DANIEL KURR

Light for the world

Italy is as famous for world-class design as it is for pasta. But making the perfect dish requires not just passion, but also the right combination of the best ingredients. This is the recipe followed by Italian lighting specialist AEC Illuminazione, which combines pioneering designs, visionary concepts and prudent investments in smart production processes.

Sometimes disaster also spells opportunity – and that was certainly true of the devastating floods that hit Florence in November 1966. The center of the city was severely damaged by mud and silt, so the municipal authorities commissioned the company AEC Illuminazione to reconstruct the city's lighting fixtures. "We furnished the entire center of Florence with decorative candelabra virtually overnight. Producing those kinds of luminaires in bulk was quite a challenge back then!" says Giacomo Bianchi, operation manager at AEC since 2020. This turned out to be the springboard to success for AEC Illuminazione, with other Italian cities suddenly queuing up to acquire their own cast-iron lighting fixtures from Subbiano in Tuscany.

Fast, bright and beautiful

AEC seldom works with cast iron nowadays. Its customers are more interested in simple yet sophisticated designs made of aluminum and stainless steel. Founded in 1957, the family-owned company is one of the world's most successful suppliers of public outdoor lighting. Its extensive range of products includes beautifully designed, energy-efficient and sustainable lighting concepts for road tunnels, bridges, underpasses, cities and stadiums.

Taking design in a new direction: Giacomo Bianchi, operation manager at AEC Illuminazione, is constantly finding new ways to make his production processes fit for the future.

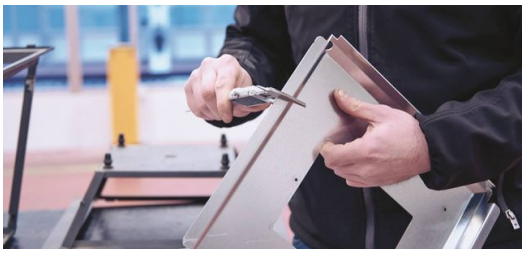
As a design enthusiast and CEO of AEC Illuminazione, Alessandro Cini (right) inspires customers all over the world with elegant, technically pioneering lighting concepts made with Italian flair. Giacomo Bianchi's efficient and superbly coordinated manufacturing processes ensure the company's products get to market quickly.

Faster with automation

But looks alone are not enough: "We've definitely built a reputation for exceptional design and outstanding quality. But success today depends just as much on being able to get your products to market quickly," says Bianchi. To meet that challenge, the company began making major investments in production automation back in 2006. That was when AEC laid the foundations of its close partnership with TRUMPF. Its first acquisition was a TruLaser 3030 fiber 2D laser-cutting machine, and this was soon joined by a TruMatic 1000 for punching and cutting jobs and two manual bending machines. The new machines greatly accelerated the manufacturing process and, in 2017, AEC Illuminazione decided to go one step further by replacing the old bending cells with new automated ones. "Sticking with TRUMPF was the obvious choice. We were satisfied with the machines we had, so why would we switch to a different manufacturer?" says Bianchi.

Aluminum, steel and light

AEC chose a TruBend Cell 7000 and the somewhat larger TruBend Cell 5000. "Making our company as vertically integrated as possible is a core part of our corporate philosophy," says Bianchi. "It's about bringing as many production steps as possible in-house. This reduces our dependence on suppliers, gives us full control over quality, and enables shorter delivery times. The two bending cells have made us even more self-sufficient when it comes to meeting our customers' needs." AEC Illuminazione also appreciated the high productivity and outstanding processing quality of the TRUMPF machines, especially since the company primarily works with aluminum and stainless steel. Even though almost all its luminaires are suspended from posts or steel girders high up in the air, it refuses to tolerate even the slight scratch on any of its housings. "We supply designer products – and that means top-quality workmanship, technical expertise and a beautiful design," says Bianchi.



The perfect angle: outstanding workmanship lies at the heart of all AEC's products – and that's exactly what TRUMPF's high-precision bending cells provide.

Giacomo Bianchi primarily envisaged using the TruBend Cell 5000 to bend larger housings and mounting devices.

To manage production peaks, Giacomo Bianchi invested in tools that allow parts to be produced on both the TruBend Cell 7000 and the TruBend Cell 5000.

