

CASE STUDY: Accelerating Innovation in Fiber Optic Polishing Machines

**From Prototype Additive
Manufacturing (PAM) to Production
Injection Molding (PIM)**

Introduction

Domaille Fiber Optics, a leader in precision polishing equipment, sought to develop their latest polisher machine, the APM-HDC-5400 with an accelerated design process. With stringent demands for precise form, fit, and functionality, the company required iterative prototypes to ensure every detail aligned with their exacting standards. To meet these needs, they partnered with ADDMAN Group, leveraging advanced manufacturing capabilities.

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THE CHALLENGE:

Iterative Prototypes

Developing fiber optic polishing machines like the APM-HDC-5400 requires precision, efficiency, and versatile materials. Domaille needed a partner capable of not only delivering high-quality prototypes quickly but also seamlessly transitioning the design to production.

“This project is a true testament to what ADDMAN strives to be for its customers: a full solution provider that takes customers from prototype to production. The seamless transition from polymer printing to injection molding with Dinsmore and HARBEC ensured we could bring our product to market efficiently and at scale.”

John Hagen

Product Development Lead
Domaille Fiber Optics

KEY ACHIEVEMENTS

- 1 **40% Faster Prototyping Timeline:** Reduced prototyping cycles by nearly half.
- 2 **Seamless Transition:** From prototype to injection molding production at HARBEC.
- 3 **Enhanced Confidence:** High-quality prototypes ensured design validation for fit and function.

THE SOLUTION:

A tailored approach to prototyping

Dinsmore’s advanced 3D printing technologies enabled rapid iterations, allowing Domaille to refine their designs without extended delays. Once the prototype design was finalized, the project was seamlessly transitioned to injection molding production at HARBEC, ensuring a smooth move into full-scale manufacturing.

- **SLA Clear Resin:** Ideal for evaluating form and fit with transparent components, allowing for internal inspections and visualization of complex geometries.
- **MJF Nylon Gray:** A robust material used for durable, functional prototypes, enabling rigorous testing of part assemblies.

THE PROCESS:

A Comprehensive Journey from Initial Design to Full-Scale Production

Initial Design Review

Dinsmore's team engaged closely with Domaille engineers to thoroughly analyze the APM-HDC-5400's design specifications. This collaborative approach ensured a deep understanding of the machine's critical parameters and identified which components would benefit most from prototyping.

Material Selection

After reviewing the design, Dinsmore recommended SLA Clear Resin for its ability to simulate transparent components, enabling internal inspections and visualization. For more robust parts, MJF Nylon Gray was chosen to withstand functional testing and ensure durability.

Prototyping

Using their advanced additive manufacturing technologies, Dinsmore produced high-resolution 3D-printed prototypes in SLA Clear Resin and MJF Nylon Gray. Each iteration was tested and refined to meet strict form and fit requirements, ensuring optimal performance.

Feedback Loop

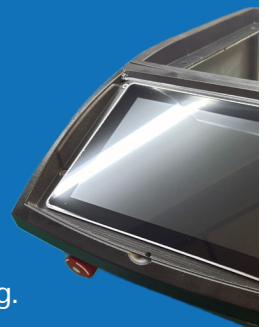
Dinsmore maintained an iterative feedback process with Domaille, incorporating their input after each prototype. This collaborative effort ensured that every detail of the APM-HDC-5400 was fine-tuned to meet precise specifications before finalizing the design.

