CHALLENGE

The worldwide LED lighting market more than tripled between 2008 and 2011, with revenue climbing from \$2.7 billion to \$9.4 billion. The market for LEDs grew 69 percent in the United States and Europe in 2011 alone, and industry experts expect a compound annual growth rate of 20 percent for LED lighting through 2016.

A leading LED lighting company approached Sanmina about producing advanced LED lighting products. The company had a disappointing experience with another supplier that was unable to deliver high-quality products. Success required that:

- **Product launch was on time so** this company could meet the demands of its own customers and exponential market growth.
- **On-time delivery could not be achieved at the expense of quality.** Previous efforts by another supplier had resulted in the delivery of products that failed to meet specifications.
- **Systems had to be implemented with complete component traceability.** Their previous supplier did not have adequate controls for component traceability. Sanmina has robust traceability systems that track every product through the entire manufacturing process, with each assembly and component passing through multiple customer-defined test stations.
- **The manufacturing process had to be highly automated** since quality and costs had suffered from a reliance on manual processes. Sanmina developed a new software application to manage binning parameters and material requirements according to the customer's instructions. Another requirement was that all products be waterproof. Sanmina implemented a new testing procedure with leak-test equipment to eliminate this quality problem.
- **Supply chain agility – the need to meet changing market demands:** Sanmina's customer needed a flexible supply chain, with the ability to produce different product variations with changing delivery requirements.



WHY SANMINA

Sanmina takes a unique approach to manufacturing partnerships. Factors that helped realize the benefits of a collaboration with Sanmina included:

- **Advanced manufacturing and I.T. systems, enabling on time delivery.** Sanmina has systems in place that make supply chain issues visible.
- **Sanmina has substantial experience with the manufacturing of LED lighting products.** For example, Sanmina applied its expertise with testing color temperature in the development of a critical binning process.
- **Sanmina provides cost-effective solutions.** Sanmina was selected as a partner after considering all aspects of product and total landed costs and, Sanmina delivered lower costs with process Automation.
- **Sanmina provided substantial savings in shipping costs.** The Sanmina facility selected for manufacturing is located in Mexico, based in part on the complexity of the supply chain and costs for shipping certain raw materials. The lower costs of both inbound and outbound freight optimized total landed costs.
- **A trusted partnership based on successful prior collaborations.** Sanmina was a known and trusted partner, having designed and manufactured complex LED lighting products for this customer before.
- **Sanmina earned excellent results during quality audits.** Production, quality, I.T. systems and inventory management audits earned Sanmina high marks.





THE APPROACH

A systematic approach was used to develop the manufacturing processes and supply chains for three different product families. Work began immediately with the following steps:

Comprehensive project planning. Senior Sanmina personnel traveled to the customer location to develop a complete plan.

- **Customer Review.** Sanmina put a customer focus team in place, with representatives from each major function. The team followed a structured approach for new product introduction in order to meet each deadline.

Execution. Comprehensive traceability systems track every step of manufacturing, from the first station to the finished product:

- **Automated Process Control.** The plant supplemented that system by implementing automation to avoid human error and to control complex processes.
- **Visible Metrics.** Key manufacturing and business indicators including quality, delivery and supply chain metrics were tracked and made visible to the team and management.
- **Commit/Delivery Plan.** Sanmina develops a plan that it shares with its customer on a weekly basis so the customer knows the status of manufacturing and delivery operations.

Engineering

Three product lines were awarded to Sanmina. For each of these, Sanmina installed a dedicated production line. Each production line was designed to achieve the best overall process flow.

In order to offer our customer process improvements as production continued, the customer focus team initiated several Improvement (Kaizen) Events to reduce overall costs.

Materials

Timely receipt of materials was critical to production ramp-up for each product line. Efficient procurement was particularly important, based on tight deadlines dictated by commitments made by our customer to its own partners.

Quality Assurance

High-quality production of lighting products calls into play unique process control and testing processes. Sanmina developed automated processes to control quality at critical steps and implemented strict performance testing and burn-in processes to achieve superior quality.

THE RESULT

These three product lines of advanced LED lighting products were successfully launched and are produced in volume today. Sanmina developed automated production processes, traceability systems and unique product test processes in order to meet stringent quality, cost and delivery requirements.

Based on the success of these new products and the responsiveness of the organization, Sanmina delivered products for several programs:

- LED lighting products for two major New York City landmarks.
- Lighting products used to light one of the most important venues in Mexico City.

With successful completion of these programs, Sanmina was awarded Additional business.

While being a challenging and rewarding partnership, the results were compelling, with our customer saying: “Sanmina has done what they committed to do and delivered on time every step of the way. We can be a demanding partner, but we could not be in better hands.”

ABOUT SANMINA

Sanmina Corporation is a leading integrated manufacturing solutions provider serving the fastest-growing segments of the global Electronics Manufacturing Services (EMS) market. Recognized as a technology leader, Sanmina provides end-to-end manufacturing solutions, delivering superior quality and support to Original Equipment Manufacturers (OEMs) primarily in the medical, communications networks, defense and aerospace, industrial and semiconductor systems, multimedia, computing and storage, automotive and clean technology sectors. Sanmina has facilities strategically located in key regions throughout the world.

More information regarding the company is available at www.sanmina.com.