17-7 PH Technical Datasheet

Precipitation Hardening Stainless Steel

Typical Applications
- Tooling in the Aerospace Industry
- CNC components
- Mould & gauge making
- General tooling
- Bulkheads
- Retaining rings
- Springs

Key features
- Excellent fatigue properties
- Good formability
- High strength & hardness
- Minimum distortion upon heat treatment
- Good corrosion resistance

Product Description
17-7 PH is a precipitation-hardening stainless steel which combines high strength and hardness. The alloy has excellent fatigue properties, good corrosion resistance and is easily formed. Due to the alloys good mechanical and physical properties, 17-7PH is particularly popular in the aerospace sector and can be used in the manufacture of flat springs up to 315°C (600°F).

Chemical Composition (weight %)

<table>
<thead>
<tr>
<th></th>
<th>C</th>
<th>Mn</th>
<th>P</th>
<th>S</th>
<th>Si</th>
<th>Cr</th>
<th>Ni</th>
<th>Al</th>
</tr>
</thead>
<tbody>
<tr>
<td>min</td>
<td>0.09</td>
<td>1.00</td>
<td>0.04</td>
<td>0.03</td>
<td>1.00</td>
<td>18.00</td>
<td>6.50</td>
<td>0.75</td>
</tr>
<tr>
<td>max</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Mechanical Properties *

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>TH1050</th>
<th>Condition RH 950</th>
<th>C</th>
<th>CH900</th>
</tr>
</thead>
<tbody>
<tr>
<td>UTS, ksi (MPa)</td>
<td>130</td>
<td>200</td>
<td>235</td>
<td>220</td>
<td>265</td>
</tr>
<tr>
<td></td>
<td>(896)</td>
<td>(1379)</td>
<td>(1620)</td>
<td>(1517)</td>
<td>(1827)</td>
</tr>
<tr>
<td>0.2% YS, ksi (MPa)</td>
<td>40</td>
<td>185</td>
<td>220</td>
<td>220</td>
<td>260</td>
</tr>
<tr>
<td></td>
<td>(276)</td>
<td>(1276)</td>
<td>(1517)</td>
<td>(1310)</td>
<td>(1793)</td>
</tr>
<tr>
<td>Elongation, % in 2&quot; (50.8 mm)</td>
<td>35</td>
<td>9</td>
<td>6</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Hardness, Rockwell</td>
<td>B85</td>
<td>C43</td>
<td>C48</td>
<td>C43</td>
<td>C49</td>
</tr>
</tbody>
</table>

* Properties at typical room temperature

Corrosion resistance
Good

Formability
Good but work hardens rapidly and may require intermediate annealing in deep drawing or in forming intricate parts

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.