

Rapid Fluidics

Shaping the Future of Microfluidics

Introduction to Design, Prototyping, and Manufacturing Services
Case Studies Spring 2025

What we do

- Microfluidic prototyping & production, utilising novel 3D printing and other specialised fabrication techniques
- 24-hour turnaround of bespoke prototype designs with minimal overhead costs.
- Design consulting services for microfluidic design & development
- Mid scale manufacturing with support to large scale manufacturing



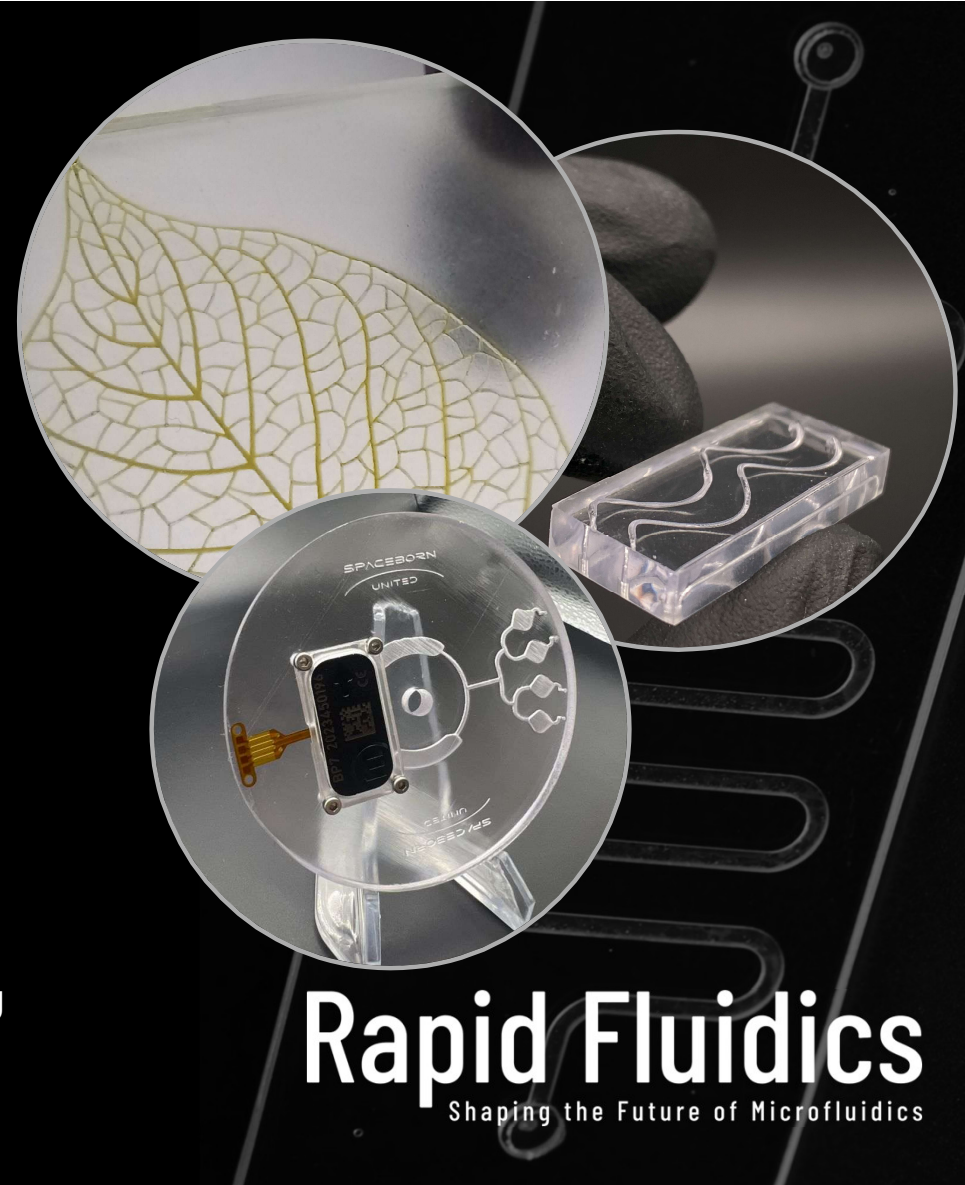
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Capabilities - at a glance

Our core capabilities include rapid prototyping of enclosed microfluidic devices, complex pneumatic manifolds, and lab consumables using 3D printing technologies.

We can also offer rapid turn around open and tape sealed microfluidics either using 3D printing technology or pressure forming of thermoplastics depending on material/geometry.

We have developed a process for embedding electronics and other components within enclosed microfluidic devices, providing a simple prototyping solution.



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Case Study

Prototype parts for bio-security project

Kromek Group are developing a biological threat detection system with the US Department of Defense. The system relies on complex fluidic handling protocols and novel approaches are necessary in multiple areas of fluidic control to make the project a success.

