Turning Indexable Inserts

B1~B115

Turning Indexable Inserts Identification System B2
Insert Color B3
Chipbreaker Selection B4~B14
Chipbreaker shape of Negative Inserts B4
Chipbreaker shape of Positive Inserts B12

How to read pages of “Turning Inserts” B15
Cermet / Coated Carbide / Carbide Lineup B16~B104

Turning Negative Inserts
- CN: 80˚ Rhombic B16
- DN: 55˚ Rhombic B23
- KN: 55˚ Parallelogram B31
- RN: Round B31
- SN: 90˚ Square B32
- TN: 60˚ Triangle B36
- VN: 35˚ Rhombic B44
- WN: 80˚ Trigon B46
- Small Double Sided Tools B50

Turning Positive Inserts
- CC, CP: 80˚ Rhombic B53
- DC, DP: 55˚ Rhombic B62
- JC, JP: 70˚ Rhombic B73
- RC: Round B74
- SC, SP: 90˚ Square B75
- TB, TC, TP: 60˚ Triangle B76
- VB, VC, VP: 35˚ Rhombic B89
- WB, WP: 80˚ Trigon B97

Inserts for Back Turning TKFB B100
- ABS15 / ABW15 / ABW23 B102

Bearing Machining R-MT-BB / SNMF B103
Solid Tip-Bars B104

Ceramic Inserts Identification System B105

Ceramic Lineup B106~B115

Turning Negative Inserts
- CN: 80˚ Rhombic B106
- DN: 55˚ Rhombic B107
- EN: 75˚ Rhombic B107
- RN: Round B108
- SN: 90˚ Square B109
- TN: 60˚ Triangle B111
- VN: 35˚ Rhombic B112

Turning Positive Inserts
- RP: Round B113
- SP: 90˚ Square B113
- TB, TC, TP: 60˚ Triangle B113

Inserts for Hardened Roll Materials RBG / RCGX / RPGX B114
Grooving Inserts GH B115
## Turning Indexable Inserts Identification System

### ANSI (inch)

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### ISO (metric)

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<td>5/32</td>
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</table>

### Symbol, etc.

- **Hand Symbol**: Sharp edge, Polished, Chipbreakers, Insert Hand, Chipbreakers, Super Fine, etc.
- **Hole Shape**: Hole, Round insert, Corner-R (RE), etc.
- **Manufacturer’s Option**: Sharp Corner, Round insert, Corner-R (RE), etc.

### Note

- Expresses edge length for ISO.
- ANSI expresses the inscribed circle diameter in inches.
- Tolerance difference is depending on insert size.

#### Positive Inserts Identification System

- **CCGT060201M F P - SK**: Minus tolerance on Corner-R (RE)
- **CCET060201M F R - U SF**: Minus tolerance on Corner-R (RE)

#### When a minus tolerance is specified for the corner-R (RE)

- If a minus tolerance is specified for the corner-R (RE) as shown in the Fig. 1, using an insert with corner-R (RE)=0.2 mm may result in larger radius than specified.
- Use an insert of which R (RE) has a minus tolerance.

---

### Example of a specified corner-R in the drawing

![Fig. 1 Example of a specified corner-R in the drawing](image)
### Insert Color

**Cermet, MEGACOAT NANO Cermet, MEGACOAT Cermet and PVD Coated Cermet**

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<th>MEGACOAT Cermet</th>
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### CVD Coated Carbide

**CVD Coated Carbide**

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### PVD Coated Carbide

**MEGACOAT NANO**

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**MEGACOAT HARD**

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**MEGACOAT**

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### Ceramic

**Aluminum Oxide Ceramic**

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### DLC Coated Carbide

**DLC Coated Carbide**

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### Carbide

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# Chipbreaker Selection (Negative Inserts)

## Steel

### Molded Chipbreaker

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<tr>
<th>Name</th>
<th>Design</th>
<th>Advantages</th>
<th>Cutting Range</th>
<th>Name</th>
<th>Design</th>
<th>Advantages</th>
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<tbody>
<tr>
<td>WF</td>
<td><img src="image" alt="WF" /></td>
<td>Wiper insert Good chip control in finishing operations Excellent surface toughness by controlling adhesion Less cutting force due to sharp cutting edge</td>
<td>Finishing (With Wiper Edge)</td>
<td>PP</td>
<td><img src="image" alt="PP" /></td>
<td>3-step dot structure realizes stable chip control at a wide range of feed rate Less cutting force due to sharp cutting edge and smooth rake face</td>
</tr>
<tr>
<td>WP</td>
<td><img src="image" alt="WP" /></td>
<td>Wiper insert Good chip control at small machining</td>
<td>Finishing (With Wiper Edge)</td>
<td>PQ</td>
<td><img src="image" alt="PQ" /></td>
<td>Stable chip control in a wide feed rate range by breaking chips effectively The well-balanced edge sharpness and toughness</td>
</tr>
<tr>
<td>WE</td>
<td><img src="image" alt="WE" /></td>
<td>Wiper insert Good surface finish at high feed machining High productivity with smooth chip control in a wide range of applications</td>
<td>Finishing - Medium (With Wiper Edge)</td>
<td>GP</td>
<td><img src="image" alt="GP" /></td>
<td>Finishing to light machining Good chip control</td>
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<tr>
<td>WQ</td>
<td><img src="image" alt="WQ" /></td>
<td>Wiper insert Double feed rate possible while maintaining a smooth finish High efficiency and good chip control</td>
<td>Finishing - Medium (With Wiper Edge)</td>
<td>HQ</td>
<td><img src="image" alt="HQ" /></td>
<td>Sharp cutting performance with 3-D rake angle and double projection design</td>
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<tr>
<td></td>
<td><img src="image" alt="CQ" /></td>
<td>Good chip control for varied ap such as copying Applicable to up facing</td>
<td>Finishing - Medium (With Wiper Edge)</td>
<td>CQ</td>
<td><img src="image" alt="CQ" /></td>
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</table>

### Applicable Chipbreaker Range (ap indicates radius)

![Steel](image) (ap (mm))

![Steel](image) (ap (mm))

![Steel](image) (ap (mm))

![Steel](image) (ap (mm))
### Applicable Chipbreaker Range (ap indicates radius)

![Applicable Chipbreaker Range Diagram](image)

<table>
<thead>
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<td>CJ</td>
<td><img src="image" alt="CJ Design" /></td>
<td>Improved chip curing at small machining and high feed rate machining Improved chip evacuation at copying and up facing</td>
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<tr>
<td>Medium - Roughing</td>
<td>PG</td>
<td><img src="image" alt="PG Design" /></td>
<td>Stable machining with good balance of edge sharpness and strength Prevent chip dogging at high feed rate Good chip control at low feed rate Stable machining with wide chip control range</td>
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<tr>
<td>Medium - Roughing</td>
<td>GS</td>
<td><img src="image" alt="GS Design" /></td>
<td>Strong edge chipbreaker Stable for continuous machining and light interrupted machining</td>
</tr>
<tr>
<td>Medium - Roughing</td>
<td>PS</td>
<td><img src="image" alt="PS Design" /></td>
<td>General purpose chipbreaker More stable due to large contact surface</td>
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</table>

<table>
<thead>
<tr>
<th>Medium - Roughing</th>
<th>Name</th>
<th>Design</th>
<th>Advantages</th>
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</thead>
<tbody>
<tr>
<td>Medium - Roughing</td>
<td>HS</td>
<td><img src="image" alt="HS Design" /></td>
<td>General purpose chipbreaker Applicable to copying</td>
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<tr>
<td>Medium - Roughing</td>
<td>PT</td>
<td><img src="image" alt="PT Design" /></td>
<td>Low cutting force at high feed machining Land support structure</td>
</tr>
<tr>
<td>Medium - Roughing</td>
<td>GT</td>
<td><img src="image" alt="GT Design" /></td>
<td>Strong edge chipbreaker Wide land design and smooth chip control even at high feed rate machining</td>
</tr>
<tr>
<td>Roughing</td>
<td>Standard (Without Indication)</td>
<td><img src="image" alt="Standard Design" /></td>
<td>Low cutting force and applicable to large ap roughing</td>
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### Table of Chipbreaker Ranges

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<td>PG</td>
<td><img src="image" alt="PG Design" /></td>
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<td>Roughing</td>
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<td><img src="image" alt="Standard Design" /></td>
<td>Low cutting force and applicable to large ap roughing</td>
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Chipbreaker Selection (Negative Inserts)

Steel

Molded Chipbreaker

<table>
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<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>PH</td>
<td><img src="image1" alt="Image" /></td>
<td>For roughing of steel. Suitable for heavy interrupted machining and for workpieces with scale due to strong cutting edge.</td>
</tr>
<tr>
<td>PX</td>
<td><img src="image2" alt="Image" /></td>
<td>Roughing and high feed rate operation. Low cutting force chipbreaker.</td>
</tr>
</tbody>
</table>

Steel (Copying / Undercutting, Varied ap)

<table>
<thead>
<tr>
<th>Cutting Range</th>
<th>Name</th>
<th>Design</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finishing - Medium</td>
<td>VC</td>
<td><img src="image3" alt="Image" /></td>
<td>Handied chipbreaker for copying. Good chip control at varied ap because of the large space on the main cutting edge side.</td>
</tr>
<tr>
<td>Finishing - Medium</td>
<td>VF</td>
<td><img src="image4" alt="Image" /></td>
<td>Good chip control at varied ap such as copying and undercutting.</td>
</tr>
</tbody>
</table>

Applicable Chipbreaker Range (ap indicates radius)

(Steel)
### Low Carbon Steel (Pipe / Rolled Plate / Rolled Steel)

<table>
<thead>
<tr>
<th>Cutting Range</th>
<th>Name</th>
<th>Design</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finishing</td>
<td>XF</td>
<td><img src="image1" alt="XF Design" /></td>
<td>Excellent chip control at high speed and small ap machining of low carbon steel</td>
</tr>
<tr>
<td>Finishing</td>
<td>XP</td>
<td><img src="image2" alt="XP Design" /></td>
<td>Short chips when finishing due to sharp cutting and special design</td>
</tr>
</tbody>
</table>

#### Applicable Chipbreaker Range (ap indicates radius)

*(Low Carbon Steel)*

<table>
<thead>
<tr>
<th>ap (mm)</th>
<th>f (mm/rev)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td>0.3</td>
<td>0.4</td>
</tr>
<tr>
<td>0.5</td>
<td>0.6</td>
</tr>
</tbody>
</table>

### Steel / Stainless Steel (for automatic lathe)

<table>
<thead>
<tr>
<th>Cutting Range</th>
<th>Name</th>
<th>Design</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutting Range</td>
<td>SK</td>
<td><img src="image3" alt="SK Design" /></td>
<td>For finishing to medium machining in automatic lathes</td>
</tr>
<tr>
<td>Cutting Range</td>
<td>FP-TK</td>
<td><img src="image4" alt="FP-TK Design" /></td>
<td>For medium to large ap in automatic lathes (When machining workpieces of medium to large dia.)</td>
</tr>
<tr>
<td>Large ap</td>
<td>LD</td>
<td><img src="image5" alt="LD Design" /></td>
<td>Available for greater depths of cut than many conventional chipbreakers</td>
</tr>
</tbody>
</table>

#### Applicable Chipbreaker Range (ap indicates radius)

*(Steel)*

<table>
<thead>
<tr>
<th>ap (mm)</th>
<th>f (mm/rev)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td>0.3</td>
<td>0.4</td>
</tr>
<tr>
<td>0.5</td>
<td>0.6</td>
</tr>
</tbody>
</table>

*(Stainless Steel)*

<table>
<thead>
<tr>
<th>ap (mm)</th>
<th>f (mm/rev)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td>0.3</td>
<td>0.4</td>
</tr>
<tr>
<td>0.5</td>
<td>0.6</td>
</tr>
</tbody>
</table>

### Technical Information

*Index*
Chipbreaker Selection (Negative Inserts)

### Stainless Steel / Heat-Resistant Alloys / Titanium Alloy

<table>
<thead>
<tr>
<th>Design</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>MQ</td>
<td>Large rake angle&lt;br&gt;Low cutting force and good chip control</td>
</tr>
<tr>
<td>MS</td>
<td>Superior cutting edge sharpness and strength achieved by a positive land&lt;br&gt;Extra strength of cutting edge inhibits damage from wall transiting</td>
</tr>
<tr>
<td>MU</td>
<td>Large rake angle&lt;br&gt;Less cutting force due to large rake angle&lt;br&gt;Less notching by special design</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Design</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>TK</td>
<td>Smooth chipbreaker geometry improves chip flow with less adhesion&lt;br&gt;Large cutted chips</td>
</tr>
<tr>
<td>ST</td>
<td>Less cutting force due to large rake angle&lt;br&gt;Less notching achieved by special design</td>
</tr>
</tbody>
</table>

### Applicable Chipbreaker Range (ap indicates radius)

#### Stainless Steel
- **(Stainless Steel)**
  - **Finishing**
    - **MQ**
    - **MS**
    - **MU**
  - **Roughing**
    - **ST**

#### Heat-Resistant Alloys
- **(Heat-Resistant Alloys)**
  - **Finishing**
    - **SQ**
  - **Roughing**
    - **SG**
    - **SX**

#### Titanium Alloys
- **(Titanium Alloys)**
  - **Finishing**
    - **SQ**
  - **Roughing**
    - **SG**
    - **SX**

### Heat-Resistant Alloys

<table>
<thead>
<tr>
<th>Design</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQ</td>
<td>Effective for burr suppression and reducing notching by slant cutting edge (inclined in (-) direction)</td>
</tr>
<tr>
<td>SG</td>
<td>Positive balanced edge strength and cutting force reduction is maintained with stable natural chip breaking&lt;br&gt;Shallow and gently curved breakers control chips smoothly</td>
</tr>
<tr>
<td>SX</td>
<td>Slant cutting edge reduces cutting force&lt;br&gt;Less burring achieved by unique cutting edge design</td>
</tr>
</tbody>
</table>

### Cutting Range Name Design Advantages

- **Finishing**
  - **MQ**
  - **MS**
  - **MU**
- **Roughing**
  - **ST**
  - **SQ**
  - **SG**
  - **SX**
### Cast Iron (K series)

<table>
<thead>
<tr>
<th>Cutting Range</th>
<th>Name</th>
<th>Design</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sharp Cutting Chased</td>
<td>KO</td>
<td><img src="Image" alt="Diagram" /></td>
<td>Sharp cutting chipbreaker design. Edge geometry is suitable for workpieces that require sharpness, such as thin-walled.</td>
</tr>
<tr>
<td>Roughing</td>
<td>KG</td>
<td><img src="Image" alt="Diagram" /></td>
<td>Excellent balance of sharpness and strength. Realized stability at continuous machining.</td>
</tr>
<tr>
<td>Roughing</td>
<td>KH</td>
<td><img src="Image" alt="Diagram" /></td>
<td>Good for heavily interrupted machining. Strong edge chipbreaker. Improved locating/seating in the toolholder pocket, high reliability achieved.</td>
</tr>
</tbody>
</table>

#### Applicable Chipbreaker Range (ap indicates radius)

![Diagram](Image)

### Cast Iron

<table>
<thead>
<tr>
<th>Cutting Range</th>
<th>Name</th>
<th>Design</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard (Without Indication)</td>
<td>C</td>
<td><img src="Image" alt="Diagram" /></td>
<td>Standard chipbreaker for continuous to light interrupted machining of cast iron. (Low cutting force).</td>
</tr>
<tr>
<td>Without Chipbreaker</td>
<td>ZS</td>
<td><img src="Image" alt="Diagram" /></td>
<td>Standard chipbreaker for light interrupted to interrupted machining of cast iron. (Stability oriented).</td>
</tr>
<tr>
<td>Chipbreaker Selection (Negative Inserts)</td>
<td>GC</td>
<td><img src="Image" alt="Diagram" /></td>
<td>Chipbreaker for heavy interrupted machining of cast iron. (Tough edge chipbreaker).</td>
</tr>
<tr>
<td>Without Chipbreaker</td>
<td>PH</td>
<td><img src="Image" alt="Diagram" /></td>
<td>Chipbreaker for roughing of cast iron. Suitable for heavy interrupted machining and for workpieces with scale due to strong cutting edge.</td>
</tr>
</tbody>
</table>

![Diagram](Image)
Chipbreaker Selection (Negative Inserts)

Non-ferrous Metals

<table>
<thead>
<tr>
<th>Name</th>
<th>Design</th>
<th>Advantages</th>
<th>Name</th>
<th>Design</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>A3</td>
<td></td>
<td></td>
<td>AH</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Finishing - Medium:**
  - A3
  - 25° rake angle and smooth surface
  - Good chip control and less adhesion

- **Medium - Roughing:**
  - AH
  - G Class: Sharp Edge
  - M Class: Horned Edge Prep.
  - Polished chipbreaker
  - Smooth chip control and less adhesion

Applicable Chipbreaker Range (ap indicates radius)

<table>
<thead>
<tr>
<th>A3 Chipbreaker</th>
<th>AH Chipbreaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>ap=2mm</td>
<td>ap=2mm</td>
</tr>
<tr>
<td>f=0.2mm/rev</td>
<td>f=0.2mm/rev</td>
</tr>
<tr>
<td>ap=2mm</td>
<td>ap=2mm</td>
</tr>
<tr>
<td>f=0.3mm/rev</td>
<td>f=0.3mm/rev</td>
</tr>
</tbody>
</table>
### Effectiveness of ground chipbreaker

1. Lower cutting force and improve edge
2. Improved adhesion resistance
3. Improved dimension accuracy and finishing surface accuracy
4. Controlled chip evacuation direction

### Specification of B, C and parallel ground chipbreaker

<table>
<thead>
<tr>
<th>Insert Type</th>
<th>Size</th>
<th>Chipbreaker Name</th>
<th>LBB</th>
<th>GAN</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNGG</td>
<td>09,12</td>
<td>Without Indication (Similar to C)</td>
<td>2.2</td>
<td>14°</td>
<td>1.0</td>
</tr>
<tr>
<td>WNGG</td>
<td>06</td>
<td>Without Indication (Similar to C)</td>
<td>2.2</td>
<td>14°</td>
<td>1.0</td>
</tr>
<tr>
<td>TNGG</td>
<td>11,16</td>
<td>B</td>
<td>1.5</td>
<td>14°</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>14,22</td>
<td>C</td>
<td>2.2</td>
<td>14°</td>
<td>1.0</td>
</tr>
<tr>
<td>DNGG</td>
<td>11,15</td>
<td>Without Indication (Similar to C)</td>
<td>2.5</td>
<td>14°</td>
<td>2.0</td>
</tr>
<tr>
<td>VNGG</td>
<td>16</td>
<td>Without Indication (Similar to B)</td>
<td>1.5</td>
<td>14°</td>
<td>0.5</td>
</tr>
<tr>
<td>SNGG</td>
<td>09,12</td>
<td>B</td>
<td>1.5</td>
<td>14°</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>C</td>
<td>2.2</td>
<td>14°</td>
<td>1.0</td>
</tr>
</tbody>
</table>

