B

# SOLID CARBIDE ENDMILLS



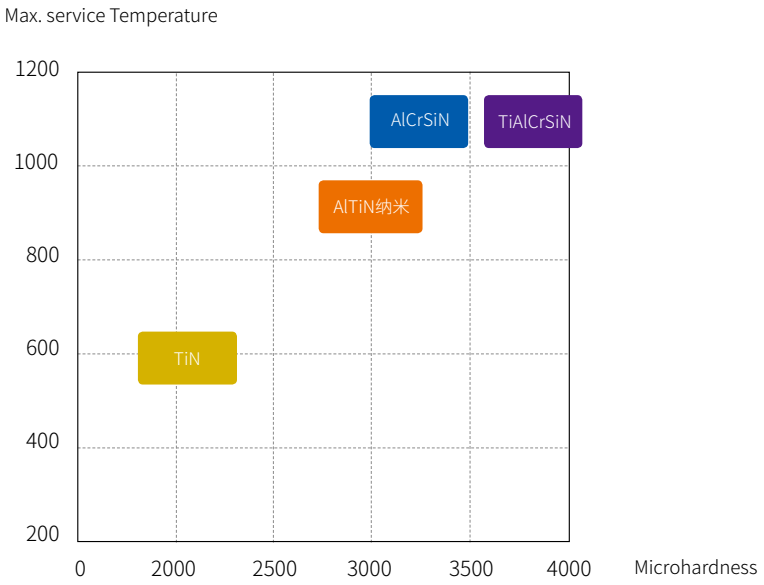
# GESAC Coating

## Coating Characteristic

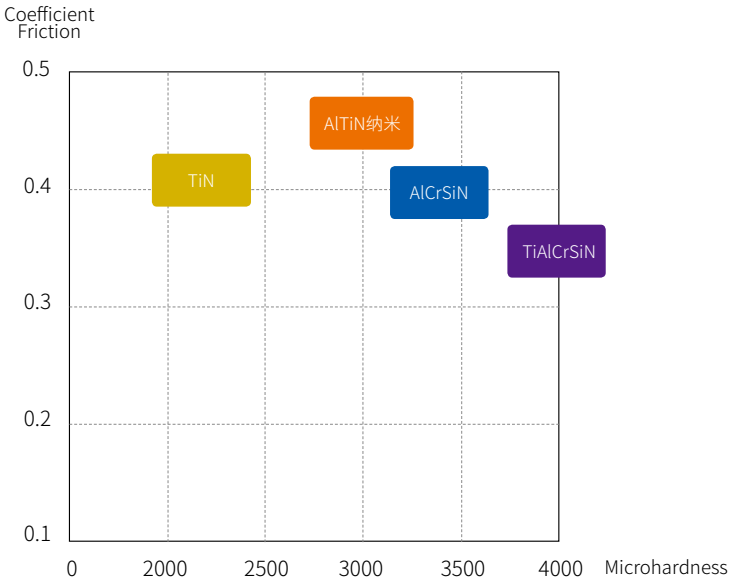
| Coatings | Microhardness (HV0.05) | Coefficient Friction | Max. service Temperature (°C) | Characteristic and Application |
|---|---|---|---|---|
| AlCrN | 3200 | 0.45 | 1100 | High oxidation resistance, extremely good of high temperature abrasion resistance, suitable for ordinary steel, low hardness of die steel or titanium alloy dry milling. |
| AlCrSiN | 3300 | 0.4 | 1100 | Specially designed for milling, high oxidation resistance, good balance of abrasion resistance and toughness, versatility is extremely high, suitable for ordinary steel under HRC55, die steel and titanium alloy milling. |
| TiAlN | 2900 | 0.35 | 900 | Super-high micro hardness and fine-grain, suitable for stainless steel, some high hard steel drying cutting and titanium alloy milling. |
| AlTiN Nano | 3000 | 0.45 | 900 | Extremely crystal texture control, good balance of micro hardness and toughness, universal milling and drilling coatings, suitable for stainless steel, high hard steel moderately high speed and high feed cutting. |
| AlCrN/TiSiN | 3100 | 0.35 | 1100 | High oxidation resistance, good hot hardness, good toughness, and super-smooth surface, suitable for stainless steel and cast iron drilling. |
| AlTiN/TiSiN Multilayer | 3300 | 0.35 | 1100 | Super high thermal-stability, super toughness, bit general coating, especially suitable for ordinary steel drilling. |
| TiAlCrSiN | 4000 | 0.35 | 1100 | High micro hardness, high oxidation resistance and hot hardness, suitable for high hard steel above 55HRC milling. |
| Normal diamond coating | 8500 | - | 700 | High hardness, thermal conductivity and wear resistance, suitable for graphite machining. |
| Ultra-fine grain diamond coating | 8000 | - | 700 | Smooth surface, good self-lubricity, hardness, thermal conductivity and wear resistance, suitable for nonferrous materials, carbon fiber composite machining, etc. |

## Position of Main PVD Nano-structure Coating

PVD coating provides for superior control of coating grain size (from 10nm to 500nm), achieves excellent hardness, good oxidation resistant, and improved reduction of the coefficient of friction.



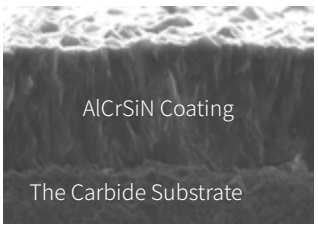

Microhardness and Max. Service Temperature




Microhardness and Coefficient of Friction

## Universal High Performance Coating AlCrSiN

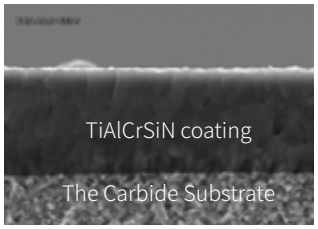
● Productivity increase due to significantly higher cutting speed and feed for application in a wide range of materials.
Significantly enhance productivity.
● Particular design of structure brings good balance between toughness, thermo-shock stability and residual stress.



SEM Photograph of Coating

## High Hardness Coating TiAlCrSiN

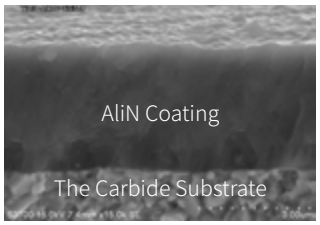
● Micro hardness up to 4000HV, with good wear resistance.
● Special transition layer design to ensure the high bonding strength between high hardness coating and substrate, adhesion of up to 100N.
● Nano composite coating design, have super strong oxidation resistance, oxidation starts at temperatures as high as 1100°C,high temperature stability



SEM Photograph of Coating

## Nano Coating AlTiN

● High aluminum content provides excellent hot hardness and oxidation resistance.
● Special method optimizes the structure of coating, significantly improve stability, reducing the number of surface droplet.



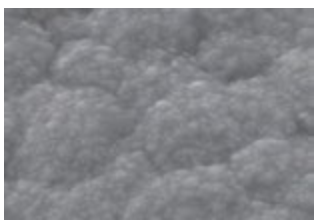
SEM Photograph of Coating

## Ultra-Fine Grain Diamond Coating

● High purity diamond coating, with hardness up to 80GPa.
● Ultra smooth and shiny surface, low coefficient friction.
● Suitable for finish machining nonferrous materials, such as graphite, aluminum, carbon fiber, ceramic, etc.

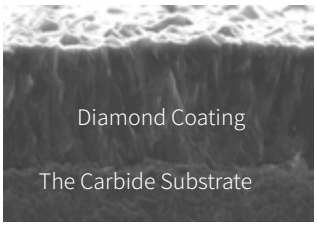


SEM Photograph of Coating

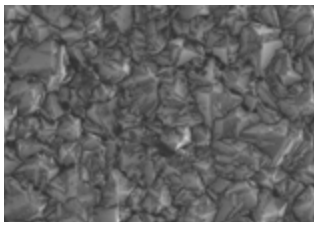

Surface Morphology

## Normal diamond coating

● High purity diamond coating, with hardness up to 80GPa.
● High wear-resisting diamond coating, with extremely high hardness and strongly wear resistance.。
● Suitable for graphite machining.



SEM Photograph of Coating


Surface Morphology

# Guidelines to Icons

| Mark | | Description |
|---|---|---|
| Shank | SHANK h5 | ISO Standard Shank h5 |
| | SHANK h6 | ISO Standard Shank h5 |
| Coating | AlCrN | AlCrN Coating |
| | AlCrSiN | AlCrSiN Coating |
| | TiAlN | AlTiN Coating |
| | AlTiN nano | Nano Coating AlTiN |
| | AlCrN/ TiSiN | AlCrN/TiSiN Coating |
| | AlTiN/ TiSiN | Nano Coating AlTiN/ TiSiN |
| | TiAlCrSiN | TiAlCrSiN Coating |
| | N-DIA | Normal Diamond Coating |
| | U-DIA | Ultra-Fine Grain Diamond Coating |
| Cutting Condition | | For Side Milling |
| | | For Slotting |
| | | For Profile Milling |
| Helix | -20° Helix | -20°Helix |
| | 15° Helix | 20°Helix |
| | 20° Helix | -20°Helix |

| Mark | | Description |
|---|---|---|
| Helix | 28° Helix | 28°Helix |
| | 30° Helix | 30°Helix |
| | 35° Helix | 35°Helix |
| | 38° Helix | Variable Helix |
| | 40° Helix | 40°Helix |
| | 45° Helix | 45°Helix |
| | 15°/40° Helix | Variable Helix |
| | 35°/38° Helix | Variable Helix |
| | 38°/40° Helix | Variable Helix |
| | 47°/45°/43° Helix | 3639，2830,1540 |
| No.of Flutes | 1 | 1 Flute Endmills |
| | 2 | 2 Flute Endmills |
| | 3 | 3 Flute Endmills |
| | 4 | 4 Flute Endmills |
| | 5 | 5 Flute Endmills |
| | 6 | 6 Flute Endmills |
| | 12 | 12 Flute Endmills |

| Mark | | Description |
|---|---|---|
| Endteeth Type | Square | Square End |
| | Corner-R | Corner Radius |
| | Ballnose | Ballnose |
| | Chamfer | Square End with Chamfer |
| | Chamfer | Chamfer |
| Workpiece Material | P | Steels |
| | M | Stainless Steels |
| | K | Cast Iron |
| | N | Non-ferrous Materials |
| | S | Heat-resistant Super Alloys,Titanium Alloys |
| | H | High Hardened Materials |

# Solid Carbide Endmills Identification System

**UP210 -**

①

| Workpiece | ①Code of Series | Series Description |
|---|---|---|
| Steel, Cast Iron | UP210 | Suitable for Steels&Cast Iron(≤48HRC) |
| | SP210 | Suitable for High Efficiency Machining of Steels & Cast Iron(≤48HRC) |
| | UPR100 | Suitable for Roughing of Steels & Cast Iron(≤48HRC) |
| | UPN210 | Suitable for Roughing of Steels & Cast Iron(≤48HRC) |
| | UPR210 | NEW Suitable for Roughing of Steels & Cast Iron(≤48HRC) |
| | UPR300 | NEW Suitable for Roughing of Steels & Cast Iron(≤48HRC) |
| Stainless Steel | US200 | Suitable for General Machining of Stainless Steel |
| | US300 | Suitable for General Machining of Stainless Steel |
| | SS200 | Suitable for High Efficiency Machining of Stainless Steel |
| Aluminium Alloy | UA100 | Suitable for General Machining of Aluminium Alloy |
| | UA160 | Suitable for General Machining of Aluminium Alloy |
| | SA100 | Suitable for High Efficiency Machining of Aluminium Alloy |
| | SA210 | Suitable for high efficiency machining of aerospace Aluminium Alloys |
| | SA300 | Suitable for high speed machining of aerospace aluminium alloys |
| Graphite | SG200 | Suitable for High Speed Machining of Graphite |
| Composite Materials | SD200 | Suitable for Composite Material |
| Heat Resistant Super Alloys | SN200 | Suitable for High Efficiency Machining of Heat Resistant Super Alloys |
| Titanium Alloys. | ST210 | Endmills for High Performance Machining of Titanium Alloys |
| | ST300 | Endmills for High Efficiency Machining for Titanium Alloys |
| High Hardened Material | SH300-H | Suitable for Exclusive Machining of Hardened Steels（45-70HRC） |
| | FH200-H | Suitable for High Feed Machining of Hardened Steels（35-65HRC） |

| S | S | 2- | 060 | 09 |
|---|---|---|---|---|
| ② | ③ | ④ | ⑤ | ⑥ |

| ②Endteeth Type | |
|---|---|
| S | Square |
| B | Ballnos |
| R | Cornor Radius |
| C | Square End |

| ③Length of Flute | |
|---|---|
| N | Reduce Neck |
| H | Long Shank |
| L | Long Flute |
| S | Short Flute |
| Blank | Standard |

| ④No. of Flutes |
|---|
| 2 |
| 3 |
| 4 |
| 6 |

| ⑤Diameter | |
|---|---|
| 0.6mm | 006 |
| 6mm | 060 |
| 10mm | 100 |

| ⑥Code Characteristic | |
|---|---|
| 1 | Square End\ Ballnose:<br>a. Neck Length<br>b. Flute Length<br>6-06 10-10 |
| 2 | Cornor Radius:<br>r0.2-02<br>r1-10 |
| 3 | Miniature:<br>C0.03-03<br>C0.13-13 |

# Solid Carbide Endmills Identification System

## SPM200 -

①

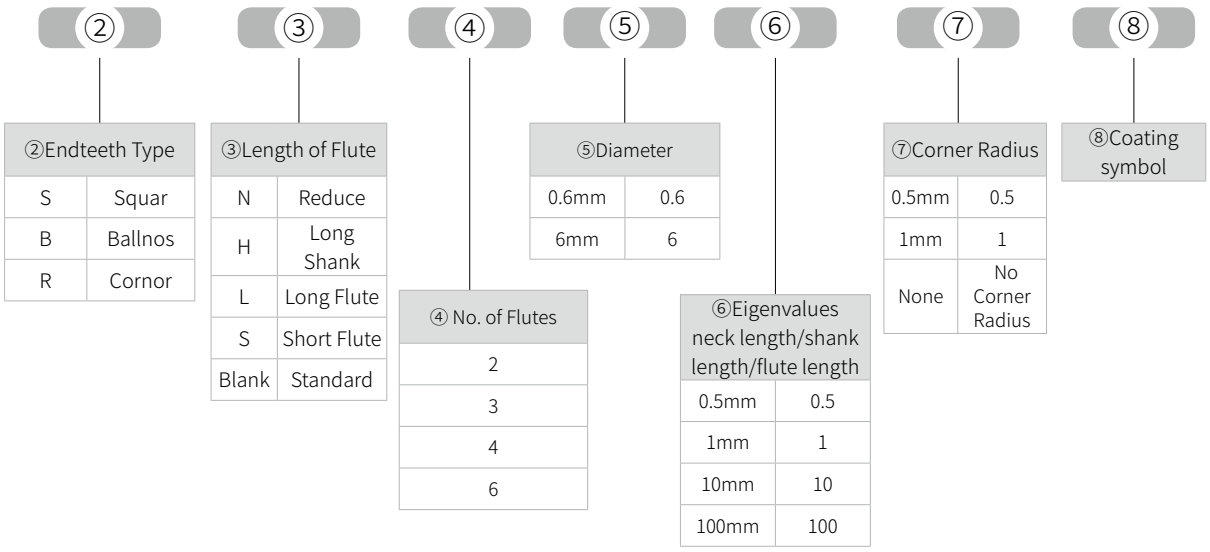
| Workpiece | ①Code of Series | Series Description |
|---|---|---|
| Steel, Cast Iron, Copper Alloy ,High Hardened Material | SPM200 | Suitable for micro diameter of deep machining（≤55HRC） |
| Copper Alloy,Aluminium Alloy | SAM200 | NEW Suitable for micro diameter of copper alloy |
| High Hardened Material | SH260-H | NEW Suitable for General Machining （35-60HRC） |

