

“Stratasys Direct Manufacturing can produce a hybrid check fixture in just two weeks, while the aluminum fixture takes six weeks or more to manufacture.”

Stephen Mollett / TS Tech

CASE STUDY

Innovation Takes a Front Seat at TS Tech

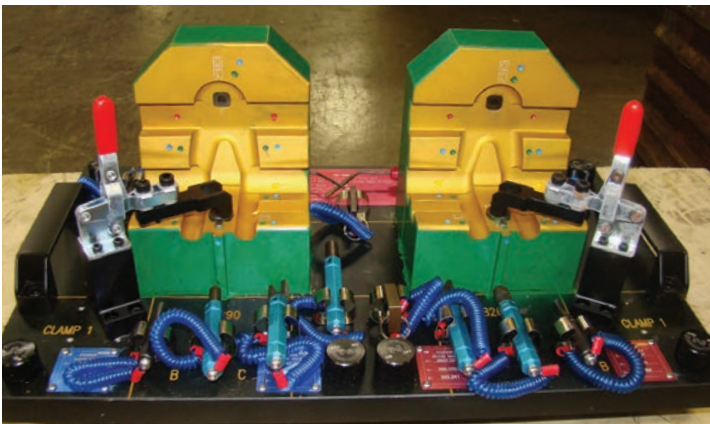
TS Tech Co., Ltd, the world's sixth-largest interior component manufacturer with assembly plants in 13 countries across the globe and \$3.6 billion in sales, is the number one seat supplier for an international automotive company. This tier one supplier has expanded its partnership role to include support of global design and manufacturing of the auto company's seating systems worldwide, so they understand the competitive market and the importance of innovation to maximize their allotted time in the supply chain.

Engineers at TS Tech are constantly evolving and perfecting the tools they use to validate parts. Stephen Mollett, a tooling engineer that oversees the fixtures and tools used to inspect seat frames, was interested in improving the solid aluminum check fixture used to inspect a back seat hinge. And because of his previous working knowledge of 3D printing applications, he understood the potential benefits.

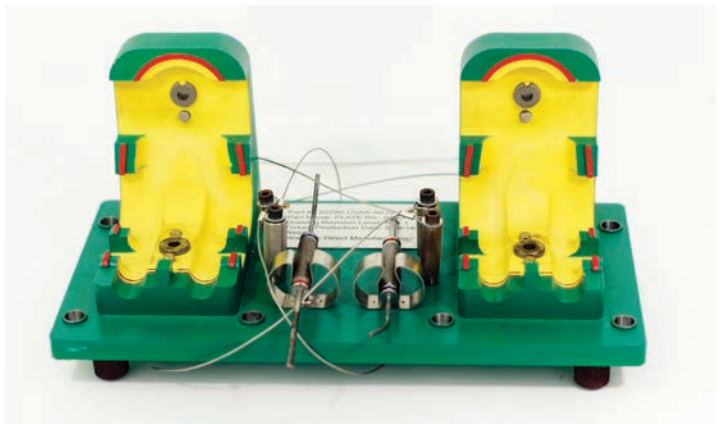
TS Tech utilizes an in-house Fused Deposition Modeling 3D printer to create components for their customers. This machine can have “an unbelievable waiting list” for part production during new model development activities and is essentially working 24/7. A great deal was riding on the success of this fixture, so turning to Stratasys Direct Manufacturing™ for its fleet of 3D printers and decades of 3D printing expertise made sense. Stratasys Direct Manufacturing quickly went to work to optimize and produce a 3D printed check fixture that weighs less, costs less and saves time.

DRAMATICALLY CUTTING WEIGHT

Associates at TS Tech’s metal stamping plant, as well as their suppliers, use check fixtures early in the production process to inspect seating frames and other componentry for the car seat systems. Using the check fixture, workers can visually, aesthetically and mechanically validate hole placement and depth, part width, dimension and form. Associates use the fixture to check a statistical sampling of parts at the inspection station next to the stamping press. The fixture itself is designed to check around 42,000 parts in its life.



