



Ergonomics: A Study in Cost Savings

The Human Value to Great Design

Liberty Electronics, a contract manufacturing shop producing high-end assemblies for the military and aerospace industries in Pennsylvania, began **3D printing jigs and fixtures to save time and cost in custom tooling**. They ended up saving something even more valuable – workers' health and livelihoods.

The value of an ergonomically designed tool is obvious: more efficient production comes from better design, light-weighting and the ability to quickly design custom fixtures. But according to George Allman, manufacturing engineering supervisor at Liberty, efficiency includes not only time to part but also **employee retention**.

A **one-off custom tool had been 3D printed** for an employee enabling her to continue in her job, despite a painful medical condition. The success of this custom tool got Liberty thinking about the true value of ergonomically designed and 3D printed tools.

“We want to retain our employees,” says Allman. **“We want to make accommodations to enable people to work safely and continuously.”**

The company purchased its first 3D printer back in 2013, a Stratasys uPrint SE™, quickly justifying the purchase of a Fortus 380mc™ and an Objet30 Prime™. “Costs don't end with the price of the injury itself,” says Allman, “it's the underlying costs of lost productivity, lost time and overtime.” For Liberty, **the initial investment in 3D printing was quickly offset by the savings in increased productivity and employee retention, as well as eliminating outsourcing.**



COST/SAVINGS EXAMPLES OF 3D PRINTING AT LIBERTY

~65%

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Reduction in process
time per task

300%

—
Increase in productivity

~85%

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Cost savings of 3D
printed custom part
vs. outsourcing