## SG200-M -

①

| Workpiece | ①Code of Series | Series Description |
|---|---|---|
| Graphite | SG200-M | NEW suitable for High Speed Machining of Graphite |

# R N 2-1-4-0.1-V




| ②Endteeth Type | |
|---|---|
| S | Squar |
| B | Ballnos |
| R | Cornor |

| ③Length of Flute | |
|---|---|
| N | Reduce |
| H | Long Shank |
| L | Long Flute |
| S | Short Flute |
| Blank | Standard |

| ④ No. of Flutes |
|---|
| 2 |
| 3 |
| 4 |
| 6 |

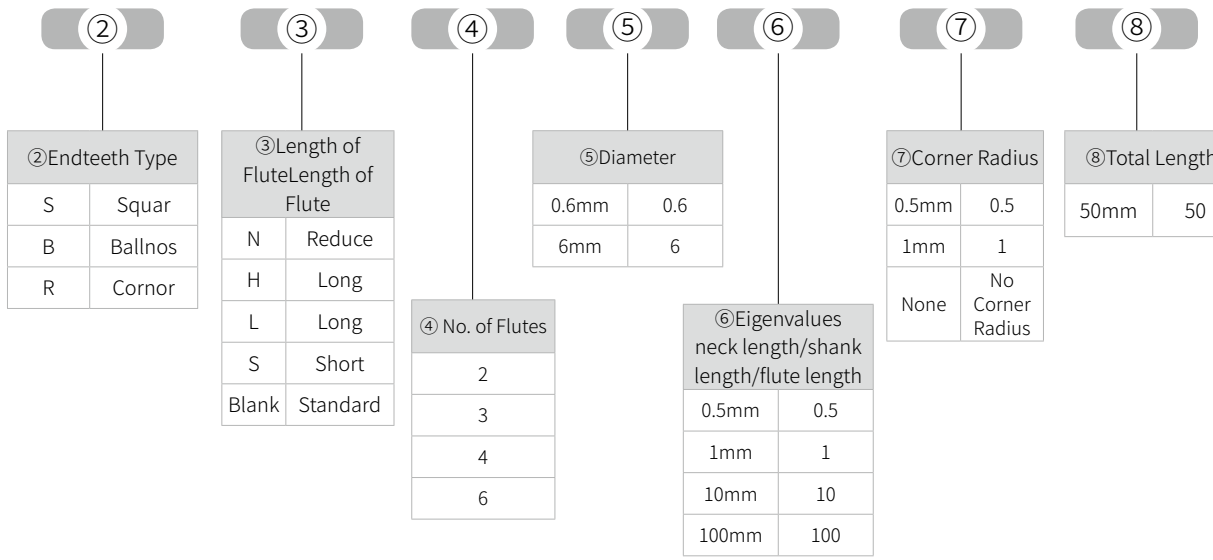
| ⑤Diameter | |
|---|---|
| 0.6mm | 0.6 |
| 6mm | 6 |

| ⑥Eigenvalues neck length/shank length/flute length | |
|---|---|
| 0.5mm | 0.5 |
| 1mm | 1 |
| 10mm | 10 |
| 100mm | 100 |

| ⑦Corner Radius | |
|---|---|
| 0.5mm | 0.5 |
| 1mm | 1 |
| None | No Corner Radius |

| ⑧Coating symbol |
|---|

# R N 4-1-4-0.1-50




| ②Endteeth Type | |
|---|---|
| S | Squar |
| B | Ballnos |
| R | Cornor |

| ③Length of FluteLength of Flute | |
|---|---|
| N | Reduce |
| H | Long |
| L | Long |
| S | Short |
| Blank | Standard |

| ④ No. of Flutes |
|---|
| 2 |
| 3 |
| 4 |
| 6 |

| ⑤Diameter | |
|---|---|
| 0.6mm | 0.6 |
| 6mm | 6 |

| ⑥Eigenvalues neck length/shank length/flute length | |
|---|---|
| 0.5mm | 0.5 |
| 1mm | 1 |
| 10mm | 10 |
| 100mm | 100 |

| ⑦Corner Radius | |
|---|---|
| 0.5mm | 0.5 |
| 1mm | 1 |
| None | No Corner Radius |

| ⑧Total Length | |
|---|---|
| 50mm | 50 |

# Application Summary Of Solid Carbide Endmills

<table>
<tr><th>ISO Material Group</th><th colspan="2">MC GESAC</th><th colspan="2">General Machining</th><th>Roughing</th><th>High Efficiency Machining</th><th colspan="2">High Speed Machining</th><th>Micro Machining</th></tr>
<tr><td rowspan="3">P</td><td>1<br>2<br>3<br>4</td><td>Carbon Steel,Alloy Steel<br>(＜35HRC)</td><td colspan="2" rowspan="3">UP210<br>SH260-H<br>NEW</td><td rowspan="3">UPR100<br>UPN210<br>UPR210<br>NEW<br>UPR300<br>NEW</td><td rowspan="3">SP210</td><td colspan="2" rowspan="3">SH260-H<br>NEW</td><td rowspan="3">SPM200</td></tr>
<tr><td>5</td><td>Alloy Steel (35-48HRC)</td></tr>
<tr><td>6</td><td>PH,Ferritic,Martensitic<br>Steel(＜35HRC)</td></tr>
<tr><td>M</td><td>1<br>2<br>3</td><td>Stainless Steel</td><td>US200</td><td>US300</td><td></td><td>SS200</td><td colspan="2"></td><td>SPM200</td></tr>
<tr><td rowspan="2">K</td><td>1<br>2</td><td>Grey Cast Iron,Nodular<br>Cast Iron<br>(＜32HRC)</td><td colspan="2" rowspan="2">UP210</td><td rowspan="2">UPR100<br>UPN210<br>UPR210<br>NEW<br>UPR300<br>NEW</td><td rowspan="2">SP210</td><td colspan="2"></td><td rowspan="2">SPM200</td></tr>
<tr><td>3</td><td>High-alloy Cast Iron<br>(35-45HRC)</td><td colspan="2"></td></tr>
<tr><td rowspan="5">N</td><td>1<br>2</td><td>rought Aluminium Alloys/<br>Cast<br>Aluminium Alloys<br>(Si≤12%)</td><td>UA100</td><td>UA160</td><td></td><td rowspan="3">SA210<br>NEW</td><td rowspan="3">SA310</td><td>SAM200<br>NEW</td><td rowspan="4">SPM200</td></tr>
<tr><td>3</td><td>Cast Aluminium Alloys（Si<br>＞12%)</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>4</td><td>Copper Alloys（＜200HB)</td><td>UA100</td><td>UA160</td><td></td><td>SAM200<br>NEW</td></tr>
<tr><td>5</td><td>Graphite、Composite<br>Material</td><td colspan="3">SD200</td><td>SG200</td><td>SG200-M<br>NEW</td><td></td></tr>
<tr><td rowspan="2">S</td><td>1<br>2<br>3</td><td>Heat-resistant Alloys<br>(＜450HB)</td><td colspan="4">SN200</td><td colspan="2"></td><td rowspan="2">SPM200</td></tr>
<tr><td>4</td><td>Titanium Alloys<br>(＜400HB)</td><td colspan="2">ST200</td><td>ST300</td><td>ST260</td><td>ST300</td><td colspan="2"></td></tr>
<tr><td rowspan="3">H</td><td>1</td><td>Hardened Steel(45-55HRC)</td><td colspan="2" rowspan="3">SH260-H<br>NEW</td><td rowspan="3">FH200-H</td><td rowspan="3">FH200-H</td><td rowspan="3">SH260-H<br>NEW</td><td rowspan="3">SH300-H</td><td>SPM200</td></tr>
<tr><td>2</td><td>Hardened Steel(55-60HRC)</td><td></td></tr>
<tr><td>3<br>4</td><td>Hardened Steel(55-60HRC)</td><td></td><td></td><td></td></tr>
</table>

# Series Introduction

## UP210 Endmills for General Purpose

- Suitable for steels & cast iron(≤48HRC).
- High performance AlCr series coating with high temperature resistance and high wear resistance.
- Adapt to oil mist, water, oil, air cooling and other cooling conditions.



## SP210 Endmills for High Efficiency Efficient Machining

- Suitable for high efficiency efficient machining of steels & cast iron (≤48HRC).
- Variable helix angle and unequal flute pitch with excellent anti-vibration capacity.
- Applicable to high efficiency efficient machining of large cutting depth（ap）, large cutting width（ap）(Machine with good rigidity).





## UPR100 Endmills for Roughness application

- Suitable for Roughness application of Steel and Cast Iron(≤48HRC)
- Special treatment for Flute geometry,Suitable for groove and side milling application



## UPN210 Endmills for Rough Application

- Suitable for steels & cast iron semi-finishing and rough milling, with high metal removal rate
- GU cemented carbide substrate with high performance AlCrSiN nano-coating, to realize perfect match both high wear resistance and toughness.
- With special chip-breaking design, make short chips in the course of processing, smooth chip removal, realized high quality stable machining
- Special R type groove design, ensure good chip evacuation.

# Series Introduction

## UPR210 Waveform Endmill

- Suitable for roughing machining of steels & cast iron(≤48HRC), with high metal removal rate.
- GU cemented carbide substrate with high performance AlCrSiN nano-coating, to realize perfect match both high wear resistance and toughness.
- 45° helix angle and special U type groove design, realize smoothly cutting.
- Adopt the standard waveform tooth design, make short chips during processing. Excellent chip removal performance, realized high quality and stable processing.



## UPR 300 Waveform Endmills

- Suitable for roughing machining at big cutting depth (ap), big cutting width (ae) of steels & cast iron (≤48HRC), with high metal removal rate.
- Adopts dense tooth type and waveform tooth design, produced ultra-fine chip when processing, Excellent chip removal, low resistance cutting performance, low machine load.
- Special edge processing, effectively improve the tool’s collapse resistance and wear resistance during rough machine process.





## US200 Endmills for General Machining of Stainless Steel

- Suitable for general machining of stainless steel (<280HB).
- Special edge design，effectively solve the crumbs.
- Water，oil cooling as the best cooling method.



## US300 Endmill for General Machining of Stainless Steel

- Suitable for rough milling，semi-finishing and finishing of stainless steel （<280HB）
- Design for the small depth/large width in face milling, large depth/small width in side milling .

# Series Introduction



## ▲ SS200 Endmill for High Efficiency Milling of Stainless Steel

- Suitable for high efficiency rough milling and semi-finishing of stainless steel（<280HB）.
- Variable helix angle and differential flute pitch, reduces and eliminates vibration.
- Applicable for high efficiency machining at large cutting depth (ap), large cutting width (ae), high material removal rate.

## ▼ UA100 Endmills for General Machining of Aluminum Alloy

- Suitable for aluminum alloy (Si ⩽ 12%) and copper alloy (< 200HB) general processing.
- Special edge design，reduces vibration，effectively solve the crumbs.
- Water cooling is the best cooling method.





## ▲ UA160 Endmills for General Machining of Aluminum Alloy and Copper Alloy

- Suitable for roughing, semi-finishing and finishing of aluminum alloy（Si⩽12%） and copper alloy（<200HB）.
- Special edge design, reduces vibration.
- Special edge preparation, good surface quality.

# Series Introduction



## SA100 Endmill for High Efficiency Milling of Aluminum Alloy

- Suitable for high efficiency rough milling and semi-finishing of aluminum alloy (Si ⩽ 12%)
- This product has unique groove design and rake face polishing process , which could enhance chip removal performance and meet the needs of high efficient processing
- Applicable for high efficiency machining at large cutting depth (ap), large cutting width (ae), high material removal rate

## SA210 high efficiency Aluminum Endmill

- High-Speed tools use waveform and Circumferential flute damping design to achieve excellent vibration
- Low-Speed tools use the polish technology to reduce cutting force
- Special chip pocket design to improve chip removal and to reach metal removal rate



## SA300 Endmills for High efficient Machining of Aerospace Aluminium Alloys

- Suitable for high efficient machining of aerospace aluminium alloys
- Dynamic balance performance N=25000RPM， G2.5
- Unique sharp edges with light and smooth cutting performance improve processing efficiency and workpiece surface quality.



# Series Introduction



## SG 200 Endmills for Machining of Graphite

- Diamond coating and enhanced adhesion between coating and substrate provide high adhesion and tool toughness;
- High-purity diamond coating film with good wear resistance ensures long-life processing;
- Suitable for semi-finishing and finishing of graphite workpieces, such as graphite electrode and graphite products. Air cooling is recommended.



## SG200-M Endmill for Graphite Mold

- High-purity diamond coating, suitable for processing all kinds of high and low hardness graphite, with superior wear resistance
- Special pretreatment, ensures good surface quality.
- Suitable for 3C electronics industry 3D curved glass graphite mould, with high precision, specialized processing. Air cooling is recommended.



## SD200 High performance Endmill for composite material

- Suitable for aerospace Carbon fiber composite material side and groove milling
- Using diamond coating to improve tool life
- The left and right interleaved edge design can effectively suppress the flanging and delamination of the workpiece

# Series Introduction



## SN200 Endmills for High Efficient Machining of Heat Resistant Alloys

- Suitable for rough, semi-finish and finish machining of Heat Resistant Alloys.
- Special edge design ensures high rigidity and excellent anti-vibration performance.
- Special circumference relief angle improves edge strength and guarantees surface quality.

## ST210 Endmills for High Performance Machining of Titanium Alloys

- Suitable for high performance machining of titanium alloys（TA7、TC4、TC18）and stainless steel.
- Unequal division, unequal helix, effectively improved anti-vibration performance, higher surface quality.
- Eccentric arc relief angle design improves edge strength and guarantees surface quality.
- Special body for hard working materials, ensures longer tool life.





## SH260-H Endmills General-Purpose for Hardened Steels

- Suitable for Semi-Finishing and Finishing of 30~60HRC Hardened Steels;
- Super Fine Carbide substrate with high strength and toughness combined with special high hard coating significantly lengthens tool life.
- Unique groove structure realizes excellent machining for harden steels materials.
- Air and oil mist cooling are the best cooling methods.

# Series Introduction

## SH300-H Endmills Special for Hardened Steels

- Suitable for Semi-Finishing and Finishing of 45~70HRC Hardened Steels;
- Carbide substrate with high strength and toughness combined with newhigh hard coating significantly lengthens the tool life.
- Special tool type design and high precise quality control ensure excellent machining for hardened steels material.



## FH200-H Endmills Special for Hardened Steels with High Feed

- Dedicated to high feed rough machining of 35~65HRC high hardness material
- Special-purpose tool type design realizes thin cutting effect, high feed machining, improves the processing efficiency.
- Latest Super Fine Carbide substrate with hard coating ensures high wear-resistance and high thermal stability under various working conditions.