Sports arenas and tunnels

AEC Illuminazione regularly demonstrates its technical prowess through innovative developments such as its T-LED 3 tunnel lighting, which floods the darkness with energy-efficient light in a tunnel in Oslo, Norway. "Just like all our other luminaires, this model features high-performance reflectors made from ultra-pure aluminum. Aluminum offers optimal protection against corrosion, especially in tunnels where the material is exposed to high humidity and contamination," says Bianchi. "We also use this type of reflector in stadium lighting, most recently at the Alberto Picco stadium in La Spezia in northern Italy."

Managing production peaks

To produce the luminaires' stainless-steel housings and sturdy mounting frames, AEC cuts and marks the parts with a laser before bending them into shape. "Until recently, we had to send the parts to a different company for bending. But purchasing our two bending cells means we can now do it in-house," says Bianchi happily. The TruBend Cell 7000 mainly tackles smaller parts with widths of up to ten centimeters as well as a wide variety of mounting parts. "We produce around half a million products a year, each of which features two or three mounting fixtures. That adds up to a lot of work!" says Bianchi. His initial plan was to use the TruBend Cell 5000 primarily for bending larger housings and mounting devices, but fortunately he also had the foresight to equip the large bending cell with the necessary tools to enable him to shift parts from the TruBend Cell 7000 to the TruBend Cell 5000 whenever capacity gets tight. "Being able to absorb production peaks by combining the two machines is a great help, and this whole set-up meets our strategic goals perfectly. We now have a rapid solution for fabricating even more parts in-house at a consistent level of quality," he says enthusiastically.

> **We deliver designer products – and that means top-quality workmanship, technical expertise and beautiful design**
>
> Giacomo Bianchi, operation manager at AEC Illuminazione

Smart connectivity, rapid feedback

The two bending cells are part of a comprehensive plan to restructure AEC's production processes. Bianchi was therefore keen for TRUMPF to equip the machines with the interfaces required to connect them to its manufacturing execution system (MES), which the company installed in 2021. "It's great to have fast machines and highly efficient automation components, and they certainly boost our productivity. But that alone is no guarantee of shorter throughput times and on-time delivery," he says. The decision to carry out so many of the steps in-house poses its own challenges, because the resulting production processes are highly complex. If something goes wrong in one of the production steps, it can quickly end up disrupting the entire manufacturing process. The worst-case scenario is then having pallets of finished parts sitting around in the aisles waiting to be processed. The way to avoid that is by maintaining a consistent flow of clear and transparent information. To achieve this, Bianchi has now connected up 85 percent of the company's machines. The MES generates production schedules

and ensures smooth operation of the manufacturing environment. The design engineers can send their CAD drawings straight to the machines, where the data is imported and turned into finished parts as and when they are needed. The MES also collects machine data and key metrics for quality monitoring, machine utilization and production status. "By connecting everything together, we've created a truly transparent production environment. Tailoring our production schedules to the needs of our employees and machines helps to shorten throughput times and improve on-time delivery over the long-term," says Bianchi.

The TruLaser 3030 fiber 2D laser-cutting machine laid the foundations of AEC Illuminazione's close partnership with TRUMPF. Its connection to an automated storage system made production much faster.

Giacomo Bianchi is optimistic about the future. By the end of this year, all his machines will be connected up, marking a major step toward a smart factory.

Curious to find new approaches

Keen to take things to the next level, Bianchi put together a team whose mission was to identify and unleash even more optimization potential. When the team started work two years ago, it consisted of three ambitious young engineers. Today, it has 18 enthusiastic and open-minded members who apply their boundless curiosity to developing optimization strategies for logistics, supply chains and cost-efficient business practices. "We actually benefit from the fact that AEC Illuminazione has such flat hierarchies," says Bianchi. "If you're serious about questioning your existing processes and potentially turning them on their head, you need to have everyone acting in unison. It's important that managers are willing to trust their staff and quickly sign off on the necessary capital investments, especially if your company has a long-term focus and the improvements might not be immediately noticeable. It's usually easier to do that in family-owned companies than in large corporations." Bianchi's ongoing change process has put the company on target to achieve its smart factory goals. He aims to continue down this path by making sure every single one of his machines gets connected over the next 12 months. He will also be purchasing new machines to make the company even more vertically integrated, creating space for new manufacturing processes by expanding the Subbiano site. But, despite all this upheaval, AEC Illuminazione will always remain firmly rooted in the tradition of superb Italian design.

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