High functioning, High operating system

DIRECT TUNG system

Cincom
Thru-coolant holder system

High pressure coolant is supplied through the holder to facilitate smooth chip evacuation, improved chip breaking and reduced machine down-time.

External coolant supply (at normal pressure)

High pressure coolant (>7MPa)

Coolant jets from two outlets ensure high cutting efficiency and extended tool life.

- Directly to the cutting edge
  - Reliable chip control
  - Reduces crater and notch wears

- Excessive wear with external coolant supply (at normal pressure)
- High pressure coolant (>7MPa)
- Excessive crater wear with external coolant supply (at normal pressure)
- High pressure coolant (>7MPa)
Tube-free design streamlines tool setup
Through-coolant supply enables high productivity

Coolant is supplied from the tool post directly to the tools

Optional connection with external coolant tube

Detailed view of the coolant flow after connection

No need for coolant tube setup. Eliminates chip entanglement on tubes and streamlines tool replacement.

L12  L20  D25  M32

Machines for DirectTungJet system
**Improvement of chip evacuation with TungTurn-Jet**

### Stainless steel: External turning (SUS304)

<table>
<thead>
<tr>
<th>Material</th>
<th>SUS304</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holder</td>
<td>JSJ2CR1212X11-CHP</td>
</tr>
<tr>
<td>Insert</td>
<td>DCGT11T302FN-JS SH725</td>
</tr>
<tr>
<td>Cutting speed</td>
<td>( V_c = 80 \text{ m/min} )</td>
</tr>
<tr>
<td>Feed rate</td>
<td>( f = 0.03 \text{ mm/rev} )</td>
</tr>
<tr>
<td>Depth of cut</td>
<td>( a_p = 1.5 \text{ mm} )</td>
</tr>
<tr>
<td>Coolant type</td>
<td>Oil</td>
</tr>
</tbody>
</table>

### Stainless steel: Parting -off (SUS304)

<table>
<thead>
<tr>
<th>Material</th>
<th>SUS304</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holder</td>
<td>JSXXL1212X09-CHP</td>
</tr>
<tr>
<td>Insert</td>
<td>JXPQ161L20F SH725</td>
</tr>
<tr>
<td>Cutting speed</td>
<td>( V_c = 100 \text{ m/min} )</td>
</tr>
<tr>
<td>Feed rate</td>
<td>( f = 0.03 \text{ mm/rev} )</td>
</tr>
<tr>
<td>Co coolant</td>
<td>Oil</td>
</tr>
</tbody>
</table>

### Titanium alloy : Grooving (Ti-6Al-4V)

<table>
<thead>
<tr>
<th>Material</th>
<th>Ti-6Al-4V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holder</td>
<td>STCR1212X18-CHP</td>
</tr>
<tr>
<td>Insert</td>
<td>TCP18R200F-010 SH725</td>
</tr>
<tr>
<td>Cutting speed</td>
<td>( V_c = 100 \text{ m/min} )</td>
</tr>
<tr>
<td>Feed rate</td>
<td>( f = 0.05 \text{ mm/rev} )</td>
</tr>
<tr>
<td>Groove width</td>
<td>2 mm</td>
</tr>
<tr>
<td>Groove depth</td>
<td>2.5 mm</td>
</tr>
<tr>
<td>Coolant type</td>
<td>Oil</td>
</tr>
</tbody>
</table>
Tool wear reduction with TungTurn-Jet

**Stainless steel: External turning (SUS304)**

- **Material**: SUS304
- **Holder**: JSJ2CR1212X11-CHP
- **Insert**: DCGT11T302FN-JS SH725
- **Cutting speed**: V<sub>c</sub> = 200 m/min
- **Feed rate**: f = 0.1 mm/rev
- **Depth of cut**: ap = 0.5 mm
- **Coolant type**: Oil

**Titanium alloy: External turning (Ti-6Al-4V)**

- **Material**: Ti-6Al-4V
- **Holder**: JSJ2CR1212X11-CHP
- **Insert**: DCGT11T302FN-JS SH725
- **Cutting speed**: V<sub>c</sub> = 70 m/min
- **Feed rate**: f = 0.1 mm/rev
- **Depth of cut**: ap = 0.5 mm
- **Coolant type**: Oil

**Stainless steel: Parting-off (SUS304)**

- **Material**: SUS304
- **Holder**: JSXXL1212X09-CHP
- **Insert**: JXPG16L20F SH725
- **Cutting speed**: V<sub>c</sub> = 100 m/min
- **Feed rate**: f = 0.03 mm/rev-1
- **Coolant type**: Oil

---

After machining for 40 min.
- **External coolant at normal pressure**
- **Through-coolant at 2 MPa**
- **Through-coolant at 7 MPa**

After machining for 10 min.
- **External coolant at normal pressure**
- **Through-coolant at 2 MPa**
- **Through-coolant at 7 MPa**

After 1,500 parts machined
- **External coolant at normal pressure**
- **Through-coolant at 2 MPa**
- **Through-coolant at 7 MPa**

After 2,000 parts machined
- **External coolant at normal pressure**
- **Through-coolant at 2 MPa**
- **Through-coolant at 7 MPa**

After 2,000 parts machined
- **External coolant at normal pressure**
- **Through-coolant at 2 MPa**
- **Through-coolant at 7 MPa**
Modular Tooling System Adopted
Y2 Axis Added for Greater Functionality

Sliding Headstock Type
CNC Automatic Lathe

L12

- Versatile tooling layout achieved, including slanted hole machining with the angle adjustable end face spindle.
- Back machining capability enhanced by equipping the back spindle with a Y2 axis (Type X).
- Built-in motor adopted as the drive system for the back spindle: realizes a maximum spindle speed of 12,000 min⁻¹ (Type X)

<table>
<thead>
<tr>
<th>Machine model</th>
<th>L12 X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Num. of axes/paths</td>
<td>6 axes, 2 path control systems</td>
</tr>
<tr>
<td>Maximum diameter machineable (mm)</td>
<td>ø12</td>
</tr>
<tr>
<td>Maximum length machineable (mm)</td>
<td>135 (GB) 30 (GBL)</td>
</tr>
<tr>
<td>Spindle speed (min⁻¹)</td>
<td>15,000 12,000</td>
</tr>
<tr>
<td>Tool positions</td>
<td>38</td>
</tr>
<tr>
<td>Motor, spindle drive (kW)</td>
<td>2.2 / 3.7</td>
</tr>
<tr>
<td>Mountable tool sizes (mm)</td>
<td>ø10 (ø12)</td>
</tr>
<tr>
<td>Sleeve diameter (mm)</td>
<td>ø19.05</td>
</tr>
</tbody>
</table>
Enhanced Tool Modularity

L20

- 4 types of the L20 model are available, ranging from the cost-efficient 5-axis machine to the high-end type incorporating B-axis and Y-axis opposing tool post
- A convertible model: May be run with or without the guide bushing.

<table>
<thead>
<tr>
<th>Machine model</th>
<th>L20 VIII</th>
<th>L20 IX</th>
<th>L20X</th>
<th>L20 XII</th>
</tr>
</thead>
<tbody>
<tr>
<td>Num. of axes/paths</td>
<td>5 axes, 2 path control systems</td>
<td>6 axes, 2 path control systems</td>
<td>6 axes, 2 path control systems</td>
<td>7 axes, 2 path control systems</td>
</tr>
<tr>
<td>Maximum diameter machineable (mm)</td>
<td>ø20 (ø25 optional)</td>
<td>ø20 (ø25 optional)</td>
<td>ø20 (ø25 optional)</td>
<td>ø20 (ø25 optional)</td>
</tr>
<tr>
<td>Maxmum length machineable (mm)</td>
<td>200 (GB)</td>
<td>200 (GB)</td>
<td>200 (GB)</td>
<td>200 (GB)</td>
</tr>
<tr>
<td>Spindle speed (min⁻¹)</td>
<td>10,000</td>
<td>10,000</td>
<td>10,000</td>
<td>10,000</td>
</tr>
<tr>
<td>Tool positions</td>
<td>37</td>
<td>33</td>
<td>44</td>
<td>40</td>
</tr>
<tr>
<td>Motor, spindle drive (kW)</td>
<td>2.2 / 3.7</td>
<td>2.2 / 3.7</td>
<td>2.2 / 3.7</td>
<td>2.2 / 3.7</td>
</tr>
<tr>
<td>Mountable tool sizes (mm)</td>
<td>□ 12 (□ 13, □ 16)</td>
<td>□ 12 (□ 13, □ 16)</td>
<td>□ 12 (□ 13, □ 16)</td>
<td>□ 12 (□ 13, □ 16)</td>
</tr>
<tr>
<td>Sleeve diameter (mm)</td>
<td>ø25 (GS107, 210) ø19.05</td>
<td>ø25 (GS107, 210) ø19.05</td>
<td>ø25 (GS107, 210) ø19.05</td>
<td>ø25 (GS107, 210) ø19.05</td>
</tr>
</tbody>
</table>
Double gang tool posts and B-axis
Optimized tool setup for maximum productivity

Incorporates double gang tool posts to minimize non-machining intervals.

A maximum of 59 tools can be mounted on the multiple tool posts, enabling seamless machining.

Three live tool posts minimizes total machining time.

B-axis can be utilized to machine either front or back of the workpiece.

Simultaneous 5-axis control abilities allow for contour-profiling, enhancing the flexibility of the automatic CNC lathe capability.

