HIGH PERFORMANCE TOOL STEELS FOR COINING
A LOT OF MONEY IS BEING MADE WITH BÖHLER STEEL

Since generations BÖHLER special steel is a synonym for high performance tooling solutions. Even in the coining industry. A number of well-known mints worldwide trust BÖHLER and its innovative steel grades, for endless coining processes.
The major grades for endless coining

<table>
<thead>
<tr>
<th>BÖHLER grade</th>
<th>C</th>
<th>Cr</th>
<th>Mo</th>
<th>V</th>
<th>W</th>
<th>Others</th>
<th>Standards</th>
<th>DIN / EN</th>
<th>AISI</th>
</tr>
</thead>
<tbody>
<tr>
<td>BÖHLER K340</td>
<td>1.10</td>
<td>8.30</td>
<td>2.10</td>
<td>0.50</td>
<td>–</td>
<td>+ Al + Nb</td>
<td>Eigenpatent / Patent</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>BÖHLER K455</td>
<td>0.63</td>
<td>1.10</td>
<td>–</td>
<td>0.18</td>
<td>2.00</td>
<td>–</td>
<td>&lt; 1.2550 &gt; 60WCrV7</td>
<td>– S1</td>
<td>–</td>
</tr>
<tr>
<td>BÖHLER K605</td>
<td>0.55</td>
<td>1.00</td>
<td>0.25</td>
<td>–</td>
<td>–</td>
<td>Si = 0.30</td>
<td>≈ 1.2721 ≈ 50NiCr13</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>BÖHLER K490</td>
<td>1.40</td>
<td>6.40</td>
<td>1.50</td>
<td>3.70</td>
<td>3.50</td>
<td>+ Nb</td>
<td>Eigenpatent / Patent</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>BÖHLER K890</td>
<td>0.85</td>
<td>4.35</td>
<td>2.80</td>
<td>2.10</td>
<td>2.55</td>
<td>Si = 0.55</td>
<td>Eigenpatent / Patent</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

* Available in ESR and VAR quality.
## RECOMMENDED MATERIALS

### Qualitative comparison of the major steel properties

<table>
<thead>
<tr>
<th>BÖHLER grade</th>
<th>Wear resistance</th>
<th>Toughness</th>
<th>Compressive strength</th>
<th>Dimensional stability during heat treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BÖHLER K340 ISO DUR</strong></td>
<td>★★★</td>
<td>★★★★</td>
<td>★★★★</td>
<td>★★★★</td>
</tr>
<tr>
<td><strong>BÖHLER K455</strong></td>
<td>★★</td>
<td>★</td>
<td>★★★★</td>
<td>★</td>
</tr>
<tr>
<td><strong>BÖHLER K605</strong></td>
<td>★</td>
<td>★</td>
<td>★★★★</td>
<td>★</td>
</tr>
<tr>
<td><strong>BÖHLER K490 MICROCLEAN</strong></td>
<td>★★★★</td>
<td>★★★★</td>
<td>★★★★</td>
<td>★★★★</td>
</tr>
<tr>
<td><strong>BÖHLER K890 MICROCLEAN</strong></td>
<td>★★★</td>
<td>★★★★</td>
<td>★★★★</td>
<td>★★★★</td>
</tr>
</tbody>
</table>

Important: This evaluation is solely intended for use in blanking and cutting and the steel grades mentioned above. Comparison is strongly dependent on the heat treatment conditions. For detailed material selection please contact your local BÖHLER sales agent.
The reason for making the decision to use quality tool materials is obvious, as the material amount of a high performance tool is often only 5% of the total value of a tool, yet it increases tool service life many times over. In a word, it’s a direct commercial advantage in production.

### Property profile of BÖHLER cold work steels according to manufacturing technologies

- **Wear resistance**
  - Powder Metallurgy
  - ESR
  - conventional

- **Toughness, ductility**
PESR Manufacture

Improved service life due to:
- least possible inclusion content
- lower micro and macro segregation
- good homogeneity and a higher degree of purity
- a homogenic structure throughout the entire cross-section and bar length
- producing larger bar dimensions at a constant carbide distribution
- uniform correction of dimensions
- a broad range of application due to a high degree of toughness

VAR Manufacture

Material properties:
- minimum gas contents
- reduction of trace elements such as Pb, Bi, Te, As, Sn, Sb
- minimum microsegregations in the ingot centre
- low susceptibility to the formation of freckles (segregations)
- highly precise chemical analysis
- high cleanliness

Microstructure of an 8% Cr-steel in ESR quality

K455 VMR technology
3 ADVANCED TECHNOLOGIES

Powder metallurgical manufacturing

MICROCLEAN®

For the highest demands:
• finest carbide distribution
• highest metallurgical purity
• segregation free high performance steel
• isotropic properties
• maximum wear resistance with a simultaneously higher toughness
• a high degree of hardness
• very good dimensional stability
• high compressive strength
• good polishability

Microstructure PM materials
Printed on chlorine-free bleached paper having no pollution effects.

Your partner:

The data contained in this brochure is merely for general information and therefore shall not be binding on the company. We may be bound only through a contract explicitly stipulating such data as binding. Measurement data are laboratory values and can deviate from practical analyses. The manufacture of our products does not involve the use of substances detrimental to health or to the ozone layer.

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