## SAM 200 Endmills of Micro Diameter for Deep Machining

- Suitable for Copper alloy material in deep groove micromachining.
- New generation of cemented carbide substrate with high performance Ti AlCrSiN nano-coating.
- High precision of edge diameter, ball head contour and shank( h5)
- Special angle and space avoidance design



## SPM200 Endmills of Micro Diameter for Deep Machining

- Suitable for deep groove micromachining of carbon steel, alloy steel, hardened steel, copper, aluminum alloy and other materials（≤HRC55）in the precision mould industry.
- High precision of edge diameter, ball head contour, R arc contour and shank( h5);
- The high performance AlCrSiN nano-coating with high heat resistance and resistance
- Special angle and space avoidance design

# Endmill Catalog（by series）

| Suitable Material | No.of Flutes | End teeth Type | Coating | Description | Type | Diameter Range | Dimension Page | Cutting Parameters Page |
|---|---|---|---|---|---|---|---|---|
| | **UP210** | | | | | | | |
| Stainless Steel Cast Iron | 2 | Square | AlCrSiN | 2Flute, Stub Length  | UP210-SS2 | D1 ~ D20 | 198 | 457 |
| | 2 | Square | AlCrSiN | 2 Flute, Standard Length  | UP210-S2 | D1 ~ D20 | 199 | 457 |
| | 2 | Square | AlCrSiN | 2Flute, with Long Flute Length  | UP210-SL2 | D2 ~ D20 | 201 | 457 |
| | 2 | Square | AlCrSiN | 2Flute, with Long Shank Length  | UP210-SH2 | D2 ~ D20 | 202 | 457 |
| | 3 | Square | AlCrSiN | 3Flute, Standard Length  | UP210-S3 | D2 ~ D25 | 203 | 457 |
| | 4 | Square | AlCrSiN | 4Flute, Stub Length  | UP210-SS4 | D1 ~ D20 | 204 | 458 |
| | 4 | Square | AlCrSiN | 4Flute, Standard Length  | UP210-S4 | D1 ~ D20 | 205 | 458 |
| | 4 | Square | AlCrSiN | 4Flute, with Long Flute Length  | UP210-SL4 | D1 ~ D20 | 208 | 458 |
| | 4 | Square | AlCrSiN | 4 Flute, with Long Shank Length  | UP210-SH4 | D2 ~ D20 | 210 | 458 |
| | 4 | Square | AlCrSiN | 4 Flute, acute angle NEW  | UP210-SC4 | D4 ~ D20 | 212 | 458 |
| | 4 | Square | AlCrSiN | 4 Flute, 45° Helix NEW  | UP210-S4A | D4 ~ D20 | 213 | 458 |
| | 6 | Square | AlCrSiN | 6 Flute, Standard Length  | UP210-S6 | D6 ~ D20 | 214 | 458 |
| | 2 | Corner-R | AlCrSiN | 2 Flute, Corner Radius  | UP210-R2 | D1 ~ D20 | 215 | 457 |
| | 2 | Corner-R | AlCrSiN | 2 Flute Corner Radius, with Long Shank Length  | UP210-RH2 | D4 ~ D20 | 218 | 457 |
| | 4 | Corner-R | AlCrSiN | 4 Flute, Corner Radius  | UP210-R4 | D1 ~ D20 | 220 | 458 |
| | 4 | Corner-R | AlCrSiN | 2 Flute Corner Radius, with Long Shank Length  | UP210-RH4 | D3 ~ D20 | 223 | 458 |
| | 4 | Corner-R | AlCrSiN | 4 Flute, 45° Helix NEW  | UP210-R4A | D4 ~ D20 | 225 | 458 |
| | 2 | Ballnose | AlCrSiN | 2 Flute, Ballnose  | UP210-B2 | D0.8 ~ D20 | 227 | 460 |
| | 2 | Ballnose | AlCrSiN | 2 Flute Ballnose, with Long Shank Length  | UP210-BH2 | D2 ~ D20 | 229 | 460 |

◎ most suitable ○ suitable

| | Cutting Parameters Page | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | M | K | N | | | S | | H | | |
| | 1234 | 56 | 123 | 123 | 123 | 4 | 5 | 123 | 4 | 1 | 2 | 34 |
| | Carbon Steel,Alloy steel | Alloy Steel | Stainless Steel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite, Composite Materials | Heat Resistant Super Alloys | Titanium Alloys | Hardened Steel | Hardened Steel | Hardened Steel |
| | < 35HRC | ⩽ 48HRC | | | | | | | | 45-55HRC | 55-60HRC | > 60HRC |
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# Endmill Catalog（by series）

| Suitable Materia | No.of Flutes | Endteeth Type | Coating | Description | Type | Diameter Range | Dimension Page | Cutting Parameters Page |
|---|---|---|---|---|---|---|---|---|
| | **UP210** | | | | | | | |
| Stainless Steel Cast Iron | 4 | Ballnose | AlCrSiN | 4 Flute, Ballnose | UP210-B4 | D2 ~ D20 | 231 | 460 |
| | 4 | Chamfer | AlCrSiN | 4 Flute, 60° Chamfer Endmils NEW | UP210-L60 | D4 ~ D20 | 233 | 461 |
| | 4 | Chamfer | AlCrSiN | 4 Flute, 90° Chamfer Endmils NEW | UP210-L90 | D4 ~ D20 | 234 | 461 |
| | 4 | Chamfer | AlCrSiN | 4 Flute, 120° Chamfer Endmils NEW | UP210-L120 | D4 ~ D20 | 235 | 461 |
| | **SP210** | | | | | | | |
| | 3 | Square | AlCrSiN | 3 Flute, with Variable Helix | SP210-S3 | D2.5 ~ D20 | 236 | 461 |
| | 3 | Chamfer | AlCrSiN | 3 Flute, Variable Helix with Chamfer | SP210-C3 | D6 ~ D16 | 237 | 461 |
| | 4 | Square | AlCrSiN | 4 Flute, with Variable Helix | SP210-S4 | D2 ~ D20 | 238 | 462 |
| | 4 | Chamfer | AlCrSiN | 4 Flute, Variable Helix with Chamfer | SP210-C4 | D3 ~ D20 | 239 | 462 |
| | 4 | Chamfer | AlCrSiN | 4 Flute, Variable Helix with Chamfer and with Reduced Neck | SP210-CN4 | D3 ~ D20 | 241 | 462 |
| | 4 | Corner-R | AlCrSiN | 4 Flutes Corner Radius, with Variable Helix | SP210-R4 | D3 ~ D16 | 242 | 462 |
| | 4 | Corner-R | AlCrSiN | 4 Flute Corner Radius, with Long Shank Length NEW | SP210-RH4 | D4 ~ D12 | 244 | 462 |
| | 2 | Ballnose | AlCrSiN | 2 Flute, Ballnose | SP210-B2 | D1 ~ D12 | 245 | 463 |
| | 2 | Ballnose | AlCrSiN | 2 Flute Ballnose, with Long Shank Length | SP210-BH2 | D4 ~ D12 | 246 | 463 |
| | **UPR100** | | | | | | | |
| | 4 | Square | AlCrSiN | 4 Flute, with Roughing Geometry | UPR100-S4 | D6 ~ D20 | 247 | 464 |
| | **UPN210** | | | | | | | |
| | 4 | Chamfer | AlCrSiN | 4 Flute, with Roughing Geometry | UPN210-S4 | D6 ~ D20 | 248 | 467 |

◎ most suitable ○ suitable

| | Cutting Parameters Page | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | M | K | N | | | S | | H | | |
| | 1234 | 56 | 123 | 123 | 123 | 4 | 5 | 123 | 4 | 1 | 2 | 34 |
| | Carbon Steel,Alloy steel | Alloy Steel | Stainless Steel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite, Composite Materials | Heat Resistant Super Alloys | Titanium Alloys | Hardened Steel | Hardened Steel | Hardened Steel |
| | < 35HRC | ⩽ 48HRC | | | | | | | | 45-55HRC | 55-60HRC | > 60HRC |
| | ◎ | ◎ | ○ | ◎ | | | | | | | | |
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# Endmill Catalog（by series）

| Suitable Material | No.of Flutes | End teeth Type | Coating | Description | Type | Diameter Range | Dimension Page | Cutting Parameters Page |
|---|---|---|---|---|---|---|---|---|
| | **UPR210** | | | | | | | |
| Stainless Steel Cast Iron | 4 | Chamfer | AlCrSiN | 4 Flute Square, with Roughing Geometry NEW  | UPR210-S4 | D6 ~ D20 | 249 | 466 |
| | **UPR300** | | | | | | | |
| | 4 | Chamfer | AlCrSiN | 3/4 Flute Square, with Roughing Geometry NEW  | UPR300-S3/S4 | D6 ~ D20 | 250 | 468 |
| | **SPM200** | | | | | | | |
| Stainless Steel Cast Iron Copper Alloys Hardened Steel | 2 | Square | AlCrSiN | 2 Flute, Standard Length Endmills of Micro Diameter for Deep Machining  | SPM200-SN2 | D0.1 ~ D6 | 412 | 497 |
| | 2 | Corner-R | AlCrSiN | 2 Flute, Corner Radius Endmills of Micro Diameter for Deep Machining  | SPM200-RN2 | D0.2 ~ D6 | 418 | 507 |
| | 4 | Corner-R | AlCrSiN | 4 Flute, Corner Radius NEW Endmills of Micro Diameter for Deep Machining  | SPM200-RN4 | D1 ~ D6 | 432 | 529 |
| | 2 | Ballnose | AlCrSiN | 2 Flute, Ballnose Endmills of Micro Diameter for Deep Machining  | SPM200-BN2 | D0.1 ~ D6 | 438 | 534 |
| | **US200** | | | | | | | |
| Stainless steel | 2 | Square | TiAlN | 2 Flute, Standard Length  | US200-S2 | D0.5 ~ D20 | 251 | 470 |
| | 4 | Square | TiAlN | 4 Flute, Stub Length  | US200-SS4 | D2 ~ D20 | 253 | 471 |
| | 4 | Square | TiAlN | 4 Flute, Standard Length  | US200-S4 | D1 ~ D20 | 254 | 471 |
| | 4 | Square | TiAlN | 4 Flute, with Long Shank Length  | US200-SN4 | D2 ~ D20 | 255 | 471 |
| | 2 | Corner-R | TiAlN | 2 Flute, Corner Radius  | US200-R2 | D3 ~ D16 | 256 | 470 |
| | 3 | Corner-R | TiAlN | 3 Flute, Corner Radius  | US200-R3 | D2 ~ D20 | 258 | 470 |
| | 4 | Corner-R | TiAlN | 4 Flute, Corner Radius  | US200-R4 | D2 ~ D20 | 260 | 471 |
| | 2 | Ballnose | TiAlN | 2 Flute, Standard Length  | US200-B2 | D1 ~ D20 | 262 | 471 |
| | 4 | Ballnose | TiAlN | 4 Flute, Standard Length  | US200-B4 | D1 ~ D20 | 263 | 471 |

◎ most suitable ○ suitable

| | Cutting Parameters Page | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | M | K | N | | | S | | H | | |
| | 1234 | 56 | 123 | 123 | 123 | 4 | 5 | 123 | 4 | 1 | 2 | 34 |
| | Carbon Steel,Alloy | Alloy Steel | Stainless Steel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite, Composite Materials | Heat Resistant Super Alloys | Titanium Alloys | Hardened Steel | Hardened Steel | Hardened Steel |
| | < 35HRC | ⩽ 48HRC | | | | | | | | 45-55HRC | 55-60HRC | > 60HRC |
| | ◎ | ○ | ○ | ◎ | ○ | ○ | | | | | | |
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| | ◎ | ◎ | ○ | ◎ | ○ | ◎ | | ○ | ○ | ◎ | | |
| | ◎ | ◎ | ○ | ◎ | ○ | ◎ | | ○ | ○ | ◎ | | |
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| | ○ | ○ | ◎ | ○ | | | | ○ | ○ | | | |
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| | ○ | ○ | ◎ | ○ | | | | ○ | ○ | | | |

# Endmill Catalog（by series）

| Suitable Material | No.of Flutes | Endteeth Type | Coating | Description | Type | Diameter Range | Dimension Page | Cutting Parameters Page |
|---|---|---|---|---|---|---|---|---|
| Stainless Steel | **US300** | | | | | | | |
| | 4 | Square | TiAlN | 4Flute, Stub Length  | US300-SS4 | D1 ~ D4 | 264 | 472 |
| | 4 | Square | TiAlN | 4Flute, Standard Length  | US300-S4 | D1 ~ D12 | 265 | 472 |
| | **SS200** | | | | | | | |
| | 4 | Chamfer | AlCrSiN | 4 Flute, Stub Length, Variable Helix with Chamfer  | SS200-CS4 | D2 ~ D12 | 266 | 472 |
| | 4 | Chamfer | AlCrSiN | 4 Flute, Variable Helix with Chamfer  | SS200-C4 | D2 ~ D12 | 267 | 473 |
| Aluminium Alloys | **UA100** | | | | | | | |
| | 2 | Square | | 2 Flute, Standard Length  | UA100-S2 | D1 ~ D12 | 268 | 473 |
| | 2 | Square | | 2Flute, with Long Flute Length  | UA100-SL2 | D2 ~ D12 | 270 | 473 |
| | 2 | Square | | 2Flute, with Long Shank Length  | UA100-SH2 | D2 ~ D12 | 271 | 473 |
| | 3 | Square | | 3Flute, Standard Length  | UA100-S3 | D2 ~ D20 | 272 | 474 |
| | 3 | Square | | 3Flute, with Long Flute Length  | UA100-SL3 | D2 ~ D20 | 274 | 474 |
| | 3 | Square | | 3Flute, with Long Shank Length  | UA100-SH3 | D2 ~ D20 | 275 | 474 |
| | 2 | Corner-R | | 2Flute, Corner Radius  | UA100-R2 | D1 ~ D20 | 276 | 473 |
| | 2 | Corner-R | | 2Flute Corner Radius, with Long Shank Length  | UA100-RH2 | D6 ~ D20 | 279 | 473 |
| | 3 | Corner-R | | 3Flute, Corner Radius  | UA100-R3 | D2 ~ D20 | 281 | 474 |
| | 3 | Corner-R | | 3Flute Corner Radius, with Long Shank Length  | UA100-RH3 | D6 ~ D20 | 284 | 474 |
| | 2 | Ballnose | | 2 Flute, Ballnose  | UA100-B2 | D1 ~ D20 | 286 | 475 |

◎ most suitable ○ suitable

| | Cutting Parameters Page | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | M | K | N | | | S | | H | | |
| | 1234 | 56 | 123 | 123 | 123 | 4 | 5 | 123 | 4 | 1 | 2 | 34 |
| | Carbon Steel,Alloy | Alloy Steel | Stainless Steel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite, Composite Materials | Heat Resistant Super Alloys | Titanium Alloys | Hardened Steel | Hardened Steel | Hardened Steel |
| | ＜35HRC | ⩽48HRC | | | | | | | | 45-55HRC | 55-60HRC | ＞60HRC |
| | ○ | ○ | ◎ | ○ | | | | ○ | ○ | | | |
| | ○ | ○ | ◎ | ○ | | | | ○ | ○ | | | |
| | ○ | ○ | ◎ | ○ | | | | ○ | ○ | | | |
| | ○ | ○ | ◎ | ○ | | | | ○ | ○ | | | |
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# Endmill Catalog（by series）

| Workpiece Material | No.of Flutes | Endteeth Type | Coating | Description | Type | Diameter Range | Dimension Page | Cutting Parameters Page |
|---|---|---|---|---|---|---|---|---|
| Aluminium Alloys | **UA160** | | | | | | | |
| | 2 | Square | | 2 Flute, Standard Length  | UA160-S2 | D1 ～ D12 | 287 | 476 |
| | 3 | Square | | 3Flute, Standard Length  | UA160-S3 | D2 ～ D12 | 288 | 476 |
| | 4 | Square | | 4Flute, Standard Length  | UA160-S4 | D4 ～ D12 | 289 | 476 |
| | **SA100** | | | | | | | |
| | 3 | Square | | 3Flute, Standard Length  | SA100-S3 | D3 ～ D12 | 290 | 477 |
| | **SA210** | | | | | | | |
| | 3 | Corner-R | | 3 Flute Corner Radius, with Reduced Neck  | SA210-BW | D12 ～ D25 | 291 | 478 |
| | 3 | Corner-R | | 3 Flute Corner Radius, with Reduced Neck  | SA210-HF | D8 ～ D20 | 292 | 478 |
| | **SA300** | | | | | | | |
| | 2 | Corner-R | | 2 Flute Corner Radius, with Reduced Neck  | SA300-RN2 | D6 ～ D25 | 293 | 479 |
| | 3 | Corner-R | | 3 Flute Corner Radius, with Reduced Neck  | SA300-RN3 | D6 ～ D32 | 294 | 479 |
| Copper Alloys Aluminium Alloys | **SAM200** | | | | | | | |
| | 2 | Square | TiAlCrSiN | Flute, Standard Length NEW Endmills of Micro Diameter for Deep Machining  | SAM200-SN2 | D0.1 ～ D6 | 446 | 545 |
| | 2 | Ballnose | TiAlCrSiN | Flute, Ballnose NEW  | SAM200-BN2 | D0.1 ～ D6 | 448 | 541 |

