Austenitic Stainless Steel 321

STANDARDS: AISI 321 : UNS S32100 : Euronorm 1.4541 : X6CrNiTi18-10

PRODUCT FORMS / ASTM REFERENCES

- Sheet / Plate
- Round bar & shapes (Angles, Squares, Flats, Channels)
- Welded pipe
- Seamless pipe
- Seamless tube
- Butt weld pipe fittings seamless & welded

ASTM A240 / A240M
ASTM A276
ASTM A312
ASTM A213 / A269
ASTM A403WPW / ASTM A403WPX / ASTM A403WPS
ASTM A182

DESCRIPTION

Stainless Steel 321 is a Titanium stabilised Austenitic stainless offering excellent strength and resistance to intergranular corrosion. 321 is the material of choice for applications in temperatures up to 900 deg C. 321 is not hardened by heat treatment but mechanical properties can be improved considerably by cold working, with a subsequent reduction in ductility. 321 is non-magnetic in the annealed condition, but may become mildly magnetic.

TYPICAL APPLICATIONS

- Heat exchangers
- Furnace parts
- Aircraft exhaust manifold
- Chemical & Petrochemical industries
- Expansion joints

CHEMICAL COMPOSITION

<table>
<thead>
<tr>
<th></th>
<th>Phosphorus</th>
<th>Manganese</th>
<th>Titanium</th>
<th>Chromium</th>
<th>Carbon</th>
<th>Sulphur</th>
<th>Silicon</th>
<th>Nitrogen</th>
<th>Nickel</th>
<th>Iron</th>
</tr>
</thead>
<tbody>
<tr>
<td>321</td>
<td>0.040 (max)</td>
<td>2.00 (max)</td>
<td>&gt; 5 x (C + N)</td>
<td>17.0 - 19.0</td>
<td>0.06 (max)</td>
<td>0.015 (max)</td>
<td>0.75 (max)</td>
<td>0.10 (max)</td>
<td>9.0 - 11.0</td>
<td>Bal</td>
</tr>
</tbody>
</table>

MECHANICAL PROPERTIES*

<table>
<thead>
<tr>
<th>PROPERTY</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proof stress 0.2</td>
<td>&gt; 220 N / mm2</td>
</tr>
<tr>
<td>Tensile strength</td>
<td>520 - 720 N / mm2</td>
</tr>
<tr>
<td>Elongation % in mm</td>
<td>&gt; 45%</td>
</tr>
<tr>
<td>Brinell hardness HB</td>
<td>&lt; 210</td>
</tr>
</tbody>
</table>

*Typical room temperature properties
Kloeckner Metals UK offer a comprehensive range of 321 Stainless Steel sheet and plate. Our stock capabilities include cold rolled sheet, hot rolled sheet and quarto plate.

Combined with our extensive stock, we also offer a range of added value processes delivering cost effective supply chain solutions to enhance the efficiency and profitability of valued customers. These include Water Jet Cutting, laser cutting, High Definition Plasma, polishing, coating, guillotines and more….

### PHYSICAL PROPERTIES

<table>
<thead>
<tr>
<th></th>
<th>20°C</th>
<th>100°C</th>
<th>200°C</th>
<th>300°C</th>
<th>400°C</th>
<th>500°C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Modules of Elasticity (GPa)</strong></td>
<td>200</td>
<td>194</td>
<td>186</td>
<td>179</td>
<td>172</td>
<td>165</td>
</tr>
<tr>
<td><strong>Mean Coefficient of linear expansion between 20°C &amp; (10 - x K - 1)</strong></td>
<td>-</td>
<td>16</td>
<td>16.5</td>
<td>17</td>
<td>17.5</td>
<td>18</td>
</tr>
<tr>
<td><strong>Thermal Conductivity (W / m.K)</strong></td>
<td>15</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20.5</td>
<td>22</td>
</tr>
<tr>
<td><strong>Electrical Resistivity (Ω.mm² / m)</strong></td>
<td>0.73</td>
<td>0.80</td>
<td>0.90</td>
<td>1.05</td>
<td>1.10</td>
<td>1.2</td>
</tr>
</tbody>
</table>

**DISCLAIMER**

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