New Grade AH715 for longer tool life
The most effective tooling solution with the option of hundreds of tools!
Tool changeover times can be measurably reduced!

www.tungaloy.com/us
The new grade provides longer tool life thanks to the latest coating layer

**New AH715**

- Unique nano-multilayered coating is made possible with Tungaloy’s latest coating technology, providing 3 principal features

**Feature 1: Resistance to built up-edge**
Coating layer to resist built up-edge

**Feature 2: Resistance to wear, oxidation, and fracture**
2 coating layers for wear and oxidation resistance
Layered alternatively to prevent crack from propagating to fracture

**Feature 3: Strong coating-substrate adhesion**
Coating is provided with strong adhesion between the coating layer and carbide substrate to prevent coating delamination

Substrate
Carbide substrate features wear and fracture resistance

**APPLICATION RANGE**

Tool life comparison in steel milling
AH715 provides longer tool life than existing grade

- **Competitor A**
  - Shank: VSSD16L100S10-S
  - Head: VED160L12.0R05-04S10
  - Workpiece material: 1055
  - Cutting speed: \( V_c = 492 \text{ sfm} \)
  - Feed per tooth: \( f_z = 0.005 \text{ ipt} \)
  - Depth of cut: \( a_p = 0.197'' \)
  - Width of cut: \( a_e = 0.059'' \)
  - Machine: V M/C, BT40

- **Conventional**
  - Shank: VSSD16L100S10-S
  - Head: VED160L12.0R05-04S10
  - Workpiece material: H-13 (HRC58)
  - Cutting speed: \( V_c = 197 \text{ sfm} \)
  - Feed per tooth: \( f_z = 0.002 \text{ ipt} \)
  - Depth of cut: \( a_p = 0.197'' \)
  - Width of cut: \( a_e = 0.020'' \)
  - Machine: V M/C, BT40

**Application Range**

- Wear resistance
- Toughness

**AH715**
VEE**-04..., VED**-04...

TungMeister square head with 4 flutes for general purposes

![TungMeister square head with 4 flutes for general purposes](image1)

<table>
<thead>
<tr>
<th>Metric</th>
<th>AH715</th>
<th>AH725</th>
<th>NOF</th>
<th>FHA</th>
<th>DC</th>
<th>DCSFMS</th>
<th>APMX</th>
<th>RE</th>
<th>CRKS</th>
<th>LF</th>
<th>Wrench</th>
<th>Torque*</th>
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</thead>
<tbody>
<tr>
<td>VEE160L12.0R00-04S10</td>
<td>4</td>
<td>45°</td>
<td>16</td>
<td>15.3</td>
<td>12</td>
<td>-</td>
<td>S10</td>
<td>20.5</td>
<td>KEYV-S10</td>
<td>28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VED160L12.0R05-04S10</td>
<td>4</td>
<td>30°</td>
<td>16</td>
<td>15.3</td>
<td>12</td>
<td>0.5</td>
<td>S10</td>
<td>20.5</td>
<td>KEYV-S10</td>
<td>28</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Torque: Recommended torque (N·m) for clamping.
Package quantity = 2 pcs.

VEE**I...

TungMeister square head with irregular pitch flute for chatter free cutting

![TungMeister square head with irregular pitch flute for chatter free cutting](image2)

<table>
<thead>
<tr>
<th>Metric</th>
<th>AH715</th>
<th>AH725</th>
<th>NOF</th>
<th>FHA</th>
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<th>CHW</th>
<th>CRKS</th>
<th>LF</th>
<th>Wrench</th>
<th>Torque*</th>
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<tbody>
<tr>
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<td>45°</td>
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<td>15.3</td>
<td>12</td>
<td>-</td>
<td>0.6</td>
<td>S10</td>
<td>20.5</td>
<td>KEYV-S10</td>
<td>28</td>
<td></td>
<td></td>
</tr>
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</table>

*Torque: Recommended torque (N·m) for clamping.
Package quantity = 2 pcs.

VEE**R...

