

# Rapid Fluidics

Shaping the Future of Microfluidics

A faint, glowing microfluidic channel pattern is visible on the right side of the slide. It consists of a series of interconnected rectangular and circular loops, resembling a serpentine or meander design, set against a dark background.

**Introduction to Design, Prototyping, and Manufacturing Services**  
**Large Format Printing Fall 2024**

## What we do

- Microfluidic prototyping & production, utilising novel 3D printing and other specialised fabrication techniques
- Days not weeks for 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

A hand is holding a square microfluidic chip. The chip is light-colored with a complex network of blue channels and reservoirs. The background is dark with a circular light source, possibly a microscope lens or a window, creating a bokeh effect.

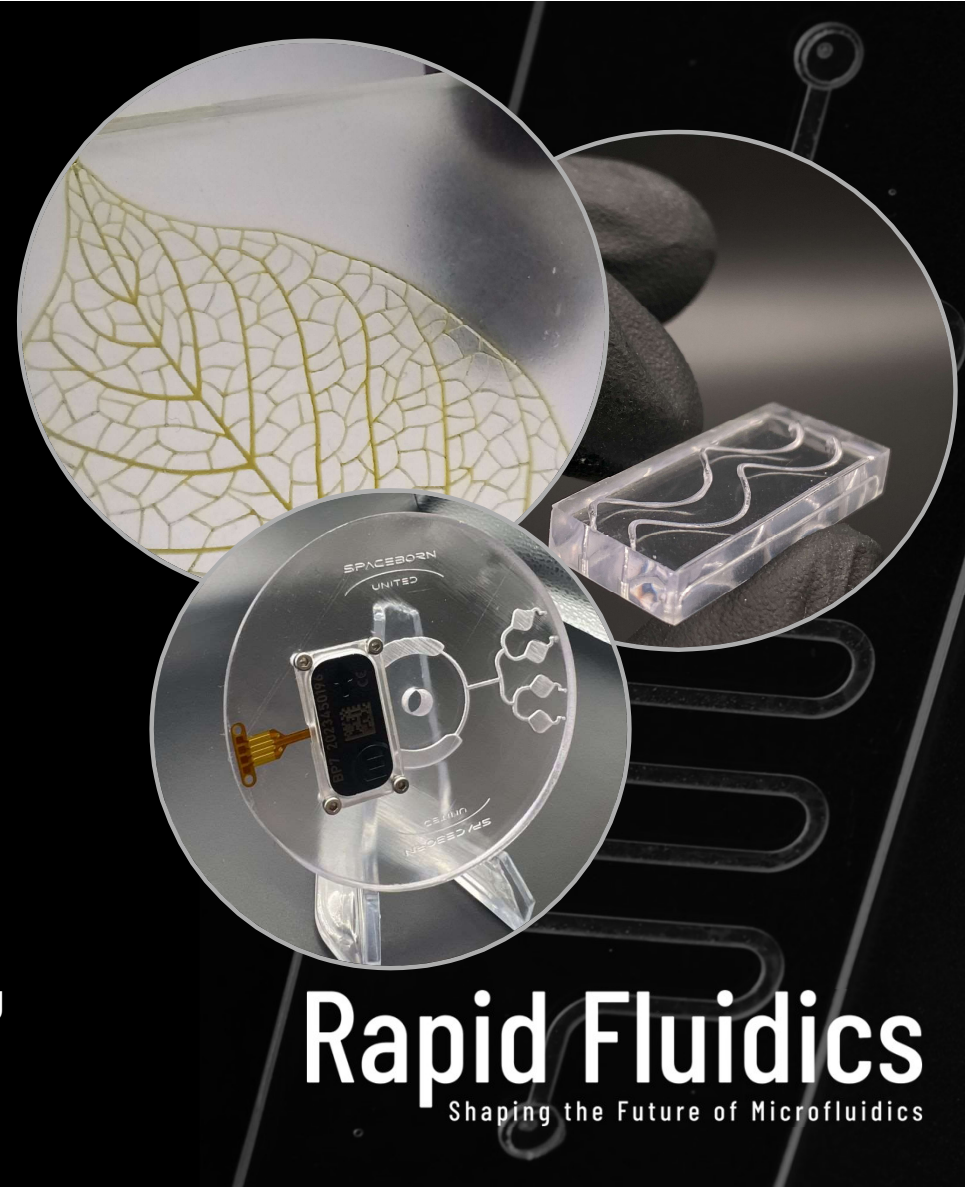
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## Capabilities - at a glance

Our core capabilities include rapid prototyping of enclosed microfluidic devices, complex pneumatic manifolds and other large format designs, 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.

