

K-ARRAY SURL

SETTING TONE FOR LIVE-EVENT SPEAKER DEVELOPMENT WITH SOLIDWORKS SOLUTIONS



K-array uses SOLIDWORKS design, simulation, and technical communication solutions to improve collaboration, streamline development, and facilitate production of its innovative slim array speakers, which provide unparalleled performance for touring, live event, installed sound, and broadcast applications.



Challenge:

Accelerate design cycles, shorten time-to-market, and improve collaboration with fabricating and manufacturing partners.

Solution:

Implement SOLIDWORKS Standard design, SOLIDWORKS Simulation Premium analysis, and SOLIDWORKS Composer technical communication software solutions.

Benefits:

- Reduced design cycles by 20 percent
- Shortened time-to-market by 20 percent
- Cut scrap costs by 20 percent
- Increased design reuse by 30 percent

K-array is a renowned Italian manufacturer of cutting-edge professional audio solutions. Since 1990, the company has overcome unique audio challenges around the world by leveraging its deep acoustical expertise and innovative design aesthetics. Building on the founders' background in studio design and installations for radio and television, K-array has grown to become an award-winning speaker manufacturer, with product lines based on slim array technology that provide unparalleled performance for touring, live event, installed sound, and broadcast applications.

The speaker manufacturer has introduced innovations that resolve issues surrounding the traditional approach to supporting live-sound requirements, namely, the cost of transporting and rigging speaker systems that are constructed from wood and take up a lot of space. The sheer volume and weight of the conventional transducer systems drives up costs and is hugely inefficient. K-array's use of sheet metal fabrication and line array technologies has resulted in the design and manufacture of highly efficient audio systems that produce unparalleled sonic accuracy. The company offers a complete range of products to suit any application, from large-scale arenas to almost invisible systems for theater, worship, and corporate requirements.

Until 2010, K-array designers used AutoCAD® 2D and Rhino® 3D design tools to develop the company's speaker products. However, problems surrounding interactions with vendors and partners—including sheet metal fabricators—prompted management to investigate changing to a common 3D design platform to shave time from the development process and facilitate future innovations, according to Manager of Engineering and R&D Nicola Pieri.

"All of our partners and vendors use SOLIDWORKS® software, and it became increasingly necessary to communicate with them more efficiently and effectively," Pieri recalls. "The decision was made to standardize on the SOLIDWORKS platform for all of our design work not only to support greater collaboration with partners but also because the software is very intuitive and presents the opportunity to acquire additional integrated solutions—like simulation and documentation software—as we need them."

K-array implemented SOLIDWORKS Standard 3D design software in 2010, and later added SOLIDWORKS Simulation Premium analysis and SOLIDWORKS Composer™ technical communication software, to improve collaboration, streamline development, and facilitate production.

FASTER DESIGN SHORTENS LEAD-TIMES

Since transitioning to SOLIDWORKS software, K-array has reduced both its design cycles and time-to-market by 20 percent, shortening delivery lead-times to its customers. Moreover, because the company and its partners now use the common SOLIDWORKS development platform, the company has realized additional productivity gains related to a 30 percent increase in design reuse.

"Our product development projects begin with our R&D Department, which designs the individual mechanical components in SOLIDWORKS and sends the drawings to our fabricating and manufacturing suppliers," Pieri explains. "The Production Team then mounts the speakers and tests them prior to shipment to the customer. SOLIDWORKS helps us a lot in the design phase because it's very versatile and intuitive, enabling us to halve the time required for design and implementation of drawings."



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— Nicola Pieri, Manager of Engineering and R&D

ELIMINATING ERRORS, REDUCING COSTS

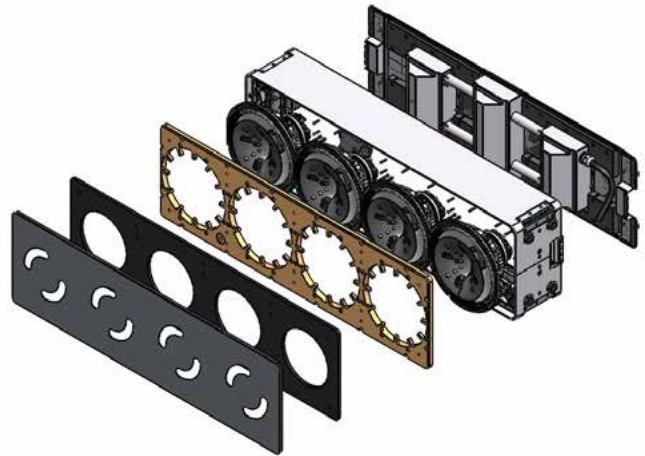
K-array added SOLIDWORKS Simulation Premium software to conduct stress and deflection analyses during product design, which enables the company's engineers to resolve potential performance issues prior to fabrication. The addition of structural analysis capabilities allows K-array to calculate the appropriate thickness and the correct shape for the material used to achieve the specific structural safety factor coefficient required to comply with standards and regulations for lifting equipment.

The cost savings associated with the transition to the SOLIDWORKS 3D development platform extend beyond the shorter design cycles, improved quality, and reduced prototyping that the company has realized. K-array has also leveraged advanced SOLIDWORKS sheet metal design tools to cut scrap costs by 20 percent. "For us, SOLIDWORKS is crucial

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during the production startup process to help keep machining waste to a minimum, facilitate material planning, and optimize material usage from single cuts,” Pieri stresses. “K-array products are made primarily of sheet metal, and our designers use SOLIDWORKS to continuously interact with our suppliers to best assess the feasibility of fabrication.”

AUTOMATING PREPARATION OF PRODUCT DOCUMENTATION

K-array discovered an additional integrated SOLIDWORKS solution that is helping the speaker manufacturer improve its development processes — SOLIDWORKS Composer technical communication software. The company has replaced the Adobe® products that it once used to create user manuals and product documentation with SOLIDWORKS Composer software because it provides a single, integrated solution for generating the graphics, exploded views, and design content required for these pieces directly from SOLIDWORKS design data.

“SOLIDWORKS Composer software helps us to accelerate preparation of user manuals and product documentation because it’s fully integrated with SOLIDWORKS design software,” Pieri notes. “This lets us create documentation illustrations directly from the SOLIDWORKS models with no additional steps required.”



With SOLIDWORKS Simulation Premium software, K-array engineers conduct stress and deflection analyses during product design, which enables the company’s engineers to resolve potential performance issues prior to fabrication.

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