



Christopher Tool

Use Case – Custom Laser-Marking Fixtures

Customer Profile

A family-owned business since 1951, Christopher Tool and Mfg. Co. provides quality machined parts on time with zero defects. Areas of concentration include aerospace, oil and gas, robotics, fluid power, and diesel engine components, with job sizes ranging from prototypes to medium-range production runs. A core goal of the company is continually improving its manufacturing expertise to support customer needs.

Challenge

Christopher Tool uses a laser process to mark the parts it manufactures. Although the procedure takes only seconds, each piece must be fixtured so it is immovable while it's marked. However, the wide variety of parts the company makes calls for different setups to accommodate different shapes. Setup is usually achieved using vices, blocks, or magnets, which consumes a lot of time, and similar parts must be marked in the same location. Without a repeatable process, marks can be mislocated, distorted, or missing altogether, negatively impacting part quality.

Solution

With the acquisition of a 3D printer, Christopher Tool engineers now 3D print holding fixtures for each part, leveraging 3D printing's design freedom and fast creation of customized components. They use an F370® printer and make fixtures from ABS-M30 material, a general-use thermoplastic. In some cases, fixtures hold multiple parts and incorporate clamping provisions.

Impact

At a minimum, 3D printed custom fixtures reduced setup time by up to 97%, from 10-15 minutes to 30 seconds in some cases. For applications where machined fixtures were previously needed, 3D printed alternatives provide a better solution, reducing the time and labor to make them from days to hours. Dedicated fixtures also provide consistency in how the parts are marked, ensuring Christopher Tool meets its goal of zero-defect machined parts.



Increased



Output
Quality

Setup Time
Savings



97%

Lower



Cost vs.
Machined
Fixtures