Electronics

Tweezers
3WL Wafer Tweezers

A 0.37"  9.5 mm  
B 0.39"  10.0 mm  
C 0.10"  2.5 mm  
D 0.15"  4.0 mm  
E 0.10"  2.5 mm

3WL.SA  Anti-Magnetic Anti-Acid Stainless Steel

General Notes
- low carbon austenitic steel (Material number 1.4435, DIN X2CrNiMo18-14-3, AISI number 316L)
contains from 16.5 to 18.5 wt% chromium and has important quantities of nickel and molybdenum as additional alloying elements

- non-magnetizable
- good corrosion resistance to most chemicals, salts and acids
- generally used where corrosion resistance and toughness are primary requirements
- typical applications include tweezers for the electronic industry, watch-makers, jewelers and laboratory and medical applications in moderately aggressive chemical environments

### Composition

<table>
<thead>
<tr>
<th>Component</th>
<th>Wt.%</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>≤0.03</td>
</tr>
<tr>
<td>Si</td>
<td>≤1.0</td>
</tr>
<tr>
<td>Mn</td>
<td>≤2.0</td>
</tr>
<tr>
<td>P</td>
<td>≤0.045</td>
</tr>
<tr>
<td>S</td>
<td>≤0.03</td>
</tr>
<tr>
<td>Cr</td>
<td>17.0-19.0</td>
</tr>
<tr>
<td>Mo</td>
<td>2.5-3.0</td>
</tr>
<tr>
<td>Ni</td>
<td>12.5-15.0</td>
</tr>
</tbody>
</table>

### Mechanical properties:

- State: annealed
- Density: 8.0 g/cm³
- hardness HB30: ≤215
- Hardness Rockwell B: 79
- Tensile strength, ultimate: 500-700 MPa
- Tensile strength, yield: 290
- 0.2% Yield stress: ≤200 MPa
- Elongation, break: 40%
- Modulus of elasticity: 200 GPa

### Thermal properties

- Coef. of lin. therm expansion: 16.0 E-6/°C 20°C-100°C
- Coef. of lin. therm expansion: 17.0 E-6/°C 20°C-300°C
- Specific heat capacity: 0.50 J/(g·K)
- Thermal conductivity: 15W/(m·K)
- Continuous use temperature: 350°C
- Max service temperature, ait: 925°C

### Electrical properties

- Resistivity: 0.75 E-4 Ohm.cm

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