◎ most suitable ○ suitable

| | Cutting Parameters Page | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | M | K | N | | | S | | H | | |
| | 1234 | 56 | 123 | 123 | 123 | 4 | 5 | 123 | 4 | 1 | 2 | 34 |
| | Carbon Steel,Alloy | Alloy Steel | Stainless Steel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite, Composite Materials | Heat Resistant Super Alloys | Titanium Alloys | Hardened Steel | Hardened Steel | Hardened Steel |
| | < 35HRC | ⩽ 48HRC | | | | | | | | 45-55HRC | 55-60HRC | > 60HRC |
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| | ○ | | | | ◎ | ◎ | | | | | | |

# Endmill Catalog（by series）

| Workpiece Material | No.of Flutes | Endteeth Type | Coating | Description | Type | Diameter Range | Dimension Page | Cutting Parameters Page |
|---|---|---|---|---|---|---|---|---|
| | **SG200** | | | | | | | |
| Graphite | 2 | Square | U-DIA | 2 Flute, Standard Length  | SG200-S2 | D0.4 ~ D12 | 295 | 480 |
| | 2 | Square | U-DIA | 2 Flute, with Reduced Neck  | SG200-SN2 | D1 ~ D12 | 297 | 480 |
| | 3 | Square | U-DIA | 3 Flute, Standard Length  | SG200-S3 | D1 ~ D12 | 299 | 480 |
| | 4 | Square | U-DIA | 4 Flute, Standard Length  | SG200-S4 | D2 ~ D12 | 301 | 480 |
| | 2 | Corner-R | U-DIA | 2 Flute, Corner Radius  | SG200-R2 | D1 ~ D12 | 302 | 480 |
| | 2 | Corner-R | U-DIA | 2 Flute Corner Radius, with Long Shank Length  | SG200-RN2 | D1 ~ D6 | 304 | 480 |
| | 4 | Corner-R | U-DIA | 4 Flute, Corner Radius  | SG200-R4 | D2 ~ D12 | 306 | 480 |
| | 4 | Corner-R | U-DIA | 4 Flute, Corner Radius With Reduced Neck  | SG200-RN4 | D2 ~ D12 | 307 | 480 |
| | 2 | Ballnose | U-DIA | 2 Flute, Ballnose  | SG200-B2 | D0.5 ~ D12 | 309 | 481 |
| | 2 | Ballnose | U-DIA | 2 Flute Ballnose, with Long Shank Length  | SG200-BN2 | D0.5 ~ D12 | 310 | 481 |
| | **SG200-M** | | | | | | | |
| | 4 | Corner-R | N-DIA | 4 Flute Corner Radius, with reduced neck  | SG200-M-RN4 | D1 ~ D10 | 312 | 481 |
| | 2 | Ballnose | N-DIA | 2 Flute, Ballnose  | SG200-M-B2 | D0.4 ~ D6 | 314 | 481 |
| | 2 | Ballnose | N-DIA | 2 Flute Ballnose, Miniature Sizes with Neck  | SG200-M-BN2 | D0.5 ~ D6 | 315 | 481 |
| | **ST210** | | | | | | | |
| Titanium Alloys | 4 | Square | AlCrN | 4 Flute，Standard Length  | ST210-S4 | D2 ~ D20 | 316 | 482 |
| | 4 | Corner-R | AlCrN | Unequal Flute Spacing  | ST210-R4 | D2 ~ D20 | 317 | 482 |

◎ most suitable ○ suitable

| | Cutting Parameters Page | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | M | K | N | | | S | | H | | |
| | 1234 | 56 | 123 | 123 | 123 | 4 | 5 | 123 | 4 | 1 | 2 | 34 |
| | Carbon Steel,Alloy | Alloy Steel | Stainless Steel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite, Composite Materials | Heat Resistant Super Alloys | Titanium Alloys | Hardened Steel | Hardened Steel | Hardened Steel |
| | < 35HRC | ⩽ 48HRC | | | | | | | | 45-55HRC | 55-60HRC | > 60HRC |
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# Endmill Catalog（by series）

| Workpiece Materia | No.of Flutes | Endteeth Type | Coating | Description | Type | Diameter Range | Dimension Page | Cutting Parameters Page |
|---|---|---|---|---|---|---|---|---|
| | **ST210** | | | | | | | |
| Titanium Alloys | 4 | Corner-R | AlCrN | 4 Flute，Corner Radius with Reduced Neck Unequal Flute Spacing | ST210-RN4 | D12～D25 | 319 | 482 |
| | 5 | Corner-R | AlCrN | 5 Flute，Long Flute length with Corner Radius Unequal Flute Spacing | ST210-RL5 | D16～D25 | 320 | 483 |
| | 4 | Ballnose | AlCrN | 4 Flute，Ballnose Unequal Flute Spacing | ST210-B4 | D2～D20 | 321 | 483 |
| | **ST300** | | | | | | | |
| | 4 | Corner-R | AlCrN | 4 Flute，Corner Radius with Reduced Neck Unequal Flute Spacing，Internal Coolant | ST300-RN4 | D12～D20 | 322 | 484 |
| | 5 | Corner-R | AlCrN | 5 Flute，Corner Radius with Reduced Neck Unequal Flute Spacing，Internal Coolant | ST300-RN5 | D16～D25 | 323 | 485 |
| | **SN200** | | | | | | | |
| Heat Resistant Super Alloys | 4 | Corner-R | AlTiN | 4 Flute，Corner Radius Unequal Flute Spacing | SN200-R4 | D6～D18 | 324 | 486 |
| | 4 | Ballnose | AlTiN | 4 Flute，Ballnose Unequal Flute Spacing | SN200-B4 | D6～D16 | 325 | 487 |
| | **SD200** | | | | | | | |
| Composite Materials | 12 | Square | U-DIA | 12 Flute, Ling tooth | SD200-KDA | D4～D12 | 326 | 488 |
| | 2 | Square | U-DIA | 2 Flute Compression | SD200-JD2 | D4～D12 | 327 | 488 |

◎ most suitable ○ suitable

| | Cutting Parameters Page | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | M | K | N | | | S | | H | | |
| | 1234 | 56 | 123 | 123 | 123 | 4 | 5 | 123 | 4 | 1 | 2 | 34 |
| | Carbon Steel,Alloy | Alloy Steel | Stainless Steel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite, Composite Materials | Heat Resistant Super Alloys | Titanium Alloys | Hardened Steel | Hardened Steel | Hardened Steel |
| | < 35HRC | ⩽ 48HRC | | | | | | | | 45-55HRC | 55-60HRC | > 60HRC |
| | ○ | ○ | ○ | | | | | | ◎ | | | |
| | ○ | ○ | ○ | | | | | | ◎ | | | |
| | ○ | ○ | ○ | | | | | | ◎ | | | |
| | ○ | ○ | ○ | | | | | | ◎ | | | |
| | ○ | ○ | ○ | | | | | | ◎ | | | |
| | ○ | ○ | ○ | | | | | ◎ | ○ | | | |
| | ○ | ○ | ○ | | | | | ◎ | ○ | | | |
| | | | | | | | ◎ | | | | | |
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# Endmill Catalog（by series）

| Workpiece Material | No.of Flutes | Endteeth Type | Coating | Description | Type | Diameter Range | Dimension Page | Cutting Parameters Page |
|---|---|---|---|---|---|---|---|---|
| | SH260-H | | | | | | | |
| Hardened Steel | 2 | Square | TiAlCrSiN | 2 Flute, Standard Length NEW  | SH260-S2-H | D1 ~ D12 | 328 | 489 |
| | 2 | Square | TiAlCrSiN | 2 Flute, Standard End With Reduced Nec NEW  | SH260-SN2-H | D1 ~ D6 | 329 | 489 |
| | 4 | Square | TiAlCrSiN | 4 Flute, Standard Length NEW  | SH260-S4-H | D1 ~ D20 | 331 | 490 |
| | 4 | Square | TiAlCrSiN | 4 Flute, with Long Shank Length NEW  | SH260-SH4-H | D1 ~ D20 | 333 | 490 |
| | 4 | Square | TiAlCrSiN | 4 Flute, Standard End With Reduced Nec NEW  | SH260-SN4-H | D1 ~ D12 | 335 | 490 |
| | 4 | Square | TiAlCrSiN | 4 Flute,Long Flute Length NEW  | SH260-SL4-H | D1 ~ D16 | 337 | 490 |
| | 6 | Square | TiAlCrSiN | 6 Flute, Standard Length NEW  | SH260-S6-H | D6 ~ D20 | 338 | 490 |
| | 6 | Square | TiAlCrSiN | 6 Flute, with Long Shank Length NEW  | SH260-SH6-H | D6 ~ D20 | 339 | 490 |
| | 6 | Square | TiAlCrSiN | 6 Flute,Long Flute Length NEW  | SH260-SL6-H | D6 ~ D20 | 340 | 490 |
| | 2 | Corner-R | TiAlCrSiN | 2 Flute, Corner Radius NEW  | SH260-R2-H | D1 ~ D6 | 341 | 489 |
| | 2 | Corner-R | TiAlCrSiN | 2 Flute Corner Radius, with Reduced Neck NEW  | SH260-RN2-H | D1 ~ D6 | 342 | 489 |
| | 4 | Corner-R | TiAlCrSiN | 4 Flute, Corner Radius NEW  | SH260-R4-H | D1 ~ D12 | 344 | 490 |
| | 4 | Corner-R | TiAlCrSiN | 4 Flute Corner Radius, with Long Shank Length NEW  | SH260-RH4-H | D2.5 ~ D12 | 347 | 490 |
| | 4 | Corner-R | TiAlCrSiN | 4 Flute Corner Radius, with Long Shank Length NEW  | SH260-RN4-H | D1 ~ D12 | 349 | 490 |
| | 2 | Ballnose | TiAlCrSiN | 2 Flute, Ballnose NEW  | SH260-B2-H | D1 ~ D16 | 351 | 491 |
| | 2 | Ballnose | TiAlCrSiN | 2 Flute Ballnose, with Long Shank Length NEW  | SH260-BH2-H | D2 ~ D12 | 352 | 491 |
| | 2 | Ballnose | TiAlCrSiN | 2 Flute Ballnose, Miniature Sizes with Neck NEW  | SH260-BN2-H | D1 ~ D12 | 354 | 491 |

◎ most suitable ○ suitable

| | Cutting Parameters Page | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | M | K | N | | | S | | H | | |
| | 1234 | 56 | 123 | 123 | 123 | 4 | 5 | 123 | 4 | 1 | 2 | 34 |
| | Carbon Steel,Alloy | Alloy Steel | Stainless Steel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite, Composite Materials | Heat Resistant Super Alloys | Titanium Alloys | Hardened Steel | Hardened Steel | Hardened Steel |
| | < 35HRC | ⩽ 48HRC | | | | | | | | 45-55HRC | 55-60HRC | > 60HRC |
| | ○ | ◎ | | | | | | | | ◎ | ◎ | ○ |
| | ○ | ◎ | | | | | | | | ◎ | ◎ | ○ |
| | ○ | ◎ | | | | | | | | ◎ | ◎ | ○ |
| | ○ | ◎ | | | | | | | | ◎ | ◎ | ○ |
| | ○ | ◎ | | | | | | | | ◎ | ◎ | ○ |
| | ○ | ◎ | | | | | | | | ◎ | ◎ | ○ |
| | ○ | ◎ | | | | | | | | ◎ | ◎ | ○ |
| | ○ | ◎ | | | | | | | | ◎ | ◎ | ○ |
| | ○ | ◎ | | | | | | | | ◎ | ◎ | ○ |
| | ○ | ◎ | | | | | | | | ◎ | ◎ | ○ |
| | ○ | ◎ | | | | | | | | ◎ | ◎ | ○ |
| | ○ | ◎ | | | | | | | | ◎ | ◎ | ○ |
| | ○ | ◎ | | | | | | | | ◎ | ◎ | ○ |
| | ○ | ◎ | | | | | | | | ◎ | ◎ | ○ |
| | ○ | ◎ | | | | | | | | ◎ | ◎ | ○ |
| | ○ | ◎ | | | | | | | | ◎ | ◎ | ○ |
| | ○ | ◎ | | | | | | | | ◎ | ◎ | ○ |

# Endmill Catalog（by series）

| Workpiece Material | No.of Flutes | Endteeth Type | Coating | Description | Type | Diameter Range | Dimension Page | Cutting Parameters Page |
|---|---|---|---|---|---|---|---|---|
| | SH300-H | | | | | | | |
| Hardened Steel | 2 | Square | TiAlCrSiN | 2 Flute, Standard Length  | SH300-S2-H | D1 ～ D12 | 356 | 492 |
| | 2 | Square | TiAlCrSiN | 2 Flute, with Reduced Neck Diameter  | SH300-SN2-H | D1 ～ D6 | 357 | 492 |
| | 4 | Square | TiAlCrSiN | 4 Flute, Stub Length  | SH300-SS4-H | D1～D16 | 358 | 492 |
| | 4 | Square | TiAlCrSiN | 4 Flute, Standard Length  | SH300-S4-H | D1～D20 | 360 | 492 |
| | 4 | Square | TiAlCrSiN | 4 Flute, with Long Shank Length  | SH300-SH4-H | D1～D20 | 362 | 492 |
| | 4 | Square | TiAlCrSiN | 4 Flute, Long Flute Length  | SH300-SL4-H | D1 ～ D20 | 364 | 492 |
| | 4 | Square | TiAlCrSiN | 4 Flute, with Reduced Neck  | SH300-SN4-H | D1 ～ D20 | 366 | 492 |
| | 6 | Square | TiAlCrSiN | 6 Flute, Standard Length  | SH300-S6-H | D6～D20 | 370 | 493 |
| | 6 | Square | TiAlCrSiN | 6 Flute, Long Shank Length  | SH300-SH6-H | D6～D20 | 371 | 493 |
| | 6 | Square | TiAlCrSiN | 6 Flute, Long Flute Length  | SH300-SL6-H | D6～D20 | 372 | 493 |
| | 2 | Corner-R | TiAlCrSiN | 2 Flute, Corner Radius  | SH300-R2-H | D1～D12 | 373 | 492 |
| | 2 | Corner-R | TiAlCrSiN | 2 Flute Corner Radius, with Long Shank Length  | SH300-RN2-H | D1～D6 | 375 | 492 |
| | 4 | Corner-R | TiAlCrSiN | 4 Flute, Corner Radius  | SH300-R4-H | D1～D20 | 376 | 492 |
| | 4 | Corner-R | TiAlCrSiN | 4 Flute Corner Radius, with Long Shank Length  | SH300-RH4-H | D1 ～ D20 | 380 | 492 |
| | 4 | Corner-R | TiAlCrSiN | 4 Flute Corner Radius, with Reduced Neck  | SH300-RN4-H | D1～D12 | 383 | 492 |
| | 6 | Corner-R | TiAlCrSiN | 6 Flute, Corner Radius  | SH300-R6-H | D6～D20 | 389 | 493 |
| | 6 | Corner-R | TiAlCrSiN | 6 Flute Corner Radius, with Long Shank Length  | SH300-RH6-H | D6～D20 | 391 | 493 |

