Boron-alloyed case hardening steel

BU Precision Steel supplies boron-alloyed case hardening steels in accordance with DIN EN 10084 and Stahl-Eisen list. They are a low-cost alternative for substituting heat-treatable steels and offer much better cold formability owing to their low carbon content.

Depending on grade and application boron-alloyed steels are amenable to fine blanking without prior annealing. Even in the hot rolled condition boron steels display good processing and forming properties.

Hohenlimburg precision strip:

– is used in virtually all industry sectors.

– offers close thickness tolerances similar to cold-rolled strip, optimum surface finishes and consistent material properties over the entire strip length and width.

– is characterized by its symmetrical strip profiles and mill edges.

– is the sum of all the experience we have gained in more than 100 years of manufacturing and processing steel.
Technical features

Boron-alloyed case hardening steel
Material number: 1.7135
Material name: 8MnCrB3
Proprietary brand: HLB 8
Application: Case hardening steel for parts in machinery and auto construction

### Chemical composition

<table>
<thead>
<tr>
<th>Ladle analysis mass percentages</th>
<th>C [%]</th>
<th>Si [%]</th>
<th>Mn [%]</th>
<th>P [%]</th>
<th>S [%]</th>
<th>Al [%]</th>
<th>Cr [%]</th>
<th>B [%]</th>
<th>Ti [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>min.</td>
<td>0.06</td>
<td>0.15</td>
<td>0.70</td>
<td>–</td>
<td>–</td>
<td>0.020</td>
<td>0.25</td>
<td>0.0010</td>
<td>0.020</td>
</tr>
<tr>
<td>max.</td>
<td>0.11</td>
<td>0.40</td>
<td>0.95</td>
<td>0.025</td>
<td>0.015</td>
<td>0.060</td>
<td>0.50</td>
<td>0.0040</td>
<td>0.050</td>
</tr>
</tbody>
</table>

Further special analyses available

### Mechanical properties

<table>
<thead>
<tr>
<th>Longitudinal to rolling direction</th>
<th>Tensile strength $R_m$ (MPa)</th>
<th>Elongation $A_5$ [%]</th>
<th>$A_{80}$ [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rolled condition*</td>
<td>Ø 490</td>
<td>min. 22</td>
<td>min. 20</td>
</tr>
</tbody>
</table>

* Modified strength target values can be agreed on request

### General thickness tolerances

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard tolerances [mm]</td>
<td>± 0.04</td>
<td>± 0.04</td>
<td>± 0.05</td>
<td>± 0.055</td>
<td>± 0.06</td>
<td>± 0.07</td>
<td>± 0.08</td>
<td>± 0.10</td>
</tr>
<tr>
<td>Special tolerances [mm]</td>
<td>± 0.03</td>
<td>± 0.035</td>
<td>± 0.04</td>
<td>± 0.045</td>
<td>± 0.05</td>
<td>± 0.055</td>
<td>± 0.06</td>
<td>± 0.07</td>
</tr>
</tbody>
</table>

### Possible delivery options

<table>
<thead>
<tr>
<th>Options</th>
<th>Mill edge (NK)</th>
<th>pickled</th>
<th>unpickled</th>
<th>slit</th>
<th>trimmed</th>
<th>cut to length</th>
</tr>
</thead>
<tbody>
<tr>
<td>8MnCrB3 / HLB 8</td>
<td>NK or GK</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

### General delivery options

- Coil inner diameter: standard 508 mm / optional 610 mm
- Coil outer diameter: max. 1,890 mm
- Coil weight: max. 20.5 kg/mm strip width
- Strip width: max. 720 mm
- Strip thickness: 1.5 – 16 mm

Please contact our sales/technical customer advice team for detailed information.
Application examples for boron-alloyed case hardening steel

- Bracket
- Shift fork
- Drive shaft for agricultural machinery
- Rear axle tube
- Clamping bushing
- Gear arm

Special mill grades feature unique thyssenkrupp properties. Other terms and conditions of supply not specified here will be based on the applicable specifications. The specifications used will be those valid on the date of publication of this product information.

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