303 Stainless
Technical Datasheet

Typical Applications
- Aircraft fittings
- Gears
- Nuts and bolts
- Electrical switchgear components
- Bushings
- Shafts

Product Description
Type 303 stainless steel is an alloy which is the most readily machinable austenitic stainless steel available today. This is due to the presence of sulphur in the material composition although improved machinability is at a cost - the sulphur content results in a decrease in corrosion resistance and also a slight lowering in toughness. But as with most austenitic grades the toughness is still excellent. Weldability of the alloy is poor. Type 303 is used in a variety of engineering industries.

Key features
- Austenitic stainless steel
- Very good machinability but reduced formability
- Not recommended for any application involving welding
- Has a lower resistance to corrosion than 1.4301.

Corrosion resistance
Good in mild environments.

Machinability
Very good machinability.

Weldability
Poor weldability.

Availability
Round bar, wire and hexagon

Chemical Composition (weight %)

<table>
<thead>
<tr>
<th></th>
<th>C</th>
<th>Mn</th>
<th>Si</th>
<th>P</th>
<th>S</th>
<th>Cr</th>
<th>Ni</th>
<th>Fe</th>
</tr>
</thead>
<tbody>
<tr>
<td>min</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>17.00</td>
<td>8.00</td>
<td>Bal</td>
</tr>
<tr>
<td>max</td>
<td>0.10</td>
<td>2.00</td>
<td>1.00</td>
<td>0.40</td>
<td>0.15</td>
<td>19.00</td>
<td>10.00</td>
<td>Bal</td>
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</table>

Mechanical Properties

<table>
<thead>
<tr>
<th></th>
<th>Tensile strength</th>
<th>Proof Stress</th>
<th>Elongation A5</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>500 - 700</td>
<td>190 min</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>MPa</td>
<td>MPa</td>
<td>%</td>
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</table>

Physical Properties

<table>
<thead>
<tr>
<th></th>
<th>Density</th>
<th>Melting Point</th>
<th>Modulus of Elasticity</th>
<th>Electrical Resistivity</th>
<th>Thermal Conductivity</th>
<th>Thermal Expansion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8.03 kg/m³</td>
<td>1455 °C</td>
<td>193 GPa</td>
<td>0.072 x10⁶ Ω.m</td>
<td>16.3 W/m.K</td>
<td>17.3 x10⁻⁶ /K</td>
</tr>
</tbody>
</table>

Technical Assistance
Our knowledgeable staff backed up by our resident team of qualified metallurgists and engineers, will be pleased to assist further on any technical topic.

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sales@smithmetal.com

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