Original solid aluminium check fixture from stamping facility



Most recent iteration with clamp-on assemblies

The check fixtures are typically heavy and stored on shelves in the stamping facility, and employees often carry them by hand or with small cart across the facility to the press for parts inspection. This walk could be a long trip for an employee carrying a 40-pound tool.

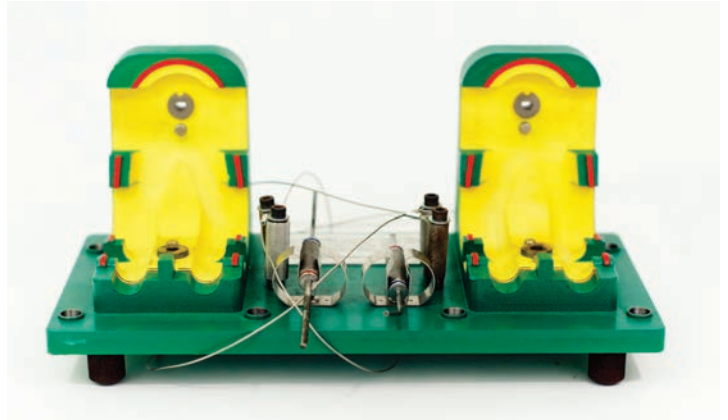
Over the course of TS Tech’s two-year development cycle, Mollett worked with Stratasys Direct Manufacturing to methodically address new measurement functions and additional refinements with multiple generations of fixture designs. Without TS Tech’s partnership with Stratasys Direct Manufacturing, they would have never been able to refine so many iterations of the 3D printed check fixture with such ease.

The most recent check fixture iteration is a 3D printed check fixture with clamp-on assemblies. Even with its smaller profile, it ensures better alignment, with greater accuracy, for use across the assembly plant. And most importantly, it weighs just 4 pounds – that’s only one-tenth the weight of the aluminum fixture previously used. This significant reduction in weight is a great benefit to each one of TS Tech’s associates.

“With this 3D printed check fixture being so much lighter, it’s far easier for the associate to lift it and carry it to the main station without the risk of hurting themselves trying to lift a 40-pound fixture,” Mollett said. “It saves more time than you would think; especially with the size of these facilities.”



Early iteration of the check fixture



The hybrid check fixture of metal and ABS-M30 was delivered in 2 weeks

KEEPING PACE WITH DESIGN, WHILE SAVING MONEY

“Stratasys Direct Manufacturing can produce a hybrid check fixture of roughly half metal and half ABS-M30™ thermoplastic in just two weeks, while the aluminum fixture takes six weeks or more to manufacture,” Mollett said. This rapid turnaround time means TS Tech can keep pace with the design changes of their seating systems. The fixture that validates a part can be developed in tandem with the part itself.

“So we actually have the true, production-finished fixture to inspect parts with, therefore we no longer have to make a prototype fixture,” Mollett said. “In the past, we had to build quick, cheap plastic prototype fixtures in the CNC method from polyurethane to check parts until the real fixture was ready, and then we threw that prototype fixture away at a cost loss.”

It also costs significantly less to build the new assembly line check fixture. In total, the Stratasys Direct Manufacturing 3D printed check fixture is only 69% of the cost of the old aluminum check fixture. That results in a 31% direct cost savings along with a noteworthy cost avoidance with the elimination of the prototype fixture.

Mollett said he was impressed with the performance of the Stratasys Direct Manufacturing team, who met every deadline and delivery time. The project has increased the priority of using 3D printing applications to address other tooling needs.

“It’s opened the floodgates for 3D printed jigs and fixtures at TS Tech,” Mollett said.

stratasys

DIRECT MANUFACTURING

E info@stratasysdirect.com / STRATASYSDIRECT.COM

AS9100 & ISO 9001 Certified

© 2017 Stratasys Direct, Inc. All rights reserved. Stratasys Direct Manufacturing, Stratasys Direct Manufacturing logo, Fused Deposition Modeling are trademarks or registered trademarks of either Stratasys or Stratasys Direct, Inc. and/or its subsidiaries or affiliates and may be registered in certain jurisdictions. All other trademarks belong to their respective owners.