HARDENABLE CORROSION RESISTANT STEELS

Available Product Shapes

- Long Products
- Plates
- Round Bar
- Round Ground Bar

Product Description

An increase in productivity in high-tech mould-making can only be achieved by using mould steels with materials properties trimmed specifically towards the intended use. Due to the increased share of glass-fiber reinforced plastics, BOHLER M340 ISOPLAST is also increasingly suitable for this kind of processing. In addition, this grade also provides good food resistance. Approvals for the food industry are available from voestalpine BOHLER Edelstahl.

Properties

- Good toughness & ductility
- High wear resistance
- Good machinability
- Very good dimensional stability
- Good polishability
- High corrosion resistance
- High micro-cleanliness

Applications

- Components for Food processing and Animal Feed
- Plastic Extrusion
- Medical
- Components for Displays
- Powder Pressing
- Food processing Industry
- Screws and Barrels
- Camera lenses
- Custom Hand Knives
- Pill punching dies
- Injection Molding
- Standard Parts (Molds, Plates, Pins, Punches)
- Packaging
- Electronic Industry

Chemical composition

<table>
<thead>
<tr>
<th>C</th>
<th>Si</th>
<th>Mn</th>
<th>Cr</th>
<th>Mo</th>
<th>V</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.54</td>
<td>0.45</td>
<td>0.40</td>
<td>17.30</td>
<td>1.10</td>
<td>0.10</td>
<td>+</td>
</tr>
</tbody>
</table>

voestalpine BÖHLER Edelstahl GmbH & Co KG
www.voestalpine.com/bohler-edelstahl
Material characteristics

<table>
<thead>
<tr>
<th>Material</th>
<th>Corrosion resistance</th>
<th>Machinability in as supplied condition</th>
<th>Polishability</th>
<th>Toughness</th>
<th>Wear resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>BÖHLER M340</td>
<td>★★★★★</td>
<td>★★★</td>
<td>★★</td>
<td>★★</td>
<td>★★★★★</td>
</tr>
<tr>
<td>BÖHLER M310</td>
<td>★★★★</td>
<td>★★★</td>
<td>★★</td>
<td>★★</td>
<td>★★★★★</td>
</tr>
<tr>
<td>BÖHLER M333</td>
<td>★★★★</td>
<td>★★★</td>
<td>★★★</td>
<td>★★</td>
<td>★★★★★</td>
</tr>
<tr>
<td>BÖHLER M348</td>
<td>★★★★★</td>
<td>★★★</td>
<td>★★★</td>
<td>★★</td>
<td>★★★★★</td>
</tr>
<tr>
<td>BÖHLER M397</td>
<td>★★★★★</td>
<td>★★★</td>
<td>★★★</td>
<td>★★</td>
<td>★★★★★</td>
</tr>
<tr>
<td>BÖHLER M398</td>
<td>★★★★★</td>
<td>★★★</td>
<td>★★★</td>
<td>★★</td>
<td>★★★★★</td>
</tr>
<tr>
<td>BÖHLER M350</td>
<td>★★★★★★</td>
<td>★★★</td>
<td>★★★</td>
<td>★★</td>
<td>★★★★★</td>
</tr>
</tbody>
</table>

Delivery condition

Soft annealed

Hardness

max. 260 HB

Heat treatment

Stress relieving

Temperature (°C / °F) 650 / 1202

After temperature equalization, soak for 1 to 2 hours in neutral atmosphere. Slow cooling in furnace. After hardening and tempering, stress relieving has to be performed 50°C (90°F) below last tempering temperature.

Hardening and Tempering

Temperature (°C / °F) 980 / 1796 - 1000 / 1832

Holding time after temperature equalization: 15 to 30 minutes Quenching media: N₂.

Physical Properties at 20°C / 68°F

<table>
<thead>
<tr>
<th>Property</th>
<th>Density</th>
<th>Thermal conductivity</th>
<th>Specific heat</th>
<th>Modulus of elasticity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7.67 / 0.28</td>
<td>18.2 / 10.52</td>
<td>460 / 109.87</td>
<td>219 / 31.76</td>
</tr>
<tr>
<td></td>
<td>[kg/dm³ / lb/in³]</td>
<td>[W/(m.K) / BTU (IT) ft/hr/ft²/F]</td>
<td>[J/(kg.K) / BTU (IT) lb/F]</td>
<td>[10⁶N/mm² / 10⁶ksi]</td>
</tr>
</tbody>
</table>

Thermal Expansions

<table>
<thead>
<tr>
<th>Temperature (°C / °F)</th>
<th>100 / 212</th>
<th>200 / 392</th>
<th>300 / 572</th>
<th>400 / 752</th>
<th>500 / 932</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal expansion (10⁻⁶ m/(m.K) / 10⁻⁶ inch/(inch.F))</td>
<td>10.86 / 6.044</td>
<td>10.78 / 5.989</td>
<td>11.21 / 6.228</td>
<td>11.61 / 6.45</td>
<td>11.9 / 6.611</td>
</tr>
</tbody>
</table>

For more information see www.voestalpine.com/bohler-edelstahl