<table>
<thead>
<tr>
<th>Machine model</th>
<th>D25 VII</th>
<th>D25 VIII</th>
</tr>
</thead>
<tbody>
<tr>
<td>Num. of axes/paths</td>
<td>9 axes, 3 path control systems</td>
<td>10 axes, 3 path control systems</td>
</tr>
<tr>
<td>Maximum diameter machineable (mm)</td>
<td>ø25</td>
<td>ø25</td>
</tr>
<tr>
<td>Maximum length machineable (mm)</td>
<td>250 (GB)</td>
<td>250 (GB)</td>
</tr>
<tr>
<td>Spindle speed (min⁻¹)</td>
<td>10,000</td>
<td>10,000</td>
</tr>
<tr>
<td>Tool positions</td>
<td>59</td>
<td>43</td>
</tr>
<tr>
<td>Motor, spindle drive (kW)</td>
<td>3.7 / 5.5</td>
<td>3.7 / 5.5</td>
</tr>
<tr>
<td>Mountable tool sizes (mm)</td>
<td>□ 16 / □ 20</td>
<td>□ 16 / □ 20</td>
</tr>
<tr>
<td>Sleeve diameter (mm)</td>
<td>ø25.4</td>
<td>ø25.4</td>
</tr>
</tbody>
</table>

Sliding Headstock Automatic CNC Lathe with convertible guide bushing
The new L32 - an ‘icon’ reinvented

Sliding Headstock Type
CNC Automatic Lathe

M32

- Ranging from a 5-axis machine with excellent cost performance to a high-end machine equipped with B axis and back tool post Y axis.
- Workpiece conveyor equipped as standard.
For Turning / Facing

**JSCL2CR/L-CHP**

Screw-on toolholder without offset, 95° approach angle for positive 80° rhombic inserts, high pressure coolant compatible

Cutting edge style L2

<table>
<thead>
<tr>
<th>Designation</th>
<th>H</th>
<th>B</th>
<th>LF</th>
<th>LH</th>
<th>HF</th>
<th>HBH</th>
<th>WF</th>
<th>OAW</th>
<th>RE**</th>
<th>Insert</th>
<th>Torque*</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSCL2CR1212X09-CHP***</td>
<td>12</td>
<td>12</td>
<td>120</td>
<td>18</td>
<td>12</td>
<td>4</td>
<td>0</td>
<td>20</td>
<td>0.2</td>
<td>CC**09T3</td>
<td>1.2</td>
</tr>
<tr>
<td>JSCL2CR1212X09B-CHP</td>
<td>12</td>
<td>12</td>
<td>120</td>
<td>18</td>
<td>12</td>
<td>1.5</td>
<td>0</td>
<td>20</td>
<td>0.2</td>
<td>CC**09T3</td>
<td>1.2</td>
</tr>
<tr>
<td>JSCL2CR1616X09-CHP</td>
<td>16</td>
<td>16</td>
<td>120</td>
<td>18</td>
<td>16</td>
<td>0</td>
<td>0</td>
<td>20</td>
<td>0.2</td>
<td>CC**09T3</td>
<td>1.2</td>
</tr>
</tbody>
</table>

*Torque: Recommended torque (N·m) for clamping  **RE: Standard corner radius
***: To be replaced with the new design

**SPARE PARTS**

<table>
<thead>
<tr>
<th>Designation</th>
<th>Clamping screw</th>
<th>Coolant unit</th>
<th>Wrench</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSCL2CR**-CHP</td>
<td>CSTB-4SD</td>
<td>S-CU-CHP</td>
<td>T-8F</td>
</tr>
</tbody>
</table>

For External Turning

**JSDJ2CR/L-CHP**

Screw-on toolholder without offset, 93° approach angle for positive 55° rhombic inserts, high pressure coolant compatible

Cutting edge style J2

<table>
<thead>
<tr>
<th>Designation</th>
<th>H</th>
<th>B</th>
<th>LF</th>
<th>LH</th>
<th>HF</th>
<th>WF</th>
<th>OAW</th>
<th>RE**</th>
<th>Insert</th>
<th>Torque*</th>
<th>Fig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSDJ2CR1012H07-CHP***</td>
<td>10</td>
<td>12</td>
<td>120</td>
<td>17</td>
<td>10</td>
<td>0</td>
<td>16.4</td>
<td>0.2</td>
<td>DC**10702</td>
<td>1.2</td>
<td>1</td>
</tr>
<tr>
<td>JSDJ2CR1212X11-CHP</td>
<td>12</td>
<td>12</td>
<td>120</td>
<td>19</td>
<td>12</td>
<td>0</td>
<td>20.5</td>
<td>0.2</td>
<td>DC**11T3</td>
<td>1.2</td>
<td>2</td>
</tr>
<tr>
<td>JSDJ2CR1616X11-CHP</td>
<td>16</td>
<td>16</td>
<td>120</td>
<td>19</td>
<td>16</td>
<td>0</td>
<td>20.5</td>
<td>0.2</td>
<td>DC**11T3</td>
<td>1.2</td>
<td>2</td>
</tr>
</tbody>
</table>

*Torque: Recommended torque (N·m) for clamping  **RE: Standard corner radius

**SPARE PARTS**

<table>
<thead>
<tr>
<th>Designation</th>
<th>Coolant nozzle</th>
<th>Nozzle retainer screw</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSDJ2CR1012H07-CHP</td>
<td>NZ-1.15-7-CHP</td>
<td>SSHM4-4-TB</td>
</tr>
</tbody>
</table>

**SPARE PARTS**

<table>
<thead>
<tr>
<th>Designation</th>
<th>Clamping screw</th>
<th>Coolant unit</th>
<th>Wrench</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSDJ2CR**-CHP</td>
<td>CSTB-4SD</td>
<td>S-CU-CHP</td>
<td>T-8F</td>
</tr>
</tbody>
</table>

See page 44 for the proper tool overhang and plug settings.
JSVJ2BR/L-CHP

Screw-on toolholder without offset, 93° approach angle for positive 35° rhombic inserts, high pressure coolant compatible

Cutting edge style J2

<table>
<thead>
<tr>
<th>Designation</th>
<th>H</th>
<th>B</th>
<th>LF</th>
<th>LH</th>
<th>HF</th>
<th>WF</th>
<th>OAW</th>
<th>RE**</th>
<th>Insert</th>
<th>Torque*</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSVJ2BR1212X11-CHP</td>
<td>12</td>
<td>12</td>
<td>120</td>
<td>23.6</td>
<td>12</td>
<td>0</td>
<td>14.7</td>
<td>0.2</td>
<td>VB**1103</td>
<td>1.2</td>
</tr>
<tr>
<td>JSVJ2BR1616X11-CHP</td>
<td>16</td>
<td>16</td>
<td>120</td>
<td>23.6</td>
<td>16</td>
<td>0</td>
<td>16</td>
<td>0.2</td>
<td>VB**1103</td>
<td>1.2</td>
</tr>
</tbody>
</table>

*Torque: Recommended torque (N·m) for clamping  **RE: Standard corner radius

See page 44 for the proper tool overhang and plug settings.

**SPARE PARTS**

<table>
<thead>
<tr>
<th>Designation</th>
<th>Clamping screw</th>
<th>Coolant unit</th>
<th>Wrench</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSVJ2BR**11-CHP</td>
<td>C5T9-2.5</td>
<td>S-CU-CHP</td>
<td>T-6F</td>
</tr>
</tbody>
</table>

Right hand (R) shown.
For Turning / Facing

JSDL2XR/L-CHP

Screw-on toolholder without offset, 95° approach angle, for WXGU inserts, high pressure coolant compatible

<table>
<thead>
<tr>
<th>Designation</th>
<th>H</th>
<th>B</th>
<th>LF</th>
<th>LH</th>
<th>HF</th>
<th>WF</th>
<th>OAW</th>
<th>RE**</th>
<th>Insert</th>
<th>Torque*</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSDL2XR1212X04-CHP</td>
<td>12</td>
<td>12</td>
<td>120</td>
<td>18.5</td>
<td>12</td>
<td>0</td>
<td>16.5</td>
<td>0.2</td>
<td>WXGU0403**L</td>
<td>0.9</td>
</tr>
<tr>
<td>JSDL2XR1616X04-CHP</td>
<td>16</td>
<td>16</td>
<td>160</td>
<td>18.5</td>
<td>16</td>
<td>0</td>
<td>16.5</td>
<td>0.2</td>
<td>WXGU0403**L</td>
<td>0.9</td>
</tr>
</tbody>
</table>

*Torque: Recommended torque (N·m) for clamping  **RE: Standard corner radius
Note: Right-hand toolholders (R) are used with left-hand inserts (L). Left-hand toolholders (L) are used with right-hand inserts (R).

SPARE PARTS

<table>
<thead>
<tr>
<th>Designation</th>
<th>Clamping screw</th>
<th>Coolant unit</th>
<th>Wrench</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSDL2XR**04-CHP</td>
<td>SR34-514</td>
<td>S-CU-CHP</td>
<td>T-7F</td>
</tr>
</tbody>
</table>

See page 44 for the proper tool overhang and plug settings.

For External Turning

JSDL2XR/L-CHP

Screw-on toolholder without offset, 93° approach angle, for DXGU inserts, high pressure coolant compatible

<table>
<thead>
<tr>
<th>Designation</th>
<th>H</th>
<th>B</th>
<th>LF</th>
<th>LH</th>
<th>HF</th>
<th>WF</th>
<th>OAW</th>
<th>RE**</th>
<th>Insert</th>
<th>Torque*</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSDL2XR1212X07-CHP</td>
<td>10</td>
<td>12</td>
<td>120</td>
<td>17</td>
<td>10</td>
<td>0</td>
<td>16.4</td>
<td>0.2</td>
<td>DXGU0703**L</td>
<td>0.9</td>
</tr>
<tr>
<td>JSDL2XR1616X07-CHP</td>
<td>16</td>
<td>16</td>
<td>160</td>
<td>19</td>
<td>16</td>
<td>0</td>
<td>18.5</td>
<td>0.2</td>
<td>DXGU0703**L</td>
<td>0.9</td>
</tr>
</tbody>
</table>

*Torque: Recommended torque (N·m) for clamping  **RE: Standard corner radius
Note: Right-hand toolholders (R) are used with left-hand inserts (L). Left-hand toolholders (L) are used with right-hand inserts (R).

SPARE PARTS

<table>
<thead>
<tr>
<th>Designation</th>
<th>Clamping screw</th>
<th>Coolant unit</th>
<th>Nozzle retainer screw</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSDL2XR1012H07-CHP</td>
<td>NZ-1.10-7-CHP</td>
<td>SSSM4-4-TB</td>
<td></td>
</tr>
</tbody>
</table>

SPARE PARTS

<table>
<thead>
<tr>
<th>Designation</th>
<th>Clamping screw</th>
<th>Coolant unit</th>
<th>Wrench</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSDL2XR**07-CHP</td>
<td>SR34-514</td>
<td>S-CU-CHP</td>
<td>T-7F</td>
</tr>
</tbody>
</table>

See page 44 for the proper tool overhang and plug settings.
JSVJ2XR/L-CHP

Screw-on toolholder without offset, 93° approach angle, for VXGU inserts, high pressure coolant compatible

Cutting edge style J2

**Fig.1**

**Fig.2**

<table>
<thead>
<tr>
<th>Designation</th>
<th>H</th>
<th>B</th>
<th>LF</th>
<th>LH</th>
<th>HF</th>
<th>WF</th>
<th>OAW</th>
<th>RE**</th>
<th>Insert</th>
<th>Torque*</th>
<th>Fig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSVJ2XR1012H07-CHP</td>
<td>10</td>
<td>12</td>
<td>100</td>
<td>17</td>
<td>10</td>
<td>0</td>
<td>13.4</td>
<td>0.2</td>
<td>VXGU09T2**L</td>
<td>0.9</td>
<td>1</td>
</tr>
<tr>
<td>JSVJ2XR1212X09-CHP</td>
<td>12</td>
<td>12</td>
<td>120</td>
<td>19.5</td>
<td>12</td>
<td>0</td>
<td>13.4</td>
<td>0.2</td>
<td>VXGU09T2**L</td>
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*Torque: Recommended torque (N·m) for clamping  **RE: Standard corner radius
Note: Right-hand toolholders (R) are used with left-hand inserts (L). Left-hand toolholders (L) are used with right-hand inserts (R).

