Material Data Sheet
Guide Rails C 45 1.0503

Flat Track Guide Material with:

- Good Hardening Properties
- Excellent Ground Finish

Selected for use for High Quality Linear Guides and Slide ways.

// Chemical Analysis %

<table>
<thead>
<tr>
<th>Material</th>
<th>C</th>
<th>Si (max.)</th>
<th>Mn (max.)</th>
<th>P</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>C 45</td>
<td>0.42</td>
<td>0.50</td>
<td>0.80</td>
<td>0.045</td>
<td>0.045</td>
</tr>
</tbody>
</table>

Specification to EN 10083

// Mechanical Properties, untreated

<table>
<thead>
<tr>
<th>Material</th>
<th>Dimension (mm)</th>
<th>Re (N/mm²)</th>
<th>Rm (N/mm²)</th>
<th>A (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C 45</td>
<td>All</td>
<td>&gt; = 300</td>
<td>&gt; = 500</td>
<td>14</td>
</tr>
</tbody>
</table>

Density: 7,85 kg / dm³

Tolerance:
- IT 9 Plough ground
- IT 7 Precision ground

Surface finish:
- Hardened
  - Commercial Standard, Grinding
    - Ra < 0,8 µm
  - Super Finished Grinding
    - Ra < 0,4 µm
- Non hardened
  - Commercial Standard, Grinding
    - Ra < 1,6 µm
  - Super Finished Grinding
    - Ra < 0,8 µm

Straightness: Standard < = 0,5 mm/m

Parallelism:
- Plough ground 0,05 mm/length
- Precision ground 0,02 mm/length

Twist: < 1°/m
Better is possible depending on section.

Induction hardened: Surface Hardened 56 - 64 HRC

<table>
<thead>
<tr>
<th>Material</th>
<th>Dimension</th>
<th>Depth of Hardness Rht DIN EN 10328</th>
</tr>
</thead>
<tbody>
<tr>
<td>C 45</td>
<td>All</td>
<td>Rht 500 HV1 1 mm + 1,5 mm</td>
</tr>
</tbody>
</table>

Rht is deeper at edges for geometrical reasons. Measured at the flat bar face centre.

Dimensions

C 45 material is purchased black for each individual order from approved suppliers.

Square Bar Steel / FLAT

<table>
<thead>
<tr>
<th>Width (mm)</th>
<th>Thickness (mm)</th>
<th>* Production Length (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>min. 20</td>
<td>min. 4</td>
<td>min. 1,200</td>
</tr>
<tr>
<td>max. 140</td>
<td>max. 50</td>
<td>max. 8,150</td>
</tr>
</tbody>
</table>

* When ordering stock, as opposed to fixed length Guide Rails, please be aware that up to 10% of the delivery may be out of tolerance. Stock Guide Rails do not have their ends cut which means that up to 150 mm of each end may not be fully hardened and may not be within geometrical tolerance.

Specials:
Other hardness depths and tolerances are available. Please contact us for detailed information, dimensions and minimum order quantities.

Guides to 4000 mm length can be dense chrome plated with ZOLLERN Duro 3 Hard-Chrome-Plating.