



East/West Industries

Use Case – Metal Forming Die

Customer Profile

East/West Industries, Inc. is an aerospace designer and manufacturer focused on producing aircraft seats and products that save aircrew lives. Founded in 1968, this woman-owned business serves major aircraft OEMs such as Boeing, Lockheed, and Sikorsky and is the recipient of multiple quality and supplier awards.

Challenge

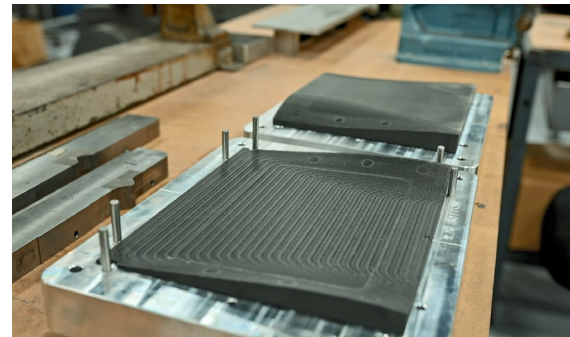
Part of East/West's production involves fabricating sheet metal components. One particular customer job required the use of a machined forming die. However, the die was found damaged just before the job was started. Because East/West's machine shop was already committed to production parts, a new tool would require outsourcing, jeopardizing East/West's ability to meet the customer's delivery timeline. Even if the machine shop had capacity, a newly manufactured die would require the purchase of tool steel and time to machine the die's complex shape, also putting the delivery schedule at risk.

Solution

East/West owns a Fortus 450mc™ 3D printer and uses it to make concept models, workholding tools, and assembly fixtures. It can print with FDM® Nylon 12CF carbon fiber material, a composite polymer with sufficient strength and rigidity to use in place of metal for specific applications. Instead of machining a replacement die that risked extending the production schedule, East/West engineers decided to print the full-size forming die with the Fortus 450mc using FDM Nylon 12CF material.

Impact

The 3D printed die worked flawlessly, providing the rigidity and toughness needed to complete the job. The die's complex shape was also not a factor because 3D printing is free from the typical manufacturability constraints of machining. Outsourcing a new die would have taken about eight weeks, but East/West printed and deployed the die in less than a week, an 87% lead time reduction. In addition, cost savings amounted to \$4000, an 80% decrease over the cost of an outsourced tool.



The FDM Nylon 12CF 3D printed die halves (black material) are shown in the backing plates.



A sheet metal part is about to be formed with the 3D printed dies.

