Indexable Insert

Negative / Positive / Ceramics B1 to B132

Format of This Chapter

1. Turning insert listing order is negative type inserts followed by positive type inserts.
2. The order of listing in each type group is as follows: C (80° Diamond Type) → D (55° Diamond Type) → R (Round Type) → S (Square Type) → T (Triangular Type) → V (35° Diamond Type) → W (Trigon Type).
3. Listing of inserts with the same relief angle are provided for those with holes and then those without holes.
4. Inserts are grouped by shape and then further divided by size (small to large according to cutting edge length and thickness).

Symbols in Insert Diagrams

*Symbols conform to ISO13899.

L: Cutting edge length, IC: Inscribed circle, S: Thickness, RE: Nose radius, D1: Hole diameter (For SUMIBORON and SUMIDIA, L indicates side length.)

Handed Inserts

Typically, photos show right-handed inserts.

If the bottom right reads “Photo: Left-handed,” this indicates an exception where the photo shows a left-handed insert.

Insert Grades

1. For IGETALLOY, the grade is carefully selected from Coated Carbide (CVD / PVD), Cermet, Carbide or Ceramic.
2. The listing of SUMIBORON and SUMIDIA are in the dedicated sections: SUMIBORON page L30 on and SUMIDIA page M10 on.

Indexable Insert Identification Table

Grade Comparison Chart (CVD / PVD Coating)

(Cermet, Cemented Carbide, Ceramics)

(CBN, Polycrystalline Diamond)

Blank: Made-to-order item

mark: Made-to-order item

mark: Standard stocked item

mark: To be replaced by a new product, made to order, or discontinued (please confirm stock availability).

mark: Semi-standard stock (please confirm stock availability)

mark: Stock or planned stock (please confirm stock availability)

mark: Not available

Negative M Class Chipbreakers for Low Carbon and General Steel Turning: FB / FE Type

Positive M Class Chipbreakers for Low Carbon and General Steel Turning: FB / LB Type

Chipbreaker for Hardened Steel Turning: GH Type

Chipbreakers for Aluminum Alloy and Non-Ferrous Metal Turning: AX / AT Type

Chipbreaker Series for Stainless Steel Turning: EF / EG / EM Type

Negative Inserts

C / 80° Diamond Type (With Hole)

D / 55° Diamond Type (With Hole)

S / Square Type (With Hole)

T / Triangular Type (With Hole)

V / 35° Diamond Type (With Hole)

W / Trigon Type (With Hole)

Positive Inserts

C / 80° Diamond Type (With Hole)

D / 55° Diamond Type (With Hole)

S / Square Type (With Hole)

T / Triangular Type (With Hole)

V / 35° Diamond Type (With Hole)

W / Trigon Type (With Hole)

Ceramic Negative Insert (With Hole / Without Hole)

Ceramic Positive Insert (Without Hole)

Solid CBN

Precautions when Using Wiper Inserts
**IGETALLOY**

**Indexable Insert Identification Table**

**Example**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Insert Shape</th>
<th>Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>Diamond Type</td>
<td>80°</td>
</tr>
<tr>
<td>D</td>
<td>Round Type</td>
<td>55°</td>
</tr>
<tr>
<td>E</td>
<td>Square Type</td>
<td>75°</td>
</tr>
<tr>
<td>F</td>
<td>Triangular Type</td>
<td>50°</td>
</tr>
<tr>
<td>V</td>
<td>Trigon Type</td>
<td>35°</td>
</tr>
<tr>
<td>R</td>
<td>Circle Type</td>
<td>90°</td>
</tr>
<tr>
<td>S</td>
<td>Hexagonal Type</td>
<td>60°</td>
</tr>
<tr>
<td>T</td>
<td>Pentagon Type</td>
<td>60°</td>
</tr>
<tr>
<td>W</td>
<td>Rectangular Type</td>
<td>90°</td>
</tr>
<tr>
<td>K</td>
<td>Round Type</td>
<td>86°</td>
</tr>
</tbody>
</table>

**Reference** Breakdown of M-Class Tolerance by Shape and Size

- **Tolerance of Nose Height (mm)**
  - Inscribed Circle
  - Triangular Type: ±0.15
  - Square Type: ±0.15
  - Diamond Type: ±0.10
  - Round Type: ±0.10
  - Others: ±0.10

- **Tolerance of Inscribed Circle (mm)**
  - Triangular Type: ±0.15
  - Square Type: ±0.15
  - Diamond Type: ±0.10
  - Round Type: ±0.10
  - Others: ±0.10

**Table 1: (1) Insert Shape**

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<thead>
<tr>
<th>Symbol</th>
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<tr>
<td>D</td>
<td>Round Type</td>
<td>55°</td>
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<tr>
<td>E</td>
<td>Square Type</td>
<td>75°</td>
</tr>
<tr>
<td>F</td>
<td>Triangular Type</td>
<td>50°</td>
</tr>
<tr>
<td>V</td>
<td>Trigon Type</td>
<td>35°</td>
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<tr>
<td>R</td>
<td>Circle Type</td>
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<tr>
<td>S</td>
<td>Hexagonal Type</td>
<td>60°</td>
</tr>
<tr>
<td>T</td>
<td>Pentagon Type</td>
<td>60°</td>
</tr>
<tr>
<td>W</td>
<td>Rectangular Type</td>
<td>90°</td>
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<tr>
<td>K</td>
<td>Round Type</td>
<td>86°</td>
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**Table 2: (2) Relief Angle**

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<td>B</td>
<td>5°</td>
</tr>
<tr>
<td>C</td>
<td>7°</td>
</tr>
<tr>
<td>D</td>
<td>15°</td>
</tr>
<tr>
<td>E</td>
<td>20°</td>
</tr>
<tr>
<td>F</td>
<td>25°</td>
</tr>
<tr>
<td>G</td>
<td>30°</td>
</tr>
<tr>
<td>N</td>
<td>0°</td>
</tr>
<tr>
<td>P</td>
<td>11°</td>
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**Table 3: (3) Tolerance (mm)**

<table>
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<tr>
<th>Symbol</th>
<th>Tolerance of Nose Height (mm)</th>
<th>Inscribed Circle (mm)</th>
<th>Thickness (mm)</th>
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<tr>
<td>A</td>
<td>±0.005 ±0.025 ±0.025</td>
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<td></td>
</tr>
<tr>
<td>F</td>
<td>±0.005 ±0.013 ±0.025</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>±0.013 ±0.025 ±0.025</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>±0.013 ±0.013 ±0.025</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>±0.025 ±0.025 ±0.025</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>±0.025 ±0.025 ±0.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>J*</td>
<td>±0.005 ±0.05 to ±0.15 ±0.025</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K*</td>
<td>±0.013 ±0.05 to ±0.15 ±0.025</td>
<td></td>
<td></td>
</tr>
<tr>
<td>L*</td>
<td>±0.025 ±0.05 to ±0.15 ±0.025</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M*</td>
<td>±0.08 to ±0.15 ±0.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N*</td>
<td>±0.08 to ±0.2 ±0.05 to ±0.15 ±0.025</td>
<td></td>
<td></td>
</tr>
<tr>
<td>U*</td>
<td>±0.13 to ±0.38 ±0.08 to ±0.25 ±0.13</td>
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**Table 4: (4) Insert Hole**

<table>
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<th>Symbol</th>
<th>Hole Y/N</th>
<th>Hole Shape</th>
<th>Diameter</th>
<th>Shape (Cross Section)</th>
<th>Symbol</th>
<th>Hole Y/N</th>
<th>Hole Shape</th>
<th>Diameter</th>
<th>Shape (Cross Section)</th>
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<tbody>
<tr>
<td>N</td>
<td>No</td>
<td>No</td>
<td>6.35</td>
<td>Triangular Type</td>
<td>A</td>
<td>Yes</td>
<td>No</td>
<td>6.35</td>
<td>Triangular Type</td>
</tr>
<tr>
<td>R</td>
<td>No</td>
<td>No</td>
<td>9.525</td>
<td>Square Type</td>
<td>M</td>
<td>Yes</td>
<td>No</td>
<td>9.525</td>
<td>Square Type</td>
</tr>
<tr>
<td>F</td>
<td>No</td>
<td>No</td>
<td>12.70</td>
<td>Diamond Type</td>
<td>G</td>
<td>Yes</td>
<td>No</td>
<td>12.70</td>
<td>Diamond Type</td>
</tr>
<tr>
<td>W</td>
<td>Yes</td>
<td>Straight hole + single chamfer (40˚ to 60˚)</td>
<td>15.875</td>
<td>Triangular Type</td>
<td>B</td>
<td>Yes</td>
<td>No</td>
<td>15.875</td>
<td>Triangular Type</td>
</tr>
<tr>
<td>T</td>
<td>Yes</td>
<td>Straight hole + double chamfer (70˚ to 90˚)</td>
<td>19.05</td>
<td>Triangular Type</td>
<td>H</td>
<td>Yes</td>
<td>No</td>
<td>19.05</td>
<td>Triangular Type</td>
</tr>
<tr>
<td>Q</td>
<td>Yes</td>
<td>Straight hole + double chamfer (40˚ to 60˚)</td>
<td>25.40</td>
<td>Round Type</td>
<td>C</td>
<td>Yes</td>
<td>No</td>
<td>25.40</td>
<td>Round Type</td>
</tr>
<tr>
<td>U</td>
<td>Yes</td>
<td>Straight hole + double chamfer (70˚ to 90˚)</td>
<td>31.75</td>
<td>Round Type</td>
<td>J</td>
<td>Yes</td>
<td>No</td>
<td>31.75</td>
<td>Round Type</td>
</tr>
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</table>

- **(Reference)** Tolerance of Nose Height (mm)
- **(Reference)** Inscribed Circle (mm)
- **(Reference)** Thickness (mm)
IGETALLOY

Indexable Insert Identification Table

Insert Identification:

- **B3**
- **BNeg.**
- **Pos.**
- **Ceramics**
- **Solid CBN**
- **Hardened Steel Machining**
- **Carbureted Layer Removal**
- **Stainless Steel**
- **Other Specials**

**Picture of insert shown as example**

**12 04 08 N - GE**

**Table 5: (5) Cutting Edge Length (Typical Examples)**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Shape</th>
<th>Cutting Edge Length (mm)</th>
<th>Inscribed Circle</th>
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</thead>
<tbody>
<tr>
<td>C</td>
<td>03</td>
<td>3.55</td>
<td>3.30</td>
</tr>
<tr>
<td>04</td>
<td>4.97</td>
<td>4.30</td>
<td></td>
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<tr>
<td>06</td>
<td>6.4</td>
<td>6.35</td>
<td></td>
</tr>
<tr>
<td>08</td>
<td>8.0</td>
<td>7.94</td>
<td></td>
</tr>
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<td>09</td>
<td>9.7</td>
<td>9.525</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>12.9</td>
<td>12.70</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>16.1</td>
<td>15.875</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>19.3</td>
<td>19.05</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>25.8</td>
<td>25.4</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>22.1</td>
<td>21.7</td>
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**Table 6: (6) Thickness**

<table>
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<th>Symbol</th>
<th>Thickness (mm)</th>
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<tr>
<td>X1</td>
<td>1.59</td>
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<td>01</td>
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<tr>
<td>02</td>
<td>3.18</td>
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<td>03</td>
<td>4.76</td>
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<td>04</td>
<td>6.35</td>
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<tr>
<td>05</td>
<td>8.08</td>
</tr>
<tr>
<td>06</td>
<td>9.525</td>
</tr>
<tr>
<td>07</td>
<td>11.05</td>
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<tr>
<td>08</td>
<td>12.70</td>
</tr>
<tr>
<td>09</td>
<td>15.875</td>
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**Table 7: (7) Nose Radius**

<table>
<thead>
<tr>
<th>Symbol</th>
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<tbody>
<tr>
<td>00</td>
<td>0.00</td>
</tr>
<tr>
<td>003</td>
<td>0.03</td>
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<tr>
<td>008</td>
<td>0.08</td>
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<td>01</td>
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<td>015</td>
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<td>018</td>
<td>0.18</td>
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<td>02</td>
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<tr>
<td>04</td>
<td>0.4</td>
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<tr>
<td>08</td>
<td>0.8</td>
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</table>

**Table 8: (8) Feed Direction**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Feed Direction</th>
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<tbody>
<tr>
<td>R</td>
<td>Right Hand</td>
</tr>
<tr>
<td>L</td>
<td>Left Hand</td>
</tr>
<tr>
<td>N</td>
<td>Neutral</td>
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**Table 9: (9) Chipbreaker**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Applications</th>
<th>Bumpy Type</th>
<th>Standard</th>
<th>Handled Type</th>
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<tbody>
<tr>
<td>F</td>
<td>Fine Cutting to Finishing</td>
<td>FA, FL, FE, FB, FC</td>
<td>FT, FX, FY, FZ</td>
<td></td>
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<tr>
<td>G</td>
<td>General Cutting</td>
<td>GE, GU, GW</td>
<td>GZ, UZ</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>Roughing</td>
<td>MP, MU, MX, ME</td>
<td>MM, HM</td>
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<tr>
<td>H</td>
<td>Heavy Cutting</td>
<td>HG, HP, HF</td>
<td>HU, HW</td>
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</table>

**Other Specials**

- **Wide Breaker**: W
- **Double Positive Chipbreaker**: GX
- **Chamfering**: C
- **Round Type Inserts**: RD, RP, RX, RH
- **Exotic Alloy**: EF, EG, EX, EM
- **Aluminum Alloy**: AW, AG, AX, AY, LD, GD
- **Hardened Steel Machining**: FV, LV, GH
- **Carbureted Layer Removal**: SV
- **Stainless Steel**: EF, EG, EM

**Refer to Tables**:

- (5) Cutting Edge Length
- (6) Thickness
- (7) Nose Radius
- (8) Feed Direction
- (9) Chipbreaker
# CVD Coated Grades

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<th>M20</th>
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<th>M40</th>
<th>K05</th>
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<th>K20</th>
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<td></td>
</tr>
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## Negative Carbide

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*Note: The above data was collected from various published catalogues. The information may therefore not be up to date.*

### Polycrystalline Diamond

<table>
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<th>Material</th>
<th>Work Material / Classification Code</th>
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<th>Tungaloy</th>
<th>Kyocera</th>
<th>NTK</th>
<th>Chukyo</th>
<th>Sandvik</th>
<th>Kennametal</th>
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*mark: For ductile cast iron cutting

Note: The above data was collected from various published catalogues. The information may therefore not be up to date.
# Chipbreaker Comparison Chart

## Negative Type Inserts

<table>
<thead>
<tr>
<th>Work Material</th>
<th>Applications</th>
<th>Sumitomo Electric</th>
<th>Mitsubishi</th>
<th>Tungaloy</th>
<th>Kyocera</th>
<th>YIMetal</th>
<th>NTK</th>
<th>Sandvik</th>
<th>Kennametal</th>
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<th>Egusa</th>
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<tbody>
<tr>
<td>Fine Cutting</td>
<td>FA</td>
<td>TF</td>
<td>GQ</td>
<td>FF</td>
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<td>FP5</td>
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<td>FLFB</td>
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<td>NS,ZF</td>
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<td>SA,SY</td>
<td>NM</td>
<td>PPX,Q,QC</td>
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<td>SU</td>
<td>SH</td>
<td>TS,TSF</td>
<td>HQ</td>
<td>GE,BH</td>
<td>UL,WY</td>
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<tr>
<td>Finishing (Wiper Edge)</td>
<td>SEW</td>
<td>SW</td>
<td>ASW,SW</td>
<td>WQ</td>
<td>WF,W MX</td>
<td>W</td>
<td>MF2</td>
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<tr>
<td>Finishing to Light Cutting</td>
<td>SE, SX</td>
<td>LP</td>
<td>AS, ZM</td>
<td>CJ, XS</td>
<td>AB, CT</td>
<td>ZW1, WR</td>
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<tr>
<td>Medium Cutting</td>
<td>GU(U)</td>
<td>MA, MV</td>
<td>TM, TQ</td>
<td>HS, PS</td>
<td>AH</td>
<td>ZP</td>
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<td>GE, UX</td>
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<td>DM, AM</td>
<td>PQ, GS, PT, PG</td>
<td>AE, AY</td>
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<td>WM</td>
<td>MIUW</td>
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<td>THS, TRS</td>
<td>PI, Standard</td>
<td>TE, UE</td>
<td>OR</td>
<td>RM, MR</td>
<td>R4, R5, M6</td>
<td>NR6, NRF</td>
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<td>NF</td>
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<td>MF5</td>
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<td>MS, MU</td>
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<td>ZP</td>
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<td>UP</td>
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<td>MF5</td>
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<td>CM, CF</td>
<td>Standard, C</td>
<td>V, VA</td>
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<td>KF</td>
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<td>Standard, CH, 33</td>
<td>ZS, GC</td>
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Note: The above data was collected from various published catalogues. The information may therefore not be up to date.
# Chipbreaker Comparison Chart

## Positive Type Inserts

<table>
<thead>
<tr>
<th>Work Material</th>
<th>Applications</th>
<th>Sumitomo Electric</th>
<th>Mitsubishi</th>
<th>Tungaloy</th>
<th>Kyocera</th>
<th>Isupra</th>
<th>NTK</th>
<th>Sandvik</th>
<th>Kennametal</th>
<th>ECO Tools</th>
<th>WALTER</th>
<th>ISCAR</th>
<th>SepaTechnology</th>
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<tbody>
<tr>
<td><strong>Steel</strong></td>
<td><strong>Finishing</strong></td>
<td>FC, JF, AM</td>
<td>01, JRP, JTS</td>
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<td>AZ7, AMX</td>
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<td>UM</td>
<td>GT-F1</td>
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<td>FF1</td>
<td>PP4</td>
<td>PF</td>
<td>FA, FX</td>
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<td></td>
<td><strong>(Wiper Edge)</strong></td>
<td>LUW</td>
<td>SW</td>
<td>WP</td>
<td>WF</td>
<td>W-F1</td>
<td>PF</td>
<td>WF</td>
<td>WT</td>
<td>FF1</td>
<td>PP4</td>
<td>PF</td>
<td>FA, FX</td>
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<td>SMG</td>
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<td>JS</td>
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<td>HQ, XQ</td>
<td>JE</td>
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<td>SC</td>
<td>SQ, SK, Standard</td>
<td>AF, CL</td>
<td>MP</td>
<td>MP2</td>
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<td><strong>Finishing</strong></td>
<td>FC, FM, FV</td>
<td>PSF, PF, SS, JSS</td>
<td>AZ7, AM3</td>
<td>MF, XF</td>
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<td>FM4</td>
<td>PF, FA, FX</td>
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<td><strong>Finishing to Light Cutting</strong></td>
<td>SI</td>
<td>SMG</td>
<td>YL, 1L</td>
<td>UF</td>
<td>LF, FP</td>
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<td>LM, SV</td>
<td>MQ, HQ</td>
<td>AM5, CL</td>
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<td>F1, M2, F</td>
<td>MM4, PSS</td>
<td>SM</td>
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<td><strong>Light to Medium Cutting</strong></td>
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<td>MM, MV, Blank</td>
<td>PM</td>
<td>UMR, XR, UR</td>
<td>MF</td>
<td>F2, M3</td>
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<td>PMS, RM4</td>
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<td><strong>Light Cutting</strong></td>
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<td>AL</td>
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<td>AS, AF, FL</td>
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<td></td>
<td><strong>Finishing</strong></td>
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<td>HP*</td>
<td>BF*</td>
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<td>SA</td>
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</tbody>
</table>

Note: The above data was collected from various published catalogues. The information may therefore not be up to date.

- * mark indicates CBN / PCD tool breaker.
- ( ) indicates a discontinued item.

### Work Material
- Stainless Steel
  - Finishing: FC, FM, FV (PSF, PF, SS, JSS)
  - Finishing to Light Cutting: FC, FM, FV
  - Light to Medium Cutting: FC, CF
- Cast Iron
  - Finishing: FC, CF
  - Light to Medium Cutting: FC, CF
- Non-Ferrous Metal
  - Finishing: AG, AW, AY
  - Light Cutting: FV*, BF*
**By Cutting Conditions**

**Chipbreaker Selection**

### Negative Type

**Finishing to Medium Cutting**

<table>
<thead>
<tr>
<th>FB Type</th>
<th>FA Type</th>
<th>FL Type</th>
<th>FE Type</th>
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</thead>
<tbody>
<tr>
<td>Profile-exact chip setting for fine finishing.</td>
<td>Profile breaker perfect for fine finishing.</td>
<td>Arc-shaped ground control on rolled steel.</td>
<td>Profile breaker for high feed finishing.</td>
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</table>

### Finishing

<table>
<thead>
<tr>
<th>LU Type</th>
<th>SU Type</th>
<th>SE Type</th>
<th>EF Type</th>
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</thead>
<tbody>
<tr>
<td>For parallel path of cutting. Suitable for light pickup.</td>
<td>Effective at high feed and low depth of cut.</td>
<td>Double point breaker for superior sharp edge.</td>
<td>Wide breaker with sharp edge.</td>
</tr>
</tbody>
</table>

### Light to Medium Cutting

<table>
<thead>
<tr>
<th>SJ Type</th>
<th>ST Type</th>
<th>GX Type</th>
<th>SX Type</th>
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<table>
<thead>
<tr>
<th>EX Type</th>
<th>UP Type</th>
<th>FT Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stable chipbreaker for cutting hardened alloys.</td>
<td>Stable chipbreaker with superior sharp edge.</td>
<td>Arc-shaped ground control for use with hard alloys.</td>
</tr>
</tbody>
</table>

### Chipbreaker Application Range (Inscribed Circle of Insert up to ø12.7mm)

- **Fine Cutting to Finishing**
- **Finishing to Light Cutting**
- **Wiper Insert**
- **High-precision Cutting (Ground)**

Indicated chipbreaker application ranges and shapes are representative values only. Actual values may change according to the actual catalogue number. For details, refer to "Stock Items" in Chapter B.
By Cutting Conditions

Chipbreaker Selection

Negative Type  Medium Cutting to Roughing

For Medium Cutting

**GU Type**
- Chipbreaker for high-speed machining with excellent wear resistance.
- Geometrically steady chipbreaker with excellent wear resistance.

**GE Type**
- Chipbreaker for high-speed machining.
- Geometrically steady chipbreaker with excellent wear resistance.

**UX Type**
- Chipbreaker for medium cutting.
- Geometrically steady chipbreaker with excellent wear resistance.

**UG Type**
- Chipbreaker for medium cutting.
- Geometrically steady chipbreaker with excellent wear resistance.

For Medium to Roughing

**EM Type**
- Chipbreaker with wear-resistant coating and coated.
- Coated chipbreaker with wear-resistant coating.

**MU Type**
- Chipbreaker for medium-to-high cutting.
- Geometrically steady chipbreaker with excellent wear resistance.

**ME Type**
- Chipbreaker for medium-to-high cutting.
- Geometrically steady chipbreaker with excellent wear resistance.

**MX Type**
- Chipbreaker for high-speed machining.
- Geometrically steady chipbreaker with excellent wear resistance.

**UM Type**
- Chipbreaker for medium-to-high cutting.

**GUW Type**
- Chipbreaker for medium-to-high cutting.

**UM Type**
- Chipbreaker for medium-to-high cutting.

Medium to Roughing

**MU Type**
- Chipbreaker for medium-to-high cutting.

**ME Type**
- Chipbreaker for medium-to-high cutting.

**MX Type**
- Chipbreaker for high-speed machining.

**UM Type**
- Chipbreaker for medium-to-high cutting.

**GUW Type**
- Chipbreaker for medium-to-high cutting.

**UM Type**
- Chipbreaker for medium-to-high cutting.

Applicable Work Material:
- **P**: Steel
- **M**: Stainless Steel
- **K**: Cast Iron
- **N**: Non-Ferrous Metal
- **H**: Exotic Alloy
- **B**: Hardened Steel

Chipbreaker Application Range (Inscribed Circle of Insert up to ø12.7mm)

Indicated chipbreaker application ranges and shapes are representative values only. Actual values may change according to the actual catalogue number. For details, refer to “Stock Items” in Chapter B.
# Chipbreaker Selection

## By Cutting Conditions

### Negative Type

#### Roughing

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HG</td>
<td>for heavy cutting</td>
</tr>
<tr>
<td>MP</td>
<td>for rough cutting</td>
</tr>
<tr>
<td>HP</td>
<td>for heavy cutting</td>
</tr>
</tbody>
</table>

#### Aluminum Alloy Cutting

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AX</td>
<td>for high-speed chip evacuation</td>
</tr>
</tbody>
</table>

#### Hardened Steel Cutting

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GH</td>
<td>for hardened steel cutting and provides post-chip evacuation</td>
</tr>
</tbody>
</table>

#### Chamfering

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>for chamfering ground type breaker</td>
</tr>
</tbody>
</table>

---

### Chipbreaker Application Range

Indicated chipbreaker application ranges and shapes are representative values only. Actual values may change according to the actual catalogue number. For details, refer to “Stock Items” in Chapter B.

---

Applicable Work Material:  
- P Steel  
- M Stainless Steel  
- K Cast Iron  
- N Non-Ferrous Metal  
- S Exotic Alloy  
- H Hardened Steel
Chipbreaker Selection

M Class Positive Type  (Finishing to Medium Cutting)

FB Type 0.5
LU Type 0.8
LUW Type 1.2
FP Type 1.4
FK Type 1.6

LB Type 0.8
SU Type 1.4
US Type 1.9

MU Type 0.35
SF Type 1.0
JJ Type 1.5

Positive Type  G Class (Ground Type)

FW Type 0.9
FX Type 0.9
FYS Type 0.9
FY Type 0.9

W Type 1.0
SD Type 0.9
SDW Type 0.9

By Cutting Conditions

Applicable Work Material:  P Steel  M Stainless Steel  K Cast Iron  N Non-Ferrous Metal  S Exotic Alloy  H Hardened Steel

Chipbreaker Application Range

Indicated chipbreaker application ranges and shapes are representative values only. Actual values may change according to the actual catalogue number. For details, refer to “Stock Items” in Chapter B.
### Chipbreaker Selection

#### Positive Type

<table>
<thead>
<tr>
<th>FC Type</th>
<th>SI Type</th>
<th>SC Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finishing to light cutting</td>
<td>Non-chip breaker for a wide range of applications from finishing to light cutting</td>
<td>Non-chip breaker for light cutting</td>
</tr>
</tbody>
</table>

#### Positive Insert

<table>
<thead>
<tr>
<th>RX Type</th>
<th>RH Type</th>
<th>RP Type</th>
<th>RD Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finishing breaker for aluminium with sharp edge</td>
<td>Standard breaker for profiling</td>
<td>Standard for profiling</td>
<td>Standard parallel chipbreaker with sharp edge</td>
</tr>
</tbody>
</table>

#### Round Inserts

<table>
<thead>
<tr>
<th>AW Type</th>
<th>AG Type</th>
<th>AY Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finishing breaker for aluminium with sharp edge</td>
<td>At breaker for mirror finish and anti-adhesion performance</td>
<td>At breaker for mirror finish and anti-adhesion performance</td>
</tr>
</tbody>
</table>

---

**Applicable Work Material:**
- B: Steel
- M: Stainless Steel
- K: Cast Iron
- N: Non-Ferrous Metal
- S: Exotic Alloy
- H: Hardened Steel

---

**Chipbreaker Application Range**

- **Class G Chipbreaker**
  - Involute: SC Type
  - Involute: SI Type
  - Involute: FT Type

- **Round Inserts** (Inscribed Circle up to 12.7mm)
  - Involute: SI Type
  - Involute: FT Type

- **Aluminium Alloy**
  - Involute: FT Type

---

Indicated chipbreaker application ranges and shapes are representative values only. Actual values may change according to the actual catalogue number. For details, refer to “Stock Items” in Chapter B.
### By Cutting Conditions

**Chipbreaker Selection**

#### SUMIBORON Insert

**CBN**

<table>
<thead>
<tr>
<th>Insert Type</th>
<th>Depth of Cut (mm/rev)</th>
<th>Feed Rate (mm/rev)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LV Type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FV Type</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SUMIDIA Insert**

**PCD**

<table>
<thead>
<tr>
<th>Insert Type</th>
<th>Depth of Cut (mm/rev)</th>
<th>Feed Rate (mm/rev)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD Type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GD Type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DM Type</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Chipbreaker Application Range

- **SUMIBORON (For Hardened Steel)**
- **SUMIBORON (For Cast Iron)**
- **SUMIDIA (For Aluminum Alloy)**

Applicable Work Material: **P** Steel, **M** Stainless Steel, **K** Cast Iron, **N** Non-Ferrous Metal, **S** Exotic Alloy, **H** Hardened Steel

Indicated chipbreaker application ranges and shapes are representative values only. Actual values may change according to the actual catalogue number. For details, refer to “Stock Items” in Chapter B.
Negative M Class Chipbreakers for Low Carbon and General Steel Turning

**FB / FE Type**

- The FE type main breaker for finishing achieves stable chip control over a wide range of feed rates for low carbon steel and general steel.
- Item range covers a wide variety of machining applications.
- The FB type for low feed finishing increases chip strain and thereby improves chip breaking performance thanks to the variable rake angle in the nose radius.

