Heat treatable and spring steel

Whether it’s for wear parts, springs, chain links or safety components, heat treatable steels from BU Precision Steel offer the right solution for all requirements. Good fine blanking properties and formability in the annealed condition are combined with high strengths and good toughness in the quenched and tempered condition. Close analysis ranges tailored to specific purposes and precisely controlled rolling parameters guarantee consistent and outstanding processability and consistent heat treatment results.

We can supply a variety of unalloyed and alloyed heat treatable steels in accordance with DIN EN 10083 with carbon contents between 0.20% and 0.60%, and spring steels in accordance with DIN EN 10132-4.

precidur®:

– 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.

engineering.tomorrow.together.
**Technical features**

**Heat treatable steel**
- **Material number:** 1.0501 / 1.1181
- **Material name:** C35 / C35E
- **Proprietary brand:** precidur® C35 / C35E
- **Delivery specification:** DIN EN 10083-2, DIN EN ISO 683-1
- **Application:** Heat-treatable steel for parts in auto, machinery and plant 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>Cr [%]</th>
<th>Mo [%]</th>
<th>Ni [%]</th>
<th>Al [%]</th>
<th>Cu [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>min.</td>
<td>0.32</td>
<td>0.10</td>
<td>0.50</td>
<td>–</td>
<td>–</td>
<td>0.10</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>max.</td>
<td>0.38</td>
<td>0.40</td>
<td>0.80</td>
<td>0.025</td>
<td>0.015</td>
<td>0.30*</td>
<td>0.10</td>
<td>0.20</td>
<td>0.015</td>
<td>0.20</td>
</tr>
</tbody>
</table>

Further special analyses available  
* Cr-free variant 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 670</td>
<td>min. 18</td>
<td>min. 16</td>
</tr>
<tr>
<td>GKZ annealed</td>
<td>max. 550</td>
<td>min. 24</td>
<td>–</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>
<th>Annealed</th>
<th>Not Annealed</th>
</tr>
</thead>
<tbody>
<tr>
<td>precidur® C35/C35E</td>
<td>NK or GK</td>
<td>√</td>
<td>or √</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
</tbody>
</table>

**General thickness tolerances**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<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>± 0.05</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>

**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

* May be subjected to restrictions.
Application examples for heat treatable and spring steel

Pistons for transmissions

Parking brake wheel

Clutch membrane spring

Shift fork

Shift jaw

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.

General information

All statements as to the properties or utilization of materials and products are for the purposes of description only. Guarantees in respect of the existence of certain properties or utilization are only valid if agreed in writing. Subject to technical changes. Reprints, in whole or in part, only with the permission of thyssenkrupp Hohenlimburg GmbH. The latest version of this product information can be found at: https://www.thyssenkrupp-steel.com/en/publications.html