



CASTING

- Decades of casting experience at each site
- More implant castings produced than any other manufacturer
- World-class delivery and lead times
- A quality record that is second to none
- Design for manufacture guidance
- Net shape geometry
- Rapid prototyping
- Single source design, regulatory, manufacturing, packaging, sterilization and supply chain coordination



- Laser marking
- Passivation – nitric or citric

ABOUT ORCHID

Orchid Orthopedic Solutions is a worldwide leader of medical device outsourcing services, providing expertise to partners in more than 20 countries through a complete offering that ranges from design and development to finished goods manufacturing. Our mission is to be the market leader and our customers' strategic partner by providing reliable results, developing new technologies and creating the best total supply chain value in the industry.



FORGING SPECIALISTS

1489 Cedar Street
Holt, MI 48842 USA
Phone: +1 (517) 694-2300
Fax: +1 (517) 694-2340
www.orchid-ortho.com

CASTING SPECIALISTS

13963 Fir Street
Oregon City, OR 97045 USA
Phone: +1 (503) 656-9653
Fax: +1 (503) 650-2749

FORGING AND CASTING SPECIALISTS

Unit D, Beighton Business Park
Old Colliery Way
Sheffield, S20 1DJ England
Phone: +44 (0) 114 2942300
Fax: +44 (0) 114 2942301



FORGING

- Decades of forging experience
- Design and prototyping expertise
- Advanced forging, machining and polishing
- Lean manufacturing
- Reduced lead times
- A quality record second to none
- Design for manufacture guidance

Forging and Casting

Net and Near-net Forging and Finishing • Investment Casting and Finishing



Orchid facilities are driven by lean philosophies, and offer SMI/VMI programs to spread the lean principle across the total supply chain.

FINISHING CAPABILITIES

- Machining and grinding
- Polishing



NET AND NEAR-NET FORGING AND FINISHING

A world leader in the net and near-net forging of exotic alloys for the orthopedic implant industry, Orchid specializes in products made from titanium, CoCr, stainless steel and zirconium. Our forging processes result in precisely crafted products that are exceptionally strong and durable, requiring little or no machining or finishing. This provides you with significant cost savings. In addition, our advanced technical capabilities and highly skilled workforce allow us to serve as a comprehensive, "one-stop" resource for you, providing total supply chain value and cost-effective forging solutions.

Forging Applications

- Femoral and tibia components
- Acetabular cups
- Hip stems
- Bone plates
- Forged blanks

Forging Value Proposition

Working with Orchid creates the following customer advantages:

- Reduced machine time
- Reduced material input weight
- Enhanced physical properties
- Overall cost savings
- Reduced lead times

Complete Prototyping Capability

Whether for products or tooling, Orchid facilities offer the following:

- Computer-aided engineering
- Die design, creation and forging simulation software
- Direct Metal Laser Sintering (DMLS)
- Quality and regulatory compliance
- Complete traceability/certification
- Shortened lead times
 - Small scale/pilot production
 - Mass customization
- Multi-material 3D printing capability

AIR/VACUUM INVESTMENT CASTING AND FINISHING

Orchid's current casting capabilities include both air and vacuum investment casting along with complete product finishing. Both CoCr and stainless steel alloys are cast at two Orchid facilities in Oregon City, Oregon, U.S. and Sheffield, England, U.K. Robotic wax assembly and shelling systems, digital X-ray, dedicated manufacturing teams and a highly skilled workforce create quality castings that meet or exceed design specs.

Casting Applications

- Knee femoral and tibia components
- Acetabular cups
- Hip femoral stems
- Hip resurfacing
- Ankle, shoulder and elbow implants
- Instruments

Quality Accreditations

- ISO 13485:2003
- ISO 14001:2004
- ISO 9001:2008
- OHSAS 18001:2007
- Facilities are registered with the U.S. FDA

WANT TO KNOW MORE?

For further information on Orchid's forging, casting and finishing capabilities contact: sales@orchid-ortho.com

Casting Value Proposition

Working with Orchid creates the following customer advantages:

- Controlled certified alloy
- Design flexibility
- Controlled grain and carbide structures
- Innovative tool designs
- Reverse engineering capabilities
- Flexibility for tool modifications
- Cast in threads for augments

Finishing Value Proposition

Working with Orchid creates the following customer advantages:

- Reduced inventory
- Reduced transportation
- Reduced release paperwork
- Rapid feedback loop
 - Only need to design finished implant
 - Reduced receiving, purchasing, shipment
 - Capability-based inspection plans minimize cost

CAPABILITIES COMMON TO FORGING AND CASTING

Design for Manufacturability/Assembly

A design process that optimizes all the manufacturing and assembly processes, from die creation (forging), wax tool creation (casting), production, testing and procurement to shipping and delivery. As practiced at Orchid, the process assures the best cost, quality, compliance, safety and time-to-market, as well as the highest level of customer satisfaction.