**SPARE PARTS**

<table>
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<tr>
<th>Designation</th>
<th>Coolant nozzle</th>
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See page 44 for the proper tool overhang and plug settings.
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<th>Corner radius</th>
<th>Coated</th>
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* Corner radius has minus tolerance.

: Continuous cutting  
: Light interrupted cutting  
: Heavy interrupted cutting  

<0.1*: Finishing to medium cutting (Sharp edge)  
<0.2*: Finish to medium (Low cutting force) (Sharp edge)  
<0.4*: Finishing (Low cutting force) (Sharp edge)

Trigon, 80° with hole

Steel: P  
Stainless: M  
Cast iron: K  
Non-ferrous: N  
Superalloys: S  
Hard materials: H

Application:
- POSITIVE TYPE
- DOUBLE-SIDED

Corner radius:
- AH725
- SH725
- GT9530
- NS9530
- KS05F

Coating:
- Coated
- Coated cermet
- Cermet
- Carbide
**TurnLine - Insert**

**POSITIVE TYPE DOUBLE-SIDED**

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<th>Chipbreaker Designation</th>
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* Corner radius has minus tolerance.

- : Continuous cutting
  - : Light interrupted cutting
  + : Heavy interrupted cutting

---

**Application**

- **Steel**
- **Stainless**
- **Cast iron**
- **Non-ferrous**
- **Superalloys**
- **Hard materials**

**Chipbreaker Designation**

- **Corner radius**
- **AH725**
- **AH8015**
- **SH725**
- **GT9530**
- **NS9530**
- **KS05F**
## TurnLine - Insert

### POSITIVE TYPE

#### DOUBLE-SIDED

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</table>

- **P**: Steel
- **M**: Stainless
- **K**: Cast iron
- **N**: Non-ferrous
- **S**: Superalloys
- **H**: Hard materials

Coated: AH725, SH725

- **L**: Continuous cutting
- **C**: Light interrupted cutting
- **H**: Heavy interrupted cutting

---

* Corner radius has minus tolerance.

- ■: Line up

---

**Application**

- **Rhombic, 55° with hole**

**Corner radius**

- AH725
- SH725

**Coated**

- AH725
- SH725

---

**Chipbreaker Designation**

- DXGU070301MFRE-JRP
- DXGU070301MFLE-JRP
- DXGU070302MFRE-JRP
- DXGU070302MFLE-JRP
- DXGU070301MFR-JS
- DXGU070301MFL-JS
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- DXGU070302ML-JTS
- DXGU070301MFR-JSS
- DXGU070301MFL-JSS
- DXGU070302MFR-JSS
- DXGU070302MFL-JSS

---

**Positives**

- MiniFturn

**Application**

- **Corner radius**

**Finishing to medium cutting**

- Sharp edge

**Corner radius**

- AH725
- SH725

---

**Application**

- **Corner radius**

**Finishing to medium cutting**

- Sharp edge

**Corner radius**

- AH725
- SH725

---

**Application**

- **Corner radius**

**Finishing to medium cutting**

- Sharp edge

**Corner radius**

- AH725
- SH725

---

**Application**

- **Corner radius**

**Finishing to medium cutting**

- Sharp edge

**Corner radius**

- AH725
- SH725

---

**Application**

- **Corner radius**

**Finishing to medium cutting**

- Sharp edge

**Corner radius**

- AH725
- SH725

---

**Application**

- **Corner radius**

**Finishing to medium cutting**

- Sharp edge

**Corner radius**

- AH725
- SH725

---

**Application**

- **Corner radius**

**Finishing to medium cutting**

- Sharp edge

**Corner radius**

- AH725
- SH725

---

**Application**

- **Corner radius**

**Finishing to medium cutting**

- Sharp edge

**Corner radius**

- AH725
- SH725

---

**Application**

- **Corner radius**

**Finishing to medium cutting**

- Sharp edge

**Corner radius**

- AH725
- SH725

---

**Application**

- **Corner radius**

**Finishing to medium cutting**

- Sharp edge

**Corner radius**

- AH725
- SH725

---

**Application**

- **Corner radius**

**Finishing to medium cutting**

- Sharp edge

**Corner radius**

- AH725
- SH725

---

**Application**

- **Corner radius**

**Finishing to medium cutting**

- Sharp edge

**Corner radius**

- AH725
- SH725

---

**Application**

- **Corner radius**

**Finishing to medium cutting**

- Sharp edge

**Corner radius**

- AH725
- SH725

---

**Application**

- **Corner radius**

**Finishing to medium cutting**

- Sharp edge

**Corner radius**

- AH725
- SH725

---

**Application**

- **Corner radius**

**Finishing to medium cutting**

- Sharp edge

**Corner radius**

- AH725
- SH725

---

**Application**

- **Corner radius**

**Finishing to medium cutting**

- Sharp edge

**Corner radius**

- AH725
- SH725

---

**Application**

- **Corner radius**

**Finishing to medium cutting**

- Sharp edge

**Corner radius**

- AH725
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---

**Application**

- **Corner radius**

**Finishing to medium cutting**

- Sharp edge

**Corner radius**

- AH725
- SH725

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**Application**

- **Corner radius**

**Finishing to medium cutting**

- Sharp edge

**Corner radius**

- AH725
- SH725

---

**Application**

- **Corner radius**

**Finishing to medium cutting**

- Sharp edge

**Corner radius**

- AH725
- SH725

---

**Application**

- **Corner radius**

**Finishing to medium cutting**

- Sharp edge

**Corner radius**

- AH725
- SH725
# TurnLine - Insert

**POSITIVE TYPE**

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* Corner radius has minus tolerance.

Legend:
- : Continuous cutting
- : Light interrupted cutting
- : Heavy interrupted cutting

---

**TurnLine - Insert**

- Steel
- Stainless
- Cast iron
- Non-ferrous
- Superalloys
- Hard materials

- Coated Cermet Carbide
- Coated cermet
- Cermet
- Carbide

- **Rhombic, 55° with hole**

- **Application**

- **Chipbreaker Designation**

- **Corner radius**

- **Coated**

- **Coated cermet**

- **Cermet**

- **Carbide**

- **Line up**

- **Finishing (Low cutting force)**

- **Finishing to medium cutting**

- **Finishing (Low cutting force)**

<table>
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<tr>
<th>Chipbreaker Designation</th>
<th>Corner radius</th>
<th>Coated</th>
<th>Coated cermet</th>
<th>Cermet</th>
<th>Carbide</th>
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</table>
# TurnLine - Insert

## DOUBLE-SIDED

**Rhombic, 35° with hole**

<table>
<thead>
<tr>
<th>Chipbreaker Designation</th>
<th>Corner radius</th>
<th>Coated</th>
</tr>
</thead>
<tbody>
<tr>
<td>VXGU09T201MFRE-JRP</td>
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<tr>
<td>VXGU09T201MFLE-JRP</td>
<td>&lt;0.1&quot;</td>
<td></td>
</tr>
<tr>
<td>VXGU09T202MFRE-JRP</td>
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<tr>
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</tr>
<tr>
<td>VXGU090301MFR-JS</td>
<td>&lt;0.1&quot;</td>
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<tr>
<td>VXGU090301MFL-JS</td>
<td>&lt;0.1&quot;</td>
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<td>VXGU090302MFR-JS</td>
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<tr>
<td>VXGU090302MFL-JS</td>
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</tr>
<tr>
<td>VXGU090304MFR-JS</td>
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<td></td>
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<tr>
<td>VXGU090304MFL-JS</td>
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</tbody>
</table>

* Corner radius has minus tolerance.

**Application**

- **P**: Steel
- **M**: Stainless
- **K**: Cast Iron
- **N**: Non-ferrous
- **S**: Superalloys
- **H**: Hard materials

**Finishing**

- **Sharp edge**
- **Line up**

**Steel**

- **Stainless**
- **Cast Iron**
- **Non-ferrous**
- **Superalloys**
- **Hard materials**

---

***: Continuous cutting
****: Light interrupted cutting
*: Heavy interrupted cutting

***: Finishing to medium cutting (Sharp edge)

***: Line up
For Grooving and Threading

STCR/L-18
External grooving and threading toolholder, high pressure coolant compatible

<table>
<thead>
<tr>
<th>Designation</th>
<th>H</th>
<th>B</th>
<th>LF</th>
<th>LH</th>
<th>HBL</th>
<th>HF</th>
<th>WF</th>
<th>HBH</th>
<th>Insert</th>
<th>Torque*</th>
</tr>
</thead>
<tbody>
<tr>
<td>STCR/L1012H18-CHP</td>
<td>10</td>
<td>12</td>
<td>100</td>
<td>17.1</td>
<td>17.1</td>
<td>10</td>
<td>0/12</td>
<td>4</td>
<td>TC**18</td>
<td>1.2</td>
</tr>
<tr>
<td>STCR/L1212X18-CHP***</td>
<td>12</td>
<td>12</td>
<td>120</td>
<td>18.5</td>
<td>17.5</td>
<td>12</td>
<td>0/12</td>
<td>4</td>
<td>TC**18</td>
<td>1.2</td>
</tr>
<tr>
<td>STCR/L1212X18B-CHP</td>
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<td>12</td>
<td>120</td>
<td>18.5</td>
<td>17.5</td>
<td>12</td>
<td>0/12</td>
<td>4</td>
<td>TC**18</td>
<td>1.2</td>
</tr>
<tr>
<td>STCR/L1616X18-CHP</td>
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<td>16</td>
<td>120</td>
<td>18.5</td>
<td>-</td>
<td>16</td>
<td>0/16</td>
<td>0</td>
<td>TC**18</td>
<td>1.2</td>
</tr>
</tbody>
</table>

- The right hand insert (TC*18R...) is used for the right hand toolholders (STCR...), and the left hand insert (TC*18L...) is used for the left hand toolholders (STCL...).
- Torque: Recommended torque (N·m) for clamping
- ***: To be replaced with the new design

SPARE PARTS

<table>
<thead>
<tr>
<th>Designation</th>
<th>Clamping screw</th>
<th>Wrench</th>
</tr>
</thead>
<tbody>
<tr>
<td>STCL**18-CHP</td>
<td>CSTC-4L100DR</td>
<td>T-1008/5</td>
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<tr>
<td>STCR**18-CHP</td>
<td>CSTC-4L100DL</td>
<td>T-1008/5</td>
</tr>
</tbody>
</table>