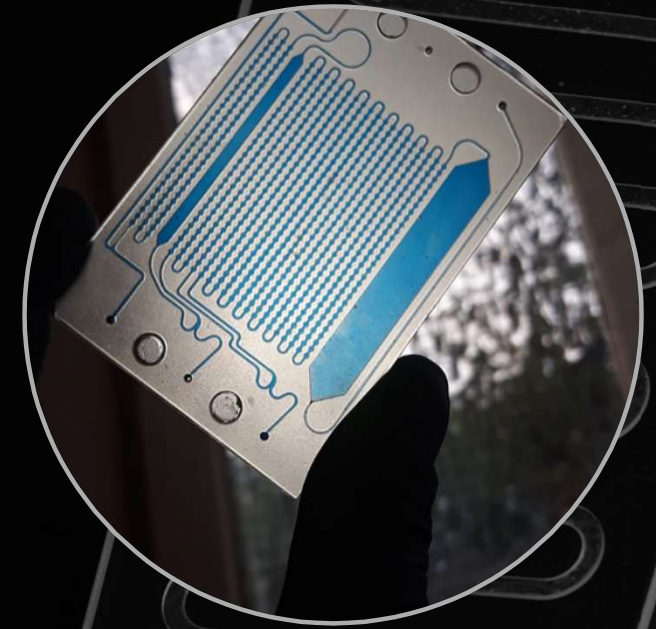
Rapid Fluidics were engaged to produce prototypes of new designs quickly to allow very fast 'design, build, test, learn' cycles.

Able to create the prototype from a conversation, to a CAD model, to working microfluidics all within 24 hours.

kromek[®]
safer and healthier world

“The process is a game-changer”

*Jamie Marsay, Principal Investigator and Head of
Biotechnology Kromek Group*



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Case Study

DfAM (Design for Additive Manufacturing)

A valve manifold part, designed for CNC machining and bonding, typically had a lead time of six weeks. By leveraging DfAM principles Rapid Fluidics reduced the lead time to just 48 hours while maintaining a similar cost.

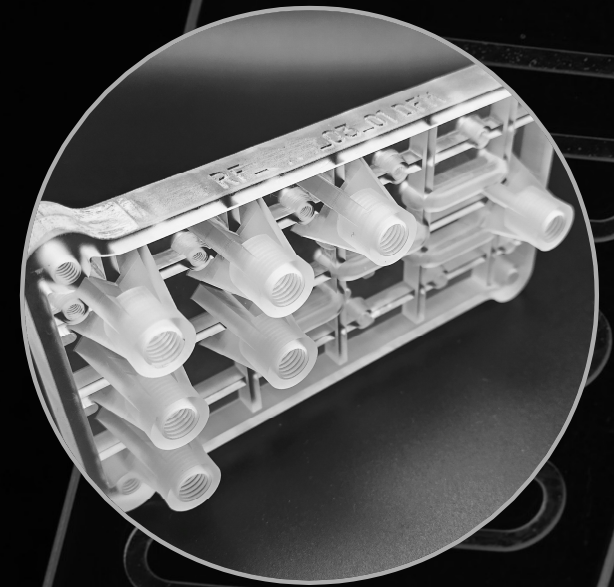
The benefits of the new design include:

- Improved fluid flow through 3D paths and smoother fluidic channels
- A 70% reduction in the mass of the part
- A reduction in printing time from 11 hours to 2.5 hours

The new design also allows for easier production, so for an order of 200 parts (typical for components like this) there's a price drop of 80%

"By applying DfAM principles, we've not only reduced lead times but also improved the overall performance and cost-effectiveness of our products."

Paul Marshall, CEO Rapid Fluidics



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Case Study

Custom designs

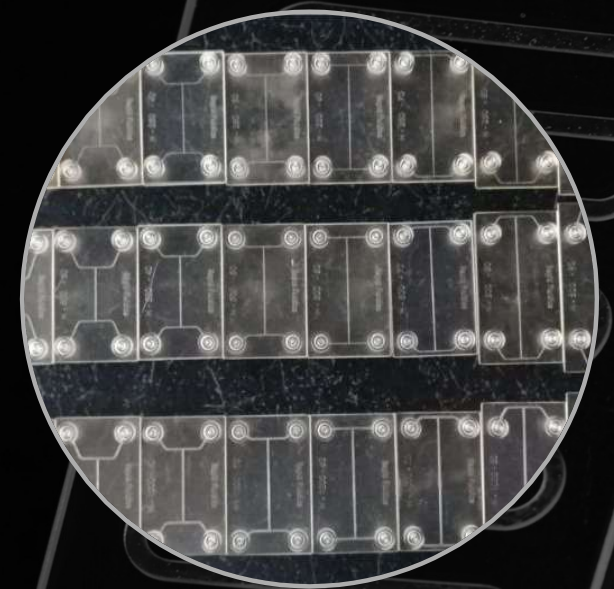
“We can utilise 3D printing technology to help de-risk other design elements as the technology holds the promise of faster delivery than traditional manufacturing methods”

Lead Engineer, Organ-On Chip Drug Discovery

Customer ordered all the “off the shelf” mixing chips from a well-known vendor to test for their particular requirements

After many months of testing with poor results they came to Rapid Fluidics to print multiple iterations of their design

Able to create 30 prototypes from a conversation, to a CAD model, to working microfluidics all within 24 hours.



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Case Study 3D Manifold

"First impression from our customer was good, and they are happy with the flexibility on the delivery ahead of the original plan"

Life Science Industry Manager

Global microfluidic valve manufacturer supplies bespoke systems to their customers.

Traditional manufacturing processes for custom manifolds such as cross-drilling or CNC machining and bonding, is time-consuming and costly.

Additive Manufacturing enables production of valve assemblies in a matter of days, not weeks.



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Case Study

Modular Microfluidic System

Customers requested a more stable and flexible multi-element platform to perform microfluidic experiments

Rapid Fluidics is investing in our customer success by providing both customizable consumables and hardware via our online shop

"A marked improvement over my "just tape everything to a medical tray" system"
Alexander Bissell, DevOps engineer and author of "The Makers Guide to Microfluidics."



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