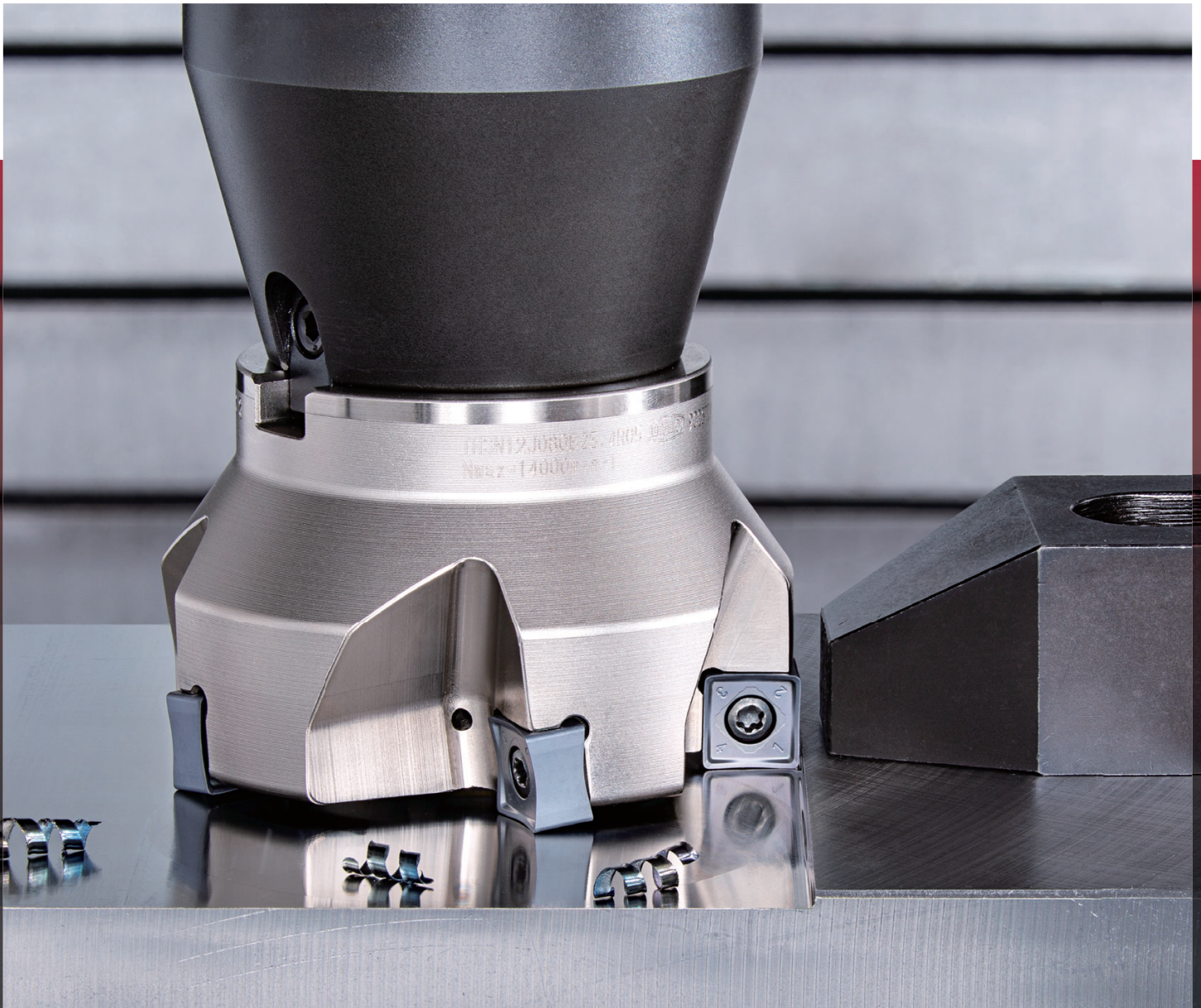


Face milling cutter

**DOQ<sup>UAD</sup>MILL**

Tungaloy Report No. 522S1-US

Face milling cutter with 8 cornered inserts  
— now includes AH3225 grade





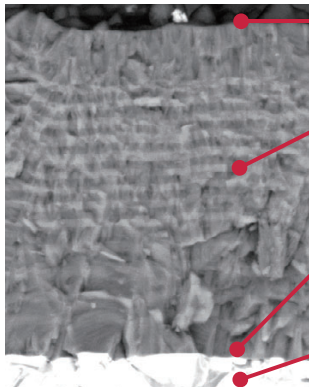
## First choice grade in steel for long tool life and process reliability

New

**AH3225**

**P**

- Nano multi-layer coating technology with three major properties for optimal cutting edge integrity
- Increased resistance to wear, fracture, oxidation, built-up edge, and delamination



### Resistance to built-up edge

The coating surface prevents built-up edge

### Resistance to wear, oxidation, and fracture

Multi-layered coating is designed to resist wear and oxidation, while preventing micro-cracks from propagating in the coating layer for improved resistance to edge chipping