### Applicable Chipbreaker Range (ap indicates radius)

- For Steel (Edge Length=11):
  - B
  - S

- For Steel (Edge Length=16):
  - C
  - S
  - 2SR

- For Steel (Edge Length=22):
  - C
  - B

Chipbreaker Selection (Positive Inserts)

### Steel

#### Molded Chipbreaker

<table>
<thead>
<tr>
<th>Name</th>
<th>Design</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Finishing</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CF</td>
<td><img src="image1" alt="Image" /></td>
<td>Available for minute ap (0.02 to 0.2mm) finishing</td>
</tr>
<tr>
<td>PF</td>
<td><img src="image2" alt="Image" /></td>
<td>Chipbreaker for finishing boring available from ap 0.15 to 0.6mm</td>
</tr>
<tr>
<td>GF</td>
<td><img src="image3" alt="Image" /></td>
<td>Chips fragmented in small pieces in machining of small ap</td>
</tr>
<tr>
<td><strong>Finishing, Medium</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GO</td>
<td><img src="image4" alt="Image" /></td>
<td>Enables machining over a wide range of conditions by using the optimum chipbreaker width according to the cutting depth</td>
</tr>
<tr>
<td>SK</td>
<td><img src="image5" alt="Image" /></td>
<td>Sharp cutting performance due to large rake angle Large dot to the corner edge improves chip control in a wide feed rate range</td>
</tr>
<tr>
<td>CK</td>
<td><img src="image6" alt="Image" /></td>
<td>Good cutting performance Applicable without hand for two direction machining on automatic lathe</td>
</tr>
<tr>
<td>WP</td>
<td><img src="image7" alt="Image" /></td>
<td>Chipbreaker to avoid edge chipping Reduces surface finish galling</td>
</tr>
<tr>
<td>GK</td>
<td><img src="image8" alt="Image" /></td>
<td>Good chip evacuation at wide range by chipbreaker dot and wide chip pocket</td>
</tr>
</tbody>
</table>

**Applicable Chipbreaker Range** (ap indicates radius)

![Graph](graph1)

---

**Steel**

<table>
<thead>
<tr>
<th>(Steel)</th>
<th>(Steel)</th>
<th>(Steel)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="graph2" alt="Graph" /></td>
<td><img src="graph3" alt="Graph" /></td>
<td><img src="graph4" alt="Graph" /></td>
</tr>
</tbody>
</table>

**Chipbreaker for short chips at medium machining**

**Strong edge chipbreaker for medium machining range**
## Steel

### Ground Chipbreaker

<table>
<thead>
<tr>
<th>Cutting Range</th>
<th>Name</th>
<th>Design</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finishing</td>
<td>A</td>
<td><img src="image1.png" alt="Image" /></td>
<td><img src="image2.png" alt="Image" /></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td><img src="image3.png" alt="Image" /></td>
<td><img src="image4.png" alt="Image" /></td>
</tr>
<tr>
<td></td>
<td>C</td>
<td><img src="image5.png" alt="Image" /></td>
<td><img src="image6.png" alt="Image" /></td>
</tr>
<tr>
<td></td>
<td>D</td>
<td><img src="image7.png" alt="Image" /></td>
<td><img src="image8.png" alt="Image" /></td>
</tr>
<tr>
<td></td>
<td>E</td>
<td><img src="image9.png" alt="Image" /></td>
<td><img src="image10.png" alt="Image" /></td>
</tr>
</tbody>
</table>

### Specification of A, B, C and parallel ground chipbreaker

<table>
<thead>
<tr>
<th>Insert Type</th>
<th>Size</th>
<th>Chipbreaker Name</th>
<th>LBB</th>
<th>GAN</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPGR</td>
<td>11</td>
<td>A</td>
<td>1.0</td>
<td>14°</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>11,16</td>
<td>B</td>
<td>1.5</td>
<td>14°</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>C</td>
<td>2.2</td>
<td>14°</td>
<td>1.0</td>
</tr>
<tr>
<td>SPGR</td>
<td>09</td>
<td>Without Indication (Similar to B)</td>
<td>1.5</td>
<td>14°</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>Without Indication (Similar to C)</td>
<td>2.2</td>
<td>14°</td>
<td>1.0</td>
</tr>
</tbody>
</table>

### Applicable Chipbreaker Range (ap indicates radius)

<table>
<thead>
<tr>
<th>(Steel / Edge Length=03)</th>
<th>f (mm/rev)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.05</td>
<td>0.1</td>
</tr>
<tr>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td>0.15</td>
<td>0.3</td>
</tr>
<tr>
<td>0.2</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(Steel / Edge Length=08, 09)</th>
<th>f (mm/rev)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.05</td>
<td>0.1</td>
</tr>
<tr>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td>0.15</td>
<td>0.3</td>
</tr>
<tr>
<td>0.2</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(Steel / Edge Length=11)</th>
<th>f (mm/rev)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td>0.2</td>
<td>0.3</td>
</tr>
<tr>
<td>0.3</td>
<td>0.4</td>
</tr>
<tr>
<td>0.4</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(Steel / Edge Length=11, 16)</th>
<th>f (mm/rev)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td>0.2</td>
<td>0.3</td>
</tr>
<tr>
<td>0.3</td>
<td>0.4</td>
</tr>
<tr>
<td>0.4</td>
<td></td>
</tr>
</tbody>
</table>
Chipbreaker Selection (Positive Inserts)

### Low Carbon Steel (Pipe / Rolled Plate / Rolled Steel)

<table>
<thead>
<tr>
<th>Chipbreaker</th>
<th>Design</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>XP</td>
<td><img src="image" alt="XP Chipbreaker" /></td>
<td>Consistent chip breaking performance even for low carbon steel and sticky material</td>
</tr>
<tr>
<td>XQ</td>
<td><img src="image" alt="XQ Chipbreaker" /></td>
<td>Wide chip control range and sharp cutting performance. Suitable for low carbon steel and sticky material</td>
</tr>
</tbody>
</table>

#### Applicable Chipbreaker Range (ap indicates radius)

![XP Chipbreaker Range](image)

#### Stainless Steel

<table>
<thead>
<tr>
<th>Chipbreaker</th>
<th>Design</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>MQ</td>
<td><img src="image" alt="MQ Chipbreaker" /></td>
<td>Good chip evacuation at internal turning. Small curled chips. Prevents chip entanglement with toolholder and stabilizes surface roughness</td>
</tr>
</tbody>
</table>

#### Applicable Chipbreaker Range (ap indicates radius)

![MQ Chipbreaker Range](image)

#### Non-ferrous Metals

<table>
<thead>
<tr>
<th>Chipbreaker</th>
<th>Design</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP</td>
<td><img src="image" alt="AP Chipbreaker" /></td>
<td>Curved edge and shape of chipbreaker lead good chip control for finishing. Sharp cutting edge provides excellent surface finish. Polished chipbreaker</td>
</tr>
<tr>
<td>AH</td>
<td><img src="image" alt="AH Chipbreaker" /></td>
<td>Positive chip groove and good chip control with low cutting force. Polished surface reduces adhesion</td>
</tr>
</tbody>
</table>

#### Applicable Chipbreaker Range (ap indicates radius)

![AH Chipbreaker Range](image)
How to read pages of “Turning Inserts”

- Ref. to below for page contents of “Turning Inserts”
- Some contents are same in Chapter C

Classification of usage
- Interruption / 1st Choice
- Interruption / 2nd Choice
- Light Interruption / 1st Choice
- Light Interruption / 2nd Choice
- Continuous / 1st Choice
- Continuous / 2nd Choice

Recommended grades for each applications are shown here.

Inserts ISO Classification of usage
(Workpiece materials are written on the right side)

Recommended grades

Applies to the following table:

How to read pages of “Turning Inserts”

Example

Handed Insert shows Right-hand
Handed Insert shows Left-hand

How to read pages of “Turning Inserts”
Turning Indexable Inserts

### 80° Rhombic / Negative with Hole

<table>
<thead>
<tr>
<th>Insert</th>
<th>Description</th>
<th>Dimension (mm)</th>
<th>Cermet</th>
<th>MEGACOAT Cermet</th>
<th>CVD Coated Carbide</th>
<th>MEGACOAT (PVD Coated Carbide)</th>
<th>PVD Coated Carbide</th>
<th>DLC Coated</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNMG 120404WF</td>
<td>120408WF</td>
<td>0.4</td>
<td>0.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CNMG 120404WP</td>
<td>120408WP</td>
<td>0.4</td>
<td>0.8</td>
<td></td>
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**Inserts are sold in 10 piece boxes**
### 80° Rhombic / Negative with Hole

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<th>Insert Description</th>
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<th>Cermet MEGACOAT</th>
<th>CVD Coated Carbide</th>
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**How to read pages of "Turning Inserts"** See Page B15

- **Insert Grades**: Indexable Inserts
- **Cermet MEGACOAT**: Cermet MEGACOAT
- **CVD Coated Carbide**: CVD Coated Carbide
- **MEGACOAT (PVD Coated Carbide)**: MEGACOAT (PVD Coated Carbide)
- **PVD Coated Carbide**: PVD Coated Carbide
- **DLC Coated**: DLC Coated

**Applicable Chipbreaker Range**:
- **(Steel / Edge Length=12, 16)**: (Steel / Edge Length=12, 16)
- **(Steel)**: (Steel)

- **IC**: Insert Grades
- **S**: Turning
- **D1**: Milling

**Index**: Turning, Milling, Turning Mill, Spare Parts, Technical Information

**Symbols**:
- Std. Item
- Check Availability
- Deleted from the next catalog

**Inserts are sold in 10 piece boxes**
### Turning Indexable Inserts

#### 80˚ Rhombic / Negative with Hole

<table>
<thead>
<tr>
<th>Insert Description</th>
<th>Insert Size (mm)</th>
<th>Cermet MEGACOAT</th>
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<th>CVD Coated Carbide</th>
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<th>PVD Coated Carbide</th>
<th>DLC Coated</th>
<th>Applicable Chipbreaker Range</th>
<th>Applicable Toolholders</th>
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#### Chipbreaker Range

- **1**: Steel / Edge Length = 12
- **2**: Steel / Edge Length = 16.19
- **3**: Steel / Edge Length = 12.16.15

**Applicable Chipbreaker Range**
- **RE**: Standard
- **P**: Standard
- **M**: Standard
- **N**: Standard
- **S**: Standard
- **H**: Standard

**Material Types**
- **P**: Stainless Steel
- **K**: Gray Cast Iron
- **S**: Non-ferrous Metals
- **M**: Heat-resistant Alloys
- **H**: Hard Materials

---

Inserts are sold in 10 piece boxes

- : Std. Item
- : Check Availability
- : Deleted from the next catalog
**80° Rhombic / Negative with Hole**

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

**Inserts are sold in 10 piece boxes**

---

[Insert Grades]

- Turning Indexable Inserts
  - CBN & PCD Tools

**External Small Parts Machining**

- Boring
- Grooving
- Cut-off
- Threading
- Drilling

**Solid Tools**

- Milling

**Spare Parts**

- Technical Information

**Index**

- A
- B
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- D
- E
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- G
- H
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- L
- M
- N
- P
- R
- T

---

**How to read pages of “Turning Inserts”**

See Page B15

**Insert Description**

- **Dimension (mm)**
  - Cermet MEGACOAT
  - Cermet PVD Coated Carbide MEGACOAT
  - PVD Coated Carbide DLC Carbide

**Applicable Toolholders**

- RE
- TN610
- TN620
- TN6010
- TN60
- PV710
- PV720
- PV7010
- PV7025
- PV7005
- PV90
- CA510CA515
- CA025P
- CA525
- CA530
- CA550
- CA5515
- CA5525
- CA5535
- CA6515
- CA6525
- CA310
- CA315
- CA320
- CA450
- CA4515
- CA4120
- PR1425
- PR1225
- PR005S
- PR015S
- PR1305
- PR1310
- PR1325
- PR1535
- PR930
- PR1005
- PR1025
- PR1125
- PDL010
- PDL025
- KW10
- SW05

---

**Applicable Chipbreaker Range**

- **ap (mm)**
  - **f (mm/rev)**
  - **PX**
  - **XP**
  - **XS**

---

**How to read pages of “Turning Inserts”**

See Page B15

**Inserts are sold in 10 piece boxes**

- **Free-cutting steel**
  - NQO NQOP ONQPT PS QP
- **Carbon Steel / Alloy Steel**
  - M NQ PP Q P
- **Stainless Steel**
  - K S
- **Gray Cast Iron**
  - P
- **Nodular Cast Iron**
  - N
- **Non-ferrous Metals**
  - S
- **Heat-resistant Alloys**
  - Q P
- **Titanium Alloys**
  - H
- **Hard Materials**

---

**Technical Information Index**
### 80° Rhombic / Negative with Hole

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<td>CN_1606_</td>
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<td>4.76 (4.42)</td>
<td>5.16</td>
<td>CN_1906_</td>
<td>19.05</td>
<td>6.35 (5.93)</td>
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#### Applicable Chipbreaker Range

- **RE**: Notch
- **TN610**: Standard
- **TN620**: Standard
- **TN6010**: Standard
- **TN60**: Standard
- **PV710**: Standard
- **PV720**: Standard
- **PV7010**: Standard
- **PV7025**: Standard
- **PV7005**: Standard
- **PV90**: Standard
- **CA510**: Standard
- **CA515**: Standard
- **CA025P**: Standard
- **CA525**: Standard
- **CA530**: Standard
- **CA550**: Standard
- **CA5515**: Standard
- **CA5525**: Standard
- **CA5535**: Standard
- **CA6515**: Standard
- **CA6525**: Standard
- **CA310**: Standard
- **CA315**: Standard
- **CA320**: Standard
- **CA450**: Standard
- **CA4515**: Standard
- **CA4120**: Standard
- **PR1425**: Standard
- **PR1225**: Standard
- **PR005S**: Standard
- **PR015S**: Standard
- **PR1305**: Standard
- **PR1310**: Standard
- **PR1325**: Standard
- **PR1535**: Standard
- **PR930**: Standard
- **PR1005**: Standard
- **PR1025**: Standard
- **PR1125**: Standard
- **PDL010**: Standard
- **PDL025**: Standard
- **KW10**: Standard
- **SW05**: Standard

#### Chipbreaker

- **P**: PVD Coated Carbide
- **M**: PVD Coated Carbide
- **N**: PVD Coated Carbide
- **S**: PVD Coated Carbide
- **C**: Cermet MEGACOAT
- **D**: Cermet MEGACOAT
- **Q**: CVD Coated Carbide
- **R**: CVD Coated Carbide

#### Materials

- **Stainless Steel / Heat-Resistant Alloys**: See Page B8
- **Titanium Alloys**: See Page B8
- **Heat-resistant Alloys**: See Page B8
- **Ceramic**: See Page B8
- **DLC Carbide**: See Page B8

#### Applicable Toolholders

- **RE**: Standard
- **TN610**: Standard
- **TN620**: Standard
- **TN6010**: Standard
- **TN60**: Standard
- **PV710**: Standard
- **PV720**: Standard
- **PV7010**: Standard
- **PV7025**: Standard
- **PV7005**: Standard
- **PV90**: Standard
- **CA510**: Standard
- **CA515**: Standard
- **CA025P**: Standard
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- **CA550**: Standard
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- **CA5525**: Standard
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- **CA310**: Standard
- **CA315**: Standard
- **CA320**: Standard
- **CA450**: Standard
- **CA4515**: Standard
- **CA4120**: Standard
- **PR1425**: Standard
- **PR1225**: Standard
- **PR005S**: Standard
- **PR015S**: Standard
- **PR1305**: Standard
- **PR1310**: Standard
- **PR1325**: Standard
- **PR1535**: Standard
- **PR930**: Standard
- **PR1005**: Standard
- **PR1025**: Standard
- **PR1125**: Standard
- **PDL010**: Standard
- **PDL025**: Standard
- **KW10**: Standard
- **SW05**: Standard

Inserts are sold in 10 piece boxes.
# Insert Grades

## Turning Indexable Inserts

### CBN & PCD Tools

### External Small Parts

### Machining
- Boring
- Grooving
- Cut-off
- Threading
- Drilling

### Solid Tools
- Milling

### Tools for Turning Mill

### Spare Parts

### Technical Information

### Index

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### K

### L

### M

### N

### P

### R

### T

---

**80° Rhombic / Negative with Hole**

- **Handed Insert shows Right-hand**
- **Description**
- **Dimension (mm)**
- Cermet MEGACOAT
  - Cermet
  - PVD Coated
  - CVD Coated Carbide MEGACOAT (PVD Coated Carbide)
- DLC Carbide

### Applicable Chipbreaker Range

- **ap indicates radius**

- **HS**: Std. Item
- **X**: Deleted from the next catalog

- **Notes:**
  - **KQ**: (Cast Iron)
  - **KH**: (Heat-Resistant Alloys)
  - **KG**: (Interruption / heavy Interruption)
  - **ZS**: (Standard)
  - **NQ**: (Non-ferrous Metals)
  - **S**: (NQ)
  - **S**: (Heat-resistant Alloys)
  - **NQ**: (Titanium Alloys)
  - **NQ**: (Hard Materials)
  - **S**: (Single Sided / Heat-Resistant Alloys)

### Inserts are sold in 10 piece boxes

---

**How to read pages of “Turning Inserts”**

See Page B15

---

## Turning Indexable Inserts

### 80° Rhombic / Negative with Hole

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<th>MEGACOAT</th>
<th>CVD Coated Carbide</th>
<th>MEGACOAT (PVD Coated Carbide)</th>
<th>PVD Coated Carbide</th>
<th>DLC Coated Carbide</th>
<th>MEGACOAT (PVD Coated Carbide)</th>
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<td>5.94</td>
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<td>19.95</td>
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</tbody>
</table>

### Turning Inserts

- Insert handed insert shows Right-hand

- **Ceramic**: Chip breakers

### Applicable Chipbreaker Range

- See Page for applicable toolholders

### Applicable Chipbreaker Range

- See Page for applicable toolholders

- **Standard Item**: Std. Item

- **Deleted from the next catalog**: Deleted from the next catalog

### Inserts are sold in 10 piece boxes
**55° Rhombic / Negative with Hole**

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<td>DN_1504_</td>
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<td>4.76</td>
<td>5.16</td>
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**Insert Grades**

- **CBN & PCD Tools**
- **External**
- **Small Parts**
- **Turn**

**Material Compatibility**

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<td>Non-ferrous Metals</td>
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<td>Gray Cast Iron</td>
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<tr>
<td>Titanium Alloys</td>
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</tr>
</tbody>
</table>

**Chipbreaker Range**

- **WF**
- **GP**
- **PD**

**Inserts are sold in 10 piece boxes**
## Turning Indexable Inserts

### 55° Rhombic / Negative with Hole

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### Applicable Chipbreaker Range

- **Std. Item**
- **Check Availability**
- **Deleted from the next catalog**

Inserts are sold in 10 piece boxes.
### 55° Rhombic / Negative with Hole

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### Technical Information

- Insert Grades
  - Turning
  - Indexable Inserts
  - CBN & PCD Tools
  - External
  - Small Parts
  - Machining
  - Boring
  - Grooving
  - Cut-off
  - Threading
  - Drilling
  - Solid Tools
  - Milling
- Tools for Turning Mill
- Spare Parts

### Applicable Chipbreaker Range

- RE
- TN610
- TN620
- TN6010
- TN60
- PV710
- PV720
- PV7010
- PV7025
- PV7005
- PV90
- CA510
- CA515
- CA025P
- CA525
- CA530
- CA550
- CA5515
- CA5525
- CA5535
- CA6515
- CA6525
- CA310
- CA315
- CA320
- CA450
- CA4515
- CA4120
- PR1425
- PR1225
- PR005S
- PR015S
- PR1305
- PR1310
- PR1325
- PR1535
- PR930
- PR1005
- PR1025
- PR1125
- PDL010
- PDL025
- KW10
- SW05

###世界

- Inserts are sold in 10 piece boxes
55° Rhombic / Negative with Hole

Insert Description

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Applicable Chipbreaker Range

1: Standard
2: Fine
3: Low Carbon Steel

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<th>Table 1: Applicable Chipbreaker Range</th>
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</table>

Inserts are sold in 10 piece boxes

- : Std. Item
○ : Check Availability
□ : Deleted from the next catalog
### 55° Rhombic / Negative with Hole

- Insert whose corner-R(Re) dimension expressed with less than sign (e.g., < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(Re).

