COLUMBIA SA
Vitrified bonded CBN grinding tools for internal cylindrical and profile grinding
COLUMBIA SA

With COLUMBIA SA, TYROLIT has created an innovative product line for internal cylindrical and profile grinding with CBN. The VCSA bond, which was specially developed for this purpose, further enhances the unique properties of CBN. The smaller wheel dimensions utilised within internal cylindrical grinding are particularly suitable for the economical use of CBN grinding wheels.

+ **Improved cool grinding behaviour:** The extremely high adhesion strength of VCSA enables a significant reduction in bond content. Consequently, grinding and dressing forces are also reduced.

+ **Highest process stability:** The extremely stable production performance of the COLUMBIA SA enables high reproducibility. The CBN grinding tools guarantee consistent workpiece quality with long dressing intervals.

+ **Improved economic efficiency:** The excellent grinding performance reduces the costs of the grinding process. Today, the required economic efficiency of CBN is reached more quickly, so that it is possible to switch from conventional to CBN in more applications.

+ **Additionally even using emulsion based coolants:** Extremely good tool life can be achieved as the VCSA bond has an inbuilt chemical resistance to the negative influence of these coolants types.

**Application**
Grinding of bores, tracks and profiles

**Example application**
Internal grinding of spherical ball bearing 1211 / Cooling lubricant: emulsion
Grinding wheel: TYROLIT COLUMBIA SA 1A1 45x21x16 SA85891K4VCSA 80

<table>
<thead>
<tr>
<th></th>
<th>Specific power drawn (W/mm)</th>
<th>Clock cycle (s)</th>
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<tbody>
<tr>
<td>COLUMBIA SA</td>
<td>229</td>
<td>8.9</td>
</tr>
<tr>
<td>TYROLIT STANDARD</td>
<td>261</td>
<td>10.6</td>
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**Innovative VCSA bond system:**
The significantly reduced bond content increases the porosity of the specification. The CBN super abrasive can therefore fully exploit its performance potential.

**Structure of COLUMBIA SA**