### Application Range

<table>
<thead>
<tr>
<th>Feed Rate (f) (mm/rev)</th>
<th>Depth of Cut (a_p) (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.2</td>
<td>1.6</td>
</tr>
<tr>
<td>0.3</td>
<td>1.2</td>
</tr>
<tr>
<td>0.4</td>
<td>0.8</td>
</tr>
<tr>
<td>0.5</td>
<td>0.4</td>
</tr>
</tbody>
</table>

**FE Type Breaker for Finishing**

**General purpose to high feed cutting**

Arc-shaped main breaker design achieves stable chip control over a wide range of feed rates

Two-step breaker achieves stable chip control at low feed rates of \(f = 0.1\)mm/rev

Sub breaker for chip control during profiling

**Performance**

Application Examples

- **Work Material:** Pipe material (STKM13A) Insert: DNMG150404N-FE (T3000Z)
  - Cutting Conditions: \(v_c = 352\)m/min, \(f = 0.03\text{--}0.2\)mm/rev, \(a_p = 0.7\)mm, Wet
  - Stable chip control even at low depth of cut and variable feed conditions

**Chip Control**

Application Examples

- **FE Type Breaker (AC8025P)**
  - Conventional Tool

**FB Type Breaker for Low Feed Finishing**

Low feed cutting

Smooth, high rake breaker joint achieves ultra-low cutting resistance

Variable rake angle in nose radius increases chip strain and improves chip breaking performance

**Application Examples**

- **Work Material:** Pipe material (STKM13A) Insert: CNMG120408N-FE (AC8025P)
  - Cutting Conditions: \(v_c = 200\)m/min, \(f = 0.4\)mm/rev, \(a_p = 0.2\)mm Dry
  - Small curls of chips even for pipe material, achieving a steady chip length

---

**Work Material:** Iron plate (SPHC440) Facing Insert: CNMG120408N-FE (AC8025P)
- Cutting Conditions: \(v_c = 200\)m/min, \(f = 0.15\)mm/rev, \(a_p = 0.2\text{--}0.5\)mm, Wet
- Excellent chip control at low depth of cut, high feed conditions

**Conventional Tool**

---

**Application Examples**

- **FE Type Breaker (AC8025P)**
  - Conventional Tool

---

**Application Examples**

- **Work Material:** Pipe material (STKM13C) Internal Diameter Machining Insert: DNMG150412N-FE (T3000Z)
  - Cutting Conditions: \(v_c = 180\)m/min, \(f = 0.25\text{--}0.45\)mm/rev (Corner), \(0.45\)mm/rev (Straight), \(a_p = 0.3\)mm, Wet
  - Work Material: S53C ø20-100 External Diameter/Facing Insert: DNMG150412N-FE (AC8025P)
    - Cutting Conditions: \(v_c = 180\)m/min, \(f = 0.25\text{--}0.45\)mm/rev (Corner), \(0.45\)mm/rev (Straight), \(a_p = 0.3\)mm, Wet
    - Work Material: Pipe material (STKM13A) Insert: CNMG120408N-FE (AC8025P)
      - Cutting Conditions: \(v_c = 200\)m/min, \(f = 0.4\)mm/rev, \(a_p = 0.2\)mm Dry
      - Small curls of chips even for pipe material, achieving a steady chip length
Positive M Class Chipbreakers for Low-carbon and General Steel Turning

**FB / LB Type**

- The FB type for finishing and the LB type for light cutting have been added to the chipbreaker series for low carbon and general steel machining in addition to the existing LU type for finishing and SU type for light cutting.
- The FB and LB type chipbreakers improve chip control in finishing of low carbon and general steel.

**Application Range**

**FB Type Breaker for Finishing**

- Ridge reduces edge breakage
- High rake break wall improves chip breaking performance
- Variable rake angle in nose radius increases chip strain and improves chip breaking performance

**Performance**

**Chip Control**

- Work Material: Pipe material (STKM13A) ø100 Internal Diameter Machining Insert: TPMT110304N-FB (T1500A)
- Cutting Conditions: \( v_c = 100 \text{ m/min} \), \( f = 0.12 \text{ mm/rev} \), \( a_p = 0.1 \text{ mm} \) Wet

- Achieves stable chip control at shallow depths of cut and low feeds

**Comparison of Surface Roughness of Finished Surfaces**

- Work Material: Pipe material (STKM13A) ø100 Internal Diameter Machining Insert: TPMT110304N-FB (T1500A)
- Cutting Conditions: \( v_c = 200 \text{ m/min} \), \( f = 0.07 \text{ mm/rev} \), \( a_p = 0.1 \text{ mm} \) Wet

**LB Type Breaker for Light Cutting**

- Strengthened edge reduces unexpected breakage
- Special breaker ridge shape achieves stable chip control

**Performance**

**Chip Control (1)**

- Work Material: Pipe material (STKM13A) ø100 Internal Diameter Machining Insert: TPMT110304N-LB (T1500A)
- Cutting Conditions: \( v_c = 200 \text{ m/min} \), \( f = 0.15 \text{ mm/rev} \), \( a_p = 0.5 \text{ mm} \) Wet

- Achieves stable chip control in light cutting

**Chip Control (2)**

- Work Material: Hub (S45C) Insert: VBMT160408N-LB (T1500A)
- Cutting Conditions: \( v_c = 240 \text{ m/min} \), \( f = 0.25 \text{ to } 0.28 \text{ mm/rev} \), \( a_p = 0.6 \text{ mm} \) Wet

- Doubles the tool life by improving chip control and reducing blemishes on machined surfaces
Chipbreaker for Hardened Steel Turning/Chipbreaker for Aluminum Alloy and Non-Ferrous Metal Turning

**GH Type / AX Type / AY Type**

**Negative Insert for Medium Roughing** GH Type Chipbreaker

- Enables medium roughing of hardened steel by combining with the AC503U coated grade
- Reduces heat generation and enables deep cuts (ap=1 to 3mm) in hardened steel thanks to a wide neutral ground breaker (rake angle = 4°) and sharp edge
- Makes smooth chip evacuation possible

**Performance**

- **GH Type Chipbreaker**
  - Low wear even after cutting for 40 minutes
  - Stable chip shape

- **Positive Insert** AY Type Chipbreaker
  - Ideal for internal turning of non-ferrous metal when combined with carbide grade H1
  - Achieves stable cutting over a wide cutting range thanks to a high-quality parallel ground breaker
  - Covers a wide variety of applications with a wide selection of tools (28 items)

**Application Range**

**Recommended Cutting Conditions**

<table>
<thead>
<tr>
<th>Process</th>
<th>Cutting Speed v_c (m/min)</th>
<th>Feed Rate f (mm/rev)</th>
<th>Depth of Cut a_p (mm)</th>
<th>Recommended Chipbreaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finishing</td>
<td>40 to 100</td>
<td>0.02 to 0.10</td>
<td>&lt; 1</td>
<td>Without Chipbreaker Inserts</td>
</tr>
<tr>
<td>Medium Roughing</td>
<td>20 to 60</td>
<td>0.02 to 0.05</td>
<td>1 to 3</td>
<td>GH Type</td>
</tr>
</tbody>
</table>

For hardened steel (50 to 62HRC)

---

**Note**: The maximum depth of cut of SNGG is 3.5mm
The chipbreaker series for stainless steel machining features EF type for finishing, EG type for medium cutting and EM type for roughing.

- The EM type achieves both excellent wear resistance and high cutting edge strength.
- The EG and EF type breakers are ideal for a variety of exotic alloys including titanium alloy and heat-resistant alloys.
- Achieves both excellent wear resistance and strong chip control, reducing issues with equipment and quality that occur in conventional chipbreakers due to unstable tool life and chips.

- Reduces curl diameter of chips during finishing, achieving outstanding chip control

A main breaker that provides good chip control even with low depth of cut

- Sharpness was prioritized in the rake angle (20°) to reduce wear

Grooved rake face to reduce heat and shock at deflected angles

- Achieves excellent wear resistance and strong chip control in general purpose to medium cutting. Highly versatile performance

Spherical projections on rake face maintain chip control performance when crater wear occurs

- Round cutting edge maintains strength even after wear occurs

Special rake face limits crater wear and achieves strong chip control

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- The EM type achieves both excellent wear resistance and high cutting edge strength.
- The EG and EF type breakers are ideal for a variety of exotic alloys including titanium alloy and heat-resistant alloys.
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Special rake face limits crater wear and achieves strong chip control
### IGETALLOY

**80° Diamond Type Negative Inserts**

**Indexable Insert**

#### CN

**80° Diamond Type Neg. With Hole**

<table>
<thead>
<tr>
<th>Insert</th>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FB</td>
<td></td>
<td>CNMG 090304N-FB 090308N-FB</td>
<td>0.4 0.8</td>
</tr>
<tr>
<td></td>
<td>FL</td>
<td></td>
<td>CNMG 090308N-FL</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td>FE</td>
<td></td>
<td>CNMG 090304N-FE 090308N-FE</td>
<td>0.4 0.8</td>
</tr>
<tr>
<td></td>
<td>LU</td>
<td></td>
<td>CNMG 090304N-LU 090308N-LU</td>
<td>0.4 0.8</td>
</tr>
<tr>
<td></td>
<td>SU</td>
<td></td>
<td>CNMG 090304N-SU 090308N-SU</td>
<td>0.4 0.8</td>
</tr>
<tr>
<td></td>
<td>GU</td>
<td></td>
<td>CNMG 090304N-GU 090308N-GU</td>
<td>0.4 0.8</td>
</tr>
<tr>
<td></td>
<td>UX</td>
<td></td>
<td>CNMG 090304N-UX 090308N-UX</td>
<td>0.4 0.8</td>
</tr>
<tr>
<td></td>
<td>UG</td>
<td></td>
<td>CNMG 090304N-UG 090308N-UG</td>
<td>0.4 0.8</td>
</tr>
</tbody>
</table>

#### CN

**90° Diamond Type Positive Inserts**

<table>
<thead>
<tr>
<th>Insert</th>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SU</td>
<td></td>
<td>CNMG 09T304N-SU 09T308N-SU</td>
<td>0.4 0.8</td>
</tr>
<tr>
<td></td>
<td>UG</td>
<td></td>
<td>CNMG 09T304N-UG 09T308N-UG</td>
<td>0.4 0.8</td>
</tr>
</tbody>
</table>

#### Dimensions

- Cutting Edge Length L: 9.7
- Thickness S: 3.18
- Inscribed Circle IC: 9.525
- Hole Dia. D1: 3.81
- Hole Dia. D2: 3.81

#### Coated Carbide

Coated Carbide

<table>
<thead>
<tr>
<th>Carbide</th>
<th>Coated Carbide</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Work Material

- Steel
- Non-Ferrous Metal
- Plastic
- Glass
- Ceramic
- Wood
- Fiberglass

#### Information in "Shape" column

- Name of Chipbreaker
- Rake Angle
- Information in "Shape" column
- Application Range
- Work Material
- Recommended Application
## IGETALLOY

### 80° Diamond Type Negative Inserts

#### 80° Diamond Type Neg. With Hole

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FB</td>
<td></td>
<td>CNMG 120402N-FB</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120404N-FB</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120408N-FB</td>
<td>1.2</td>
</tr>
<tr>
<td>FA</td>
<td></td>
<td>CNMG 120402N-FA</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120404N-FA</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120408N-FA</td>
<td>1.2</td>
</tr>
<tr>
<td>FL</td>
<td></td>
<td>CNMG 120402N-FL</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120404N-FL</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120408N-FL</td>
<td>1.2</td>
</tr>
<tr>
<td>FE</td>
<td></td>
<td>CNMG 120402N-FE</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120404N-FE</td>
<td>0.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120408N-FE</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120412N-FE</td>
<td>1.2</td>
</tr>
<tr>
<td>LU</td>
<td></td>
<td>CNMG 120402N-LU</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120404N-LU</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120408N-LU</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120412N-LU</td>
<td>1.6</td>
</tr>
<tr>
<td>LUW</td>
<td></td>
<td>CNMG 120402N-LUW</td>
<td>1.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120404N-LUW</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120408N-LUW</td>
<td>1.2</td>
</tr>
<tr>
<td>SU</td>
<td></td>
<td>CNMG 120402N-SU</td>
<td>1.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120404N-SU</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120408N-SU</td>
<td>1.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120412N-SU</td>
<td>1.2</td>
</tr>
<tr>
<td>CNGG</td>
<td></td>
<td>CNGG 120402N-SU</td>
<td>1.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120404N-SU</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120408N-SU</td>
<td>1.2</td>
</tr>
</tbody>
</table>

#### Dimensions

- Cutting Edge Length: 12.9
- Thickness: 4.76
- Hole Dia: 12.7

#### Applicable Holders

- Internal Holders: SUMIDIA (PCD) Inserts
- External Holders: SUMIBORON (CBN) Inserts

---

**Note:**

- The table above represents the recommended insert types for various cutting conditions.
- The inserts are designed for use with tools that accept indexable inserts.
- The Shape column indicates the specific design of the insert, which affects its application in different types of cutting operations.
- The Application Range column specifies the types of work materials for which the insert is recommended.

---

**Diagram:**

- The diagram illustrates the physical shape and dimensions of the insert, including the cutting edge and the body of the insert.
- It provides a visual guide to help in the correct installation and handling of the inserts.

---

**Coated Carbine Inserts:**

- Details on coated carbide inserts are available in the relevant section of the document, typically covering coatings such as TiN, TiCN, and Al2O3.
- These coatings enhance the insert's performance and durability in various cutting applications.

**Indexable Insert:**

- Information on indexable inserts, including their configurations and applications, are also included in the document.
- Indexable inserts are adaptable for different profiles and are often used in multitasking tool systems.

---

**Additional Information:**

- The document includes sections on recommended cutting parameters, such as depth of cut, feed rate, and work material, to optimize the cutting process.
- Safety guidelines and best practices for handling and using these inserts are also provided.

---

**Legend:**

- The legend provides a key for understanding the symbols and colors used in the table, aiding in quick reference.
- It helps in interpreting the data and selecting the appropriate insert for a given cutting task.

---

**References:**

- The document may reference other technical literature or standards relevant to the use of these inserts.
- These references can be found in the bibliography or related sections of the document.

---

**Contact Information:**

- For detailed technical support or purchasing inquiries, contact the manufacturer or a designated distributor.
- Contact information is typically provided at the end of the document or on the company’s official website.
### IGETALLOY

#### 80° Diamond Type Negative Inserts

**Applicable External Holders**

- SUMIBORON (CBN) Inserts

**Applicable Internal Holders**

- SUMIDIA (PCD) Inserts

---

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
</tr>
</thead>
<tbody>
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---

**Inscribed Circle IC 12.7**

- Hole Dia. D1 5.16
- Cutting Edge Length L 12.9
- Thickness S 4.76
- **Application**
  - Roughing
  - Medium to Roughing
- **Range**
  - Continuous Cutting
  - Interrupted Cutting

---

**Material**

- Stainless Steel
- Hardened Steel
- Exotic Alloy
- Cermet
- Cermet Carbide
- WCeramics

---

**Chipbreaker**

- Negetive Pos.
- Medium Cutting
- Heavy Cutting
- General Cutting
- Hard Cutting

---

**Carbide**

- Solid CBN
- Coated Carbide
IGETALLOY

80° Diamond Type Negative Inserts

Grade Selection A2, A3
Chipbreaker Selection B10 on
Insert Grade Selection by Work Material A10 on

Recommended Application

- P: Steel
- M: Stainless Steel
- K: Cast Iron
- N: Non-Ferrous Metal
- S: Exotic Alloy
- H: Hardened Steel

Recommended Cutting

- Continuous Cutting 1st Recommended
- Continuous Cutting 2nd Recommended
- General Cutting 1st Recommended
- General Cutting 2nd Recommended
- Interrupted Cutting 1st Recommended
- Interrupted Cutting 2nd Recommended

Insert Types

- BNeg.Pos.
- C
- D
- R
- S
- T
- V
- WCeramics
- Solid CBN

Shape Application Range

For Aluminum

- AX

- CNNG 120402R-AX
- 120402L-AX
- 120404R-AX
- 120404L-AX
- 120408R-AX
- 120408L-AX

Heavy Cutting

- HG

- CNMM 120408N-HG
- 120412N-HG
- 120416N-HG

For Hardened Steel

- GH

- CNGG 120402N-GH
- 120404N-GH
- 120408N-GH

Dimensions

- Cutting Edge Length L: 12.9
- Thickness S: 4.76
- Inscribed Circle IC: 12.7
- Hole Dia. D1: 5.16

Applicable External Holders: C8, C9
Applicable Internal Holders: E17 to E19

Coated Carbide

- For Aluminum

Coated Cermet Carbide

Cermet Cermet Carbide

Coated Carbide

- For Aluminum

Ceramic Inserts B128

SUMIBORON (CBN) Inserts L30

on SUMIDIA (PCD) Inserts M10
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# IGETALLOY

## 80° Diamond Type Negative Inserts

### CN 80° Diamond Type Neg. With Hole

**Grade Selection:** A2, A3

**Chipbreaker Selection:** B10 on

**Insert Grade Selection by Work Material:** A10 on

#### Insert

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
<th>Coated Carbide</th>
<th>Coated Cermet</th>
<th>Cemented Carbide</th>
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</tbody>
</table>

---

**Dimensions:**
- Cutting Edge Length L: 16.1 mm
- Thickness S: 6.35 mm
- Inscribed Circle IC: 15.875 mm
- Hole Dia. D1: 6.35 mm

**Recommended Application:**
- P: Steel
- M: Stainless Steel
- K: Cast Iron
- N: Non-Ferrous Metal
- S: Exotic Alloy
- H: Hardened Steel

**Applicable External Holders:**
- C8, C9

---

**Recommended Cutting Conditions:**
- Continuous Cutting: 1st Recommended
- General Cutting: 1st Recommended
- Interrupted Cutting: 1st Recommended

---

**Recommended Cutting Parameters:**
- (a_p): 0.6, 0.4, 0.2
- (f): 0, 2, 4, 6

---

**Shapes:**
- CN: 80° Diamond Type Neg.
- CN: 1606

---

**Materials:**
- Solid CBN
- Coated Carbide
- Cermet Cermet Carbide
- Solid CBN
# IGETALLOY

## 80° Diamond Type Negative Inserts

**Indexable Insert**

### CN 80° Diamond Type Neg.

#### Neg. With Hole

#### Insert

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<tr>
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<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius FL</th>
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<td>CNMG 190608N-UZ</td>
<td>0.8, 1.2, 1.6</td>
</tr>
</tbody>
</table>

**Dimensions**

- Cutting Edge Length L: 19.3
- Thickness S: 6.35
- Hole Dia. D1: 7.94

**Recommended Work Material**

- WCeramics
- Solid CBN

**Application Range**

- Stainless Steel
- Cast Iron
- Not Ferritic
- Exotic Alloys
- hardened steel

**Feed Rate (f) (mm/rev)**

- 0.6
- 0.4
- 0.2

**Depth of Cut (ap) (mm)**

- 1.2

**Recommended Application**

- H: Hardened Steel
- S: Stainless Steel
- N: Not Ferritic
- K: Exotic Alloys
- P: Poured Cast Iron

**Exotic Alloys**

- T10A
- T15A
- T20A
- T12
- T15

**Cutting Edge Length**

- Inscribed Circle IC: 19.05
- Hole Dia: D1: 7.94

**Radius**

- E19
- E18

**Chipbreaker**

- B
- R
- S
- V

**Recommended Insert**

- CNMG 190612N-EX
- CNMG 190612N-UP
- CNMG 190612N-GE
- CNMG 190608N-UX
- CNMG 190604N-UG
- CNMG 190612N-EG
- CNMG 190608N-MU
- CNMG 190612N-EM
- CNMG 190612N-ME
- CNMG 190612N-MX
- CNMG 190608N-UZ

**Coated Carbide**

- S: Solid Carbide
- C: Cermet
- E: Carbide

**Material Group**

- E20: Solid Carbide
- E19: Cermet
- E18: Carbide

**Coating**

- Coated Carbide

**Application Notes**

- Continuous Cutting
- Interrupted Cutting
- General Cutting

---

**Image**

- Diagram of insert geometry
- Table of insert specifications

---

**B28**
**IGETALLOY**

# 80° Diamond Type Negative Inserts

## Indexable Insert

### CN

#### 80° Diamond Type

- **Neg.**
- **With Hole**

---

### CN

#### 1906 Neg.

**Dimensions**
- Cutting Edge Length: 19.3 mm
- Thickness: 6.35 mm
- Inscribed Circle: 19.05 mm
- Hole Dia.: 7.94 mm

**Applicable External Holders:** C8, C9

**Applicable Internal Holders:** E10 to E19

### CN

#### 2507 Neg.

**Dimensions**
- Cutting Edge Length: 25.8 mm
- Thickness: 7.94 mm
- Inscribed Circle: 25.4 mm
- Hole Dia.: 9.2 mm

**Applicable External Holders:** C8, C9

**Applicable Internal Holders:** E18 to E19

---

### Shape and Application

- **GZ**
- **MP**
- **HG**
- **HP**
- **HF**

**Cat. No.**
- CNMG 190612N-GZ
- CNMG 190616N-GZ
- CNMM 190608N-MP
- CNMM 190612N-MP
- CNMM 190616N-MP
- CNMM 190624N-MP
- CNMM 190612N-HG
- CNMM 190616N-HG
- CNMM 190624N-HG
- CNMM 190608N-HP
- CNMM 190612N-HP
- CNMM 190616N-HP
- CNMM 190624N-HP
- CNMM 190616N-HF
- CNMM 190624N-HF

**Nose Radius (mm)**
- 1.2
- 1.6
- 0.8
- 1.2
- 1.6
- 2.4
- 1.2
- 1.6
- 2.4
- 0.8
- 1.2
- 1.6
- 2.4
- 1.6
- 2.4

---

### Coated Carbide

**Shape and Application**

- **GZ**
- **MP**
- **HG**
- **HP**
- **HF**

**Cat. No.**
- CNMG 190612N-GZ
- CNMG 190616N-GZ
- CNMM 190608N-MP
- CNMM 190612N-MP
- CNMM 190616N-MP
- CNMM 190624N-MP
- CNMM 190612N-HG
- CNMM 190616N-HG
- CNMM 190624N-HG
- CNMM 190608N-HP
- CNMM 190612N-HP
- CNMM 190616N-HP
- CNMM 190624N-HP
- CNMM 190616N-HF
- CNMM 190624N-HF

**Nose Radius (mm)**
- 1.2
- 1.6
- 0.8
- 1.2
- 1.6
- 2.4
- 1.2
- 1.6
- 2.4
- 0.8
- 1.2
- 1.6
- 2.4
- 1.6
- 2.4

---

### Insert Grade Selection

- A2
- A3

### Chipbreaker Selection

- B10

**Recommended Grade Selection by Work Material**

- A10 on

**Recommended Application**

- P: Steel
- M: Stainless Steel
- K: Cast Iron
- N: Non-Ferrous Metal
- S: Exotic Alloy
- H: Hardened Steel

---

### Recommended Application

- WCeramics
- Solid CBN

---

### Recommended Application

- Coated Carbide
- Cermet
- Carbide

---

### Shape Application

- Range Cat. No.
- Nose Radius
- Radius
- RE

**Cat. No.**
- AC8015P
- AC8025P
- AC8035P
- AC810P
- AC820P
- AC830P
- AC6020M
- AC6030M
- AC6040M
- AC610M
- AC630M
- AC640M
- AC4010K
- AC4015K
- AC420K
- AC405K
- AC415K
- AC503U
- AC5015S
- AC5025S
- AC510U
- AC520U
- AC530U
- AC540U
- ACZ150
- T1500Z
- T3000Z
- T1000A
- T1500A
- ST10P
- ST100E
- ST20E
- A30
- G10E
- EH510
- EH520
- H1
- H2
- H3

---

### Material Grades

- Steel
- Stainless Steel
- Cast Iron
- Non-Ferrous Metal
- Exotic Alloy
- Hardened Steel

---

### Material Grades

- Carbide
- Cermet
- Cermet Carbide
- Coated Carbide
- Coated CBN

---

### Material Grades

- CBN
- Solid CBN
### Indexable Insert Information

#### Name of Chipbreaker

<table>
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<th>FL</th>
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<td>Rake Angle</td>
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#### Feed Rate (f) (mm/rev)

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#### Depth of Cut (ap) (mm)

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#### Recommended Work Material

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<tr>
<td>Cast Iron</td>
<td>General Cutting 1st Recommended</td>
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<tr>
<td>Non-Ferrous Metal</td>
<td>General Cutting 2nd Recommended</td>
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<tr>
<td>Exotic Alloy</td>
<td>Interrupted Cutting 1st Recommended</td>
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<td>Hardened Steel</td>
<td>Interrupted Cutting 2nd Recommended</td>
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#### Insert Dimensions (mm)

- Cutting Edge Length L: 25.8
- Thickness S: 9.52
- Inscribed Circle IC: 25.4
- Hole Dia. D1: 9.2

#### Applicable External Holders

- C8

---

**Note:**

- CN: 80° Diamond Type
- Neg.: Negative
- With Hole

---

**Shapes:**

- MU
- EM
- ME
- MP
- HF

---

**Shape Application Range**

- Medium to Roughing
- Heavy Cutting

---

**Cat. No.**

- CNMG 250924N-MU
- CNMG 250924N-EM
- CNMG 250924N-ME
- CNMM 250924N-MP
- CNMM 250924N-HF

---

**Nose Radius (RE)**

- 2.4

---

**Recommended Application**

- P: Steel
- M: Stainless Steel
- K: Cast Iron
- N: Non-Ferrous Metal
- S: Exotic Alloy
- H: Hardened Steel

---

**Ceramics/ Solid CBN**

- WCeramics
- Solid CBN

---

**Additional Information**

- Insert B30

---
**55° Diamond Type Negative Inserts**

**DN**

**55° Diamond Type Negative With Hole**

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**Recommended Application**

- Hardened Steel
- Exotic Alloy
- Cast Iron
- Stainless Steel
- Steel

**Chipbreaker Selection**

- B10 on

**Insert Grade Selection**

- A2, A3 on

**Insert Grade Selection by Work Material**

- A10 on
### Indexable Insert

**55° Diamond Type Negative Inserts**

#### DN 1104

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<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
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#### DN 1504

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<td>150412N-LU</td>
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**Application**

- Continuous Cutting
- Interrupted Cutting
- General Cutting

**Recommended Work Material**

- Stainless Steel
- Cast Iron
- Hardened Steel
- Non-Ferrous Metal
- Exotic Alloy

**Applicable Internal Holders**

- SUMIDIA (PCD) Inserts
- SUMIBORON (CBN) Inserts
- Diamond Type Negative Inserts
- Cermet Carbide

**Applicable External Holders**

- SUMIDIA Binderless Inserts
- SUMIBORON (CBN) Inserts
- Solid CBN

**Dimensions**

- Cutting Edge Length: 11.6
- Thickness: 4.76
- Hole Dia: 3.81
- Inscribed Circle: 9.525
- Hole Dia: 5.16
- Radius: 0.40.2

**Notations**

- DN: 55° Diamond Type
- B: Negative
- With Hole

**Insert Information**

- 0.6 0.4 0.2
- FL: Feed Rate (mm/rev)
- LU: Depth of Cut (mm)
- Neg. Pos.: Rake Angle
- B: Application Range
- C: Coated Carbide
- D: Coat Carbide
- E: Coated Carbide
- F: Coat Carbide
- G: Ceramic Carbide
- H: Ceramic Carbide
- I: Cermet Carbide
- K: Cermet Carbide
- L: Ceramic Carbide
- M: Cermet Carbide
- N: Ceramic Carbide
- O: Ceramic Carbide
- P: Ceramic Carbide
- Q: Ceramic Carbide
- R: Ceramic Carbide
- S: Ceramic Carbide
- T: Ceramic Carbide
- U: Ceramic Carbide
- V: Ceramic Carbide
- W: Ceramic Carbide
- X: Ceramic Carbide
- Y: Ceramic Carbide
- Z: Ceramic Carbide

**Chipbreaker**

- 0.6 0.4 0.2

**Notations**

- B32
- AC8015P
- AC810P
- AC820P
- AC830P
- AC6020MAC6030MAC6040M
- AC610MAC630M
- AC4010KAC4015K
- AC420KAC405KAC415K
- AC5015SAC5025S
- AC5015SAC5025S
- AC503UAC520U
- AC530U
- AC7100UAC7200U
- ACZ150
- EH510EH520
- ST10P
- ST20E
- T1000AT1500A
- T1500ZT3000Z
- G10E
- EH510EH520
- H1
### 55° Diamond Type Negative Inserts

**IGETALLOY**

#### 55° Diamond Type With Hole

**DN**

**Neg.**

#### Dimensions

- Cutting Edge Length: L
- Thickness: S
- Hole Dia.: D

#### Applicable External Holders

- SUMIDIA Binderless Inserts
- SUMIDIA (CDA) Inserts
- Ceramic Inserts

#### Insert Grade Selection

- A2, A3
- B10

#### Grade Selection for Work Material

- Stainless Steel
- Carbon Steel
- High Speed Steel
- Tool Steels
- Cast Iron
- Non-ferrous Metal
- Titanium Alloys

#### Shape and Application Range

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<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
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<tbody>
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**Note:** 
1. Photo shows left hand.
2. Grade Selection for A2, A3, B10.