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**Applicable Chipbreaker Range**

- **Ap** indicates radius

**Applicable Materials**

- **F** (Free-cutting steel)
- **M** (Stainless Steel)
- **K** (Gray Cast Iron)
- **N** (Non-ferrous Metals)
- **S** (Heat-resistant Alloys)
- **Q** (Titanium Alloys)
- **H** (Hard Materials)
- **D** (DLC Coated)

**Insert Grades**

- **Turning**
- **Indexable Inserts**
- **CBN & PCD Tools**
- **External Small Parts Machining**
- **Boring**
- **Grooving**
- **Cut-off**
- **Threading**
- **Drilling**
- **Solid Tools**
- **Milling Tools for Turning Mill**

**Spare Parts**

**Technical Information Index**

- **A**
- **B**
- **C**
- **D**
- **E**
- **F**
- **G**
- **H**
- **J**
- **K**
- **L**
- **M**
- **N**
- **P**
- **R**
- **T**

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- Inserts are sold in 10 piece boxes

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See Page B8
### 55° Rhombic / Negative with Hole

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**Ceramic Chipbreakers**

- Heat-Resistant Alloys
- Stainless Steel
- Titanium Alloys
- Non-Ferrous Metals
- Heat-Resistant Alloys
- Gray Cast Iron
- Nodular Cast Iron
- Hardened Steels
- Free-Cutting Steel
- Carbon Steel / Alloy Steel
- Special Applications

**Turning Indexable Inserts**

- Negative
- Medium - Roughing
- Roughing

**Applicable Chipbreaker Range**

- 1: (Heat-Resistant Alloys)
- 2: (Stainless Steel)
- 3: (Heat-Resistant Alloys)

Inserts are sold in 10 piece boxes.
**55° Rhombic / Negative with Hole**

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**Applicable Chipbreaker Range**

- KG
- KH

**Insert Grades**

- Turning
- Indexable Inserts
- CBN & PCD Tools
- External
- Small Parts
- Machining
- Boring
- Grooving
- Cut-off
- Threading
- Drilling
- Solid Tools
- Milling
- Tools for Turning Mill
- Spare Parts
- Technical Information
- Index

**Technical Information**

- Insert Grades: M of Cermet / Coated Carbide / Carbide
- Std. Item: Deleted from the next catalog
- Inserts are sold in 10 piece boxes.
### Turning Indexable Inserts

**55° Rhombic / Negative with Hole**

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</table>

**Applicable Chipbreaker Range**

- **Non-ferrous Metals**
  - 1

**Applicable Toolholders**

- TN610
- TN620
- TN6010
- TN60
- PV710
- PV720
- PV7010
- PV7025
- PV7005
- PV90
- CA150
- CA515
- CA025P
- CA525
- CA530
- CA550
- CA6515
- CA6525
- CA310
- CA315
- CA320
- CA450
- CA4515
- CA4120
- PR1425
- PR1225
- PR005S
- PR015S
- PR1305
- PR1310
- PR1325
- PR1535
- PR930
- PR1005
- PR1025
- PR1125
- PDL010
- PDL025
- KW10
- SW05

**Surface Roughness Oriented**

- 2

**Medium - Roughing / Sharp Edge**

- 1

**Finishing - Medium / Sharp Edge**

- 2

Inserts are sold in 10 piece boxes.

- : Std. Item
- ○: Check Availability
- □: Deleted from the next catalog
### 55° Parallelogram / Negative without Hole

<table>
<thead>
<tr>
<th>Insert Grade</th>
<th>Description</th>
<th>IC</th>
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<tbody>
<tr>
<td>KNMX 160405R-1</td>
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<tr>
<td>KNMX 160410R-1</td>
<td>9.525</td>
<td>3.18</td>
<td>3.81</td>
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#### Notes:
- [Cermet / Coated Carbide / Carbide]
- Insert Grades: Indexable Inserts
- CBN & PCD Tools
- External Small Parts
- Machining: Boring, Grooving, Cut-off, Threading, Drilling, Milling
- Solid Tools: Turning Mill
- Spare Parts: Technical Information

### Round / Negative with Hole

<table>
<thead>
<tr>
<th>Insert Grade</th>
<th>Description</th>
<th>IC</th>
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<tbody>
<tr>
<td>RNMG 090300</td>
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<td>RNMG 120400</td>
<td>-</td>
<td>3.18</td>
<td>3.81</td>
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</table>

#### Notes:
- [Cermet / Coated Carbide / Carbide]
- Insert Grades: Indexable Inserts
- CBN & PCD Tools
- External Small Parts
- Machining: Boring, Grooving, Cut-off, Threading, Drilling, Milling
- Solid Tools: Turning Mill
- Spare Parts: Technical Information

### Applicable Chipbreaker Range

1. (Steel)
2. (Steel)

- [Cermet / Coated Carbide / Carbide]
- Insert Grades: Indexable Inserts
- CBN & PCD Tools
- External Small Parts
- Machining: Boring, Grooving, Cut-off, Threading, Drilling, Milling
- Solid Tools: Turning Mill
- Spare Parts: Technical Information

**Inserts are sold in 10 piece boxes**
### Turning Indexable Inserts

#### 90° Square / Negative with Hole

**Description**

<table>
<thead>
<tr>
<th>Insert</th>
<th>Description</th>
<th>SR (mm)</th>
<th>Cermet</th>
<th>MEGACOAT</th>
<th>Cermet</th>
<th>CVD Coated Carbide</th>
<th>MEGACOAT</th>
<th>PVD Coated Carbide</th>
<th>DLC Coated</th>
</tr>
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<tbody>
<tr>
<td>SNMG 120404PQ</td>
<td>120408PQ</td>
<td>120412PQ</td>
<td>0.4</td>
<td>0.8</td>
<td>1.2</td>
<td>0.4</td>
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<td>1.2</td>
<td>0.4</td>
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<td>120416PG</td>
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<td>1.6</td>
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<td>120416</td>
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<td>1.6</td>
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<td>1.6</td>
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</tbody>
</table>

**Applicable Chipbreaker Range**

1. **(Steel / Edge Length=09, 12)**
   - Standard (9) 4.0
   - Standard (12) 4.5

2. **(Steel / Edge Length=19)**
   - Standard (19) 6.0

**Turns Indexable Inserts**

- Inserts are sold in 10 piece boxes

- : Std. Item  ○ : Check Availability  □ : Deleted from the next catalog
90° Square / Negative with Hole

Insert Grades
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CBN & PCD Tools
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Small Parts
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Boring
Grooving
Cut-off
Threading
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Spare Parts
Technical Information
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[Insert Grades]

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Boring
Grooving
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[How to read pages of “Turning Inserts” See Page B15]

Inserts are sold in 10 piece boxes

[Inserts are sold in 10 piece boxes]
## Turning Indexable Inserts

### 60° Triangle / Negative with Hole

<table>
<thead>
<tr>
<th>Insert</th>
<th>Description</th>
<th>Dimensions (mm)</th>
<th>Cermet</th>
<th>MEGACOAT Cermet</th>
<th>CVD Coated Carbide</th>
<th>MEGACOAT (PVD Coated Carbide)</th>
<th>PVD Coated Carbide</th>
<th>DLC Coated Carbide</th>
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<tr>
<td></td>
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<td></td>
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<tr>
<td></td>
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<td>0.8</td>
<td>1.2</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

### Applicable Chipbreaker Range

- **ap** indicates radius
- **w** indicates width

### How to read pages of “Turning Inserts”

See Page B15

---

- **B36**
- **Inserts are sold in 10 piece boxes**

### Notes

- Std. Item
- Check Availability
- Deleted from the next catalog
### Insert Grades

- **Turning Tools**
- **Cermet / Coated Carbide / Carbide**

#### How to read pages of "Turning Inserts": See Page B15

### Inserts are sold in 10 piece boxes

#### 60° Triangle / Negative with Hole

<table>
<thead>
<tr>
<th>Insert</th>
<th>Description</th>
<th>IC</th>
<th>S</th>
<th>D1</th>
</tr>
</thead>
<tbody>
<tr>
<td>TNMG 160404PS</td>
<td>160408PS 160412PS</td>
<td>0.4</td>
<td>0.8</td>
<td>1.2</td>
</tr>
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<td>1.2</td>
</tr>
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<td>TNMG 160408PT</td>
<td>160412PT</td>
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<td>1.2</td>
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<td>TNMG 160408GT</td>
<td>160412GT</td>
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<td>1.2</td>
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</tr>
<tr>
<td>TNMG 160404</td>
<td>160408 160412 160416 160420</td>
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<td>1.2</td>
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<td>TNMG 220404</td>
<td>220408 220412</td>
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<td>0.8</td>
<td>1.2</td>
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<td>TNMG 160408PH</td>
<td>160412PH</td>
<td>0.8</td>
<td>1.2</td>
<td></td>
</tr>
</tbody>
</table>

#### Applicable Chipbreaker Range

- **ap (mm)**
- **f (mm/rev)**

#### Technical Information

- **Toolholders**
- **Turning Mill**
- **Spare Parts**
- **Index**
### Turning Indexable Inserts

#### 60° Triangle / Negative with Hole

Inserts are sold in 10 piece boxes

<table>
<thead>
<tr>
<th>Insert</th>
<th>Description</th>
<th>IC</th>
<th>S</th>
<th>D1</th>
</tr>
</thead>
<tbody>
<tr>
<td>TN-MM 160408PX</td>
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<td>160404M-SK</td>
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</tr>
</tbody>
</table>

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g., < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

#### Applicable Chipbreaker Range

1. (Low Carbon Steel)
2. (Steel)
3. (Stainless Steel)

- : Std. Item  ○ : Check Availability  □ : Deleted from the next catalog

#### How to read pages of “Turning Inserts” See Page B15

- **Applicable Chipbreaker Range**
  - **ap** indicates radius

#### Inserted Items

- **Std. Item**
- **Check Availability**
- **Deleted from the next catalog**

#### Additional Notes

- **Handed Insert**
  - Shows Right-hand

- **Description**
- **Dimension**
  - **IC**
  - **S**
  - **D1**

- **Dimension (mm)**
  - **Cermet**
  - **MEGACOAT**
  - **CVD Coated Carbide**
  - **MEGACOAT (PVD Coated Carbide)**
  - **PVD Coated Carbide**
  - **DLC Carbide**

- **Turning Indexable Inserts**
  - **Negative**
  - **Ceramic Chip Breakers**

- **Applicable Toolholders**
- **RE**
- **TN610**
- **TN620**
- **TN6010**
- **TN60**
- **PV710**
- **PV720**
- **PV7010**
- **PV7025**
- **PV7005**
- **PV90**
- **CA510**
- **CA515**
- **CA025P**
- **CA525**
- **CA530**
- **CA550**
- **CA5515**
- **CA5525**
- **CA5535**
- **CA6515**
- **CA6525**
- **CA310**
- **CA315**
- **CA320**
- **CA450**
- **CA4515**
- **CA4120**
- **PR1425**
- **PR1225**
- **PR005S**
- **PR015S**
- **PR1305**
- **PR1310**
- **PR1325**
- **PR1535**
- **PR930**
- **PR1005**
- **PR1025**
- **PR1125**
- **PDL010**
- **PDL025**
- **KW10**
- **SW05**

- **Turning Indexable Insert**
  - **Negative with Hole**
  - **60˚**
# Turning Indexable Inserts

## 60° Triangle / Negative with Hole

### Description

<table>
<thead>
<tr>
<th>Description</th>
<th>IC</th>
<th>S</th>
<th>D1</th>
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</thead>
<tbody>
<tr>
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<td>2.26</td>
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<tr>
<td>TN_1603_1604_</td>
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<td>4.76</td>
<td>3.81</td>
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</table>

### Inserts

- **TNMG 160404KQ**
  - 0.4
  - No Chipbreaker
- **TNMG 160404KQ**
  - 0.8
  - No Chipbreaker
- **TNMG 160408KQ**
  - 0.4
  - No Chipbreaker
- **TNMG 160408KQ**
  - 0.8
  - No Chipbreaker
- **TNMG 160412KQ**
  - 1.2
  - No Chipbreaker
- **TNMG 160412KQ**
  - 1.6
  - No Chipbreaker
- **TNMG 160404GC**
  - 0.4
  - No Chipbreaker
- **TNMG 160408GC**
  - 0.8
  - No Chipbreaker
- **TNMG 160412GC**
  - 1.2
  - No Chipbreaker
- **TNGA 110304**
  - 0.4
  - No Chipbreaker
- **TNGA 160404**
  - 0.4
  - No Chipbreaker
  - 0.8
  - No Chipbreaker
- **TNMA 160404**
  - 0.4
  - No Chipbreaker
  - 0.6
  - No Chipbreaker
  - 1.2
  - No Chipbreaker
  - 1.6
  - No Chipbreaker
  - 2.0
- **TNGA 110304**
  - 0.4
  - No Chipbreaker
  - 0.8
  - No Chipbreaker

### Applicable Chipbreaker Range

- **KG**
- **KH**

### Notes

- Inserts are sold in 10 piece boxes.
- **IC**: Standard Item
- **RE**: Deleted from the next catalog

---

**How to read pages of “Turning Inserts”**: See Page B15
# 60° Triangle / Negative with Hole

<table>
<thead>
<tr>
<th>Description</th>
<th>IC</th>
<th>S</th>
<th>D1</th>
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<tbody>
<tr>
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<td>4.76</td>
<td>2.26</td>
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<tr>
<td>TN_1603_</td>
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</table>

How to read pages of “Turning Inserts” @ See Page B15

Insert Grades
- Indexable Inserts
- CBN & PCD Tools

External Small Parts
- Machining
- Boring
- Grooving
- Cut-off
- Threading
- Drilling

Solid Tools
- Milling
- Tools for Turning
- Milling Spare Parts
- Technical Information
- Index

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Inserts are sold in 10 piece boxes
### Turning Indexable Inserts

#### 60° Triangle / Negative with Hole

**Description**

<table>
<thead>
<tr>
<th>Insert</th>
<th>Description</th>
<th>Size (mm)</th>
<th>Cermet</th>
<th>MEGACOAT</th>
<th>CVD Coated Carbide</th>
<th>MEGACOAT (PVD Coated Carbide)</th>
<th>PVD Coated Carbide</th>
<th>DLC Carbide</th>
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<tbody>
<tr>
<td>TN_1103_</td>
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</tr>
<tr>
<td>TN_1104_</td>
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<td>4.76</td>
<td>2.26</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Applicable Chipbreaker Range**

- **RE**
- **TN610**
- **TN620**
- **TN6010**
- **TN60**
- **PV710**
- **PV720**
- **PV7010**
- **PV7025**
- **PV7005**
- **PV90**
- **CA510CA515**
- **CA025P**
- **CA525**
- **CA530**
- **CA5505CA5515CA5525CA5535CA6515CA6525**
- **CA310CA315CA320**
- **CA4505CA4515**
- **CA4120**
- **PR1425**
- **PR1225**
- **PR005S**
- **PR015S**
- **PR1305PR1310PR1325**
- **PR1535**
- **PR930**
- **PR1005**
- **PR1025**
- **PR1125**
- **PDL010**
- **PDL025**
- **KW10**
- **SW05**

**Applicable Chipbreaker Range**

- **D16**
- **D17**
- **F66**
- **F76**
- **F77**

**Finishing**

- **Super Fine**
- **Surface Roughness Oriented / Sharp Edge**
- **Medium**

**Inserts are sold in 10 piece boxes**

- **IC**
- **RE**

**Item**

- **Check Availability**
- **Deleted from the next catalog**

---

**How to read pages of “Turning Inserts”**

See Page B15
### 60° Triangle / Negative with Hole

<table>
<thead>
<tr>
<th>Insert</th>
<th>Description</th>
<th>IC</th>
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<th>D1</th>
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<tbody>
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#### How to read pages of “Turning Inserts”
See Page B15

#### Technical Information

<table>
<thead>
<tr>
<th>Insert Grades</th>
<th>Turning Indexable Inserts</th>
<th>CBN &amp; PCD Tools</th>
<th>External Small Parts</th>
<th>Machining Boring</th>
<th>Grooving Cut-off</th>
<th>Threading Drilling</th>
<th>Solid Tools Milling</th>
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</thead>
<tbody>
<tr>
<td>Inserts are sold in 10 piece boxes</td>
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<td></td>
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</tbody>
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#### Applicable Chipbreaker Range

- ap indicates radius
- For cutting data:
  - Use the No. 2 tool holder
  - Stainless steel
  - High Carbon Steel
  - Lower Carbon Steel
- For turning data:
  - Hard Materials
  - Chucking Materials

#### Inserts are sold in 10 piece boxes
Turning Indexable Inserts

35° Rhombic / Negative with Hole

Inserts are sold in 10 piece boxes

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

Applicable Chipbreaker Range

- Std. Item ☐ : Check Availability ☐ : Deleted from the next catalog
### 35˚ Rhombic / Negative with Hole

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<th>External Small Parts</th>
<th>Boring</th>
<th>Grooving</th>
<th>Cut-off</th>
<th>Threading</th>
<th>Drilling</th>
<th>Solid Tools</th>
<th>Maching Tools for Turning Mill</th>
<th>Technical Information</th>
<th>Spare Parts Information</th>
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Turning Indexable Inserts