◎ most suitable ○ suitable

| | Cutting Parameters Page | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | M | K | N | | | S | | H | | |
| | 1234 | 56 | 123 | 123 | 123 | 4 | 5 | 123 | 4 | 1 | 2 | 34 |
| | Carbon Steel,Alloy | Alloy Steel | Stainless Steel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite, Composite Materials | Heat Resistant Super Alloys | Titanium Alloys | Hardened Steel | Hardened Steel | Hardened Steel |
| | < 35HRC | ⩽ 48HRC | | | | | | | | 45-55HRC | 55-60HRC | > 60HRC |
| | | ○ | | | | | | | | ○ | ◎ | ◎ |
| | | ○ | | | | | | | | ○ | ◎ | ◎ |
| | | ○ | | | | | | | | ○ | ◎ | ◎ |
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| | | ○ | | | | | | | | ○ | ◎ | ◎ |
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| | | ○ | | | | | | | | ○ | ◎ | ◎ |
| | | ○ | | | | | | | | ○ | ◎ | ◎ |
| | | ○ | | | | | | | | ○ | ◎ | ◎ |
| | | ○ | | | | | | | | ○ | ◎ | ◎ |
| | | ○ | | | | | | | | ○ | ◎ | ◎ |
| | | ○ | | | | | | | | ○ | ◎ | ◎ |

# Endmill Catalog（by series）

| Workpiece Material | No.of Flutes | Endteeth Type | Coating | Description | Type | Diameter Range | Dimension Page | Cutting Parameters Page |
|---|---|---|---|---|---|---|---|---|
| Hardened Steel | **SH300-H** | | | | | | | |
| | 2 | Ballnose | TiAlCrSiN | 2 Flute, Ballnose  | SH300-B2-H | D0.6 ~ D12 | 393 | 493 |
| | 2 | Ballnose | TiAlCrSiN | 2 Flute Ballnose, with Long Shank length  | SH300-BH2-H | D0.6 ~ D12 | 395 | 493 |
| | 2 | Ballnose | TiAlCrSiN | 2 FluteBallnose, with Reduced Neck  | SH300-BN2-H | D0.6 ~ D12 | 397 | 493 |
| | 4 | Ballnose | TiAlCrSiN | 4 Flute, Ballnose  | SH300-B4-H | D2 ~ D12 | 401 | 494 |
| | 4 | Ballnose | TiAlCrSiN | 4 Flute Ballnose, with Long Shank Length  | SH300-BH4-H | D2~D12 | 402 | 494 |
| | 4 | Ballnose | TiAlCrSiN | 4 Flute Ballnose, with Reduced Neck  | SH300-BN4-H | D2~D12 | 403 | 494 |
| | **FH200-H** | | | | | | | |
| | 4 | Corner-R | TiAlCrSiN | 4 Flute, Corner Radius  | FH200-R4-H | D1 ~ D12 | 404 | 495 |
| | 4 | Corner-R | TiAlCrSiN | 4 Flute Corner Radius, with Reduced Neck  | FH200-RN4-H | D8 ~ D12 | 406 | 495 |
| | 6 | Corner-R | TiAlCrSiN | 6 Flute, Corner Radius  | FH200-R6-H | D6~D20 | 408 | 495 |
| | 6 | Corner-R | TiAlCrSiN | 6 Flute Corner Radius, with Long Shank Length  | FH200-RH6-H | D6~D20 | 409 | 495 |
| | 6 | Corner-R | TiAlCrSiN | 6 Flute Corner Radius, with reduced neck  | FH200-RN6-H | D6~D20 | 410 | 495 |

◎ most suitable ○ suitable

| | Cutting Parameters Page | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | M | K | N | | | S | | H | | |
| | 1234 | 56 | 123 | 123 | 123 | 4 | 5 | 123 | 4 | 1 | 2 | 34 |
| | Carbon Steel,Alloy | Alloy Steel | Stainless Steel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite, Composite Materials | Heat Resistant Super Alloys | Titanium Alloys | Hardened Steel | Hardened Steel | Hardened Steel |
| | < 35HRC | ⩽ 48HRC | | | | | | | | 45-55HRC | 55-60HRC | > 60HRC |
| | | ○ | | | | | | | | ○ | ◎ | ◎ |
| | | ○ | | | | | | | | ○ | ◎ | ◎ |
| | | ○ | | | | | | | | ○ | ◎ | ◎ |
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| | | ○ | | | | | | | | ○ | ◎ | ◎ |
| | | ○ | | | | | | | | ○ | ◎ | ◎ |
| | | ◎ | | | | | | | | ◎ | ◎ | ◎ |
| | | ◎ | | | | | | | | ◎ | ◎ | ◎ |
| | | ◎ | | | | | | | | ◎ | ◎ | ◎ |
| | | ◎ | | | | | | | | ◎ | ◎ | ◎ |
| | | ◎ | | | | | | | | ◎ | ◎ | ◎ |

# Endmill Catalog（by flute)

| No.of Flutes | Coating | Description | Type | Diameter Range | Dimension Page | Cutting Parameters Page |
|---|---|---|---|---|---|---|
| **Square** | | | | | | |
| 2 | AlCrSiN | 2 Flute, Stub Length  | UP210-SS2 | D1 ~ D16 | 198 | 457 |
| 2 | AlCrSiN | 2 Flute, Standard Length  | UP210-S2 | D1 ~ D20 | 199 | 457 |
| 2 | AlCrSiN | 2 Flute, Long Flute Length  | UP210-SL2 | D2 ~ D20 | 201 | 457 |
| 2 | AlCrSiN | 2 Flute, with Long Shank Length  | UP210-SH2 | D2 ~ D20 | 202 | 457 |
| 3 | AlCrSiN | 3 Flute, Standard Length  | UP210-S3 | D2 ~ D25 | 203 | 457 |
| 4 | AlCrSiN | 4 Flute, Stub Length  | UP210-SS4 | D1 ~ D20 | 204 | 458 |
| 4 | AlCrSiN | 4 Flute, Standard Length  | UP210-S4 | D1 ~ D20 | 205 | 458 |
| 4 | AlCrSiN | 4 Flute, Long Flute Length  | UP210-SL4 | D1 ~ D20 | 208 | 458 |
| 4 | AlCrSiN | 4 Flute, with Long Shank Length  | UP210-SH4 | D2 ~ D20 | 210 | 458 |
| 4 | AlCrSiN | 4 Flute, acute angle NEW  | UP210-SC4 | D4 ~ D20 | 212 | 458 |
| 4 | AlCrSiN | 4 Flute, 45° Helix NEW  | UP210-S4A | D4 ~ D20 | 213 | 458 |
| 6 | AlCrSiN | 6 Flute, Standard Length  | UP210-S6 | D6 ~ D20 | 214 | 458 |
| 3 | AlCrSiN | 3 Flute, with Variable Helix  | SP210-S3 | D2.5 ~ D20 | 236 | 461 |
| 3 | AlCrSiN | 3 Flute, with Variable Helix with Chamfer  | SP210-C3 | D6 ~ D20 | 237 | 461 |
| 4 | AlCrSiN | 4 Flute, with Variable Helix  | SP210-S4 | D2 ~ D20 | 238 | 462 |
| 4 | AlCrSiN | 4 Flute, Variable Helix with Chamfer  | SP210-C4 | D3 ~ D25 | 239 | 462 |
| 4 | AlCrSiN | 4 Flute, Variable Helix with Chamfer and with Reduced Neck  | SP210-CN4 | D3 ~ D20 | 241 | 462 |
| 4 | AlTiN | 4 Flute Square End, with Roughing Geometry  | UPR100-S4 | D6 ~ D20 | 247 | 464 |
| 4 | AlCrSiN | 4 Flute Square End, with Roughing Geometry  | UPN210-S4 | D6 ~ D20 | 248 | 467 |

◎ most suitable ○ suitable

| | Workpiece Material | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | M | K | N | | | S | | H | | |
| | 1234 | 56 | 123 | 123 | 123 | 4 | 5 | 123 | 4 | 1 | 2 | 34 |
| | Carbon Steel,Alloy | Alloy Steel | Stainless Steel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite, Composite Materials | Heat Resistant Super Alloys | Titanium Alloys | Hardened Steel | Hardened Steel | Hardened Steel |
| | < 35HRC | ⩽ 48HRC | | | | | | | | 45-55HRC | 55-60HRC | > 60HRC |
| | | | | | | | | | | | | |
| | ◎ | ◎ | ○ | ◎ | | | | | | | | |
| | ◎ | ◎ | ○ | ◎ | | | | | | | | |
| | ◎ | ◎ | ○ | ◎ | | | | | | | | |
| | ◎ | ◎ | ○ | ◎ | | | | | | | | |
| | ◎ | ◎ | ○ | ◎ | | | | | | | | |
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| | ◎ | ◎ | ○ | ◎ | | | | | | | | |
| | ◎ | ○ | ○ | ◎ | ○ | ○ | | | | | | |
| | ◎ | ○ | ○ | ◎ | ○ | ○ | | | | ○ | | |

# Endmill Catalog（by flute)

| No.of Flutes | Coating | Description | Type | Diameter Range | Dimension Page | Cutting Parameters Page |
|---|---|---|---|---|---|---|
| **Square** | | | | | | |
| 4 | AlCrSiN | 4 Flute Square End, with Roughing Geometry NEW  | UPR210-S4 | D6 ~ D20 | 249 | 466 |
| 4 | AlCrSiN | 3/4 Flute Square End, with Roughing Geometry NEW  | UPR300-S3/S4 | D6 ~ D20 | 250 | 468 |
| 2 | AlCrSiN | 2 Flute, Standard Length Endmills of Micro Diameter for Deep Machining  | SPM200-SN2 | D0.1 ~ D6 | 412 | 497 |
| 2 | AlTiN | 2 Flute, Standard Length  | US200-S2 | D0.5 ~ D20 | 251 | 470 |
| 4 | AlTiN | 4 Flute, Stub Length  | US200-SS4 | D2 ~ D20 | 253 | 471 |
| 4 | AlTiN | 4 Flute, Standard Length  | US200-S4 | D1 ~ D20 | 254 | 471 |
| 4 | AlTiN | 4 Flute, with Reduced Neck  | US200-SN4 | D2 ~ D12 | 255 | 471 |
| 4 | AlTiN | 4 Flute, Stub Length  | US200-SS4 | D1 ~ D12 | 264 | 472 |
| 4 | AlTiN | 4 Flute, Standard Length  | US300-S4 | D2 ~ D20 | 265 | 472 |
| 4 | AlCrSiN | 4 Flute, Stub Length, Variable Helix with Chamfer  | SS200-CS4 | D2 ~ D12 | 266 | 472 |
| 4 | AlCrSiN | 4 Flute, Variable Helix with Chamfer  | SS200-C4 | D2 ~ D12 | 267 | 472 |
| 2 | | 2 Flute, Standard Length  | UA100-S2 | D1 ~ D12 | 268 | 473 |
| 2 | | 2 Flute, Long Flute Length  | UA100-SL2 | D2 ~ D12 | 270 | 473 |
| 2 | | 2 Flute, with Long Shank Length  | UA100-SH2 | D2 ~ D12 | 271 | 473 |
| 3 | | 3 Flute, Standard Length  | UA100-S3 | D2 ~ D20 | 272 | 474 |
| 3 | | 3 Flute, Long Flute Length  | UA100-SL3 | D2 ~ D20 | 274 | 474 |
| 3 | | 3 Flute, with Long Shank Length  | UA100-SH3 | D2 ~ D20 | 275 | 474 |
| 2 | | 2 Flute, Standard Length  | UA160-S2 | D1 ~ D10 | 287 | 476 |
| 3 | | 3 Flute, Standard Length  | UA160-S3 | D2 ~ D20 | 288 | 476 |

◎ most suitable ○ suitable

| | Workpiece Material | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | M | K | N | | | S | | H | | |
| | 1234 | 56 | 123 | 123 | 123 | 4 | 5 | 123 | 4 | 1 | 2 | 34 |
| | Carbon Steel,Alloy | Alloy Steel | Stainless Steel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite, Composite Materials | Heat Resistant Super Alloys | Titanium Alloys | Hardened Steel | Hardened Steel | Hardened Steel |
| | < 35HRC | ⩽ 48HRC | | | | | | | | 45-55HRC | 55-60HRC | > 60HRC |
| | | | | | | | | | | | | |
| | ◎ | ○ | ○ | ◎ | ○ | ○ | | | | | | |
| | ◎ | ◎ | ○ | ◎ | | | | | | ○ | | |
| | ◎ | ◎ | ○ | ◎ | ○ | ◎ | | ○ | ○ | ◎ | | |
| | ○ | ○ | ◎ | ○ | | | | ○ | ○ | | | |
| | ○ | ○ | ◎ | ○ | | | | ○ | ○ | | | |
| | ○ | ○ | ◎ | ○ | | | | ○ | ○ | | | |
| | ○ | ○ | ◎ | ○ | | | | ○ | ○ | | | |
| | ○ | ○ | ◎ | ○ | | | | ○ | ○ | | | |
| | ○ | ○ | ◎ | ○ | | | | ○ | ○ | | | |
| | ○ | ○ | ◎ | ○ | | | | ○ | ○ | | | |
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| | | | | | ◎ | ◎ | | | | | | |

# Endmill Catalog（by flute)

| No.of Flutes | Coating | Description | Type | Diameter Range | Dimension Page | Parameters Page |
|---|---|---|---|---|---|---|
| **Square** | | | | | | |
| 4 | | 4 Flute, Standard Length  | UA160-S4 | D4 ~ D20 | 289 | 476 |
| 3 | | 3 Flute, Standard Length  | SA100-S3 | D3 ~ D12 | 290 | 477 |
| 2 | TiAlCrSiN | 2 Flute, Standard Length Endmills of Micro Diameter for Deep Machining NEW  | SAM200-SN2 | D0.1 ~ D6 | 446 | 545 |
| 2 | U-DIA | 2 Flute, Standard Length  | SG200-S2 | D0.4 ~ D12 | 295 | 480 |
| 2 | U-DIA | 2 Flute, Standard End With Reduced Nec  | SG200-SN2 | D1 ~ D12 | 297 | 480 |
| 3 | U-DIA | 3 Flute, Standard Length  | SG200-S3 | D1 ~ D12 | 299 | 480 |
| 4 | U-DIA | 4 Flute, Standard Length  | SG200-S4 | D2 ~ D12 | 301 | 480 |
| 4 | AlCrN | 4 Flute，Standard Length Unequal Flute Spacing  | ST210-S4 | D2 ~ D20 | 316 | 482 |
| 2 | TiAlCrSiN | 2 Flute, Standard Length NEW  | SH260-S2-H | D1 ~ D12 | 328 | 489 |
| 2 | TiAlCrSiN | 2 Flute Square End, Miniature Sizes with Neck NEW  | SH260-SN2-H | D1 ~ D6 | 329 | 489 |
| 4 | TiAlCrSiN | 4 Flute, Standard Length NEW  | SH260-S4-H | D1 ~ D20 | 331 | 490 |
| 4 | TiAlCrSiN | 4 Flute, with Long Shank Length NEW  | SH260-SH4-H | D1 ~ D20 | 333 | 490 |
| 4 | TiAlCrSiN | 4 Flute, with Reduced Neck NEW  | SH260-SN4-H | D1 ~ D12 | 335 | 490 |
| 4 | TiAlCrSiN | 4 Flute, Long Flute Length NEW  | SH260-SL4-H | D1 ~ D16 | 337 | 490 |
| 6 | TiAlCrSiN | 6 Flute, Standard Length NEW  | SH260-S6-H | D6 ~ D20 | 338 | 490 |
| 6 | TiAlCrSiN | 6 Flute, Long Shank Length NEW  | SH260-SH6-H | D6 ~ D20 | 339 | 490 |
| 6 | TiAlCrSiN | 6 Flute, Long Flute Length NEW  | SH260-SL6-H | D6 ~ D20 | 340 | 490 |
| 2 | TiAlCrSiN | 2 Flute, Standard Length  | SH300-S2-H | D1 ~ D12 | 356 | 492 |
| 2 | TiAlCrSiN | 2 Flute, with Reduced Neck Diameter  | SH300-SN2-H | D1 ~ D6 | 357 | 492 |

