NEW CHIPBREAKERS
FOR SPECIFIC WORKPIECE MATERIALS

Double ended inserts for parting and grooving •
Sharp cutting edges •
Excellent chip control •

No. T322 E / 6-2019
**NEW CHIPBREAKERS TDUF & TDV**

**General Information**

New T-CLAMP ULTRA+ chipbreaker product line with two new chipbreaker types TDUF and TDV focused on specific workpiece materials.

**TDUF Insert - General Information**

The TDUF chipbreaker’s unique shape is specifically designed for the machining of chrome-nickel alloy steel, low carbon steel and offers exceptional performance when machining bearing steel. Performance wise, the new insert demonstrates excellent chip control in low feed cutting conditions during machining.

**TDUF Insert - Technical Features**

**TDUF Insert Features:**
- Suitable for the machining of chrome-nickel alloy steel and low carbon steel
- Exceptional performance in bearing steel machining
- Specialized for low feed cutting conditions
- Excellent chip control

**Sharp edges & short chip grooves**
- Superior chip breaking under low feed cutting conditions

**Unique chipbreaker shape**
- Excellent chip control
- Better chip breaking and good surface roughness during grooving

**TDUF Insert - Recommended Feed Range**

<table>
<thead>
<tr>
<th>f (mm/rev)</th>
<th>0.18</th>
<th>0.15</th>
<th>0.12</th>
<th>0.09</th>
<th>0.06</th>
<th>0.03</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width (mm)</td>
<td>2 mm</td>
<td>3 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Insert: TDUF
- Cutting speed (V): 120 m/min
- Material: DIN 1.3505 (HB 150 ~ 180)
## TDUF insert - Comparison Test 1

**Chip breaking and surface roughness**
Bearing steel (DIN 1.3505), cutting speed=120 m/min

<table>
<thead>
<tr>
<th>Feed (mm/rev)</th>
<th>TDUF 2</th>
<th>Competitor A</th>
<th>Competitor B</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.03</td>
<td>![Chip Image]</td>
<td>![Chip Image]</td>
<td>![Chip Image]</td>
</tr>
<tr>
<td>0.05</td>
<td>![Chip Image]</td>
<td>![Chip Image]</td>
<td>![Chip Image]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Surface Feed (mm/rev)</th>
<th>TDUF 2</th>
<th>Competitor A</th>
<th>Competitor B</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.03 (mm/rev)</td>
<td>![Surface Image]</td>
<td>![Surface Image]</td>
<td>![Surface Image]</td>
</tr>
</tbody>
</table>

## TDUF insert - Comparison Test 2

**Chip breaking**
Low carbon steel (AISI 1020), cutting speed=150 m/min

<table>
<thead>
<tr>
<th>Feed (mm/rev)</th>
<th>TDUF 2</th>
<th>Competitor A</th>
<th>Competitor B</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.03</td>
<td>![Chip Image]</td>
<td>![Chip Image]</td>
<td>![Chip Image]</td>
</tr>
<tr>
<td>0.05</td>
<td>![Chip Image]</td>
<td>![Chip Image]</td>
<td>![Chip Image]</td>
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<tr>
<td>0.08</td>
<td>![Chip Image]</td>
<td>![Chip Image]</td>
<td>![Chip Image]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Surface Feed (mm/rev)</th>
<th>TDUF 2</th>
<th>Competitor A</th>
<th>Competitor B</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.03 (mm/rev)</td>
<td>![Surface Image]</td>
<td>![Surface Image]</td>
<td>![Surface Image]</td>
</tr>
</tbody>
</table>
TDV Chipbreaker - General Information

For excellent performance in both stainless steel and mild steel machining, the TDV insert is especially suited because of its sharp cutting edges and wide chip grooves which generates a low cutting load during operations. The result is excellent chip breaking, which prevents the occurrence of built-up-edges.

As such, the TDV chipbreaker is the perfect solution for small diameter workpieces as well as tubes, because of superior chip control under low feed cutting conditions resulting in excellent tool life. The TDV line has one further advantage, it also generates a precision flat bottom surface in grooving applications.

TDV Insert - Technical Features

TDV Insert Features:

- Sharp cutting edges and a wide chip groove that generates low cutting load during operations
- Superior chip breaking power, which reduces built-up-edges
- Excellent performance in stainless steel and mild steel machining
- Optimally designed for small size workpieces and tubes, in low feed cutting conditions
- Capable of precision flat surfaces during grooving

Sharp cutting edges
- Low cutting resistance on tubes and other small sized components
- Minimal burring and improved surface roughness

Wide chip groove
- For medium-low feed cutting conditions
- Superior chip breaking power

TDV Insert - Recommended Feed Range

- Insert: TDV
- Cutting speed (V): 100 m/min
- Material: AISI 304 (HB 150 ~ 180)
# ToClamp Ultra+ TDUF

**DOUBLE ENDED INSERT WITH "UF"-TYPE CHIPBREAKER FOR PARTING AND GROOVING**

![Image of TDUF insert]

<table>
<thead>
<tr>
<th>Designation</th>
<th>R</th>
<th>B</th>
<th>L</th>
<th>Tmax</th>
<th>W</th>
<th>inserts</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDUF 2</td>
<td>0.2</td>
<td>1.5</td>
<td>20.0</td>
<td>19.0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>TDUF 3</td>
<td>0.2</td>
<td>2.4</td>
<td>20.0</td>
<td>19.0</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

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

# ToClamp Ultra+ TDV

**DOUBLE ENDED INSERT WITH "V"-TYPE CHIPBREAKER FOR PARTING AND GROOVING**

![Image of TDV insert]

<table>
<thead>
<tr>
<th>Designation</th>
<th>R</th>
<th>B</th>
<th>L</th>
<th>Tmax</th>
<th>W</th>
<th>inserts</th>
</tr>
</thead>
<tbody>
<tr>
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<td>1.7</td>
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<td>19.0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>TDV 3</td>
<td>0.2</td>
<td>2.4</td>
<td>20.0</td>
<td>19.0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>TDV 4</td>
<td>0.3</td>
<td>3.0</td>
<td>20.0</td>
<td>19.0</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

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

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*Ingersoll Cutting Tools*