Groove width range: 0.33 – 3.0 mm
Threading pitch range: 0.8 – 3.0 mm

See page 44 for the proper tool overhang and plug settings.
## INSERTS

**TCL18R (3D chipbreaker, honed edge)**

### Designation

<table>
<thead>
<tr>
<th>Designation</th>
<th>HAND</th>
<th>CW ±0.02</th>
<th>RE</th>
<th>Coated</th>
<th>CDX</th>
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<tbody>
<tr>
<td>TCL18R150-010</td>
<td>R</td>
<td>1.5</td>
<td>0.1</td>
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<td>3.5</td>
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<td>TCL18R150-020</td>
<td>R</td>
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<td>0.2</td>
<td></td>
<td>3.5</td>
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<tr>
<td>TCL18R200-010</td>
<td>R</td>
<td>2</td>
<td>0.1</td>
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<tr>
<td>TCL18R200-020</td>
<td>R</td>
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<td>0.2</td>
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</tr>
<tr>
<td>TCL18R300-010</td>
<td>R</td>
<td>3</td>
<td>0.1</td>
<td></td>
<td>3.5</td>
</tr>
<tr>
<td>TCL18R300-020</td>
<td>R</td>
<td>3</td>
<td>0.2</td>
<td></td>
<td>3.5</td>
</tr>
<tr>
<td>TCL18R300-030</td>
<td>R</td>
<td>3</td>
<td>0.3</td>
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</tr>
</tbody>
</table>

- **CW**: 4
- **RE**: 2
- **P**: Steel
- **M**: Stainless
- **K**: Cast iron
- **N**: Non-ferrous
- **S**: Superalloys
- **H**: Hard materials

### Notes

- ★: First choice
- ★★: Second choice
- 5 pieces per package
- ●: New product
# INSERTS

## TCG18R/L (with edge preparation)

![Diagram of TCG18R/L insert]

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</tbody>
</table>

- **P**: Steel
- **M**: Stainless
- **K**: Cast iron
- **N**: Non-ferrous
- **S**: Superalloys
- **H**: Hard materials

- ★: First choice
- ★★: Second choice

5 pieces per package

- ●: Line up
# INSERTS

## TCG18R/L (with edge preparation)

![Image of TCG18R/L with edge preparation](image)

### Designation

<table>
<thead>
<tr>
<th>Designation</th>
<th>CW0.02</th>
<th>RE</th>
<th>Coated</th>
<th>CDX</th>
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</tr>
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5 pieces per package

- ⬤: Line up
- ⋆: First choice
- V: Second choice
# INSERTS

## TCS18R (3D chipbreaker, honed edge)

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- **P**: Steel
- **M**: Stainless
- **K**: Cast iron
- **N**: Non-ferrous
- **S**: Superalloys
- **H**: Hard materials

- * : First choice
- ♀ : Second choice

* 5 pieces per package

● : Line up
## INSERTS

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- P: Steel
- M: Stainless
- K: Cast iron
- N: Non-ferrous
- S: Superalloys
- H: Hard materials

- First choice
- Second choice

- 5 pieces per package
- ●: Line up
TCP18R/L-F (sharp edge)

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<td>3.5</td>
</tr>
<tr>
<td>TCP18L250F-010-35</td>
<td>L 2.5</td>
<td>0.1</td>
<td>SH725</td>
<td>3.5</td>
</tr>
<tr>
<td>TCP18R300F-010</td>
<td>R 3</td>
<td>0.1</td>
<td>SH725</td>
<td>2.5</td>
</tr>
<tr>
<td>TCP18L300F-010</td>
<td>L 3</td>
<td>0.1</td>
<td>SH725</td>
<td>2.5</td>
</tr>
<tr>
<td>TCP18R300F-010-35</td>
<td>R 3</td>
<td>0.1</td>
<td>SH725</td>
<td>3.5</td>
</tr>
<tr>
<td>TCP18L300F-010-35</td>
<td>L 3</td>
<td>0.1</td>
<td>SH725</td>
<td>3.5</td>
</tr>
</tbody>
</table>

5 pieces per package

- : Line up

- : First choice

- : Second choice

Steel, Stainless, Cast iron, Non-ferrous, Superalloys, Hard materials

TCP18R/L-F (sharp edge)
Major expansion to the TCG-style chipbreaker line
Enhanced lineup for greater flexibility

- An expanded range of tools allows for an easy selection of the ideal insert
- The same toolholder for both grooving and threading

New selection system

3D chipbreakers

**TCS18**
- AH7025 (General purpose)
- Corner R: 0.1 - 0.3 mm
- Not honed

**TCL18**
- AH7025 (For low feed rate)
- Corner R: 0.1 - 0.3 mm
- Not honed

- 2 styles of 3D chipbreakers are available as standard for reliable chip control
- TCS: general-purpose chipbreaker, TCL: for applications where low cutting force is essential

Grooving

**New** TCS type (3D chipbreaker)

- The chipbreaker incorporates a dimple-like recess on the rake face to facilitate smooth chip flow with light cutting action
- The chipbreaker ensures low cutting force, providing reliable chip flow at low feed rates

Ground-to-form chipbreakers

**TCG18**
- AH7025
- Corner R: 0.1 - 0.3 mm
- Not honed

**TCP18**
- AH725
- Corner R: 0.05 - 0.1 mm
- Lightly honed edge

**TCP18-F**
- SH725
- Corner R: 0.05 - 0.1 mm
- Sharp edge (not honed)

- Choose the best of all three insert types according to the machining requirements
- A variety of widths and corner radii are available in all three insert types
**FEED the SPEED - TUNGALOY ACCELERATED MACHINING**

**TCG** type (Honed edge)
- Optimized rake angle and edge preparation enhances fracture resistance, allowing for smooth cutting
- AH7025 grade features a superior combination of wear and fracture resistances

**TCP** type (Lightly honed edge)
- A large rake angle ensures smooth cutting for excellent surface finish
- The insert in grade AH725 features a tough edge preparation for high resistance to fracture

**TCP-F** type (Sharp edge)
- High quality surface finish and precision thanks to the sharp cutting edge
- A quality level equivalent to that with cermet is achievable
- An extremely hard coating layer on grade SH725 provides sharp cutting edges, making it perfect for small part grooving

**Threading**

**TCT** type
- Full profile inserts for burr-less threading are newly added.
  - Pitch: 0.5 - 1.5 mm.
- Sharp cutting edge for reduced cutting load, improving thread surface quality
- Suitable for thread pitches ranging from 0.4 mm to 3.0 mm

Full-profile insert
### STANDARD CUTTING CONDITIONS

#### TCS18R (3D chipbreaker), TCG18R/L (honed edge)

<table>
<thead>
<tr>
<th>ISO</th>
<th>Workpiece materials</th>
<th>Grades</th>
<th>Cutting speed $V_c$ (m/min)</th>
<th>Feed: $f$ (mm/rev)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>TCL</td>
<td>TCS</td>
</tr>
<tr>
<td>P</td>
<td>Low carbon steel (S15C / C15, S20C / C20, etc.)</td>
<td>AH7025</td>
<td>180 - 80</td>
<td>0.12 - 0.03</td>
</tr>
<tr>
<td></td>
<td>Carbon steels, Alloy steel (S55C / C55, SCM440 / 42CrMoS4, etc.)</td>
<td>AH7025</td>
<td>180 - 80</td>
<td>0.12 - 0.03</td>
</tr>
<tr>
<td></td>
<td>Prehardened steel (NAK80, PX5, etc.)</td>
<td>AH7025</td>
<td>180 - 80</td>
<td>0.12 - 0.03</td>
</tr>
<tr>
<td>M</td>
<td>Stainless steel (SUS304 / X5CrNi18-9, X5CrNiMo17-12-2, etc)</td>
<td>AH7025</td>
<td>120 - 50</td>
<td>0.12 - 0.03</td>
</tr>
<tr>
<td>K</td>
<td>Grey cast iron (FC250 / GG25 / 250, FC300 / GG30 / 300, etc.)</td>
<td>AH7025</td>
<td>180 - 50</td>
<td>0.12 - 0.03</td>
</tr>
<tr>
<td></td>
<td>Ductile cast iron (FCD400 / 400-15, FCD600 / 600-3, etc.)</td>
<td>AH7025</td>
<td>180 - 50</td>
<td>0.12 - 0.03</td>
</tr>
<tr>
<td></td>
<td>Titanium alloys (Ti-6Al-4V, etc.)</td>
<td>AH7025</td>
<td>80 - 30</td>
<td>0.12 - 0.03</td>
</tr>
<tr>
<td></td>
<td>Superalloys (Inconel718, etc.)</td>
<td>AH7025</td>
<td>60 - 20</td>
<td>0.12 - 0.03</td>
</tr>
</tbody>
</table>

#### TCP18R/L (lightly honed edge) / TCP18R/L-F (sharp edge)

<table>
<thead>
<tr>
<th>ISO</th>
<th>Workpiece materials</th>
<th>Priority</th>
<th>Grades</th>
<th>Cutting speed $V_c$ (m/min)</th>
<th>Feed $f$ (mm/rev)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TCL</td>
<td>TCS</td>
</tr>
<tr>
<td>P</td>
<td>Low carbon steel (S15C / C15, S20C / C20, etc.)</td>
<td>First choice</td>
<td>SH725</td>
<td>80 - 180</td>
<td>0.03 - 0.1</td>
</tr>
<tr>
<td></td>
<td>Carbon steels, Alloy steel (S55C / C55, SCM440 / 42CrMoS4, etc.)</td>
<td>First choice</td>
<td>SH725</td>
<td>80 - 180</td>
<td>0.03 - 0.1</td>
</tr>
<tr>
<td></td>
<td>Prehardened steel (NAK80, PX5, etc.)</td>
<td>First choice</td>
<td>SH725</td>
<td>80 - 180</td>
<td>0.03 - 0.1</td>
</tr>
<tr>
<td>M</td>
<td>Stainless steel (SUS304 / X5CrNi18-9, X5CrNiMo17-12-2, etc)</td>
<td>First choice</td>
<td>SH725</td>
<td>50 - 120</td>
<td>0.03 - 0.1</td>
</tr>
<tr>
<td>K</td>
<td>Grey cast iron (FC250 / GG25 / 250, FC300 / GG30 / 300, etc.)</td>
<td>First choice</td>
<td>SH725</td>
<td>50 - 180</td>
<td>0.03 - 0.1</td>
</tr>
<tr>
<td></td>
<td>Ductile cast iron (FCD400 / 400-15, FCD600 / 600-3, etc.)</td>
<td>First choice</td>
<td>SH725</td>
<td>50 - 180</td>
<td>0.03 - 0.1</td>
</tr>
<tr>
<td></td>
<td>Titanium alloys (Ti-6Al-4V, etc.)</td>
<td>First choice</td>
<td>SH725</td>
<td>30 - 80</td>
<td>0.03 - 0.1</td>
</tr>
<tr>
<td></td>
<td>Superalloys (Inconel718, etc.)</td>
<td>First choice</td>
<td>SH725</td>
<td>20 - 60</td>
<td>0.03 - 0.1</td>
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</table>
**FEED the SPEED - TUNGALOY ACCELERATED MACHINING**

