Implant Materials – Titanium Alloys
The titanium alloys from Medical Alloys offer good corrosion resistance. They feature high biocompatibility, and because they contain no nickel, they do not induce allergic reactions. As a result of their modulus of elasticity, which more closely approximates that of human bone than any other metallic implant materials, titanium alloys offer a combination of high fatigue strength and an unsurpassed level of biofunctionality.

Outstanding quality characteristics
- Raw material from qualified production sources
- High corrosion resistance
- Biocompatibility
- Amagnetic properties (MRI compatibility)*
- High fatigue strength relative to pure titanium

Typical applications
- Bone screws, bone nails, intramedullary nails
- Joint replacement parts, spine implants, dental implants
- Surgical instruments

Delivery forms / finishes
Tolerances
- ISO tolerance fields IT 9 – IT 5 for wire and bar
- According to DIN 17860 for strip and sheet of titanium and titanium alloys
- Special tolerances on request

Testing
- Surface quality through eddy current testing according to EN 10277-1 as well as testing for inner defects using ultrasound from Ø 6.0 mm possible (by agreement in case of appropriate product forms)

Wire
- Ø 0.5 mm – 12.0 mm
- In coils, on spools
- Polished-drawn, flex-drawn

Bar
- Ø 1.0 mm – 100.0 mm
- Standard lengths 2000 and 3000 mm, special lengths on request
- Drawn, annealed, ground, polished
- Cut to length, chamfered, face chamfered, pointed, centered
- Degreased, labeled

Profile
- 1 mm² – 400 mm² cross-section
- In bars, on spools
- Rolled, specially rolled, drawn
- Matt
- Special contours on request

Precision strip** / sheet
- Thicknesses 0.1 mm – 4.76 mm
- Thicknesses 0.5 mm – 4.76 mm on stock
- Widths 2.0 mm – 1220.0 mm
- In coils and strips
- Cold rolled, annealed
- Cut, deburred, rounded edges
- Water jet trimmed

Plate / pipe
- Large rectangular profiles
- Water jet trimmed blanks
- Pipe on request

* MRI: Magnetic Resonance Imaging
** Strip in Grade 5 only
### Ergitan® 3.7165MG (UNS R56400) – Grade 5 ELI

<table>
<thead>
<tr>
<th>Specific material properties</th>
<th>higher fatigue strength than all pure titanium grades</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>strength comparable to that of steel</td>
</tr>
<tr>
<td></td>
<td>very good corrosion resistance against oxidizing acids and acid mixtures, chloride solutions as well as pitting and stress-crack corrosion</td>
</tr>
<tr>
<td>Typical analytical components (wt.%)</td>
<td>Fe: &lt; 0.3; Al: &lt;6.0; V: &lt; 4.0; Ti: rest</td>
</tr>
<tr>
<td>Relevant standards</td>
<td>ASTM F 136, ISO 5832-3</td>
</tr>
<tr>
<td>Tensile strength</td>
<td>annealed &gt; 860 MPa</td>
</tr>
<tr>
<td></td>
<td>cold hardened &gt; 1000 MPa</td>
</tr>
</tbody>
</table>

### Ergitan® 9.9367MG (UNS R56700)

<table>
<thead>
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<th>Specific material properties</th>
<th>higher fatigue strength than all pure titanium grades</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>strength comparable to that of steel</td>
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<tr>
<td></td>
<td>improved biocompatibility through the use of Nb instead of V</td>
</tr>
<tr>
<td>Typical analytical components (wt.%)</td>
<td>Fe: &lt; 0.25; Ta: &lt; 0.5; Al: 6.0; Nb: 7.0; Ti: rest</td>
</tr>
<tr>
<td>Relevant standards</td>
<td>ASTM F1295, ISO 5832-11</td>
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<tr>
<td>Tensile strength</td>
<td>annealed &gt; 860 MPa</td>
</tr>
<tr>
<td></td>
<td>cold hardened &gt; 1000 MPa</td>
</tr>
</tbody>
</table>

For further information about our products and locations, please refer to our image brochure or consult our website at www.zapp.com.

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