◎ most suitable ○ suitable

| | Workpiece Material | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | M | K | N | | | S | | H | | |
| | 1234 | 56 | 123 | 123 | 123 | 4 | 5 | 123 | 4 | 1 | 2 | 34 |
| | Carbon Steel,Alloy | Alloy Steel | Stainless Steel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite, Composite Materials | Heat Resistant Super Alloys | Titanium Alloys | Hardened Steel | Hardened Steel | Hardened Steel |
| | < 35HRC | ⩽ 48HRC | | | | | | | | 45-55HRC | 55-60HRC | > 60HRC |
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# Endmill Catalog (by flute)

| No.of Flutes | Coating | Description | Type | Diameter Range | Dimension Page | Cutting Parameters Page |
|---|---|---|---|---|---|---|
| **Square** | | | | | | |
| 4 | TiAlCrSiN | 4 Flute, Stub Length  | SH300-SS4-H | D1 ~ D16 | 358 | 492 |
| 4 | TiAlCrSiN | 4 Flute, Standard Length  | SH300-S4-H | D1 ~ D20 | 360 | 492 |
| 4 | TiAlCrSiN | 4 Flute, with Long Shank Length  | SH300-SH4-H | D1 ~ D20 | 362 | 492 |
| 4 | TiAlCrSiN | 4 Flute, Long Flute Length  | SH300-SL4-H | D1 ~ D20 | 364 | 492 |
| 4 | TiAlCrSiN | 4 Flute, with Reduced Neck  | SH300-SN4-H | D1 ~ D20 | 366 | 492 |
| 6 | TiAlCrSiN | 6 Flute, Standard Length  | SH300-S6-H | D6 ~ D20 | 370 | 493 |
| 6 | TiAlCrSiN | 6 Flute, Long Shank Length  | SH300-SH6-H | D6 ~ D20 | 371 | 493 |
| 6 | TiAlCrSiN | 6 Flute, Long Flute Length  | SH300-SL6-H | D6 ~ D20 | 372 | 493 |
| **Corner Radius** | | | | | | |
| 2 | AlCrSiN | 2 Flute, Corner Radius  | UP210-R2 | D1 ~ D20 | 215 | 457 |
| 2 | AlCrSiN | 2 Flute Corner Radius, with Long Shank Length  | UP210-RH2 | D4 ~ D20 | 218 | 457 |
| 4 | AlCrSiN | 4 Flute, Corner Radius  | UP210-R4 | D1 ~ D20 | 220 | 458 |
| 4 | AlCrSiN | 4 Flute Corner Radius, with Long Shank Length  | UP210-RH4 | D3 ~ D20 | 223 | 458 |
| 4 | AlCrSiN | 4 Flute, 45° Helix NEW  | UP210-R4A | D4 ~ D20 | 225 | 458 |
| 4 | AlCrSiN | 4 Flutes Corner Radius, with Variable Helix  | SP210-R4 | D3 ~ D16 | 242 | 462 |
| 4 | AlCrSiN | 4 Flute Corner Radius, with Long Shank Length NEW  | SP210-RH4 | D4 ~ D12 | 244 | 462 |
| 2 | AlCrSiN | 2 Flute, Corner RadiusEndmills of Micro Diameter for Deep Machining  | SPM200-RN2 | D0.2 ~ D6 | 418 | 507 |
| 4 | AlCrSiN | 4 Flute, Corner RadiusEndmills of Micro Diameter for Deep Machining NEW  | SPM200-RN4 | D1 ~ D6 | 432 | 529 |
| 2 | AlTiN | 2 Flute, Corner Radius  | US200-R2 | D3 ~ D16 | 256 | 470 |

◎ most suitable ○ suitable

| | Workpiece Material | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | M | K | N | | | S | | H | | |
| | 1234 | 56 | 123 | 123 | 123 | 4 | 5 | 123 | 4 | 1 | 2 | 34 |
| | Carbon Steel,Alloy | Alloy Steel | Stainless Steel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite, Composite Materials | Heat Resistant Super Alloys | Titanium Alloys | Hardened Steel | Hardened Steel | Hardened Steel |
| | < 35HRC | ⩽ 48HRC | | | | | | | | 45-55HRC | 55-60HRC | > 60HRC |
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| | ◎ | ◎ | ○ | ◎ | ○ | ◎ | | ○ | ○ | ◎ | | |
| | ○ | ○ | ◎ | ○ | | | | ○ | ○ | | | |

# Endmill Catalog（by flute)

| No.of Flute | Coating | Description | Type | Diameter Range | Dimension Page | Cutting Parameters Page |
|---|---|---|---|---|---|---|
| **Corner Radius** | | | | | | |
| 3 | AlTiN | 3 Flute, Corner Radius  | US200-R3 | D2 ~ D20 | 258 | 470 |
| 4 | AlTiN | 4 Flute, Corner Radius  | US200-R4 | D2 ~ D20 | 260 | 471 |
| 2 | | 2 Flute, Corner Radius  | UA100-R2 | D6 ~ D20 | 276 | 473 |
| 2 | | 2 Flute Corner Radius, with Long Shank Length  | UA100-RH2 | D1 ~ D20 | 279 | 473 |
| 3 | | 3 Flute, Corner Radius  | UA100-R3 | D1 ~ D20 | 281 | 474 |
| 3 | | 3 Flute Corner Radius, with Long Shank Length  | UA100-RH3 | D1 ~ D20 | 284 | 474 |
| 3 | | 2 Flute Corner Radius, with Reduced Neck  | SA210-BW | D12 ~ D25 | 291 | 478 |
| 3 | | 3 Flute Corner Radius, with Reduced Neck  | SA210-HF | D8 ~ D20 | 292 | 478 |
| 2 | | 2 Flute Corner Radius, with Reduced Neck  | SA300-RN2 | D6 ~ D25 | 293 | 479 |
| 3 | | 3 Flute Corner Radius, with Reduced Neck  | SA300-RN3 | D6 ~ D32 | 294 | 479 |
| 2 | U-DIA | 2 Flute, Corner Radius  | SG200-R2 | D1 ~ D12 | 302 | 480 |
| 2 | U-DIA | 2 Flute, Corner Radius With Reduced Neck  | SG200-RN2 | D1 ~ D6 | 304 | 480 |
| 4 | U-DIA | 4 Flute, Corner Radius  | SG200-R4 | D2 ~ D12 | 306 | 480 |
| 4 | U-DIA | 4 Flute, Corner Radius With Reduced Neck  | SG200-RN4 | D2 ~ D12 | 307 | 480 |
| 4 | N-DIA | 4 Flute, Corner Radius With Reduced Neck  | SG200-M-RN4 | D1 ~ D10 | 312 | 481 |
| 4 | AlTiN | 4 Flute，Corner Radius Unequal Flute Spacing  | SN200-R4 | D6 ~ D18 | 324 | 486 |
| 4 | AlCrN | 4 Flute，Corner Radius Unequal Flute Spacing  | ST210-R4 | D2 ~ D20 | 317 | 482 |
| 4 | AlCrN | 4 Flute，Corner Radius with Reduced Neck Unequal Flute Spacing  | ST210-RN4 | D12 ~ D25 | 319 | 482 |

◎ most suitable ○ suitable

| | Workpiece Material | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | M | K | N | | | S | | H | | |
| | 1234 | 56 | 123 | 123 | 123 | 4 | 5 | 123 | 4 | 1 | 2 | 34 |
| | Carbon Steel,Alloy steel | Alloy Steel | Stainless Steel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite, Composite Materials | Heat Resistant Super Alloys | Titanium Alloys | Hardened Steel | Hardened Steel | Hardened Steel |
| | < 35HRC | ⩽ 48HRC | | | | | | | | 45-55HRC | 55-60HRC | > 60HRC |
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# Endmill Catalog（by flute)

| No.of Flutes | Coating | Description | Type | Diameter Range | Dimension Page | Cutting Parameters Page |
|---|---|---|---|---|---|---|
| **Corner Radius** | | | | | | |
| 5 | AlCrN | 5 Flute，Long Flute length with Corner Radius Unequal Flute Spacing  | ST210-RL5 | D16 ~ D25 | 320 | 483 |
| 4 | AlCrN | 4 Flute，Corner Radius with Reduced Neck Unequal Flute Spacing，Internal Coolant  | ST300-RN4 | D12 ~ D20 | 322 | 484 |
| 5 | AlCrN | 5 Flute，Corner Radius with Reduced Neck Unequal Flute Spacing，Internal Coolant  | ST300-RN5 | D16 ~ D25 | 323 | 485 |
| 2 | TiAlCrSiN | 2 Flute, Corner Radius NEW  | SH260-R2-H | D1 ~ D6 | 341 | 489 |
| 2 | TiAlCrSiN | 2 Flute, Corner Radius With Reduced Neck NEW  | SH260-RN2-H | D1 ~ D6 | 342 | 489 |
| 4 | TiAlCrSiN | 4 Flute, Corner Radius NEW  | SH260-R4-H | D1 ~ D12 | 344 | 490 |
| 4 | TiAlCrSiN | 4 Flute Corner Radius, with Long Shank Length NEW  | SH260-RH4-H | D2.5 ~ D12 | 347 | 490 |
| 4 | TiAlCrSiN | 4 Flute Corner Radius, with Reduced Neck NEW  | SH260-RN4-H | D1 ~ D12 | 349 | 490 |
| 2 | TiAlCrSiN | 2 Flute, Corner Radius  | SH300-R2-H | D1 ~ D12 | 373 | 492 |
| 2 | TiAlCrSiN | 2 Flute Corner Radius, with Reduced Neck  | SH300-RN2-H | D1 ~ D6 | 375 | 492 |
| 4 | TiAlCrSiN | 4 Flute, Corner Radius  | SH300-R4-H | D1 ~ D20 | 376 | 492 |
| 4 | TiAlCrSiN | 4 Flute Corner Radius, with Long Shank Length  | SH300-RH4-H | D1 ~ D20 | 380 | 492 |
| 4 | TiAlCrSiN | 4 Flute Corner Radius, with Reduced Neck  | SH300-RN4-H | D1 ~ D12 | 383 | 492 |
| 6 | TiAlCrSiN | 6 Flute, Corner Radius  | SH300-R6-H | D6 ~ D20 | 389 | 493 |
| 6 | TiAlCrSiN | 6 Flute Corner Radius, with Long Shank Length  | SH300-RH6-H | D6 ~ D20 | 391 | 493 |
| 4 | TiAlCrSiN | 4 Flute, Corner Radius  | FH200-R4-H | D1 ~ D12 | 404 | 495 |
| 4 | TiAlCrSiN | 4 Flute Corner Radius, with Reduced Neck  | FH200-RN4-H | D8 ~ D12 | 406 | 495 |
| 6 | TiAlCrSiN | 6 Flute, Corner Radius  | FH200-R6-H | D6 ~ D20 | 408 | 495 |
| 6 | TiAlCrSiN | 6 Flute Corner Radius, with long shank length  | FH200-RH6-H | D6 ~ D20 | 409 | 495 |
| 6 | TiAlCrSiN | 6 Flute Corner Radius, with reduced neck  | FH200-RN6-H | D6 ~ D20 | 410 | 495 |

◎ most suitable ○ suitable

| | Workpiece Material | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | M | K | N | | | S | | H | | |
| | 1234 | 56 | 123 | 123 | 123 | 4 | 5 | 123 | 4 | 1 | 2 | 34 |
| | Carbon Steel,Alloy | Alloy Steel | Stainless Steel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite, Composite Materials | Heat Resistant Super Alloys | Titanium Alloys | Hardened Steel | Hardened Steel | Hardened Steel |
| | < 35HRC | ⩽ 48HRC | | | | | | | | 45-55HRC | 55-60HRC | > 60HRC |
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# Endmill Catalog（by flute)

| No.of Flutes | Coating | Description | Type | Diameter Range | Dimension Page | Cutting Parameters Page |
|---|---|---|---|---|---|---|
| **Ballnose** | | | | | | |
| 2 | AlCrSiN | 2 Flute, Ballnose  | UP210-B2 | D0.8 ~ D20 | 227 | 460 |
| 2 | AlCrSiN | 2 Flute Ballnose,with Long Shank Length  | UP210-BH2 | D2 ~ D20 | 229 | 460 |
| 4 | AlCrSiN | 4 Flute, Ballnose  | UP210-B4 | D2 ~ D20 | 231 | 460 |
| 2 | AlCrSiN | 2 Flute, Ballnose  | SP210-B2 | D1 ~ D12 | 245 | 463 |
| 2 | AlCrSiN | 2 Flute Ballnose, with Long Shank length  | SP210-BH2 | D4 ~ D12 | 246 | 463 |
| 2 | AlCrSiN | 2 Flute, Ballnose<br>Endmills of Micro Diameter for Deep Machining  | SPM200-BN2 | D0.1 ~ D6 | 438 | 534 |
| 2 | AlTiN | 2 Flute, Ballnose  | US200-B2 | D1 ~ D20 | 262 | 471 |
| 4 | AlTiN | 4 Flute, Ballnose  | US200-B4 | D2 ~ D12 | 263 | 471 |
| 2 | | 2 Flute, Ballnose  | UA100-B2 | D1 ~ D12 | 286 | 475 |
| 2 | TiAlCrSiN | 2 Flute, Ballnose Endmills of<br>Micro Diameter for Deep Machining NEW  | SAM200-BN2 | D0.1 ~ D6 | 448 | 547 |
| 2 | U-DIA | 2 Flute, Ballnose  | SG200-B2 | D0.5 ~ D12 | 309 | 481 |
| 2 | U-DIA | 2 FluteBallnose, with Reduced Neck  | SG200-BN2 | D0.5 ~ D12 | 310 | 481 |
| 2 | N-DIA | 2 Flute, Ballnose  | SG200-M-B2 | D0.4 ~ D6 | 314 | 481 |
| 2 | N-DIA | 2 Flute,Ballnose, With Reduced Neck  | SG200-M-BN2 | D0.5 ~ D6 | 315 | 481 |
| 4 | AlTiN | 4 Flute，Ballnose<br>Unequal Flute Spacing  | SN200-B4 | D6 ~ D16 | 325 | 487 |
| 4 | AlCrN | 4 Flute，Ballnose<br>Unequal Flute Spacing  | ST210-B4 | D2 ~ D20 | 321 | 483 |
| 2 | TiAlCrSiN | 2 Flute, Ballnose NEW  | SH260-B2-H | D1 ~ D16 | 351 | 491 |
| 2 | TiAlCrSiN | 2 Flute Ballnose,<br>with Long Shank length NEW  | SH260-BH2-H | D2 ~ D12 | 352 | 491 |
| 2 | TiAlCrSiN | 2 Flute Ballnose,<br>with Reduced Neck NEW  | SH260-BN2-H | D1 ~ D12 | 354 | 491 |