TungMeister square head with serrated edges for roughing

![TungMeister square head with serrated edges for roughing](image3)

<table>
<thead>
<tr>
<th>Metric</th>
<th>AH715</th>
<th>AH725</th>
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<th>FHA</th>
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<th>APMX</th>
<th>CHW</th>
<th>CRKS</th>
<th>LF</th>
<th>RMPX</th>
<th>Wrench</th>
<th>Torque*</th>
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<tbody>
<tr>
<td>VEE160L12.0C40R05S10</td>
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<td>45°</td>
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<td>15.3</td>
<td>12</td>
<td>0.4</td>
<td>S10</td>
<td>20.5</td>
<td>7°</td>
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*Torque: Recommended torque (N·m) for clamping.
Package quantity = 2 pcs.
**VBD**-**BG**...

TungMeister ball nose head with 4 flutes and helical ground edge for finishing

<table>
<thead>
<tr>
<th>Metric</th>
<th>New</th>
<th>AH715</th>
<th>AH725</th>
<th>NOF</th>
<th>FHA</th>
<th>DC</th>
<th>DCSFMS</th>
<th>APMX</th>
<th>RE</th>
<th>CRKS</th>
<th>LF</th>
<th>Wrench</th>
<th>Torque*</th>
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<tbody>
<tr>
<td>VBD160L12.0-BG-04S10</td>
<td>•</td>
<td>•</td>
<td>4</td>
<td>30°</td>
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<td>7.978</td>
<td>S10</td>
<td>20.5</td>
<td>KEYV-S10</td>
<td>28</td>
<td></td>
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</tbody>
</table>

- The tolerance of R: ± 0.012
- Torque: Recommended torque (N·m) for clamping.
- Package quantity = 2 pcs.

**VCA**-**06**...

TungMeister head with 4 or 6 flutes for countersinking and chamfering

<table>
<thead>
<tr>
<th>Metric</th>
<th>New</th>
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<th>AH725</th>
<th>NOF</th>
<th>FHA</th>
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<tbody>
<tr>
<td>VCA160L06.5A45-06S10</td>
<td>•</td>
<td>•</td>
<td>6</td>
<td>0°</td>
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<td>16</td>
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<td>3</td>
<td>S10</td>
<td>20.3</td>
<td>KEYV-S10</td>
<td>28</td>
<td></td>
</tr>
</tbody>
</table>

**Torque:** Recommended torque (N·m) for clamping.
- Package quantity = 2 pcs.
# PRACTICAL EXAMPLES

<table>
<thead>
<tr>
<th>Workpiece type</th>
<th>Cover</th>
<th>Bolt sheet</th>
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</thead>
<tbody>
<tr>
<td>Shank</td>
<td>VSSD16L100S10-S (Steel, ø16)</td>
<td>VSSD16L100S10-S (Steel, ø16)</td>
</tr>
<tr>
<td>Head</td>
<td>VED160L12.0R05-04S10 (ø16)</td>
<td>VED160L12.0C60I04S10 (ø16)</td>
</tr>
<tr>
<td>Grade</td>
<td>AH715</td>
<td>AH715</td>
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<tr>
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<td>Class 25</td>
<td>60-40-18</td>
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</table>

## Workpiece material

<table>
<thead>
<tr>
<th>Cutting conditions</th>
<th>Shank</th>
<th>Head</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutting speed : $V_c$ (sfm)</td>
<td>820</td>
<td>197</td>
</tr>
<tr>
<td>Feed per tooth : $f_z$ (ipt)</td>
<td>0.005</td>
<td>0.003</td>
</tr>
<tr>
<td>Depth of cut : $a_p$ (in)</td>
<td>0.039</td>
<td>0.079</td>
</tr>
<tr>
<td>Width of cut : $a_e$ (in)</td>
<td>0.394</td>
<td>0.630</td>
</tr>
<tr>
<td>Coolant</td>
<td>Dry</td>
<td>Wet</td>
</tr>
</tbody>
</table>

## Results

![Graph showing tool life comparison](image1.png)

AH715’s latest coating technology improved wear and chipping resistance. The result was 1.5 times longer and with more stable tool life than the conventional tool.

![Graph showing tool life comparison](image2.png)

AH715’s latest coating technology improved wear resistance. The result was 1.4 times longer than the conventional tool with good surface finish.