80° Trigon / Negative with Hole

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<th>Description</th>
<th>Diameter (mm)</th>
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<th>MEGACOAT Cermet</th>
<th>CVD Coated Carbide</th>
<th>MEGACOAT (PVD Coated Carbide)</th>
<th>PVD Coated Carbide</th>
<th>DLC Coated</th>
</tr>
</thead>
<tbody>
<tr>
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- **Inserts are sold in 10 piece boxes**
- **How to read pages of “Turning Inserts” See Page B15**
- **See Page B15**
### 80° Trigon / Negative with Hole

<table>
<thead>
<tr>
<th>Insert Description</th>
<th>Cermet</th>
<th>MEGACOAT</th>
<th>CVD Coated Carbide</th>
<th>MEGACOAT (PVD Coated Carbide)</th>
<th>PVD Coated Carbide</th>
<th>DLC Coated</th>
</tr>
</thead>
<tbody>
<tr>
<td>WNMG 060404CQ 080408CQ 080412CQ</td>
<td>0.4</td>
<td>0.8</td>
<td>1.2</td>
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<td></td>
</tr>
<tr>
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</tbody>
</table>

- **Cermet**: Cermet / Coated Carbide / Carbide
- **MEGACOAT**: CBN & PCD Tools
- **CVD Coated Carbide**: External Small Parts Machining
- **MEGACOAT (PVD Coated Carbide)**: Solid Tools
- **PVD Coated Carbide**: Boring Grooving Cut-off Threading Drilling
- **DLC Coated**: Milling Tools for Turning Mill

---

**Insert Grades**
- Turning
- Indexable Inserts
- CBN & PCD Tools
- External Small Parts Machining
- Solid Tools
- Boring Grooving Cut-off Threading Drilling

**Indexable Inserts**
- **Inserts are sold in 10 piece boxes**

---

**Technical Information**

**Applicable Chipbreaker Range**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Steel / Edge Length=08)</td>
<td>(Steel / Edge Length=08)</td>
<td>(Steel)</td>
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**Notes**

- : Std. Item  ○ : Check Availability  ◯ : Deleted from the next catalog
Turning Indexable Inserts

### 80˚ Trigon / Negative with Hole

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<tr>
<th>Insert Description</th>
<th>Dimension (mm)</th>
<th>Cermet</th>
<th>MEGACOAT Cermet</th>
<th>CVD Coated Carbide</th>
<th>MEGACOAT (PVD Coated Carbide)</th>
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</tr>
</tbody>
</table>

**Applicable Chipbreaker Range**

- **1**: Hard Materials
- **2**: Stainless Steel
- **3**: Heat-Resistant Alloys
- **4**: Titanium Alloys

**Chip Breaker**

- **C (Standard)**
- **D22**: Free-cutting steel
- **D79**: Low Carbon Steel
- **D90**: Medium - Roughing / Sharp Edge

**Material**

- **C (Stainless Steel)**
- **G**: Gray Cast Iron
- **N**: Nodular Cast Iron
- **O**: Non-ferrous Metals
- **S**: Heat-resistant Alloys
- **T**: Titanium Alloys
- **H**: Hard Materials

**Processing**

- **Free-cutting steel**: NQ NQOP ONQPT P87
- **Low Carbon Steel**: NQ P87
- **Medium - Roughing / Sharp Edge**: NQ P87
- **Medium - Roughing**: NQ P87
- **Medium - Roughing**: NQ P87
- **Medium - Roughing**: NQ P87
- **Medium - Roughing**: NQ P87
- **Medium - Roughing**: NQ P87
- **Medium - Roughing**: NQ P87

Inserts are sold in 10 piece boxes

- **Std. Item**: ○ Check Availability □ Deleted from the next catalog
### 80° Trigon / Negative with Hole

<table>
<thead>
<tr>
<th>Insert Grade</th>
<th>Material</th>
<th>Description</th>
<th>RE</th>
<th>IC</th>
<th>S</th>
<th>D1</th>
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<tbody>
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<td>Cast Iron</td>
<td>Roughing</td>
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<td>Cast Iron</td>
<td>Roughing</td>
<td>0.4</td>
<td>0.8</td>
<td>1.2</td>
<td></td>
</tr>
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<td>Cast Iron</td>
<td>Roughing</td>
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<td>WNMA 080408</td>
<td>Cast Iron</td>
<td>Without Chipbreaker</td>
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<td>Non-Ferrous Metals</td>
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</table>

- **RE**: Applicable Chipbreaker Range
- **IC**: Insert Grades
- **S**: Insert Grades
- **D1**: Insert Grades

---

**How to read pages of “Turning Inserts”**

See Page B15

**Technical Information Index**

- A
- B
- C
- D
- E
- F
- G
- H
- J
- K
- L
- M
- N
- P
- R
- T

**Insert Grades**

- Indexable Inserts
- CBN & PCD Tools
- External
- Small Parts
- Machining
- Boring
- Grooving
- Cut-off
- Threading
- Drilling
- Solid Tools
- Milling
- Tools for Turning Mill
- Spare Parts

**Applicable Chipbreaker Range**

- Cermet / Coated Carbide / Carbide
- Std. Item
- Check Availability
- Deleted from the next catalog

**Inserts are sold in 10 piece boxes**
### Small Double Sided Tools / 80° Rhombic

<table>
<thead>
<tr>
<th>Insert</th>
<th>Description</th>
<th>Dimension (mm)</th>
<th>Cermet MEGACOAT</th>
<th>CVD Coated Carbide</th>
<th>MEGACOAT (PVD Coated Carbide)</th>
<th>PVD Coated Carbide</th>
<th>DLC Coated Carbide</th>
<th>DLC Coated Carbide</th>
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<td>CNUGU070301MF-SK</td>
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<td>0.05</td>
<td>0.1</td>
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<td>0.8</td>
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<tr>
<td>CNUGU070301MF-SK</td>
<td>With Honing</td>
<td>0.2</td>
<td>0.05</td>
<td>0.2</td>
<td>0.4</td>
<td>0.6</td>
<td>0.8</td>
<td>1.0</td>
</tr>
</tbody>
</table>

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

### When a minus tolerance is specified for the corner-R(RE)

If a minus tolerance is specified for the corner-R(RE) as shown in the Fig. 1, using an insert with corner-R(RE)=0.2 mm may result in larger radius than specified. Use an insert the corner of which R(RE) has a minus tolerance.

![Fig. 1 Example of a specified corner-R in the drawing](image-url)
### Small Double Sided Tools / 55° Rhombic

<table>
<thead>
<tr>
<th>Insert</th>
<th>Description</th>
<th>Dimension (mm)</th>
<th>Cermet</th>
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<th>Cermet</th>
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<th>Edges</th>
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</tbody>
</table>

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g., < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

### Chipbreaker Selection (Negative Inserts)

<table>
<thead>
<tr>
<th>Cutting Range Name</th>
<th>Cross-section</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finishing - Medium</td>
<td>SK</td>
<td>A low cutting force chipbreaker designed for chip control in steel and stainless steel. Cutting performance is similar to comparable sized positive inserts.</td>
</tr>
<tr>
<td>Medium - Roughing</td>
<td>GK</td>
<td>Good chip evacuation at wide range by breaker dot and wide chip pocket.</td>
</tr>
<tr>
<td>Finishing</td>
<td>F</td>
<td>Good chip control at finishing with low cutting force.</td>
</tr>
<tr>
<td>Low Feed</td>
<td>U</td>
<td>Good chip control at low feed rate and varied ap with low cutting force.</td>
</tr>
</tbody>
</table>

:: Std. Item

Inserts are sold in 10 piece boxes
# Turning Indexable Inserts

## Small Double Sided Tools / 60° Triangle

<table>
<thead>
<tr>
<th>Insert</th>
<th>Description</th>
<th>Dimension (mm)</th>
<th>Cermet</th>
<th>MEGACOAT Cermet</th>
<th>CVD Coated Carbide</th>
<th>MEGACOAT (PVD Coated Carbide)</th>
<th>PVD Coated Carbide</th>
<th>DLC Coated Carbide</th>
<th>Applicable Chipbreaker Range</th>
<th>Applicable Toolholders</th>
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<tbody>
<tr>
<td>P</td>
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<td>5.56</td>
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</table>

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

**Notes:**

- Inserts are sold in 10 piece boxes

- Description

- Std. Item
- Deleted from the next catalog
# 80° Rhombic / Positive with Hole

Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicates models with minus tolerance on corner-R(RE).

### Insert Description

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### Chip Control Oriented

- Low cutting force

### Technical Index

- Std. Item
- Finishing - Medium
- Turning - Medium

### Ref. to the table below

- Inserts are sold in 10 piece boxes
# Turning Indexable Inserts

## 80˚ Rhombic / Positive with Hole

### Insert Description

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<th>MEGACOAT Cermet</th>
<th>CVD Coated Carbide</th>
<th>MEGACOAT (PVD Coated Carbide)</th>
<th>PVD Coated Carbide</th>
<th>DLC Coated</th>
<th>PVD Coated Carbide + DLC Coated</th>
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<td>09T302WP</td>
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</table>

- Insert whose corner-R(LE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(LE).

### Applicable Chipbreaker Range

<table>
<thead>
<tr>
<th>Chipbreaker</th>
<th>R (mm)</th>
<th>H (mm)</th>
<th>D1 (mm)</th>
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</thead>
<tbody>
<tr>
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<td>0.2</td>
<td>0.4</td>
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<tr>
<td>WP</td>
<td>0.1</td>
<td>0.2</td>
<td>0.4</td>
</tr>
</tbody>
</table>

Inserts are sold in 10 piece boxes.

- : Std. Item  ○ : Check Availability  □ : Deleted from the next catalog
### 80° Rhombic / Positive with Hole

#### Insert Grades

| Turning Indexable Inserts | CBN & PCD Tools | External Small Parts | Machining Boring Grooving Cut-off Threading Drilling Solid Tools |
|---------------------------|----------------|----------------------|-------------------|-----------------|-----------------|-----------------|

#### How to read pages of "Turning Inserts"

- **See Page B15 (mm)**

#### Insert Grades

- **Inserts are sold in 10 piece boxes**

#### Technical Information Index

- **A**
- **B**
- **C**
- **D**
- **E**
- **F**
- **G**
- **H**
- **J**
- **K**
- **L**
- **M**
- **N**
- **P**
- **R**
- **T**

#### Insert Grades Table

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#### Super Fine

- **CCET 00103R-FSF**
- **00103NL-FSF**
- **00101R-FSF**
- **00101L-FSF**
- **00102R-FSF**
- **00102L-FSF**
- **00104R-FSF**
- **00104L-FSF**

#### Finishing

- **CCET 00103R-FSF**
- **00103NL-FSF**
- **00101R-FSF**
- **00101NL-FSF**
- **00102R-FSF**
- **00102NL-FSF**
- **00104R-FSF**
- **00104NL-FSF**

#### Characteristics

- **Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).**
# Turning Indexable Inserts

## 80° Rhombic / Positive with Hole

### Description

<table>
<thead>
<tr>
<th>Insert</th>
<th>Description</th>
<th>Cermet</th>
<th>MEGACOAT</th>
<th>CVD Coated Carbide</th>
<th>MEGACOAT (PVD Coated Carbide)</th>
<th>PVD Coated Carbide</th>
<th>DLC Carbide</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CCET 00010MR-F</strong></td>
<td>-0.05</td>
<td></td>
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<td>000101MR-F</td>
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<td></td>
</tr>
<tr>
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</tr>
</tbody>
</table>

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

### Applicable Chipbreaker Range

- **Free-cutting steel**
  - NQO NQOP QP P P
- **Carbon Steel / Alloy Steel**
  - M PQ QP P
- **Stainless Steel**
  - K
- **Gray Cast Iron**
  - N NQP
- **Nodular Cast Iron**
  - N
- **Non-ferrous Metals**
  - S Q P
- **Heat-resistant Alloys**
  - P Q P
- **Titanium Alloys**
  - H
- **Hard Materials**
  - S

### Turning Indexable Inserts

- **Positive**

### Ceramic

- **Chip breakers**

### How to read pages of “Turning Inserts”

See Page B15

### Applicable Toolholders

- **RE**
  - TN610
  - TN620
  - TN6010
  - TN60
  - PV710
  - PV720
  - PV7010
  - PV7025
  - PV7005
  - PV90
  - CA510
  - CA515
  - CA025
  - CA525
  - CA530
  - CA5505
  - CA5515
  - CA5525
  - CA5535
  - CA6515
  - CA6525
  - CA310
  - CA315
  - CA320
  - CA4505
  - CA4515
  - CA4120
  - PR1425
  - PR1225
  - PR005S
  - PR015S
  - PR1305
  - PR1310
  - PR1325
  - PR1535
  - PR930
  - PR1005
  - PR1025
  - PR1125
  - PR1535
  - PDL010
  - PDL025
  - KW10
  - SW05

### Sharp Edge

- **CCGT 0301005MR-F**
  - <0.05
  - 0301005ML-F
  - <0.05
  - 030101MR-F
  - <0.1
  - 030101ML-F
  - <0.1
  - 030102MR-F
  - <0.2
  - 030102ML-F
  - <0.2
  - 030104MR-F
  - <0.4
  - 030104ML-F
  - <0.4

### Refining Cut Edge

- **CCGT 0301003R-F**
  - 0.03
  - 0301003L-F
  - 0.03
  - 030101R-F
  - 0.1
  - 030101L-F
  - 0.1
  - 030102R-F
  - 0.2
  - 030102L-F
  - 0.2
  - 030104R-F
  - 0.4
  - 030104L-F
  - 0.4

### Free-cutting steel

- **CCGT 0401003R-F**
  - 0.03
  - 0401003L-F
  - 0.03
  - 040101R-F
  - 0.1
  - 040101L-F
  - 0.1
  - 040102R-F
  - 0.2
  - 040102L-F
  - 0.2
  - 040104R-F
  - 0.4
  - 040104L-F
  - 0.4

### Thickness of CC_0301_ and CC_0401_ are different (mm)

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Inserts are sold in 10 piece boxes

- : Std. Item  
- : Check Availability  
- : Deleted from the next catalog
- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).
## Turning Indexable Inserts

### 80° Rhombic / Positive with Hole

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<th>Insert</th>
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<th>Cermet</th>
<th>CVD Coated Carbide</th>
<th>MEGACOAT (PVD Coated Carbide)</th>
<th>PVD Coated Carbide</th>
<th>DLC Coated</th>
<th>Applicable Chipbreaker Range</th>
<th>Applicable Toolholders</th>
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</tr>
</tbody>
</table>

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

- Insert whose corner-R(RE) dimension expressed with more than sign (e.g. > 0.05, > 0.1, > 0.2 etc.) indicate models with plus tolerance on corner-R(RE).

### Ref. to the table below B53

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

- Insert whose corner-R(RE) dimension expressed with more than sign (e.g. > 0.05, > 0.1, > 0.2 etc.) indicate models with plus tolerance on corner-R(RE).

### How to read pages of “Turning Inserts”

See Page B15

### Inserts are sold in 10 piece boxes

- Std. Item
- Deleted from the next catalog

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<tr>
<th>Description</th>
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### 80° Rhombic / Positive with Hole

- **Insert Grades**
  - CBN & PCD Tools
  - External
  - Small Parts
  - Machining
  - Boring
  - Grooving
  - Cut-off
  - Threading
  - Drilling
  - Solid Tools
  - Milling
  - Tools for Turning Mill

#### How to read pages of “Turning Inserts”

- See Page B15
- See Page B59

#### Inserts sold in 10 piece boxes

- Insert Grades: Standard Item
- Deleted from the next catalog

#### Description

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#### Applicable Chipbreaker Range

- Low Feed
- Sharp Edge
- Free-cutting steel
- Carbon Steel / Alloy Steel
- Stainless Steel
- Gray Cast Iron
- Nodular Cast Iron
- Non-ferrous Metals
- Heat-resistant Alloys
- Titanium Alloys
- Hard Materials

#### Applicable Toolholders

- TN610
- TN620
- TN6010
- TN60
- PV710
- PV720
- PV7010
- PV7025
- PV7005
- PV90
- CA510CA515
- CA025P
- CA525
- CA530
- CA550
- CA310CA315CA320
- CA450
- CA4120
- PR1425
- PR1225
- PR005S
- PR015S
- PR1305PR1310PR1325
- PR1535
- PR930
- PR1005
- PR1025
- PR1125
- PDL010
- PDL025
- KW10
- SW05

#### Remarks

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. <0.05, <0.1, <0.2 etc.) indicate models with minus tolerance on corner-R(RE).
80° Rhombic / Positive with Hole

Turning Indexable Inserts

How to read pages of “Turning Inserts” @ See Page B15 (mm)

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Applicable Chipbreaker Range

- For Cooling Oil
- Stainless Steel
- Gray Cast Iron
- Hard Materials
- Cast Iron
- Without Chipbreaker

Inserts are sold in 10 piece boxes

- Std. Item

Applicable Chipbreaker Range

1. Non-ferrous Metals: Finishing / Sharp Edge
2. (Non-ferrous Metals): Finishing - Medium / Sharp Edge
## 80° Rhombic / Positive with Hole

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### Insert Grades
- Cermet / Coated Carbide / Carbide
- PVD Coated Carbide
- DLC Carbide

### Machining Conditions
- (Steel)
- (Low Carbon Steel)

### Technical Information
- Indexable Inserts
- CBN & PCD Tools
- External Small Parts
- Turning Mill
- Spare Parts
- Drilling
- Threading
- Cut-off
- Grooving
- Boring
- External

### Symbols
- F: Standard
- P: Check Availability
- D: Deleted from the next catalog

 Inserts are sold in 10 piece boxes
Turning Indexable Inserts

### 55° Rhombic / Positive with Hole

#### Insert Description

<table>
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<th>Insert Description</th>
<th>See Page for Applicable Toolholders</th>
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<tr>
<td>DC_07 type</td>
<td>E24-E27, E38, F45-F47</td>
</tr>
<tr>
<td>DC_11 type</td>
<td>E20, E24, E27, E38, F45-F47, F67</td>
</tr>
</tbody>
</table>

#### Insert Details

- **Insert Description**
- **Surface (mm)**
- **Cermet**
- **MEGACOAT Cermet**
- **CVD Coated Carbide**
- **MEGACOAT (PVD Coated Carbide)**
- **PVD Coated Carbide**
- **DLC Coated**

#### Chip Control Oriented

- **Steel**
- **Stainless Steel**

#### Low Cutting Force

- **Steel**
- **Stainless Steel**

---

*Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).*

---

*Inserts are sold in 10 piece boxes*
### 55° Rhombic / Positive with Hole

Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

#### Applicable Chipbreaker Range

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

#### Inserts sold in 10 piece boxes

- **Insert Grades**
  - Turning Indexable Inserts
  - CBN & PCD Tools

- **Technologies**
  - External Small Parts
  - Turning Mill

#### Technical Information

- **A**
- **B**
- **C**
- **D**
- **E**
- **F**
- **G**
- **H**
- **J**
- **K**
- **L**
- **M**
- **N**
- **P**
- **R**
- **T**

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- **Description**
  - IC
  - S
  - D1

#### How to read pages of “Turning Inserts”

- **Notes**
  - Inserts are sold in 10 piece boxes
  - See Page for Applicable Toolholders

---

**Legend**

- Std. Item
- Check Availability
- Deleted from the next catalog

---

**Additional Information**

- **Applicable Chipbreaker Range**
- **(Steel)**

---

**Images**

-
-
-
-
-
-
Turning Indexable Inserts

55° Rhombic / Positive with Hole

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- Insert whose corner-R(Re) dimension expressed with less than sign (e.g., < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(Re).