◎ most suitable ○ suitable

| | Workpiece Material | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | M | K | N | | | S | | H | | |
| | 1234 | 56 | 123 | 123 | 123 | 4 | 5 | 123 | 4 | 1 | 2 | 34 |
| | Carbon Steel,Alloy | Alloy Steel | Stainless Steel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite, Composite Materials | Heat Resistant Super Alloys | Titanium Alloys | Hardened Steel | Hardened Steel | Hardened Steel |
| | < 35HRC | ⩽ 48HRC | | | | | | | | 45-55HRC | 55-60HRC | > 60HRC |
| | | | | | | | | | | | | |
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# Endmill Catalog（by flute）

| No.of Flutes | Coating | Description | Type | Diameter Range | Dimension Page | Cutting Parameters Page |
|---|---|---|---|---|---|---|
| **Ballnose** | | | | | | |
| 2 | TiAlCrSiN | 2 Flute, Ballnose  | SH300-B2-H | D0.6 ~ D12 | 393 | 493 |
| 2 | TiAlCrSiN | 2 Flute Ballnose, with Long Shank length  | SH300-BH2-H | D0.6 ~ D12 | 395 | 493 |
| 2 | TiAlCrSiN | 2 Flute,Ballnose, With Reduced Neck  | SH300-BN2-H | D0.6 ~ D12 | 397 | 493 |
| 4 | TiAlCrSiN | 4 Flute, Ballnose  | SH300-B4-H | D2 ~ D12 | 401 | 494 |
| 4 | TiAlCrSiN | 4 Flute Ballnose, with Long Shank Length  | SH300-BH4-H | D2 ~ D12 | 402 | 494 |
| 4 | TiAlCrSiN | 4 Flute Ballnose, with Reduced Neck  | SH300-BN4-H | D2 ~ D12 | 403 | 494 |
| **Other** | | | | | | |
| 4 | AlCrSiN | 4 Flute, 60° Chamfer Endmils NEW  | UP210-L60 | D4 ~ D20 | 404 | 495 |
| 4 | AlCrSiN | 4 Flute, 90° Chamfer Endmils NEW  | UP210-L90 | D4 ~ D20 | 406 | 495 |
| 4 | AlCrSiN | 4 Flute, 120° Chamfer Endmils NEW  | UP210-L120 | D4 ~ D20 | 408 | 495 |
| 12 | U-DIA | 12 Flute, Right-hand Helix,Fine-cross-nick  | SD200-KDA | D4 ~ D12 | 409 | 495 |
| 2 | U-DIA | 2 Flute Herringbone  | SD201-JD2 | D4 ~ D12 | 410 | 495 |

◎ most suitable ○ suitable

| | Workpiece Material | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | M | K | N | | | S | | H | | |
| | 1234 | 56 | 123 | 123 | 123 | 4 | 5 | 123 | 4 | 1 | 2 | 34 |
| | Carbon Steel,Alloy | Alloy Steel | Stainless Steel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite, Composite Materials | Heat Resistant Super Alloys | Titanium Alloys | Hardened Steel | Hardened Steel | Hardened Steel |
| | < 35HRC | ⩽ 48HRC | | | | | | | | 45-55HRC | 55-60HRC | > 60HRC |
| | | | | | | | | | | | | |
| | | ○ | | | | | | | | ○ | ◎ | ◎ |
| | | ○ | | | | | | | | ○ | ◎ | ◎ |
| | | ○ | | | | | | | | ○ | ◎ | ◎ |
| | | ○ | | | | | | | | ○ | ◎ | ◎ |
| | | ○ | | | | | | | | ○ | ◎ | ◎ |
| | | ○ | | | | | | | | ○ | ◎ | ◎ |
| | | | | | | | | | | | | |
| | ◎ | ○ | ○ | ◎ | ○ | ○ | | | | | | |
| | ◎ | ○ | ○ | ◎ | ○ | ○ | | | | | | |
| | ◎ | ○ | ○ | ◎ | ○ | ○ | | | | | | |
| | | | | | | | ◎ | | | | | |
| | | | | | | | ◎ | | | | | |

# UP210-SS2

2 Flute, Stub Length

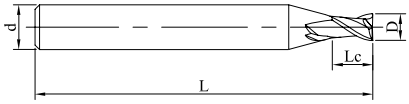



Fig1

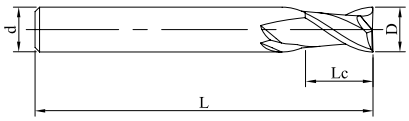



Fig2






See page 149 for guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| UP210-SS2-01002 | 1 | 2 | 50 | 4 | 1 | ● |
| UP210-SS2-01502 | 1.5 | 2 | 50 | 4 | 1 | ● |
| UP210-SS2-02003 | 2 | 3 | 50 | 4 | 1 | ● |
| UP210-SS2-02504 | 2.5 | 4 | 50 | 4 | 1 | ● |
| UP210-SS2-03005 | 3 | 5 | 50 | 4 | 1 | ○ |
| UP210-SS2-04006 | 4 | 6 | 50 | 4 | 2 | ● |
| UP210-SS2-05008 | 5 | 8 | 50 | 6 | 1 | ● |
| UP210-SS2-06009 | 6 | 9 | 50 | 6 | 2 | ● |
| UP210-SS2-07010 | 7 | 10 | 60 | 8 | 1 | ● |
| UP210-SS2-08012 | 8 | 12 | 60 | 8 | 2 | ● |
| UP210-SS2-10015 | 10 | 15 | 75 | 10 | 2 | ● |
| UP210-SS2-12018 | 12 | 18 | 75 | 12 | 2 | ● |
| UP210- SS2-14021 | 14 | 21 | 100 | 14 | 2 | ○ |
| UP210-SS2-16024 | 16 | 24 | 100 | 16 | 2 | ● |
| UP210- SS2-18027 | 18 | 27 | 100 | 18 | 2 | ○ |
| UP210- SS2-20030 | 20 | 30 | 100 | 20 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

**unit** (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC以下) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P457

# UP210-S2

2 Flute, Standard Length

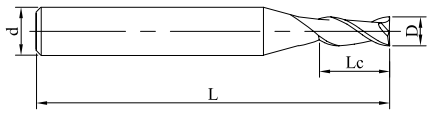



Fig1

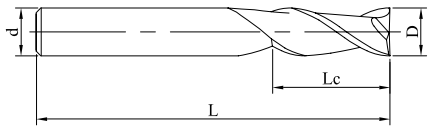



Fig2






See page 8 for guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| UP210-S2-01003 | 1 | 3 | 50 | 4 | 1 | ● |
| UP210-S2-01504 | 1.5 | 4 | 50 | 4 | 1 | ● |
| UP210-S2-02006 | 2 | 6 | 50 | 4 | 1 | ● |
| UP210-S2-02508 | 2.5 | 8 | 50 | 4 | 1 | ● |
| UP210-S2-03009 | 3 | 9 | 50 | 4 | 1 | ● |
| UP210-S2-63009 | 3 | 9 | 50 | 6 | 1 | ● |
| UP210-S2-03509 | 3.5 | 9 | 50 | 4 | 1 | ● |
| UP210-S2-63509 | 3.5 | 9 | 50 | 6 | 1 | ● |
| UP210-S2-04011 | 4 | 11 | 50 | 4 | 2 | ● |
| UP210-S2-64011 | 4 | 11 | 50 | 6 | 1 | ● |
| UP210-S2-04511 | 4.5 | 11 | 50 | 6 | 1 | ● |
| UP210-S2-04513 | 4.5 | 13 | 50 | 6 | 1 | ● |
| UP210-S2-05013 | 5 | 13 | 50 | 6 | 1 | ● |
| UP210-S2-05516 | 5.5 | 16 | 50 | 6 | 1 | ● |
| UP210-S2-06016 | 6 | 16 | 50 | 6 | 2 | ● |
| UP210-S2-06516 | 6.5 | 16 | 60 | 8 | 1 | ● |
| UP210-S2-07020 | 7 | 20 | 60 | 8 | 1 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC以下) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P457

# UP210-S2

2 Flute, Standard Length

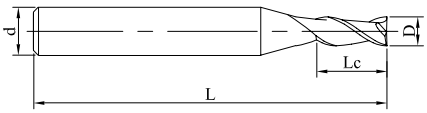



Fig1

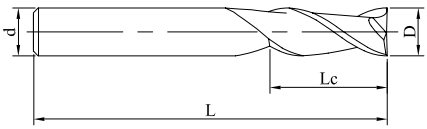



Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | L | d | Figure No. | 库存 |
|---|---|---|---|---|---|---|
| UP210-S2-07520 | 7.5 | 20 | 60 | 8 | 1 | ● |
| UP210-S2-08020 | 8 | 20 | 60 | 8 | 2 | ● |
| UP210-S2-08523 | 8.5 | 23 | 75 | 10 | 1 | ● |
| UP210-S2-09023 | 9 | 23 | 75 | 10 | 1 | ● |
| UP210-S2-09525 | 9.5 | 25 | 75 | 10 | 1 | ● |
| UP210-S2-10025 | 10 | 25 | 75 | 10 | 2 | ● |
| UP210-S2-10526 | 10.5 | 26 | 75 | 12 | 1 | ○ |
| UP210-S2-11028 | 11 | 28 | 75 | 12 | 1 | ● |
| UP210-S2-12030 | 12 | 30 | 75 | 12 | 2 | ● |
| UP210-S2-13032 | 13 | 32 | 100 | 14 | 1 | ○ |
| UP210-S2-14034 | 14 | 34 | 100 | 14 | 2 | ● |
| UP210-S2-15036 | 15 | 36 | 100 | 16 | 1 | ○ |
| UP210-S2-16036 | 16 | 36 | 100 | 16 | 2 | ● |
| UP210-S2-17040 | 17 | 40 | 100 | 20 | 1 | ○ |
| UP210-S2-18040 | 18 | 40 | 100 | 18 | 2 | ● |
| UP210-S2-19040 | 19 | 40 | 100 | 20 | 1 | ○ |
| UP210-S2-20045 | 20 | 45 | 100 | 20 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | 0 -0.02 |
| D>12 | 0 -0.03 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC以下) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P457

# UP210-SL2

2 Flute, Long Flute Length

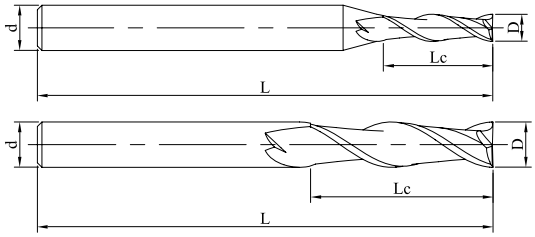



Fig1




Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| UP210-SL2-02015 | 2 | 15 | 75 | 4 | 1 | ● |
| UP210-SL2-03025 | 3 | 25 | 75 | 4 | 1 | ● |
| UP210-SL2-04030 | 4 | 30 | 75 | 4 | 2 | ● |
| UP210-SL2-05030 | 5 | 30 | 75 | 6 | 1 | ● |
| UP210-SL2-06035 | 6 | 35 | 75 | 6 | 2 | ● |
| UP210-SL2-08040 | 8 | 40 | 100 | 8 | 2 | ● |
| UP210-SL2-10045 | 10 | 45 | 100 | 10 | 2 | ● |
| UP210-SL2-12050 | 12 | 50 | 100 | 12 | 2 | ● |
| UP210-SL2-14055 | 14 | 55 | 100 | 14 | 2 | ● |
| UP210-SL2-16060 | 16 | 60 | 150 | 16 | 2 | ● |
| UP210-SL2-18065 | 18 | 65 | 150 | 18 | 2 | ● |
| UP210-SL2-20070 | 20 | 70 | 150 | 20 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | 0 -0.02 |
| D>12 | 0 -0.03 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC以下) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P457

# UP210-SH2

2 Flute, with Long Shank Length

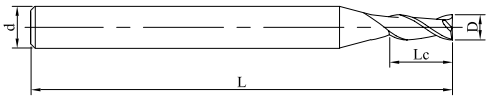



Fig1

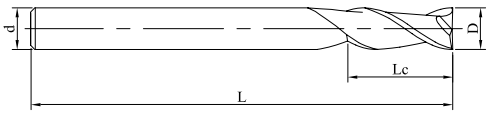



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| UP210-SH2-02006 | 2 | 6 | 75 | 4 | 1 | ● |
| UP210-SH2-03009 | 3 | 9 | 75 | 4 | 1 | ● |
| UP210-SH2-63012 | 3 | 12 | 75 | 6 | 1 | ● |
| UP210-SH2-04011 | 4 | 11 | 75 | 4 | 2 | ● |
| UP210-SH2-05020 | 5 | 20 | 75 | 6 | 1 | ● |
| UP210-SH2-06020 | 6 | 20 | 100 | 6 | 2 | ● |
| UP210-SH2-08025 | 8 | 25 | 100 | 8 | 2 | ● |
| UP210-SH2-10030 | 10 | 30 | 100 | 10 | 2 | ● |
| UP210-SH2-12035 | 12 | 35 | 100 | 12 | 2 | ● |
| UP210- SH2-14036 | 14 | 36 | 150 | 14 | 2 | ○ |
| UP210-SH2-15035 | 15 | 35 | 150 | 16 | 1 | ○ |
| UP210-SH2-16036 | 16 | 36 | 150 | 16 | 2 | ● |
| UP210- SH2-18045 | 18 | 45 | 150 | 18 | 2 | ○ |
| UP210-SH2-20045 | 20 | 45 | 150 | 20 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

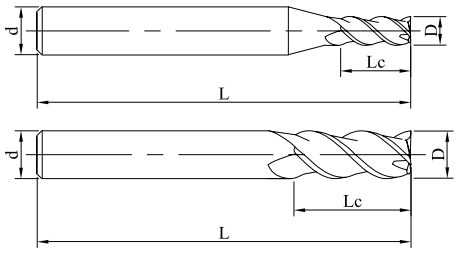
| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC以下) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P457

# UP210-S3

3 Flute, Standard Length









See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| UP210-S3-02006 | 2 | 6 | 50 | 4 | 1 | ● |
| UP210-S3-03009 | 3 | 9 | 50 | 4 | 1 | ● |
| UP210-S3-04011 | 4 | 11 | 50 | 4 | 2 | ● |
| UP210-S3-05013 | 5 | 13 | 50 | 6 | 1 | ● |
| UP210-S3-06016 | 6 | 16 | 50 | 6 | 2 | ● |
| UP210-S3-06516 | 6.5 | 16 | 60 | 8 | 1 | ● |
| UP210-S3-08020 | 8 | 20 | 60 | 8 | 2 | ● |
| UP210-S3-10025 | 10 | 25 | 75 | 10 | 2 | ● |
| UP210-S3-12030 | 12 | 30 | 75 | 12 | 2 | ● |
| UP210- S3-14032 | 14 | 32 | 100 | 14 | 2 | ○ |
| UP210-S3-16036 | 16 | 36 | 100 | 16 | 2 | ● |
| UP210-S3-18040 | 18 | 40 | 100 | 18 | 2 | ○ |
| UP210-S3-20045 | 20 | 45 | 100 | 20 | 2 | ● |
| UP210-S3-25050 | 25 | 50 | 100 | 25 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | 0 -0.02 |
| D>12 | 0 -0.03 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC以下) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P457

# UP210-SS4

4 Flute, Stub Length

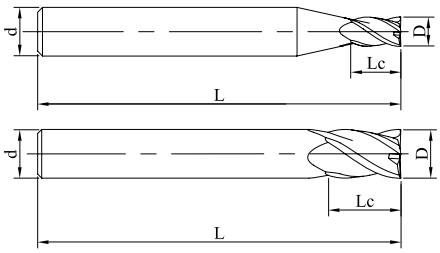



Fig1




Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| UP210-SS4-01002 | 1 | 2 | 50 | 4 | 1 | ● |
| UP210-SS4-01502 | 1.5 | 2 | 50 | 4 | 1 | ● |
| UP210-SS4-02003 | 2 | 3 | 50 | 4 | 1 | ● |
| UP210-SS4-02504 | 2.5 | 4 | 50 | 4 | 1 | ○ |
| UP210-SS4-03005 | 3 | 5 | 50 | 4 | 1 | ● |
| UP210-SS4-04006 | 4 | 6 | 50 | 4 | 2 | ● |
| UP210-SS4-05008 | 5 | 8 | 50 | 6 | 1 | ● |
| UP210-SS4-06009 | 6 | 9 | 50 | 6 | 2 | ● |
| UP210-SS4-07010 | 7 | 10 | 60 | 8 | 1 | ● |
| UP210-SS4-08012 | 8 | 12 | 60 | 8 | 2 | ● |
| UP210-SS4-10015 | 10 | 15 | 75 | 10 | 2 | ● |
| UP210-SS4-12018 | 12 | 18 | 75 | 12 | 2 | ● |
| UP210- SS4-14021 | 14 | 21 | 100 | 14 | 2 | ● |
| UP210-SS4-16024 | 16 | 24 | 100 | 16 | 2 | ● |
| UP210- SS4-18027 | 18 | 27 | 100 | 18 | 2 | ○ |
| UP210- SS4-20030 | 20 | 30 | 100 | 20 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC以下) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

