



CASE STUDY: CUSTOM EXTRUSION WITH ACCELERATED TOOLING DEVELOPMENT

Challenge

A medical device manufacturer required a custom profile extrusion solution with significantly reduced lead time. The application demanded a tailored geometry that could not be achieved using standard tooling, while still meeting precise dimensional and performance requirements. The primary challenge was clear:

- Develop a custom extrusion profile
- Minimize tooling iteration
- Accelerate delivery timelines without compromising quality

Traditional tooling approaches would have extended development time and increased costs, putting pressure on the customer's program schedule.

Solution

TE Medical partnered with the customer, leveraging advanced engineering and manufacturing capabilities to streamline the tooling development process and reduce time to production. The solution included:

- Simulation and flow analysis to design the extrusion tip and die, optimizing material flow before physical tooling was produced
- Use of TE's internal metal 3D printing technology to rapidly manufacture multiple tooling iterations
- Collaboration with the Minneapolis Propelus lab, utilizing dedicated extrusion equipment to support controlled process development

By combining simulation-driven design with additive manufacturing, TE Medical minimized trial-and-error cycles and accelerated tooling readiness.

Results

The integrated approach delivered measurable improvements in speed, efficiency, and cost:

- Tooling manufactured within two weeks, significantly reducing lead time
- Tooling costs lower than traditional machined components
- Simulation-backed design eliminated wasted effort and unnecessary iterations

This streamlined process enabled faster transition from concept to development samples, supporting the customer's aggressive project timeline.

Capabilities

This project demonstrates TE Medical's ability to accelerate custom extrusion development through integrated engineering and manufacturing resources:

- Custom tooling design supported by simulation and flow analysis, reducing tooling iteration
- Metal 3D printing of extrusion tooling to shorten manufacturing lead times
- Dedicated extrusion equipment and collaborative lab environments to optimize development
- Improved concept-to-sample timelines for faster customer innovation cycles

Conclusion

Custom extrusion projects often face long tooling cycles and multiple design iterations that can delay development. By combining simulation-driven engineering with in-house metal 3D printing and dedicated extrusion capabilities, TE Medical significantly reduced lead time while maintaining precision and quality.

Through advanced tooling innovation and collaborative development environments, TE Medical enables medical device manufacturers to move from concept to validated samples faster—helping accelerate next-generation technologies to market.

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