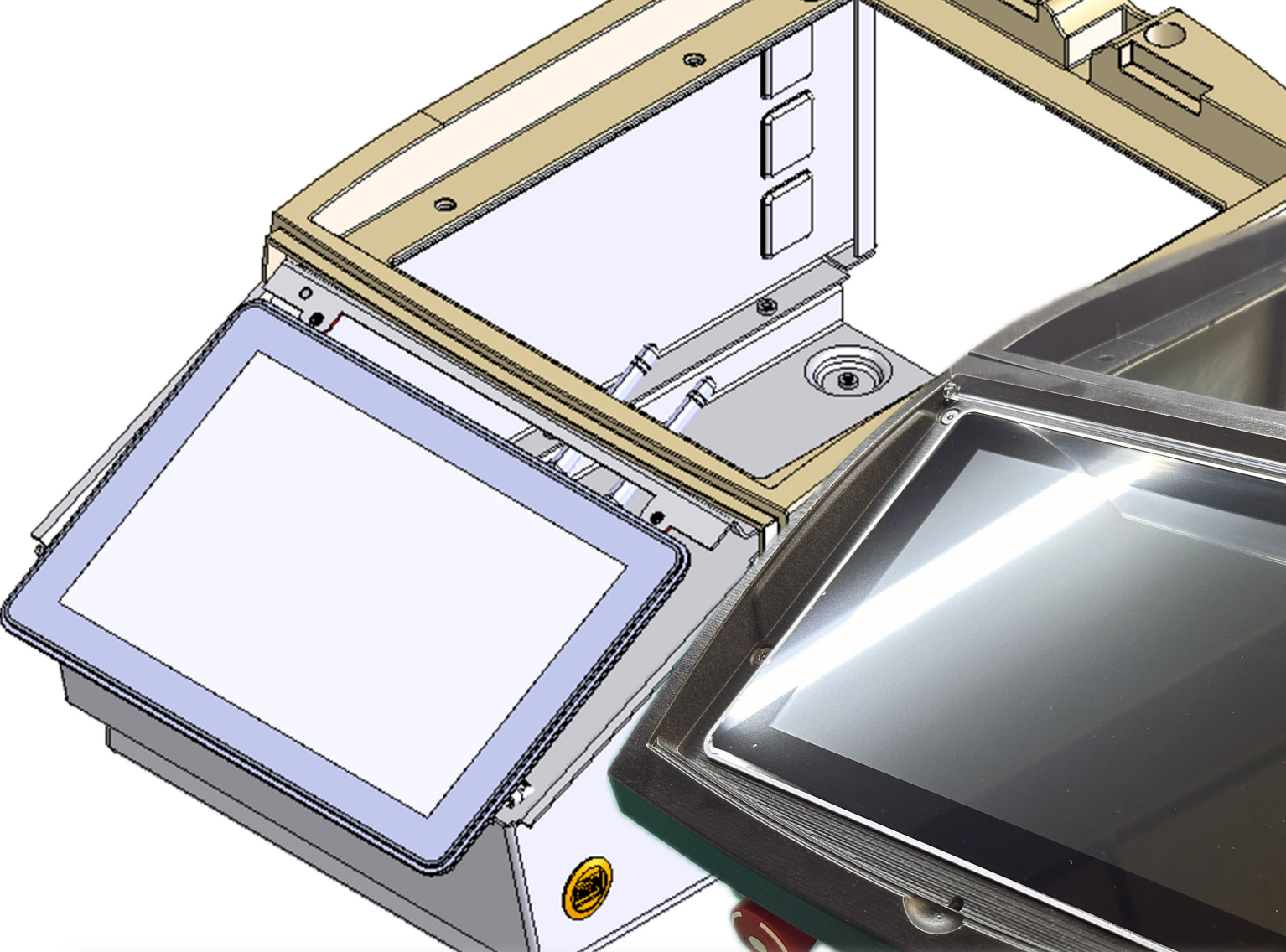
Transition to Production

Once the design was finalized, Dinsmore facilitated a seamless transition to HARBEC for injection molding. This ensured efficient production workflows and maintained quality consistency, enabling the APM-HDC-5400 to move smoothly into full-scale manufacturing.

THE RESULTS:

- **Improved Design Confidence:** High-quality prototypes ensured seamless fit and function validation.
- **Cost Efficiency:** Reduced material waste and minimized costly rework.
- **Streamlined Production:** Enabled smooth transition to high-volume manufacturing.





Conclusion

The partnership between Domaille Fiber Optics and ADDMAN/Dinsmore demonstrates the significant impact of additive manufacturing in modern product development. By delivering high-quality prototypes with speed and precision, and ensuring a seamless transition to injection molding at HARBEC, ADDMAN's teams empowered Domaille to optimize their designs and accelerate the launch of their innovative polisher machine, the APM-HDC-5400.

For more information about ADDMAN's prototyping and production services, visit [ADDMAN Group](#).

