**Technical Data**

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**Patent Application**

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**Ceramic Ball Grinding With Bonded Diamond Grain**

Ball grinding and ball fine grinding operations are carried out using the following production principle:

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**Process Advantages:**

- The diamond grains are firmly held inside a bonding matrix
- Use of honing oils as coolant
- High Process Stability
- Low quality variations within a batch
- Stock removal rate up to 160µm/h (dependant on ball material)
- Reduced pressure plate wear
- Minimised environmental impact through the use of filter technology
- Large batch sizes possible when used in conjunction with ball grinding machines with magazines
Workpiece materials:

Ball Material: \( \text{Si}_3\text{N}_4, \text{ZrO}_2, \text{Al}_2\text{O}_3, \text{WC}, \text{SiC} \)

Initial ball state: All initial ball geometry that results from the manufacturing process can be ground.

Product Range:

Abrasive Grain: Synthetic Diamond (65D)
Grain Size FEPA: D46 to D91
Structure: 00
Bonding: XA

Available Product Dimensions:

(ISO-Form: 2A2, Abrasive layer mounted on carrier plate)

<table>
<thead>
<tr>
<th>Outer Diameter (D) [mm]</th>
<th>Abrasive Layer Depth (X) [mm]</th>
<th>Internal Diameter (H) [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>5, 10, 15, 20</td>
<td>30</td>
</tr>
<tr>
<td>200</td>
<td></td>
<td>30; 50</td>
</tr>
<tr>
<td>300</td>
<td></td>
<td>30; 50</td>
</tr>
<tr>
<td>400</td>
<td></td>
<td>30; 50; 150</td>
</tr>
</tbody>
</table>

Application Example:

Ball grinding wheel 200 x 25 x 30, X=5, W=50, 5 Grooves

Ball Grinding:

65D 91 V00 B XA 100

\( \text{Si}_3\text{N}_4 \) Balls, shape: round
Batch Size: 300 pieces
Initial dia.: 5.34 mm
Final dia.: 5.16 mm
Stock removal: 180 \( \mu \text{m} \)
Grinding time: 3.5 hours
Stock removal rate: 51 \( \mu \text{m/h} \)
Pressure plate: Steel
Coolant: Honing Oil EMOL\textsuperscript{®}-O-HON 920 NV
Roundness: < 0.5 \( \mu \text{m} \)

Should you require any further information please contact:

Dr. Michael Pötzsch
Leiter F&E / Labor
Telefon: +49 (0) 228 408223
m.poetzsche@atlantic-bonn.de
www.atlantic-bonn.de