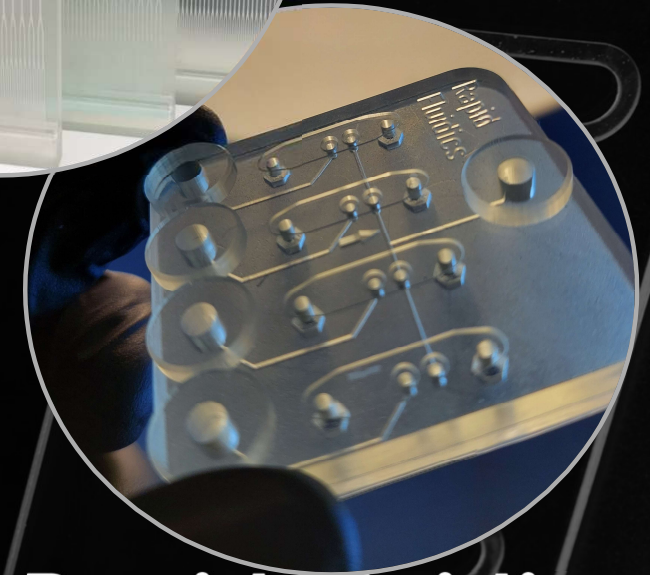
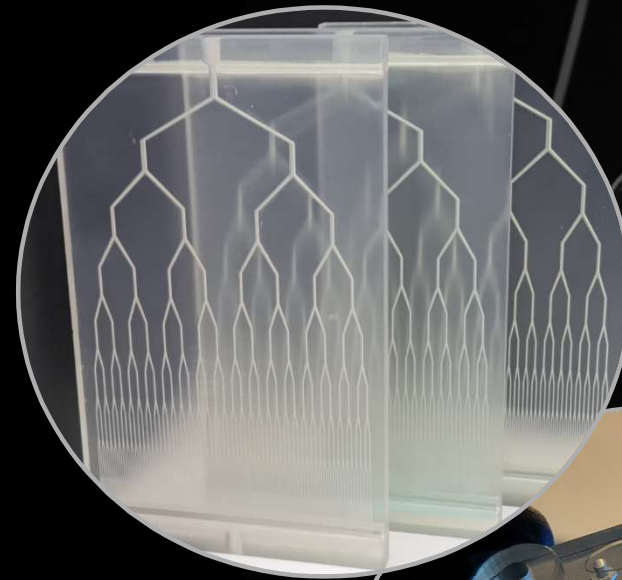
We have developed a process for embedding electronics and other components within enclosed microfluidic devices, providing a simple prototyping solution.



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## Our Customers

- Bio-Defense
- Medical Devices
- POC Diagnostics
- Automation
- Basic Research
- Drug and Therapeutic Development
- Aerospace Research
- Lab on a Chip/Organ on a Chip
- Environmental Testing
- Cosmetics Industry
- Contract Manufacturers and Design Consultancies



