EN19
Technical Datasheet

Applications
- Automotive gears and parts
- Shafts
- Towing pins
- Load bearing tie rods
- Oil & Gas industry applications

Product Description
EN19 is a high quality alloy steel with tensile strength. With a combination of good ductility and shock resistance, EN19 is suitable for applications with very high loading such as engine gear boxes. Popular in the automotive sector it is possible to machine the material extremely accurately, in recent years EN19 has become an established material in the Oil & Gas sector. The material lends itself well to any application where strength is a primary consideration.

Key features:
- High quality alloy steel
- High tensile steel
- Good ductility and shock resistance
- Good wear resistance
- Can be induction hardened

Machinability
More difficult to machine but can be machined to fine dimensional tolerances

Related material specifications
- BRITISH BS 970:1991
  - 709M40T
- BRITISH BS 970:1955
  - EN19T
- GERMAN DIN
  - 42CrMo4
- FRENCH AFNOR
  - 42CD4
- SWEDISH SS
  - 2244
- AMERICAN SAE
  - 4140
- EUROPEAN STEEL NO.
  - 1.7225
- EUROPEAN STEEL NAME
  - 42CrMo4
- EUROPEAN STANDARD
  - EN10277-5

Chemical Composition (weight %)

<table>
<thead>
<tr>
<th></th>
<th>C</th>
<th>Mn</th>
<th>Cr</th>
<th>Mo</th>
<th>Si</th>
<th>S</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>min.</td>
<td>0.35</td>
<td>0.50</td>
<td>0.90</td>
<td>0.20</td>
<td>0.10</td>
<td>0.05</td>
<td>0.035</td>
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<tr>
<td>max.</td>
<td>0.45</td>
<td>0.80</td>
<td>1.50</td>
<td>0.40</td>
<td>0.35</td>
<td>0.05</td>
<td>0.035</td>
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</tbody>
</table>

Mechanical Properties (subject to ruling section)

<table>
<thead>
<tr>
<th>Condition</th>
<th>Tensile N/mm²</th>
<th>Yield N/mm²</th>
<th>Elongation %</th>
<th>Izod KCV J</th>
<th>Hardness Brinell</th>
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</thead>
<tbody>
<tr>
<td>S</td>
<td>775-925</td>
<td>555</td>
<td>13</td>
<td>22</td>
<td>223-277</td>
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<tr>
<td>T</td>
<td>850-1000</td>
<td>680</td>
<td>13</td>
<td>50</td>
<td>248-302</td>
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<tr>
<td>U</td>
<td>925-1000</td>
<td>755</td>
<td>12</td>
<td>42</td>
<td>269-331</td>
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</tbody>
</table>

Technical Assistance
Our knowledgeable staff backed up by our resident team of qualified metallurgists and engineers, will be pleased to assist further on any technical topic.

www.smithmetal.com  sales@smithmetal.com

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