### Strong coating / substrate adhesion

Coating is optimized for strong adhesion property with substrate to maintain strong cutting edge integrity

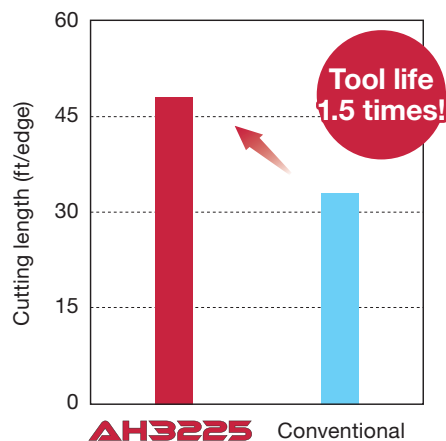
### Carbide substrate

High resistance to fracture

### Long tool life

**P**

1055

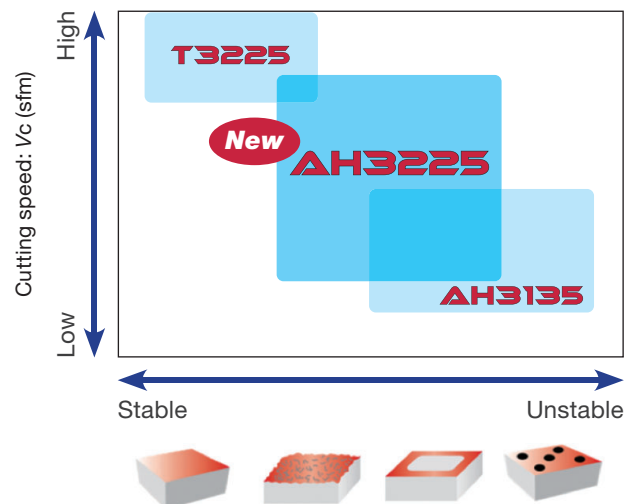


Cutter : THSN12U3.00B1.00R05  
( $\phi 3"$ ,  $z = 5$ )  
Insert : SNMU120608HNEN-MM AH3225  
Cutting speed :  $V_c = 492$  sfm  
Feed per tooth :  $f_z = 0.008$  ipt  
Depth of cut :  $a_p = 0.079"$   
Width of cut :  $a_e = 1.969"$   
Coolant : Dry  
Machine : Vertical M/C, CAT40

### Application area

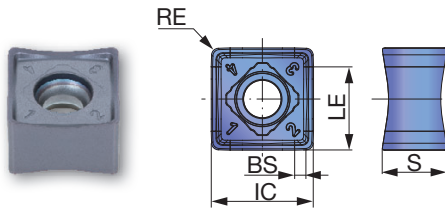
**P**

Steel

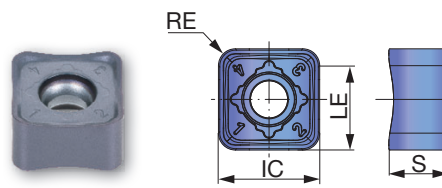


## INSERTS

SNMU120608HNEN-MM



SNMU120612/20EN-MM



|                         |   |   |   |   |
|-------------------------|---|---|---|---|
| <b>P</b> Steel          | ☆ | ★ | ☆ | ★ |
| <b>M</b> Stainless      |   | ☆ | ★ | ★ |
| <b>K</b> Cast iron      | ★ | ☆ |   | ★ |
| <b>N</b> Non-ferrous    |   |   |   |   |
| <b>S</b> Superalloys    | ★ | ☆ |   |   |
| <b>H</b> Hard materials |   |   |   |   |

★ : First choice  
☆ : Second choice

| Designation       | RE    | APMX  | Coated |        |        |       |       | LE    | S     | IC    | BS    |
|-------------------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|
|                   |       |       | AH120  | AH3225 | AH3135 | T1215 | T3225 |       |       |       |       |
| SNMU120608HNEN-MM | 0.031 | 0.374 | ●      | ●      | ●      | ●     | ●     | 0.386 | 0.295 | 0.472 | 0.055 |
| SNMU120612EN-MM   | 0.047 | 0.374 |        | ●      | ●      | ●     |       | 0.425 | 0.285 | 0.472 | -     |
| SNMU120620EN-MM   | 0.079 | 0.374 |        | ●      | ●      | ●     |       | 0.394 | 0.276 | 0.472 | -     |

