BALINIT HARD CARBON
For a sharp cut
Highly productive machining in non-ferrous materials
BALINIT HARD CARBON for cutting tools
High quality delivers superior results

When machining nonferrous materials, this formula applies: The sharper the edge and the smoother the surface, the more efficient and successful the manufacturing process. You can reliably attain this goal with BALINIT® HARD CARBON by Oerlikon Balzers, a technology leader in hard coatings. BALINIT® HARD CARBON lets you step into unique advantages that make the difference.

**OPTIMISED PERFORMANCE**

<table>
<thead>
<tr>
<th>High coating hardness</th>
<th>Protection against abrasive wear results in longer tool lifetime</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smooth coating surface with consistently sharp tool edges, for micro tools as well</td>
<td>Protection against adhesive wear and improved tool surface quality lead to reduced tooling costs</td>
</tr>
<tr>
<td>High thermal stability with a maximum application temperature of 500 °C</td>
<td>MQL and dry machining possible</td>
</tr>
<tr>
<td>Low coefficient of friction due to reduced roughness</td>
<td>Improved capacity utilisation</td>
</tr>
<tr>
<td></td>
<td>Reduced production costs</td>
</tr>
<tr>
<td></td>
<td>Low torques</td>
</tr>
<tr>
<td></td>
<td>Low tendency to adhesion</td>
</tr>
</tbody>
</table>

**BALINIT® HARD CARBON**
Increased productivity, reliability and process stability

**Application recommendations**

Drilling, milling, countersinking, reaming

- Aluminium and aluminium alloys with up to 14% Si
- Organic materials such as wood and paper
- Copper, bronze, silver, gold, platinum
Considerable performance gain when machining non-ferrous materials

**BALINIT® HARD CARBON: Drilling of engine block**

- Tool: Carbide drill Ø 9.33 x 150 mm
- Workpiece: Aluminum ADC12 Engine Block
- Cutting data:
  - $n = 7530$ 1/min
  - $v_t = 3470$ mm/min
  - $v_c = 220$ m/min
- Benefit: Increased tool life by 300% due to less friction and improved wear resistance
- Source: Automotive end user Brazil

**BALINIT® HARD CARBON: Drilling aluminum crankcase**

- Tool: Carbide drill Ø 5.1 x 125 mm
- Workpiece: Crankcase Aluminium alloy (ADC 12% Si)
- Cutting data:
  - $v_c = 85$ m/min
  - $f_a = 0.1$ mm
  - Micro-blasted Post-treated
- Benefit: Lifetime improvement
- Source: Indian 2 wheeler manufacturer

**BALINIT® HARD CARBON: Grooving brass watch crown**

- Tool: Grooving shank type tool 8 x 8 x 120 mm Carbide tip brazed
- Workpiece: Watch component crown brass
- Cutting data:
  - $N = 3000$ rpm
  - $F = 0.01$
  - Oil lubricated
- Benefit: + 300% lifetime Improved surface quality
- Source: French watch industry
Efficient machining of aluminum parts

**BALINIT® HARD CARBON: Interpolator thread of brakes**

<table>
<thead>
<tr>
<th>Tool</th>
<th>Interpolator thread mill</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workpiece</td>
<td>Aluminum 6061 ABS braking system</td>
</tr>
<tr>
<td>Cutting data</td>
<td>n = 10000 1/min, v = 0.12 mm/min</td>
</tr>
<tr>
<td>Benefit</td>
<td>Performance increase</td>
</tr>
<tr>
<td>Source</td>
<td>Automotive end user Brazil</td>
</tr>
</tbody>
</table>

![Graph showing tool life in 1,000 parts with BALINIT® HARD CARBON providing a 860% more parts produced]

**When machining non-ferrous materials, take advantage of BALINIT HARD CARBON**

Contact us now!