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- Inserts are sold in 10 piece boxes

- Std. Item ○ Check Availability □ Deleted from the next catalog

- Insert whose corner-R(Re) dimension expressed with less than sign (e.g., < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(Re).
55° Rhombic / Positive with Hole

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How to read pages of “Turning Inserts” @ See Page B15

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Insert Grades

Turning
Indexable Inserts

CBN & PCD Tools

External

Small Parts

Machining

Boring

Grooving

Cut-off

Threading

Drilling

Solid Tools

Milling

Tools for Turning Mill

Spare Parts

Technical Information

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Insert Grades

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Indexable Inserts

CBN & PCD Tools

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Small Parts

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Boring

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Milling

Tools for Turning Mill

Spare Parts

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Inserts are sold in 10 piece boxes

B65
Turning Indexable Inserts

### 55˚ Rhombic / Positive with Hole

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<td>P</td>
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</tbody>
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#### Description

- **Cermet**: MEGACOAT Cermet, CVD Coated Carbide MEGACOAT (PVD Coated Carbide), DLC Carbide
- **Ceramic**: PVD Coated Carbide

#### Blade/Ridge

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</table>

#### Sharp Edge / Precision

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

### Applicable Chipbreaker Range

- **Super Fine**
- **Finishing**

#### Applicable Chipbreaker Range

- Insert are sold in 10 piece boxes

---

**Notes**

- Inserts sold in 10 piece boxes
- Std. Item

**Material Range**

- Steel
- Free-cutting steel
- Carbon Steel / Alloy Steel
- Stainless Steel
- Gray Cast Iron
- Nodular Cast Iron
- Non-ferrous Metals
- Heat-resistant Alloys
- Titanium Alloys
- Hard Materials

**Chipbreaker Range**

- DCET 0702003R-FSF | 0.03 |
- 0702003L-FSF | 0.03 |
- 070201R-FSF | 0.1 |
- 070201L-FSF | 0.1 |
- 070202R-FSF | 0.2 |
- 070202L-FSF | 0.2 |
- 070204R-FSF | 0.4 |
- 070204L-FSF | 0.4 |
- DCET 11T3003R-FSF | 0.03 |
- 11T3003L-FSF | 0.03 |
- 11T301R-FSF | 0.1 |
- 11T301L-FSF | 0.1 |
- 11T302R-FSF | 0.2 |
- 11T302L-FSF | 0.2 |
- 11T304R-FSF | 0.4 |
- 11T304L-FSF | 0.4 |
- DCET 0702005MR-FSF | <0.05 |
- 0702005ML-FSF | <0.05 |
- 070201MR-FSF | <0.1 |
- 070201ML-FSF | <0.1 |
- 070202MR-FSF | <0.2 |
- 070202ML-FSF | <0.2 |
- 070204MR-FSF | <0.4 |
- 070204ML-FSF | <0.4 |
- DCET 11T3005MR-FSF | <0.05 |
- 11T3005ML-FSF | <0.05 |
- 11T301MR-FSF | <0.1 |
- 11T301ML-FSF | <0.1 |
- 11T302MR-FSF | <0.2 |
- 11T302ML-FSF | <0.2 |
- 11T304MR-FSF | <0.4 |
- 11T304ML-FSF | <0.4 |

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**Reference**

- Ref. to the table above
- See Page for Applicable Toolholders
55° Rhombic / Positive with Hole

Insert Description See Page for Applicable Toolholders

<table>
<thead>
<tr>
<th>Description</th>
<th>IC</th>
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<tbody>
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<td>DC..11 type</td>
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- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

- Insert Grades
- Turning Indexable Inserts
- CBN & PCD Tools
- External
- Small Parts
- Machining
- Boring
- Grooving
- Cut-off
- Threading
- Drilling
- Solid Tools
- Milling
- Tools for Turning Mill
- Spare Parts
- Technical Information

See Page B15

55˚ Rhombic / Positive with Hole

Sharp Edge

· Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

Inserts are sold in 10 piece boxes
## Turning Indexable Inserts

### 55° Rhombic / Positive with Hole

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### Insert Description

- **Handed Insert**: shows Left-hand
- **Material**: Cermet
- **Coating**: MEGACOAT
- **CVD Coated Carbide**: MEGACOAT
- **PVD Coated Carbide**: PVD
- **DLC Carbide**: DLC

### Insert Details

- **R**: Radius
- **S**: Side Length
- **D**: Diameter
- **IC**: chipbreaker
- **S**: Style
- **F**: Feed

### Chipbreaker Range

- **Sharp Edge / Precision**
- **Low Feed**

### Toolholders

- **RE**
- **TN 610**
- **TN620**
- **TN6010**
- **TN60**
- **PV710**
- **PV720**
- **PV7010**
- **PV7025**
- **PV7005**
- **PV90**
- **CA510CA515**
- **CA025P**
- **CA525**
- **CA530**
- **CA5505CA5515CA5525CA5535CA6515CA6525**
- **CA310CA315CA320**
- **CA4505CA4515CA4520**
- **CA4120**
- **PR1425**
- **PR1225**
- **PR005S**
- **PR015S**
- **PR1305PR1310PR1325**
- **PR1535**
- **PR930**
- **PR1005**
- **PR1025**
- **PR1125**
- **PDL010**
- **PDL025**
- **KW10**
- **SW05**

### Applicable Chipbreaker Range

- **Ap = 0.05 - 0.2 mm**
- **f = 0.1 - 0.2 mm/rev**

### Applicable Materials

- **Free-cutting steel**
- **Carbon Steel / Alloy Steel**
- **Stainless Steel**
- **Gray Cast Iron**
- **Nodular Cast Iron**
- **Non-ferrous Metals**
- **Heat-resistant Alloys**
- **Titanium Alloys**
- **Hard Materials**

### Notes

- Insert whose corner-R (RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R (RE).
[Cermet / Coated Carbide / Carbide]

How to read pages of “Turning Inserts” @ See Page B15

(Steel / Edge Length=07)

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Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

· Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

Inserts are sold in 10 piece boxes.
Turning Indexable Inserts

55˚ Rhombic / Positive with Hole

Insert Description | See Page for Applicable Toolholders
---|---
DC..07 type | E24, E27, E38, F45, F47
DC..11 type | E20, E24, E27, E38, F45, F47, F67

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

Applicable Chipbreaker Range

- Std. Item | Deleted from the next catalog

Inserts are sold in 10 piece boxes
## 55° Rhombic / Positive with Hole

### Insert Grades

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<th>Drilling</th>
<th>Grooving</th>
<th>Boring</th>
<th>External</th>
<th>Solid Tools</th>
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<td>&lt;0.1</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
</tr>
<tr>
<td>DCGT 11T304ER-J</td>
<td>Cermet</td>
<td>0.2</td>
<td>0.2</td>
<td>&lt;0.2</td>
<td>&lt;0.2</td>
<td>&lt;0.2</td>
<td>&lt;0.2</td>
<td>&lt;0.2</td>
<td>&lt;0.2</td>
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<tr>
<td>DCGT 11T304ER-J</td>
<td>Cermet</td>
<td>0.2</td>
<td>0.2</td>
<td>&lt;0.4</td>
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<td>&lt;0.4</td>
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<td>&lt;0.4</td>
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<td>&lt;0.4</td>
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<tr>
<td>DCGT 11T304ER-J</td>
<td>Cermet</td>
<td>0.2</td>
<td>0.2</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
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<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
</tr>
</tbody>
</table>

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

---

**Values:**
- PV: up to 720 m/min.
- K: up to 75 Mm.
- M: up to 15 Mm.
- N: up to 6 Mm.
- S: up to 6 Mm.
- P: up to 3 Mm.
- H: up to 2 Mm.

**Adapted from CTA catalog 11TN.**
# Turning Indexable Inserts

## 55˚ Rhombic / Positive with Hole

### Description

<table>
<thead>
<tr>
<th>Insert</th>
<th>Super Fine</th>
<th>Low Feed</th>
<th>Chipbreakers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DPET 0702003R-FSF</strong></td>
<td>0.03</td>
<td>0.1</td>
<td><strong>0.03</strong></td>
</tr>
<tr>
<td><strong>DPET 0702002R-FSF</strong></td>
<td>0.2</td>
<td>0.2</td>
<td><strong>0.2</strong></td>
</tr>
<tr>
<td><strong>DPET 11T3003R-FSF</strong></td>
<td>0.03</td>
<td>0.1</td>
<td><strong>0.03</strong></td>
</tr>
<tr>
<td><strong>DPET 11T3002R-FSF</strong></td>
<td>0.2</td>
<td>0.2</td>
<td><strong>0.2</strong></td>
</tr>
</tbody>
</table>

### Insert Details

- **Handed Insert**: Shows Left-hand

### Inserted Materials

- **Steel**: Edge length=07
- **Steel**: Edge length=11

### Applicable Chipbreaker Range

<table>
<thead>
<tr>
<th>Insert</th>
<th>Super Fine</th>
<th>Low Feed</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DPET 0702003R-FSF</strong></td>
<td>0.03</td>
<td>0.1</td>
<td><strong>0.03</strong></td>
</tr>
<tr>
<td><strong>DPET 0702002R-FSF</strong></td>
<td>0.2</td>
<td>0.2</td>
<td><strong>0.2</strong></td>
</tr>
</tbody>
</table>

- **Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).**

---

### Notes

- **Free-cutting steel**
- **Carbon Steel / Alloy Steel**
- **Stainless Steel**
- **Gray Cast Iron**
- **Nodular Cast Iron**
- **Non-ferrous Metals**
- **Heat-resistant Alloys**
- **Titanium Alloys**
- **Hard Materials**

**Inserts are sold in 10 piece boxes**
### 70° Rhombic / Positive with Hole

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

<table>
<thead>
<tr>
<th>Insert</th>
<th>Description</th>
<th>IC (mm)</th>
<th>S</th>
<th>D1</th>
</tr>
</thead>
<tbody>
<tr>
<td>JCET 030101R-FSF</td>
<td>0.1</td>
<td>1.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JCET 030101L-FSF</td>
<td>0.1</td>
<td>1.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JCET 030102R-FSF</td>
<td>0.2</td>
<td>1.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JCET 030102L-FSF</td>
<td>0.2</td>
<td>1.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JCET 030104R-FSF</td>
<td>0.4</td>
<td>1.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JCET 030104L-FSF</td>
<td>0.4</td>
<td>1.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JCGT 030101R-F</td>
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<td>1.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JCGT 030101L-F</td>
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<td>1.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JCGT 030102R-F</td>
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<td>1.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JCGT 030102L-F</td>
<td>0.2</td>
<td>1.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JCGT 030104R-F</td>
<td>0.4</td>
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<td>JCGT 030104L-F</td>
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</tr>
</tbody>
</table>

- Inserts are sold in 10 piece boxes.
## Turning Indexable Inserts

### Round / Positive with Hole

<table>
<thead>
<tr>
<th>Insert Description</th>
<th>Insertion Dimension (mm)</th>
<th>Cermet</th>
<th>MEGACOAT Cermet</th>
<th>CVD Coated Carbide</th>
<th>MEGACOAT (PVD Coated Carbide)</th>
<th>DLC Coated</th>
<th>PVD Coated Carbide</th>
<th>DLC Carbide</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCMX 1003M0</td>
<td>RE</td>
<td>-</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>RCMX 1204M0</td>
<td>RE</td>
<td>-</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>RCGX 1003M0-AQ</td>
<td>RE</td>
<td>-</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

*Chipbreaker shape of RCMX... varies by grade (cermet / PVD coated cermet / CVD coated carbide)

### Applicable Chipbreaker Range

1. **(Steel)**

<table>
<thead>
<tr>
<th>ap (mm)</th>
<th>0.1</th>
<th>0.2</th>
<th>0.3</th>
<th>0.4</th>
<th>0.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>f (mm/rev)</td>
<td>0.1</td>
<td>0.2</td>
<td>0.3</td>
<td>0.4</td>
<td>0.5</td>
</tr>
</tbody>
</table>

2. **(Non-ferrous Metals)**

<table>
<thead>
<tr>
<th>ap (mm)</th>
<th>0.1</th>
<th>0.2</th>
<th>0.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>f (mm/rev)</td>
<td>0.1</td>
<td>0.2</td>
<td>0.3</td>
</tr>
</tbody>
</table>

**Applicable Toolholders**

- RCMX
- RCGX

**Chip breaker Index**

- D21

**Medium**

- Hard Materials
- Heat-resistant Alloys
- Titanium Alloys

**Non-ferrous Metals**

- Stainless Steel
- Hard Materials

**Dimension**

- IC: 10.0
- S: 3.18
- D1: 3.6

**Material**

- Steel
- Free-cutting steel
- Carbon Steel / Alloy Steel
- Stainless Steel
- Gray Cast Iron
- Nodular Cast Iron
- Non-ferrous Metals
- Heat-resistant Alloys
- Titanium Alloys
- Hard Materials

Inserts are sold in 10 piece boxes.

- Std. Item
- Deleted from the next catalog
## 90° Square / Positive with Hole
### 90° Square / Positive without Hole

<table>
<thead>
<tr>
<th>Insert Grade</th>
<th>Description</th>
<th>ic</th>
<th>S</th>
<th>D1</th>
<th>AN</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBN &amp; PCD</td>
<td>SC_09T3_9.525</td>
<td>3.97</td>
<td>4.4</td>
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<tr>
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<td>3.18</td>
<td>4.5</td>
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<table>
<thead>
<tr>
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<th>S</th>
<th>D1</th>
<th>AN</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBN &amp; PCD</td>
<td>SP_1203_12.7</td>
<td>3.18</td>
<td>4.5</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>CBN &amp; PCD</td>
<td>SP_1204_12.7</td>
<td>4.76</td>
<td>8.9</td>
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</tbody>
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### Technical Information

<table>
<thead>
<tr>
<th>Applicable Chipbreaker Range</th>
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- **(Steel)**

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<tr>
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<th>D1</th>
<th>AN</th>
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</thead>
<tbody>
<tr>
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</tr>
<tr>
<td>2</td>
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- **(Steel / Edge Length=09)**

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</tr>
<tr>
<td>2</td>
<td></td>
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</tr>
</tbody>
</table>

- **(Steel / Edge Length=12)**

<table>
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<tr>
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<th>AN</th>
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<tbody>
<tr>
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<table>
<thead>
<tr>
<th>Description</th>
<th>ic</th>
<th>S</th>
<th>D1</th>
<th>AN</th>
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</thead>
<tbody>
<tr>
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<td>SCMT_9T308HQ</td>
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<table>
<thead>
<tr>
<th>Description</th>
<th>ic</th>
<th>S</th>
<th>D1</th>
<th>AN</th>
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</thead>
<tbody>
<tr>
<td>SPGH_9T304L</td>
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<td>1</td>
<td>1</td>
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<tr>
<td>SPGH_9T308L</td>
<td>0.8</td>
<td>0.8</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Description</th>
<th>ic</th>
<th>S</th>
<th>D1</th>
<th>AN</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPGN_9T304</td>
<td>0.4</td>
<td>0.8</td>
<td>1</td>
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</tr>
<tr>
<td>SPGN_9T308</td>
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<td>1</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Description</th>
<th>ic</th>
<th>S</th>
<th>D1</th>
<th>AN</th>
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<tbody>
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<td>SPGN_12T304</td>
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<td>0.8</td>
<td>1</td>
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<tr>
<td>SPGN_12T308</td>
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<td>1</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Description</th>
<th>ic</th>
<th>S</th>
<th>D1</th>
<th>AN</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPMN_12T304</td>
<td>0.4</td>
<td>0.8</td>
<td>1</td>
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<tr>
<td>SPMN_12T308</td>
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<td>0.8</td>
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<td>1</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Description</th>
<th>ic</th>
<th>S</th>
<th>D1</th>
<th>AN</th>
</tr>
</thead>
<tbody>
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<td>SPMN_12T408</td>
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</table>

### Indexable Inserts

- **Turning**
- **Boring**
- **Grooving**
- **Cut-off**
- **Threading**
- **Drilling**

### Solid Tools

- **Milling**

### Technical Information

<table>
<thead>
<tr>
<th>Spares Parts</th>
<th>Technical Information</th>
<th>Index</th>
</tr>
</thead>
</table>

- **Cermic / Coated Carbide / Carbide**

<table>
<thead>
<tr>
<th>Description</th>
<th>ic</th>
<th>S</th>
<th>D1</th>
<th>AN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cermet / Coated Carbide / Carbide</td>
<td>Std. Item</td>
<td>Check Availability</td>
<td>Deleted from the next catalog</td>
<td></td>
</tr>
</tbody>
</table>

- **Cutting Oil**

<table>
<thead>
<tr>
<th>Description</th>
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<th>S</th>
<th>D1</th>
<th>AN</th>
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</thead>
<tbody>
<tr>
<td>Cermet / Coated Carbide / Carbide</td>
<td>Std. Item</td>
<td>Check Availability</td>
<td>Deleted from the next catalog</td>
<td></td>
</tr>
</tbody>
</table>

- **Turning Mill**

### Cast Iron

- **Gray Cast Iron**
- **Nodular Cast Iron**

### Stainless Steel

- **Heat-resistant Alloys**
- **Titanium Alloys**

### Non-ferrous Metals

- **Non-ferrous Metals**

### Hard Materials

- **Hard Materials**
## 60° Triangle / Positive with Hole

### Insert Information

<table>
<thead>
<tr>
<th>Description</th>
<th>IC</th>
<th>S</th>
<th>D1</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB_060102CF</td>
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<td>1.59</td>
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</tbody>
</table>

### Ceramic Inserts

<table>
<thead>
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<th>RE</th>
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<th>D1</th>
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</thead>
<tbody>
<tr>
<td>TBGT 060102CF</td>
<td>0.2</td>
<td>3.97</td>
<td>1.59</td>
<td>2.3</td>
</tr>
</tbody>
</table>

### Cutting Edges

- **Sharp Edge**
- **Sharp Edge / Polished**
- **Finishing**

### Chipbreakers

- **P**
- **M**
- **K**
- **N**
- **S**
- **H**

### Materials

- **Free-cutting steel**
- **Carbon Steel / Alloy Steel**
- **Stainless Steel**
- **Gray Cast Iron**
- **Nodular Cast Iron**
- **Non-ferrous Metals**
- **Heat-resistant Alloys**
- **Titanium Alloys**
- **Hard Materials**

### Chipbreaker Range

- **ap** indicates radius

### Notes

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

---

Inserts are sold in 10 piece boxes.