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*Image 103x342 to 140x366 is not visible.*
### 55° Diamond Type Negative Inserts

**Insert**

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<th>Pos.</th>
<th>Cat. No.</th>
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**55° Diamond Type Negative Inserts**

### DN 55° Diamond Type  
With Hole

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<th>Shape</th>
<th>Application</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
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<tbody>
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<td>Medium to Roughing</td>
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<td>Heavy Cutting</td>
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**Grade Selection**: A2, A3  
**Chipbreaker Selection**: B10 on

Insert Grade Selection by Work Material: A10 on

**Recommended Application**
- Hardened Steel
- Stainless Steel
- Cast Iron
- Tool Steel
- Non-Ferrous Metal
- Exotic Alloy
- Hardened Bar

**Material Compatibility**
- Cermet
- Carbide
- Coated Carbide
- WCeramics
- Solid CBN
### IGETALLOY

**55° Diamond Type Negative Inserts**

---

#### DN<br>**55° Diamond Type**<br>**Neg.**<br>**With Hole**

---

#### Insert DN 1506

- **Cutting Edge Length (L):** 15.5
- **Thicknes (S):** 6.35
- **Inserted Circle (IC):** 12.7
- **Hole Dia. (D1):** 5.16

---

#### Coated Carbide

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius (RE)</th>
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#### Information in “Shape” column

- **Recess Angle:**
- **Chipbreaker Name:**
- **Application Range:**
- **General Cutting 1st Recommended:**
- **Continuous Cutting 2nd Recommended:**
- **Interrupted Cutting 1st Recommended:**
- **General Cutting 2nd Recommended:**
- **Continuous Cutting 2nd Recommended:**
- **Interrupted Cutting 2nd Recommended:**

---

#### Dimensions

- **DN:** 1506
- **L:** 15.5
- **S:** 6.35
- **IC:** 12.7
- **D1:** 5.16

---

#### Recommended Application

- **Hardened Steel:**
- **Stainless Steel:**
- **Steel:**
- **Non-Ferrous Metal:**
- **Exotic Alloy:**
- **Ceramic Coated Carbide:**
- **Ceramic Coated CBN:**
### IGETALLOY

#### 55° Diamond Type Negative Inserts

**DN**

**Neg.**

**With Hole**

**Dimensions:***
- Cutting Edge Length: L
- Thickness: T
- Hole Dia.: D1

**Recommended Application:***
- Cast Iron
- Stainless Steel
- Non-ferrous Metal
- Solid CBN

**Grade Selection:***
- A2, A3

**Chipbreaker Selection:***
- B10

**Insert Grade Selection by Work Material:***
- A10

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<th>Name of Chipbreaker</th>
<th>Rake Angle</th>
<th>FL</th>
<th>Feed Rate (f) (mm/rev)</th>
<th>Depth of Cut (ap) (mm)</th>
<th>Recommended Work Material</th>
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#### Recommended Application
- **P**: Steel
- **M**: Stainless Steel
- **K**: Cast Iron
- **N**: Non-Ferrous Metal
- **S**: Exotic Alloy
- **H**: Hardened Steel

### Insert

**IGETALLOY**

55° Diamond Type Negative Inserts

**DN**

55° Diamond Type Neg. With Hole

#### DN 1506

<table>
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<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
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<td>WtGZ</td>
<td>DNMG 150608N-GZ, 1506012N-GZ</td>
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<td>WtMP</td>
<td>DNMM 150604N-MP, 150608N-MP, 150612N-MP, 150616N-MP</td>
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#### DN 1906

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### Dimensions (mm)
- Cutting Edge Length L
- Thickness S
- Inscribed Circle IC
- Hole Dia. D1

#### Coated Carbide
- Coated Carbide
- Cermet Carbide

#### Applicable External Holders
- C11, C12

#### Applicable Internal Holders
- E28
## IGALLOY
### Square Type Negative Inserts

**Indexable Insert**

#### SN
**Square Type Neg. With Hole**

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<th>Shape</th>
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<th>Cat. No.</th>
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<th>Material</th>
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<td>Light Cutting</td>
<td>SNGG S70200-C</td>
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<td>*1: Photo shows left hand.</td>
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### SN
**Square Type Neg. With Hole**

<table>
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<th>Nose Radius RE</th>
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<td>SNGG S70200-C</td>
<td>(0.8)</td>
<td>*1: Photo shows left hand.</td>
</tr>
</tbody>
</table>

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**Dimensions**

- Cutting Edge Length: 7.14
- Thickness: 2.38
- Hole Dia: 2.97

**Dimensions**

- Cutting Edge Length: 7.94
- Thickness: 2.78
- Hole Dia: 3.15

---

*Note: Nose radius cannot be selected as the insert is for chamfering.*

---

**Recommended Application**

- **P**: Steel
- **M**: Stainless Steel
- **K**: Cast Iron
- **N**: Non-Ferrous Metal
- **S**: Exotic Alloy
- **H**: Hardened Steel

---

**Grade Selection**

- A2, A3

**Chipbreaker Selection**

- B10 on

---

**Recommended Cutting**

- 1st Recommended: Continuous Cutting
- 2nd Recommended: Continuous Cutting
- General Cutting
- Interrupted Cutting

---

**Insert Grade Selection by Work Material**

- A10 on
## IGETALLOY
### Square Type Negative Inserts

#### SN Square Type Neg. With Hole

**Insert**

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
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<tbody>
<tr>
<td>ST</td>
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<td>SNGG 090304R-ST 090304L-ST 090308R-ST 090308L-ST</td>
<td>0.4 0.4 0.8 0.8</td>
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<tr>
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<td>0.4 0.4 0.8 0.8</td>
</tr>
<tr>
<td>GU</td>
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<td>0.4 0.8</td>
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<tr>
<td>UX</td>
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<td>SNMG 090308N-UX</td>
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<tr>
<td>UG</td>
<td></td>
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<tr>
<td>UZ</td>
<td></td>
<td>SNMG 090312N-UZ</td>
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<tr>
<td>C</td>
<td></td>
<td>SNGG 090300-C</td>
<td>(0.8)</td>
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</table>

**Recommended Work Material**

- Steel
- Stainless Steel
- Cast Iron
- Non-Ferrous Metal
- Exotic Alloy
- Hardened Steel

**Application Range**

- Continuous Cutting 1st Recommended
- Continuous Cutting 2nd Recommended
- General Cutting 1st Recommended
- General Cutting 2nd Recommended
- Interrupted Cutting 1st Recommended
- Interrupted Cutting 2nd Recommended

**Coated Carbide**

**Cermet Carbide**

**SNGG**

<table>
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<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Coated Carbide</th>
<th>Cermet Carbide</th>
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<tr>
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<td>SNGG 090300-C</td>
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**Dimensions**

- Cutting Edge Length L 9.525
- Thickness S 3.18
- Inscribed Circle IC 9.525
- Hole Dia. D1 3.81

**Applicable External Holders**

- C18 to C22

*1: Photo shows left hand.*
# IGETALLOY

## Square Type Negative Inserts

### Square Type

**Neg.**

**With Hole**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Cutting Edge Length L</th>
<th>Thickness S</th>
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</thead>
<tbody>
<tr>
<td>SN</td>
<td>12.7</td>
<td>4.76</td>
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**Applicable Internal Holders**

- SUMIBORON (CBN) Inserts
- SUMIDIA Binderless Inserts
- Ceramic Inserts

**Applicable External Holders**

- E45 to E47

### Recommended Application

- **Hardened Steel**
- **Exotic Alloy**
- **Non-Ferrous Metal**
- **Stainless Steel**
- **Steel**

### Grade Selection

- **A2, A3**
- **Chipbreaker Selection**
- **B10 on**

### Insert Grade Selection by Work Material

- **A10 on**

### Insert

**Shape**

- **FB**
- **FL**
- **FE**
- **LU**
- **SU**
- **SE**
- **EF**
- **GX**
- **SX**
- **EX**

**Application Range**

- **Light Cutting**
- **Light to Medium Cutting**
- **Finishing**

**Cat. No.**

- **SNMG 120404N-FB**
- **120408N-FB**
- **SNMG 120408N-FL**
- **SNMG 120408N-FL**
- **SNMG 120408N-FE**
- **120412N-FE**
- **SNMG 120408N-LU**
- **120412N-LU**
- **SNMG 120408N-SU**
- **120412N-SU**
- **SNMG 120408N-SE**
- **120412N-SE**
- **SNMG 120408N-EF**
- **120412N-EF**
- **SNMG 120404R-GX**
- **120408R-GX**
- **120408L-GX**
- **120412R-GX**
- **120412L-GX**
- **SNMG 120404N-SX**
- **120408N-SX**
- **120412N-SX**
- **SNMG 120404N-EX**
- **120408N-EX**
- **120412N-EX**

**Nose Radius**

- **RE**

**Grade Selection**

- **A2, A3**

**Chipbreaker Selection**

- **B10 on**

**Insert Grade Selection by Work Material**

- **A10 on**

**Selection**

- **General Cutting**
- **Continuous Cutting**
- **Interrupted Cutting**

**Material**

- **Continuous Cutting 1st Recommended**
- **Continuous Cutting 2nd Recommended**
- **General Cutting 1st Recommended**
- **General Cutting 2nd Recommended**

**Selection**

- **Grade**
- **Chipbreaker**
- **Work**
- **Material**

**Grade**

- **A10 on**

- **B10 on**

**Chipbreaker**

- **Continuous Cutting 1st Recommended**
- **Continuous Cutting 2nd Recommended**
- **General Cutting 1st Recommended**
- **General Cutting 2nd Recommended**

**Work**

- **Material**

**Insert**

- **SN**
- **Square Type**
- **Negative**
- **With Hole**

**Ceramic Inserts**

- **B128**

**Coated Carbide**

**Coated Cermet**

**Cermet Carbide**

**Solid CBN**

**Indexable Insert**

---

**Image Description**

- **Image of Insert**
- **Photo**
- **Left Hand**

---

**Table Data**

<table>
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<th>Shape</th>
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**Diagram**

- **SN**
- **120404N**
- **Cutting Edge Length L**
- **Thickness S**

---

**Notes**

- **Special Features**
- **Applications**
- **Material Compatibility**

---

**Further Details**

- **Additional Information**
- **Technical Specifications**
- **Customer Support**
### IGETALLOY

#### Square Type Negative Inserts

**Indexable Insert**

**SN Square Type Neg. With Hole**

<table>
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<tr>
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</table>

- **B** Series
- **C128** Applicable Internal Holders
- **E4S to E47**
IGETALLOY

Square Type Negative Inserts

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
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<tbody>
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<td>ME</td>
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* Nose radius cannot be selected as the insert is for chamfering.

**Recommendations**
- **Continuous Cutting 1st Recommended**: Continuous Cutting 1st Recommended
- **Continuous Cutting 2nd Recommended**: Continuous Cutting 2nd Recommended
- **General Cutting 1st Recommended**: General Cutting 1st Recommended
- **General Cutting 2nd Recommended**: General Cutting 2nd Recommended
- **Interrupted Cutting 1st Recommended**: Interrupted Cutting 1st Recommended
- **Interrupted Cutting 2nd Recommended**: Interrupted Cutting 2nd Recommended
- **General Use**: General Use
- **Special Use**: Special Use

**Grade Selection**
- A2, A3
- B10 on
- C17 to C22

**Material Compatibility**
- Steel
- Stainless Steel
- Cast Iron
- Non-Ferrous Metal
- Stainless Steel
- Multi-Material

**Chipbreaker**
- ST10P
- ST20E
- A30
- G10E
- EH510
- EH520
- H1
- T1000
- T1500
- T3000
- A10
- A2, A3
- C
- D
- E
- F
- G
- H
- I
- J
- K
- L
- M
- N
- O
- P
- Q
- R
- S
- T
- U
- V
- W
- X
- Y
- Z

**BNeg.Pos.**
- Solid CBN
- Coated Carbide
- Coated Cermet
- Ceramic

**Applicable Holders**
- E45 to E47

**Recommended Application**
- Hardened Steel
- Exotic Alloy
- Non-Ferrous Metal
- Cast Iron
- Stainless Steel
- Steel

**Inscribed Circle IC**
- D1 5.16
### Square Type Negative Inserts - IGETALLOY

**B44**

#### Insert

**SN**

- **Shape**: Square Type Negative
- **With Hole**

#### Shape and Application Range

<table>
<thead>
<tr>
<th>Shape</th>
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<th>Cat. No.</th>
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</table>

#### Dimensions (mm)

- Cutting Edge Length L: 12.7
- Thickness S: 4.76
- Inscribed Circle IC: 12.7
- Hole Dia. D1: 5.16

#### Materials

- Coated Carbide
- Sumiboron (CBN) Inserts L58 on Sumidia Binderless Inserts M28
- Ceramic Inserts B128

#### Applicable External Holders

- C17 to C22

#### Applicable Internal Holders

- E45 to E47

---

For more information on inserts, materials, and holders, refer to the specific sections in the manual. The page provides a detailed overview of insert types, dimensions, and application ranges, alongside compatibility with various materials and holders.
### IGALLOY
#### Square Type Negative Inserts

| SN | 1506 ●●● |  

**Applicable External Holders**: C17 to C20

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<th>Cat. No.</th>
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<td>SNMG 150612N-GZ</td>
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</table>

**Dimensions**: 
- Cutting Edge Length L: 15.875 mm
- Thickness S: 6.35 mm
- Inscribed Circle: 15.875 mm
- Hole Dia. D1: 6.35 mm

**Material**: 
- Stainless Steel
- Cast Iron
- High-Speed Steel
- Exotic Alloy
- Hardened Steel

**Chipbreaker**: 
- Continuous Cutting 2nd Recommended
- General Cutting 2nd Recommended
- Interrupted Cutting 1st Recommended

**Grade Selection**: A2, A3
**Chipbreaker Selection**: B10 on
**Insert Grade Selection by Work Material**: A10 on

**Coated Carbide**

<table>
<thead>
<tr>
<th>Coated Carbide</th>
<th>Coated Cermet</th>
<th>Cermet</th>
<th>Carbide</th>
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**Indexable Insert**
**IGEALLOY**

**Square Type Negative Inserts**

<table>
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<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
<th>Coated Carbide</th>
<th>Carbide</th>
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**Dimensions (mm):**
- Cutting Edge Length L: 15.875
- Thickness S: 6.35
- Inscribed Circle IC: 15.875
- Hole Dia. D1: 6.35

**Applicable External Holders:** C17 to C20

**Ceramics Solid CBN**
### IGETALLOY

#### Square Type Negative Inserts

**Indexable Insert**

- **Shape**
  - EX
  - UX
  - UG
  - EG
  - MU
  - EM
  - ME
  - MX
  - UZ
  - GZ
  - MP

- **Application Range**

- **Cat. No.**
  - SNMG 190612N-EX
  - SNMG 190612N-UX
  - SNMG 190612N-UG
  - SNMG 190612N-EG
  - SNMA 190612
  - SNMG 190612N-MU
  - SNMG 190612N-EM
  - SNMG 190612N-ME
  - SNMG 190612N-MX
  - SNMG 190612N-GZ
  - SNMM 190612N-MP

- **Nose Radius**
  - RE: 1.2
  - IC: 0.8

- **Other Specifications**
  - **Dimensions**
    - Cutting Edge Length: 19.05 mm
    - Thickness: 6.35 mm
    - Hole Dia.: 7.94 mm
  - **Inscribed Circle**: 19.05 mm
  - **Radius**: 1.2 mm
  - **Hole Dia. D1**: 7.94 mm
  - **Material**: Hardened Steel
  - **Grade Selection**: A2, A3

- **Selection of Insert Grade by Work Material**
  - **Coated Carbide**
    - Coated Carbide
    - Coated Carbide
    - Coated Carbide
  - **Coated Cermet**
    - Coated Cermet
    - Coated Cermet
    - Coated Cermet
  - **Carbide**
    - Carbide
    - Carbide
    - Carbide

- **Chipbreaker Selection**: B10, B20

- **Application External Holders**: C17 to C20

- **Application Internal Holders**: E46, E46

- **Range Cat. No.**
  - C17 to C20

- **Material Grades**
  - Hardened Steel
  - Exotic Alloy
  - Non-Ferrous Metal
  - Cast Iron
  - Stainless Steel
  - Steel

- **Chip Breaker Grades**
  - A30
  - A10
  - G10E
  - EH510
  - EH520
  - H1

- **Grade Selection**
  - General Cutting: 1st Recommended
  - General Cutting: 2nd Recommended

- **Selection of Grade**
  - A30
  - A10
  - G10E
  - EH510
  - EH520
  - H1

- **Selection of Material**
  - WCeramics
  - Ceramics
  - Solid CBN

- **Material Grades**
  - Coated Carbide
  - Coated Cermet
  - Carbide

- **Indexable Insert**

---

**B47**
IGETALLOY

Square Type Negative Inserts

SN

Square Type
Neg.
With Hole

Information in “Shape” column

Name of Chipbreaker

Chipbreaker

Rake Angle

FL

0.6 0.4 0.20

1

2

3

Feed Rate (f) (mm/rev)

Depth of Cut ap (mm)

Recommended Work Material

10°

Application Range

Indexable Insert

Continuous Cutting 1st Recommended

Continuous Cutting 2nd Recommended

General Cutting 1st Recommended

General Cutting 2nd Recommended

Interrupted Cutting 1st Recommended

Interrupted Cutting 2nd Recommended

Recommended Application

P

Steel

M

Stainless Steel

K

Cast Iron

N

Non-Ferrous Metal

S

Exotic Alloy

H

Hardened Steel

Insert

B

Neg. Pos.

C

D

R

S

T

V

WCeramics

Solid CBN

Shape Application

Range Cat. No.

Nose Radius RE

SNMM 190612N-HG

1.2

190616N-HG

1.6

190624N-HG

2.4

Coated Carbide

Carbide

SNMM 190612N-HP

1.2

190616N-HP

1.6

190624N-HP

2.4

Heavy Cutting

SN

■■

1906

●●

Dimensions (mm)

Cutting Edge Length L 19.05 Thickness S 6.35 Inscribed Circle IC 19.05 Hole Dia. D1 7.94

Applicable External Holders E17 to C20 Applicable Internal Holders E46 E46

Heavy Cutting

C

D

R

S

T

V

WCeramics

Solid CBN
# IGETALLOY

## Square Type Negative Inserts

### Insert: SN

#### Neg. With Hole

<table>
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<tr>
<th>Insert</th>
<th>Square Type 2507 ○○ ○</th>
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</table>

#### Dimensions
- Cutting Edge Length: 19.05
- Thickness S: 7.94
- Inscribed Circle: 19.05
- Hole Dia. D1: 9.2

#### Applicable External Holders: C17, C18, C20

### Shape Application Range

<table>
<thead>
<tr>
<th>Shape</th>
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<th>Cat. No.</th>
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</thead>
<tbody>
<tr>
<td>Medium Cutting</td>
<td></td>
<td></td>
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#### UG

- SNMG 250724N-UG
- Nose Radius RE

#### MP

- SNMM 250724N-MP
- Nose Radius RE

#### HP

- SNMM 250724N-HP
- Nose Radius RE

#### HU

- SNMM 250724N-HU
- Nose Radius RE

#### HW

- SNMM 250724N-HW
- Nose Radius RE

#### HF

- SNMM 250724N-HF
- Nose Radius RE

#### Recommended Cutting

- Coated Carbide
- Coated Cermet
- Cermet
- Cermet Carbide
- Cermet CBN
- WCeramics
- Solid CBN

#### Recommended Application

- P: Steel
- M: Stainless Steel
- K: Cast Iron
- N: Non-Ferrous Metal
- S: Exotic Alloy
- H: Hardened Steel

---

**Note:**
- Dimensions (mm): Cutting Edge Length L: 19.05, Thickness S: 7.94, Inscribed Circle IC: 19.05, Hole Dia. D1: 9.2.
# IGETALLOY

## Square Type Negative Inserts

### Indexable Insert

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#### Information in “Shape” column

- **Name of Chipbreaker**
- **Chipbreaker**
- **Rake Angle**
- **FL**
- **0.6 0.4 0.2 0.0**
- **1 2 3**
- **Feed Rate (f) (mm/rev)**
- **Depth of Cut (ap) (mm)**
- **Recommended Work Material**
- **10°**
- **Application Range**

- **Indexable Insert**: Continuous Cutting 1st Recommended, Continuous Cutting 2nd Recommended, General Cutting 1st Recommended, General Cutting 2nd Recommended, Interrupted Cutting 1st Recommended, Interrupted Cutting 2nd Recommended

#### Recommended Application

- **P**: Steel
- **M**: Stainless Steel
- **K**: Cast Iron
- **N**: Non-Ferrous Metal
- **S**: Exotic Alloy
- **H**: Hardened Steel

#### Recommended Insert

- **B**: Neg.Pos.
- **C**: D
- **R**: S
- **T**: V
- **WCeramics**: Solid CBN

#### Shape Application Range

<table>
<thead>
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<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
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#### Coated Carbide

<table>
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- **Coated Carbide**

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#### Dimensions (mm)

- **Cutting Edge Length L**: 25.4
- **Thickness S**: 9.52
- **Inscribed Circle IC**: 25.4
- **Hole Dia. D1**: 9.2

#### Applicable External Holders C17, C18

<table>
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<tr>
<th>Applicable External Holders</th>
<th>C17, C18</th>
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#### Medium Cutting

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#### Heavy Cutting

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#### Details

- **SN 250932N-HF**: 3.2

---

**B50**

---

**Information in “Shape” column**

- **Recommended Chipbreaker**
- **Recommended Application**

- **Coated Carbide**
- **Cores**
- **Carbide**

---

**Note:** The information provided is a representation of the data in the image and may not be comprehensive or entirely accurate. For detailed and precise information, please refer to the original source or manufacturer's specifications.
### IGETALLOY

#### Square Type Negative Inserts

**Square Type**
Neg.  
With Hole

**SN**

### Dimensions
- Cutting Edge Length L: 31.75 mm
- Thickness S: 9.52 mm
- Inscribed Circle IC: 31.75 mm
- Hole Dia. D1: 8.8 mm

### Insert

**SN 3109**

<table>
<thead>
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<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
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<td>HF</td>
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</table>

**Coated Carbide**

- Insert Grade Selection A2, A3
- Chipbreaker Selection B10
- Insert Grade Selection by Work Material A10

**Recommended Application**
- P: Steel
- M: Stainless Steel
- K: Cast Iron
- N: Non-Ferrous Metal
- S: Exotic Alloy
- H: Hardened Steel

**BNeg.Pos.**

- C: Coated Carbide
- D: Cermet
- R: Cermet Carbide
- S: WCeramics
- T: Solid CBN

**Insert Shape**

- SN: Square Type
- SN: With Hole

**Dimensions (mm)**
- Cutting Edge Length L: 31.75
- Thickness S: 9.52
- Inscribed Circle IC: 31.75
- Hole Dia. D1: 8.8

**SN 3109**

- Dimensions
  - Cutting Edge Length L: 31.75 mm
  - Thickness S: 9.52 mm
  - Inscribed Circle IC: 31.75 mm
  - Hole Dia. D1: 8.8 mm

**SNMM 310924N**

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<td>HU</td>
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<td>HW</td>
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<td>HF</td>
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**Recommended Application**
- P: Steel
- M: Stainless Steel
- K: Cast Iron
- N: Non-Ferrous Metal
- S: Exotic Alloy
- H: Hardened Steel

**BNeg.Pos.**

- C: Coated Carbide
- D: Cermet
- R: Cermet Carbide
- S: WCeramics
- T: Solid CBN

**Insert Shape**

- SN: Square Type
- SN: With Hole

**Dimensions (mm)**
- Cutting Edge Length L: 31.75
- Thickness S: 9.52
- Inscribed Circle IC: 31.75
- Hole Dia. D1: 8.8
### IGETALLOY

**Square Type Negative Inserts**

**Indexable Insert**

#### SN

**Square Type**
**Neg. Without Hole**

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#### Shape Application Range

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</table>

#### Coated Carbide

#### Contact Center

#### Carbide

---

**Guidelines for Selection:**
- **Medium Cutting**
- **Continuous Cutting**
- **Interrupted Cutting**
- **Application Range**

#### Recommended Work Material

- Steel
- Stainless Steel
- Cast Iron
- Non-Ferrous Metal
- Exotic Alloy
- Hardened Steel

---

**SUMIBORON (CBN) Inserts**

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**Ceramic Solid CBN**

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<th>Solid CBN</th>
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**SN**

**Square Type**

**Neg.**

**Without Hole**
### IGETALLOY

**Square Type Negative Inserts**

**Indexable Insert**

#### SN

**Square Type Neg. Without Hole**

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#### SN

**Square Type Neg. With Hole**

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#### SN

**Square Type Neg. With Hole**

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### IGETALLOY

**Triangular Type Negative Inserts**

#### TN

**Triangular Type**  
**Neg.**  
**With Hole**

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<th>Shape</th>
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<th>Nose Radius (mm)</th>
<th>Coated Carbide</th>
<th>Solid CBN</th>
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- **D**: Continuous Cutting  
- **C**: General Cutting  
- **B**: Interrupted Cutting

---

*1: Photo shows left hand.

