



APPLICATION SPOTLIGHT

End Effectors



	Time	Cost
Traditional	7 days	\$500
Markforged	21 hrs	\$17
Savings	88%	97%

pro cobots

www.procobots.com

ProCobots simplifies robotic machine tending by providing turnkey CNC automation systems for the shop floor.

Challenge

A traditional robotic production line requires multiple expensive robot cells, because each can only perform one task.

Solution

Strong, lightweight custom end effectors made by Markforged 3D printers add customization to a standardized platform.

Results

ProCobots streamlines its customers' manufacturing workflows by minimizing overhead and maximizing effectiveness.

Custom Robotic End Effectors

ProCobots recognized the need for a streamlined solution to integration of robotics in lean manufacturing. A traditional robot cell performs one specialized function, so factories spend months integrating multiple expensive, monolithic cells to serve an entire production line. ProCobots produces a standardized machine tending cell utilizing an EasyRobotics Pro Feeder and Universal-Robots UR10 collaborative robot. It can be adapted to serve multiple functions by simply swapping out 3D printed end effectors, and reprogramming on a single graphical user interface within minutes.

Job shops cannot predict what end effectors they will need each week to build unique products. 3D printing enables overnight production of custom workholding without outsourcing parts or consuming machinist time. Markforged Onyx is the only 3D printed material with sufficiently high strength-to-weight ratio and tight tolerances, and continuous fiber reinforcement elevates it further. CEO Brian Knopp loves how the combination of cost-efficiency, functional quality, and lean customization provides clear value. He says, "We're printing the end effectors in our hotel room during an installation. This blows the customers out of the water."

+ Cost-Effective Customization

Manufacturers can 3D print the exact components they need to achieve full production functionality, instead of purchasing entire specialty machines.

+ Accurate Pick-and-Place

Continuous fiber reinforcement adds stiffness to custom workholding geometries, enhancing effectiveness during pick-and-place operations.

+ Materials for the Real World

Onyx composite material offers the strength of 6061-T6 aluminum at half the weight, outperforming typical 3D printing materials like ABS and PLA.