P303L Stainless Steel

DESCRIPTION

P303L is a free machining, austenitic grade that offers moderate corrosion resistance. This stainless steel is sintered in either a partial vacuum or a hydrogen atmosphere to improve ductility and corrosion resistance. P303L is a sulfurized grade that is an excellent option for parts that require secondary machining operations, such as food service equipment, pump components and non-magnetic housings.

ADDITIVES

303L can also be admixed with MnS or MoS₂ for added machinability.

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>POWDER PROPERTIES APPARENT DENSITY (GM/CC)</th>
<th>FLOW (SEC./50G)</th>
<th>COMPACTING PRESSURE (TSI)</th>
<th>GREEN STRENGTH (PSI)</th>
<th>GREEN DENSITY (GM/CC)</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>P303L</td>
<td>2.8</td>
<td>30</td>
<td>30</td>
<td>380</td>
<td>6.23</td>
<td>6.33</td>
<td>71,000</td>
<td>-0.54</td>
<td>41,000</td>
<td>3.4</td>
<td>41.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>40</td>
<td>40</td>
<td>900</td>
<td>6.50</td>
<td>6.60</td>
<td>91,000</td>
<td>-0.44</td>
<td>51,000</td>
<td>4.8</td>
<td>50.0</td>
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<td></td>
<td></td>
<td>50</td>
<td>50</td>
<td>1030</td>
<td>6.70</td>
<td>6.75</td>
<td>109,000</td>
<td>-0.40</td>
<td>54,000</td>
<td>5.8</td>
<td>68.0</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.
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POWDER PROPERTIES

Chemical Composition
Chromium: 17-19%
Nickel: 8-13%
Manganese: 2% max
Silicon: 1% max
Sulfur: 0.15-0.30%
Carbon: 0.03% max
Phosphorus: 0.045% max
Iron: Balance

Physical Properties
Apparent Density: 2.8 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.

TENSILE STRENGTH

DUCTILITY

DIMENSIONAL CHANGE

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