



# VirTex Reduces Custom Fixture Costs By 99% With Essentium High Speed Extrusion

## ELECTRONICS MANUFACTURING SERVICE PROVIDER USES ESSENTIUM MACHINES AND MATERIALS TO CUT COST AND ACCELERATE LEAD TIME FOR CUSTOMERS

### EXECUTIVE SUMMARY

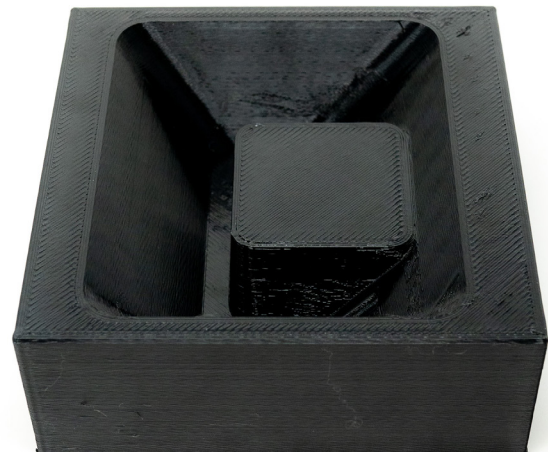
Using the Essentium High Speed Extrusion (HSE™) 180•ST 3D Printer and Essentium PCTG-Z, VirTex reduced the cost and lead time for custom fixtures, allowing them to successfully scale up a customer's production. Some of the results that VirTex was able to achieve for its customer include:

- 99% cost reduction for custom fixtures
- 85% lead-time reduction for custom fixtures
- Successful increase in fixturing capability to support a 1000% scale-up for customer production

### SITUATION OVERVIEW

VirTex is a trusted Electronic Manufacturing Services (EMS) provider headquartered in Austin, Texas. With decades of experience as an EMS provider, VirTex has helped its customers become more competitive by bringing products to the market faster and at lower costs than the competition.

One of these established customers requested a system build that required circuit boards and electronics to be placed and fastened into plastic enclosures. With this product order, the customer provided a set of machined fixtures to help complete the assembly. At the time, the customer needed 300 units per quarter. However, after the success of the product's initial sales, the customer needed to scale up to 3,000 units per month.



### THE CHALLENGE

To keep up with the increase in assemblies, VirTex needed another set of fixtures and a long-term solution to accommodate changes in throughput. VirTex considered ordering additional machined parts but faced the high cost and lengthy turnaround times that manufacturers are commonly met with when creating custom fixtures.

The fixtures used in this system build were made of a complex combination of materials and required expedited shipping. With these considerations, it would have cost \$5,000 to machine a new set of fixtures, and the lead time would have been 14 days, further delaying a customer that was trying to scale quickly. To help its customer succeed, VirTex turned to additive manufacturing.

## THE SOLUTION

“The flexibility of additive manufacturing was one of the biggest benefits for us,” explained Ian Deneffe, manufacturing engineer at VirTex. “The fact that we could reverse engineer existing fixtures, print them quickly, and rapidly modify them or replace them made it an ideal solution.”

VirTex needed a 3D printing solution that could deliver the speed and agility to meet customer demand and the build volume to accommodate 18” x 6” parts. With print speeds of up to 500 mm/s and a build volume that fits 85% of the world’s jigs and fixtures, the Essentium HSE 180 3D Printer was the ideal solution. **Using the HSE 180 3D Printer, the set of fixtures VirTex needed were printed in under two days, reducing the lead time by almost two weeks.**

To create custom fixtures that could perform as well as the machined counterparts, VirTex required a material that would produce low-cost fixtures that were non-marring and featured adequate impact strength. Though the HSE 180-ST 3D Printer allows manufacturers to utilize an open ecosystem of materials, Essentium PCTG-Z, one of the industry-leading ESD-safe filaments in Essentium’s portfolio of materials, proved to be the best fit for this application. **Essentium PCTG-Z met the requirements that VirTex needed and produced fixtures that cost \$30, a \$4,970 reduction from the quote for the machined parts.**

## BUSINESS OUTCOMES

At the end of the project, **VirTex was able to reduce the cost of the custom fixtures by 99% and the lead time by 84%. This reduction in cost and time increased its fixturing capability to support a 1000% scale-up for customer production.**

These short-term cost and time savings were transformative for this application, but the real value is in the agility that Essentium solutions provide. Going forward, VirTex can easily tweak the design to accommodate design changes and print additional fixtures for rapid replacements or production ramps.

**“Since we started this project, we have had access to a team of Essentium experts who were willing to sit down and offer assistance and advice,” explained Deneffe. “They have been so helpful throughout our development process and have made sure we had everything we needed to help our customers succeed.”**

---

*Essentium, Inc. provides industrial 3D printing solutions that are disrupting traditional manufacturing processes by bringing product strength and production speed together, at scale, with an open ecosystem and material set. Essentium manufactures and delivers innovative industrial 3D printers and materials enabling the world’s top manufacturers to bridge the gap between 3D printing and machining and embrace the future of additive manufacturing.*