**Dimensions (mm)**
- Cutting Edge Length L: 9.6
- Thickness S: 2.38
- Inscribed Circle IC: 5.56
- Hole Dia. D1: 2.57

#### TN

**Triangular Type**  
**Neg.**  
**With Hole**

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius (mm)</th>
<th>Coated Carbide</th>
<th>Solid CBN</th>
</tr>
</thead>
<tbody>
<tr>
<td>GX</td>
<td>Light Cutting</td>
<td>TNGG 110302R-GX</td>
<td>0.2</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110302L-GX</td>
<td>0.2</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110304R-GX</td>
<td>0.4</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110304L-GX</td>
<td>0.4</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110308R-GX</td>
<td>0.8</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110308L-GX</td>
<td>0.8</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

- **D**: Continuous Cutting  
- **C**: General Cutting  
- **B**: Interrupted Cutting

---

*1: Photo shows left hand.

**Dimensions (mm)**
- Cutting Edge Length L: 11.0
- Thickness S: 3.18
- Inscribed Circle IC: 6.35
- Hole Dia. D1: 2.26

#### TN

**Triangular Type**  
**Neg.**  
**With Hole**

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius (mm)</th>
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<th>Solid CBN</th>
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<tr>
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<td></td>
<td></td>
<td>110302L-FT</td>
<td>0.2</td>
<td>○</td>
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<td>○</td>
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<td></td>
<td>110304L-FT</td>
<td>0.4</td>
<td>○</td>
<td>○</td>
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<td></td>
<td></td>
<td>110308R-FT</td>
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<td>○</td>
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<td></td>
<td>110308L-FT</td>
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<td>○</td>
<td>○</td>
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</tbody>
</table>

**Applicable External Holders**: C28 to C30

- **D**: Continuous Cutting  
- **C**: General Cutting  
- **B**: Interrupted Cutting

---

*1: Photo shows left hand.

**Dimensions (mm)**
- Cutting Edge Length L: 14.0
- Thickness S: 4.38
- Inscribed Circle IC: 8.35
- Hole Dia. D1: 2.86

---

Additional notes:
- *1: Photo shows left hand.
- Coated Carbide: ○  
- Solid CBN: ○
## Triangular Type Negative Inserts

### TN with Hole

#### TN 11T2

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
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<tr>
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<td>11T204L-GX</td>
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*1: Photo shows left hand.

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<tr>
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<td>130308L-GX</td>
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*1: Photo shows left hand.

### TN 1603

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<tr>
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<td>TNMG 160304N-SX</td>
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<td>160308N-SX</td>
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*1: Photo shows left hand.
# Triangular Type Negative Inserts

## Indexable Insert

### Triangular Type Neg. With Hole

**TN 1603**

**Details:**
- Cutting Edge Length: 16.5
- Thickness: 3.18

**Applicable External Holders:** C28 to C31, D16, D20

**Coated Carbide**

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
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</thead>
<tbody>
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<td></td>
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<td>160308</td>
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<tr>
<td>160312</td>
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<tr>
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<td>160312</td>
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**Coated Carbide**

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<th>Application Range</th>
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<th>Nose Radius RE</th>
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<td>160408N-SU</td>
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# Triangular Type Negative Inserts

**TN**

**Neg. With Hole**

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<th>Dim.</th>
<th>Cutting Edge Length</th>
<th>Thickness</th>
<th>Hole Dia.</th>
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</thead>
<tbody>
<tr>
<td>mm</td>
<td>16.5</td>
<td>4.76</td>
<td>3.81</td>
</tr>
</tbody>
</table>

### Triangular Type Triangular Type Negative Inserts

#### Inscribed Circle:
- IC 9.525
- Hole Dia. D1 3.81

#### Insert Selections:
- **SU**: 160402N-SU
  - TNGG 160402N-SU
  - 160402N-SU
  - 160408N-SU
- **SE**: 160404N-SE
  - TNMG 160404N-SE
  - 160404N-SE
  - 160408N-SE
  - 160412N-SE
- **EF**: 160404N-EF
  - TNMG 160404N-EF
  - 160404N-EF
  - 160408N-EF
- **FY**: 160401R-FY
  - TNGG 160401R-FY
  - 160404R-FY
  - 160408R-FY
  - 160412R-FY
- **FX**: 160404R-FX
  - TNGG 160404R-FX
  - 160408R-FX
- **ST**: 160404R-ST
  - TNGG 160404R-ST
  - 160408R-ST
  - 160412R-ST
- **GX**: 160404R-GX
  - TNGG 160404R-GX
  - 160408R-GX
  - 160412R-GX
- **SX**: 160404N-SX
  - TNMG 160404N-SX
  - 160408N-SX
  - 160412N-SX

**Grade Selection**: A2, A3

**Chipbreaker Selection**: B10 on

**Insert Grade Selection by Work Material**: A10 on

---

*1: Photo shows left hand.
## Triangular Type Negative Inserts

**IGETALLOY**

**Triangular Type**
**Neg. With Hole**

### Dimensions
- Cutting Edge Length: L
- Thickness: S
- Inscribed Circle Diameter: IC
- Hole Diameter: D1

### Applicable External Holders
- SUMIBORON (CBN) Inserts

### Dimensions (mm)
- Medium Cutting
  - HP TNMM 160408N-HP
  - MP TNMM 160404N-MP
- Hard Cutting
  - HP TNMM 160408N-HP
  - 160412N-HP

### Inscribed Circle IC 9.525
- Hole Dia. D1 3.81
- Cutting Edge Length L 16.5
- Thickness S 4.76

### Recommendations
- Stainless Steel
- Cast Iron
- Non-Ferrous Metal
- Exotic Alloy
- Hardened Steel
- Steel

### Grade Selection
- A2, A3
- B10

### Chipbreaker Selection
- B10 on

### Insert Grade Selection by Work Material
- A10 on

---

### Insert Cat. No.
- TN 160402
- 160404
- 160408
- 160412
- 160416

### Medium Cutting
- MU TNMG 160408N-MU
- 160412N-MU
- EM TNMG 160408N-EM
- 160412N-EM
- ME TNMG 160408N-ME
- 160412N-ME
- MX TNMG 160408N-MX
- 160412N-MX

### Medium to Roughing
- UZ TNMG 160404N-UZ
- 160408N-UZ
- 160412N-UZ
- 160416N-UZ
- 160420N-UZ

### Heavy Cutting
- HM TNMG 160404R-HM
- 160404L-HM
- 160408R-HM
- 160408L-HM

### Other Inserts
- MM TNMG 160404R-MM
- 160404L-MM
- 160408R-MM
- 160408L-MM

---

### Coated Carbide

---

### Coated Insert

---

### Carbide

---

---

---

---
**IGETALLOY**

**Triangular Type Negative Inserts**

### Triangular Type Neg. With Hole

#### TN □ 1604

<table>
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<th>TN □ 1604 □</th>
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<tbody>
<tr>
<td>Shape</td>
<td>AX, GH</td>
</tr>
<tr>
<td>Pos.</td>
<td>AX, GH</td>
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<tr>
<td>Cat. No.</td>
<td>TNGG 160402-AX, 160404-AX, 160408-AX</td>
</tr>
<tr>
<td>Nose Radius RE</td>
<td>0.2, 0.4, 0.8</td>
</tr>
</tbody>
</table>

#### Dimensions (mm)
- Cutting Edge Length L: 16.5
- Thickness S: 4.76
- Inscribed Circle IC: 9.525
- Hole Dia. D1: 3.81

#### Recommended Application
- For Aluminum
- Stainless Steel
- Cast Iron
- Non-Ferrous Metal
- Exotic Alloy

#### Recommended Work Material
- P: Steel
- M: Stainless Steel
- K: Cast Iron
- N: Non-Ferrous Metal
- S: Exotic Alloy
- H: Hardened Steel

#### Insert Types
- SUMIBORON (CBN) Inserts
- SUMIDIA (PCD) Inserts
- Ceramic Inserts

#### Applicable External Holders
- C25 to C31, D16, D20

#### Applicable Internal Holders
- E55 to E57
IGETALLOY

Triangular Type Negative Inserts

**Triangular Type**

**Neg.**

**With Hole**

---

**TN2204**

- **Directions:** Cutting Edge Length L 22.0, Thickness S 4.76, Hole Dia. D1 5.16

**SUMIBORON (CBN) Inserts**

---

**Recommended Application**

- **Stainless Steel**
- **Cast Iron**
- **Non-Ferrous Metal**
- **Exotic Alloy**
- **Hardened Steel**

---

**Chipbreaker**

- **ST20E**
- **A30**
- **EH510**
- **EH520**
- **EH530**

**Grade Selection**

- **A2, A3**
- **A10**

---

**Insert Grade Selection **

- **B10 on**

---

**Material**

- **Ceramic**
- **Solid CBN**
- **WCeramics**
- **Cermet Carbide**

---

**Note:** Photo shows left hand.

---

**Inserts**

**Neg.**

<table>
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<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
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</tbody>
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*1: Photo shows left hand.
### IGETALLOY

#### Triangular Type Negative Inserts

**Indexable Insert**

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius</th>
<th>Coated Carbide</th>
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<tr>
<td>MP</td>
<td>0.8</td>
<td>TNMM 22048N-MP</td>
<td>0.8</td>
<td>Q QQQQQ Q</td>
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<tr>
<td>HG</td>
<td>0.8</td>
<td>TNMM 22048N-HG</td>
<td>0.8</td>
<td>Q QQQQQ Q</td>
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<tr>
<td>HP</td>
<td>0.8</td>
<td>TNMM 22048N-HP</td>
<td>0.8</td>
<td>Q QQQQQ Q</td>
</tr>
</tbody>
</table>
IGETALLOY

Triangular Type Negative Inserts

### TN 2706

**Dimensions**
- Cutting Edge Length L: 27.5 mm
- Thickness S: 6.35 mm
- Inscribed Circle IC: 15.875 mm
- Hole Dia. D1: 6.35 mm

**Shape**
- UG (Uniform Groove)
- MU (Medium to Roughing)
- UZ (Uniform to Zebra)
- MP (Medium to Heavy)
- HP (Heavy Cutting)

**Application Range**
- Medium Cutting
- Medium to Roughing
- Medium to Heavy Cutting
- Heavy Cutting

**Coated Carbide**

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
</tr>
</thead>
<tbody>
<tr>
<td>UG</td>
<td>Medium Cutting</td>
<td>TNMG 270624N-UG</td>
<td>1.2, 1.6</td>
</tr>
<tr>
<td>MU</td>
<td>Medium to Roughing</td>
<td>TNMG 270624N-MU</td>
<td>1.2, 1.6</td>
</tr>
<tr>
<td>UZ</td>
<td>Medium to Heavy</td>
<td>TNMG 270624N-UZ</td>
<td>1.2, 1.6</td>
</tr>
<tr>
<td>MP</td>
<td>Heavy Cutting</td>
<td>TNMM 270624N-MP</td>
<td>1.2, 1.6</td>
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</tbody>
</table>

**Recommended Application**
- P: Steel
- M: Stainless Steel
- K: Cast Iron
- N: Non-Ferrous Metal
- S: Exotic Alloy
- H: Hardened Steel

**Insertable External Holders**
- C26, C27

### TN 3309

**Dimensions**
- Cutting Edge Length L: 33.0 mm
- Thickness S: 9.52 mm
- Inscribed Circle IC: 19.05 mm
- Hole Dia. D1: 7.93 mm

**Shape**
- EM (Extruded Material)

**Application Range**
- Medium to Roughing

**Coated Carbide**

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
</tr>
</thead>
<tbody>
<tr>
<td>EM</td>
<td>Medium to Roughing</td>
<td>TNMG 330924N-EM</td>
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</table>

**Recommended Application**
- P: Steel
- M: Stainless Steel
- K: Cast Iron
- N: Non-Ferrous Metal
- S: Exotic Alloy
- H: Hardened Steel

**Insertable External Holders**
- C26, C27

---

**Grade Selection**
- A2, A3

**Chipbreaker Selection**
- B10

**Insert Grade Selection by Work Material**
- B10 on

---

**Recommended Grades**
- M: Stainless Steel
- K: Cast Iron
- N: Non-Ferrous Metal
- S: Exotic Alloy
- H: Hardened Steel
### IGETALLOY

#### Triangular Type Negative Inserts

**Indexable Insert**

---

**TN**

**Triangular Type Neg. Without Hole**

---

### TN 160300

**Recommended Application**

- **P**: Steel
- **M**: Stainless Steel
- **K**: Cast Iron
- **N**: Non-Ferrous Metal
- **S**: Exotic Alloy
- **H**: Hardened Steel

### TN 160300

#### Coated Carbide

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TNM 160304</td>
<td>Medium Cutting</td>
<td>160308</td>
<td>0.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.8</td>
</tr>
<tr>
<td>TNGN 160304</td>
<td>Medium Cutting</td>
<td>160308</td>
<td>0.4</td>
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<td></td>
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</tbody>
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### TN 160400

#### SUMIBORON (CBN) Inserts

- **L70**: Applicable External Holders [L100]

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TNM 160404</td>
<td>Medium Cutting</td>
<td>160408</td>
<td>0.4</td>
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<td></td>
<td></td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1.6</td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
<td>TNGN 160404</td>
<td>Medium Cutting</td>
<td>160408</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1.2</td>
</tr>
</tbody>
</table>

---

**Notes:**

- **Recommended Application**
- **Name of Chipbreaker**
- **Rake Angle**
- **FL**
- **0.6 0.4 0.20**
- **1**
- **2**
- **3**
- **Feed Rate (f) (mm/rev)**
- **Depth of Cut ap (mm)**
- **Recommended Work Material**
- **10°**
- **Application Range**
- **Indexable Insert**

---

**Dimensions (mm):**

- **Cutting Edge Length L**: 16.5
- **Thickness S**: 3.18
- **Inscribed Circle IC**: 9.525

**SUMIBORON (CBN) Inserts**

- **L70**: Applicable External Holders [L100]

**Notes:**

- **Coated Carbide**
- **Cermet**
- **Cermet Carbide**
- **WCeramics**
- **Solid CBN**

---

**Notes:**

- **Shape Application Range**
- **Cat. No.**
- **Nose Radius RE**
- **Carbide**

---

**Notes:**

- **Recommended Application**
- **Name of Chipbreaker**
- **Rake Angle**
- **FL**
- **0.6 0.4 0.20**
- **1**
- **2**
- **3**
- **Feed Rate (f) (mm/rev)**
- **Depth of Cut ap (mm)**
- **Recommended Work Material**
- **10°**
- **Application Range**
- **Indexable Insert**

---

**Notes:**

- **Dimensions (mm):**
- **Cutting Edge Length L**: 16.5
- **Thickness S**: 4.76
- **Inscribed Circle IC**: 9.525

---

**Notes:**

- **Recommended Application**
- **Name of Chipbreaker**
- **Rake Angle**
- **FL**
- **0.6 0.4 0.20**
- **1**
- **2**
- **3**
- **Feed Rate (f) (mm/rev)**
- **Depth of Cut ap (mm)**
- **Recommended Work Material**
- **10°**
- **Application Range**
- **Indexable Insert**

---

**Notes:**

- **Dimensions (mm):**
- **Cutting Edge Length L**: 16.5
- **Thickness S**: 4.76
- **Inscribed Circle IC**: 9.525
**IGETALLOY**

**Triangular Type Negative Inserts**

**Recommended Application**
- P: Steel
- M: Stainless Steel
- K: Cast Iron
- N: Non-Ferrous Metal
- S: Exotic Alloy
- H: Hardened Steel

**Grade Selection**
- A2, A3

**Chipbreaker Selection**
- B10

**Insert Grade Selection**
- A10

---

### Triangular Type Negative Inserts

**Shapes**
- Without Hole

**Inserts**
- TN MN 1607 12
- TN MN 2204 08
- TN MN 2204 12
- TN MN 2204 16

**Dimensions**
- Cutting Edge Length L
- Thickness S
- Inscribed Circle IC

**Materials**
- Stainless Steel
- Cast Iron
- Non-Ferrous Metal
- Exotic Alloy
- Hardened Steel

**Grade Selection**
- A2, A3

**Chipbreaker Selection**
- B10

**Insert Grade Selection**
- A10

---

### Ceramic Inserts

**B128**

**Application Range**
- TNGN 160712
- TNGN 220404
- TNGN 220408

**Nose Radius**
- 0.8
- 1.2
- 1.6

---

### Coated Carbide

**Cat. No.**
- B10
- CBN
- WCeramics

---

### Insert

**Neg.**

**Pos.**

**Ceramics**

---

**Shape**
- Medium Cutting

---

**Shape**
- Medium Cutting

---

**Shape**
- Medium Cutting

---

**Shape**
- Medium Cutting

---

**Shape**
- Medium Cutting
### 35° Diamond Type Negative Inserts

**Indexable Insert**

#### Insert VN 1604 C 160404N-SX

- **Device**: Cutting Edge Length L 16.6
- **Thickness S**: 4.76
- **Hole Dia. D1**: 3.81
- **Application Range**: General Cutting
- **2nd Recommended**: Interrupted Cutting
- **Name of Chipbreaker**: FL

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FB</td>
<td></td>
<td>VNMG 160404N-FB, 160408N-FB</td>
<td>0.4, 0.8</td>
</tr>
<tr>
<td>FA</td>
<td></td>
<td>VNMG 160404N-FA, 160408N-FA</td>
<td>0.4, 0.8</td>
</tr>
<tr>
<td>FL</td>
<td></td>
<td>VNMG 160404N-FL, 160408N-FL</td>
<td>0.4, 0.8</td>
</tr>
<tr>
<td>FE</td>
<td></td>
<td>VNMG 160402N-FE, 160408N-FE</td>
<td>0.2, 0.8</td>
</tr>
<tr>
<td>LU</td>
<td></td>
<td>VNMG 160402N-LU, 160408N-LU</td>
<td>0.2, 0.8</td>
</tr>
<tr>
<td>SU</td>
<td></td>
<td>VNMG 160402N-SU, 160408N-SU</td>
<td>0.2, 0.8</td>
</tr>
<tr>
<td>SE</td>
<td></td>
<td>VNMG 160404N-SE, 160408N-SE</td>
<td>0.4, 0.8</td>
</tr>
<tr>
<td>EF</td>
<td></td>
<td>VNMG 160402N-EF, 160408N-EF</td>
<td>0.2, 0.8</td>
</tr>
<tr>
<td>FY</td>
<td></td>
<td>VNMG 160402R-FY, 160408R-FY</td>
<td>0.2, 0.8</td>
</tr>
<tr>
<td>FX</td>
<td></td>
<td>VNMG 160402R-FX, 160408R-FX</td>
<td>0.2, 0.8</td>
</tr>
<tr>
<td>SX</td>
<td></td>
<td>VNMG 160404N-SX, 160408N-SX</td>
<td>0.4, 1.2</td>
</tr>
</tbody>
</table>

#### Information in "Shape" column

- **Work Material Recommended**: Non-Ferrous Metal
- **Application**: General Cutting
- **Chipbreaker**: FL

---

**Notes**

1. Photo shows left hand.
### 35° Diamond Type Negative Inserts

#### VN 160404 160412 160408

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius</th>
<th>RE</th>
<th>Grade Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>EX</td>
<td>Light to Medium Cutting</td>
<td>VNMG 160404N-EX 160408N-EX</td>
<td>0.4 0.8</td>
<td>0.4 0.8</td>
<td>A2, A3</td>
</tr>
<tr>
<td>UP</td>
<td>Light to Medium Cutting</td>
<td>VNMG 160404N-UP 160408N-UP</td>
<td>0.4 0.8</td>
<td>0.4 0.8</td>
<td>A2, A3</td>
</tr>
<tr>
<td>GU</td>
<td>Medium Cutting</td>
<td>VNMG 160404N-GU 160408N-GU 160412N-GU</td>
<td>0.4 0.8 1.2</td>
<td>0.4 0.8 1.2</td>
<td>A2, A3</td>
</tr>
<tr>
<td>GE</td>
<td>Medium Cutting</td>
<td>VNMG 160404N-GE 160408N-GE 160412N-GE</td>
<td>0.4 0.8 1.2</td>
<td>0.4 0.8 1.2</td>
<td>A2, A3</td>
</tr>
<tr>
<td>UX</td>
<td>Medium Cutting</td>
<td>VNMG 160404N-UX 160408N-UX 160412N-UX</td>
<td>0.4 0.8 1.2</td>
<td>0.4 0.8 1.2</td>
<td>A2, A3</td>
</tr>
<tr>
<td>UG</td>
<td>Medium Cutting</td>
<td>VNMG 160404N-UG 160408N-UG</td>
<td>0.4 0.8</td>
<td>0.4 0.8</td>
<td>A2, A3</td>
</tr>
<tr>
<td>EG</td>
<td>Medium Cutting</td>
<td>VNMG 160404N-EG 160408N-EG 160412N-EG</td>
<td>0.4 0.8 1.2</td>
<td>0.4 0.8 1.2</td>
<td>A2, A3</td>
</tr>
<tr>
<td>VNMA</td>
<td>Medium to Roughing</td>
<td>160404 160408 160412</td>
<td>0.4 0.8 1.2</td>
<td>0.4 0.8 1.2</td>
<td>A2, A3</td>
</tr>
<tr>
<td>VNGA</td>
<td>Medium to Roughing</td>
<td>160404 160408</td>
<td>0.4 0.8</td>
<td>0.4 0.8</td>
<td>A2, A3</td>
</tr>
<tr>
<td>UZ</td>
<td>Medium to Roughing</td>
<td>VNMG 160404N-UZ 160408N-UZ 160412N-UZ</td>
<td>0.4 0.8 1.2</td>
<td>0.4 0.8 1.2</td>
<td>A2, A3</td>
</tr>
<tr>
<td>GZ</td>
<td>Medium to Roughing</td>
<td>VNMG 160404N-GZ 160408N-GZ 160412N-GZ</td>
<td>0.4 0.8 1.2</td>
<td>0.4 0.8 1.2</td>
<td>A2, A3</td>
</tr>
<tr>
<td>AX</td>
<td>For Aluminium</td>
<td>VNGG 160402R-AX 160404R-AX 160406R-AX 160408R-AX 160410R-AX 160412R-AX 160416R-AX 160420R-AX</td>
<td>0.2 0.4 0.6 0.8</td>
<td>0.2 0.4 0.6 0.8</td>
<td>A2, A3</td>
</tr>
<tr>
<td>GZ</td>
<td>For Aluminium</td>
<td>VNMG 160404N-GZ 160408N-GZ 160412N-GZ</td>
<td>0.4 0.8 1.2</td>
<td>0.4 0.8 1.2</td>
<td>A2, A3</td>
</tr>
</tbody>
</table>

#### Ceramic Inserts

- SUMIDIA (PCD) Inserts
- SUMIBORON (CBN) Inserts
- VN (mm)

#### For Aluminium

- Medium to Roughing
- Light to Medium Cutting

#### Material Grades

- Continuous Cutting
- General Cutting
- Interrupted Cutting

---

**Note:**

- Shapes and categories are applicable for various materials and cutting conditions.
- Grade selection and cutting parameters vary depending on the specific material being processed.
- Always consult the manufacturer’s guidelines for optimal performance and safety.
# 35° Diamond Type Negative Inserts

## VN

### 35° Diamond Type Negative

**With Hole**

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
</tr>
</thead>
<tbody>
<tr>
<td>UZ</td>
<td>VNMG 220408N-UZ</td>
<td>0.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>220412N-UZ</td>
<td>1.2</td>
<td></td>
</tr>
</tbody>
</table>

**Dimensions (mm):**
- Cutting Edge Length L: 22.1
- Thickness S: 4.76
- Inscribed Circle IC: 12.7
- Hole Dia. D1: 5.16

**Information in “Shape” column:**
- Name of Chipbreaker
- Rake Angle
- Feed Rate (f)
- Depth of Cut (ap)

**Recommended Work Material:**
- Steel
- Stainless Steel
- Cast Iron
- Non-Ferrous Metal
- Exotic Alloy
- Hardened Steel

**Coated Carbide**

**Coated Ceramics**

**Cermet Carbide**

**Indexable Insert**

**Solid CBN**

**Coated Carbide**

**Cermet Carbide**

**Coated Ceramics**

**Cermet Carbide**

**Indexable Insert**

**Solid CBN**

**Coated Carbide**

**Cermet Carbide**

**Coated Ceramics**

**Cermet Carbide**

**Indexable Insert**

**Solid CBN**

**Coated Carbide**

**Cermet Carbide**

**Coated Ceramics**

**Cermet Carbide**
### IGETALLOY

#### Trigon Type Negative Inserts

**WN**

**Trigon Type Neg. With Hole**

**WN**

**06T3**

**Dimensions**

- Cutting Edge Length: 6.5
- Thickness: 3.97
- Inscribed Circle: 9.525
- Hole Dia. D1: 3.81

**Recommended Application**

- Hardened Steel
- Exotic Alloy
- Non-Ferrous Metal
- Stainless Steel
- Cast Iron
- Steel
- Non-Ferrous Metal
- Exotic Alloy
- Cast Iron
- Stainless Steel

**Grade Selection**

- A2, A3

**Chipbreaker Selection**

- E10 on

**Insert Grade Selection by Work Material**

- A10 on

**Indexable Insert**

**WN**

**0604**

**Dimensions**

- Cutting Edge Length: 6.5
- Thickness: 4.76
- Inscribed Circle: 9.525
- Hole Dia. D1: 3.81

**Recommended Application**

- Hardened Steel
- Exotic Alloy
- Non-Ferrous Metal
- Stainless Steel
- Cast Iron
- Steel
- Non-Ferrous Metal
- Exotic Alloy
- Cast Iron
- Stainless Steel

**Grade Selection**

- A2, A3

**Chipbreaker Selection**

- E10 on

**Insert Grade Selection by Work Material**

- A10 on

**Indexable Insert**

---

**Shape**

- SU
- UG
- FB
- FE
- LU
- LUW
- SU
- SEW
- EF

**Application Range**

- Finishing
- Medium Cutting
- Fire Cutting
- Finishing

**Cat. No.**

- WNMG 06T304N-SU 06T308N-SU
- WNMG 06T304N-UG 06T308N-UG
- WNMG 060404N-FB 060408N-FB
- WNMG 060404N-Fe 060408N-Fe
- WNMG 060404N-LU 060408N-LU 060412N-LU
- WNMG 060404N-LUW 060408N-LUW
- WNMG 060404N-SU 060408N-SU 060412N-SU
- WNMG 060404N-SEW 060408N-SEW
- WNMG 060404N-EF 060408N-EF

**Nose Radius RE**

- 0.4
- 0.8
# IGETALLOY

## Trigon Type Negative Inserts

### Indexable Insert

**WN**

**Trigon Type Neg. With Hole**

### Insert

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
</tr>
</thead>
<tbody>
<tr>
<td>GU</td>
<td>Medium Cutting</td>
<td>060404N-GU</td>
<td>0.4, 0.8, 1.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>060408N-GU</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>060412N-GU</td>
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<tr>
<td>GE</td>
<td>Medium Cutting</td>
<td>060408N-GE</td>
<td>0.4, 0.8, 1.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>060412N-GE</td>
<td></td>
</tr>
<tr>
<td>GUW</td>
<td>Medium Cutting</td>
<td>060408N-GUW</td>
<td>0.4, 0.8, 1.2</td>
</tr>
<tr>
<td>UG</td>
<td>Medium to Roughing</td>
<td>060404N-UG</td>
<td>0.4, 0.8, 1.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>060408N-UG</td>
<td></td>
</tr>
<tr>
<td>EG</td>
<td>Medium to Roughing</td>
<td>060408N-EG</td>
<td>0.4, 0.8, 1.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>060412N-EG</td>
<td></td>
</tr>
<tr>
<td>MU</td>
<td>Medium to Roughing</td>
<td>060408N-MU</td>
<td>0.4, 0.8, 1.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>060412N-MU</td>
<td></td>
</tr>
<tr>
<td>ME</td>
<td>Medium to Roughing</td>
<td>060408N-ME</td>
<td>0.4, 0.8, 1.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>060412N-ME</td>
<td></td>
</tr>
<tr>
<td>GZ</td>
<td>Medium to Roughing</td>
<td>060408N-GZ</td>
<td>0.4, 0.8, 1.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>060412N-GZ</td>
<td></td>
</tr>
</tbody>
</table>

