

PPI-Time Zero Prints High Value Reusable Packaging with ProJet® MJP 2500

3D Systems VisiJet® ProFlex (M2G-DUR) material delivers protective, watertight motor cover for time savings and safe shipping

Contract manufacturer PPI-Time Zero promises its customers performance, precision and integrity. As part of its process to deliver reliable, high quality components and products to military, aerospace, medical, controls and instrumentation markets, PPI-Time Zero does a lot of prototyping. According to Germ Ordnorff, Senior Advanced Engineering Manager at PPI, prototyping plays an important role in confirming client expectations and streamlining communication among internal departments.

To drive its prototyping workflow, PPI-Time Zero uses a 3D Systems ProJet® MJP 2500 Plus that also serves a number of additional applications, including jigs, fixtures, and mold modeling, among others. Beyond these routine tasks, PPI-Time Zero has found a novel 3D printing application that saves the company an average of 40-50 hours per week using the engineering-grade VisiJet® ProFlex (M2G-DUR) material.

A need to protect high value motors

At PPI-Time Zero, a project is not complete until the order arrives safely in the hands of its customers. For the contract in question, PPI-Time Zero is responsible for manufacturing costly motors that must be shipped to a client in the defense, aerospace and security industry for final installation. According to Ordnorff, these motors posed a two-fold challenge. The first was in finding an efficient way to protect the motor and gears from debris and fluids in the cleaning process; the second was in protecting them throughout shipping. Ordnorff says that although incidents in transport were infrequent, the high cost of each motor and the quality standards of PPI warranted a solution that would preclude any mishaps. The solution to each challenge came from a single source with the introduction of VisiJet ProFlex to PPI-Time Zero's material portfolio.



A sealable, watertight 3D printed cover ensures costly motors are not damaged during shipping or cleaning.

CHALLENGE:

Protect expensive aerospace motors throughout cleaning and shipping to deliver reliable quality to clients.

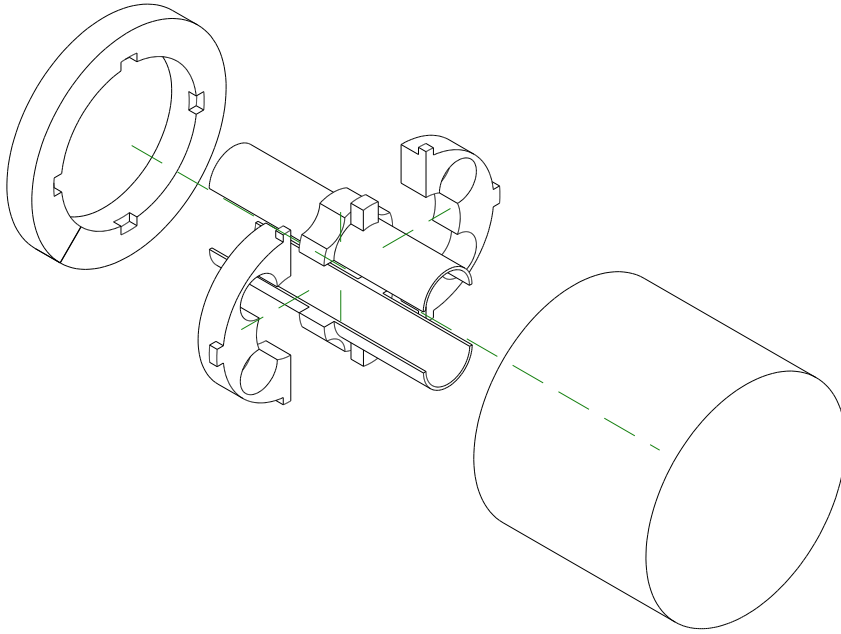
SOLUTION:

3D printing low modulus, semi-rigid covers with 3D Systems' ProJet® MJP 2500 and VisiJet® ProFlex (M2G-DUR) material to seal the motors from debris while cleaning and protect them from damage during transit.

RESULTS:

- Reduce required manual labor by an average of 40-50 hours per week
- Quickly assemble watertight shell for damage-free cleaning
- Protect costly motors with effective and reusable shipping covers

The addition of Visijet ProFlex solved two needs for PPI Time Zero, saving over 40-50 man hours a week.



PPI Time Zero also uses Visijet ProFlex for grips on handheld tools and devices.



Versatile 3D printing materials

In conjunction with high resolution and good surface finish, the ProJet MJP 2500 Plus offers PPI-Time Zero a versatile 3D printing solution in terms of material capability. As part of validating new materials for use, Ordnorff prints a standard step gauge to verify tolerances and get a sense of material properties. When he did this with Visijet ProFlex, his observations of the material gave him an idea for how he could bring greater efficiency into his team's workflow. "The Visijet ProFlex printed perfectly in terms of dimensions, and also demonstrated the ability to deform," said Ordnorff. "As it turns out, it filled a desperate need in our workflow for improving the cleaning and shipping of these motors, and we have resolved both issues with the same print."

A time saving solution

Although PPI-Time Zero had a manual process to seal the motors from contaminants while cleaning, there was no previous solution to protect them from damage during shipping. Furthermore, the manual sealing process was time consuming, taking upwards of half an hour per motor. On a contract for 50,000 units, the man-hours added up quickly.

With Visijet ProFlex, Ordnorff has been able to design and print a snap fit cover that can be assembled around the motor and sealed with a clamp to make it watertight for cleaning. Due to its low modulus, semi-rigid material properties, Visijet ProFlex is dimensionally stable without being brittle, which also allows the cover to effectively protect the motors in transit. According to Ordnorff, no cover is ever wasted: "The covers are sent back and we use them again in later cleanings and shipments, so these are good for repeat uses and are incredibly effective at ensuring the quality of our shipments."

With this solution, PPI-Time Zero has found a way to cut significant time from its process as well as safeguard the arrival of its products. "We probably do 80 to 100 of these motors a day, so we have already felt the impact of this improvement," says Ordnorff.

PPI-Time Zero has also found Visijet ProFlex to be excellent for grips on handheld tools and devices, and is expanding applicable use cases to bring more value to its workflow and customers.

Do you need help finding the right material for your application?

[Talk to a 3D Systems expert today](#) to learn more about your options.



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