Carbon-based BALINIT coatings

The DLC coating series that makes plastic processing productive and efficient
Tribological systems are exposed to extreme mechanical stresses. That’s why an optimised surface coating of your plastic injection molds is so essential: It reduces wear in heavily stressed zones, increases the service life of your molds, and boosts the productivity of your manufacturing process. Trust the DLC coating series developed by Oerlikon Balzers: BALINIT® C, BALINIT® TRITON, BALINIT® HARD CARBON, BALINIT® DYLYN, BALINIT® DYLYN PLUS, and BALINIT® DYLYN PRO coatings feature outstanding properties:

- **Amorphous carbon coating**
  - Improved corrosion resistance

- **Lower coefficient of friction**
  - Good protection against adhesive wear and tribo-oxidation, high stress resistance under deficient lubrication and dry running conditions

- **Extreme coating hardness**
  - Excellent protection against abrasive wear

- **Inert surface chemistry**
  - Very good running-in and smooth-running behaviour
  - Reduction of sticking
  - Elimination of demolding problems due to deposits

**BALINIT®: Productivity gains in the manufacturing process**

**The DLC coating series – the ideal solution for your challenges**

<table>
<thead>
<tr>
<th></th>
<th>BALINIT® C</th>
<th>BALINIT® TRITON</th>
<th>BALINIT® HARD CARBON</th>
<th>BALINIT® DYLYN</th>
<th>BALINIT® DYLYN PLUS</th>
<th>BALINIT® DYLYN PRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abrasion</td>
<td>+</td>
<td>++</td>
<td>+++</td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Adhesion (seizure)</td>
<td>+++</td>
<td>+++</td>
<td>+</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
</tr>
<tr>
<td>Corrosion</td>
<td>+</td>
<td>++</td>
<td>++</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
</tr>
<tr>
<td>Demolding</td>
<td></td>
<td></td>
<td></td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Mold filling</td>
<td></td>
<td></td>
<td></td>
<td>+++</td>
<td>+++</td>
<td></td>
</tr>
</tbody>
</table>
The optimised solution for every application!

Whether electrical, electronic, med-tech, pharma or packaging: in many industries, our DLC coatings are pivotal elements in reliable, high-performance plastics processing environments.

**BALINIT® DYLYN PRO or BALINIT® DYLYN PLUS**

- e.g. for thread cores for cap molds
  - Service life up to 10 million parts
  - Repolishing required
  - Extra corrosion resistance for CuBe cooling cores

**BALINIT® C and BALINIT® DYLYN**

- e.g. for ejectors and slider systems
  - Reduced mold servicing effort
  - Streamlined production

**BALINIT® HARD CARBON and BALINIT® DYLYN PLUS**

- e.g. for bellows form segment
  - Reduced adhesion
  - Less maintenance

### Persuasive parameters

<table>
<thead>
<tr>
<th></th>
<th>BALINIT® C</th>
<th>BALINIT® TRITON</th>
<th>BALINIT® HARD CARBON</th>
<th>BALINIT® DYLYN</th>
<th>BALINIT® DYLYN PLUS</th>
<th>BALINIT® DYLYN PRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coating material</td>
<td>Me-C:H</td>
<td>a-C:H</td>
<td>ta-C</td>
<td>a-C:H:Si</td>
<td>a-C:H:Si</td>
<td>a-C:H:Si</td>
</tr>
<tr>
<td>Microhardness (HV 0.05)</td>
<td>1,500</td>
<td>2,500</td>
<td>5,000</td>
<td>2,500</td>
<td>2,200</td>
<td>2,100</td>
</tr>
<tr>
<td>Coefficient of friction (dry against steel)</td>
<td>0.1 – 0.2</td>
<td>0.1 – 0.2</td>
<td>0.1 – 0.2</td>
<td>0.1 – 0.2</td>
<td>0.05 – 0.1</td>
<td>0.05 – 0.1</td>
</tr>
<tr>
<td>Max. service temperature (°C)</td>
<td>300</td>
<td>300</td>
<td>500</td>
<td>300</td>
<td>350</td>
<td>350</td>
</tr>
<tr>
<td>Coating temperature (°C)</td>
<td>180 – 250</td>
<td>180 – 250</td>
<td>&lt; 150</td>
<td>180 – 220</td>
<td>180 – 220</td>
<td>180 – 220</td>
</tr>
<tr>
<td>Coating colour</td>
<td>Charcoal</td>
<td>Black</td>
<td>Black</td>
<td>Black</td>
<td>Black</td>
<td>Black</td>
</tr>
<tr>
<td>Available as STAR version*</td>
<td>x (CrN)</td>
<td>x (CrN)</td>
<td>x (Ti)</td>
<td>x (Ti)</td>
<td>x (Ti)</td>
<td>x (Ti)</td>
</tr>
</tbody>
</table>

* The STAR versions deliver better load-bearing capabilities paired with high surface pressures.

The following materials can be coated: High-speed steels, plastic mold steels, cold- and hot-working steels, stainless steels, heat-treatable steels, cemented carbides, suitable CuBe alloys.

All data provided herein is for reference purposes only. Definitive values depend on the respective substrate, geometry, and surface finish.
Benefit from the high-performance DLC coating series
Contact us now!

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