Implant Coatings and Surface Treatments

ABOUT ORCHID
Orchid is a worldwide leader of orthopedic medical device outsourcing, providing contract design and manufacturing services. We are a strategic sourcing partner that can handle an entire project or provide services at a Single Point in the process.

OUR EXPERTISE
Experience that delivers results.

Market Segments
• Orthopedic (joint and spine)
• Dental
• Cardiovascular
• Veterinary

Capabilities
• Hydroxylapatite coating (HA)
• Titanium plasma spray coating (TPS)
• Titanium on polyether ether ketone (PEEK)
• Rough porous TPS coating
• Asymmetric® coating
• Custom coating technologies
• Sintered bead coatings on titanium and Co/Cr
• Resorbable blast media surface treatment (RBM)
• Passivation per ASTM F-86
• Heat-treating
• Final cleaning and packaging

Coatings in Development
• Titanium on ultra-high molecular weight polyethylene (UHMWPE)
• Anti-wear ceramic coating

Special Services
• Staff metallurgist and validation specialist
• FDA consulting and 510k submission
• Package design
• New coating development

PARTNER WITH US
Unparalleled experience, market-driven solutions and technical innovations.

Orchid’s coating divisions have been leaders in the orthopedic industry for decades. Through communication with our customers and suppliers, we continue to develop value-added, innovative technologies and services.

Our newly developed process for applying titanium coating to PEEK spinal implants combines biocompatibility with osteointegration. In addition to developing new coating technologies, we are also experts in the clinical success of hydroxylapatite coating (HA), the high osseo-integration capability of titanium plasma spray (TPS) / vacuum plasma spray (VPS), and the roughened surface of resorbable blast media (RBM).

If you want custom capabilities, rapid turnaround times, innovative technologies and an excellent track record. We can provide total project partnership right from the start to bring your products to market ahead of the curve.

CONTACT US TODAY
Make your ideas a reality.

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Meeting the challenge of implant fixation.

### Spherical Coatings

<table>
<thead>
<tr>
<th>Spherical</th>
<th>Asymmatrix®</th>
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<tbody>
<tr>
<td>Bead coating of various sizes that creates a three-dimensional porous structure that can be applied to either titanium or Co/Cr implants.</td>
<td>An irregular bead coating structure with the added features of an extremely rough surface and increased porosity.</td>
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</tbody>
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### Titanium Plasma Spray (TPS) on metal

- **Material:** Cp Ti on Ti alloy
- **Porosity Range (%):** 30 – 50
- **Pore Size Range (µm):** 100 – 300
- **Coating Thickness:** > 0.020 in

### Hydroxylapatite (HA)

- **Material:** HA on Ti alloy
- **Porosity Range (%):** 50 – 70
- **Pore Size Range (µm):** 100 – 300
- **Coating Thickness:** > 0.020 in

### Resorbable Blast Media (RBM)

- **Material:** HA on Co/Cr
- **Porosity Range (%):** 20 – 60
- **Pore Size Range (µm):** 100 – 300
- **Coating Thickness:** 0.005 – 0.038 in

### Rough Titanium Plasma Spray (TPS)

- **Material:** Cp Ti on Ti alloy
- **Porosity Range (%):** N/A
- **Pore Size Range (µm):** 25 – 75 µm
- **Coating Thickness:** N/A

### Titanium Plasma Spray (TPS) on PEEK

- **Material:** Cp Ti on PEEK
- **Porosity Range (%):** 0.025 – 0.035 in
- **Pore Size Range (µm):** 0.005 – 0.038 in

### Attachment Method

- High-temperature sintering
- Plasma spray
- Blast
- Plasma spray
- Plasma spray

### Macro-Texture

- Smooth, moderately rough
- Rough
- Rough
- Smooth
- Smooth
- Rough

### Porosity Range (%)

- 30 – 50
- 50 – 70
- 20 – 60
- N/A
- 30 – 50
- 20 – 60

### Pore Size Range (µm)

- 100 – 300
- 100 – 300
- 100 – 300
- N/A
- 100 – 300
- 100 – 300

### Coating Thickness

- > 0.020 in
- > 0.020 in
- 25 – 75 µm
- N/A
- 0.025 – 0.035 in
- 0.005 – 0.038 in