T-CBN
CBN grade for centrifugally casted iron machining

BX910

Innovative grade for the machining of centrifugally casted iron
Optimum solution for high speed machining of centrifugally casted iron!

Features

- Stable and long tool life with high cutting speed
  - Improved wear and chipping resistance
    - Optimized dispersion and content of cBN particles
  - Improved wear resistance when high speed machining
    - Newly developed binder with high heat resistance

Application range

- Cast iron
- Centrifugally casted iron

Comparison with conventional grade

Conventional grade
- Conventional binder (low heat resistance)
  - Edge damage from machining heat
- Dropout of cBN particles
  - Cause of fracture
- Cohesion of cBN particles

BX910
- Newly developed binder with high heat resistance
  - Reduced wear
- Even dispersion of cBN particles
  - Improved retention prevents particle dropout

Microstructure of BX910
Cutting performance

BX910 remains stable without sudden fracture.

Grade properties

<table>
<thead>
<tr>
<th>Application</th>
<th>Grade</th>
<th>Hardness (HV)</th>
<th>T. R. S. (GPa)</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cast iron</td>
<td>BX910</td>
<td>2600 ~ 2800</td>
<td>0.8 ~ 0.9</td>
<td>CBN grade for centrifugally casted iron machining</td>
</tr>
</tbody>
</table>

CBN grade with high wear resistance in high cutting speed, provides long and stable tool life in the machining of centrifugally casted iron, such as cylinder liners.

Standard cutting conditions

<table>
<thead>
<tr>
<th>Application</th>
<th>Grade</th>
<th>Cutting speed Vc (m/min)</th>
<th>Depth of cut ap (mm)</th>
<th>Feed f (mm/rev)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cast iron</td>
<td>BX910</td>
<td>1000 (500 - 1200)</td>
<td>0.1 (0.03 - 0.5)</td>
<td>0.3 (0.2 - 0.5)</td>
</tr>
</tbody>
</table>

Inserts

Negative type

<table>
<thead>
<tr>
<th>Features</th>
<th>Cat. No.</th>
<th>Grade No. of corners</th>
<th>Dimensions (mm)</th>
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<tbody>
<tr>
<td>Standard</td>
<td>2QP-SNGN090308</td>
<td>● 2</td>
<td>I.C.dia 9.525 Thickness 3.18</td>
</tr>
<tr>
<td></td>
<td>2QP-SNGN090312</td>
<td>● 2</td>
<td>I.C.dia 9.525 Thickness 3.18</td>
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</tbody>
</table>

Positive type

<table>
<thead>
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<th>Dimensions (mm)</th>
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<tbody>
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<td>2QP-SPGW09T308</td>
<td>● 2</td>
<td>Relief angle 11° I.C.dia 9.525 Thickness 3.18</td>
</tr>
<tr>
<td></td>
<td>2QP-SPGW09T312</td>
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<tr>
<td></td>
<td>2QP-SPGW120408</td>
<td>● 2</td>
<td>Relief angle 11° I.C.dia 9.525 Thickness 3.18</td>
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<td>2QP-SPGW120412</td>
<td>● 2</td>
<td>Relief angle 11° I.C.dia 9.525 Thickness 3.18</td>
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<td>2QP-SPGW120416</td>
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<td>Relief angle 11° I.C.dia 9.525 Thickness 3.18</td>
</tr>
<tr>
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<td>2QP-SPGN090308</td>
<td>● 2</td>
<td>Relief angle 11° I.C.dia 9.525 Thickness 3.18</td>
</tr>
<tr>
<td></td>
<td>2QP-SPGN090312</td>
<td>● 2</td>
<td>Relief angle 11° I.C.dia 9.525 Thickness 3.18</td>
</tr>
<tr>
<td></td>
<td>3QP-TPGW110308</td>
<td>● 3</td>
<td>Relief angle 11° I.C.dia 9.525 Thickness 3.18</td>
</tr>
<tr>
<td></td>
<td>3QP-TPGN110308</td>
<td>● 3</td>
<td>Relief angle 11° I.C.dia 9.525 Thickness 3.18</td>
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<tr>
<td></td>
<td>3QP-TPGN110312</td>
<td>● 3</td>
<td>Relief angle 11° I.C.dia 9.525 Thickness 3.18</td>
</tr>
</tbody>
</table>

*: Stocked items
### Practical examples

<table>
<thead>
<tr>
<th>Workpiece type</th>
<th>Cylinder liner</th>
<th>Cylinder liner</th>
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</thead>
<tbody>
<tr>
<td>Insert</td>
<td>2QP-SPGW120416</td>
<td>2QP-SPGW120416</td>
</tr>
<tr>
<td>Grade</td>
<td>BX910</td>
<td>BX910</td>
</tr>
</tbody>
</table>

#### Work material
- Centrifugally cast iron
- Centrifugally cast iron

<table>
<thead>
<tr>
<th>Cutting conditions</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutting speed: ( V_c ) (m/min)</td>
<td>1000</td>
</tr>
<tr>
<td>Feed: ( f ) (mm/rev)</td>
<td>0.3</td>
</tr>
<tr>
<td>Depth of cut: ( a_p ) (mm)</td>
<td>Semi finishing: 0.3  Finishing: 0.03</td>
</tr>
<tr>
<td>Machining</td>
<td>Boring</td>
</tr>
<tr>
<td>Coolant</td>
<td>Wet</td>
</tr>
</tbody>
</table>

### Results

#### Width of wear after 240 pcs machining

|          | 
|----------|---|
| Max. width of flank wear: \( V_B \) (mm) | 
| Semi finishing | 
| Finishing | 

<table>
<thead>
<tr>
<th></th>
<th>1.3 times tool life!</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competitor</td>
<td></td>
</tr>
<tr>
<td>BX910</td>
<td></td>
</tr>
</tbody>
</table>

- The tool life of the BX910 reaches beyond 300pcs.
- Sudden fracture and wear on the edge are reduced, providing highly stable machining and tool life.

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Jul. 2011 (TJ)