Manufacturing Success Through Smart Technology Decisions

3D printing helps East/West Industries remain a top industry supplier.

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>
> Mike Vetter
> **East/West Senior Director of Product Development**

stratasys

Case Study

East/West Industries leverages additive manufacturing for multiple uses, helping increase production efficiency and reduce cost.

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Small manufacturers rarely get the credit they deserve. But without them, the larger companies you're more likely to recognize, like General Motors and Boeing, wouldn't exist. Their success is due in large part to the small and mid-size suppliers that support them with parts and subassemblies on time and on budget.

East/West Industries is one of those suppliers. It designs and manufactures products to save aircrew lives for top aerospace manufacturers like Boeing, Lockheed Martin, and Northrop Grumman. But as every manufacturer knows, success is never guaranteed. Staying competitive demands smart business decisions and a laser focus on customer satisfaction. And it's the strategy that's helped East/West garner multiple industry accolades, including Boeing's Supplier of the Year award.

Success Starts With the Right Technology Investment

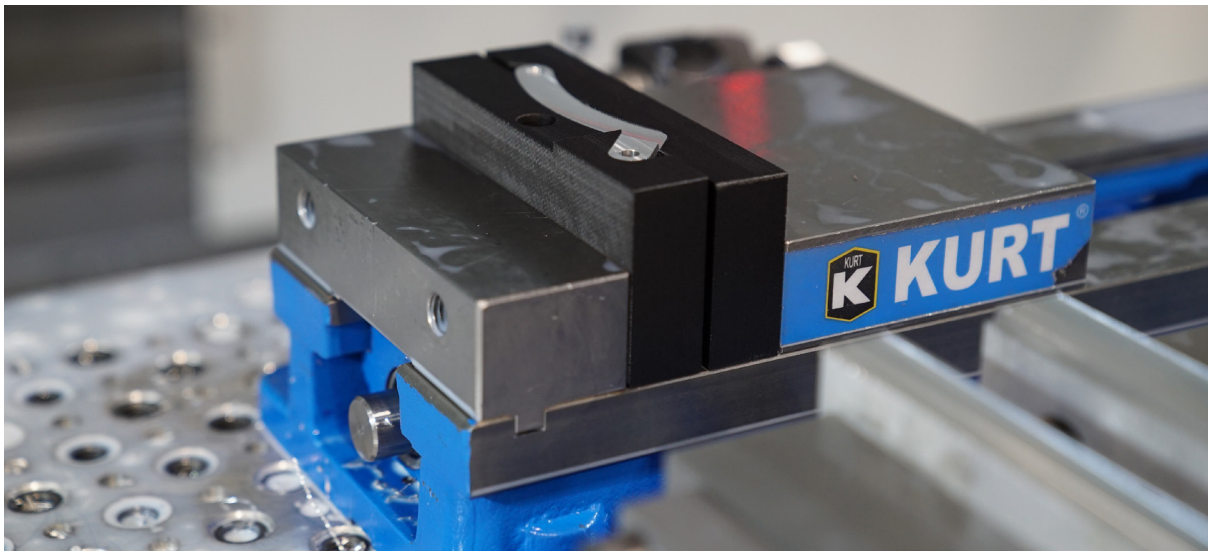
Like a lot of manufacturers, CNC machining is the backbone of East/West's production capabilities. But as the company grew and demand increased, the machine shop became a constraint. In addition to making customer parts, the workholding tools to support them increased the demand for machining resources. Design work and CNC programming for these tools added to the lead time and backlog.

Mike Vetter, East/West's Senior Director of Product Development, knew something had to change. Buying more CNC machines would help, but it wasn't a particularly alluring option. "CNC machines are space and capital intensive and combined with the challenges in finding experienced CNC operators, we were very constrained in our options for adding equipment."

