

Case Study



West Coast Industries Saves Time, Money and Improves Aerospace Tooling Part Performance



West Coast Industries, an innovative aircraft and aerospace tooling manufacturing company of over 20 years, needed to find a more durable and cost-effective solution to produce a complex handle for their high-precision drilling machine used on aircraft structures.

The ergonomic pneumatic handles were 3D printed by GoProto (now UPTIVE) using HP Multi Jet Fusion Technology and post-processed with GoProto's vapor smoothing technology PostPro3D by AMT.

The use of PostPro3D set a new record of performance for West Coast Industries and for technology like MJF which already outputs some of the best-performing parts in the industry.

The Challenge

The portable tool West Coast Industries was using has a 2.5 HP air motor on it and the compressed air moved through the metal handle, but due to the temperature, the metal was a challenge for the operator.

Additionally, due to the material and shape of the handle, and being frequently dropped, they were expensive to replace. There was a significant amount of downtime and delays each time a handle was broken, so West Coast Industries began looking for a solution to replace the materials and design of the handle to meet the following criteria:

- Ability to achieve complex external shape
- Ability to have complex internal geometries
- Low thermal conductivity
- Durability passing their destructive tests

The Solution

GoProto printed a pneumatic handle to go onto their machine using glass-filled nylon material with HP's MJF 4200 technology.

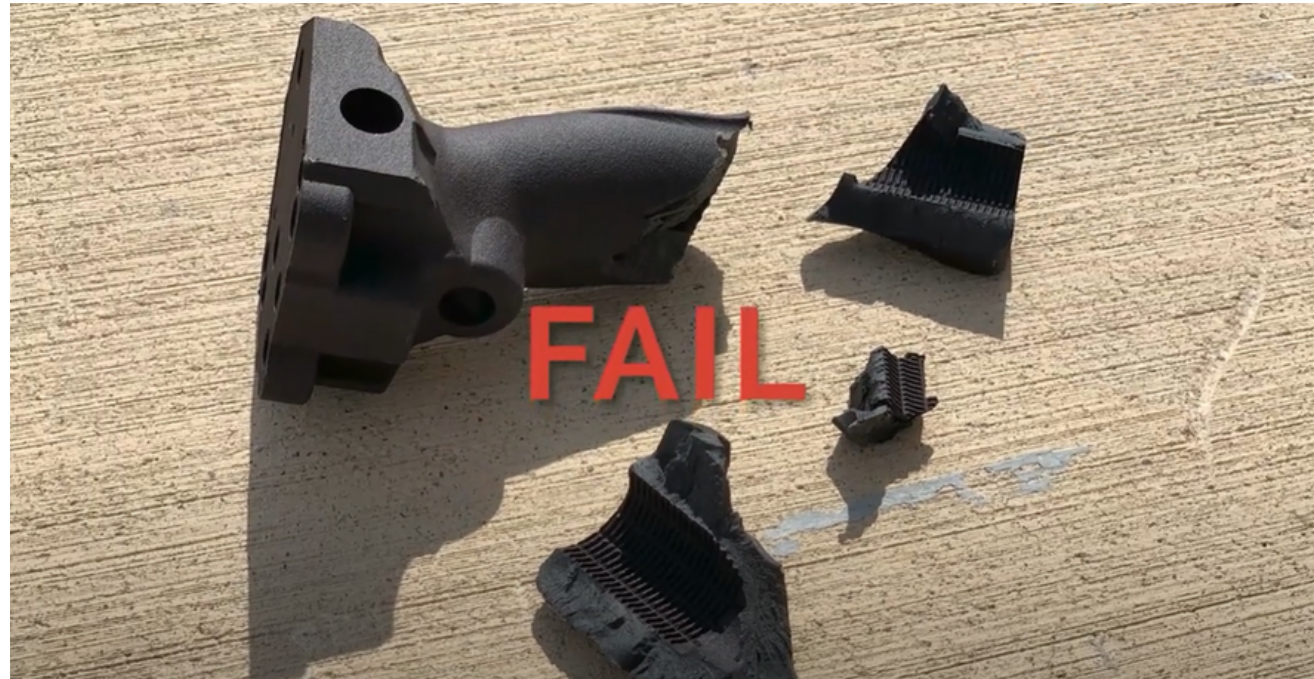
This resolved the temperature issue, however, the raw part (left part in photo) still did not meet the impact strength requirements, so GoProto then post-processed the handle using AMT's PostPro3D technology (right part in photo), and the parts passed the impact strength test.

MJF yields parts that are tougher than most additive processes, while PostPro3D surface finishing technology increases the durability of thermoplastic parts without increasing the weight.

Other unintended value-added benefits also included the improved aesthetics of the parts, the ease of cleaning, and reduced costs of maintaining spare parts.



The Results



Unprocessed part after impact test



Processed part after impact test

Through a series of impact tests, AMT demonstrates the increased durability of parts treated with PostPro3D over 3D printed raw parts.

Overall, the results were exactly the solution West Coast Industries were looking for: *durable, airtight, watertight, functional*, end-use parts that are produced sustainably and repeatably, therefore reducing overall costs, and enabling their ability to scale production.

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