---

How to read pages of “Turning Inserts” @ See Page B15
## 60° Triangle / Positive with Hole

### Insert Grades

- Turning Indexable Inserts
- CBN & PCD Tools
- External
- Small Parts
- Machining
- Boring
- Grooving
- Cut-off
- Threading
- Drilling
- Solid Tools
- Milling
- Tools for Turning Mill

### Spare Parts

- Technical Information

### Index

- A
- B
- C
- D
- E
- F
- G
- H
- J
- K
- L
- M
- N
- P
- R
- T

---

<table>
<thead>
<tr>
<th>Insert</th>
<th>Description</th>
<th>IC (mm)</th>
<th>S (mm)</th>
<th>D1 (mm)</th>
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<tbody>
<tr>
<td>TCMX 090204WP</td>
<td>Cermet / Coated Carbide / Carbide</td>
<td>0.4</td>
<td>● ● ● ● ● ● ● ●</td>
<td></td>
</tr>
<tr>
<td>TCMX 110204WP</td>
<td>Cermet / Coated Carbide / Carbide</td>
<td>0.4</td>
<td>● ● ● ● ● ● ● ●</td>
<td></td>
</tr>
<tr>
<td>TCMT 090202HQ</td>
<td>Cermet / Coated Carbide / Carbide</td>
<td>0.2</td>
<td>● ● ● ● ● ● ● ●</td>
<td></td>
</tr>
<tr>
<td>TCMT 090204HQ</td>
<td>Cermet / Coated Carbide / Carbide</td>
<td>0.4</td>
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</tr>
<tr>
<td>TCMT 110202HQ</td>
<td>Cermet / Coated Carbide / Carbide</td>
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<td>● ● ● ● ● ● ● ●</td>
<td></td>
</tr>
<tr>
<td>TCMT 110204HQ</td>
<td>Cermet / Coated Carbide / Carbide</td>
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<td>● ● ● ● ● ● ● ●</td>
<td></td>
</tr>
<tr>
<td>TCMT 16T304HQ</td>
<td>Cermet / Coated Carbide / Carbide</td>
<td>0.4</td>
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<tr>
<td>TCMT 16T308HQ</td>
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<tr>
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<tr>
<td>TCET 0802003FR-USF</td>
<td>Cermet / Coated Carbide / Carbide</td>
<td>0.03</td>
<td>● ● ● ● ● ● ● ●</td>
<td></td>
</tr>
<tr>
<td>TCET 1103003FR-USF</td>
<td>Cermet / Coated Carbide / Carbide</td>
<td>0.03</td>
<td>● ● ● ● ● ● ● ●</td>
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</tr>
<tr>
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<td>Cermet / Coated Carbide / Carbide</td>
<td>0.05</td>
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<td></td>
</tr>
</tbody>
</table>

### Applicable Chipbreaker Range

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

---

- Insert Grades: Inserts are sold in 10 piece boxes

---

- How to read pages of “Turning Inserts” See Page B15
## Turning Indexable Inserts

### 60° Triangle / Positive with Hole

<table>
<thead>
<tr>
<th>Insert</th>
<th>Description</th>
<th>IC</th>
<th>S</th>
<th>D1</th>
<th>H</th>
<th>M</th>
<th>K</th>
<th>N</th>
<th>S</th>
<th>RE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC0802F</td>
<td>Std. Item</td>
<td>4.76</td>
<td>2.38</td>
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<tr>
<td>TC1103F</td>
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<td>6.35</td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

Inserts are sold in 10 piece boxes.

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

### Description

<table>
<thead>
<tr>
<th>Insert</th>
<th>Ceramic</th>
<th>CVD Coated Carbide</th>
<th>MEGACOAT</th>
<th>PVD Coated Carbide</th>
<th>DLC Carbide</th>
<th>PDL Carbide</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC0802F</td>
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<td>TC1103F</td>
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<td>0.1</td>
<td>0.1</td>
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<td>0.1</td>
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</tbody>
</table>

### Applicable Chipbreaker Range

- Use Chipbreaker Range

- Applicable Toolholders

- Sharp Edge

### With Honing

- Standard Item

- Deleted from the next catalog

- Inserts are sold in 10 piece boxes
### 60° Triangle / Positive with Hole

#### 60° Triangle / Positive without Hole

<table>
<thead>
<tr>
<th>Insert</th>
<th>Description</th>
<th>Cermet MEGACOAT</th>
<th>CVD Coated Carbide</th>
<th>PVD Coated Carbide</th>
<th>DLC Carbide</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cermet</td>
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<tr>
<td></td>
<td>MEGACOAT</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>CVD Coated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PVD Coated</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>DLC Carbide</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Applicable Chipbreaker Range

- **ap** indicates cutting radius
- **f** indicates feed rate

<table>
<thead>
<tr>
<th>1</th>
<th>(Non-ferrous Metals)</th>
</tr>
</thead>
</table>

| 2 | (Steel) |

Inserts are sold in 10 piece boxes.

---

**Notes:**
- A: Steel
- B: Stainless Steel
- C: Nickel-based Alloys
- D: Titanium Alloys
- E: Heat-resistant Alloys
- F: Free-cutting steel
- G: Cast Iron
- H: Non-ferrous Metals
- I: Sintered Carbide
- J: Glass
- K: Ceramic
- L: Hard Materials
- M: Ceramic
- N: Nodular Cast Iron
- P: Hard Materials
- Q: Heat-resistant Alloys
- R: Titanium Alloys
- S: Gray Cast Iron
- T: Hard Materials
Turning Indexable Inserts

60° Triangle / Positive with Hole

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

Insert Description | See Page for Applicable Toolholders
--- | ---
TP_0802 type | E29,F51,F53
TP_0902 type | F20,F51,F53

Insert Description | See Page for Applicable Toolholders
--- | ---
TP_1103 type | E29,F51,F53
TP_1603 type | F51,F52

Inserts are sold in 10 piece boxes

- Std. Item  □ : Deleted from the next catalog
### 60° Triangle / Positive with Hole

| Insert | Description | Dimension (mm) | Cermet | MEGACOAT Cermet | CVD Coated Carbide | MEGACOAT (PVD Coated Carbide) | PVD Coated Carbide | DLC Carbide | Carbide
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>TPMT 090202GP</td>
<td>090204GP</td>
<td>0.2 0.4</td>
<td>Cermet</td>
<td>Cermet</td>
<td>CVD Coated Carbide</td>
<td>DLC Carbide</td>
<td>Carbide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TPMT 110304GP</td>
<td>110308GP</td>
<td>0.4 0.8</td>
<td>Cermet</td>
<td>Cermet</td>
<td>CVD Coated Carbide</td>
<td>DLC Carbide</td>
<td>Carbide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TPMT 160304GP</td>
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<td>CVD Coated Carbide</td>
<td>DLC Carbide</td>
<td>Carbide</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TPMT 090202HQ</td>
<td>090204HQ</td>
<td>0.2 0.4</td>
<td>Cermet</td>
<td>Cermet</td>
<td>CVD Coated Carbide</td>
<td>DLC Carbide</td>
<td>Carbide</td>
<td></td>
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<tr>
<td>TPMT 110302HQ</td>
<td>110304HQ</td>
<td>0.2 0.4</td>
<td>Cermet</td>
<td>Cermet</td>
<td>CVD Coated Carbide</td>
<td>DLC Carbide</td>
<td>Carbide</td>
<td></td>
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<tr>
<td>TPMT 160302HQ</td>
<td>160304HQ</td>
<td>0.2 0.4</td>
<td>Cermet</td>
<td>Cermet</td>
<td>CVD Coated Carbide</td>
<td>DLC Carbide</td>
<td>Carbide</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*How to read pages of "Turning Inserts" See Page B15*
### Turning Indexable Inserts

#### 60° Triangle / Positive with Hole

<table>
<thead>
<tr>
<th>Insert Description</th>
<th>Insert (mm)</th>
<th>Cermet</th>
<th>MEGACOAT Cermet</th>
<th>CVD Coated Carbide</th>
<th>MEGACOAT (PVD Coated Carbide)</th>
<th>PVD Coated Carbide</th>
<th>DLC Carbide</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP010201R</td>
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<tr>
<td>TP020201L</td>
<td>0.1</td>
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<tr>
<td>TP010202R</td>
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<td></td>
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</tr>
<tr>
<td>TP020202L</td>
<td>0.2</td>
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<td>TP010204R</td>
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<td></td>
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<tr>
<td>TP020204L</td>
<td>0.4</td>
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<tr>
<td>TP010302R</td>
<td>0.2</td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>TP020302L</td>
<td>0.2</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>TP010304R</td>
<td>0.4</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>TP020304L</td>
<td>0.4</td>
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</tr>
<tr>
<td>TP010308R</td>
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<tr>
<td>TP020308L</td>
<td>0.8</td>
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<td>TP010340R</td>
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<td>TP020364L</td>
<td>0.8</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Applicable Chipbreaker Range

- **ap**: 0.1 to 0.4 mm
- **f**: 0.1 to 0.3 mm/rev

#### Notes
- Inserts are sold in 10 piece boxes
- Ceramics: Free-cutting steel
- Non-ferrous: Nodular Cast Iron
- Stainless: Heat-resistant Alloys
- Hard Materials: Titanium Alloys

---

**Applicable Chipbreaker Range**

1. **Ap** indicates radius

2. **f** indicates feed

3. **(Steel / Edge Length=08, 09)**

4. **(Steel / Edge Length=11, 16)**

---

**Ref. to the table below B80**

**Inserts are sold in 10 piece boxes**

- : Std. Item
- ○: Check Availability
- □: Deleted from the next catalog
### 60° Triangle / Positive with Hole

<table>
<thead>
<tr>
<th>Insert</th>
<th>Description</th>
<th>IC</th>
<th>S</th>
<th>D1</th>
</tr>
</thead>
<tbody>
<tr>
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<td>0.1</td>
<td>2.3</td>
<td>3.8</td>
<td></td>
</tr>
<tr>
<td>TP_0902_</td>
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<td>2.3</td>
<td>3.8</td>
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</tr>
<tr>
<td>TP_1603_</td>
<td>&lt;0.2</td>
<td>3.0</td>
<td>4.5</td>
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</tr>
</tbody>
</table>

**Inserts are sold in 10 piece boxes**

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

---

**Applicable Chipbreaker Range**

- Insert corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).
Turning Indexable Inserts

60° Triangle / Positive with Hole

Inserts are sold in 10 piece boxes

<table>
<thead>
<tr>
<th>Description</th>
<th>IC</th>
<th>S</th>
<th>D1</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP_0802_</td>
<td>4.76</td>
<td>2.38</td>
<td>2.3</td>
</tr>
<tr>
<td>TP_0902_</td>
<td>5.56</td>
<td>2.38</td>
<td>3.0</td>
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<tr>
<td>TP_1102_</td>
<td>6.35</td>
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<td>3.5</td>
</tr>
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</table>

How to read pages of “Turning Inserts” See Page B15

Std. Item: Deleted from the next catalog

Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).
60° Triangle / Positive with Hole

Insert Grades

Turning Indexable Inserts
CBN & PCD Tools

External Small Parts Machining
Boring
Grooving
Cut-off
Threading
Drilling
Solid Tools
Milling

Tools for Turning Mill

Spare Parts

Technical Information

Index

A B C D E F G H J K L M N P R T

A
B
C
D
E
F
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H
J
K
L
M
N
P
R
T

Insert Grades

Cermet / Coated Carbide / Carbide

How to read pages of “Turning Inserts” @ See Page B15

See Page B15: Std. Item

Inserts are sold in 10 piece boxes
## Turning Indexable Inserts

### 60° Triangle / Positive with Hole

<table>
<thead>
<tr>
<th>Insert</th>
<th>Description</th>
<th>IC</th>
<th>S</th>
<th>D1</th>
<th>Description</th>
<th>IC</th>
<th>S</th>
<th>D1</th>
</tr>
</thead>
<tbody>
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<td>TPET</td>
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<td>TPET 110302AP</td>
<td>0.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>080202FR-USF</td>
<td>0.2</td>
<td></td>
<td></td>
<td>110304AP</td>
<td>0.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>080202FL-USF</td>
<td>0.2</td>
<td></td>
<td></td>
<td>110308AP</td>
<td>0.8</td>
<td></td>
<td></td>
</tr>
<tr>
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<td>110303FR-USF</td>
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<tr>
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<td>110302MFL-USF</td>
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<tr>
<td></td>
<td>110303FL-USF</td>
<td>0.2</td>
<td></td>
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<td>110302MFL-USF</td>
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<td>110304AP</td>
<td>0.4</td>
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<td></td>
<td>110308AP</td>
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<td>110303FR-USF</td>
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<td>0.03</td>
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<td>0.2</td>
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<td>110303FR-USF</td>
<td>0.1</td>
<td></td>
<td></td>
<td>110302MFR-USF</td>
<td>&lt;0.2</td>
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<tr>
<td></td>
<td>110303FL-USF</td>
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<td></td>
<td></td>
<td>110302MFL-USF</td>
<td>&lt;0.2</td>
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<td></td>
</tr>
</tbody>
</table>

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

Inserts are sold in 10 piece boxes.

### Notes

- **P**: Super Fine
- **M**: Low Feed
- **N**: Sharp Edge / Precision
- **H**: Finishing / Sharp Edge
- **IC**: Handed Insert shows Left-hand
- **Cermet**: MEGACOAT
- **Cermet PVD Coated**: (PVD Coated Carbide)
- **CVD Coated Carbide**: DLC Carbide

---

See Page B15 for Applicable Toolholders.

---

- Ref. to the table below
- Std. Item
- Deleted from the next catalog
# 60° Triangle / Positive without Hole

| Insert          | Description | IC   | S   | D1  | P  | M  | K  | N  | S  | H  | RE | TN610 | TN620 | TN6010 | TN60 | PV710 | PV720 | PV7010 | PV7025 | PV7005 | PV90 | CA510 | CA515 | CA525 | CA530 | CA550 | CA5515 | CA5525 | CA5535 | CA6515 | CA6525 | CA6535 | CA310 | CA315 | CA320 | CA450 | CA4515 | CA4520 | PR1425 | PR1225 | PR005S | PR015S | PR1305 | PR1310 | PR1325 | PR1535 | PR930 | PR1005 | PR1025 | PR1125 | PDL010 | PDL025 | KW10 | SW05 |
|-----------------|-------------|------|-----|-----|----|----|----|----|----|----|-----|------|-------|-------|-------|------|------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| TPRMR 110304DP | 110308DP    | 0.4  | 0.8 |    |    |    |    |    |    |    |     | E45  | F63   |       |       |       |      |      |       |       |       |      |      |      |      |      |       |       |       |      |      |      |      |      |      |      |      |
| TPRMR 160304DP | 160308DP    | 0.4  | 0.8 |    |    |    |    |    |    |    |     | E45  | F63   |       |       |       |      |      |       |       |       |      |      |      |      |      |       |       |       |      |      |      |      |      |      |      |      |
| TPRMR 110304GP |             | 0.4  |    |    |    |    |    |    |    |    |     | E45  | F63   |       |       |       |      |      |       |       |       |      |      |      |      |      |       |       |       |      |      |      |      |      |      |      |      |
| TPRMR 160304GP |             | 0.4  |    |    |    |    |    |    |    |    |     | E45  | F63   |       |       |       |      |      |       |       |       |      |      |      |      |      |       |       |       |      |      |      |      |      |      |      |      |
| TPRMR 110304HQ | 110308HQ    | 0.4  | 0.8 |    |    |    |    |    |    |    |     | E45  | F63   |       |       |       |      |      |       |       |       |      |      |      |      |      |       |       |       |      |      |      |      |      |      |      |      |
| TPRMR 160304HQ | 160308HQ    | 0.4  | 0.8 |    |    |    |    |    |    |    |     | E45  | F63   |       |       |       |      |      |       |       |       |      |      |      |      |      |       |       |       |      |      |      |      |      |      |      |      |
| TPRMR 090204G  | 090204G     | 0.2  | 0.4 |    |    |    |    |    |    |    |     | E45  | F63   |       |       |       |      |      |       |       |       |      |      |      |      |      |       |       |       |      |      |      |      |      |      |      |      |
| TPRMR 110304G  | 110308G     | 0.4  | 0.8 |    |    |    |    |    |    |    |     | E45  | F63   |       |       |       |      |      |       |       |       |      |      |      |      |      |       |       |       |      |      |      |      |      |      |      |      |
| TPRMR 160304G  | 160308G     | 0.4  | 0.8 |    |    |    |    |    |    |    |     | E45  | F63   |       |       |       |      |      |       |       |       |      |      |      |      |      |       |       |       |      |      |      |      |      |      |      |      |
| TPRMR 110304    | 110308      | 0.4  |    |    |    |    |    |    |    |    |     | E45  | F63   |       |       |       |      |      |       |       |       |      |      |      |      |      |       |       |       |      |      |      |      |      |      |      |      |
| TPRMR 160304    | 160308      | 0.4  |    |    |    |    |    |    |    |    |     | E45  | F63   |       |       |       |      |      |       |       |       |      |      |      |      |      |       |       |       |      |      |      |      |      |      |      |      |
| TPRMR 090202R-F | 090202L-F   | 0.2  | 0.2 |    |    |    |    |    |    |    |     | E45  | F63   |       |       |       |      |      |       |       |       |      |      |      |      |      |       |       |       |      |      |      |      |      |      |      |      |
| TPRMR 090202R-F | 090202R-F   | 0.2  | 0.2 |    |    |    |    |    |    |    |     | E45  | F63   |       |       |       |      |      |       |       |       |      |      |      |      |      |       |       |       |      |      |      |      |      |      |      |      |

### Applicable Chipbreaker Range

- **Ap indicates radius**
- **Standard**

### Finishing - Medium

- **TPMR 110304**
- **TPMR 160304**
- **TPGR 090202**

### Medium

- **TPMR 110304**
- **TPMR 160304**

### Finishing

- **TPMR 110304**
- **TPMR 160304**

### Notes

- **Plating**
- **Ap indicates radius**
- **Standard**

### Inserts are sold in 10 piece boxes
60° Triangle / Positive without Hole

<table>
<thead>
<tr>
<th>Description</th>
<th>IC</th>
<th>S</th>
<th>D1</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP_0902_</td>
<td>5.56</td>
<td>2.38</td>
<td>-</td>
</tr>
<tr>
<td>TP_1103_</td>
<td>6.35</td>
<td>3.18</td>
<td>-</td>
</tr>
<tr>
<td>TP_1603_</td>
<td>9.525</td>
<td>3.10</td>
<td>-</td>
</tr>
</tbody>
</table>

