

Semiconductor Manufacturer Solves Micro-Molding Challenge in Six Weeks

— THE PROBLEM

A global semiconductor manufacturer was developing a custom polyurethane component that played a crucial role in the microchip manufacturing process. The part, which was only a few millimeters in diameter, presented significant challenges in terms of manufacturability. The design engineering team faced difficulties in creating such a small component while adhering to the strict quality criteria required in semiconductor production. The team had already engaged several polyurethane manufacturing partners, but none were able to successfully produce the parts due to the micro size and the need to meet high-performance standards. Without a viable solution, the new product and production launch of this critical component were at risk, potentially causing significant delays and missed revenue targets for the company.

— THE SOLUTION

Mearthane Products Corporation (MPC) leveraged their expertise in custom polyurethane manufacturing to develop an innovative tooling concept specifically designed to produce these micro-sized components. Working closely with the semiconductor manufacturer's engineering team, MPC's experts created a customized approach that addressed the unique challenges of manufacturing such small parts. Within just four weeks, MPC was able to produce First Article samples for testing, ensuring there was ample time for First Article Inspections (FAI). These initial samples met the strict performance and quality requirements set by the semiconductor manufacturer. Within six weeks of beginning the project, MPC had successfully produced and received approval for the First Articles, demonstrating that they could manufacture the micro-sized components without compromising on quality or precision.

MARKET

Industrial

Semiconductor
Manufacturing

SOLUTION

Motion Transfer & Rolling

Protection & Dampening

PRODUCT

Micro-Molded Products

TECHNICAL SPECIFICATIONS

MATERIAL

Custom polyurethane
formulation

PART SIZE

Few millimeters in diameter

PROCESS

Micro-molding, custom tooling

VALIDATION

First Article Inspection (FAI)

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— THE RESULT

The micro-molded components were delivered to the semiconductor manufacturer, who promptly granted approval to proceed with full-scale production. Thanks to MPC's innovative approach and rapid turnaround, the project was able to continue without further delays. The engineering team now had a reliable manufacturing solution capable of producing the highly precise, micro-sized components required for the microchip production process. This project was successfully handed off to full production, and the parts have since become a key revenue stream for the semiconductor manufacturer, contributing to the company's continued success over the past five years. MPC's timely and effective solution ensured the manufacturing process moved forward smoothly, helping the customer avoid costly setbacks and achieve their production goals.

4 wk

TO FIRST ARTICLE SAMPLES

6 wk

TO FIRST ARTICLE APPROVAL

5 yrs

IN CONTINUOUS PRODUCTION

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