### Coated Carbide

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
</tr>
</thead>
<tbody>
<tr>
<td>GU</td>
<td>Medium Cutting</td>
<td>060404N-GU</td>
<td>0.4, 0.8, 1.2</td>
</tr>
<tr>
<td></td>
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### Carbide

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### Dimensions

- Cutting Edge Length: 6.5
- Thickness (S): 4.76
- Inscribed Circle (IC): 9.525
- Hole Diameter (D1): 3.81

**Applicable External Holders:** C30
**Applicable Internal Holders:** E20, E21

**Trigon Type Negative Inserts**

- WN
- Coated Carbide
- Carbide
- Medium Cutting
- Medium to Roughing
- Hardened Steel
- Stainless Steel
- Cast Iron
- Non-Ferrous Metal
- Exotic Alloy
- WCeramics
- Solid CBN

**Insert Dimensions:**
- Cutting Edge Length: 6.5
- Thickness: 4.76
- Inscribed Circle: 9.525
- Hole Diameter: 3.81
## IGETALLOY
### Trigon Type Negative Inserts

#### WN Trigon Type Neg. With Hole

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#### SUMIBORON (CBN) Inserts

**Applicable External Holders**
- Wiper
- Wiper

**Applicable Internal Holders**
- IG

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### Coated Carbide

- **WN**: 0.4
- **WNMG**: 0.4
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- **WNMG**: 0.8

### Coated Cermet

- **WN**: 0.4
- **WNMG**: 0.4
- **WNMG**: 0.8
- **WNMG**: 0.8

---

**Recommended Application**

- **HC**: Hardened Steel
- **HE**: Stainless Steel
- **HN**: Steel
- **HP**: Exotic Alloy
- **PS**: Non-Porous Metal

**Chipbreaker Selection**

- **B10**: General Cutting
- **B10**: General Cutting

---

**Grade Selection**

- **A2**: 1st Recommended
- **A3**: 2nd Recommended

---

**Insert Grade Selection**

- **B10**: General Cutting
- **B10**: General Cutting

---

**Material**

- **WCeramics**: Cermet Cermet Carbide
- **BNeg.Pos.**: Solid CBN

---

**Shape Application**

- **FB**: Finishing
- **FA**: Finishing
- **FL**: Finishing
- **FE**: Finishing
- **LU**: Finishing
- **LUW**: Finishing
- **SU**: Finishing
- **SU**: Finishing
- **SE**: Finishing
- **SEW**: Finishing
- **EF**: Finishing

---

**Tool**

- **M**: Stainless Steel
- **E**: Cast Iron
- **S**: Non-Porous Metal
## Indexable Insert

### Trigon Type Negative Inserts

**WN**

**Trigon Type Neg. With Hole**

### Insert Details

- **Cutting Edge Length:** 8.7
- **Thickness S:** 4.76
- **Hole Dia. D1:** 5.16

### Details on Insert Application

#### Applicable Internal Holders

- SUMIBORON (CBN) Inserts

#### Dimensions

- **WN**

### Chipbreaker Information

- **WCeramics**
- **Solid CBN**

### Coated Carbide

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### Materials

- Stainless Steel
- Cast Iron
- Stainless Steel
- Steel
- Hardened Steel
- Non-Ferrous Metal
- Cast Iron
- Steel
- Hardened Steel

### Range

- **Cat. No.:** 080404N-EM 080412N-EM
IGETALLOY

Trigon Type Negative Inserts

Trigon Type Neg.
With Hole

WN

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Cutting Edge Length L 8.7
Thickness S 4.76
Inscribed Circle IC 12.7
Hole Dia. D1 5.16

SUMBORON (CBN) Inserts

Applicable External Holders C30, C31
Applicable Internal Holders E20, E21

Grades A2, A3
Chipbreaker B10
Insert Grade Selection by Work Material A10

Recommended Application

P Steel
M Stainless Steel
K Cast Iron
N Non-Ferrous Metal
S Exotic Alloy
H Hardened Steel

Insert
BNeg.Pos.
C
D
R
S
T
V
WCeramics
Solid CBN

Insert

BNeg.Pos.
C
D
R
S
T
V
WCeramics
Solid CBN

Dimensions (mm)
Cutting Edge Length L 8.7
Thickness S 4.76
Inscribed Circle IC 12.7
Hole Dia. D1 5.16

SUMIBORON (CBN) Inserts

Applicable External Holders C30, C31
Applicable Internal Holders E20, E21
### 80° Diamond Type Positive Inserts

**Indexable Insert**

#### Finish

**CC**

**80° Diamond Type**

**7° Pos.**

**With Hole**

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#### Coated Carbide

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#### Recommended Application

- **Hardened Steel**
- **Stainless Steel**
- **Steel**
- **Exotic Alloy**
- **Non-Ferrous Metal**
- **Cast Iron**

*1: Photo shows left hand.

---

**CC**

**04X1**

**With Hole**

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*1: Photo shows left hand.
**IGETALLOY**

**80° Diamond Type Positive Inserts**

**Indexable Insert**

---

**CC 80° Diamond Type**

**7° Pos.**

**With Hole**

---

**Cutting Edge Length**

4.37

**Thickness**

1.8

**Inscribed Circle C**

4.3

**Hole Dia. D1**

2.3

---

**SUMIBORON (CBN) Inserts**

**Applicable Internal Holders**

**SUMIDIA (PCD) Inserts**

**Applicable External Holders**

---

**Values for nose radius RE prefixed with “<” indicate negative tolerances.**

---

**Recommended Application**

- Stainless Steel
- Cast Iron
- Steel
- Hardened Steel
- Steel
- Exotic Alloy
- Solid CBN
- Cast Iron
- Stainless Steel
- Hardened Steel
- Steel

---

**Recommended Grade Selection**

- 2A, 3A

---

**Chip Breaker Selection**

- B10 on Indexable Insert

---

**Selection by Work Material**

- A10 on Indexable Insert

---

**Dimensions**

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**Values for nose radius RE prefixed with “<” indicate negative tolerances.**
### IGETALLOY

**80° Diamond Type Positive Inserts**

#### Insert

**CC**

**80° Diamond Type**

**7° Pos.**

*With Hole*  

**Dimensions**

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**Neg. Pos.**

**WCeramics**

**Solid CBN**

Values for nose radius RE prefixed with "<" indicate negative tolerances.

---

*1: Photo shows left hand.*

---

**Range**

- CCMT: 060200 - 060204
- CCET: 060200 - 060204

**Recommended Application**

<table>
<thead>
<tr>
<th>Work Material</th>
<th>Hardened Steel</th>
<th>Stainless Steel</th>
<th>Cast Iron</th>
<th>Non-Ferrous Metal</th>
<th>Exotic Alloy</th>
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**Rake Angle**

- CCMT: 060200 - 060204

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<th>0.03</th>
<th>0.08</th>
<th>0.08</th>
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</table>

**Cutting Length L (mm)**

- CCMT: 060200 - 060204

---

*Information in "Shape" column*

- Name of Chipbreaker
- Chipbreaker
- Rake Angle
- FL
- Range
- Indexable Insert
- Insert

---

**Work Material**

- WCeramics
- Solid CBN
IGETALLOY

80° Diamond Type Positive Inserts

Recommended Application

- P: Steel
- M: Stainless Steel
- K: Cast Iron
- N: Non-Ferrous Metal
- S: Exotic Alloy
- H: Hardened Steel

Grade Selection

- A2, A3

Chipbreaker Selection

- B10 on

Insert Grade Selection by Work Material

- A10 on

Shape Application Range

- Light Cutting

Dimensions

<table>
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<th>Cutting Edge Length</th>
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<th>Inscribed Circle</th>
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Nose Radius RE

- Values for nose radius RE prefixed with "<" indicate negative tolerances.

CCMT 080204N-SC

0.4

CCGT 080201MN-SC

< 0.1

< 0.2

CCGW 080200

0

0.1

Coated Carbide

- Cermet
- Carbide

Values for nose radius RE prefixed with "<" indicate negative tolerances.

CCMT 080304N-SC

0.4

Coated Carbide

- Cermet
- Carbide

Values for nose radius RE prefixed with "<" indicate negative tolerances.
### IGETALLOY

#### 80° Diamond Type Positive Inserts

**Insert**

**CC**

- **80° Diamond Type**
- **7° Pos.**
- **With Hole**

**Dimensions**

- Cutting Edge Length: 9.7
- Thickness S: 3.18
- Inset Circle IC: 9.525
- Hole Dia. D1: 4.4

**Chipbreaker**

- SC
- SC
- CCGW 090300
- 090301

**Nose Radius RE**

- 0.8
- < 0.1
- < 0.2
- 0
- 0.1

**Recommended Work Material**

- Hardened Steel
- Exotic Alloy
- Non-Ferrous Metal
- Stainless Steel
- Steel

**Recommended Application**

- High Speed Steel
- Tool Steel
- Cast Iron
- Stainless Steel
- Other

**Values for nose radius RE prefixed with “<” indicate negative tolerances.**

---

**Coated Carbide**

**Cat. No.**

- **CCMT 090300N-SC**
- **CCMT 090301MN-SC**
- **CCMT 090302N-SC**
- **CCMT 090308N-LUW**
- **CCMT 090304N-LU**
- **CCMT 090304N-FP**
- **CCMT 090302N-FB**

---

**Insert**

**CC**

- **09T3**
- **0903**

**Dimensions**

- Cutting Edge Length: 9.7
- Thickness S: 3.97
- Inset Circle IC: 9.525
- Hole Dia. D1: 4.4

**Chipbreaker**

- FB
- LU
- LUW
- FP
- FC

**Rake Angle**

- 0.2
- 0.4
- 0.8

**Feed Rate (f) (mm/rev)**

- 0.6
- 0.4
- 0.2

**Depth of Cut (ap) (mm)**

- 0.6
- 0.4
- 0.2

**Recommended Work Material**

- Hardened Steel
- Exotic Alloy
- Non-Ferrous Metal
- Stainless Steel
- Steel

**Values for nose radius RE prefixed with “<” indicate negative tolerances.**

---

**Information in "Shape" column**

- Name of Chipbreaker
- Rake Angle
- FL

---

**Applicable External Holders**

- SUMIBORON (CBN) Inserts

---

**Applicable Internal Holders**

- SUMIDIA (PCD) Inserts
- SUMIDIA Binderless Inserts

---

**Recommended Application**

- Indexable Insert

---

**B78**
### 80° Diamond Type Positive Inserts

**IGETALLOY**

**80° Diamond Type**

*7° Pos.*

**With Hole**

---

#### Applicable Internal Holders

- SUMIDIA (PCD) Inserts
- SUMIDIA Binderless Inserts

#### Applicable External Holders

- SUMIBORON (CBN) Inserts

---

**Values for nose radius RE prefixed with "<" indicate negative tolerances.**

---

**Recommended Application**

- Hardened Steel
- Exotic Alloy
- Non-Ferrous Metal
- Cast Iron
- Stainless Steel
- Steel

---

**Recommended Grade Selection**

- A2, A3

**Chipbreaker Selection**

- B10 on

**Insert Grade Selection by Work Material**

- A10 on

---

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*1: Photo shows left hand.

Values for nose radius RE prefixed with "<" indicate negative tolerances.
**IGETALLOY**

**80° Diamond Type Positive Inserts**

**Indexable Insert**

---

**Dimensions**

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<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius (mm)</th>
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<td>09T304N-AG</td>
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<td>09T301L-AY</td>
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<td>120408N-FP</td>
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---

**Recommended Work Material**

- Stainless Steel
- Cast Iron
- Non-Ferrous Metal
- Exotic Alloy
- Hardened Steel

---

**Information in “Shape” column**

- Name of Chipbreaker
- Rake Angle
- Depth of Cut
- Feed Rate (f) (mm/rev)

---

**Coated Carbide**

---

**Dimensions**

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius (mm)</th>
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---

**Recommended Work Material**

- Stainless Steel
- Cast Iron
- Non-Ferrous Metal
- Exotic Alloy
- Hardened Steel

---

**Information in “Shape” column**

- Name of Chipbreaker
- Rake Angle
- Depth of Cut
- Feed Rate (f) (mm/rev)

---

**Coated Carbide**

---

**Applicable External Holders**

- SUMIBORON (CBN) Inserts

---

**Applicable Internal Holders**

- SUMIDIA (PCD) Inserts
- SUMIDIA Binderless Inserts

---

*1: Photo shows left hand.
### IGETALLOY

**80° Diamond Type Positive Inserts**

---

#### CP 80° Diamond Type

**11° Pos. With Hole**

---

**SUMIBORON (CBN) Inserts**

**SUMIDIA (PCD) Inserts**

---

**Recommended Application**

- Non-Ferrous Metal
- Steel
- Hardened Steel
- Exotic Alloy
- Cast Iron
- Stainless Steel
- Steel

---

**Shape Application**

- Finishing
- Light Cutting
- Hole Diameter

**Application Range**

- Cutting Edge Length (L)
- Thickness (S)
- Inscribed Circle (IC)
- Hole Dia. (D1)

**Recommended Grades**

- Steel
- Stainless Steel
- Cast Iron
- Non-Ferrous Metal
- Hardened Steel
- Exotic Alloy

**Recommended Grades (continued)**

- Diamond Type
- Grade Selection
- Chipbreaker Selection

---

**Insert Grade Selection**

- A2, A3

**Chipbreaker Selection**

- B10 on

**Insert Grade Selection by Work Material**

- A10 on

---

**Dimensions**

- Cutting Edge Length (L)
- Thickness (S)
- Inscribed Circle (IC)
- Hole Dia. (D1)

**Table:**

<table>
<thead>
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<th>Shape</th>
<th>Application Range</th>
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<th>Nose Radius RE</th>
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<td>MU</td>
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---

**Notes:**

# IGETALLOY

## 80° Diamond Type Positive Inserts

### Indexable Insert

**CP**

**80° Diamond Type**

**11° Pos.**

**With Hole**

### Insert

**CP0803**

**Dimensions**
- Cutting Edge Length \( L \): 8.0
- Thickness \( S \): 3.18
- Hole Dia. \( D_1 \): 4.4

**Chip Type**

- Coated Carbide

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius ( R_e )</th>
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<tr>
<td>US</td>
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</table>

**CP0903**

**Dimensions**
- Cutting Edge Length \( L \): 9.7
- Thickness \( S \): 3.18
- Hole Dia. \( D_1 \): 3.4

**Chip Type**

- Coated Carbide

<table>
<thead>
<tr>
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<th>Nose Radius ( R_e )</th>
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<td>CPMH 090308N-US</td>
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*1: Hole Dia. \( D_1 \)=4.8.

---

**B82**

---

**Recommended Application**

- **80°**
- **H**
- **Hardened Steel**
- **Exotic Alloy**
- **With Hole**

**Note:** Information in "Shape" column contains details on chipbreaker and nose radius. Applicable Internal Holders: E15, E16.
IGETALLOY
80° Diamond Type Positive Inserts

### CP 80° Diamond Type
**11° Pos. With Hole**

<table>
<thead>
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<th>Dimensions</th>
<th>Cutting Edge Length L</th>
<th>Thickness S</th>
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**SUMIBORON (CBN) Inserts**

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<th>Nose Radius</th>
<th>Coated Carbide</th>
<th>Coated Cermet</th>
<th>Carbide</th>
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*1: Photo shows left hand.

### CP 09T3
**11° Pos.**

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**SUMIDIA (PCD) Inserts**

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<th>Nose Radius</th>
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### CP 1204
**11° Pos.**

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<td>CP</td>
<td>12.9</td>
<td>4.76</td>
<td>5.5</td>
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</table>

**Recommended Application**

- **H** Hardened Steel
- **N** Non-Ferrous Metal
- **S** Stainless Steel
- **K** Cast Iron
- **P** Steel

**Chipbreaker Selection**

- **B10 on** Solid CBN
- **B10 on** Cermet Carbide
- **B10 on** Indexable Insert

**Grade Selection**

- **A2, A3**

*Continuous Cutting 1st Recommended
Interrupted Cutting 2nd Recommended*
### 80° Diamond Type Positive Inserts

#### Insert

**CP 80 Diamond Type**

**11° Pos.**

**With Hole**

#### Information in "Shape" column

- **Name of Chipbreaker**
- **Chipbreaker**
- **Rake Angle**
- **FL**
- **0.6 0.4 0.2 0.0**
- **1 2 3**
- **Feed Rate (f) (mm/rev)**
- **Depth of Cut (ap) (mm)**
- **Recommended Work Material**
- **10° Application Range**
- **Indexable Insert**
- **Insert**
- **B Neg. Pos. C D R S T V WCeramics**
- **Solid CBN**

#### Coated Carbide

- **Shape**
- **Application Range**
- **Cat. No.**
- **Nose Radius (RE)**

#### Light Cutting

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius (RE)</th>
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<tbody>
<tr>
<td>CP</td>
<td>1604</td>
<td>0.8</td>
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</tbody>
</table>

#### Dimensions (mm)

- Cutting Edge Length L: 16.1
- Thickness S: 4.76
- Inscribed Circle IC: 15.875
- Hole Dia. D1: 6.5

#### Chipbreaker

- **Name of Chipbreaker**
- **Chipbreaker**
- **Rake Angle**
- **FL**
- **0.6 0.4 0.2 0.0**
- **1 2 3**

#### Recommended Work Material

- **Steel**
- **Stainless Steel**
- **Cast Iron**
- **Non-Ferrous Metal**
- **Exotic Alloy**
- **Hardened Steel**

#### Application Range

- **Indexable Insert**
- **Insert**
- **B Neg. Pos. C D R S T V WCeramics**
- **Solid CBN**

#### Shape Application

- **Range Cat. No.**
  - **Nose Radius (RE)**
  - **AC8015P**
  - **AC8025P**
  - **AC8035P**
  - **AC810P**
  - **AC820P**
  - **AC830P**
  - **AC6020M**
  - **AC6030M**
  - **AC6040M**
  - **AC610M**
  - **AC630M**
  - **AC4010K**
  - **AC4015K**
  - **AC420K**
  - **AC405K**
  - **AC415K**
  - **AC503U**
  - **AC5015S**
  - **AC5025S**
  - **AC510U**
  - **AC520U**
  - **AC1030U**
  - **AC530U**
  - **ACZ150**
  - **T1500Z**
  - **T3000Z**
  - **T1000AT1500A**
  - **ST10P**
  - **ST20E**
  - **A30**
  - **G10E**
  - **EH510**
  - **EH520**
  - **H1**

#### Dimensions

- **Cutting Edge Length L**: 16.1
- **Thickness S**: 4.76
- **Inscribed Circle IC**: 15.875
- **Hole Dia. D1**: 6.5

####穴付形 80°Diamond Type Positive Inserts (US Type)

<table>
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<th>Application Range</th>
<th>Cat. No.</th>
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#### Coated Carbide

- **Shape**
- **Application Range**
- **Cat. No.**
- **Nose Radius (RE)**

#### Light Cutting

<table>
<thead>
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<th>Cat. No.</th>
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### 55° Diamond Type Positive Inserts

#### DC 0702

**With Hole**

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#### Values for nose radius RE prefixed with “<” indicate negative tolerances.
### 55° Diamond Type Positive Inserts

**Applicable Internal Holders**
- B
- Neg.
- Pos.
- C
- D
- R
- S
- T
- V
- W
- AG

**Applicable External Holders**
- SUMIBORON (CBN) Inserts

#### Dimensions
- **DC**
  - Cutting Edge Length L: 7.7
  - Thickness S: 6.35
  - Hole Dia D1: 2.8

#### Solid CBN

#### Values for nose radius RE prefixed with "<" indicate negative tolerances.

#### Recommended Application
- Hardened Steel
- Exotic Alloy
- Stainless Steel
- Steel
- Cermet
- Cermet Carbide
- Indexable Insert
- IGETALLOY

### Coated Carbine

<table>
<thead>
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<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
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</tbody>
</table>

**Values for nose radius RE prefixed with "<" indicate negative tolerances.**
### IGETALLOY 55° Diamond Type Positive Inserts

#### DC 55° Diamond Type

**7° Pos.**

**With Hole**

#### DC 0702 0902 1103

**Dimensions**
- **DCGW 090200**
  - **Inscribed Circle IC**: 9.7
  - **Hole Dia. D1**: 3.4
  - **Thickness S**: 2.38

#### DC 0702 0902 1103

**Dimensions**
- **DCGW 110300**
  - **Inscribed Circle IC**: 9.525
  - **Hole Dia. D1**: 4.4
  - **Thickness S**: 3.18

---

**Values for nose radius RE prefixed with "<" indicate negative tolerances.**

---

**Recommended Application**

- **Exotic Alloy**: H
- **Hardened Steel**: H
- **Exotic Alloy**: N
- **Non-Ferrous Metal**: N
- **Stainless Steel**: K
- **Cast Iron**: K
- **Steel**: M

---

**C15 Range Cat. No.**

- **DCGT 070201R-AY**
- **DCGT 070202R-AY**
- **DCGT 070204R-AY**
- **DCGT 070201L-AY**
- **DCGT 070202L-AY**
- **DCGT 070204L-AY**

---

**Recommended Application**

- **Continuous Cutting**: 1st Recommended
- **Interrupted Cutting**: 2nd Recommended

---

**Insert Grade Selection**
- **A2, A3**

**Chipbreaker Selection**
- **B10 on**

**Grade Selection by Work Material**
- **A10 on**
## IGITALLOY

### 55° Diamond Type Positive Inserts

#### Indexable Insert

---

**DC**

- **55° Diamond Type**
- **7° Pos.**
- **With Hole**

---

**Applicable Internal Holders**

- B
- C
- D
- R
- S
- T
- V
- WCeramics
- Solid CBN

---

**Applicable External Holders**

- SUMIBORON (CBN) Inserts

---

**Dimensions**

- DC
  - (mm)
  - FY
  - FYS

---

**Cutting Edge Length L**

- 11.6

**Inscribed Circle IC**

- 9.525

**Hole Dia. D1**

- 4.4

---

**Shape Application**

- FB
- LU
- FP
- FC
- FX
- DX
- FX
- FY
- FYS

---

**Range Cat. No.**

- D14, D18, D19, D24, D25

---

**Information in "Shape" column**

- Name of Chipbreaker
- Chipbreaker
- Rake Angle
- FL

---

**Work Material**

- Hardened Steel
- Non-Ferrous Metal
- Cast Iron
- Stainless Steel
- Steel

---

**Recommended Work Material**

- Coated Carbide
- Coated Carbide
- Coated Carbide
- Coated Carbide

---

**Feed Rate (f) (mm/rev)**

- 0.6
- 0.4
- 0.2

---

**Depth of Cut (a) (mm)**

- 0.2

---

**Values for nose radius RE prefixed with "<" indicate negative tolerances.**

---

**B88**
### 55° Diamond Type Positive Inserts

**DC**

| DC | 11T3 | 7° Pos. With Hole |

**Dimensions**

- Cutting Edge Length: L
- Thickness: T
- Hole Dia.: D1

**Coated Carbide**

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
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</thead>
<tbody>
<tr>
<td>FY</td>
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**Coated Cermet**

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<th>Nose Radius RE</th>
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<td>SU</td>
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<td>11T308MN-SC</td>
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</table>

Values for nose radius RE prefixed with "<" indicate negative tolerances.
### 55° Diamond Type Positive Inserts

**DC** 7° Pos. With Hole 55°

#### Dimensions
- Cutting Edge Length \( L \): 11.6 mm
- Thickness \( S \): 3.97 mm
- Inscribed Circle IC: 9.525 mm
- Hole Dia. D1: 4.4 mm

**Information in "Shape" column**
- Name of Chipbreaker
- Rake Angle
- FL
- Feed Rate \( f \) (mm/rev)
- Depth of Cut \( a \) p (mm)
- Recommended Work Material
- Application Range

**Coated Carbidex**

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius</th>
<th>Carbide</th>
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<tr>
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<td>0.1 0.1 0.2 0.2 0.1 0.2 0.4 0.4</td>
<td>Coated Carbide</td>
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</tbody>
</table>

**Applicable External Holders**
- C15, D14, D18, D19, D24, D25

**Applicable Internal Holders**
- E22 to E26

**SUMIDIA (PCD) Inserts**
- M13

**SUMIBORON (CBN) Inserts**
- L54

**For Aluminium**
- DC

**55° Diamond Type** 7° Pos.

**Recommendations**
- Continuous Cutting: 1st Recommended
- General Cutting: 1st Recommended
- Interrupted Cutting: 1st Recommended
- Steel, Stainless Steel, Cast Iron, Non-Ferrous Metal, Exotic Alloy, Hardened Steel

**Dimensions**

- Cutting Edge Length \( L \)
- Thickness \( S \)
- Inscribed Circle IC
- Hole Dia. D1

**Applications**

- Sumitomo D1500
- Sumitomo D1500 series
- Sumitomo D1500X
- Sumitomo D1500X series
- Sumitomo D1500Z
- Sumitomo D1500Z series
- Sumitomo D1500H
- Sumitomo D1500H series
- Sumitomo D1500P
- Sumitomo D1500P series
- Sumitomo D1500N
- Sumitomo D1500N series
- Sumitomo D1500S
- Sumitomo D1500S series
- Sumitomo D1500T
- Sumitomo D1500T series
- Sumitomo D1500V
- Sumitomo D1500V series
- Sumitomo D1500U
- Sumitomo D1500U series
- Sumitomo D1500W
- Sumitomo D1500W series

**DCGT 11T301R-AY**
- 0.1

**DCGT 11T301L-AY**
- 0.1

**DCGT 11T302R-AY**
- 0.2

**DCGT 11T302L-AY**
- 0.2

**DCGT 11T304R-AY**
- 0.4

**DCGT 11T304L-AY**
- 0.4

**DCGT 11T300N-AG**
- 0.2

**DCGT 11T304N-AG**
- 0.4

**DCGT 11T308N-AG**
- 0.8

**DCGT 11T301R-AY**
- 0.1

**DCGT 11T301L-AY**
- 0.1

**DCGT 11T302R-AY**
- 0.2

**DCGT 11T302L-AY**
- 0.2

**DCGT 11T304R-AY**
- 0.4

**DCGT 11T304L-AY**
- 0.4

**DCGT 11T300N-AG**
- 0.2

**DCGT 11T304N-AG**
- 0.4

**DCGT 11T308N-AG**
- 0.8
### Recommended Application

<table>
<thead>
<tr>
<th>Material</th>
<th>Steel</th>
<th>Stainless Steel</th>
<th>Cast Iron</th>
<th>Non-Ferrous Metal</th>
<th>Exotic Alloy</th>
<th>Hardened Steel</th>
</tr>
</thead>
</table>

### Grade Selection

- **A2, A3**
- **B10**
- **A10**

### Chipbreaker Selection

- **A2, A3**
- **B10**
- **A10**

### Insert Grade Selection

- **A2, A3**
- **B10**
- **A10**

### Shape Application

- **FX**
- **FY**

### Dimensions

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
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<td>DP 0701R-FX</td>
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<td>DP 0701L-FX</td>
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<td>DP 0702R-FX</td>
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<td>DP 07005R-FY</td>
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### Dimensions

<table>
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<th>Shape</th>
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<th>Cat. No.</th>
<th>Nose Radius RE</th>
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<tbody>
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<tr>
<td></td>
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<td>DP 11T02L-FY</td>
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</tbody>
</table>

### Additional Information

- **DP**
- **B91**

---

**Note:** The table and diagram provide detailed information on insert grades, chipbreaker selections, and application ranges for various materials and shapes. The dimensions and other specifications are also included for reference.
### IGETALLOY

**Round Type Positive Inserts**

**Indexable Insert**

**RC**

**Round Type**

**7° Pos.**

**With Hole**

#### Insert

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>IC</th>
<th>S</th>
<th>D1</th>
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</thead>
<tbody>
<tr>
<td>RX</td>
<td>Medium to Roughing</td>
<td>RCMT 1003M0N-RX</td>
<td>10.0</td>
<td>3.18</td>
<td>4.4</td>
</tr>
<tr>
<td></td>
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<td>1204M0N-RX</td>
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<td>1606M0N-RX</td>
<td>16.0</td>
<td>6.35</td>
<td>5.0</td>
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<tr>
<td></td>
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<td>2006M0N-RX</td>
<td>20.0</td>
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<td>2507M0N-RX</td>
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<td>7.6</td>
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</table>

