



The Client

Company: Karl W. Schmidt & Associates, Inc.
Headquarters: Commerce City, Colorado, USA
Industry: Recycling Machinery and Equipment

The Objective

Accelerate the transition from design to manufacturing – including nesting, production planning, and machining – to speed up the manufacture and delivery of customized recycling systems and equipment, while simultaneously reducing design and production costs and compressing the engineering effort required.

The Solution

Add NESTINGWorks 3D nesting software and CAMWorks 3D CNC software solutions to its integrated SOLIDWORKS design and production environment.

The Benefits

- Shortened conveyor production time from two weeks to three days.
- Cut scrap volume by 30 to 40 percent.
- Reduced pricing substantially.

A CAMWorks Case Study

Accelerating Design and Manufacturing of Recycling Systems with NESTINGWorks and CAMWorks

Karl W. Schmidt & Associates, Inc., is a global leader in the design, engineering, and manufacture of custom recycling systems. Through its focus on innovation, the company has grown steadily and now serves clients in more than 35 countries. In addition to supplying state-of-the-art recycling systems and equipment, Karl Schmidt Associates helps its customers operate more efficiently by providing strategic insights on recycling trends and technologies.

The recycling firm's commitment to innovation extends to its use of advanced design and manufacturing technologies. Karl Schmidt Associates relies on the SOLIDWORKS® 3D mechanical design platform – including integrated analysis, product data management, and SOLIDWORKS Conceptual Designer software, and best-in-class partner solutions NESTINGWorks® and CAMWorks® software – to support system development and production.

When Karl Schmidt Associates migrated from AutoCAD® 2D tools to the SOLIDWORKS 3D design environment, the switch also created opportunities for revamping the company's transition from design to manufacturing, according to Vice President Mike Buchli. "The move to the SOLIDWORKS platform allowed us to gain greater control over our production operation – much of which had been previously outsourced – and pursue new avenues for improving the quality of our systems while controlling costs," Buchli explains. "The machining partners in our area generally can only handle tolerances down to 1/16 of an inch, when we need to utilize tolerances down to 1/32 of an inch or lower. As soon as one of our parts didn't come out right, we decided to implement our own design, machining, and manufacturing capabilities."

Karl Schmidt Associates acquired a Trumpf Model 2503 laser cutter and a CNC press brake as part of its initiative to move production in-house. The recycling system manufacturer then needed both integrated nesting and machining solutions to further automate its transition from design to manufacturing, as well as to streamline machining operations. The company evaluated available nesting and CAM solutions before choosing Geometric's NESTINGWorks 3D nesting software to prepare designs for machining, and CAMWorks 3D CNC machining software to automate manufacturing.

"We looked at several packages – including Striker® and SigmundNest® – before choosing the combination of NESTINGWorks and CAMWorks software," Buchli recalls. "In addition to enabling us to become more accurate and efficient in taking parts from design to production, as well as utilize tighter tolerances to boost quality, the combination of NESTINGWorks and CAMWorks software provided the tightest integration with the SOLIDWORKS design

platform of any of the solutions that we evaluated. In short, NESTINGWorks and CAMWorks software provided the most value, offering the widest range of integrated solutions for the price.

"Many organizations treat nesting and CNC programming as afterthoughts," Buchli continues. "At Karl Schmidt Associates, we have a whole group of people who know how to use SOLIDWORKS, so it just makes sense to utilize an integrated nesting solution to prepare parts for manufacturing, and an integrated machining application, to take advantage of that knowledge. NESTINGWorks helps us on the design side by enabling us to optimize designs for sheet-stock usage, and explore what-if scenarios, in addition to providing an integrated front-end for using CAMWorks software to drive our CNC laser cutter and press brake."

"Because NESTINGWorks, CAMWorks, and SOLIDWORKS software are part of a seamless, integrated development environment, we can consistently do more with less and elevate our level of accuracy and quality, which helps make us more competitive and successful," Buchli adds.

Fast, More Accurate Nesting Leads to Better Production Results

Since implementing NESTINGWorks nesting software to prepare designs for production and CAMWorks 3D CNC machining to automate its machine shop, Karl Schmidt Associates has shortened production time while improving quality and boosting innovation at the same time. For instance, it used to take eight people to complete the laser cutting of one sheet-metal layout in a day. Now, with NESTINGWorks and CAMWorks software, two people can nest the parts to be cut and process 25 to 35 sheets of steel in a single day.

"By automating our nesting and machining operations with NESTINGWorks and CAMWorks software, we're realizing dramatic productivity gains in design and manufacturing, reducing the resources necessary for handling various tasks," Buchli stresses. "Our quality is also up – particularly with our snap-fits, because we're routinely machining tolerances of 1/32 of an inch, and in many cases, 1/64 of an inch. It used to require eight people and two weeks to prepare, cut, and form metal parts for a simple conveyor. Today, we can complete the same job – nesting, machining, and forming – with two people in three days."

Maximizing Material Usage Through Nesting

By leveraging NESTINGWorks software as a design tool to automate the configuration of sheet-metal nesting layouts in 3D, Karl Schmidt Associates is cutting its material costs and reducing the volume of scrap generated by 30 to 40 percent, in addition to making the transition from design to manufacturing more accurate and efficient. Because NESTINGWorks software automates the arrangement of parts to be cut from a sheet metal layout to utilize as much of the material as possible, the solution enables Karl Schmidt Associates to maximize the number and type of parts cut from each sheet of metal, thereby reducing material costs.

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"The addition of NESTINGWorks and CAMWorks software has helped us automate our operations to the point at which we're maximizing efficiency, productivity, and material usage," Buchli notes. "At the same time, these solutions provide much greater flexibility and agility. For example, we can now model something in SOLIDWORKS, nest the parts to be cut in NESTINGWorks, generate the tool paths in CAMWorks, and machine the parts on our laser cutter – all in one day."

Integration, Automation Boosts Competitiveness

The decision by Karl Schmidt Associates to add NESTINGWorks and CAMWorks software solutions to its integrated SOLIDWORKS development environment has helped the recycling equipment manufacturer realize the increased automation, productivity gains, cost reductions, and quality improvements that it needs to boost its competitive position and succeed in its market. The level of automation that Karl Schmidt Associates has achieved has allowed the company to cut its prices, some to as low as prices offered five years ago.

"The combination of SOLIDWORKS design, NESTINGWorks nesting, and CAMWorks machining software provides us with a real competitive advantage because we can design, lay out, and cut higher quality parts on our laser cutter in less time, while optimizing material usage," Buchli says. "Because NESTINGWorks and CAMWORKS are integrated inside SOLIDWORKS, the time and cost savings associated with the seamless process enable us to reduce our prices significantly, which helps us win more business."



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For more details contact: inquiries@camworks.com
Visit our website: <http://www.camworks.com>

Contact us

US: +1.480.367.0132

Europe: +49.711.49.039.730

APAC: +91.22.67056880