BS S155 (300M)

A through-hardening, vacuum-melted alloy with outstanding strength

Properties combine toughness, fatigue strength and good ductility. 300M is used where fracture toughness and impact strength are crucial.
Features and benefits

- Ultra-high strength (>1900MPa)
- Good fatigue resistance
- Excellent transverse properties

Typical applications

- Undercarriage Components
- Gears
- Shafts

Heat treatment

- Oil quench from 870°C
- Double temper at 300°C

Related specifications

- AMS 6257, 6417/9
- SAE 4340M
- BMS 7-26
- DMS 1935
- MIL – S - 8844
- MTL 1201 / LAT 1-9042

Chemical analysis

<table>
<thead>
<tr>
<th></th>
<th>C</th>
<th>Si</th>
<th>Mn</th>
<th>P</th>
<th>S</th>
<th>S&amp;P</th>
<th>Cr</th>
<th>Mo</th>
<th>Ni</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min</td>
<td>0.39</td>
<td>1.50</td>
<td>0.60</td>
<td>0.015</td>
<td>0.015</td>
<td>0.025</td>
<td>0.70</td>
<td>0.30</td>
<td>1.65</td>
<td>0.05</td>
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<tr>
<td>Max</td>
<td>0.44</td>
<td>1.80</td>
<td>0.90</td>
<td>0.015</td>
<td>0.015</td>
<td>0.025</td>
<td>0.95</td>
<td>0.45</td>
<td>2.00</td>
<td>0.10</td>
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</table>

Mechanical properties of typical specifications

Mechanical properties are BS S155 (300M) limits

<table>
<thead>
<tr>
<th></th>
<th>Longitudinal</th>
<th>Transverse</th>
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</thead>
<tbody>
<tr>
<td>0.2% Proof Stress MPa</td>
<td>1550</td>
<td>1550</td>
</tr>
<tr>
<td>Tensile Strength MPa</td>
<td>1900 - 2100</td>
<td>1900 - 2100</td>
</tr>
<tr>
<td>Elongation %</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>Reduction of area %</td>
<td>30</td>
<td>20</td>
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After heat treatment hardness should be:

- HB: 534 - 601
- HRC: 52 - 55
- HV: 571 - 635

Supply condition and availability

- Supplied as normalised and tempered bright bar
- Stock sizes in range 18mm - 250mm diameter
- Other sizes available on request
- Forging bar

Technical support

We have a comprehensive technical support team available to advise on grade selection and product range to achieve the maximum benefit. Customer Technical support provide specialist advice and help with day-to-day problem solving.

Works based metallurgists and the full resources of our Steel Research and Development Laboratories are available to assist with longer-term developments.

For further information, enquiries or any technical guidance on our range of Aerospace products please contact our experts using the details below.