● : New product  
● : Line up

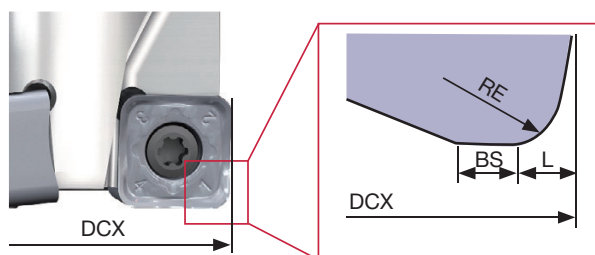
## STANDARD CUTTING CONDITIONS

| ISO      | Workpiece materials                             | Hardness    | Priority                | Grades | Chip-breaker | Cutting speed<br>Vc (sfm) | Feed per tooth<br>fz (ipt) |
|----------|-------------------------------------------------|-------------|-------------------------|--------|--------------|---------------------------|----------------------------|
| <b>P</b> | Low carbon steel<br>1015, etc.                  | - 200HB     | First choice            | AH3225 | MM           | 328 - 820                 | 0.002 - 0.012              |
|          |                                                 | - 200HB     | For wear resistance     | T3225  | MM           | 656 - 1148                | 0.002 - 0.010              |
|          | High carbon and alloy steel<br>1055, 4140, etc. | - 300HB     | First choice            | AH3225 | MM           | 328 - 820                 | 0.002 - 0.012              |
|          |                                                 | - 300HB     | For wear resistance     | T3225  | MM           | 591 - 984                 | 0.002 - 0.010              |
|          | Prehardened steel<br>NAK80, PX5, etc.           | 30 - 40HRC  | First choice            | AH3225 | MM           | 328 - 656                 | 0.002 - 0.010              |
|          |                                                 | 30 - 40HRC  | For wear resistance     | T3225  | MM           | 492 - 820                 | 0.002 - 0.008              |
| <b>M</b> | Austenitic stainless steel<br>304, 316, etc.    | - 200HB     | First choice            | AH3135 | MM           | 328 - 656                 | 0.002 - 0.010              |
|          |                                                 | - 200HB     | For wear resistance     | T3225  | MM           | 328 - 820                 | 0.002 - 0.008              |
|          | Cast stainless steel<br>1.4849, etc.            | -           | First choice            | T3225  | MM           | 197 - 394                 | 0.002 - 0.008              |
|          |                                                 | -           | For fracture resistance | AH3135 | MM           | 197 - 394                 | 0.002 - 0.008              |
| <b>K</b> | Gray cast iron<br>Class 25, etc.                | 150 - 250HB | First choice            | T1215  | MM           | 328 - 1148                | 0.002 - 0.012              |
|          |                                                 | 150 - 250HB | For fracture resistance | AH120  | MM           | 328 - 820                 | 0.002 - 0.012              |
|          | Ductile cast iron<br>65-45-12, etc.             | 150 - 250HB | First choice            | T1215  | MM           | 328 - 1148                | 0.002 - 0.010              |
|          |                                                 | 150 - 250HB | For fracture resistance | AH120  | MM           | 262 - 656                 | 0.002 - 0.012              |
| <b>S</b> | Titanium alloys<br>Ti-6Al-4V, etc.              | - 40HRC     | First choice            | AH3135 | MM           | 98 - 197                  | 0.002 - 0.008              |
|          | Heat-resistant alloys<br>Inconel718, etc.       | - 40HRC     | First choice            | AH120  | MM           | 33 - 131                  | 0.002 - 0.006              |
| <b>H</b> | Hardened steel<br>H13, etc.                     | 40 - 50HRC  | First choice            | AH3225 | MM           | 262 - 427                 | 0.002 - 0.006              |
|          | Hardened steel<br>D2, etc.                      | 50 - 60HRC  | First choice            | AH120  | MM           | 164 - 230                 | 0.001 - 0.003              |



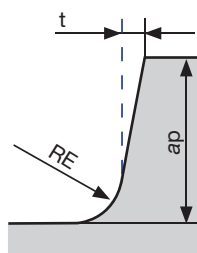
## ■ Tool offset

To eliminate uncut amount in face milling operation, adjust the programming according to the offset (L) listed below.



| Inch              | RE    | BS    | L     |
|-------------------|-------|-------|-------|
| SNMU120608HNEN-MM | 0.031 | 0.055 | 0.051 |
| SNMU120612EN-MM   | 0.047 | -     | 0.067 |
| SNMU120620EN-MM   | 0.079 | -     | 0.098 |

The following table shows the amount overcut (t) when the cutter is used as a shoulder milling cutter.



| Inch              | ap (in) |        |        |        |        |        |        |        |        |        |
|-------------------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                   | 0.039   | 0.079  | 0.118  | 0.157  | 0.197  | 0.236  | 0.276  | 0.315  | 0.354  | 0.374  |
| SNMU120608HNEN-MM | 0.0004  | 0.0016 | 0.0020 | 0.0020 | 0.0028 | 0.0035 | 0.0055 | 0.0079 | 0.0106 | 0.0106 |
| SNMU120612EN-MM   | -       | 0      | 0      | 0.0004 | 0.0008 | 0.0020 | 0.0035 | 0.0059 | 0.0087 | 0.0098 |
| SNMU120620EN-MM   | -       | 0      | 0      | 0      | 0.0008 | 0.0020 | 0.0035 | 0.0059 | 0.0087 | 0.0098 |



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Jun. 2022 (TJ)