**INSERTS**

**New**

**TCT18FR/R-ISO (Full profile threading insert)**

<table>
<thead>
<tr>
<th>Designation</th>
<th>HAND</th>
<th>RE</th>
<th>Coated</th>
<th>Pitch min</th>
<th>Pitch max</th>
<th>PDX</th>
<th>PNA</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCT18FR-05ISO</td>
<td>R</td>
<td>0.06</td>
<td>SH725</td>
<td>0.5</td>
<td>0.35</td>
<td>60°</td>
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<tr>
<td>TCT18FR-07ISO</td>
<td>R</td>
<td>0.09</td>
<td>SH725</td>
<td>0.7</td>
<td>0.5</td>
<td>60°</td>
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</tr>
<tr>
<td>TCT18FR-075ISO</td>
<td>R</td>
<td>0.09</td>
<td>SH725</td>
<td>0.75</td>
<td>0.5</td>
<td>60°</td>
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</tr>
<tr>
<td>TCT18FR-08ISO</td>
<td>R</td>
<td>0.09</td>
<td>SH725</td>
<td>0.8</td>
<td>0.5</td>
<td>60°</td>
<td></td>
</tr>
<tr>
<td>TCT18R-10ISO</td>
<td>R</td>
<td>0.1</td>
<td>SH725</td>
<td>1</td>
<td>0.6</td>
<td>60°</td>
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</tr>
<tr>
<td>TCT18R-125ISO</td>
<td>R</td>
<td>0.15</td>
<td>SH725</td>
<td>1.25</td>
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</tr>
<tr>
<td>TCT18R-15ISO</td>
<td>R</td>
<td>0.2</td>
<td>SH725</td>
<td>1.5</td>
<td>0.8</td>
<td>60°</td>
<td></td>
</tr>
</tbody>
</table>

*Line up: ●*

**TCT18FR/R/L (Threading insert)**

<table>
<thead>
<tr>
<th>Designation</th>
<th>HAND</th>
<th>RE</th>
<th>Coated</th>
<th>Pitch min</th>
<th>Pitch max</th>
<th>PDX</th>
<th>CDX</th>
<th>PNA</th>
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<td>SH725</td>
<td>0.4</td>
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<tr>
<td>TCT18FR-06ISO</td>
<td>R</td>
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<td>1</td>
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<td>1</td>
<td>1.63</td>
<td>60°</td>
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<tr>
<td>TCT18R/L-60N-010</td>
<td>R</td>
<td>0.1</td>
<td>SH725</td>
<td>0.8</td>
<td>3</td>
<td>1.6</td>
<td>2.67</td>
<td>60°</td>
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<tr>
<td>TCT18R/L-60N-010</td>
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<td>SH725</td>
<td>0.8</td>
<td>3</td>
<td>1.6</td>
<td>2.67</td>
<td>60°</td>
</tr>
<tr>
<td>TCT18R/L-60N-020</td>
<td>R</td>
<td>0.2</td>
<td>SH725</td>
<td>1.5</td>
<td>3</td>
<td>1.6</td>
<td>2.57</td>
<td>60°</td>
</tr>
<tr>
<td>TCT18R/L-60N-020</td>
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<td>0.2</td>
<td>SH725</td>
<td>1.5</td>
<td>3</td>
<td>1.6</td>
<td>2.57</td>
<td>60°</td>
</tr>
</tbody>
</table>

*Line up: ●*
### STANDARD CUTTING CONDITIONS

**TCT18FR/R-ISO (Full profile threading insert) / TCT18FR (Threading insert)**

<table>
<thead>
<tr>
<th>ISO</th>
<th>Workpiece materials</th>
<th>Priority</th>
<th>Grades</th>
<th>Cutting speed Vc (m/min)</th>
<th>Pitch (mm)</th>
<th>TPI</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>Low carbon steel (S15C / C15, S20C / C20, etc.)</td>
<td>First choice</td>
<td>SH725</td>
<td>60 - 150</td>
<td>0.4 - 2.0</td>
<td>64 - 18</td>
</tr>
<tr>
<td></td>
<td>Toughness</td>
<td></td>
<td></td>
<td>60 - 150</td>
<td>0.8 - 3.0</td>
<td>32 - 8</td>
</tr>
<tr>
<td></td>
<td>Carbon steels, Alloy steel (S55C / C55, SCM440 / 42CrMoS4, etc.)</td>
<td>First choice</td>
<td>SH725</td>
<td>60 - 150</td>
<td>0.4 - 2.0</td>
<td>64 - 18</td>
</tr>
<tr>
<td></td>
<td>Toughness</td>
<td></td>
<td></td>
<td>60 - 150</td>
<td>0.8 - 3.0</td>
<td>32 - 8</td>
</tr>
<tr>
<td></td>
<td>Prehardened steel (NAK80, PX5, etc.)</td>
<td>First choice</td>
<td>SH725</td>
<td>60 - 150</td>
<td>0.4 - 2.0</td>
<td>64 - 18</td>
</tr>
<tr>
<td></td>
<td>Toughness</td>
<td></td>
<td></td>
<td>60 - 150</td>
<td>0.8 - 3.0</td>
<td>32 - 8</td>
</tr>
<tr>
<td>M</td>
<td>Stainless steel (SUS304 / X5CrNi18-9, X5CrNiMo17-12-2, etc.)</td>
<td>First choice</td>
<td>SH725</td>
<td>50 - 80</td>
<td>0.4 - 2.0</td>
<td>64 - 18</td>
</tr>
<tr>
<td></td>
<td>Toughness</td>
<td></td>
<td></td>
<td>50 - 80</td>
<td>0.8 - 3.0</td>
<td>32 - 8</td>
</tr>
<tr>
<td>K</td>
<td>Grey cast iron (FC250 / GG25 / 250, FG300 / GG30 / 300, etc.)</td>
<td>First choice</td>
<td>AH725</td>
<td>50 - 100</td>
<td>0.8 - 3.0</td>
<td>32 - 8</td>
</tr>
<tr>
<td></td>
<td>Sharpness</td>
<td></td>
<td></td>
<td>50 - 100</td>
<td>0.4 - 2.0</td>
<td>64 - 18</td>
</tr>
<tr>
<td></td>
<td>Ductile cast iron (FCD400 / 450-18, FCD600 / 600-3, etc.)</td>
<td>First choice</td>
<td>AH725</td>
<td>50 - 100</td>
<td>0.8 - 3.0</td>
<td>32 - 8</td>
</tr>
<tr>
<td></td>
<td>Sharpness</td>
<td></td>
<td></td>
<td>50 - 100</td>
<td>0.4 - 2.0</td>
<td>64 - 18</td>
</tr>
<tr>
<td>S</td>
<td>Titanium alloys (Ti-6Al-4V, etc.)</td>
<td>First choice</td>
<td>SH725</td>
<td>30 - 100</td>
<td>0.4 - 2.0</td>
<td>64 - 18</td>
</tr>
<tr>
<td></td>
<td>Toughness</td>
<td></td>
<td></td>
<td>30 - 100</td>
<td>0.8 - 3.0</td>
<td>32 - 8</td>
</tr>
<tr>
<td></td>
<td>Superalloys (Inconel718, etc.)</td>
<td>First choice</td>
<td>SH725</td>
<td>30 - 100</td>
<td>0.4 - 2.0</td>
<td>64 - 18</td>
</tr>
<tr>
<td></td>
<td>Toughness</td>
<td></td>
<td></td>
<td>30 - 100</td>
<td>0.8 - 3.0</td>
<td>32 - 8</td>
</tr>
</tbody>
</table>

### Cautions when machining in guide bushing

- **Good** (workpiece in contact with guide bush)
  - **Right-hand tool holder**
  - Thread length L1 < Dx1.5
- **Not Good** (workpiece Not in contact with guide bush)
  - **Right-hand tool holder**
  - Thread length L1 > Dx1.5

### Threading operation following back-turning

- **Good** (workpiece in contact with guide bush)
  - **Left-hand tool holder**
  - Gap between guide bush diameter and workpiece diameter (øD - ød1) / 2 > 3 mm
- **Not Good** (workpiece Not in contact with guide bush)
  - **Left-hand tool holder**
  - Gap between guide bush diameter and workpiece diameter (øD - ød1) / 2 > 3 mm
For Parting-off and Threading

**JSXXR/L**

Parting and threading toolholder, high pressure coolant compatible

<table>
<thead>
<tr>
<th>Designation</th>
<th>CW</th>
<th>H</th>
<th>B</th>
<th>WF</th>
<th>LF*</th>
<th>HF</th>
<th>HBH</th>
<th>LH*</th>
<th>HBL</th>
<th>Insert</th>
<th>Torque*</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSXXRL1012X09-CHP</td>
<td>1-2</td>
<td>10</td>
<td>12</td>
<td>0.2/11.8</td>
<td>≤ 102</td>
<td>10</td>
<td>3</td>
<td>≤ 19.2</td>
<td>18.7</td>
<td>JXG06,...,12,...,16,...,20,...</td>
<td>1.2</td>
</tr>
<tr>
<td>JSXXRL1212X09-CHP</td>
<td>1-2</td>
<td>12</td>
<td>12</td>
<td>0.2/11.8</td>
<td>≤ 120</td>
<td>12</td>
<td>2</td>
<td>≤ 19.4</td>
<td>18.8</td>
<td>JXG06,...,12,...,16,...,20,...</td>
<td>1.2</td>
</tr>
<tr>
<td>JSXXRL1616X09-CHP***</td>
<td>1-2</td>
<td>16</td>
<td>16</td>
<td>0.2/15.8</td>
<td>≤ 120</td>
<td>16</td>
<td>2.5</td>
<td>≤ 19.4</td>
<td>18.7</td>
<td>JXG06,...,12,...,16,...,20,...</td>
<td>1.2</td>
</tr>
<tr>
<td>JSXXRL1616X09B-CHP</td>
<td>1-2</td>
<td>16</td>
<td>16</td>
<td>0.2/15.8</td>
<td>≤ 120</td>
<td>16</td>
<td>0</td>
<td>≤ 19.4</td>
<td>18.7</td>
<td>JXG06,...,12,...,16,...,20,...</td>
<td>1.2</td>
</tr>
</tbody>
</table>

*LF and LH measurements are based on the JXPG16xx insert. For JXPG12... inserts, the measurements will be shorter by 2 mm; for JXPG06, shorter by 4 mm.
** Recommended clamping torque
Note: Always use a right-hand insert (JX**R...) with the right-hand toolholder (JSXXR...); a left-hand insert (JXPG**L...) with the left-hand toolholder (JSXXL...).
***: To be replaced with the new design

**SAFETY**

Parting-off widths: 1.0 mm and 1.5 mm (for a max parting diameter of ø6 mm)
Threading pitch range: 0.2 ~ 1.5 mm

See page 44 for the proper tool overhang and plug settings.

