

Production Tooling: Trim Fixture

Solving long lead time issues for manufacturing tooling.

Background

A vehicle exhaust tubing manufacturer requires custom tooling and fixturing for precision trimming of bent tubes in the production fabrication process.

The Challenge

Traditional tooling is machined from large blocks of billet aluminum. Using this approach results in a sub-optimal tool because material removal is typically minimized to reduce machining time and cost, requiring the operator to use a heavy overbuilt tool. Traditionally machined fixtures also come with a high cost and lead time due to outsourcing.

The Solution

SPEE3D's CSAM technology can 3D print the same aluminum fixtures used in the trimming process from design to deployment in less than 22 hours or 1 business day.

The Value

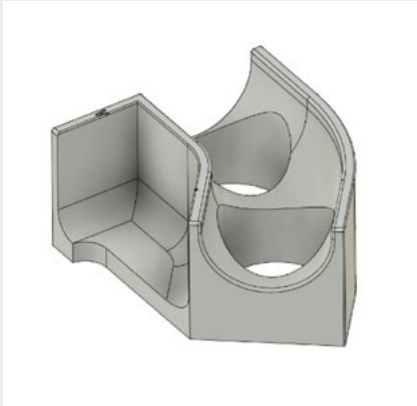
Gearing up production swiftly and efficiently is critical for any manufacturing organization, whether it's a product for a new model year or legacy components where the tooling no longer exists. Often the cost of the tooling is not the issue, it's the time it takes to produce and get them on to the factory floor. With CSAM technology customers can reduce the lead time for critical tooling from weeks to less than a day and simultaneously leverage the CSAM process to produce a tool that is 40% lighter, more ergonomic, and easier for an operator to handle over a long shift making hundreds of parts per day.

Benefits

Minimizing downtime; keeping operations moving without waiting for parts to be delivered

Production Method	Production Time	Cost	Weight
Outsourced Manufacturing (Machining)	6-8 weeks	\$6,000	14kg
SPEE3D CSAM	21.5 hours	\$4,000	8kg

Design to deployment in 21.5 hours



Print: 7.5 hours

Aluminum 6061, 8kgs of material



Cook: 12 hours

Heat treated in a standard air furnace



Cut: 2 hours

Critical surfaces machined on CNC



About The Equipment

The highlighted fixture is used in a precision tube cutting machine. After the bending operations for the tube have been performed, it must be cut to an exact dimension prior to welding. To achieve this precise cut, a fixture is used to accurately position the bent untrimmed tube. Due to the high mix of unique bend geometries that are processed in this facility and cut on this machine, a custom fixture must be fabricated for each unique part geometry.

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