Inserts are sold in 10 piece boxes

- Std. Item
- Check Availability
- Deleted from the next catalog

Turning Indexable Inserts

How to read pages of "Turning Inserts" See Page B15

Applicable Chipbreaker Range

- F63
- E45

A: Finishing
B: Finishing - Medium
C: Medium

- Cast Iron
- Free-cutting steel
- Ductile Iron
- Stainless Steel
- Non-ferrous Metals
- Hard Materials
- Gray Cast Iron
- Nodular Cast Iron
- Heat-resistant Alloys
- Titanium Alloys
- Hard Materials

Turning Indexable inserts

Ceramic Chip breakers

Turning Indexable inserts

Applicable Chipbreaker Range

Applicable Chipbreaker Range

Ap indicates radius

Turning Indexable inserts

Turning Indexable inserts

Turning Indexable inserts

Applicable Chipbreaker Range

Applicable Chipbreaker Range

Ap indicates radius

Turning Indexable inserts

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Applicable Chipbreaker Range

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Ap indicates radius

Turning Indexable inserts

Turning Indexable inserts

Turning Indexable inserts

Applicable Chipbreaker Range

Applicable Chipbreaker Range

Ap indicates radius
### 35° Rhombic / Positive with Hole

![Diagram of 35° Rhombic Insert]

<table>
<thead>
<tr>
<th>Insert Grade</th>
<th>Description</th>
<th>Applicable Chipbreaker Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Super Fine</td>
<td>VBMT 11032PF</td>
<td>(Steel / Edge Length=11, 16)</td>
</tr>
<tr>
<td></td>
<td>VBMT 160404PF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VBMT 11032VF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VBMT 160402VF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VBMT 110304HQ</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VBMT 160404HQ</td>
<td></td>
</tr>
</tbody>
</table>

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g., < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

### Insert Grades

- CB: Cermet
- CVD: CVD Coated Carbide
- PVD: PVD Coated Carbide
- DLC: DLC Carbide
- CI: CBN & PCD Tools
- M: MGEACOAT
- E: E7000 / E7010
- H: H7000 / H7010
- D: D7000 / D7010
- S: S7000 / S7010
- P: C7000 / C7010

### Material List

- Carbon Steel / Alloy Steel
- Stainless Steel
- Heat-resistant Alloys
- Nimonic
- Titanium Alloys
- Inconel / Nimonic
- Copper / Copper Alloys
- Nickel / Nickel Alloys
- Free-cutting steel
- Non-ferrous Metals
- Hard Materials
- Ceramic / Glass
- Heat-resistant Alloys
- PVD Coated Carbide
- CVD Coated Carbide
- Carbide
- Cermet / Coated Carbide / Carbide
- Cermet / Coated Carbide / Carbide
- Cermet / Coated Carbide / Carbide
- Cermet / Coated Carbide / Carbide

### Toolholders

See Page for Applicable Toolholders

- E30,E31,E32,E39,F54,F56,F59
- E31,E32,F54,F56,F59

### Technical Notes

- Inserts are sold in 10 piece boxes

---

**How to read pages of “Turning Inserts”**

- Inserts are sold in 10 piece boxes
- Inserts are sold in 10 piece boxes
- Inserts are sold in 10 piece boxes
- Inserts are sold in 10 piece boxes

---

**Inserts are sold in 10 piece boxes**
### Turning Indexable Inserts

#### 35° Rhombic / Positive with Hole

**Description**

<table>
<thead>
<tr>
<th>Insert</th>
<th>Description</th>
<th>IC</th>
<th>S</th>
<th>D1</th>
</tr>
</thead>
<tbody>
<tr>
<td>VB..1103</td>
<td>E30,E31,E32,E39,F54,F56,F59</td>
<td>6.35</td>
<td>3.18</td>
<td>2.8</td>
</tr>
<tr>
<td>VB..1604</td>
<td>E31,E32,F54,F56,F59</td>
<td>9.525</td>
<td>4.76</td>
<td>4.4</td>
</tr>
</tbody>
</table>

**Applicable Chipbreaker Range**

- **RE** indicates radius

**Chipbreakers**

- **E30**, **E31**, **E32**, **E39**, **F54**, **F56**, **F59**

**Handed Insert**

- Shows Left-hand

**Material**

- **Cermet**
- **MEGACOAT**
- **Cermet**
- **PVD Coated Carbide**
- **MEGACOAT**
- **CVD Coated Carbide**
- **MEGACOAT**
- **PVD Coated Carbide**
- **DLC Carbide**

**Toolholders**

See Page for Applicable Toolholders

**Inserts**

- **VBET** 1103003R-F
- **1103003L-F**
- **110301R-F**
- **110301L-F**
- **110302R-F**
- **110302L-F**

**Finish**

- Sharp Edge

**Inserts are sold in 10 piece boxes**

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).
35° Rhombic / Positive with Hole

<table>
<thead>
<tr>
<th>Description</th>
<th>IC</th>
<th>S</th>
<th>D1</th>
</tr>
</thead>
<tbody>
<tr>
<td>VB_1103_</td>
<td>6.35</td>
<td>3.18</td>
<td>2.8</td>
</tr>
<tr>
<td>VB_1604_</td>
<td>9.525</td>
<td>4.76</td>
<td>4.4</td>
</tr>
</tbody>
</table>

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

### Insert Description

See Page for Applicable Toolholders

- **VB..1103 type:** E30,E31,E32,E39,F54,F56,F59
- **VB..1604 type:** E31,E32,F54,F56,F59

- Inserts are sold in 10 piece boxes.
Turning Indexable Inserts

35° Rhombic / Positive with Hole

Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

![Diagram of 35° Rhombic / Positive with Hole insert]

### Turning Indexable Inserts

**Description**

<table>
<thead>
<tr>
<th>Insert</th>
<th>Description</th>
<th>Dimension (mm)</th>
<th>Cermet</th>
<th>MEGACOAT</th>
<th>CVD Coated Carbide</th>
<th>MEGACOAT (PVD Coated Carbide)</th>
<th>PVD Coated Carbide</th>
<th>DLC Coated</th>
</tr>
</thead>
<tbody>
<tr>
<td>VCMT 080202PP</td>
<td>080204PP</td>
<td>0.2 0.4</td>
<td>Cermet</td>
<td>PVD Coated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VCMT 160404PP</td>
<td>160408PP</td>
<td>0.4 0.8</td>
<td>Cermet</td>
<td>PVD Coated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VCMT 080202VF</td>
<td>080204VF</td>
<td>0.2 0.4</td>
<td>Cermet</td>
<td>PVD Coated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VCMT 080202HQ</td>
<td>080204HQ</td>
<td>0.2 0.4</td>
<td>Cermet</td>
<td>PVD Coated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**How to read pages of “Turning Inserts”** See Page B15

**Applicable Chipbreaker Range**

1. Free-cutting steel
2. Carbon Steel / Alloy Steel
3. Stainless Steel
4. Cast Iron
5. Hard Materials
6. Non-ferrous Metals
7. Heat-resistant Alloys
8. Titanium Alloys
9. Hard Materials

**Applicable Chipbreaker Range**

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

**Inserts are sold in 10 piece boxes**

- : Std. Item  ○ : Check Availability  □ : Deleted from the next catalog
### 35° Rhombic / Positive with Hole

<table>
<thead>
<tr>
<th>Insert Description</th>
<th>IC</th>
<th>S</th>
<th>D1</th>
</tr>
</thead>
<tbody>
<tr>
<td>VC_0802_</td>
<td>4.76</td>
<td>2.38</td>
<td>2.3</td>
</tr>
<tr>
<td>VC_1604_</td>
<td>9.525</td>
<td>4.76</td>
<td>4.4</td>
</tr>
</tbody>
</table>

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

#### Applicable Chipbreaker Range

<table>
<thead>
<tr>
<th>Applicable Chipbreaker Range</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Steel)</td>
<td><img src="image1.png" alt="Diagram" /></td>
<td><img src="image2.png" alt="Diagram" /></td>
<td><img src="image3.png" alt="Diagram" /></td>
</tr>
<tr>
<td>(Non-ferrous Metals)</td>
<td><img src="image4.png" alt="Diagram" /></td>
<td><img src="image5.png" alt="Diagram" /></td>
<td></td>
</tr>
</tbody>
</table>

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

#### Technical Information

- **B93**

- **Indexable Inserts**
  - CBN & PCD Tools
  - External Small Parts Machining
  - Boring
  - Grooving
  - Cut-off
  - Threading
  - Drilling
  - Solid Tools
  - Milling
  - Turning Mill
  - Spare Parts
  - Technical Information

- **A**
- **B**
- **C**
- **D**
- **E**
- **F**
- **G**
- **H**
- **J**
- **K**
- **L**
- **M**
- **N**
- **P**
- **R**
- **T**

- Insert Grades
  - High Grade
  - Medium Grade
  - Low Grade

- **Technical Index**

- **Inserts are sold in 10 piece boxes**
Turning Indexable Inserts

35˚ Rhombic / Positive with Hole

<table>
<thead>
<tr>
<th>Insert Description</th>
<th>See Page for Applicable Toolholders</th>
</tr>
</thead>
<tbody>
<tr>
<td>VP..0802 type</td>
<td>E35,E36,F54</td>
</tr>
<tr>
<td>VP..1103 type</td>
<td>E21,E35,E36</td>
</tr>
</tbody>
</table>

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

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35° Rhombic / Positive with Hole

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

<table>
<thead>
<tr>
<th>Insert</th>
<th>Description</th>
<th>IC</th>
<th>S</th>
<th>D1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Super Fine</td>
<td>VPET 080201R-FSF</td>
<td>0.1</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>080201L-FSF</td>
<td>0.1</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>080202R-FSF</td>
<td>0.2</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>080202L-FSF</td>
<td>0.2</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Finishing</td>
<td>VPET 1103003R-FSF</td>
<td>0.03</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>1103003L-FSF</td>
<td>0.03</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>110301R-FSF</td>
<td>0.1</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>110301L-FSF</td>
<td>0.1</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>110302R-FSF</td>
<td>0.2</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>110302L-FSF</td>
<td>0.2</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Sharp Edge / Precision</td>
<td>VPET 080201MR-FSF</td>
<td>&lt;0.1</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>080201ML-FSF</td>
<td>&lt;0.1</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>080202MR-FSF</td>
<td>&lt;0.2</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>080202ML-FSF</td>
<td>&lt;0.2</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Finishing</td>
<td>VPET 1103005MR-FSF</td>
<td>&lt;0.05</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>1103005ML-FSF</td>
<td>&lt;0.05</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>110301MR-FSF</td>
<td>&lt;0.1</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>110301ML-FSF</td>
<td>&lt;0.1</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>110302MR-FSF</td>
<td>&lt;0.2</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>110302ML-FSF</td>
<td>&lt;0.2</td>
<td>N</td>
<td>N</td>
</tr>
</tbody>
</table>

Inserts are sold in 10 piece boxes.
### Turning Indexable Inserts

#### 35° Rhombic / Positive with Hole

<table>
<thead>
<tr>
<th>Insert Description</th>
<th>Handed Insert shows Left-hand</th>
<th>Cermet</th>
<th>MEGACOAT Cermet</th>
<th>CVD Coated Carbide</th>
<th>MEGACOAT (PVD Coated Carbide)</th>
<th>PVD Coated Carbide</th>
<th>DLC Coated Carbide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Super Fine</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VPET 110030MFR-USF</td>
<td></td>
<td>0.03</td>
<td>0.00</td>
<td>0.1</td>
<td></td>
<td></td>
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</tr>
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<tr>
<td>Sharp Edge / Precision</td>
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<td>0.1</td>
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<tr>
<td>VPET 110030MFR-USF</td>
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<tr>
<td>Sharp Edge</td>
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<td>0.1</td>
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</tbody>
</table>
| Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

- **Inserts are sold in 10 piece boxes**

- **Applicable Chipbreaker Range**
  - Low Feed
  - Super Fine
  - Precision

- **Ref. to the table below B15**

- **Applicable Chipbreaker Range**
  - Low Feed
  - Sharp Edge
  - Precision

- **Applicable Chipbreaker Range**
  - Low Feed
  - Sharp Edge
  - Precision

- **Applicable Chipbreaker Range**
  - Low Feed
  - Sharp Edge
  - Precision

- **Applicable Chipbreaker Range**
  - Low Feed
  - Sharp Edge
  - Precision

- **Applicable Chipbreaker Range**
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  - Sharp Edge
  - Precision

- **Applicable Chipbreaker Range**
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  - Sharp Edge
  - Precision

- **Applicable Chipbreaker Range**
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  - Sharp Edge
  - Precision

- **Applicable Chipbreaker Range**
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  - Precision

- **Applicable Chipbreaker Range**
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- **Applicable Chipbreaker Range**
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  - Precision

- **Applicable Chipbreaker Range**
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  - Sharp Edge
  - Precision

- **Applicable Chipbreaker Range**
  - Low Feed
  - Sharp Edge
  - Precision
### 80° Trigon / Positive with Hole

<table>
<thead>
<tr>
<th>Description</th>
<th>IC</th>
<th>S</th>
<th>D1</th>
</tr>
</thead>
<tbody>
<tr>
<td>WB 000102MR-CF</td>
<td>3.97</td>
<td>1.59</td>
<td>2.3</td>
</tr>
<tr>
<td>WB 000102ML-CF</td>
<td>4.76</td>
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</tr>
</tbody>
</table>

#### Inserts sold in 10 piece boxes
### Turning Indexable Inserts

#### 80° Trigon / Positive with Hole

**Description**

<table>
<thead>
<tr>
<th>Insert</th>
<th>Description</th>
<th>Dimension (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WBCT 060100L-F</td>
<td>0.03</td>
<td></td>
</tr>
<tr>
<td>WBCT 060100R-F</td>
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<td></td>
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<tr>
<td>WBCT 060101L-F</td>
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<td></td>
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<tr>
<td>WBCT 060101R-F</td>
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<tr>
<td>WBCT 060102L-F</td>
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</tr>
<tr>
<td>WBCT 060102R-F</td>
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<tr>
<td>WBCT 060104L-F</td>
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<td></td>
</tr>
<tr>
<td>WBCT 060200L-F</td>
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</tr>
<tr>
<td>WBCT 060200R-F</td>
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<td></td>
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<tr>
<td>WBCT 060201L-F</td>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td>WBCT 060201R-F</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>WBCT 060202L-F</td>
<td>0.2</td>
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</tr>
<tr>
<td>WBCT 060202R-F</td>
<td>0.4</td>
<td></td>
</tr>
<tr>
<td>WBCT 060204L-F</td>
<td>0.4</td>
<td></td>
</tr>
</tbody>
</table>

**Applicable Chipbreaker Range**

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

---

**Applicable Chipbreaker Range**

- Inserts are sold in 10 piece boxes

- Std. Item
- Deleted from the next catalog

---

- Cast Iron
- Stainless Steel
- Tool Steel
- Hard Materials
- Cermet MEGACOAT
- Cermet
- PVD Coated Carbide MEGACOAT
- PVD Coated Carbide
- DLC Carbide

---

**Turning Indexable Inserts**

How to read pages of “Turning Inserts” See Page B15 (mm)
### 80° Trigon / Positive with Hole

#### Insert Grades
- **Turning**: Indexable Inserts
- **CBN & PCD Tools**: External Small Parts
- **Machining**: Boring, Grooving, Cut-off, Threading, Drilling
- **Solid Tools**: Milling
- **Tools for Turning Mill**: Spare Parts

#### How to read pages of “Turning Inserts”
- See Page B15
- Std. Item: [Description IC S D1]

#### Inserts are sold in 10 piece boxes

<table>
<thead>
<tr>
<th>Description</th>
<th>IC S D1</th>
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</thead>
<tbody>
<tr>
<td>WP_1102_</td>
<td>6.35 2.38 2.8</td>
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<tr>
<td>WP_1603_</td>
<td>9.525 3.1 4.4</td>
</tr>
</tbody>
</table>

#### Applicable Chipbreaker Range

- 3.1 mm (Steel / Edge Length=11)
- 4.4 mm (Steel / Edge Length=16)

#### Example

- **WPMT 110204GP**
  - 0.4
  - **N**
  - **N**
  - **N**
  - **N**
  - **N**
  - **N**
  - **N**
  - **N**

#### Notes
- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).
Turning Indexable Inserts

Inserts for Back Turning (Small Parts Machining)

For KTKF toolholder

<table>
<thead>
<tr>
<th>Insert</th>
<th>Description</th>
<th>Dimension (mm)</th>
<th>MEGACOAT</th>
<th>MEGACOAT NANO</th>
<th>Carbide</th>
<th>Carbide</th>
<th>PR1425</th>
<th>PR1535</th>
<th>PR1225</th>
<th>PR1025</th>
<th>KW10</th>
</tr>
</thead>
<tbody>
<tr>
<td>TKFB 12R15005M</td>
<td>1.5 0.25 2.6 &lt;0.05</td>
<td></td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12R28005M</td>
<td>2.8 0.3 4.6 &lt;0.05</td>
<td></td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12R28010M</td>
<td>3.8 0.3 6.3 &lt;0.05</td>
<td></td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TKFB 16R38005M</td>
<td>3.8 0.3 6.3 &lt;0.05</td>
<td></td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
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<tr>
<td>16R38010M</td>
<td>4.0 0.3 8.7 &lt;0.05</td>
<td></td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
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<td>● ● ● ● ● ●</td>
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<td></td>
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</tr>
<tr>
<td>TKFB 12L28005MR</td>
<td>2.8 0.3 4.6 &lt;0.05</td>
<td></td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
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</tr>
<tr>
<td>12L28010MR</td>
<td>3.8 0.3 6.3 &lt;0.05</td>
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<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
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<tr>
<td>TKFB 16L38005MR</td>
<td>3.8 0.3 6.3 &lt;0.05</td>
<td></td>
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<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
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<td></td>
</tr>
<tr>
<td>16L38010MR</td>
<td>4.0 0.3 8.7 &lt;0.05</td>
<td></td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
<td>● ● ● ● ● ●</td>
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<td>● ● ● ● ● ●</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

Inserts Identification System (Ref. to Tables 1 and 2)

Table 1

<table>
<thead>
<tr>
<th>Insert Type</th>
<th>Insert Size</th>
<th>Corner-R(RE)</th>
<th>Small machining</th>
<th>General purpose</th>
<th>Large machining</th>
</tr>
</thead>
<tbody>
<tr>
<td>TKFB 12R</td>
<td>15</td>
<td>005 M R</td>
<td>TKFB12R15..</td>
<td>TKFB12R28..</td>
<td>TKFB16R38..</td>
</tr>
</tbody>
</table>

Table 2

<table>
<thead>
<tr>
<th>Toolholder</th>
<th>Right-hand</th>
<th>Toolholder</th>
<th>Left-hand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insert</td>
<td>Right-hand</td>
<td>Insert</td>
<td>Left-hand</td>
</tr>
<tr>
<td>Lead angle</td>
<td>Right-hand</td>
<td>Lead angle</td>
<td>Right-hand</td>
</tr>
</tbody>
</table>

B100 Inserts are sold in 10 piece boxes

○ Std. Item
**Insert Grades**

- Turning
- Indexable Inserts
- CBN & PCD Tools
- External
- Small Parts
- Machining
- Boring
- Grooving
- Cut-off
- Threading
- Drilling
- Solid Tools
- Milling
- Tools for Turning Mill
- Spare Parts

**Technical Information**

**Index**

- A
- B
- C
- D
- E
- F
- G
- H
- J
- K
- L
- M
- N
- P
- R
- T

---

**For KTKF toolholder (GQ Chipbreaker)**

<table>
<thead>
<tr>
<th>Insert Type</th>
<th>Insert Size</th>
<th>Corner-R(RE)</th>
<th>Insert Hand</th>
<th>Insert width</th>
<th>Polished</th>
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</thead>
<tbody>
<tr>
<td>TKFB12R28005-GQ</td>
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<td>2.8 1.5 4.6</td>
<td>0.15</td>
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<td>-</td>
</tr>
<tr>
<td>TKFB16R38005-GQ</td>
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<td>3.8 1.8 6.3</td>
<td>0.15</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Inserts Identification System**

**TKFB 12 R 28 005 P - GQ**

- Insert Type
- Insert Size
- Corner-R(RE)
- GQ Chipbreaker

**Applicable Chipbreaker Range**

TKFB12R28...GQ (Steel)  
TKFB16R38...GQ (Steel)

- : Std. Item

Inserts are sold in 10 piece boxes

---

# Turning Indexable Inserts

## Inserts for Back Turning (Small Parts Machining)

- **For AABS / SABS / AABW / SABW toolholders**

<table>
<thead>
<tr>
<th>Insert</th>
<th>Description</th>
<th>Dimension (mm)</th>
<th>MEGACOAT</th>
<th>MEGACOAT NANO</th>
<th>PVD Coated Carbide</th>
<th>Std. Item</th>
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</thead>
<tbody>
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<td>15R4005</td>
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<td>●</td>
<td>●</td>
<td>●</td>
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<td>15R4015</td>
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<td></td>
<td>15R4015M</td>
<td>&lt;0.15</td>
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<td>ABW</td>
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<td>&lt;0.05</td>
<td>●</td>
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<td></td>
<td>15R4015M</td>
<td>&lt;0.15</td>
<td>●</td>
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<td>&lt;0.15</td>
<td>●</td>
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</tbody>
</table>

- **Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).**

- Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.05, < 0.1, < 0.2 etc.) indicate models with minus tolerance on corner-R(RE).

