

# Omega Tool Corp

## Use Case – Paint Fixture

### Customer Profile

Founded in 1981, Omega Tool Corp is a global leader specializing in designing and manufacturing large, complex injection molds. In addition to mold making, the company excels in engineering, production, painting, and additive manufacturing, delivering comprehensive solutions to OEMs across the mobility, aerospace, and consumer sectors.

### Challenge

To improve paint line efficiency and reduce tooling inventory, Omega Corp sought a modular fixture to hold parts during painting operations. Modular fixtures are adaptable to multiple parts and assemblies, reducing the tooling inventory. Omega's design requirements included holding a 30-pound part and high-temperature capability to withstand the painting environment. Although the fixtures could be made from machined metal components, this approach is costly, time-consuming, and increases tool weight.

### Solution

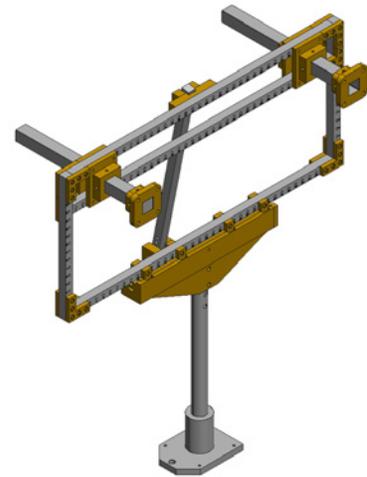
As an alternative to a conventional all-metal fixture, Omega incorporated 3D printed elements made from ULTEM™ 9085 resin material printed on a Stratasys F3300® production system. The 3D printed components replace some of the metal pieces while also providing adjustability for the fixture to hold different parts. ULTEM™ material can withstand high temperatures (HDT of 353 °F/178 °C @66 psi) and is resistant to various chemicals, making it compatible with the paint environment. The F3300 incorporates next-generation FDM® technology and can print at up to 3X the speed of legacy extrusion printers.

### Impact

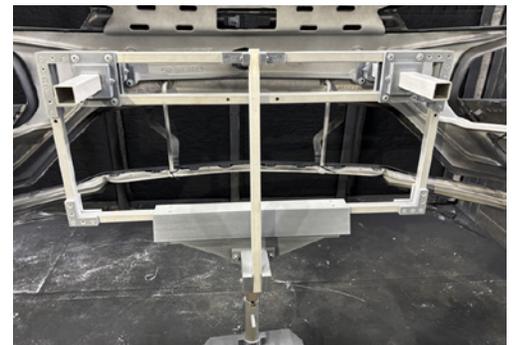
Using the 3D printed components allowed Omega to develop a more effective modular paint fixture compared to an all-metal tool and achieved the following design objectives:

- Modular, reconfigurable fixture
- Successfully supported a 30 lb. part through all phases of paint operation
- Maintained mechanical integrity of ULTEM™ parts with no deformation under heat and load
- Fast, repeatable fixture adjustment
- Fixture reusability demonstrated by successful operation through the full paint cycle

Additionally, incorporating 3D printed components reduces overall fixture weight compared to all-metal tools, and the modularity reduces the inventory of required paint fixtures. At a higher level, the F3300's speed and user-friendly operation give Omega Corp the simplicity and pace vital for fast production of additive solutions across departments.



The yellow parts on this CAD render of the modular paint fixture show the parts printed with ULTEM™ 9085 resin.



This view shows the modular paint fixture with 3D printed elements holding a vehicle part mounted on the far side.

### Time Savings



### Faster Configuration Adjustment

(vs. standard fixtures)

### Weight Reduction



### Lighter Fixture Weight