

Greatbatch Medical Implant Manufacturing, Exceeding Expectations.

Greatbatch Medical is committed to the design and manufacture of critical technologies that enhance the reliability and performance of medical devices and procedures. Our decision to diversify into orthopaedics was viewed as a strategic fit with our vision to be a key global supplier to the medical device industry.

In 2008, Greatbatch Medical expanded our orthopaedic product offerings with the acquisition of a 7,000 m2 implant manufacturing facility in Chaumont, France. The addition of this facility added a full range of orthopaedic implants for the hip, shoulder and knee segments. The Chaumont facility has approximately 200 highly skilled employees with large-scale manufacturing expertise including machining of metals and plastics, engraving, laser etching, surface treatments, implant welding, in house HA coatings, sterile packaging and implant labelling.

Core Manufacturing Capabilities:

- **Machining Processes**
 - Axis Milling
 - Long Turning
 - Grinding
- **Mechanical Polishing (Robot and Mass Finishing/Tumbling)**
 - Sandblasting
- **Heat Treatment for memory function in Nitinol**
- **Engraving and Laser Etching**
- **Surface Treatments (Anodization, Passivation)**
- **Implant Welding (TIG)**
- **HA Coating (Atmospheric Plasma Spray)**
- **Sterile Packaging in ISO Certified Clean Room (ISO 8)**
- **Vacuum & Inert Gas Packaging**
- **On Site Validated Labelling to Customer Specifications**

"We're extremely proud of this facility," commented David Biguet, Chaumont's plant director. "Our single site integration of machining, implant welding, HA coating and ISO Class 8 clean room capabilities demonstrates our dedication to delivering value to our customers."

Simply stated, a rough forging or casting is delivered, all required manufacturing steps completed, required coatings applied, finished product is then cleaned and packaged for delivery to irradiation sterilization. While many orthopaedic suppliers are able to complete one or more of the steps, our single site capabilities eliminate intermediate shipping and provide a unique competitive advantage. Our customers are able to streamline their supply chain and bring products to markets on time and in a cost effective manner.

The range of products produced is significant and varies in quantity and complexity. While the highest volume product is hip stems, large quantities of shoulder arthroplasty components and screws (-200,000 annually) are also manufactured. An example of a more complex offering is a shape memory alloy bone staple that requires thermal conditioning. Once in the body, the staple clamps tight to hold bone fragments in place. Our manufacturing team's expertise covers a wide range of medical-grade materials, from sophisticated alloys of cobalt chrome, titanium and stainless steel to polyethylene and PEEK.

At Greatbatch Medical, we enforce the highest quality standards. The range and complexity of product offerings, materials and processes requires an extensive investment in technical expertise and equipment to ensure those standards are met. Processes and products are assessed objectively through verification on sophisticated inspection equipment. A significant example of this type of equip-

ment is a non-contact optical measurement system for bearing surfaces that is accurate to very high tolerances. Our commitment to quality is especially evident in our cleaning and packaging areas which include an ISO class 8 clean room and two new optimized cleaning lines. To maintain self-sufficiency and ensure shorter lead-times, the Chaumont facility houses an in-house Microbiology laboratory with additional plans to add a second clean-room.

Quality and Regulatory:

- **ISO Compliant and Documented Quality Systems**
- **Facility is**
 - ISO 13485:2003 Certified
 - FDA Registered
- **Internal, Customer and Registrar Audits Ensure Continuous Quality Compliance**

The facility was well established when acquired and we continue to build on the 20 year legacy of Chaumont's skilled expertise in orthopaedics. Supported by Greatbatch Medical's commitment to excellence and transfer of best practices, the French team continues its focus on improvements to workflow and efficiencies through lean and kaizen techniques. There are also plans to make additional capital investments in Chaumont as we are expecting to invest approximately \$10 million in machines over the next two years. With an eye to the future, we continually seek and invest in innovative approaches that bring better value to the orthopaedic industry.

"I see our commitment to innovation and reliability as the differentiator that will drive our future success," said Patrick Gamet, general director, Orthopaedics, Europe. "I'm excited about our collaborative efforts with customers to develop and manufacture their products and confident that our investments in facilities, new machines and, most particularly employees, will pay dividends."

www.greatbatchmedical.com

Additional Business Locations:

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| Orvin, Switzerland | Development & Instrument Manufacturing |
| Columbia City, IN | Implants & Instrument Manufacturing |
| Indianapolis, IN | Delivery Systems |
| Warsaw, IN | Development & Rapid Prototyping |

More about Greatbatch:

Wilson Greatbatch, co-inventor of the first successful implanted pacemaker, founded Greatbatch, Inc. in 1970 to develop long-lived primary batteries to fuel pacemakers. His passion for reliability and innovation remains the foundation for the company's full portfolio of capabilities and offerings.

Greatbatch Medical supports and empowers its customers in their pursuit of revolutionary technology solutions. Our processes are optimized to manufacture to customer and best-practice specifications and deliver comprehensive consulting expertise and assembly services.



Greatbatch Medical Implants, Exceeding Expectations.

Enhance your orthopaedic products and procedures with Greatbatch Medical's implant technologies, expertise and capabilities.

Our dedication to innovation, reliability and operational excellence is focused on meeting and exceeding our customer's expectations.