- **Inserts are sold in 10 piece boxes**

  - **Std. Item**

  - **See Page for Applicable Toolholders**
# Bearing Machining

<table>
<thead>
<tr>
<th>Insert</th>
<th>Description</th>
<th>Dimension (mm)</th>
<th>Flank Edge</th>
<th>Carbide</th>
<th>Reference</th>
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<tr>
<td><strong>External/Boring/Facing</strong></td>
<td>RCMT 1204M0-BB</td>
<td>12.0 4.76 4.2</td>
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<td></td>
<td>1606M0-BB</td>
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<td>RPMT 1203M0-BB</td>
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<td>1604M0-BB</td>
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<td>3.3 2.6</td>
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**Tooling for Bearing Machining**

- External Round Chamfering CBSN-B (D39)
- Internal Round Chamfering CBSN-B (F64)
- External PRGC-BE (D39)
- Boring SRCP-B (F64)
- Facing PRGC-BF (D39)

---

*Inserts are sold in 10 piece boxes*
## Turning Indexable Inserts

### Micro Boring

- **Twin-Bars**

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<th>Micro Boring</th>
<th>Micro Face Grooving</th>
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<tr>
<td>TWB Twin-Bars</td>
<td>TWFG Twin-Bars</td>
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<tr>
<td>TWBT Twin-Bars</td>
<td>TWFGT Twin-Bars</td>
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</tbody>
</table>

### EZ Bars / System Tip-Bars / Tip-Bars

- **EZ Bars / System Tip-Bars / Tip-Bars**

<table>
<thead>
<tr>
<th>Micro Boring</th>
<th>Micro Back Boring</th>
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</thead>
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<tr>
<td>EZB EZ Bars</td>
<td>EZVB EZ Bars</td>
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<tr>
<td>VNB-S / VNB System Tip-Bars</td>
<td>VNBX-S System Tip-Bars</td>
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<tr>
<td>PSB-S Tip-Bars</td>
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<tr>
<td>PSBT-S Tip-Bars</td>
<td>PSBT-S Tip-Bars</td>
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### Solid Tip-Bars [Grooving / Threading]

- **Solid Tip-Bars [Grooving / Threading]**

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<th>Micro Grooving</th>
<th>Micro Face Grooving</th>
<th>Micro Internal Threading</th>
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<td>EZG EZ Bars</td>
<td>EZFG EZ Bars</td>
<td>EZT EZ Bars</td>
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<tr>
<td>VNG System Tip-Bars</td>
<td>VNFH System Tip-Bars</td>
<td>VNT System Tip-Bars</td>
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<tr>
<td>PSG Tip-Bars</td>
<td>PSFG Tip-Bars</td>
<td>PST Tip-Bars</td>
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High Speed Machining for Cast Iron KS6050/CS7050

- Improved fracture resistance by high aspect ratio constituents
- Anti-chipping in scale processing and interrupted machining
- High speed machining of cast iron by controlling grain boundary phase (good wear resistance)

KS6050

CS7050 (Coated Si₃N₄)

Superior wear resistance attained with strong coating adherence
Applicable to high speed machining

Heat-Resistant Alloys Machining SiAlON Ceramic KS6030/KS6040

- Improved wear and fracture resistance due to the mixture of the hard and acicular particles

Improved wear resistance by the mixture of hard particles
Improved fracture resistance by the mixture of acicular particles

Heat-Resistant Alloys Machining Honeycomb structure Ceramic CF1

What is Honeycomb structure Ceramic?

Honeycomb structure Ceramic is a composite material consisting of a core (gray portion) and shell (white portion)

- Prolonged tool life and acceleration of machining of heat resistant alloys such as Ni-base heat resistant alloys

Application Map

Heat-Resistant Alloys Machining

- Heat-Resistant Alloys Machining

Ceramic Inserts Identification System

Identification System

C N G A 12 04 04 S01525

Edge Preparation Identification System

Table 1

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Cutting Edge Spec.</th>
<th>Example</th>
<th>Shape</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>Chamfered and Honed Cutting Edge</td>
<td>S01525</td>
<td>0.15mm x 25° Chamfered and Honed Cutting Edge</td>
</tr>
<tr>
<td>T</td>
<td>Chamfered Cutting Edge</td>
<td>T02025</td>
<td>0.20mm x 25° Chamfered Cutting Edge</td>
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</tbody>
</table>

See Page B3 for insert color
### Turning Indexable Inserts

#### 80° Rhombic / Negative

<table>
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<th>Symbol</th>
<th>Cutting Edge Spec.</th>
<th>Example</th>
<th>Edge Prep.</th>
<th>Insert Description</th>
<th>Edge Prep.</th>
<th>Dimension (mm)</th>
<th>Chip Breakers</th>
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<tbody>
<tr>
<td>S</td>
<td>Chamfered and Honed Cutting Edge</td>
<td>S0152s 0.15mm x 25° Chamfered and Honed Cutting Edge</td>
<td>K</td>
<td>CNGA 120412S01025 S01025 1.2</td>
<td>RE</td>
<td>12.70 4.76 5.16</td>
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</tr>
<tr>
<td>T</td>
<td>Chamfered Cutting Edge</td>
<td>T0152s 0.15mm x 25° Chamfered Cutting Edge</td>
<td>S</td>
<td>CNGA 120404S01525 S01525 0.8</td>
<td>RE</td>
<td>12.70 4.76 -1207 7.94</td>
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- **Gray Cast Iron (With Scale)**
- **Gray Cast Iron (Without Scale)**
- **Nodular Cast Iron (With Scale)**
- **Nodular Cast Iron (Without Scale)**
- **Heat-resistant Alloys**

**Chamfered and Honed Cutting Edge**

- **Aluminum Oxide**
- **Ceramic**
- **PVD Coated**
- **Ceramic**
- **MEGACOAT**
- **Ceramic**
- **Silicon Nitride**
- **Ceramic**
- **CVD Coated**
- **Silicon Nitride Ceramic**
- **SiAlON Ceramic**
- **Honeycomb structure Ceramic**

**See Page for Applicable Toolholders**

- **D8**
- **D9**
- **F65**
- **F69**
- **F70**
- **D24**
- **D30**
- **F82**

---

**Inserts are sold in 10 piece boxes**

- : Std. Item
- : Check Availability
- : Deleted from the next catalog
## 55° Rhombic / 75° Rhombic / Negative

<table>
<thead>
<tr>
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<tr>
<td>S</td>
<td>Chamfered and Honed Cutting Edge</td>
<td>S01225 1.12mm x 25° chamfered and honed cutting edge</td>
</tr>
<tr>
<td>T</td>
<td>Chamfered Cutting Edge</td>
<td>T01215 1.12mm x 15° chamfered cutting edge</td>
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</table>

<table>
<thead>
<tr>
<th>Insert</th>
<th>Description</th>
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<tr>
<td>DNGA 150408S01025</td>
<td>S01025 0.8</td>
<td>KA30, A65, K165, A65N, P70, P7000, KS660, CS7050, KS6020, KS6040, CF1</td>
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<td>DNGA 150404S01525</td>
<td>S01525 0.4</td>
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</tr>
<tr>
<td>DNGA 150404S02025</td>
<td>S02025 0.8</td>
<td>D12, D13, F66</td>
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<tr>
<td>DNGA 150404T02025</td>
<td>T02025 0.4</td>
<td>D12, D13, F66</td>
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</tr>
<tr>
<td>DNGA 150604T02025</td>
<td>T02025 0.4</td>
<td>D12, D13, F66</td>
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<td>DNGN 150708S01525</td>
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- **Gray Cast Iron (With Scale)**
- **Gray Cast Iron (Without Scale)**
- **Nodular Cast Iron (With Scale)**
- **Nodular Cast Iron (Without Scale)**
- **Heat-resistant Alloys**
- **Hard Materials**

Inserts are sold in 10 piece boxes.
# Turning Indexable Inserts

## Round / Negative

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<tbody>
<tr>
<td></td>
<td>S</td>
<td>Chamfered and Honed Cutting Edge</td>
<td>S01225 0.122mm x 25° Chamfered and Honed Cutting Edge</td>
</tr>
<tr>
<td></td>
<td>T</td>
<td>Chamfered Cutting Edge</td>
<td>T01215 0.122mm x 15° Chamfered Cutting Edge</td>
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### Insert Description

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<td>120400S02025</td>
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### Edge Prep.

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<td>R-honed Cutting Edge</td>
<td>E005 0.050mm Honed</td>
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<tr>
<td>K</td>
<td>Double Chamfered Cutting Edge</td>
<td>K15015 5mm x 15° Chamfered Cutting Edge</td>
</tr>
</tbody>
</table>

### Note:
- Symbol "K" describes only the largest chamfer width and its angle.

---

*For cutting edge "E" and "K", please refer to the table below.*

### Edge Prep.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Cutting Edge Spec.</th>
<th>Example</th>
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<tbody>
<tr>
<td>E</td>
<td>R-honed Cutting Edge</td>
<td>E005 0.050mm Honed</td>
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<tr>
<td>K</td>
<td>Double Chamfered Cutting Edge</td>
<td>K15015 5mm x 15° Chamfered Cutting Edge</td>
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</table>

### Note:
- Symbol "K" describes only the largest chamfer width and its angle.

---

*Inserts are sold in 10 piece boxes*
90° Square / Negative

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Cutting Edge Spec.</th>
<th>Example</th>
<th>Description</th>
<th>Edge Prep.</th>
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<tbody>
<tr>
<td>S</td>
<td>Chamfered and Honed Cutting Edge</td>
<td>S01225</td>
<td>0.12mm x 25° Chamfered and Honed Cutting Edge</td>
<td>SNGA 120408S01225</td>
</tr>
<tr>
<td>T</td>
<td>Chamfered Cutting Edge</td>
<td>T01215</td>
<td>0.12mm x 15° Chamfered Cutting Edge</td>
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<th>SiAlON Ceramic</th>
<th>Honeycomb structure Ceramic</th>
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<tbody>
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</table>

- **A:** Solid Carbide, Polycrystalline CBN, PCD, Cemented Carbide
- **B:** Metal Cutting, Drilling, Turning, Milling, Gouging
- **C:** Solid Carbide Inserts
- **D:** Technical Information

Inserts are sold in 10 piece boxes.
# Turning Indexable Inserts

## 90° Square / Negative

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Cutting Edge Spec.</th>
<th>Example</th>
<th>Description</th>
<th>Edge Prep.</th>
<th>Dimension (mm)</th>
<th>Aluminum Oxide</th>
<th>Ceramic</th>
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<tbody>
<tr>
<td>S</td>
<td>Chamfered and Honed Cutting Edge</td>
<td>S012S</td>
<td>0.12mm x 25° Chamfer and Honed Cutting Edge</td>
<td>T012S</td>
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<td>1.2 1.6</td>
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</tbody>
</table>

- **IC**: Item Code
- **S**: Size
- **D1**: Depth

---

**Inserts sold in 10 piece boxes**

- **Check Availability**: Item is not available for purchase.
- **Std. Item**: Item is standard and available for purchase.

---

**How to read pages of “Turning Inserts”**

See Page B15

---

**Insert Description**

- **Edge Prep.**
- **Dimension (mm)**
- **Aluminum Oxide**
- **Ceramic**

---

**Chip Breakers**

- **Heat Resistant Alloys**
- **Hard Materials**

---

**Toolholders**

- **SNGN**
- **SNMN**
- **SNGX**

- **Example**: Gray Cast Iron (With Scale)
- **Example**: Gray Cast Iron (Without Scale)
- **Example**: Nodular Cast Iron (With Scale)
- **Example**: Nodular Cast Iron (Without Scale)
- **Example**: Heat Resistant Alloys
- **Example**: Hard Materials

---

**See Page for Applicable Toolholders**

- **D27**
- **D36**
- **D37**
- **F81**
- **D32**
- **D33**
- **F82**
# 60° Triangle / Negative

**Inserts are sold in 10 piece boxes**

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<th>PVD Coated Ceramic</th>
<th>MEGACOAT Ceramic</th>
<th>Silicon Nitride Ceramic</th>
<th>CVD Coated Silicon Nitride Ceramic</th>
<th>SiAlON Ceramic</th>
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**Symbol**
- **S**: Chamfered and Honed Cutting Edge
- **T**: Chamfered Cutting Edge

**Example**
- **K**: Gray Cast Iron (With Scale)
- **S**: Gray Cast Iron (Without Scale)
- **D**: Nodular Cast Iron (With Scale)
- **B**: Nodular Cast Iron (Without Scale)

**Cutting Edge Spec.**
- **S**: Chamfered and Honed Cutting Edge
- **T**: Chamfered Cutting Edge

**Example**
- **S**: Chamfered and Honed Cutting Edge
- **T**: Chamfered Cutting Edge

**Technical Information Index**
- **A**:  
- **B**:  
- **C**:  
- **D**:  
- **E**:  
- **F**:  
- **G**:  
- **H**:  
- **J**:  
- **K**:  
- **L**:  
- **M**:  
- **N**:  
- **P**:  
- **Q**:  
- **R**:  
- **T**:  

**Inserts are sold in 10 piece boxes**
## Turning Indexable Inserts

### 35° Rhombic / Negative

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<th>Description</th>
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<th>Dimension (mm)</th>
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<th>Cutting Edge Spec.</th>
<th>Example</th>
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### Inserts

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- **RE**: Standard Item
- **D18**, **D19**, **D20**: See Page for Applicable Toolholders

Inserts are sold in 10 piece boxes.
Positive

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**Insert Description**

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<tr>
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<td>T00820</td>
<td>0.4</td>
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<td>F63</td>
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</table>

*For cutting edge “E”, please refer to the table below.*

<table>
<thead>
<tr>
<th>Edge Prep.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symbol</td>
</tr>
<tr>
<td>---------</td>
</tr>
<tr>
<td>E</td>
</tr>
</tbody>
</table>

|--------------|--------------------------|-----------------|---------------------|----------------------|--------|

How to read pages of “Turning Inserts” @ See Page B15

Inserts are sold in 10 piece boxes

- Std. Item
- Deleted from the next catalog
# Turning Indexable Inserts

## Inserts for Hardened Roll

### Edge Prep. | Symbol | Cutting Edge Spec. | Example
---|---|---|---
*| S | Chamfered and Honed Cutting Edge | S01525
*| T | Chamfered Cutting Edge | T01525

#### Insert Description

<table>
<thead>
<tr>
<th>Edge Prep.</th>
<th>Dimension (mm)</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>RBG</td>
<td>12K20003</td>
<td>K20003</td>
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<tr>
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<td>16K20003</td>
<td>K20003</td>
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<td>20K20003</td>
<td>K20003</td>
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<tr>
<td>RCGX</td>
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<td>E003</td>
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<td>060600E005</td>
<td>E005</td>
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<tr>
<td></td>
<td>060600T01020</td>
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<tr>
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<tr>
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</tbody>
</table>

*For cutting edge “E”, “K” and “P” please refer to the table below.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Cutting Edge Spec.</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>R-honed Cutting Edge</td>
<td>E005: R0.05mm Honed</td>
</tr>
<tr>
<td>K</td>
<td>Double Chamfered Cutting Edge</td>
<td>K20003: 2.00mm x 3° Chamfered Cutting Edge</td>
</tr>
<tr>
<td>P</td>
<td>Double Chamfered and Honed Cutting Edge</td>
<td>P20015: 2.00mm x 15° Chamfered and Honed Cutting Edge</td>
</tr>
</tbody>
</table>

Note: Symbol “K” and “P” describe only the largest chamfer width and its angle.

---

* RBG Inserts are sold in 1 piece boxes
* Inserts are sold in 10 piece boxes

- Std. Item
- Deleted from the next catalog
## Grooving Inserts

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Cutting Edge Spec.</th>
<th>Example</th>
<th>Dimension (mm)</th>
<th>Edge Prep.</th>
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</thead>
<tbody>
<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Gray Cast Iron (With Scale)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Gray Cast Iron (Without Scale)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Nodular Cast Iron (With Scale)</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Nodular Cast Iron (Without Scale)</td>
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</tr>
<tr>
<td>S</td>
<td>Chamfered and Honed Cutting Edge</td>
<td>S01525</td>
<td>0.15mm x 25° Chamfered and Honed Cutting Edge</td>
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</tr>
<tr>
<td>T</td>
<td>Chamfered Cutting Edge</td>
<td>T01525</td>
<td>0.15mm x 25° Chamfered Cutting Edge</td>
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<td>S 5 Heat-resistant Alloys</td>
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<td>3N Hard Materials</td>
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Inserts are sold in 10 piece boxes.