The 15-5 alloy was designed to have greater toughness than 17-4 PH. The 15-5 alloy is martensitic in structure in the annealed condition and is further strengthened by a relatively low temperature heat treatment which precipitates a copper containing phase in the alloy. 15-5 is also referred to as XM-12 in some specifications.

### Specifications

UNS: S15500  
ASTM: A 564, A 693, A 705  
AMS: 5659, 5862J Type 2, STD 2154  
ASME: SA-564, SA-693, SA-705  
OTHER: BAC 5439 Rev H Class A Type 1, BMS 7-240G Type 1, BSS7055 Rev A

### Chemical Composition, %

<table>
<thead>
<tr>
<th>Ni</th>
<th>Cr</th>
<th>Mn</th>
<th>Cu</th>
<th>Si</th>
<th>C</th>
<th>P</th>
<th>S</th>
<th>Fe</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN</td>
<td>3.5</td>
<td>14.0</td>
<td>–</td>
<td>2.5</td>
<td>–</td>
<td>0.15</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>MAX</td>
<td>5.5</td>
<td>15.5</td>
<td>1.0</td>
<td>4.5</td>
<td>1.0</td>
<td>0.45</td>
<td>0.07</td>
<td>0.04</td>
</tr>
</tbody>
</table>

### Features

- Precipitation Hardening
- High Strength
- Moderate corrosion resistance to 600°F

### Applications

- Aerospace applications
- Chemical and petrochemical applications
- Pulp and paper
- Food processing

### Physical Properties

- Density: 0.280 lb/in³
- Poisson’s Ratio: 0.272
- Electrical Resistivity: 589 Ohm-circ mil/ft

### Mechanical Properties

- **Minimum Specified Properties, ASTM A 564**
  - Hardness MAX, Brinell: 363 (Condition A)

<table>
<thead>
<tr>
<th>Condition</th>
<th>H 900</th>
<th>H 1075</th>
<th>H 1150</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.2% Offset Yield Strength, ksi</td>
<td>170</td>
<td>125</td>
<td>105</td>
</tr>
<tr>
<td>Ultimate Tensile Strength, ksi</td>
<td>190</td>
<td>145</td>
<td>135</td>
</tr>
<tr>
<td>Elongation, % in 2&quot; minimum</td>
<td>10</td>
<td>13</td>
<td>16</td>
</tr>
<tr>
<td>Reduction of Area, %</td>
<td>35</td>
<td>45</td>
<td>50</td>
</tr>
<tr>
<td>Hardness, Brinell</td>
<td>388</td>
<td>331</td>
<td>277</td>
</tr>
</tbody>
</table>
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