**RH**

| Medium to Roughing | RCMT 1204M0N-RH | 12.0 | 4.76 | 4.4 |
|                   | 1606M0N-RH | 16.0 | 6.35 | 5.0 |
|                   | 2006M0N-RH | 20.0 | 8.35 | 6.5 |

**RP**

| Roughing | RCMX 1003M0N-RP | 10.0 | 3.18 | 3.6 |
|          | 1204M0N-RP | 12.0 | 4.76 | 4.2 |
|          | 1606M0N-RP | 16.0 | 6.35 | 5.2 |
|          | 2008M0N-RP | 20.0 | 8.35 | 6.5 |
|          | 2507M0N-RP | 25.0 | 7.94 | 7.2 |
|          | 3209M0N-RP | 32.0 | 9.52 | 9.5 |

**Information in “Shape” column**

- Name of Chipbreaker
- Rake Angle
- Feed Rate (f) (mm/rev)
- Depth of Cut (ap) (mm)
- Recommended Work Material

**Recommended Application**

- P: Steel
- M: Stainless Steel
- K: Cast Iron
- N: Non-Ferrous Metal
- S: Exotic Alloy
- H: Hardened Steel

**Diameter**

- Inscribed Circle (IC): 10.0 to 32.0

**Thickness**

- S: 3.18 to 9.52

**Hole Dia.**

- D1: 3.6 to 9.5

**Inscribed Circle (IC) Dimensions**

- Inscribed Circle (IC): 10.0 to 32.0
- Thickness (S): 3.18 to 9.52
- Hole Dia. (D1): 3.6 to 9.5

**Applicable External Holders**

- C16
# IGETALLOY

## Round Type Positive Inserts

### Insert

- **Round Type**
- **7° Pos.**
- **With Hole**

### SUMIDIA (PCD) Inserts
- **M26**

### Dimensions
- **Inscribed Circle (IC)**: 8.0 to 24.0
- **Thickness (S)**: 3.18 to 6.35
- **Hole Dia. (D1)**: 3.3 to 7.3

### Grade Selection
- **A2, A3**

### Chipbreaker Selection
- **B10**

### Recommended Application
- **P**: Steel
- **M**: Stainless Steel
- **K**: Cast Iron
- **N**: Non-Ferrous Metal
- **S**: Exotic Alloy
- **H**: Hardened Steel

### Grade Selection by Work Material
- **A10**

### Insert Grade Selection
- **BNeg. Pos.**
- **C**
- **D**
- **R**
- **S**
- **T**
- **V**

### Insert Coated Carbide

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>IC</th>
<th>S</th>
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### Roughing

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<td>24.0 0.76 7.0</td>
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</tbody>
</table>
## IGETALLOY

### Square Type Positive Inserts

#### Indexable Insert

**SC**

**Square Type**

**7° Pos.**

**With Hole**

### Insert Information

- **Diameter**: 7.94 mm
- **Thickness**: 2.38 mm
- **Hole Dia**: 3.4 mm

### Recommended Application

- **P**: Steel
- **M**: Stainless Steel
- **K**: Cast Iron
- **N**: Non-Ferrous Metal
- **S**: Exotic Alloy
- **H**: Hardened Steel

### Work Material

- **10° Application Range**

### Shape Application

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
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<tr>
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</table>

**Values for nose radius RE prefixed with "<" indicate negative tolerances.**

### Coated Carbide

#### Coated Carbide 

- **Holes**

### External Holders

- **D26**

**Values for nose radius RE prefixed with "<" indicate negative tolerances.**
### IGETALLOY

**Square Type Positive Inserts**

#### Grade Selection
- B2, A3

#### Chipbreaker Selection
- B10

#### Insert Grade Selection
- A10

### Recommended Application
- P: Steel
- M: Stainless Steel
- K: Cast Iron
- N: Non-Ferrous Metal
- S: Exotic Alloy
- H: Hardened Steel

### Insert
- BNeg. Pos.
- C
- D
- R
- S
- T
- V
- WCeramics
- Solid CBN

### Grade Selection by Work Material
- A2, A3

### Chipbreaker Selection
- B10

### Insert Grade Selection
- A10

### Insert
- BNeg. Pos.
- C
- D
- R
- S
- T
- V
- WCeramics
- Solid CBN

### Shape Application

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
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<tbody>
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<td>SCMT 09T304N-FB</td>
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<td>LB</td>
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<td>SCMT 09T304N-LB</td>
<td>0.4, 0.8</td>
</tr>
<tr>
<td>SU</td>
<td></td>
<td>SCMT 09T304N-SU</td>
<td>0.4, 0.8</td>
</tr>
<tr>
<td>SC</td>
<td></td>
<td>SCGT 09T301MN-SC</td>
<td>&lt; 0.1</td>
</tr>
<tr>
<td>MU</td>
<td></td>
<td>SCMT 09T308N-MU</td>
<td>0.8</td>
</tr>
</tbody>
</table>

### Values for nose radius RE prefixed with "<" indicate negative tolerances.
## IGETALLOY

### Square Type Positive Inserts

#### Square Type

**SC**
- **7° Pos.**
- **With Hole**

### Insert Application

<table>
<thead>
<tr>
<th>Work Material</th>
<th>Continuous Cutting</th>
<th>General Cutting</th>
<th>Interrupted Cutting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel</td>
<td>Recommended</td>
<td>Recommended</td>
<td>Recommended</td>
</tr>
<tr>
<td>Stainless Steel</td>
<td>Recommended</td>
<td>Recommended</td>
<td>Recommended</td>
</tr>
<tr>
<td>Cast Iron</td>
<td>Recommended</td>
<td>Recommended</td>
<td>Recommended</td>
</tr>
<tr>
<td>Non-Ferrous Metal</td>
<td>Recommended</td>
<td>Recommended</td>
<td>Recommended</td>
</tr>
<tr>
<td>Exotic Alloy</td>
<td>Recommended</td>
<td>Recommended</td>
<td>Recommended</td>
</tr>
<tr>
<td>Hardened Steel</td>
<td>Recommended</td>
<td>Recommended</td>
<td>Recommended</td>
</tr>
</tbody>
</table>

### Information in “Shape” Column

- **Name of Chipbreaker**
- **Rake Angle**
- **FL**
- **0.6**
- **0.4**
- **0.2**
- **0**
- **1**
- **2**
- **3**

### Coated Carbide

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FP</td>
<td></td>
<td>SCMT 120404N-FP</td>
<td>0.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SCMT 120408N-FP</td>
<td>0.8</td>
</tr>
<tr>
<td>FX</td>
<td></td>
<td>SCMT 120408N-FX</td>
<td>0.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SCMT 120404N-FX</td>
<td>0.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SCMT 120408N-FR</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SCMT 120408N-FR</td>
<td>0.8</td>
</tr>
<tr>
<td>SU</td>
<td></td>
<td>SCMT 120408N-SU</td>
<td>0.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SCMT 120408N-SU</td>
<td>0.8</td>
</tr>
<tr>
<td>SC</td>
<td></td>
<td>SCMT 120408N-SC</td>
<td>0.8</td>
</tr>
<tr>
<td>MU</td>
<td></td>
<td>SCMT 120408N-MU</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SCMT 120408N-MU</td>
<td>1.2</td>
</tr>
</tbody>
</table>

### Coated Carbide (Cont.)

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>SCMT 120408N-MU</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SCMT 120408N-MU</td>
<td>1.2</td>
</tr>
</tbody>
</table>

### Dimensions

- **Cutting Edge Length L**: 12.7
- **Thickness S**: 4.76
- **Inscribed Circle IC**: 12.7
- **Hole Dia. D1**: 5.5

### Applicable Internal Holders

- **E44**

*1: Photo shows left hand.
IGETALLOY
Square Type Positive Inserts

**Square Type**

**11° Pos. With Hole**

**Dimensions**
- Cutting Edge Length: 6.35 mm
- Thickness: 2.38 mm
- Inscribed Circle: 6.35 mm
- Hole Dia. D1: 2.8 mm

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>Light Cutting</td>
<td>SPMT 060204N-US</td>
<td>0.4</td>
</tr>
<tr>
<td>SS</td>
<td>Light Cutting</td>
<td>SPMT 070208N-SS</td>
<td>0.8</td>
</tr>
<tr>
<td>SD</td>
<td>Finishing to Light Cutting</td>
<td>SPGT 070304R-SD</td>
<td>0.4</td>
</tr>
<tr>
<td>US</td>
<td>Light Cutting</td>
<td>SPMT 070308N-US</td>
<td>0.8</td>
</tr>
</tbody>
</table>

**Chipbreaker Selection**
- B10 on Insert

**Grade Selection**
- A2, A3

**Material Types**
- Steel
- Stainless Steel
- Cast Iron
- Non-Ferrous Metal
- Exotic Alloy
- Hardened Steel

**Insert Grade Selection by Work Material**
- A10 on Indexable Insert

**Shape Application**
- Range Cat. No.
  - Nose Radius: RE
  - Spacing (mm): L 6.35, S 2.38, IC 6.35, D1 2.8

**Dimensions (mm)**
- Cutting Edge Length: 6.35
- Thickness: 2.38
- Inscribed Circle: 6.35
- Hole Dia. D1: 2.8

**Note:** Photo shows left hand.

---

*1: Photo shows left hand.*
### Square Type Positive Inserts

**SP**

#### With Hole

**11° Pos.**

**Indexable Insert**

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius</th>
<th>Coated Carbide</th>
<th>Coating</th>
<th>Carbide</th>
</tr>
</thead>
<tbody>
<tr>
<td>FB</td>
<td></td>
<td>SPMT 090304N-FB 090308N-FB</td>
<td>0.4</td>
<td><strong>Coated Carbide</strong></td>
<td><strong>Coating</strong></td>
<td><strong>Carbide</strong></td>
</tr>
<tr>
<td>LU</td>
<td></td>
<td>SPMT 090304N-LU 090308N-LU</td>
<td>0.4</td>
<td><strong>Coated Carbide</strong></td>
<td><strong>Coating</strong></td>
<td><strong>Carbide</strong></td>
</tr>
<tr>
<td>SD</td>
<td></td>
<td>SPGT 090304R-SD 090308R-SD</td>
<td>0.2</td>
<td><strong>Coated Carbide</strong></td>
<td><strong>Coating</strong></td>
<td><strong>Carbide</strong></td>
</tr>
<tr>
<td>LB</td>
<td></td>
<td>SPMT 090304N-LB 090308N-LB</td>
<td>0.4</td>
<td><strong>Coated Carbide</strong></td>
<td><strong>Coating</strong></td>
<td><strong>Carbide</strong></td>
</tr>
<tr>
<td>SS</td>
<td></td>
<td>SPMT 090304N-SS 090308N-SS</td>
<td>0.8</td>
<td><strong>Coated Carbide</strong></td>
<td><strong>Coating</strong></td>
<td><strong>Carbide</strong></td>
</tr>
<tr>
<td>US</td>
<td></td>
<td>SPMT 090304N-US 090308N-US</td>
<td>0.8</td>
<td><strong>Coated Carbide</strong></td>
<td><strong>Coating</strong></td>
<td><strong>Carbide</strong></td>
</tr>
<tr>
<td>SF</td>
<td></td>
<td>SPMT 090304N-SF 090308N-SF</td>
<td>0.8</td>
<td><strong>Coated Carbide</strong></td>
<td><strong>Coating</strong></td>
<td><strong>Carbide</strong></td>
</tr>
</tbody>
</table>

*1: Photo shows left hand.
*2: Hole Dia. D1=4.4.
*3: Hole Dia. D1=3.3.
### IGETALLOY

**Square Type Positive Inserts**

**Indexable Insert**

**SP Square Type 11° Pos. With Hole**

<table>
<thead>
<tr>
<th>Insert</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>R</th>
<th>S</th>
<th>T</th>
<th>V</th>
<th>W</th>
<th>Ceramics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Solid CBN</td>
</tr>
</tbody>
</table>

**Grade Selection**
- A2, A3

**Chipbreaker Selection**
- B10 on

**Insert Grade Selection by Work Material**
- A10 on

**Recommended Application**
- P Steel
- M Stainless Steel
- K Cast Iron
- N Non-Ferrous Metal
- S Exotic Alloy
- H Hardened Steel

#### SP 09T3

**Dimensions**
- Cutting Edge Length: 9.525 mm (US 0.375 in)
- Thickness: 3.97 mm (US 0.156 in)
- Inset Circle: 9.525 mm (US 0.375 in)
- Hole Dia. D1: 4.4 mm (US 0.17 in)

**Shape**
- US Light Cutting

**Application Range**
- Coated Carbide

**Cat. No.**
- SPMT 09T308N-US

**Nose Radius**
- RE 0.8

**Dimension (mm)**
- Cutting Edge Length L 9.525
- Thickness S 3.97
- Inscribed Circle IC 9.525
- Hole Dia. D1 4.4

**Recess Angle**
- 90°

---

#### SP 1204

**Dimensions**
- Cutting Edge Length: 12.7 mm (US 0.500 in)
- Thickness: 4.76 mm (US 0.187 in)
- Inset Circle: 12.7 mm (US 0.500 in)
- Hole Dia. D1: 5.5 mm (US 0.216 in)

**Shape**
- US Light Cutting

**Application Range**
- Coated Carbide

**Cat. No.**
- SPM 120408N-US

**Nose Radius**
- RE 0.8

**Dimension (mm)**
- Cutting Edge Length L 12.7
- Thickness S 4.76
- Inscribed Circle IC 12.7
- Hole Dia. D1 5.5

**Recess Angle**
- 90°

---

#### SP 1504

**Dimensions**
- Cutting Edge Length: 15.875 mm (US 0.625 in)
- Thickness: 4.76 mm (US 0.187 in)
- Inset Circle: 15.875 mm (US 0.625 in)
- Hole Dia. D1: 6.5 mm (US 0.256 in)

**Shape**
- US Light Cutting

**Application Range**
- Coated Carbide

**Cat. No.**
- SPMH 150408N-US

**Nose Radius**
- RE 0.8

**Dimension (mm)**
- Cutting Edge Length L 15.875
- Thickness S 4.76
- Inscribed Circle IC 15.875
- Hole Dia. D1 6.5

**Recess Angle**
- 90°
### IGETALLOY

**Square Type Positive Inserts**

#### Indexable Insert

**SP**

**Square Type**

11° Pos.

Without Hole

---

**Recommended Application**

- P: Steel
- M: Stainless Steel
- K: Cast Iron
- N: Non-Ferrous Metal
- S: Exotic Alloy
- H: Hardened Steel

---

**Information in “Shape” column**

- Name of Chipbreaker
- Chipbreaker
- Rake Angle
- FL
- 0.6
- 0.4
- 0.2
- 0
- 1
- 2
- 3

---

**Feed Rate (f) (mm/rev)**

<table>
<thead>
<tr>
<th>Work Material</th>
<th>Application Range</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Depth of Cut (ap) (mm)**

<table>
<thead>
<tr>
<th>Work Material</th>
<th>Application Range</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
</tr>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Recommended Application**

- W: Steel
- M: Stainless Steel
- K: Cast Iron
- N: Non-Ferrous Metal
- S: Exotic Alloy
- H: Hardened Steel

---

**Dimensions (mm)**

- Cutting Edge Length L: 7.94
- Thickness S: 2.38
- Inscribed Circle IC: 7.94

---

**SUMIBORON (CBN) Inserts**

- L63

---

**SUMIDIA (PCD) Inserts**

- M14

---

**Ceramic Inserts**

- B129

---

**Applicable Internal Holders**

- E43

---

***1: Photo shows left hand.**
**IGEALLOY**

**Square Type Positive Inserts**

**Square Type 11° Pos. Without Hole**

---

<table>
<thead>
<tr>
<th>SP 1203○○</th>
<th>Cutting Edge Length L</th>
<th>12.7</th>
<th>Thickness S</th>
<th>3.18</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUMIBORON (CBN) Inserts</td>
<td>L54</td>
<td>SUMIDIA (PCD) Inserts</td>
<td>M14</td>
<td></td>
</tr>
<tr>
<td>Ceramic Inserts</td>
<td>B129</td>
<td>Applicable External Holders</td>
<td>C23, C24</td>
<td></td>
</tr>
</tbody>
</table>

---

**SPN 120304N-FK**

**No.**

| FK | SPMR 120304N-FK | 0.4 | 0.8 |

**SF**

| SF | SPMR 120408N-SF | 1.2 |

| SF | SPMR 120312N-SF | 1.2 |

**UJ**

| UJ | SPMR 120308N-UJ | 0.8 |

| UJ | SPMR 120312N-UJ | 1.2 |

---

**SPN 120304N-UF**

**No.**

| FK | SPMR 120304N-UF | 0.4 | 0.8 |

| SF | SPMR 120408N-SF | 1.2 |

| SF | SPMR 120312N-SF | 1.2 |

**UJ**

| UJ | SPMR 120308N-UJ | 0.8 |

| UJ | SPMR 120312N-UJ | 1.2 |

---

**SPN 120304N-UJ**

**No.**

| FK | SPMR 120304N-UJ | 0.4 | 0.8 |

| SF | SPMR 120408N-SF | 1.2 |

| SF | SPMR 120312N-SF | 1.2 |

**UJ**

| UJ | SPMR 120308N-UJ | 0.8 |

| UJ | SPMR 120312N-UJ | 1.2 |

---

**SPN 120304N-UF**

**No.**

| FK | SPMR 120304N-UF | 0.4 | 0.8 |

| SF | SPMR 120408N-SF | 1.2 |

| SF | SPMR 120312N-SF | 1.2 |

**UJ**

| UJ | SPMR 120308N-UJ | 0.8 |

| UJ | SPMR 120312N-UJ | 1.2 |

---

**SPN 120304N-UJ**

**No.**

| FK | SPMR 120304N-UJ | 0.4 | 0.8 |

| SF | SPMR 120408N-SF | 1.2 |

| SF | SPMR 120312N-SF | 1.2 |

**UJ**

| UJ | SPMR 120308N-UJ | 0.8 |

| UJ | SPMR 120312N-UJ | 1.2 |

---

**SPN 120304N-UJ**

**No.**

| FK | SPMR 120304N-UJ | 0.4 | 0.8 |

| SF | SPMR 120408N-SF | 1.2 |

| SF | SPMR 120312N-SF | 1.2 |

**UJ**

| UJ | SPMR 120308N-UJ | 0.8 |

| UJ | SPMR 120312N-UJ | 1.2 |

---

**SPN 120304N-UJ**

**No.**

| FK | SPMR 120304N-UJ | 0.4 | 0.8 |

| SF | SPMR 120408N-SF | 1.2 |

| SF | SPMR 120312N-SF | 1.2 |

**UJ**

| UJ | SPMR 120308N-UJ | 0.8 |

| UJ | SPMR 120312N-UJ | 1.2 |

---

**SPN 120304N-UJ**

**No.**

| FK | SPMR 120304N-UJ | 0.4 | 0.8 |

| SF | SPMR 120408N-SF | 1.2 |

| SF | SPMR 120312N-SF | 1.2 |

**UJ**

| UJ | SPMR 120308N-UJ | 0.8 |

| UJ | SPMR 120312N-UJ | 1.2 |

---

**SPN 120304N-UJ**

**No.**

| FK | SPMR 120304N-UJ | 0.4 | 0.8 |

| SF | SPMR 120408N-SF | 1.2 |

| SF | SPMR 120312N-SF | 1.2 |

**UJ**

| UJ | SPMR 120308N-UJ | 0.8 |

| UJ | SPMR 120312N-UJ | 1.2 |

---

**SPN 120304N-UJ**

**No.**

| FK | SPMR 120304N-UJ | 0.4 | 0.8 |

| SF | SPMR 120408N-SF | 1.2 |

| SF | SPMR 120312N-SF | 1.2 |

**UJ**

| UJ | SPMR 120308N-UJ | 0.8 |

| UJ | SPMR 120312N-UJ | 1.2 |

---

**SPN 120304N-UJ**

**No.**

| FK | SPMR 120304N-UJ | 0.4 | 0.8 |

| SF | SPMR 120408N-SF | 1.2 |

| SF | SPMR 120312N-SF | 1.2 |

**UJ**

| UJ | SPMR 120308N-UJ | 0.8 |

| UJ | SPMR 120312N-UJ | 1.2 |

---

**SPN 120304N-UJ**

**No.**

| FK | SPMR 120304N-UJ | 0.4 | 0.8 |

| SF | SPMR 120408N-SF | 1.2 |

| SF | SPMR 120312N-SF | 1.2 |

**UJ**

| UJ | SPMR 120308N-UJ | 0.8 |

| UJ | SPMR 120312N-UJ | 1.2 |
### IGETALLOY

#### Square Type Positive Inserts

<table>
<thead>
<tr>
<th>Insert</th>
<th>Shape</th>
<th>Cat. No.</th>
<th>Nose Radius</th>
<th>Coated Carbide</th>
<th>Coated Carbide</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP</td>
<td>SPMN 150408 150412</td>
<td>0.8 1.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SPGN 150408 150412</td>
<td>0.8 1.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SPMN 190404 190412</td>
<td>0.4 0.8 1.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SPGN 190404 190412 190416</td>
<td>0.4 0.8 1.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SPMN 250620</td>
<td>2.0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Applicable External Holders:** C23, C24

**Dimensions:**
- **Cutting Edge Length (L):**
  - SP: 15.875
  - SPMN: 19.05
  - SPGN: 25.4
- **Thickness (S):**
  - SP: 4.76
  - SPMN: 6.35
  - SPGN: 4.76
- **Inscribed Circle (IC):**
  - SP: 15.875
  - SPMN: 19.05
  - SPGN: 25.4

**Recommended Work Material:**
- P: Steel
- M: Stainless Steel
- K: Cast Iron
- N: Non-Ferrous Metal
- S: Exotic Alloy
- H: Hardened Steel

**Recommended Application:**
- P: Steel
- M: Stainless Steel
- K: Cast Iron
- N: Non-Ferrous Metal
- S: Exotic Alloy
- H: Hardened Steel

**Medium Cutting**

**SPMN 150408 GP**

- **Coated Carbide:**
  - A20K
  - A05K
  - A04K
  - A03K
  - A01K
  - A00K
  - NS1501
  - NS1500
  - NS1000
  - NS0800
  - NS0400
  - NS0200
  - NS0100

- **Coated Cermet:**
  - C10K
  - C05K
  - C04K
  - C03K
  - C01K
  - C00K
  - NM1501
  - NM1500
  - NM1000
  - NM0800
  - NM0400
  - NM0200
  - NM0100

- **Cermet Carbide:**
  - BC10
  - BC05
  - BC04
  - BC03
  - BC01
  - BC00
  - NM1501
  - NM1500
  - NM1000
  - NM0800
  - NM0400
  - NM0200
  - NM0100

---

**SPMN 190404 190412 GP**

- **Coated Carbide:**
  - A20K
  - A05K
  - A04K
  - A03K
  - A01K
  - A00K
  - NS1501
  - NS1500
  - NS1000
  - NS0800
  - NS0400
  - NS0200
  - NS0100

- **Coated Cermet:**
  - C10K
  - C05K
  - C04K
  - C03K
  - C01K
  - C00K
  - NM1501
  - NM1500
  - NM1000
  - NM0800
  - NM0400
  - NM0200
  - NM0100

- **Cermet Carbide:**
  - BC10
  - BC05
  - BC04
  - BC03
  - BC01
  - BC00
  - NM1501
  - NM1500
  - NM1000
  - NM0800
  - NM0400
  - NM0200
  - NM0100

---

**SPMN 250620 GP**

- **Coated Carbide:**
  - A20K
  - A05K
  - A04K
  - A03K
  - A01K
  - A00K
  - NS1501
  - NS1500
  - NS1000
  - NS0800
  - NS0400
  - NS0200
  - NS0100

- **Coated Cermet:**
  - C10K
  - C05K
  - C04K
  - C03K
  - C01K
  - C00K
  - NM1501
  - NM1500
  - NM1000
  - NM0800
  - NM0400
  - NM0200
  - NM0100

- **Cermet Carbide:**
  - BC10
  - BC05
  - BC04
  - BC03
  - BC01
  - BC00
  - NM1501
  - NM1500
  - NM1000
  - NM0800
  - NM0400
  - NM0200
  - NM0100

---

**SPMN 190408 190412 GP**

- **Coated Carbide:**
  - A20K
  - A05K
  - A04K
  - A03K
  - A01K
  - A00K
  - NS1501
  - NS1500
  - NS1000
  - NS0800
  - NS0400
  - NS0200
  - NS0100

- **Coated Cermet:**
  - C10K
  - C05K
  - C04K
  - C03K
  - C01K
  - C00K
  - NM1501
  - NM1500
  - NM1000
  - NM0800
  - NM0400
  - NM0200
  - NM0100

- **Cermet Carbide:**
  - BC10
  - BC05
  - BC04
  - BC03
  - BC01
  - BC00
  - NM1501
  - NM1500
  - NM1000
  - NM0800
  - NM0400
  - NM0200
  - NM0100
## IGETALLOY

### Square Type Positive Inserts

#### SE

**Square Type**

**20° Pos.**

**Without Hole**

<table>
<thead>
<tr>
<th>Insert</th>
<th>B103</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade Selection</td>
<td>A2, A3</td>
</tr>
<tr>
<td>Chipbreaker Selection</td>
<td>B10 on</td>
</tr>
<tr>
<td>Insert Grade Selection by Work Material</td>
<td>A2 on</td>
</tr>
</tbody>
</table>

#### SE □ 0702 ○ ○

- **Dimensions**
  - Cutting Edge Length L: 7.94 mm
  - Thickness S: 2.38 mm
  - Inscribed Circle IC: 7.94 mm

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up Cut</td>
<td>SEGN 070202</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.8</td>
</tr>
</tbody>
</table>

#### SE □ 0903 ○ ○

- **Dimensions**
  - Cutting Edge Length L: 9.525 mm
  - Thickness S: 3.18 mm
  - Inscribed Circle IC: 9.525 mm

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up Cut</td>
<td>SEGN 090302</td>
<td>0.2</td>
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<tr>
<td></td>
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<td>0.4</td>
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<tr>
<td></td>
<td></td>
<td>0.8</td>
</tr>
</tbody>
</table>

#### SE □ 1203 ○ ○

- **Dimensions**
  - Cutting Edge Length L: 12.7 mm
  - Thickness S: 3.18 mm
  - Inscribed Circle IC: 12.7 mm

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up Cut</td>
<td>SEGN 120304</td>
<td>0.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.8</td>
</tr>
</tbody>
</table>

---

**SUMIDIA (PCD) Inserts** M15

- **Dimensions**
  - Cutting Edge Length L: 9 mm
  - Thickness S: 2.38 mm
  - Inscribed Circle IC: 9 mm

- **Dimensions**
  - Cutting Edge Length L: 9.525 mm
  - Thickness S: 3.18 mm
  - Inscribed Circle IC: 9.525 mm

- **Dimensions**
  - Cutting Edge Length L: 12.7 mm
  - Thickness S: 3.18 mm
  - Inscribed Circle IC: 12.7 mm

---

**Recommended Application**

- P: Steel
- M: Stainless Steel
- K: Cast Iron
- N: Non-Ferrous Metal
- S: Exotic Alloy
- H: Hardened Steel

---

**Recommended Grade**

- A2, A3

---

**Chipbreaker Selection**

- B10 on

---

**Insert Grade Selection by Work Material**

- A2 on
IGETALLOY
Triangular Type Positive Inserts
Indexable Insert

**TB** Triangular Type
5° Pos.
With Hole

---

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
</tr>
</thead>
<tbody>
<tr>
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<td>TBGT 0601003R-FW</td>
<td>0.03</td>
</tr>
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<td></td>
<td></td>
<td>0601003L-FX</td>
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</tr>
<tr>
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<td></td>
<td>060101R-FX</td>
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<td></td>
<td>060101R-FY</td>
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<td></td>
<td></td>
<td>060102R-FX</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>060102R-FY</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>060104R-FX</td>
<td>0.4</td>
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<tr>
<td>FY</td>
<td></td>
<td>TBGT 0601003R-FY</td>
<td>0.03</td>
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<tr>
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<td></td>
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<td>0.03</td>
</tr>
<tr>
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<td>060101R-FY</td>
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<tr>
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<td></td>
<td>060102R-FY</td>
<td>0.2</td>
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<tr>
<td></td>
<td></td>
<td>060102R-FY</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>060104R-FY</td>
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<tr>
<td>W</td>
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<td>TBGT 060102R-W</td>
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<tr>
<td></td>
<td></td>
<td>060102R-W</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>060104R-W</td>
<td>0.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>060104L-W</td>
<td>0.4</td>
</tr>
<tr>
<td>AY</td>
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<td>0.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>060104</td>
<td>0.4</td>
</tr>
</tbody>
</table>

---

For Aluminium

---

**WCeramics**

---

*1: Photo shows left hand.
<table>
<thead>
<tr>
<th>Application</th>
<th>Steel</th>
<th>Stainless Steel</th>
<th>Cast Iron</th>
<th>Non-Ferrous Metal</th>
<th>Exotic Alloy</th>
<th>Hardened Steel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade</td>
<td>A2, A3</td>
<td>B10</td>
<td>C</td>
<td>D</td>
<td>R</td>
<td>S</td>
</tr>
</tbody>
</table>

**Recommended Inserts**

- **Indexable Insert**
  - **Triangular Type Positive Inserts**
  - Coated Carbide: Coated Carbide, Cermet, Cermet Carbide

**Shape Application**

- **Range Cat. No.**
  - Nose Radius: RE

**Dimensions (mm)**

- Cutting Edge Length L: 6.9
- Thickness S: 1.59
- Inscribed Circle IC: 3.97

**SUMIBORON (CBN) Inserts**

- L71

**SUMIDIA (PCD) Inserts**

- M16

*1: Photo shows left hand.*
### IGETALLOY

**Triangular Type Positive Inserts**

**Indexable Insert**

**TC**

![Image](TC.png)

**With Hole**

**Recommended Application**
- P: Steel
- M: Stainless Steel
- K: Cast Iron
- N: Non-Ferrous Metal
- S: Exotic Alloy
- H: Hardened Steel

**Information in "Shape" column**
- Name of Chipbreaker
- Chipbreaker
- Rake Angle
- FL

<table>
<thead>
<tr>
<th>Feed Rate (f) (mm/rev)</th>
<th>Depth of Cut (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.6</td>
<td>0.4</td>
</tr>
<tr>
<td>0.2</td>
<td>0.0</td>
</tr>
</tbody>
</table>

**Recommended Work Material**
- 10°

**Application Range**
- Indexable Insert
- Insert

**Neg. Pos.**

**Ceramic Insert**

**SUMIDIA (PCD) Inserts**

**M16**

**Applicable External Holders**
- D27

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC</td>
<td>Light Cutting</td>
<td>TCGW 080200 080201</td>
<td>0 0.1</td>
</tr>
</tbody>
</table>

Values for nose radius RE prefixed with "<" indicate negative tolerances.

