

Micro-Molding Services

Specializing in small- to micro-sized part molding

MRPC produces small- to micro-sized parts for use in the medical device, orthopedic, cardiac rhythm management and neuromodulation industries. Components can be created using liquid silicone rubber (LSR) materials and other engineered thermoplastic resins including PEEK, PEKK, PPSU and TPUs. We can combine these two dissimilar materials into unique multi-material designs through overmolding or other assembly methods. MRPC understands the intricate processing and tooling requirements needed for successful micro molding and has invested in dedicated equipment and tooling strategies to support our micro-molding programs.

Using precision presses with finite shot controls, MRPC can produce accurate, repeatable molded silicone parts that can weigh less than one gram. These micro-sized parts can be used in both long- and short-term implantable electromechanical and ophthalmic devices, catheters, and other medical and electronic devices. Liquid silicone rubber is ideally suited for tiny, delicate or complex parts with thin cross-sections. The material allows for faster cycling due to its short cure length, and it is cost effective for high volume runs.

In addition, we have invested in specialized micro-molding equipment used for processing both rigid and flexible engineered thermoplastic materials. By implementing scientific molding principles and understanding material flow within the cavity through the use of MoldFlow simulation software, we can reduce your overall time to market.

MRPC and a client jointly developed a medical device component with extremely thin wall sections molded with an implantable grade of PEEK. To create the thinnest wall section possible, we built a development tool to prototype various wall thicknesses and ultimately produced repeatable molded parts with a wall thickness of 0.004 inch. We also created a second tool with added geometry for further evaluation and design validation testing.

MRPC's development process gave our customer a high degree of confidence in their component's design and part functionality. We now have a customized production tool and a very satisfied customer who can count on MRPC to tackle any challenging project with micro-molded PEEK.



Our team of experienced engineers can create products with the following specifications.

- Prototype sample quantity: 1 to 100
- Production run quantity: Up to 1 million
- Required lead time: 3-8 weeks with expediting options
- Part volume: 0.04 to 25 grams

Design complexity, processes and material choice will affect the final estimate.