



## New Technology Announcement PMC Optimized Thermal Management System (PMC OTMS)

PMC Medical is leading the industry in process development innovation, applying unique injection mold temperature control technology using SINGLE Temperature Controls pressurized water system for high-temperature medical and implantable biomaterial applications.

PMC recently completed a study comparing the performance of electric heat versus the PMC OTMS for injection molding of high-temperature biomaterials, such as implantable grades of PEEK. The PMC OTMS study was conducted by PMC Medical in our medical device molding operation located in Shelbyville, IN, using the SINGLE Temperature Controls STW200/1-6-25-HO.2 system.

PMC's scientific study confirmed expectations that the PMC OTMS application provided significant benefits over typical mold temperature control techniques used by the industry.

### Technology Improvements with PMC OTMS Processing:

- Reduced shot-to-shot mold temperature variation by 75%
- Maintained more uniform temperature gradient across the surface of the mold
- Simplified mold setup and debugging
- Improved mold temperature control in a clean room environment up to 400 degrees F

### Medical Device Benefits with PMC OTMS Processing:

- Delivered a 30% improvement in crystallinity in the molded part
- Decreased dimensional variation along the length of the part by 50%, allowing for tighter as-molded tolerances
- Reduced stress in the molded part
- Improved yields due to reduction in scrap
- Reduced tool cost
- Improved machining characteristics
- Reduced cycle times for larger parts

*PMC Medical is a full service medical device contract manufacturer of polymer component-based implantable and non-implantable Orthopedic devices and instrumentation. ISO 13485:2003 certified, PMC has world-class clean and white room manufacturing facilities for the most critical applications. PMC has expertise and proprietary techniques for processing bioresorbables, PEEK and other high-temperature thermoplastic materials, supporting design and development services for the rapidly growing conversion of Orthopedic products from metal to plastic. With 80 years of experience, PMC Medical offers customers services including design for manufacturability, hyper-precision injection molding, complete in-house assembly and packaging, as well as sterilization management.*

*SINGLE Temperature Controls Inc. The development and production of high-performance and energy-efficient temperature control systems is the core competence of SINGLE Temperature Controls, Inc. In addition to a wide variety of standard water, hot oil temperature control system and chillers, SINGLE is the global leader in the development of high temperature water and rapid heat/cool alternating temperature technology. SINGLE's customers benefit from an expertise that is based on more than forty years of experience in the area of equipment and plant engineering and a profound understanding of many areas of application. SINGLE caters predominantly to plastics processors and manufacturers of plastics processing machinery, companies from the die-casting, chemical, pharmaceutical and food production industries as well as to customers from test and semi-conductor engineering. SINGLE's customers appreciate their high-quality products as well as our support and service.*