PHYSICAL PROPERTIES

- Density: 7.8

- Mean coefficient of expansion in m/m.°C:
  - between 20°C and 100°C: 11.4 x 10^-6
  - between 20°C and 700°C: 13.6 x 10^-6

- Critical points:
  - Ac 1: 670°C
  - Ac 3: 795°C

COMPOSITION

<table>
<thead>
<tr>
<th>Element</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon</td>
<td>0.35</td>
</tr>
<tr>
<td>Nickel</td>
<td>3.80</td>
</tr>
<tr>
<td>Chromium</td>
<td>1.70</td>
</tr>
<tr>
<td>Molybdenum</td>
<td>0.30</td>
</tr>
</tbody>
</table>

APPLICATIONS

- Mechanical components or tools of heavy section or complex shape, exposed to high stresses.
  - Example:
    - Bolsters for drop stamps.
    - Moulds for manufacturing plastic materials.

QUALITIES

- High field stress and excellent impact strength.
- High level of hardenability.
- Good dimensional stability.
- Ideal where a high polish is required.
• Brinell hardness approximately 269 in the softened condition.

**HEAT TREATMENT**

**Hardening:**
- Preheat to 650°C
- Raise to 875°C
- Air cool or gas pressure quench.

It is recommended that heating should take place in a neutral atmosphere.

![CCT Diagram](Austenitizing at 875°C)
• Tempering:
  - According to hardness required.

[TEMPERING CURVE]

1 cm thick test piece
MECHANICAL PROPERTIES


Hardened at 875°C. Sub-zero treatment (-75°C). Temper at 200°C.
- UTS: 1850 N/mm²
- 0.2 % Yield strength: 1400 N/mm²
- Elongation (5d): 8 %
- Impact strength KCU: 40 J/cm²

Hardened at 875°C / air quench. Temper at 650°C.
- UTS: 1000 N/mm²
- 0.2 % Yield strength: 850 N/mm²
- Elongation (5d): 19 %
- Impact strength KCU: 130 J/cm²

VARIATION OF MECHANICAL PROPERTIES WITH TEMPERING TEMPERATURE

Heat treatment on rough machined blanks

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The data provided in this document represent typical or average values rather than maximum or minimum guaranteed values. The applications indicated for the grades described are given as guidance only in order to help the reader in his personal assessment. Please note that these do not constitute a guarantee whether implicit or explicit as to whether the grade selected is suited to specific requirements. Aubert & Duval's liability shall not under any circumstances extend to product selection or to the consequences of that selection.