For Parting-off

**JSXXR/L-S**

Parting-off toolholder, capable with sub spindle, high pressure coolant compatible

<table>
<thead>
<tr>
<th>Designation</th>
<th>CW</th>
<th>H</th>
<th>B</th>
<th>WF</th>
<th>LF*</th>
<th>HF</th>
<th>HBH</th>
<th>LH</th>
<th>Insert</th>
<th>Torque*</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSXXRL1212X09-S-CHP***</td>
<td>1-2</td>
<td>12</td>
<td>12</td>
<td>0.2/5.5</td>
<td>≤ 120</td>
<td>12</td>
<td>4</td>
<td>26</td>
<td>JXG06,...,12,...,16,...,20,...</td>
<td>1.2</td>
</tr>
<tr>
<td>JSXXRL1212X09B-S-CHP</td>
<td>1-2</td>
<td>12</td>
<td>12</td>
<td>0.2/5.5</td>
<td>≤ 120</td>
<td>12</td>
<td>2</td>
<td>26</td>
<td>JXG06,...,12,...,16,...,20,...</td>
<td>1.2</td>
</tr>
<tr>
<td>JSXXRL1616X09-S-CHP***</td>
<td>1-2</td>
<td>16</td>
<td>16</td>
<td>0.2/5.5</td>
<td>≤ 120</td>
<td>16</td>
<td>1.5</td>
<td>30</td>
<td>JXG06,...,12,...,16,...,20,...</td>
<td>1.2</td>
</tr>
<tr>
<td>JSXXRL1616X09B-S-CHP</td>
<td>1-2</td>
<td>16</td>
<td>16</td>
<td>0.2/5.5</td>
<td>≤ 120</td>
<td>16</td>
<td>0</td>
<td>30</td>
<td>JXG06,...,12,...,16,...,20,...</td>
<td>1.2</td>
</tr>
</tbody>
</table>

*LF, HBKL, and HBL measurements are based on the JXPG16xx insert. For JXPG12... inserts, the measurements will be shorter by 2 mm; for JXPG06, shorter by 4 mm.
** Recommended clamping torque
Note: Always use a right-hand insert (JXPG**R...) with the right-hand toolholder (JSXXR...); a left-hand insert (JXPG**L...) with the left-hand toolholder (JSXXL...).
***: To be replaced with the new design

**SAFETY**

Parting-off widths: 1.0 mm and 1.5 mm (for a max parting diameter of ø6 mm)
: 1.5 mm and 2.0 mm (for max parting diameters of ø12 mm and ø16 mm)

See page 44 for the proper tool overhang and plug settings.
# INSERTS

**JXPG** **R/L-F** (Sharp edge)

Right-hand (R) shown.

<table>
<thead>
<tr>
<th>Designation</th>
<th>CW&lt;0.025</th>
<th>RE</th>
<th>SH725</th>
<th>Dimensions (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>JXPG06R/L10F</td>
<td>1</td>
<td>0.05</td>
<td>●</td>
<td>R 6 3.5 10.5 0°</td>
</tr>
<tr>
<td>JXPG06R/L15F</td>
<td>1.5</td>
<td>0.05</td>
<td>●</td>
<td>R 6 3.5 10.5 0°</td>
</tr>
<tr>
<td>JXPG06R/L10F-15</td>
<td>1</td>
<td>0.05</td>
<td>●</td>
<td>R 6 3.5 10.5 15°</td>
</tr>
<tr>
<td>JXPG06R/L15F-15</td>
<td>1.5</td>
<td>0.05</td>
<td>●</td>
<td>R 6 3.5 10.5 15°</td>
</tr>
<tr>
<td>JXPG12R/L15F</td>
<td>1.5</td>
<td>0.05</td>
<td>●</td>
<td>R 12 6.5 12.5 0°</td>
</tr>
<tr>
<td>JXPG12R/L20F</td>
<td>2</td>
<td>0.05</td>
<td>●</td>
<td>R 12 6.5 12.5 0°</td>
</tr>
<tr>
<td>JXPG12R/L15F-15</td>
<td>1.5</td>
<td>0.05</td>
<td>●</td>
<td>R 12 6.5 12.5 15°</td>
</tr>
<tr>
<td>JXPG12R/L20F-15</td>
<td>2</td>
<td>0.05</td>
<td>●</td>
<td>R 12 6.5 12.5 15°</td>
</tr>
<tr>
<td>JXPG16R/L15F</td>
<td>1.5</td>
<td>0.05</td>
<td>●</td>
<td>R 16 8.5 14.5 0°</td>
</tr>
<tr>
<td>JXPG16R/L20F</td>
<td>2</td>
<td>0.05</td>
<td>●</td>
<td>R 16 8.5 14.5 0°</td>
</tr>
<tr>
<td>JXPG16R/L15F-15</td>
<td>1.5</td>
<td>0.05</td>
<td>●</td>
<td>R 16 8.5 14.5 15°</td>
</tr>
<tr>
<td>JXPG16R/L20F-15</td>
<td>2</td>
<td>0.05</td>
<td>●</td>
<td>R 16 8.5 14.5 15°</td>
</tr>
<tr>
<td>JXPG20R/L15F</td>
<td>1.5</td>
<td>0.05</td>
<td>●</td>
<td>R 20 10.5 16.5 0°</td>
</tr>
<tr>
<td>JXPG20R/L20F</td>
<td>2</td>
<td>0.05</td>
<td>●</td>
<td>R 20 10.5 16.5 0°</td>
</tr>
<tr>
<td>JXPG20R/L15F-15</td>
<td>1.5</td>
<td>0.05</td>
<td>●</td>
<td>R 20 10.5 16.5 15°</td>
</tr>
<tr>
<td>JXPG20R/L20F-15</td>
<td>2</td>
<td>0.05</td>
<td>●</td>
<td>R 20 10.5 16.5 15°</td>
</tr>
</tbody>
</table>

*Max grooving depth (CDX) varies depending on workpiece diameters.
(Refer to the table on p.14 for details)

CUTDIA: Max. parting-off dia.
Packing quantity = 5 pcs.
### STANDARD CUTTING CONDITIONS

<table>
<thead>
<tr>
<th>ISO</th>
<th>Workpiece materials</th>
<th>Grades</th>
<th>Cutting speed ( V_c ) (m/min)</th>
<th>Feed ( f ) (mm/rev)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>Low carbon steels (C15, C20, etc.)</td>
<td>SH725</td>
<td>50 - 200</td>
<td>0.01 - 0.05</td>
</tr>
<tr>
<td></td>
<td>Carbon steels, Alloy steels (C55, 42CrMoS4, etc.)</td>
<td>SH725</td>
<td>50 - 200</td>
<td>0.01 - 0.05</td>
</tr>
<tr>
<td></td>
<td>Free cutting steels (SUH22, SUH23, etc.)</td>
<td>SH725</td>
<td>50 - 200</td>
<td>0.01 - 0.05</td>
</tr>
<tr>
<td>M</td>
<td>Stainless steels (X5CrNi18-9, X5CrNiMo17-12-2, etc)</td>
<td>SH725</td>
<td>50 - 200</td>
<td>0.01 - 0.05</td>
</tr>
<tr>
<td>N</td>
<td>Aluminium alloys (A5056, A6061, etc.)</td>
<td>SH725</td>
<td>150 - 200</td>
<td>0.01 - 0.05</td>
</tr>
<tr>
<td></td>
<td>Copper alloy (C2600, C280C, etc.)</td>
<td>SH725</td>
<td>100 - 200</td>
<td>0.01 - 0.05</td>
</tr>
<tr>
<td>S</td>
<td>Titanium alloys (Ti-6Al-4V, etc.)</td>
<td>SH725</td>
<td>30 - 80</td>
<td>0.01 - 0.05</td>
</tr>
<tr>
<td></td>
<td>Superalloys (Inconel718, etc.)</td>
<td>SH725</td>
<td>30 - 80</td>
<td>0.01 - 0.05</td>
</tr>
</tbody>
</table>

### HOW TO SELECT TOOLS

<table>
<thead>
<tr>
<th>Application</th>
<th>Large-diameter machining of workpiece with rigidity</th>
<th>Small-diameter machining of workpiece with short overhang</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Main-spindle tooling</td>
<td>Sub-spindle tooling</td>
</tr>
<tr>
<td></td>
<td>Workpiece with long overhang at the side of sub-spindle for the process after parting-off</td>
<td>Short workpiece with low rigidity</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Toolholder</th>
<th>R-hand (JSXXR type)</th>
<th>L-hand (JSXXL type)</th>
<th>R-hand (JSXXR-S type)</th>
<th>L-hand (JSXXL-S type)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insert</td>
<td>Right-hand insert with lead angle to remove center core (JXPG<strong>R</strong>*-15 type)</td>
<td>Left-hand insert (JXPG<strong>L</strong>* type)</td>
<td>Right-hand insert (JXPG<strong>R</strong>* type)</td>
<td>Left-hand insert (JXPG<strong>L</strong>* type)</td>
</tr>
</tbody>
</table>
### HOW TO SELECT TOOLHOLDERS FOR SUB-SPINDLE

<table>
<thead>
<tr>
<th>Sub-spindle dia.</th>
<th>Parting-off dia.</th>
<th>B</th>
<th>LF</th>
<th>Insert</th>
<th>Toolholder</th>
</tr>
</thead>
<tbody>
<tr>
<td>ø40</td>
<td>~ ø6</td>
<td>10</td>
<td>116</td>
<td>JXPG06*</td>
<td>JSXXR/L1010X09-S</td>
</tr>
<tr>
<td>ø40</td>
<td>~ ø6</td>
<td>12</td>
<td>81</td>
<td>JXPG06*</td>
<td>JSXXR/L1212F09-S</td>
</tr>
<tr>
<td>ø40</td>
<td>~ ø12</td>
<td>10</td>
<td>118</td>
<td>JXPG12*</td>
<td>JSXXR/L1010X09-S</td>
</tr>
<tr>
<td>ø40</td>
<td>~ ø12</td>
<td>12</td>
<td>83</td>
<td>JXPG12*</td>
<td>JSXXR/L1212F09-S</td>
</tr>
<tr>
<td>ø40</td>
<td>~ ø16</td>
<td>10</td>
<td>120</td>
<td>JXPG16*</td>
<td>JSXXR/L1010X09-S</td>
</tr>
<tr>
<td>ø40</td>
<td>~ ø16</td>
<td>12</td>
<td>85</td>
<td>JXPG16*</td>
<td>JSXXR/L1212F09-S</td>
</tr>
<tr>
<td>ø40</td>
<td>~ ø20</td>
<td>12</td>
<td>87</td>
<td>JXPG20*</td>
<td>JSXXR/L1212F09B-S-CHP</td>
</tr>
<tr>
<td>ø50</td>
<td>~ ø6</td>
<td>12</td>
<td>116</td>
<td>JXPG06*</td>
<td>JSXXR/L1212X09-S</td>
</tr>
<tr>
<td>ø50</td>
<td>~ ø6</td>
<td>16</td>
<td>116</td>
<td>JXPG06*</td>
<td>JSXXR/L1616X09-S</td>
</tr>
<tr>
<td>ø50</td>
<td>~ ø12</td>
<td>12</td>
<td>118</td>
<td>JXPG12*</td>
<td>JSXXR/L1212X09-S</td>
</tr>
<tr>
<td>ø50</td>
<td>~ ø12</td>
<td>16</td>
<td>118</td>
<td>JXPG12*</td>
<td>JSXXR/L1616X09-S</td>
</tr>
<tr>
<td>ø50</td>
<td>~ ø16</td>
<td>12</td>
<td>85</td>
<td>JXPG16*</td>
<td>JSXXR/L1212F09-S</td>
</tr>
<tr>
<td>ø50</td>
<td>~ ø16</td>
<td>12</td>
<td>120</td>
<td>JXPG16*</td>
<td>JSXXR/L1212X09-S</td>
</tr>
<tr>
<td>ø50</td>
<td>~ ø20</td>
<td>12</td>
<td>87</td>
<td>JXPG20*</td>
<td>JSXXR/L1212F09B-S-CHP</td>
</tr>
<tr>
<td>ø50</td>
<td>~ ø20</td>
<td>12</td>
<td>122</td>
<td>JXPG20*</td>
<td>JSXXR/L1212X09B-S-CHP</td>
</tr>
<tr>
<td>ø50</td>
<td>~ ø20</td>
<td>16</td>
<td>122</td>
<td>JXPG20*</td>
<td>JSXXR/L1616X09-S</td>
</tr>
</tbody>
</table>

