CHEMTRON
INSPIRED BY INNOVATION

Markforged

APPLICATION SPOTLIGHT

Prototypes

	Time	Cost
Traditional	18 days	$1200
Markforged	36 hrs	$125
Savings	**92%**	**86%**

Brooks

Brooks is a leading worldwide provider of automation and cryogenic solutions for semiconductor manufacturing and life sciences.

Challenge

High-precision robotic systems needing precise optimization were being held up by a long fabrication cycle.

Solution

3D printed functional prototypes allow engineers to test parts before implementing costly fabrication methods.

Results

Brooks' prototyping iteration cycles dropped from weeks to days.

Functional, High Strength Prototypes

Brooks (NASDAQ: BRKS) manufactures automation equipment that handles high precision, fragile products like semiconductor wafers. To handle these parts, each machine system is precision designed — so much so that some parts could go through a couple of iterations before being finalized. With conventional manufacturing methods, each iteration stretches the development timeline by several weeks. In an effort to shorten its development cycle, Brooks added high-strength 3D printing to its workflow.

By utilizing continuous carbon fiber 3D printing, Brooks drastically shortened its prototyping process. While their previous 3D printer couldn't print prototypes robust enough to be functional, Brooks mechanical engineer Jeff Cavins says that Markforged printers allow engineers to "print thin enough and stiff enough to prototype the type of parts we're looking for." The fact that the prototypes are functional adds massive value — now Cavins is able to "take prototype parts into a meeting and show what the finished parts may look like." Brooks now develops and ships systems faster with high strength 3D printers.

+ Near Metal Properties

Parts printed with continuous fiber effectively mimic metallic properties, allowing Brooks to functionally test prototypes.

+ Accurate Parts

Parts printed on Markforged printers are extremely accurate, enabling them to interface with prototype assembles.

+ Lead Times Erased

Brooks 3D prints parts with a 1-2 day lead time, cutting out the weeks-long cycle of working with external fabrication shops.