Versatile chipbreaker for highly productive turning of steel
Unique chipbreaker reduces crater wear, providing high productivity and stable, long tool life.
New chipbreaker series "AS & AM" for highly productive turning of steel

**Finishing to medium cutting**

1. **“Lift-Ridge” shape prevents crater wear**
   - Reduces chip contact and heat generation
   - Suitable for a wide range of cutting conditions
   - Prevents crater wear in a large area of the rake face

2. Specially designed protrusion and ideal chipbreaker width provide excellent chip control

3. Inclination on cutting edge decreases cutting force

**Application area**

New chipbreaker series "AS & AM" for highly productive turning of steel

**Basic chipbreakers**

- TH
- TM
- TSF

**Selection for high productivity**

- AS

**Graphs**

- Depth of cut vs. Feed
- Feed vs. Depth of cut
Chip control
Stable chip control in a wide range of machining conditions!

Cutting performance

- **High-speed cutting**
  - **High carbon steel** (1045)
  - **Strong resistance to crater wear!**

  ![Graph showing cutting performance](image)

- **High-feed cutting**
  - **High carbon steel** (1045)
  - **Strong resistance to crater wear!**

  ![Graph showing cutting performance](image)

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**Insert**: CNMG 433 AM
**Workpiece**: Low carbon alloy
**Cutting speed**: $V_c = 980$ sfm
**Machining**: External turning
**Coolant**: Wet

**Cutting time (min.)**

**Max. flank wear width**: $V_{B\text{max}}$ (in)

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**Conventional product**
**Cutting time (min.)**: 8 min.
**Max. flank wear width**: $V_{B\text{max}}$ (in)

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**Competitor**
**Cutting time (min.)**: 8 min.
**Max. flank wear width**: $V_{B\text{max}}$ (in)

---

**Conventional product**
**Cutting time (min.)**: 8 min.
**Max. flank wear width**: $V_{B\text{max}}$ (in)
## Inserts  Negative type

### Rhombic / 80°

<table>
<thead>
<tr>
<th>Application</th>
<th>Chipbreaker</th>
<th>Appearance (Cross section)</th>
<th>$f$ - $ap$</th>
<th>Cat. No</th>
<th>Grades</th>
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### Rhombic / 55°

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### Triangular / 60°

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*Chipbreaker cross sections are marked with an *.

● : Stocked items
### Practical examples

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<th>Workpiece type</th>
<th>Pipe yoke</th>
<th>Hydraulic part</th>
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#### Cutting conditions

- **Workpiece material**

- **Cutting speed:** $V_c$ (sfm)
  - Pipe yoke: 590
  - Hydraulic part: 1010

- **Feed:** $f$ (ipr)
  - Pipe yoke: 0.014
  - Hydraulic part: 0.018

- **Depth of cut:** $a_p$ (in)
  - Pipe yoke: 0.08
  - Hydraulic part: 0.04 x 9 passes

- **Machining**
  - Pipe yoke: External turning (Continuous cutting)
  - Hydraulic part: External turning (Continuous cutting)

- **Coolant**
  - Pipe yoke: Wet
  - Hydraulic part: Wet

#### Results

**Tool life:**

- Pipe yoke: 1.2 times longer
- Hydraulic part: 1.6 times longer

While the competitor was unable to provide good chip control, AM chipbreaker delivered stable chip control even after machining 500 pcs. This was 1.2 times that of the competitor resulting in excellent surface quality.

Compared to the competitor, AM chipbreaker extended tool life by 1.6 times even in high-speed machining due to its strong resistance to crater wear.

*Chipbreaker cross sections are marked with an *.   
○ : Stocked items