### MAX. PARTING-OFF DIA. & DEPTH

<table>
<thead>
<tr>
<th>Main-spindle tooling</th>
<th>Sub-spindle tooling</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Main spindle" /></td>
<td><img src="image2.png" alt="Sub-spindle" /></td>
</tr>
</tbody>
</table>

There will be no tool-workpiece interference when parting off the workpiece with the cutting edge position apart from the workpiece center by 8 mm or more.
**STD CUTTING CONDITIONS**

<table>
<thead>
<tr>
<th>ISO</th>
<th>Workpiece materials</th>
<th>Grades</th>
<th>Cutting speed Vc (m/min)</th>
<th>Feed f (mm/rev)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>Low carbon steels (C15, C20, etc.)</td>
<td>SH725</td>
<td>50 - 200</td>
<td>0.01 - 0.05</td>
</tr>
<tr>
<td></td>
<td>Carbon steels, Alloy steels (C55, 42CrMoS4, etc.)</td>
<td>SH725</td>
<td>50 - 200</td>
<td>0.01 - 0.05</td>
</tr>
<tr>
<td>M</td>
<td>Stainless steels (X5CrNi18-9, X5CrNiMo17-12-2, etc)</td>
<td>SH725</td>
<td>50 - 200</td>
<td>0.01 - 0.05</td>
</tr>
<tr>
<td></td>
<td>Aluminium alloys (A5056, A6061, etc)</td>
<td>SH725</td>
<td>150 - 200</td>
<td>0.01 - 0.05</td>
</tr>
<tr>
<td>N</td>
<td>Copper alloy (C2630, C280C, etc)</td>
<td>SH725</td>
<td>100 - 200</td>
<td>0.01 - 0.05</td>
</tr>
<tr>
<td></td>
<td>Titanium alloys (Ti-6Al-4V, etc.)</td>
<td>SH725</td>
<td>30 - 80</td>
<td>0.01 - 0.05</td>
</tr>
<tr>
<td>S</td>
<td>Superalloys (Inconel718, etc.)</td>
<td>SH725</td>
<td>30 - 80</td>
<td>0.01 - 0.05</td>
</tr>
</tbody>
</table>
Edge orientation and description of threading inserts

<table>
<thead>
<tr>
<th></th>
<th>Type A</th>
<th>Type B</th>
<th>Type N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right hand</td>
<td><img src="image1" alt="Diagram" /></td>
<td><img src="image2" alt="Diagram" /></td>
<td><img src="image3" alt="Diagram" /></td>
</tr>
<tr>
<td>Left hand</td>
<td><img src="image4" alt="Diagram" /></td>
<td><img src="image5" alt="Diagram" /></td>
<td><img src="image6" alt="Diagram" /></td>
</tr>
</tbody>
</table>

**JXTG 12 F R - 60 A - 005**

- Insert shape
- Insert size
- Thread angle
- Corner radius
  - F: sharp edge

When to use Type A and Type B insert

**Threading close to the wall**

**Threading operation following back-turning**

**Threading workpiece in main spindle**

**Threading operation following back-turning**

When to use Type A and Type B insert

**Threading close to the wall**

**Threading operation following back-turning**

**Threading workpiece in main spindle**

**Threading operation following back-turning**
**External grooving and parting-off toolholder, high pressure coolant compatible**

![Diagram of toolholder](image)

<table>
<thead>
<tr>
<th>Designation</th>
<th>CW</th>
<th>Seat size</th>
<th>CUTDIA</th>
<th>H</th>
<th>B</th>
<th>LF</th>
<th>LH</th>
<th>HBL</th>
<th>HF</th>
<th>WF (1)</th>
<th>HBH</th>
<th>Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>JCTER/L1212X2T12-CHP</td>
<td>2</td>
<td>2</td>
<td>25</td>
<td>12</td>
<td>12</td>
<td>120</td>
<td>24.5</td>
<td>25.4</td>
<td>12</td>
<td>0/12</td>
<td>5</td>
<td>3.0</td>
</tr>
<tr>
<td>JCTER/L1616X2T12-CHP</td>
<td>2</td>
<td>2</td>
<td>25</td>
<td>16</td>
<td>16</td>
<td>120</td>
<td>24.5</td>
<td>25.4</td>
<td>16</td>
<td>0/16</td>
<td>1</td>
<td>3.0</td>
</tr>
<tr>
<td>JCTER/L1616X2T16-CHP</td>
<td>2</td>
<td>2</td>
<td>32</td>
<td>16</td>
<td>16</td>
<td>120</td>
<td>24.5</td>
<td>25.4</td>
<td>16</td>
<td>0/16</td>
<td>4</td>
<td>3.0</td>
</tr>
<tr>
<td>JCTER/L2020X2T16-CHP</td>
<td>2</td>
<td>2</td>
<td>32</td>
<td>20</td>
<td>20</td>
<td>120</td>
<td>24.5</td>
<td>25.4</td>
<td>20</td>
<td>0/20</td>
<td>0</td>
<td>3.0</td>
</tr>
</tbody>
</table>

(1) "WF" value is calculated with groove width "WF" shown in the table. • CUTDIA: Max. parting off dia.

*Torque: Recommended torque (N∙m) for clamping

**SPARE PARTS**

<table>
<thead>
<tr>
<th>Designation</th>
<th>Clamping screw</th>
<th>Wrench</th>
</tr>
</thead>
<tbody>
<tr>
<td>JCTER/L1212X2T16-CHP</td>
<td>DTHB4A</td>
<td>H15F</td>
</tr>
</tbody>
</table>

Parting-off width: 2.0 mm

See page 44 for the proper tool overhang and plug settings.
External grooving and parting

**DGS type (2 corners)**

- Lower cutting force and superior sharpness
- Unique-designed edge and chipbreaker
- Handed insert available
- CW = 1.4 - 3 mm

**SGS type (1 corner)**

- 1st choice for grooving and parting
- Smooth chip evacuation
- Well-designed edge with high strength
- Handed insert available
- CW = 2 - 3 mm

**DGM type (2 corners)**

- Standard feed
- Smooth chip evacuation
- Well-designed edge with high strength
- Handed insert available
- CW = 2 - 3 mm

**External grooving of hardened steel**

**SGN-CBN type (1 corner)**

- For hardened steel cutting
- Optimum cutting edge shape for grooving of hardened steels
- High tolerance width for finishing
- CW = 2 - 3 mm
  - (CW = ±0.025 mm)
**INSERTS**

**DGS**

External grooving and parting, 2 corners

<table>
<thead>
<tr>
<th>Designation</th>
<th>Seat size</th>
<th>HAND CWθ0.05</th>
<th>RE</th>
<th>Coated</th>
<th>Cermet</th>
<th>INSL</th>
<th>h</th>
<th>PSIRL</th>
<th>PSIRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>DGS1.4-016</td>
<td>1 N</td>
<td>1.4</td>
<td>0.16</td>
<td>⭐⭐⭐⭐⭐⭐</td>
<td>⭐⭐⭐⭐⭐⭐</td>
<td>16</td>
<td>4.3</td>
<td>0°</td>
<td>0°</td>
</tr>
<tr>
<td>DGS2-020</td>
<td>2 N</td>
<td>2</td>
<td>0.2</td>
<td>⭐⭐⭐⭐⭐⭐</td>
<td>⭐</td>
<td>20</td>
<td>5</td>
<td>0°</td>
<td>0°</td>
</tr>
<tr>
<td>DGS2-020-6R</td>
<td>2 R</td>
<td>2</td>
<td>0.2</td>
<td>⭐⭐⭐⭐⭐⭐</td>
<td>⭐</td>
<td>19.5</td>
<td>5</td>
<td>0°</td>
<td>6°</td>
</tr>
<tr>
<td>DGS2-020-6L</td>
<td>2 L</td>
<td>2</td>
<td>0.2</td>
<td>⭐⭐⭐⭐⭐⭐</td>
<td>⭐</td>
<td>19.95</td>
<td>5</td>
<td>6°</td>
<td>0°</td>
</tr>
<tr>
<td>DGS2-002-6R</td>
<td>2 R</td>
<td>2</td>
<td>0.02</td>
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<td>⭐</td>
<td>19.5</td>
<td>5</td>
<td>0°</td>
<td>6°</td>
</tr>
<tr>
<td>DGS2-002-6L</td>
<td>2 L</td>
<td>2</td>
<td>0.02</td>
<td>⭐⭐⭐⭐⭐⭐</td>
<td>⭐</td>
<td>19.5</td>
<td>5</td>
<td>6°</td>
<td>0°</td>
</tr>
<tr>
<td>DGS2-020-15R</td>
<td>2 R</td>
<td>2</td>
<td>0.2</td>
<td>⭐⭐⭐⭐⭐⭐</td>
<td>⭐</td>
<td>19.5</td>
<td>5</td>
<td>0°</td>
<td>15°</td>
</tr>
<tr>
<td>DGS2-020-15L</td>
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<td>2</td>
<td>0.2</td>
<td>⭐⭐⭐⭐⭐⭐</td>
<td>⭐</td>
<td>19.5</td>
<td>5</td>
<td>15°</td>
<td>0°</td>
</tr>
<tr>
<td>DGS2-002-15R</td>
<td>2 R</td>
<td>2</td>
<td>0.02</td>
<td>⭐⭐⭐⭐⭐⭐</td>
<td>⭐</td>
<td>19.5</td>
<td>5</td>
<td>0°</td>
<td>15°</td>
</tr>
<tr>
<td>DGS2-002-15L</td>
<td>2 L</td>
<td>2</td>
<td>0.02</td>
<td>⭐⭐⭐⭐⭐⭐</td>
<td>⭐</td>
<td>19.5</td>
<td>5</td>
<td>15°</td>
<td>0°</td>
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**Caution**

The tool will interfere with the workpiece when grooving larger diameter than dDmax.

