



# 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

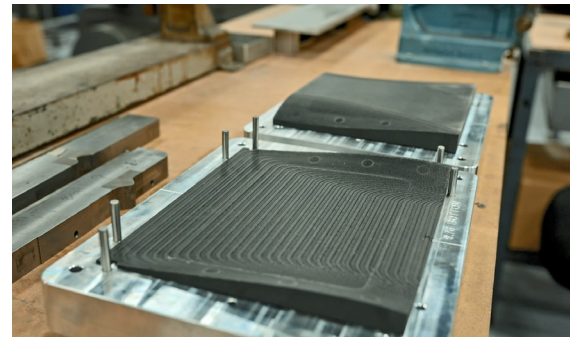
Part of East/West's production involves fabricating sheet metal components. One particular customer job required the use of a machined forming die. However, the die was found damaged just before the job was started. Because East/West's machine shop was already committed to production parts, a new tool 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.

#### Time Savings



**87%**

1 wk vs. 8 wks

#### Cost Savings



**80%**

\$1000 vs. \$5000

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