P316L STAINLESS STEEL

DESCRIPTION

P316L offers the highest degree of corrosion protection that is available in a standard P/M stainless steel grade. It provides very good strength at extremely high temperatures. AMETEK’s 316L product includes many fully customized powder specifications by varying lubricant type, content and particle size. We are able to manufacture high quality 316L powders to fit your applications.

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>POWDER PROPERTIES</th>
<th>COMPACTING PRESSURE (TSI)</th>
<th>GREEN DENSITY (GM/CC)</th>
<th>GREEN STRENGTH (PSI)</th>
<th>SINTERED DENSITY (GM/CC)</th>
<th>SINTERED BREAKING STRENGTH (PSI)</th>
<th>DIMENSIONAL CHANGE FROM DIE SIZE (%)</th>
<th>UTS (PSI)</th>
<th>% ELONG</th>
<th>RB HARDNESS (APPARENT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P316L</td>
<td></td>
<td>30</td>
<td>400</td>
<td>6.25</td>
<td>6.35</td>
<td>75,000</td>
<td>-0.53</td>
<td>42,000</td>
<td>3.6</td>
<td>41.0</td>
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<tr>
<td></td>
<td></td>
<td>40</td>
<td>700</td>
<td>6.60</td>
<td>6.60</td>
<td>103,000</td>
<td>-0.44</td>
<td>50,000</td>
<td>4.8</td>
<td>48.0</td>
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<tr>
<td></td>
<td></td>
<td>50</td>
<td>1100</td>
<td>6.83</td>
<td>6.83</td>
<td>125,000</td>
<td>-0.40</td>
<td>58,000</td>
<td>6.0</td>
<td>67.0</td>
</tr>
</tbody>
</table>

Compacting properties were measured on powder blended with 1% lithium stearate. Sintering was done in dissociated ammonia at 2050°F for 45 minutes.
**P316L POWDER SPECIFICATIONS**

**POWDER PROPERTIES**

**Chemical Composition**
- Chromium: 16.0-18.0%
- Nickel: 10.0-14.0%
- Molybdenum: 2.0-3.0%
- Manganese: 2.0% Max.
- Silicon: 1.0% Max.
- Carbon: 0.03% Max.
- Sulfur: 0.03% Max.
- Phosphorus: 0.045% Max.
- Iron: Balance

**Physical Properties**
- Apparent Density: 2.7 g/cm³
- Flow Rate: 30 sec/50g

**SINTERED PROPERTIES**

Sintered properties were determined using test specimens that were sintered for 45 minutes in dissociated ammonia with a -40°F dew point.

**The Influence of Sintering Temperature and Atmosphere on Mechanical Properties of 316L Stainless Steel**
(Samples compacted to 6.85 gm/cm³ and sintered for 30 minutes)