

Case Study:

3-Dimensional Laser Ablating for Medical Device Applications

Specialized 3-D process enables production of micro-scale neurovascular components.

Resonetics developed a **3-D laser ablation process** that enables prototyping and production of neurovascular components and **provides a unique micro-scale fabrication technique** for many other life science applications.

Background

Several customers approached Resonetics requesting **three-dimensional metal (nitinol, platinum-iridium) micro scale parts** with complex geometry.

Target Applications for this process are micro-scale parts with features too small or materials not compatible with swiss CNC machining.

Technical Requirements:

- Material: Nitinol
- Part Geometry: 0.0135" OD x 0.0054" ID, 0.026" length with +/- 0.0002" tolerances, complex geometry

Challenges

- Component was too small for CNC Swiss Machining
- Holding tight tolerances on critical features was important
- Minimizing heat input and thermal damage was critical
- Size of parts made it challenging to handle
- Part had not previously been able to be manufactured

Solutions

- Fabricated the part in one setup to minimize handling and cost
- Developed in-process inspection for critical features
- Enabled component to be manufactured for the first time
- Optimized process settings to minimize heat input or thermal damage
- Automated part collection

Customer Outcome

- Able to create custom micro component that wasn't possible with other technology
- Can now create smaller parts than previously able to
- Enabled a neurovascular delivery system to be manufactured



Challenging application? Contact our technical team.

sales@resonetics.com | 1.800.759.3330 | www.resonetics.com