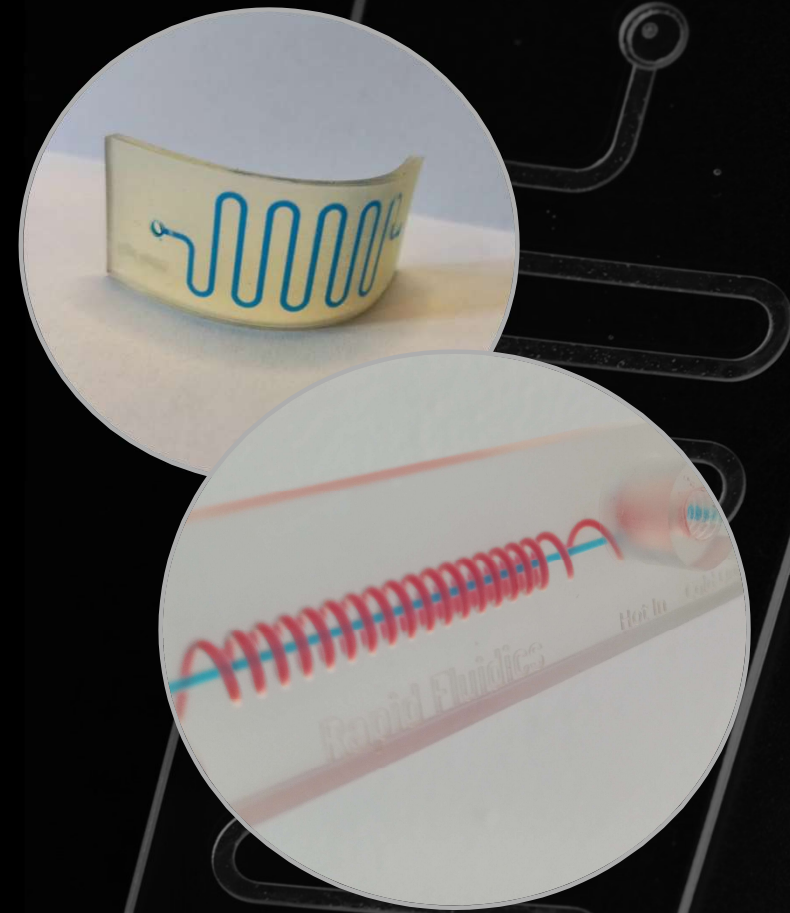
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## Materials

We can manufacture 2D and 3D printed geometries in a range of high quality methacrylate based resins. Materials are selected to suit the geometry and application of a part, which can meet the following requirements:

- Optically clear or opaque
- High temperature resistant
- Flexible
- Multiple layers
- Biocompatible
- Integrate electrodes, glass, membrane materials, and flow control as well

We can also pressure form some geometries in a range of thermoplastic materials.



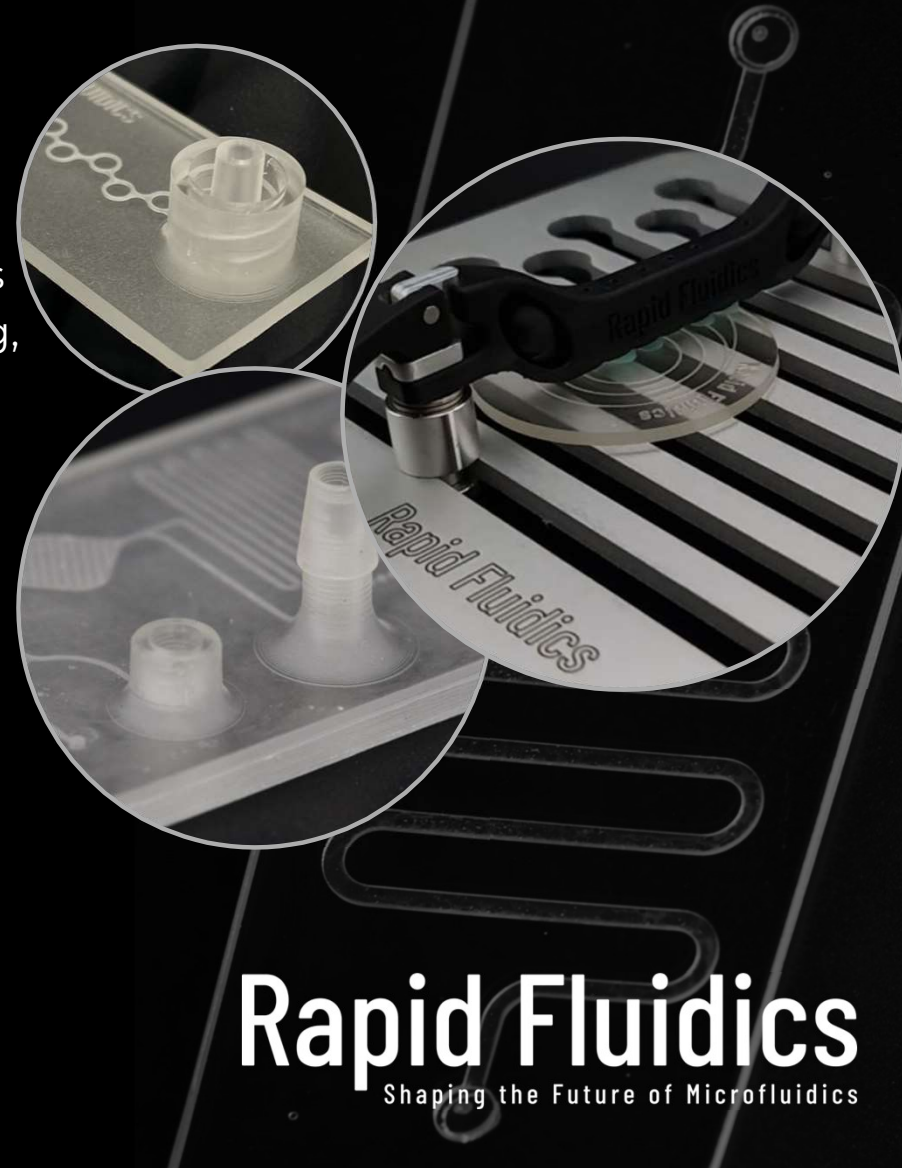
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## Microfluidic Connections

