

3D Printing Services



Partnered

Case Study

Replacement of Aluminum Grippers with Carbon Fiber 3D Printed Parts

A customer wanted to replace aluminum grippers with carbon fiber 3D printed parts. We worked with the engineer to make straightforward design changes to the drawing. The first design did not allow for the continuous carbon fiber strands to loop around the base (Image 1, left gripper). The redesigned part allows for the proper usage of continuous carbon fiber strands (Image 1, right gripper). The original part flexed where arms meet the body (Image 2).

The redesign was a success. We printed the grippers on our **Markforged Mark X**. Great machine! The base material is Onyx, a chopped carbon fiber nylon which we fully loaded with layers of carbon fiber continuous strands. When the customer received the redesigned parts and tested them he stated, *"Realistically there is no noticeable difference in strength between the 3D printed part and a comparable aluminum gripper."*

The original part which we replaced was made of 6061 aluminum at a cost of \$350 each, with a 2-week rush lead time. We replaced the aluminum grippers with fully loaded carbon fiber printed parts the next day. We charged \$90 each for 8 total parts.

Total cost for aluminum parts	\$2800
Total cost for Markforged parts	<u>\$720</u>
Total savings	\$2080

**Markforged carbon fiber reinforced parts have amazing strength.
Built for industrial applications. It can be replaced! "Think Big, Act Fast"**

Rapid Prototypes, Jigs-Fixtures, EOAT, Custom Soft Jaws, End Use Parts



Adaptivecorp.com 440-257-7460



Re3dTech.com

Case Study

Image 1

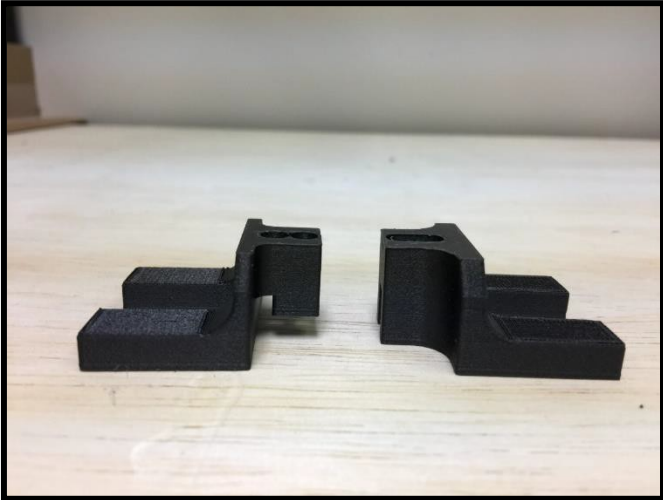
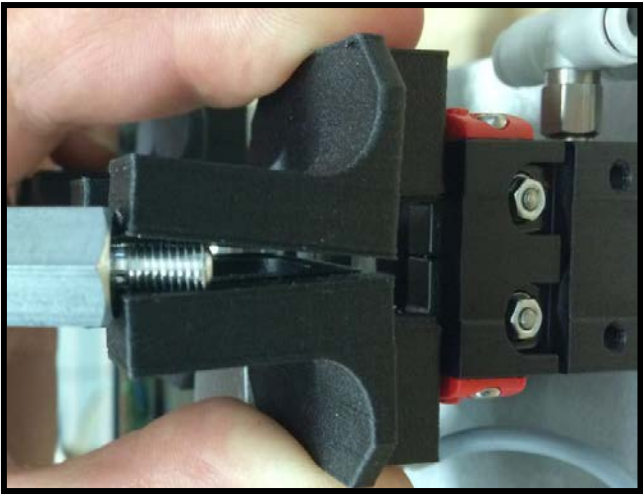


Image 2



“Carbon Fiber Strong”

Rapid Prototypes, Jigs-Fixtures, EOAT, Custom Soft Jaws, End Use Parts



Adaptivecorp.com 440-257-7460



Re3dTech.com
