Multipurpose PVD Coating System

HIGHLIGHTS
- HPIES High Performance Ion Etching System
- Flexible and productive
- Up to 3 different target materials
- Rapid target exchange
- Negligible coating thickness tolerance +/- 0.2
- Low running costs
- Various evaporation configuration

THROUGHPUT
- Useful coating volume: Ø 350 x H 500 mm
- Up to 4 batches / day - Cycle time 3 to 4 hrs
- Qty / batch:
  - end mills Ø10 x 70 mm: 360 pieces
  - drills Ø12 x 150 mm: 270 pieces
  - inserts: 1,980 pieces

INDIVIDUAL COATING PORTFOLIO
- Monolayers
- Multilayers
- Gradient layers
- Nano layers
- Nanocomposites
- Duplex

INDIVIDUAL APPLICATIONS
- Cutting
- Gearing
- Precision components
- Forming
- Molding
A perfect combination for cutting applications

Easy to operate

Local support

Affordable

Low running cost

Precise

Short cycle time

Producing – HIGH PERFORMANCE COATINGS

<table>
<thead>
<tr>
<th>Materials</th>
<th>Applications</th>
<th>Turning</th>
<th>Milling</th>
<th>Drilling</th>
<th>Tapping</th>
<th>Microtools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steels &lt; 35 HRC</td>
<td>Multipurpose</td>
<td>ALTIN Nano</td>
<td>ALTIN Nano</td>
<td>ALTIN Nano</td>
<td>TIN S / TICN HP</td>
<td>ALTIN Micro</td>
</tr>
<tr>
<td></td>
<td>Dedicated</td>
<td>MpC+3 Insert</td>
<td>MpC+4</td>
<td>MpC Drill</td>
<td>TICN Taps</td>
<td>MpC+4 Micro</td>
</tr>
<tr>
<td>Steels &gt; 35 HRC to &lt; 52 HRC cast iron</td>
<td>Multipurpose</td>
<td>MpC+3</td>
<td>MpC+3</td>
<td>MpC Drill</td>
<td>TICN Taps</td>
<td>ALTIN Micro</td>
</tr>
<tr>
<td></td>
<td>Dedicated</td>
<td>MpC+2 Insert</td>
<td>Micral Cast</td>
<td>HardDrill</td>
<td>MpC Taps</td>
<td>Micral Nano</td>
</tr>
<tr>
<td>Steels &gt; 52 HRC</td>
<td>Multipurpose</td>
<td>Micral Cast</td>
<td>Micral Cast</td>
<td>Micral Cast</td>
<td>Micral Cast</td>
<td>Micral Cast</td>
</tr>
<tr>
<td>Stainless Steels</td>
<td>Multipurpose</td>
<td>MpC+4</td>
<td>MpC+4</td>
<td>MpC+4</td>
<td>TICN Taps</td>
<td>MpC+4 Micro</td>
</tr>
<tr>
<td></td>
<td>Dedicated</td>
<td>Micral Plus</td>
<td>Micral Plus</td>
<td>Micral Titan</td>
<td>Micral Titan</td>
<td>MpC+4 Micro</td>
</tr>
<tr>
<td>Titanium</td>
<td>Multipurpose</td>
<td>MpC+4</td>
<td>MpC+4</td>
<td>MpC+4</td>
<td>TICN Taps</td>
<td>MpC+4 Micro</td>
</tr>
<tr>
<td></td>
<td>Dedicated</td>
<td>Micral Titan</td>
<td>Micral Titan</td>
<td>Micral Titan</td>
<td>Micral Titan</td>
<td>MpC+4 Micro</td>
</tr>
<tr>
<td></td>
<td>Dedicated</td>
<td>Micral Titan</td>
<td>Micral Titan</td>
<td>Micral Titan</td>
<td>Micral Titan</td>
<td>MpC+4 Micro</td>
</tr>
<tr>
<td>Aluminum &lt; 12%</td>
<td>Multipurpose</td>
<td>ZrN</td>
<td>ZrN</td>
<td>ZrN</td>
<td>ZrN</td>
<td>ZrN</td>
</tr>
<tr>
<td></td>
<td>Dedicated</td>
<td>Micral Alu</td>
<td>Micral Alu</td>
<td>Micral Alu</td>
<td>Micral Alu Top</td>
<td>Micral Alu</td>
</tr>
<tr>
<td>Aluminum &gt; 12%</td>
<td>Multipurpose</td>
<td>Micral Alu</td>
<td>Micral Alu</td>
<td>Micral Alu</td>
<td>Micral Alu</td>
<td>Micral Alu</td>
</tr>
<tr>
<td>Bronze, Brass</td>
<td>Multipurpose</td>
<td>CrN</td>
<td>CrN</td>
<td>CrN</td>
<td>CrN</td>
<td>CrN</td>
</tr>
<tr>
<td></td>
<td>Dedicated</td>
<td>Micral Alu</td>
<td>Micral Alu</td>
<td>Micral Alu</td>
<td>Micral Alu</td>
<td>Micral Nano</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tool Steel &lt;&gt; Application</th>
<th>Condition</th>
<th>Gear Cutting</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSS / PM &lt;&gt; Steel</td>
<td>Dry</td>
<td>HardGearCut</td>
</tr>
<tr>
<td></td>
<td>Wet</td>
<td>MpC+5</td>
</tr>
<tr>
<td>Carbide &lt;&gt; Steel</td>
<td>Dry</td>
<td>HardGearCut</td>
</tr>
</tbody>
</table>

PD2i Europe
Dirk Haack
info@pd2i.com
Tel +49 (0) 2421 692 3000

PD2i France
Pierre Collignon
info@pd2i.com
Tel +33 (0) 153 75 45 05

North America
Dave Schwab
dave.schwab@pd2i.com
Tel +1 847 668 7279

South East Asia
Leong Sai Yeong
syleong@nanogrind.com
Tel +60 12 482 2006

China
Hee Choon Tan
heechoon.tan@pd2i.com
Tel +86 136 0005 6796

Taiwan
David Tseng
panfolksdavid@gmail.com
Tel +886 937 759 426

Korea
Yeojung Yoon
yeojung.yoon@pd2i.com
Tel +82 054 576 691

www.PD2i.com
www.courtoisgraphiste.com - Printed in Germany