We can integrate a number of standard connections into microfluidic components to simplify part testing, these include:

- Standard threaded luer lock
- Mini luer
- Integrated tubing
- Barbs
- Standard threaded connections down to M2.5

We also offer a Modular Microfluidic System (MMS) with accessories to provide a simple method to create fluid connections to flat microfluidic chips – visit our webshop for all the details !



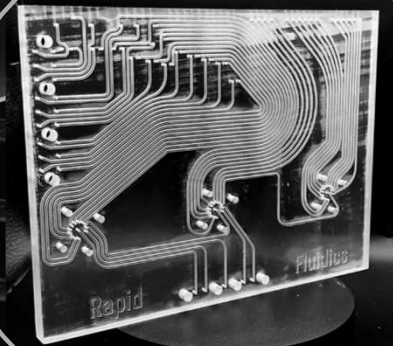
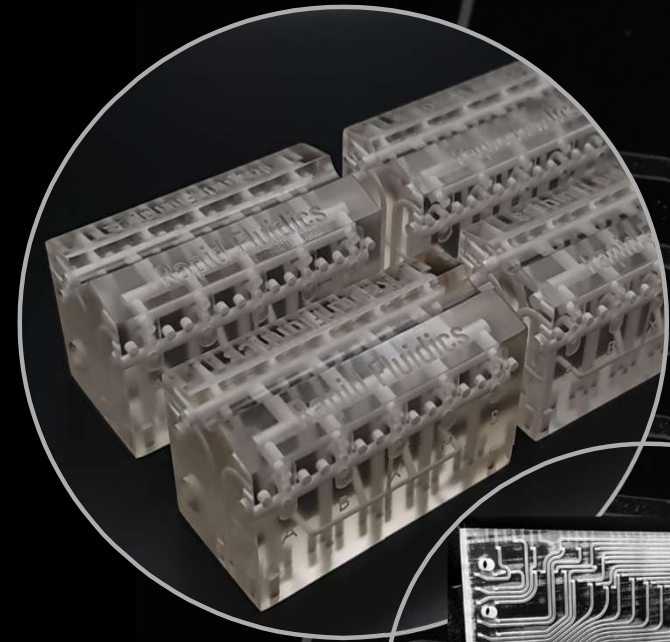
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## Manifolds

Leveraging our expertise in additive manufacturing, we can provide rapid turnaround custom small and large manifolds, up to 320mm X 280mm X 40mm, delivered in days rather than months.

Additive manufacturing permits simple production of more complex designs that can focus on performance without needing to conform to traditional manufacturing methods.

Optimising design can improve flow performance, minimise dead volumes and reduce part weight, giving both material, cost savings and environmental benefit.