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**Steel | Stainless | Cast iron | Non-ferrous | Superalloys | Hard materials**

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**Coated | Cermet | NS9530**

**External grooving and parting, 2 corners**

The tool will interfere with the workpiece when grooving larger diameter than øDmax.
### DGM

**External grooving and parting, 2 corners**

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- **P**: Steel
- **M**: Stainless
- **K**: Cast iron
- **N**: Non-ferrous
- **S**: Superalloys
- **H**: Hard materials

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- ****: First choice
- ****: Second choice

**Notes**

- **HAND**: Neutral, Left hand (PSIRL), Right hand (PSIRR)
- **CW=0.05**: Control width = 0.05
- **DGM**: Designation
- **Coated**: T9225, T9125, AH7025, AH725, AH905, GH130, NS9350
- **Cermet**: Cermet
- **INSL**: Insulation thickness
- **h**: Height
- **PSIRL/PSIRR**: Parting and reaming radius

**: Line up
External deep grooving and parting, 1 corner

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Coated:

- **Steel**: 
- **Stainless**: 
- **Cast iron**: 
- **Non-ferrous**: 
- **Superalloys**: 
- **Hard materials**:

* : First choice
☆ : Second choice

- **HAND**: Line up

- **Neutral**: Left hand
- **PSIRL**: Right hand

---

41
External deep grooving and parting, 1 corner

<table>
<thead>
<tr>
<th>Designation</th>
<th>Seat size</th>
<th>HAND</th>
<th>CWd0.05</th>
<th>RE</th>
<th>Coated</th>
<th>INSL</th>
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<th>PSRL</th>
<th>PSRR</th>
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<td>● ●</td>
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<td>19.8</td>
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</tbody>
</table>

Neutral Left hand Right hand

SGS

DGG

External grooving (for high precision)

<table>
<thead>
<tr>
<th>Designation</th>
<th>Seat size</th>
<th>CWd0.02</th>
<th>RE</th>
<th>Coated</th>
<th>Cermet</th>
<th>Uncoated</th>
<th>INSL</th>
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<tbody>
<tr>
<td>DGG200-020</td>
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<td>2</td>
<td>0.2</td>
<td>● ● ●</td>
<td>NS9530</td>
<td>KS95F</td>
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<tr>
<td>DGG300-020</td>
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<td>0.2</td>
<td>● ● ●</td>
<td>NS9530</td>
<td>KS95F</td>
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<td>20</td>
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Steel Stainless Cast iron Non-ferrous Superalloys Hard materials

**: First choice  ★**: Second choice
### STANDARD CUTTING CONDITIONS

<table>
<thead>
<tr>
<th>Designation</th>
<th>Seat size</th>
<th>CBN</th>
<th>INSL</th>
<th>h</th>
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<tr>
<td>SGN200-020</td>
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<td>20 5</td>
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<tr>
<td>SGN300-020</td>
<td>3</td>
<td>3</td>
<td>0.2</td>
<td>20 5</td>
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</tbody>
</table>

- **SGN**
  - External grooving of hardened steel

- **Designation**
  - **Seat size**: CW 0.025
  - **CBN**: BX360
  - **INSL**: 20
  - **h**: 5

---

### ISO Workpiece material

<table>
<thead>
<tr>
<th>ISO</th>
<th>Workpiece material</th>
<th>Hardness</th>
<th>Priority</th>
<th>Grade</th>
<th>Cutting speed Vc (m/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>Steels (C45, 34CrMo4, etc.)</td>
<td>&lt; 300 HB</td>
<td>First choice</td>
<td>AH7025, AH725</td>
<td>50 - 180</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&lt; 300 HB</td>
<td>Priority for wear resistance</td>
<td>New T9225</td>
<td>80 - 300</td>
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<td>&lt; 300 HB</td>
<td>Priority for wear resistance</td>
<td>T9125</td>
<td>80 - 200</td>
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<tr>
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<td></td>
<td>&lt; 300 HB</td>
<td>Priority for impact resistance</td>
<td>GH130</td>
<td>50 - 120</td>
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<tr>
<td></td>
<td></td>
<td>&lt; 300 HB</td>
<td>Priority for surface finish</td>
<td>NS9530</td>
<td>80 - 220</td>
</tr>
<tr>
<td>M</td>
<td>Stainless steel (X10CrNiS18-9, etc.)</td>
<td>&lt; 200 HB</td>
<td>First choice</td>
<td>AH7025, AH725</td>
<td>50 - 120</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&lt; 200 HB</td>
<td>Priority for impact resistance</td>
<td>GH130</td>
<td>50 - 120</td>
</tr>
<tr>
<td>K</td>
<td>Gray cast iron (GG25, 250, etc.)</td>
<td>-</td>
<td>First choice</td>
<td>T515, AH7025</td>
<td>50 - 180</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
<td>Priority for impact resistance</td>
<td>GH130</td>
<td>50 - 180</td>
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<tr>
<td></td>
<td>Ductile cast irons (GGG45, 450-10S, etc.)</td>
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<td>First choice</td>
<td>T515, AH7025</td>
<td>50 - 120</td>
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<tr>
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<td></td>
<td>-</td>
<td>Priority for impact resistance</td>
<td>GH130</td>
<td>50 - 120</td>
</tr>
<tr>
<td>N</td>
<td>Aluminium alloys (Si &lt; 12%)</td>
<td>-</td>
<td>First choice</td>
<td>TH10</td>
<td>100 - 500</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
<td>First choice</td>
<td>KS05F</td>
<td>100 - 600</td>
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<tr>
<td>S</td>
<td>Superalloys (Inconel718, etc.)</td>
<td>&lt; HRC 40</td>
<td>First choice</td>
<td>AH7025</td>
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<td></td>
<td></td>
<td>&lt; HRC 40</td>
<td>Priority for wear resistance</td>
<td>AH905</td>
<td>20 - 80</td>
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<tr>
<td>H</td>
<td>Titanium alloys Ti-6Al-4V, etc.</td>
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<td>First choice</td>
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<td></td>
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<td>&lt; HRC 40</td>
<td>Priority for impact resistance</td>
<td>AH7025, AH725</td>
<td>20 - 80</td>
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<tr>
<td></td>
<td></td>
<td>&lt; HRC 40</td>
<td>Priority for surface finish</td>
<td>KS05F</td>
<td>20 - 60</td>
</tr>
<tr>
<td>H</td>
<td>Hardened steels (34CrMo4, etc.)</td>
<td>&gt; HRC 50</td>
<td>First choice</td>
<td>BX360</td>
<td>80 - 150</td>
</tr>
</tbody>
</table>
Tool settings on the tool post

- When using through-coolant, always set the tool to a proper overhang as specified in the table below.
- Remove the plug as specified below for proper through-coolant usage.

<table>
<thead>
<tr>
<th>Machine model</th>
<th>Grooving tool</th>
<th>Other stationary tools</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Overhang L1 (mm)</td>
<td>Coolant plug to remove</td>
</tr>
<tr>
<td>L12</td>
<td>17.5 (for 10X12 mm shank)</td>
<td>*1</td>
</tr>
<tr>
<td>L20</td>
<td>30 (for 16X16 mm shank)</td>
<td>B1</td>
</tr>
<tr>
<td>D25, M32</td>
<td>25 (for 20X20 mm shank)</td>
<td>B1</td>
</tr>
<tr>
<td></td>
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</tr>
</tbody>
</table>

* Only one coolant inlet on the toolholder
Tooling Examples

For Model L20 (compatible with the DirectTung-Jet system)

Coolant is supplied to Post T1 through Post T5 in a single system. If more than two coolant supply systems are required, please consult your Cincom agent.

For Model D25 (compatible with the DirectTung-Jet system)

Coolant is supplied in a single system to Post T1 through Post T4 in a single system.
### Practical examples

<table>
<thead>
<tr>
<th>Workpiece type</th>
<th>Shaft</th>
<th>Valve part</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toolholder</td>
<td>JSDJ2CR1212X11-CHP</td>
<td>JSDJ2CR1212X11-CHP</td>
</tr>
<tr>
<td>Insert</td>
<td>DCGT11T301FN-JS</td>
<td>DCMT11T304-PSS</td>
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<tr>
<td>Grade</td>
<td>SH730</td>
<td>AH905</td>
</tr>
<tr>
<td>Workpiece material</td>
<td><img src="image1" alt="Image" /></td>
<td><img src="image2" alt="Image" /></td>
</tr>
<tr>
<td>Cutting speed : $V_c$ (m/min)</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>Feed : $f$ (mm/rev)</td>
<td>0.02</td>
<td>0.05</td>
</tr>
<tr>
<td>Depth of cut : $a_p$ (mm)</td>
<td>2</td>
<td>0.15</td>
</tr>
<tr>
<td>Machining</td>
<td>External turning</td>
<td>Face turning</td>
</tr>
<tr>
<td>Coolant</td>
<td>Oil</td>
<td>Oil</td>
</tr>
</tbody>
</table>

#### Results

![Image](image3)

- **TungTurn-Jet**'s high pressure, through-coolant supply system has tripled the tool life over external coolant supply method.

<table>
<thead>
<tr>
<th>Workpiece type</th>
<th>Shaft</th>
<th>Injection part</th>
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<tbody>
<tr>
<td>Toolholder</td>
<td>STCR1212X18-CHP</td>
<td>JSXXR1212X09-CHP</td>
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<tr>
<td>Insert</td>
<td>TCP18R200F-010</td>
<td>JXPG16R15F</td>
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<tr>
<td>Grade</td>
<td>SH725</td>
<td>SH725</td>
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<tr>
<td>Workpiece material</td>
<td><img src="image4" alt="Image" /></td>
<td><img src="image5" alt="Image" /></td>
</tr>
<tr>
<td>Cutting speed : $V_c$ (m/min)</td>
<td>95</td>
<td>120</td>
</tr>
<tr>
<td>Feed : $f$ (mm/rev)</td>
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<td>Depth of cut : $a_p$ (mm)</td>
<td>2.5</td>
<td>Part-off diameter: ø8 mm</td>
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<tr>
<td>Machining</td>
<td>External grooving</td>
<td>Parting off</td>
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<tr>
<td>Coolant</td>
<td>Oil</td>
<td>Oil</td>
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</tbody>
</table>

#### Results

- **TungTurn-Jet**'s through-coolant supply system achieved double the tool life than that of normal coolant pressure.

- Thanks to its high pressure coolant jet system, TungTurn-Jet has improved the chip evacuation, eliminating the post-work chip cleaning process.

- TungTurn-Jet’s high pressure, through-coolant supply system has improved the tool life to 230% over external coolant supply method, while reducing tool wear during stainless steel parting operation.
Check our site and our App to get more info!