**Values for nose radius RE prefixed with "<" indicate negative tolerances.**

**B106**

*1: Photo shows left hand.

**Values for nose radius RE prefixed with "<" indicate negative tolerances.**
**IGETALLOY**

**Triangular Type Positive Inserts**

**Indexable Insert**

---

**TC**

**Triangular Type**

**7° Pos.**

**With Hole**

---

**SUMIDIA (PCD) Inserts M16**

---

**Applicable External Holders**

---

**Triangular Type Positive Inserts**

**TC**

**1102**

**Dimensions**

- Cutting Edge Length: L 11.0
- Thickness S: 2.38
- Inscribed Circle: IC 6.35
- Hole Dia. D1: 2.8

**Recommend Application**

- S: Hardened Steel
- N: Exotic Alloy
- K: Non-Ferrous Metal
- M: Cast Iron
- P: Stainless Steel
- M: Steel

---

**Shape**

- **FB**
- **LU**
- **FP**
- **FX**
- **FY**
- **LB**
- **SU**
- **SI**
- **SC**

**Application Range**

- Light Cutting
- Continuous Cutting
- Interrupted Cutting

**Cat. No.**

- TCMT 110204N-FB
- 110208N-FB
- TCMT 110204N-LU
- 110208N-LU
- TCMT 110204N-FP
- 110208N-FP
- TCMT 110201R-FY
- 110201R-FX
- TCMT 110204N-LB
- 110208N-LB
- TCMT 110204N-SU
- 110208N-SU
- TCMT 110204MN-SI
- TCMT 110204M-SC
- TCMT 110204N-SC
- 110208N-SC

**Nose Radius**

- RE

---

**Grade Selection**

- A2, A3

**Chipbreaker Selection**

- B10 on

**Insert Grade Selection by Work Material**

- A10 on

---

**Coated Carbide**

**Coated Cermet**

**Carbide**

---

**Recommended Application**

- Hardened Steel
- Exotic Alloy
- Non-Ferrous Metal
- Cast Iron
- Stainless Steel
- Steel

---

**Values for nose radius RE prefixed with "<" indicate negative tolerances.**

---

*1: Photo shows left hand.
**IGETALLOY**

**Triangular Type Positive Inserts**

**Recommended Application**
- P: Steel
- M: Stainless Steel
- K: Cast Iron
- N: Non-Ferrous Metal
- S: Exotic Alloy
- H: Hardened Steel

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FX</td>
<td>TCMT 16T304N-FP</td>
<td>16T308N-FP</td>
<td>0.4</td>
</tr>
<tr>
<td>SC</td>
<td>TCMT 16T304N-SU</td>
<td>16T308N-SU</td>
<td>0.4</td>
</tr>
</tbody>
</table>

*1: Photo shows left hand.

Values for nose radius RE prefixed with "<" indicate negative tolerances.

---

**Triangular Type Positive Inserts**

**Recommended Application**
- P: Steel
- M: Stainless Steel
- K: Cast Iron
- N: Non-Ferrous Metal
- S: Exotic Alloy
- H: Hardened Steel

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FX</td>
<td>TCMT 16T304N-FP</td>
<td>16T308N-FP</td>
<td>0.4</td>
</tr>
<tr>
<td>SC</td>
<td>TCMT 16T304N-SU</td>
<td>16T308N-SU</td>
<td>0.4</td>
</tr>
</tbody>
</table>

*1: Photo shows left hand.

Values for nose radius RE prefixed with "<" indicate negative tolerances.
# Triangular Type Positive Inserts

**IGETALLOY**

**Triangular Type**

**11° Pos.**

**With Hole**

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FB</td>
<td></td>
<td>TPMT 080202N-FB 080204N-FB</td>
<td>0.2 0.4</td>
</tr>
<tr>
<td>LU</td>
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<td>TPMT 080202N-LU 080204N-LU</td>
<td>0.2 0.4</td>
</tr>
<tr>
<td>FW</td>
<td></td>
<td>TPMT 080202R-FW 080204L-FW</td>
<td>0.2 0.4</td>
</tr>
<tr>
<td>FX</td>
<td></td>
<td>TPMT 080202R-FX 080204R-FX</td>
<td>0.2 0.4</td>
</tr>
<tr>
<td>FY</td>
<td></td>
<td>TPMT 080203R-FY 080203L-FY</td>
<td>0.03 0.03</td>
</tr>
<tr>
<td>W</td>
<td></td>
<td>TPMT 080202R-W 080204L-W</td>
<td>0.2 0.4</td>
</tr>
<tr>
<td>LB</td>
<td></td>
<td>TPMT 080202N-LB 080204N-LB</td>
<td>0.2 0.4</td>
</tr>
<tr>
<td>SU</td>
<td></td>
<td>TPGW 080202 080204</td>
<td>0.2 0.4</td>
</tr>
<tr>
<td>AY</td>
<td></td>
<td>TPGT 080201R-AY 080201L-AY</td>
<td>0.1 0.1</td>
</tr>
</tbody>
</table>

*1: Photo shows left hand.*
IGETALLOY
Triangular Type Positive Inserts

### Triangular Type Positive Inserts

**Insert**

**SUMIBORON (CBN) Inserts**

**SUMIDIA (PCD) Inserts**

### Dimensions

- **Cutting Edge Length**: 9.6
- **Thickness**: 2.38
- **Hole Dia.**: D1 2.8

### Cutting Edge Length

- **L73**

### Coated Carbide

**Indexable Insert**

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius</th>
<th>Coated Carbide</th>
<th>Covert</th>
<th>Carbide</th>
</tr>
</thead>
<tbody>
<tr>
<td>FB</td>
<td>TPMT 090202N-FB</td>
<td>090204N-FB</td>
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<td>LU</td>
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</tr>
<tr>
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<tr>
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<tr>
<td>LB</td>
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<td>090204N-LB</td>
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<tr>
<td>AY</td>
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<td></td>
</tr>
</tbody>
</table>

### Recommended Application

- **Hardened Steel**: M18
- **Non-Ferrous Metal**: Cast Iron

### Rake Angle

- **Continuous Cutting**: 60°
- **Interrupted Cutting**: 11°

### Information in "Shape" column

- **1**: Photo shows left hand.

---

**SUMIBORON (CBN) Inserts**

**SUMIDIA (PCD) Inserts**

### Dimensions

- **Cutting Edge Length**: 11.0
- **Thickness**: 2.38
- **Hole Dia.**: D1 2.8

### Cutting Edge Length

- **L74**

### Coated Carbide

**Indexable Insert**

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius</th>
<th>Coated Carbide</th>
<th>Covert</th>
<th>Carbide</th>
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<tbody>
<tr>
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<td>FX</td>
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</tr>
</tbody>
</table>

### Recommended Application

- **Hardened Steel**: M18
- **Non-Ferrous Metal**: Cast Iron

### Rake Angle

- **Continuous Cutting**: 60°
- **Interrupted Cutting**: 11°

### Information in "Shape" column

- **1**: Photo shows left hand.
**IGETALLOY**

**Triangular Type Positive Inserts**

### Dimensions

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
</tr>
</thead>
<tbody>
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<td>110202R-FY</td>
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</tr>
<tr>
<td></td>
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<td>110202L-FY</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>110204R-FY</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>110204L-FY</td>
<td>0.4</td>
</tr>
<tr>
<td></td>
<td></td>
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<tr>
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<td>110208L-FY</td>
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</table>

### For Aluminium

<table>
<thead>
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<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
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</thead>
<tbody>
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<td>TPGT 11020R-AF</td>
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<tr>
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<td></td>
<td>110202R-AF</td>
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<tr>
<td></td>
<td></td>
<td>110202L-AF</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
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<td>110204L-AF</td>
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</tr>
</tbody>
</table>

*1: Photo shows left hand.

---

**TPG 110302R**

### Dimensions

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
</tr>
</thead>
<tbody>
<tr>
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<td>TPMT 110302N-FB</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>110304N-FB</td>
<td>0.4</td>
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<tr>
<td></td>
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<td>110308N-FB</td>
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<tr>
<td>LU</td>
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<td>TPMT 110302N-LU</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>110304N-LU</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>110308N-LU</td>
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<tr>
<td>FK</td>
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<td>TPMT 110308N-FK</td>
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</tbody>
</table>

### For Finishing

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FC</td>
<td></td>
<td>TPGT 110302MN-FC</td>
<td>&lt;0.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110304MN-FC</td>
<td>&lt;0.4</td>
</tr>
<tr>
<td>FX</td>
<td></td>
<td>TPGT 110302R-FX</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110302L-FX</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110304R-FX</td>
<td>0.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110304L-FX</td>
<td>0.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110308R-FX</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110308L-FX</td>
<td>0.8</td>
</tr>
</tbody>
</table>

*1: Photo shows left hand.

Values for nose radius RE prefixed with "<" indicate negative tolerances.
### IGETALLOY

**Triangular Type Positive Inserts**

**Triangular Type**

11° Pos.

With Hole

---

#### Insert

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FY</strong></td>
<td>Finishing</td>
<td>TPGT 110302R-FY</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110303R-FY</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110303L-FY</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110301R-FY</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110301L-FY</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110302R-FY</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110302L-FY</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110304R-FY</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110304L-FY</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110309R-FY</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110308L-FY</td>
</tr>
<tr>
<td><strong>SD</strong></td>
<td>Finishing</td>
<td>TPGT 110302R-SD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110303R-SD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110303L-SD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110301R-SD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110301L-SD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110302R-SD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110302L-SD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110304R-SD</td>
</tr>
<tr>
<td></td>
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<td>110304L-SD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110309R-SD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110308L-SD</td>
</tr>
<tr>
<td><strong>LB</strong></td>
<td>Light Cutting</td>
<td>TPGM 110302N-LB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110304N-LB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110308N-LB</td>
</tr>
<tr>
<td><strong>SU</strong></td>
<td>Light Cutting</td>
<td>TPGM 110302N-SU</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110304N-SU</td>
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<td></td>
<td></td>
<td>110308N-SU</td>
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<tr>
<td><strong>TG</strong></td>
<td>Light Cutting</td>
<td>TPGW 110302</td>
</tr>
<tr>
<td></td>
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<td>110304</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110308</td>
</tr>
<tr>
<td><strong>MU</strong></td>
<td>Light Cutting</td>
<td>TPGM 110304N-MU</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110308N-MU</td>
</tr>
<tr>
<td><strong>SF</strong></td>
<td>Light Cutting</td>
<td>TPGM 110304N-SF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110308N-SF</td>
</tr>
<tr>
<td><strong>AY</strong></td>
<td>For Aluminium</td>
<td>TPGT 110301R-AY</td>
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<tr>
<td></td>
<td></td>
<td>110301L-AY</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110302R-AY</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110302L-AY</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110304R-AY</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110304L-AY</td>
</tr>
</tbody>
</table>

---

#### Dimensions

- **TP**
  - Cutting Edge Length: 11.0
  - Thickness: 3.18
  - Hole Dia: 3.4

---

#### Information in "Shape" column

- Name of Chipbreaker
- Chipbreaker
- Rake Angle
- FL

---

#### Work Material

- WCeramics
- Solid CBN
- Cermet
- Carbide

---

#### Tool

- Stainless Steel
- Cast Iron
- Non-Tanin Steel
- Exotic Alloy
- Hardened Steel
### IGETALLOY

**Triangular Type Positive Inserts**

#### Insert

**TP** Triangular Type

**11° Pos.**

**With Hole**

#### Insert

**TP 1603**

**Dimensions**
- Cutting Edge Length: 16.5
- Thickness: 3.18
- Inscribed Circle: 9.525
- Hole Dia. D1: 4.4

**SUMIBORON (CBN) Inserts** L79

**SUMIDIA (PCD) Inserts** M19

**Applicable Internal Holders** E50

#### Grade Selection
- A2, A3

#### Chipbreaker Selection
- B10 on

**Insert Grade Selection by Work Material**
- A10 on

#### Recommended Application
- P: Steel
- M: Stainless Steel
- K: Cast Iron
- N: Non-Ferrous Metal
- S: Exotic Alloy
- H: Hardened Steel

#### Shape Application Range

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FB</td>
<td></td>
<td>TPMT 160304N-FB 160308N-FB</td>
<td>0.4 0.8</td>
</tr>
<tr>
<td>FX</td>
<td>Finishing</td>
<td>TPMT 160304R-FX 160308R-FX 160308L-FX</td>
<td>0.4 0.8</td>
</tr>
<tr>
<td>FY</td>
<td></td>
<td>TPMT 160302R-FY 160302L-FY 160304R-FY 160308R-FY 160308L-FY</td>
<td>0.2 0.4 0.8</td>
</tr>
<tr>
<td>LB</td>
<td>Light Cutting</td>
<td>TPMT 160304N-LB 160308N-LB</td>
<td>0.4 0.8</td>
</tr>
</tbody>
</table>

*1: Photo shows left hand.

**Dimensions (mm)**
- Cutting Edge Length L: 16.5
- Thickness S: 3.18
- Inscribed Circle IC: 9.525
- Hole Dia. D1: 4.4

**Suminboron (CBN) Inserts**

**Sumidia (PCD) Inserts**

**Applicable Internal Holders**

**B113**
### Triangular Type Positive Inserts

**IGETALLOY**

**Triangular Type**

**11° Pos.**

**With Hole**

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
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</thead>
<tbody>
<tr>
<td>FB</td>
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<tr>
<td>FK</td>
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<tr>
<td>SD</td>
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<td>TPGT 16040R-SD 160402R-SD</td>
<td>0.2 0.8</td>
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<tr>
<td>SDW</td>
<td></td>
<td>TPGX 16040R-SDW 160404R-SDW</td>
<td>0.4 0.8</td>
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<tr>
<td>LB</td>
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<td>TPMT 16040N-LB 160408N-LB</td>
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<tr>
<td>SU</td>
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<td>TPMT 16040N-SU 160408N-SU</td>
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<tr>
<td>MU</td>
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<td>TPMT 16040N-MU 160408N-MU</td>
<td>0.4 0.8</td>
</tr>
<tr>
<td>SF</td>
<td></td>
<td>TPMT 16040N-SF 160408N-SF</td>
<td>0.4 0.8</td>
</tr>
</tbody>
</table>

**Information in “Shape” column**

- Name of Chipbreaker
- Chipbreaker
- Rake Angle
- Feed Rate (f) (mm/rev)
- Depth of Cut (p) (mm)
- Work Material
- Application
- Range
- Indexable Insert

**SUMIDIA Insert**

- SUMBoron (CBN) Inserts
- SUMIDIA Binderless Inserts

**SUMIDIA (PCD) Insert**

- M28

**Recommended Application**

- Hardened Steel
- Exotic Alloy
- Non-Ferrous Metal
- Cast Iron
- Steel

**Radius**

- Nose

**Applicable Internal Holders**

- TPMT 160404N-SF
- TPMT 160404N-MU
- TPGW 160400
- TPMT 160404N-SU
- TPMT 160404N-LB
- TPGX 160404R-SDW
- TPGT 160402R-SD
- TPMT 160404N-FK
- TPMT 160404N-FB

1: Photo shows left hand.
# Triangular Type Positive Inserts

## TP

### 11° Pos.

**Without Hole**

### Dimensions

<table>
<thead>
<tr>
<th>Cutting Edge Length L</th>
<th>Thickness S</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.6</td>
<td>2.38</td>
</tr>
</tbody>
</table>

**Inscribed Circle C**: 5.56

**Dimensions**: 0.4

### Applicable Internal Holders

- L62
- M20

---

## SUMIBORON (CBN) Inserts

<table>
<thead>
<tr>
<th>Insert</th>
<th>Coated Carbide</th>
<th>Cermet Carbide</th>
<th>Solid CBN</th>
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</thead>
<tbody>
<tr>
<td>TP0902</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>TP1103</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

### Ceramic Inserts

**B125**

---

**Recommended Application**

- Hardened Steel
- Exotic Alloy
- Non-Ferrous Metal
- Stainless Steel
- Cast Iron
- Exotic Alloy
- Stainless Steel

---

**Insert Grade Selection**

- A2, A3
- B10 on
- B115

---

**Chipbreaker Selection**

- Solid Carbide
- Solid CBN

---

**Grade Selection**

- A2, A3
- A10 on

---

**Insert Selection**

- Solid Carbide
- Solid CBN

---

**Shape Application**

- Finishing
- Light Cutting
- Finishing/Light Cutting

---

### TKM 0902

**Cat. No.:**

- TPMR 090204N-FK
- TPGR 090204N-FK

**Nose Radius RE:**

- 0.4

---

### TKM 1103

**Cat. No.:**

- TPMR 110304N-FK
- TPMR 110304N-UJ
- TPMR 110308N-UJ

**Nose Radius RE:**

- 0.4

---

**Recommended Application:**

- Hardened Steel
- Exotic Alloy
- Non-Ferrous Metal
- Stainless Steel
- Cast Iron
- Stainless Steel

---

**Insert Selection:**

- Solid Carbide
- Solid CBN

---

*1: Photo shows left hand.
## Triangular Type Positive Inserts

### Insert

**TP**

**11° Pos.**

Without Hole

#### Dimensions

**TP 110300**

- **TPGN 110302**
- **110304**
- **110306**
- **110312**

**TP 160300**

- **TPMR 160304-FK**
- **160304N-FK**
- **160308N-FK**
- **160312N-FK**

#### Work Material

- Stainless Steel
- Hardened Steel
- Tool Steel
- Cast Iron
- Non-Ferrous Metal
- Exotic Alloy

### Recommended Application

#### Cutting Edge Length

**IC 6.35**

#### Thickness

**S 3.18**

### Recommended

**Ceramic Inserts**

**SUMIBORON (CBN) Inserts**

**SUMIDIA (PCD) Inserts**

### Kerf

**10°**

**Feed Rate (f) (mm/rev)**

0.2 0.4 0.6

**Depth of Cut (a) (mm)**

0.2 0.4 0.6

*Note: *Geometry, Size, and Application Information are subject to change without notice.

---

*1: Photo shows left hand.
IGETALLOY

Triangular Type Positive Inserts

**Triangular Type**

11° Pos.

Without Hole

---

**TP** 1604

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
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</thead>
<tbody>
<tr>
<td>Medium Cutting</td>
<td>TPGN 160404</td>
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<tr>
<td></td>
<td>160408</td>
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<tr>
<td></td>
<td>160412</td>
<td>1.2</td>
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<tr>
<td></td>
<td>160416</td>
<td>1.6</td>
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</tbody>
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---

**TP** 2204

<table>
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<td>TPNR 220408N-SF</td>
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---

**SUMIBORON (CBN) Inserts**

<table>
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<th>Shape</th>
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<th>Cat. No.</th>
<th>Nose Radius RE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium Cutting</td>
<td>TPNR 220404</td>
<td>0.4</td>
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</tr>
<tr>
<td></td>
<td>220408</td>
<td>0.8</td>
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<tr>
<td></td>
<td>220412</td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>220416</td>
<td>1.6</td>
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</tr>
</tbody>
</table>

---

**Grade Selection**

A2, A3

**Chipbreaker Selection**

B10

**Insert Grade Selection by Work Material**

A10
### IGETALLOY

#### Triangular Type Positive Inserts

**Indexable Insert**

**Insert**

<table>
<thead>
<tr>
<th>Orientation</th>
<th>Cutting Edge Length</th>
<th>Thickness</th>
<th>Cat. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>11.0</td>
<td>2.38</td>
<td></td>
</tr>
</tbody>
</table>

**SUMIDIA (PCD) Inserts**

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Recommended Application**

- **P**: Steel
- **M**: Stainless Steel
- **K**: Cast Iron
- **N**: Non-Ferrous Metal
- **S**: Exotic Alloy
- **H**: Hardened Steel

**Information in “Shape” column**

- **Name of Chipbreaker**: Coated Carbide, Cermet, Cermet Carbide

**Rake Angle**

- **FL**: 0.6, 0.4, 0.20

**Feed Rate (f) (mm/rev)**

- **1**: R
- **2**: S
- **3**: T

**Depth of Cut (ap) (mm)**

- **10°**: Application Range

**Recommended Work Material**

- **Indexable Insert**

<table>
<thead>
<tr>
<th>Insert</th>
<th>Orientation</th>
<th>Cutting Edge Length</th>
<th>Thickness</th>
<th>Cat. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>11.0</td>
<td>2.38</td>
<td></td>
</tr>
</tbody>
</table>

**Dimensions (mm)**

- **Cutting Edge Length L**: 11.0
- **Thickness S**: 2.38
- **Inscribed Circle IC**: 6.35

**SUMIDIA (PCD) Inserts**

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Recommended Application**

- **P**: Steel
- **M**: Stainless Steel
- **K**: Cast Iron
- **N**: Non-Ferrous Metal
- **S**: Exotic Alloy
- **H**: Hardened Steel

**Information in “Shape” column**

- **Name of Chipbreaker**: Coated Carbide, Cermet, Cermet Carbide

**Rake Angle**

- **FL**: 0.6, 0.4, 0.20

**Feed Rate (f) (mm/rev)**

- **1**: R
- **2**: S
- **3**: T

**Depth of Cut (ap) (mm)**

- **10°**: Application Range

**Recommended Work Material**

- **Indexable Insert**

<table>
<thead>
<tr>
<th>Insert</th>
<th>Orientation</th>
<th>Cutting Edge Length</th>
<th>Thickness</th>
<th>Cat. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>11.0</td>
<td>2.38</td>
<td></td>
</tr>
</tbody>
</table>

**Dimensions (mm)**

- **Cutting Edge Length L**: 16.5
- **Thickness S**: 3.18
- **Inscribed Circle IC**: 9.525

**SUMIDIA (PCD) Inserts**

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Recommended Application**

- **P**: Steel
- **M**: Stainless Steel
- **K**: Cast Iron
- **N**: Non-Ferrous Metal
- **S**: Exotic Alloy
- **H**: Hardened Steel

**Information in “Shape” column**

- **Name of Chipbreaker**: Coated Carbide, Cermet, Cermet Carbide

**Rake Angle**

- **FL**: 0.6, 0.4, 0.20

**Feed Rate (f) (mm/rev)**

- **1**: R
- **2**: S
- **3**: T

**Depth of Cut (ap) (mm)**

- **10°**: Application Range

**Recommended Work Material**

- **Indexable Insert**

<table>
<thead>
<tr>
<th>Insert</th>
<th>Orientation</th>
<th>Cutting Edge Length</th>
<th>Thickness</th>
<th>Cat. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>11.0</td>
<td>2.38</td>
<td></td>
</tr>
</tbody>
</table>
### Recommended Application

- **P**: Steel
- **M**: Stainless Steel
- **K**: Cast Iron
- **N**: Non-Ferrous Metal
- **S**: Exotic Alloy
- **H**: Hardened Steel

### Grade Selection

- **A2**, **A3**: For general cutting

### Chipbreaker Selection

- **B10**: Recommended

### Insert Grade Selection by Work Material

- **A10**: Recommended

### Insert

**Triangular Type Positive Inserts**

#### Dimensions

<table>
<thead>
<tr>
<th>Insert Cat. No.</th>
<th>Dimensions</th>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>220404</td>
<td>22.0</td>
<td>20° Pos.</td>
<td>TEGN</td>
<td>220404, 220408, 220412</td>
</tr>
</tbody>
</table>

#### Coated Carbide

<table>
<thead>
<tr>
<th>Shape</th>
<th>Coated Carbide</th>
<th>Coated Cermet</th>
<th>Cermet</th>
<th>Carbide</th>
</tr>
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<tbody>
<tr>
<td>TEGN</td>
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<td></td>
</tr>
</tbody>
</table>

#### Coated Carbide

<table>
<thead>
<tr>
<th>Insert Cat. No.</th>
<th>Coated Carbide</th>
<th>Coated Cermet</th>
<th>Cermet</th>
<th>Carbide</th>
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<tbody>
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<td>220404</td>
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<td></td>
</tr>
<tr>
<td>220408</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>220412</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Cutting Edge Length L

- 22.0

#### Thickness S

- 4.76

#### Inscribed Circle IC

- 12.7
### IGETALLOY

#### 35° Diamond Type Positive Inserts

**VB**

#### 35° Diamond Type

**5° Pos.**

**With Hole**

---

**VB\textsuperscript{1103}**

- **Insert**
  - **B**
  - **L90**
  - **L89**
  - **L89, L90**

- **Applicable Internal Holders**
  - **L89, L90**

---

#### Coated Carbide

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
<th>Coated Carbide</th>
</tr>
</thead>
<tbody>
<tr>
<td>FB</td>
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<td>VBMT 110302N-FB</td>
<td>0.2</td>
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<tr>
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<td></td>
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<tr>
<td>FX</td>
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<td>FY</td>
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<tr>
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<td>&lt; 0.1</td>
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---

#### Solid CBN

- **WCeramics**
  - **B**
  - **Neg. Pos.**
  - **R**
  - **S**
  - **V**

---

#### Applicable Internal Holders

- **SUMIBORON (CBN) Inserts**
  - **L89, L90**

---

#### Recommended Application

- **Hardened Steel**
- **Exotic Alloy**
- **Non-Ferrous Metal**
- **Cast Iron**
- **Stainless Steel**
- **Steel**