East/West had previously introduced additive manufacturing into the production process and Vetter believed it might provide some help. But the requirements for a 3D printed workholding solution exceeded the existing 3D printer's capabilities. That's when East/West decided to invest in an industrial 3D printer instead of another CNC machine. The company bought a Stratasys Fortus 450mc™ that offered more capacity and broader material options, including carbon fiber FDM® Nylon 12CF. That investment has allowed East/West to 3D print workholding fixtures instead of machining them. On average it's reduced tool production time by two days, cut tool cost by 50% and increased overall product readiness by two weeks.

"The introduction of the Fortus 450mc allowed us to break the cycle of buying a new CNC machine and hiring another machinist, or increasing the queue of parts we need to manufacture, which affects delivery times," says Vetter. "Now we can conceptualize the machining process, print the tools we need and get the parts on the machine. It allows our CNC equipment to produce value-added parts as opposed to making tooling."

The printer's 24-7 work capacity is also a bonus, allowing Vetter's team to print workholding tools overnight and put them in operation the following day. "The printer is a huge time saver," says Vetter. "There's very little post-processing. A lot of times the parts come off the printer and we're ready to go. It's a huge benefit," he adds.



Soft jaws made from carbon fiber FDM Nylon 12CF alleviate the tooling load, allowing CNC machines to produce value-added parts.

The Additive Manufacturing Multi-Tool

Many manufacturers buy a 3D printer for one or two applications. But East/West takes a different approach, applying its Fortus 450mc for myriad uses. One example includes full-scale prototypes to help the machinists evaluate and plan the machining process. This avoids potential time-consuming errors later on. Similarly, engineers use 3D printed prototypes to check their designs. Examining a physical part highlights problem areas that might not be seen on the screen in CAD , avoiding downstream production delays. “Sometimes just holding a part in your hand allows you to realize that you can’t possibly machine the feature you want to put in there,” says Vetter.

When a sheet metal forming tool was damaged, engineers printed a replacement tool using carbon fiber FDM Nylon 12CF. Within two days they had a new tool that successfully handled the job. “One of the great things about having a versatile piece of equipment like the Fortus 450mc is there are always new things to try,” Vetter says. “We printed a full-size forming tool with Nylon 12CF and it worked fantastically the first time. It allowed us to save a significant amount of time that could have been a very large risk to the schedule,” Vetter adds.

Another application includes 3D printed surrogate parts. Some sub-assemblies East/West makes must fit with parts located off-site at the customer’s facility. Vetter’s team 3D prints stand-ins for those mating parts using customer-supplied CAD data. This ensures East/West’s parts fit perfectly with the customer’s assembly. “First-time quality is critical to our customers. Being able to inspect the parts to ensure they’re going to work 100% when they go out the door is a huge benefit for our customers and East/West,” says Vetter. It also shows customers how East/West invests in forward-leaning technology like additive manufacturing to meet their needs.

3D printed soft jaw tooling can be produced overnight, ready for use the next day.

And the applications don’t stop there. Vetter’s team taps the Fortus 450mc to solve other problems and be more efficient. Engineers design and print custom manufacturing aids to help employees with disabilities perform their work more comfortably and efficiently. Other uses include 3D printed concept models for customer design review. East/West even made a 3D printed model of its new building so the team could visualize the floorplan.

In the right hands, the Fortus 450mc is the 3D printing equivalent of a multi-tool – a single printer that offers multiple solutions for a variety of applications. Its versatility in the hands of forward-thinking manufacturers like East/West provides the means to solve problems that positively impact customers. Joe Spinosa, East/West’s Vice President of Business Development, sums it up: “There are lots of different ways to use additive manufacturing.” And by maximizing the utilization of its Fortus 450mc, East/West capitalizes on that investment.

USA - Headquarters
7665 Commerce Way
Eden Prairie, MN 55344, USA
+1 952 937 3000

EMEA
Airport Boulevard B 120
77836 Rheinmünster, Germany
+49 7229 7772 0

ISRAEL - Headquarters
1 Holtzman St., Science Park
PO Box 2496
Rehovot 76124, Israel
+972 74 745 4000

ASIA PACIFIC
7th Floor, C-BONS International Center
108 Wai Yip Street Kwun Tong Kowloon
Hong Kong, China
+ 852 3944 8888

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