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## Case Study 3D Manifold

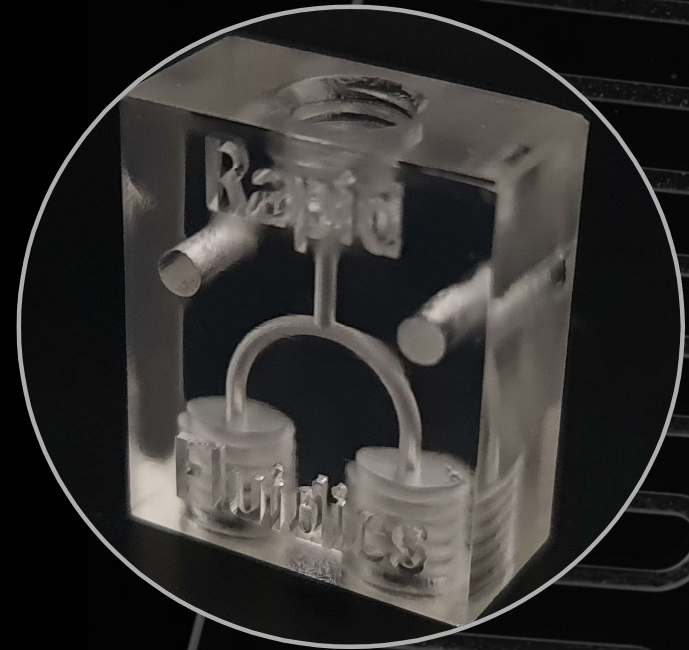
*"First impression from our customer was good, and they are happy with the flexibility on the delivery ahead of the original plan"*

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.



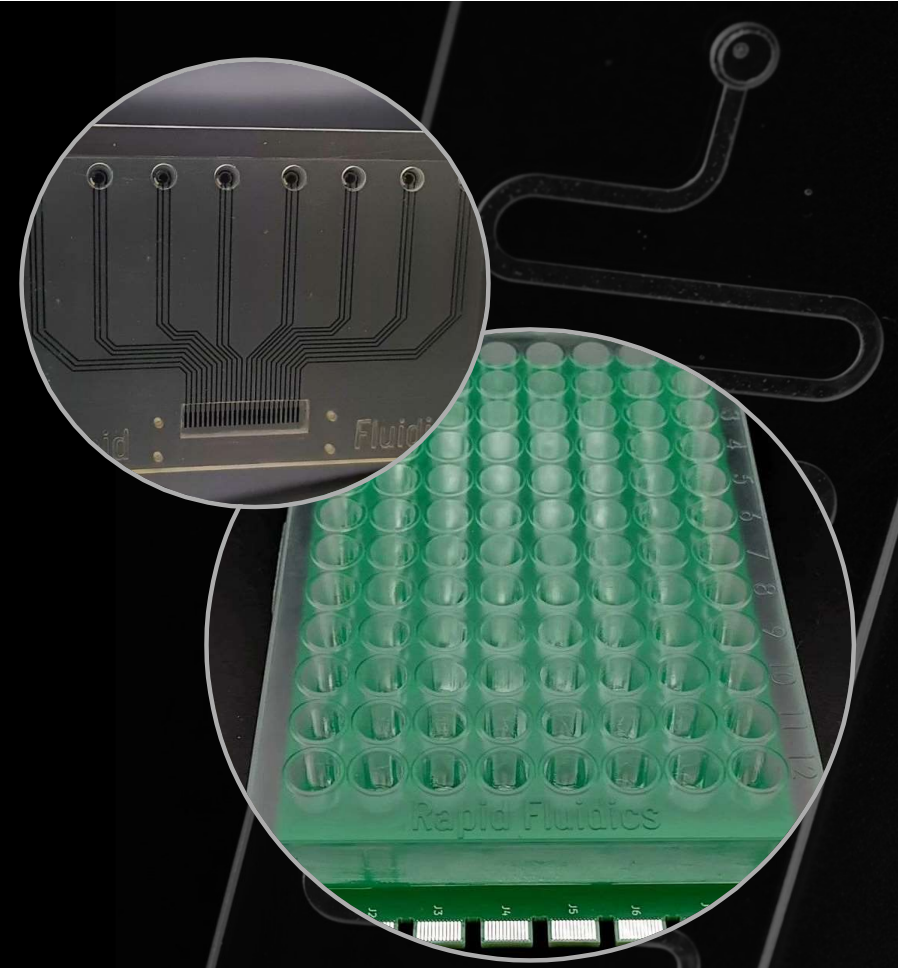
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## Embedded Electronics

Integrated electronics in microfluidics can be used for basic functionality such as light sources and sensors for fluid positioning; resistive heaters and thermocouples for accurate temperature control. They also can be used for electro-chemical biosensing in wells or channels.

Rapid Fluidics has experience with embedding and 3D-printing directly onto both PCBs and SPEs (Screen Printed Electrodes) allowing for direct contact between microfluidic tracks and chambers, or near-track alignment to maintain a layer of insulation.



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Get in touch

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