---

#### Values for nose radius RE prefixed with "<" indicate negative tolerances.
IGETALLOY

35° Diamond Type Positive Inserts

**Grade Selection**: A2, A3

**Chipbreaker Selection**: B10 on

**Recommended Application**:
- P: Steel
- M: Stainless Steel
- K: Cast Iron
- N: Non-Ferrous Metal
- S: Exotic Alloy
- H: Hardened Steel

**Insert Grade Selection**:
- A2, A3

**Chipbreaker Selection**:
- B10

**Insert Grade Selection by Work Material**:
- A10

**Shape Application Range**

<table>
<thead>
<tr>
<th>Shape</th>
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<th>Cat. No.</th>
<th>Nose Radius RE</th>
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<td>VBMT 160404N-LU</td>
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<td><strong>FX</strong></td>
<td></td>
<td>VBGT 160422R-FX</td>
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<td>VBGT 160401M-SI</td>
<td>&lt; 0.8</td>
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<tr>
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**Values for nose radius RE prefixed with "<" indicate negative tolerances.**
### 35° Diamond Type Positive Inserts

#### VC 35° Diamond Type

**7° Pos.**

**With Hole**

<table>
<thead>
<tr>
<th>Insert</th>
<th>Indexable Insert</th>
<th>Coated Carbide</th>
<th>Coat Core</th>
<th>Insert</th>
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</thead>
<tbody>
<tr>
<td>VC0802</td>
<td>SUMIBORON (CBN) Inserts</td>
<td>SUMIDIA Binderless Inserts</td>
<td>E32, E36, E38</td>
<td>M28</td>
</tr>
<tr>
<td>B1200</td>
<td>SUMIBORON (CBN) Inserts</td>
<td>SUMIDIA Binderless Inserts</td>
<td>E32, E36, E38</td>
<td>M28</td>
</tr>
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</table>

### Values for nose radius RE prefixed with "<" indicate negative tolerances.

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
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</thead>
<tbody>
<tr>
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<td>FC</td>
<td>VCG 080204MN-FC</td>
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<td>LB</td>
<td>VCM 080202N-LB 080202N-LB</td>
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<tr>
<td>SU</td>
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</table>

### Recommended Application

- **Hardened Steel**
- **Exotic Alloy**
- **Non-Ferrous Metal**

### Information in "Shape" column

- **Continuous Cutting**
- **Interrupted Cutting**

---

### Values for nose radius RE prefixed with "<" indicate negative tolerances.

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
</tr>
</thead>
<tbody>
<tr>
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<td>FX</td>
<td>VCG 100301RX 100304RX</td>
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<tr>
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<tr>
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<td>VCG 100301FY 100302FY</td>
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</tr>
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</table>

---

**Recommendation**: Use SUMIBORON (CBN) Inserts for SUMIDIA Binderless Inserts.
IGETALLOY

35° Diamond Type Positive Inserts

**VC**

35° Diamond Type
7° Pos.
With Hole

**SUMIDIA (PCD) Inserts**

**M22**

**SUMIDIA Binderless Inserts**

**M28**

**Applicable External Holders**

**C41**

**SUMIMORON (CBN) Inserts**

**L54**

**SUMIDIA (PCD) Inserts**

**M22, M23**

**Applicable Internal Holders**

**E35, E38**

**Recommended Application**

- P: Steel
- M: Stainless Steel
- K: Cast Iron
- N: Non-Ferrous Metal
- S: Exotic Alloy
- H: Hardened Steel

**Information in “Shape” column**

- Name of Chipbreaker
- Rake Angle
- Chipbreaker
- FL
- 0.6 0.4 0.20
- 1
- 2
- 3
- Feed Rate (f) (mm/rev)
- Depth of Cut (a) (mm)
- Recommended Work Material

**VC 1604-08**

Diameter (mm): Cutting Edge Length L 16.6
Thickenss S 4.76
Inscribed Circle IC 9.525
Hole Dia. D1 4.4

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
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</thead>
<tbody>
<tr>
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<td>0.8 1.2</td>
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<tr>
<td>AG</td>
<td>For Aluminium</td>
<td>VCGT 160408N-AG 160412N-AG</td>
<td>0.8 1.2</td>
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</tbody>
</table>

**VC 2205-08**

Diameter (mm): Cutting Edge Length L 20.2
Thickenss S 5.56
Inscribed Circle IC 12.7
Hole Dia. D1 5.5

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
</tr>
</thead>
<tbody>
<tr>
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**Ceramics Solid Carbide**

**SUMIBORON (CBN) Inserts**

**L94**

**SUMIDIA (PCD) Inserts**

**M22, M23**

**Applicable External Holders**

**C36, C37**

**SUMIDIA Binderless Inserts**

**M28**

**Applicable Internal Holders**

**E35, E38**

**Recommended Application**

- P: Steel
- M: Stainless Steel
- K: Cast Iron
- N: Non-Ferrous Metal
- S: Exotic Alloy
- H: Hardened Steel

**Information in “Shape” column**

- Name of Chipbreaker
- Rake Angle
- Chipbreaker
- FL
- 0.6 0.4 0.20
- 1
- 2
- 3
- Feed Rate (f) (mm/rev)
- Depth of Cut (a) (mm)
- Recommended Work Material

**VC 1604-08**

Diameter (mm): Cutting Edge Length L 16.6
Thickenss S 4.76
Inscribed Circle IC 9.525
Hole Dia. D1 4.4

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
</tr>
</thead>
<tbody>
<tr>
<td>AW</td>
<td>For Aluminium</td>
<td>VCGT 160408N-AW 160412N-AW</td>
<td>0.8 1.2</td>
</tr>
<tr>
<td>AG</td>
<td>For Aluminium</td>
<td>VCGT 160408N-AG 160412N-AG</td>
<td>0.8 1.2</td>
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</table>

**VC 2205-08**

Diameter (mm): Cutting Edge Length L 20.2
Thickenss S 5.56
Inscribed Circle IC 12.7
Hole Dia. D1 5.5

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
</tr>
</thead>
<tbody>
<tr>
<td>AW</td>
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<td>VCGT 220510N-AW 220516N-AW 220520N-AW 220530N-AW</td>
<td>1.0 1.6 2.0 3.0</td>
</tr>
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<td>AG</td>
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</table>

**Coated Carbide**

**Concrete**

**Carbide**

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
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</thead>
<tbody>
<tr>
<td>AW</td>
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<td>VCGT 160408N-AW 160412N-AW</td>
<td>0.8 1.2</td>
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**VC 2205-08**

Diameter (mm): Cutting Edge Length L 20.2
Thickenss S 5.56
Inscribed Circle IC 12.7
Hole Dia. D1 5.5

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
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<tbody>
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<td>AW</td>
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<td>VCGT 220510N-AW 220516N-AW 220520N-AW 220530N-AW</td>
<td>1.0 1.6 2.0 3.0</td>
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<td>VCGT 220530N-AG</td>
<td>3.0</td>
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**Coated Carbide**

**Concrete**

**Carbide**

<table>
<thead>
<tr>
<th>Shape</th>
<th>Application Range</th>
<th>Cat. No.</th>
<th>Nose Radius RE</th>
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<tbody>
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<td>AW</td>
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</table>
# 35° Diamond Type Positive Inserts

## Indexable Insert

### VP 0802008R-FY

<table>
<thead>
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<th>Application Range</th>
<th>Cat. No.</th>
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### VP 1103003R-FY

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### VP 1103003R-FY

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<td>VP110302L-FX</td>
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</tr>
</tbody>
</table>

## Dimensions

### VP 0802008R-FY

- Cutting Edge Length: 8.3
- Thickness: 2.38
- Inscribed Circle: 4.76
- Hole Dia. D1: 2.4

### VP 1103003R-FY

- Cutting Edge Length: 11.1
- Thickness: 3.18
- Inscribed Circle: 6.35
- Hole Dia. D1: 2.8

## Applicable External Holders

- D15, D20
### IGETALLOY

## Trigon Type Positive Inserts

### WB

### Trigon Type

**5° Pos.**

**With Hole**

<table>
<thead>
<tr>
<th>Insert</th>
<th>B126</th>
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</thead>
<tbody>
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<td>WB</td>
<td>060104R-FY</td>
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<td>WB</td>
<td>060104L-FY</td>
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<tr>
<td>WB</td>
<td>060102L-W</td>
</tr>
<tr>
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<td>060102R-FY</td>
</tr>
<tr>
<td>WB</td>
<td>060104L-W</td>
</tr>
</tbody>
</table>

**Dimensions**

- Cutting Edge Length: 3.2 (mm)
- Thickness: S 1.59 (mm)
- Inscribed Circle: C 3.97 (mm)
- Hole Dia. D1: 2.2 (mm)

**Shape**

- FW
- FX
- FY
- W

**Recommended Application**

- Hardened Steel
- Non-Ferrous Metal
- Steel
- Stainless Steel

**Recommended Chipbreaker**

- AC8015P
- AC8025P
- AC8035P
- AC810P
- AC820P
- AC830P
- AC6020M
- AC6030M
- AC6040M
- AC610M
- AC630M
- AC640M
- AC4010S
- AC4015S
- AC4020S
- AC4025S
- AC4030S
- AC410U
- AC420U
- AC430U
- AC5010U
- AC5015U
- AC5020U
- AC5025U
- AC5030U
- AC5035U
- AC510U
- AC520U
- AC530U
- ACZ150U
- A30
- A30U
- A30K
- A30U
- T1500Z
- T3000Z
- T1000A
- T1500A
- T3000A
- ST10P
- ST20E
- EH510
- EH520
- H1
- FL

**Feed Rate (f) (mm/rev)**

- 0.6
- 0.4
- 0.2
- 0.1

**Rake Angle**

- 0°
- 10°
- 20°

**Work Material**

- Continuous Cutting
  - 1st Recommended
  - 2nd Recommended
- Interrupted Cutting
  - 1st Recommended
  - 2nd Recommended

**Information in “Shape” column**

- Work Material
- Chipbreaker
- Rake Angle
- Feed Rate

---

1: Photo shows left hand.
## Trigon Type Positive Inserts

### WP

**Trigon Type Positive Inserts**

**11° Pos.**

**With Hole**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Cutting Edge Length</th>
<th>Thickness</th>
<th>Inscribed Circle</th>
<th>Hole Dia.</th>
<th>D1</th>
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<td>mm</td>
<td>mm</td>
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<tr>
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<td>6.35</td>
<td>2.8</td>
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</table>

### Grade Selection
- A2, A3

### Chipbreaker Selection
- B10 on

### Insert Grade Selection
- A10 on

### Recommended Application
- P: Steel
- M: Stainless Steel
- K: Cast Iron
- N: Non-Ferrous Metal
- S: Exotic Alloy
- H: Hardened Steel

### Recommended Tool Material
- Solid CBN

### Shape Application
- LB

### Dimensions (mm)
- Cutting Edge Length L: 4.3
- Thickness S: 2.38
- Inscribed Circle IC: 6.35
- Hole Dia. D1: 2.8

### WPMT 110204N-LB

### Coated Carbide Coated Cermet Cermet Carbide

### Applicable Internal Holders
- E49
# IGETALLOY Ceramic Inserts

## Indexable Insert

<table>
<thead>
<tr>
<th>Insert</th>
<th>Neg.</th>
<th>With Hole</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neg.</td>
<td>With</td>
<td>Without</td>
</tr>
</tbody>
</table>

### 80° Diamond Type

<table>
<thead>
<tr>
<th>Shape</th>
<th>Cat. No.</th>
<th>Dimensions (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNGA 120404</td>
<td>●</td>
<td>12.70 4.76 0.8 5.16 1.2</td>
</tr>
<tr>
<td>CNGA 120408</td>
<td>●</td>
<td>12.70 4.76 0.8 5.16 1.2</td>
</tr>
<tr>
<td>CNGA 120412</td>
<td>●</td>
<td>12.70 4.76 0.8 5.16 1.2</td>
</tr>
</tbody>
</table>

### 55° Diamond Type

<table>
<thead>
<tr>
<th>Shape</th>
<th>Cat. No.</th>
<th>Dimensions (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNGA 150404</td>
<td>●</td>
<td>12.70 4.76 0.8 5.16 1.2</td>
</tr>
<tr>
<td>DNGA 150408</td>
<td>●</td>
<td>12.70 4.76 0.8 5.16 1.2</td>
</tr>
<tr>
<td>DNGA 150412</td>
<td>●</td>
<td>12.70 4.76 0.8 5.16 1.2</td>
</tr>
</tbody>
</table>

### 75° Diamond Type

<table>
<thead>
<tr>
<th>Shape</th>
<th>Cat. No.</th>
<th>Dimensions (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGN 130408</td>
<td>●</td>
<td>12.70 4.76 0.8 5.16 1.2</td>
</tr>
<tr>
<td>ENGN 130412</td>
<td>●</td>
<td>12.70 4.76 0.8 5.16 1.2</td>
</tr>
<tr>
<td>ENGN 130708</td>
<td>●</td>
<td>12.70 4.76 0.8 5.16 1.2</td>
</tr>
<tr>
<td>ENGN 130712</td>
<td>●</td>
<td>12.70 4.76 0.8 5.16 1.2</td>
</tr>
</tbody>
</table>

### Round Type

<table>
<thead>
<tr>
<th>Shape</th>
<th>Cat. No.</th>
<th>Dimensions (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RNGN 120400</td>
<td>●</td>
<td>12.70 4.76 0.8 5.16 1.2</td>
</tr>
<tr>
<td>RNGN 120700</td>
<td>●</td>
<td>12.70 4.76 0.8 5.16 1.2</td>
</tr>
<tr>
<td>RNGN 150700</td>
<td>●</td>
<td>15.875 7.94 0.8 5.16 1.2</td>
</tr>
</tbody>
</table>

### Square Type

<table>
<thead>
<tr>
<th>Shape</th>
<th>Cat. No.</th>
<th>Dimensions (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNGA 120404</td>
<td>●</td>
<td>12.70 4.76 0.8 5.16 1.2</td>
</tr>
<tr>
<td>SNGA 120408</td>
<td>●</td>
<td>12.70 4.76 0.8 5.16 1.2</td>
</tr>
<tr>
<td>SNGA 120412</td>
<td>●</td>
<td>12.70 4.76 0.8 5.16 1.2</td>
</tr>
</tbody>
</table>

### Triangular Type

<table>
<thead>
<tr>
<th>Shape</th>
<th>Cat. No.</th>
<th>Dimensions (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TNGA 160404</td>
<td>●</td>
<td>9.525 4.76 0.8 1.2 3.81</td>
</tr>
<tr>
<td>TNGA 160408</td>
<td>●</td>
<td>9.525 4.76 0.8 1.2 3.81</td>
</tr>
<tr>
<td>TNGA 160412</td>
<td>●</td>
<td>9.525 4.76 0.8 1.2 3.81</td>
</tr>
<tr>
<td>TNGA 160416</td>
<td>●</td>
<td>9.525 4.76 0.8 1.2 3.81</td>
</tr>
</tbody>
</table>

### 35° Diamond Type

<table>
<thead>
<tr>
<th>Shape</th>
<th>Cat. No.</th>
<th>Dimensions (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VNGA 160404</td>
<td>●</td>
<td>9.525 4.76 0.8 1.2 3.81</td>
</tr>
<tr>
<td>VNGA 160408</td>
<td>●</td>
<td>9.525 4.76 0.8 1.2 3.81</td>
</tr>
</tbody>
</table>

**Recommended Application**

- **P**: Steel
- **M**: Stainless Steel
- **K**: Cast Iron
- **N**: Non-Ferrous Metal
- **S**: Exotic Alloy
- **H**: Hardened Steel
- **Ceramics**

**Legend**

- Continuous Cutting: 1st Recommended
- General Cutting: 1st Recommended
- Interrupted Cutting: 1st Recommended

**Note:** WX120 is only sold in Japan.
### Ceramic Inserts

**Indexable Insert**

**Pos.** | **Without Hole**
---|---

**Legend**
- Continuous Cutting: 1st Recommended
- General Cutting: 2nd Recommended
- Interrupted Cutting: 1st Recommended

#### Round Type

<table>
<thead>
<tr>
<th>Shape</th>
<th>Cat. No.</th>
<th>WX120</th>
<th>NB90S</th>
<th>NB100C</th>
<th>Thickness</th>
<th>Nose Radius</th>
<th>Hole Dia.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RBGN 120700</td>
<td>12.70</td>
<td>12.70</td>
<td>7.94</td>
<td>7.94</td>
<td>12.70</td>
<td>7.94</td>
</tr>
<tr>
<td></td>
<td>RBGN 150700</td>
<td>15.875</td>
<td>25.40</td>
<td>9.52</td>
<td>9.52</td>
<td>25.40</td>
<td>9.52</td>
</tr>
<tr>
<td></td>
<td>RBGN 250900</td>
<td>25.40</td>
<td>25.40</td>
<td>9.52</td>
<td>9.52</td>
<td>25.40</td>
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</tr>
<tr>
<td></td>
<td>RBG 12S</td>
<td>12.00</td>
<td>12.00</td>
<td>10.0</td>
<td>10.0</td>
<td>12.00</td>
<td>10.0</td>
</tr>
<tr>
<td></td>
<td>RBG 16S</td>
<td>16.00</td>
<td>16.00</td>
<td>13.0</td>
<td>13.0</td>
<td>16.00</td>
<td>13.0</td>
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<tr>
<td></td>
<td>RBG 20S</td>
<td>20.00</td>
<td>20.00</td>
<td>15.0</td>
<td>15.0</td>
<td>20.00</td>
<td>15.0</td>
</tr>
<tr>
<td></td>
<td>RBG 26S</td>
<td>26.00</td>
<td>26.00</td>
<td>16.0</td>
<td>16.0</td>
<td>26.00</td>
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<tr>
<td></td>
<td>RBG 32S</td>
<td>32.00</td>
<td>32.00</td>
<td>21.0</td>
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<td>21.0</td>
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<tr>
<td></td>
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<td>9.525</td>
<td>7.94</td>
<td>7.94</td>
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<td>7.94</td>
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<tr>
<td></td>
<td>RCGX 120700</td>
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<td>12.70</td>
<td>7.94</td>
<td>7.94</td>
<td>12.70</td>
<td>7.94</td>
</tr>
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</table>

#### Square Type

<table>
<thead>
<tr>
<th></th>
<th>SPGN 090308</th>
<th></th>
<th>9.525</th>
<th>3.18</th>
<th>0.8</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SPGN 120308</td>
<td></td>
<td>12.70</td>
<td>12.70</td>
<td>3.18</td>
</tr>
</tbody>
</table>

#### Triangular Type

<table>
<thead>
<tr>
<th></th>
<th>TPGN 110304</th>
<th></th>
<th>6.35</th>
<th>3.18</th>
<th>0.4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TPGN 110308</td>
<td></td>
<td>6.35</td>
<td>6.35</td>
<td>3.18</td>
</tr>
<tr>
<td></td>
<td>TPGN 160304</td>
<td></td>
<td>9.525</td>
<td>9.525</td>
<td>3.18</td>
</tr>
<tr>
<td></td>
<td>TPGN 160306</td>
<td></td>
<td>9.525</td>
<td>9.525</td>
<td>3.18</td>
</tr>
</tbody>
</table>

*WX120 is only sold in Japan.*
### BNS800

**Indexable Insert (Solid CBN Type)**

Refer to L100 to L103 for information on various dedicated holders for BNS800.

<table>
<thead>
<tr>
<th>Shape</th>
<th>Cat. No.</th>
<th>(Old Cat. No.)</th>
<th>BNS800 Inserted Circle Thickness Noise Radius Hole Y/N</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>80° Diamond Type</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CNGN 090308</td>
<td>CNGN 090308</td>
<td>CNGN 090308F</td>
<td>9.525 3.18 0.8  No O.D.</td>
</tr>
<tr>
<td>CNGN 090308LF</td>
<td>CNGN 090308FL</td>
<td>CNGN 090312F</td>
<td>12.70 4.76 1.2  No O.D.</td>
</tr>
<tr>
<td>CNGN 120408</td>
<td>CNGN 120408</td>
<td>CNGN 120412</td>
<td>12.70 4.76 1.6  Yes O.D.</td>
</tr>
<tr>
<td>CNGA 120408</td>
<td>CNGA 120412</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>55° Diamond Type</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CNGX 120408</td>
<td>CNGX 120412</td>
<td>CNGX 120416</td>
<td>12.70 4.76 1.6  No O.D.</td>
</tr>
<tr>
<td><strong>Round Type</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RNGN 090300</td>
<td>RNGN 090300LF</td>
<td>RNGN 090300F</td>
<td>9.525 3.18  No O.D.</td>
</tr>
<tr>
<td>RNGN 120300</td>
<td>RNGN 120300LF</td>
<td>RNGN 120300F</td>
<td>12.70 4.76  No O.D.</td>
</tr>
<tr>
<td>RNGN 120400</td>
<td>RNGN 120400</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Square Type</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SNGN 090308</td>
<td>SNGN 090308LF</td>
<td>SNGN 090308F</td>
<td>9.525 3.18 0.8  No O.D.</td>
</tr>
<tr>
<td>SNGN 090308W</td>
<td>SNGN 090308WF</td>
<td>SNGN 090312</td>
<td>12.70 4.76 1.2  No O.D.</td>
</tr>
<tr>
<td>SNGN 120308</td>
<td>SNGN 120308LF</td>
<td>SNGN 120308F</td>
<td>12.70 3.18 0.8  No O.D.</td>
</tr>
<tr>
<td>SNGN 120312</td>
<td>SNGN 120312LF</td>
<td>SNGN 120312F</td>
<td>12.70 3.18 1.2  No O.D.</td>
</tr>
<tr>
<td><strong>Triangular Type</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TNGN 110308</td>
<td>TNGN 110308LF</td>
<td>TNGN 110308F</td>
<td>6.35 3.18 0.8  No O.D.</td>
</tr>
<tr>
<td>TNGN 110312</td>
<td>TNGN 110312LF</td>
<td>TNGN 110312F</td>
<td>9.525 4.76 1.2  No O.D.</td>
</tr>
<tr>
<td>TNGN 160408</td>
<td>TNGN 160408</td>
<td>TNGN 160412</td>
<td>9.525 4.76 1.6  Yes O.D.</td>
</tr>
</tbody>
</table>

*Part number suffix: LF: Sharp edge type W: Wiper type LFW: Wiper sharp edge type*
Precautions when Using Wiper Inserts

Effects of the wiper insert

Wiper inserts are effective for external/internal diameter machining and for facing as shown in the figure below, surface roughness of the machined surface can be maintained even in high-feed machining.

- Effective Range of Wiper Inserts
- Machined Surface Roughness (actual measurements)

- Insert BNeg.Pos.
- Ceren
- Solid CBN

* Note that wiper inserts leave the same machined surface roughness as normal inserts at tapers and corners.
* The cutting edge position may need to be offset depending on the insert shape. See the offset table below.

Coated Carbide / Coated Cermet / Cermet

<table>
<thead>
<tr>
<th>CNMG/WMGM/CCMT/CPMT Type</th>
<th>LUW / GWU / SEW Type Chipbreaker (LUW Type chipbreaker only for CCMT / CPMT Type)</th>
</tr>
</thead>
<tbody>
<tr>
<td>· Use a holder with a cutting edge angle of 95°.</td>
<td></td>
</tr>
<tr>
<td>· No tool compensation required.</td>
<td></td>
</tr>
<tr>
<td>· CNMG / WMGM / CCMT / CPMT type wiper inserts comply with the ISO standard, allowing use without correcting the machining program.</td>
<td></td>
</tr>
<tr>
<td>· The obtuse (100°) corner on the CNMG type can also provide a wiper effect.</td>
<td></td>
</tr>
</tbody>
</table>

- DNMX Type SEW Type Chipbreaker
- TPGX Type SDW Type Chipbreaker

- Use a holder with a cutting edge angle of 93°.
- Tool compensation required.
- DNMX type wiper inserts do not comply with the ISO standard. Correct the machining program (tool offset) as explained on the opposite page (B132).

- Use a boring bar with a 93° cutting edge angle.
- Tool compensation required.
- TPGX type wiper inserts do not comply with the ISO standard. Correct the cutting edge position (tool offset) as explained on the right.

Note: Unlike the other profiles, the TPGX type is only effective for boring.

CBN (SUMIBORON / Coated SUMIBORON)

<table>
<thead>
<tr>
<th>CNGA Type / CCGW Type / WNGA Type</th>
<th>WG/WH Type Chipbreaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>· Use a holder with a cutting edge angle of 95°.</td>
<td></td>
</tr>
<tr>
<td>· Tool compensation required.</td>
<td></td>
</tr>
<tr>
<td>· CNGA, CCGW and WNGA type wiper inserts do not comply with the ISO standard. Correct the cutting edge position (tool offset) as explained on the right.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DNGA Type / DCGW Type</th>
<th>WG/WH Type Chipbreaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>· Use a holder with a cutting edge angle of 93°.</td>
<td></td>
</tr>
<tr>
<td>· Tool compensation required.</td>
<td></td>
</tr>
<tr>
<td>· DNGA and DCGW type wiper inserts do not comply with the ISO standard. Correct the cutting edge position (tool offset) as explained on the right.</td>
<td></td>
</tr>
</tbody>
</table>

Note: Unlike other contour shapes, the DNGA / DCGW Type can only obtain the wiper effect with outer diameter and inner diameter cutting techniques, and cannot be used for edge cutting.

Cutting edge angle 95°

Note: Unlike other contour shapes, the DNGA / DCGW Type can only obtain the wiper effect with outer diameter and inner diameter cutting techniques, and cannot be used for edge cutting.

Cutting edge angle 93°
Precautions when Using Wiper Inserts

**Tool Program Correction Guide for DNMX Type Wiper Inserts** (Compensation: mm)

1. Cutting edge position compensation (tool offset) in X and Z axes

The cutting edge position for this insert differs from standard ISO inserts and therefore requires dimensional correction in the X and Z axes as shown in the table on the right.

<table>
<thead>
<tr>
<th>Nose Radius</th>
<th>X direction</th>
<th>Z direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>R0.4</td>
<td>-0.14</td>
<td>-0.02</td>
</tr>
<tr>
<td>R0.8</td>
<td>-0.14</td>
<td>-0.02</td>
</tr>
<tr>
<td>R1.2</td>
<td>-0.1</td>
<td>-0.03</td>
</tr>
</tbody>
</table>

*The X axis compensation is positive for internal boring.*

2. Tool compensation for corners (based on compensation in step (1))

The nose radius must be corrected to prevent the insert from gouging the corner in the programmed tool path.

Programmed nose radius = actual nose radius + radius compensation

**Example:** To machine an R4.0 corner (using an R0.8 nose)

<table>
<thead>
<tr>
<th>Nose Radius</th>
<th>Gouging</th>
<th>Radius compensation</th>
</tr>
</thead>
<tbody>
<tr>
<td>R0.4</td>
<td>0.02</td>
<td>+R0.04</td>
</tr>
<tr>
<td>R0.8</td>
<td>0.03</td>
<td>+R0.07</td>
</tr>
<tr>
<td>R1.2</td>
<td>0.08</td>
<td>+R0.18</td>
</tr>
</tbody>
</table>

3. Tool compensation for tapers (based on compensation in step (1))

Tool paths for tapers leave gouging and unmachined surfaces with respect to the programmed tool path. Correct the normal direction as shown below.

Compensation + indicates gouging
Compensation - indicates unmachined surfaces

**Example:** To machine an R0.8 nose and 60°/-20° taper angle (θ)

<table>
<thead>
<tr>
<th>Nose Radius</th>
<th>Taper Angle (θ)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0°</td>
</tr>
<tr>
<td>R0.4</td>
<td>0.00</td>
</tr>
<tr>
<td>R0.8</td>
<td>0.00</td>
</tr>
<tr>
<td>R1.2</td>
<td>0.00</td>
</tr>
</tbody>
</table>