# UP210-S4

4 Flute, Standard Length

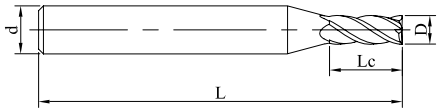



Fig1

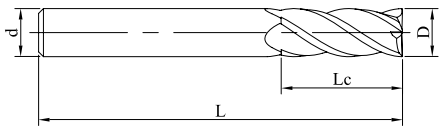



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| UP210-S4-01003 | 1 | 3 | 50 | 4 | 1 | ● |
| UP210-S4-61003 | 1 | 3 | 50 | 6 | 1 | ● |
| UP210-S4-01505 | 1.5 | 5 | 50 | 4 | 1 | ● |
| UP210-S4-61505 | 1.5 | 5 | 50 | 6 | 1 | ● |
| UP210-S4-02006 | 2 | 6 | 50 | 4 | 1 | ● |
| UP210-S4-62006 | 2 | 6 | 50 | 6 | 1 | ● |
| UP210-S4-02508 | 2.5 | 8 | 50 | 4 | 1 | ● |
| UP210-S4-62508 | 2.5 | 8 | 50 | 6 | 1 | ● |
| UP210-S4-03009 | 3 | 9 | 50 | 4 | 1 | ● |
| UP210-S4-63009 | 3 | 9 | 50 | 6 | 1 | ● |
| UP210-S4-03511 | 3.5 | 11 | 50 | 4 | 1 | ● |
| UP210-S4-63509 | 3.5 | 9 | 50 | 6 | 1 | ● |
| UP210-S4-04011 | 4 | 11 | 50 | 4 | 2 | ● |
| UP210-S4-64011 | 4 | 11 | 50 | 6 | 1 | ● |
| UP210-S4-04511 | 4.5 | 11 | 50 | 6 | 1 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC以下) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

# UP210-S4

4 Flute, Standard Length

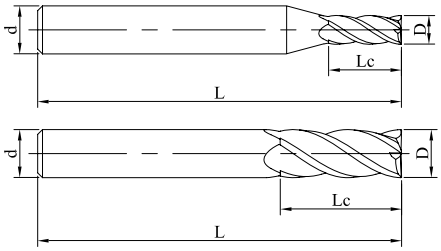



Fig1




Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| UP210-S4-05013 | 5 | 13 | 50 | 6 | 1 | ● |
| UP210-S4-05516 | 5.5 | 16 | 50 | 6 | 1 | ● |
| UP210-S4-06016 | 6 | 16 | 50 | 6 | 2 | ● |
| UP210-S4-06516 | 6.5 | 16 | 60 | 8 | 1 | ● |
| UP210-S4-07020 | 7 | 20 | 60 | 8 | 1 | ● |
| UP210-S4-07520 | 7.5 | 20 | 60 | 8 | 1 | ● |
| UP210-S4-08020 | 8 | 20 | 60 | 8 | 2 | ● |
| UP210-S4-08523 | 8.5 | 23 | 75 | 10 | 1 | ● |
| UP210-S4-09023 | 9 | 23 | 75 | 10 | 1 | ● |
| UP210-S4-09525 | 9.5 | 25 | 75 | 10 | 1 | ● |
| UP210-S4-10025 | 10 | 25 | 75 | 10 | 2 | ● |
| UP210-S4-11028 | 11 | 28 | 75 | 12 | 1 | ● |
| UP210-S4-12030 | 12 | 30 | 75 | 12 | 2 | ● |
| UP210-S4-13032 | 13 | 32 | 100 | 14 | 1 | ● |
| UP210-S4-14034 | 14 | 34 | 100 | 14 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC以下) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

# UP210-S4

4 Flute, Standard Length

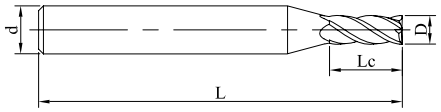



Fig1

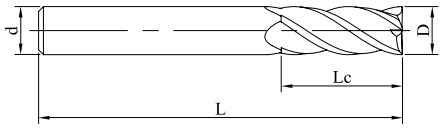



Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| UP210-S4-15036 | 15 | 36 | 100 | 16 | 1 | ● |
| UP210-S4-16036 | 16 | 36 | 100 | 16 | 2 | ● |
| UP210-S4-17038 | 17 | 38 | 100 | 18 | 1 | ○ |
| UP210-S4-18045 | 18 | 45 | 100 | 18 | 2 | ● |
| UP210-S4-20045 | 20 | 45 | 100 | 20 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC以下) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

# UP210-SL4

4 Flute, Long Flute Length

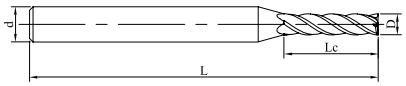



Fig1

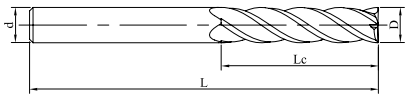



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| UP210-SL4-01004 | 1 | 4 | 50 | 4 | 1 | ● |
| UP210-SL4-02010 | 2 | 10 | 50 | 4 | 1 | ● |
| UP210-SL4-03015 | 3 | 15 | 60 | 4 | 1 | ● |
| UP210-SL4-63015 | 3 | 15 | 60 | 6 | 1 | ● |
| UP210-SL4-04020 | 4 | 20 | 60 | 4 | 2 | ● |
| UP210-SL4-64020 | 4 | 20 | 75 | 6 | 1 | ● |
| UP210-SL4-04030 | 4 | 30 | 75 | 4 | 2 | ● |
| UP210-SL4-05025 | 5 | 25 | 75 | 6 | 1 | ● |
| UP210-SL4-05030 | 5 | 30 | 75 | 6 | 1 | ● |
| UP210-SL4-06030 | 6 | 30 | 75 | 6 | 2 | ● |
| UP210-SL4-06035 | 6 | 35 | 75 | 6 | 2 | ● |
| UP210-SL4-08035 | 8 | 35 | 100 | 8 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC以下) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

# UP210-SL4

4 Flute, Long Flute Length

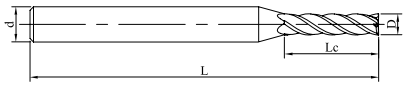



Fig1

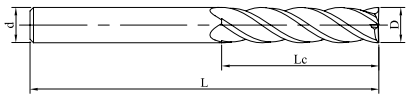



Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| UP210-SL4-08040 | 8 | 40 | 100 | 8 | 2 | ● |
| UP210-SL4-10045 | 10 | 45 | 100 | 10 | 2 | ● |
| UP210-SL4-10050 | 10 | 50 | 100 | 10 | 2 | ● |
| UP210-SL4-12045 | 12 | 45 | 100 | 12 | 2 | ● |
| UP210-SL4-12050 | 12 | 50 | 100 | 12 | 2 | ● |
| UP210-SL4-14045 | 14 | 45 | 100 | 14 | 2 | ● |
| UP210-SL4-16050 | 16 | 50 | 150 | 16 | 2 | ● |
| UP210-SL4-16060 | 16 | 60 | 150 | 16 | 2 | ● |
| UP210-SL4-16070 | 16 | 70 | 150 | 16 | 2 | ● |
| UP210-SL4-18070 | 18 | 70 | 150 | 18 | 2 | ○ |
| UP210-SL4-20070 | 20 | 70 | 150 | 20 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC以下) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

# UP210-SH4

4 Flute, with Long Shank Length

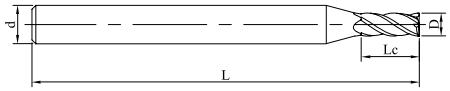



Fig1

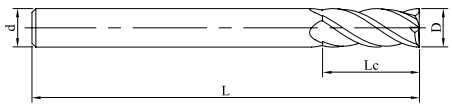



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| UP210-SH4-02010 | 2 | 10 | 75 | 4 | 1 | ● |
| UP210-SH4-03012 | 3 | 12 | 75 | 4 | 1 | ● |
| UP210-SH4-03012H | 3 | 12 | 100 | 4 | 1 | ○ |
| UP210-SH4-04011 | 4 | 11 | 75 | 4 | 2 | ● |
| UP210-SH4-04011H | 4 | 11 | 100 | 4 | 2 | ● |
| UP210-SH4-04015 | 4 | 15 | 75 | 4 | 2 | ● |
| UP210-SH4-05020 | 5 | 20 | 75 | 6 | 1 | ● |
| UP210-SH4-06016 | 6 | 16 | 75 | 6 | 2 | ● |
| UP210-SH4-06020 | 6 | 20 | 75 | 6 | 2 | ● |
| UP210-SH4-06020H | 6 | 20 | 100 | 6 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC以下) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

# UP210-SH4

4 Flute, with Long Shank Length

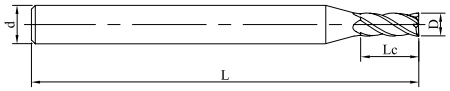



Fig1

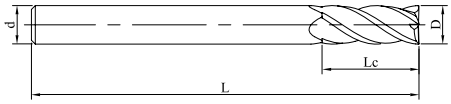



Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| UP210-SH4-08020 | 8 | 20 | 100 | 8 | 2 | ● |
| UP210-SH4-08025 | 8 | 25 | 100 | 8 | 2 | ● |
| UP210-SH4-10030 | 10 | 30 | 100 | 10 | 2 | ● |
| UP210-SH4-10035 | 10 | 35 | 100 | 10 | 2 | ● |
| UP210-SH4-12035 | 12 | 35 | 100 | 12 | 2 | ● |
| UP210- SH4-14036 | 14 | 36 | 150 | 14 | 2 | ○ |
| UP210-SH4-16036 | 16 | 36 | 150 | 16 | 2 | ● |
| UP210- SH4-18045 | 18 | 45 | 150 | 18 | 2 | ○ |
| UP210-SH4-20045 | 20 | 45 | 150 | 20 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | 0 -0.02 |
| D>12 | 0 -0.03 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC以下) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

# UP210-SC4

4 Flute, acute angle

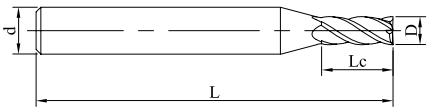



Fig1

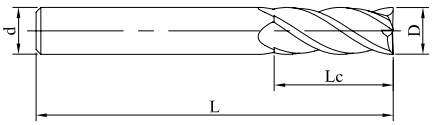



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| UP210-SC4-04011 | 4 | 11 | 50 | 4 | 2 | ● |
| UP210-SC4-06016 | 6 | 16 | 50 | 6 | 2 | ● |
| UP210-SC4-08020 | 8 | 20 | 60 | 8 | 2 | ● |
| UP210-SC4-10025 | 10 | 25 | 75 | 10 | 2 | ● |
| UP210-SC4-12030 | 12 | 30 | 75 | 12 | 2 | ● |
| UP210-SC4-16036 | 16 | 36 | 100 | 16 | 2 | ○ |
| UP210-SC4-20045 | 20 | 45 | 100 | 20 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | 0 -0.02 |
| D>12 | 0 -0.03 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC以下) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

# UP210-S4A

4 flute, 45° helix angle

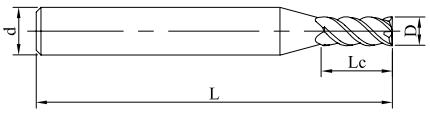



Fig1

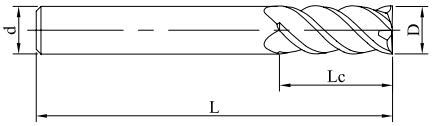



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| UP210-S4A-04011 | 4 | 11 | 50 | 4 | 2 | ● |
| UP210-S4A-06016 | 6 | 16 | 50 | 6 | 2 | ● |
| UP210-S4A-08020 | 8 | 20 | 60 | 8 | 2 | ● |
| UP210-S4A-10025 | 10 | 25 | 75 | 10 | 2 | ● |
| UP210-S4A-12030 | 12 | 30 | 75 | 12 | 2 | ● |
| UP210-S4A-16036 | 16 | 36 | 100 | 16 | 2 | ○ |
| UP210-S4A-20045 | 20 | 45 | 100 | 20 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | 0 -0.02 |
| D>12 | 0 -0.03 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC以下) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

# UP210-S6

6 Flute, Standard Length

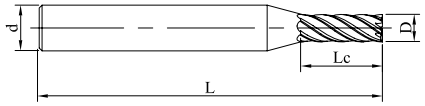



Fig1

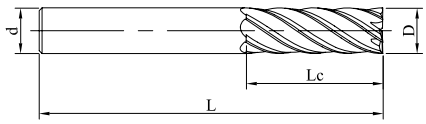



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| UP210-S6-06015 | 6 | 15 | 50 | 6 | 2 | ● |
| UP210-S6-08020 | 8 | 20 | 60 | 8 | 2 | ● |
| UP210-S6-10025 | 10 | 25 | 75 | 10 | 2 | ● |
| UP210-S6-12030 | 12 | 30 | 75 | 12 | 2 | ● |
| UP210- S6-14032 | 14 | 32 | 100 | 14 | 2 | ○ |
| UP210-S6-16036 | 16 | 36 | 100 | 16 | 2 | ● |
| UP210- S6-18040 | 18 | 40 | 100 | 18 | 2 | ○ |
| UP210-S6-20045 | 20 | 45 | 100 | 20 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC以下) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

# UP210-R2

2 Flute Corner Radius

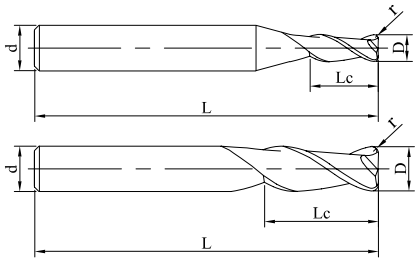



Fig1




Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UP210-R2-01002 | 1 | 3 | 0.2 | 50 | 4 | 1 | ● |
| UP210-R2-01502 | 1.5 | 5 | 0.2 | 50 | 4 | 1 | ○ |
| UP210-R2-02002 | 2 | 6 | 0.2 | 50 | 4 | 1 | ● |
| UP210-R2-03002 | 3 | 9 | 0.2 | 50 | 4 | 1 | ● |
| UP210-R2-63002 | 3 | 9 | 0.2 | 50 | 6 | 1 | ● |
| UP210-R2-63003 | 3 | 9 | 0.3 | 50 | 6 | 1 | ● |
| UP210-R2-03005 | 3 | 9 | 0.5 | 50 | 4 | 1 | ● |
| UP210-R2-63005 | 3 | 9 | 0.5 | 50 | 6 | 1 | ● |
| UP210-R2-04002 | 4 | 11 | 0.2 | 50 | 4 | 2 | ○ |
| UP210-R2-64002 | 4 | 11 | 0.2 | 50 | 6 | 1 | ● |
| UP210-R2-04003 | 4 | 11 | 0.3 | 50 | 4 | 2 | ● |
| UP210-R2-64003 | 4 | 11 | 0.3 | 50 | 6 | 1 | ● |
| UP210-R2-04005 | 4 | 11 | 0.5 | 50 | 4 | 2 | ● |
| UP210-R2-64005 | 4 | 11 | 0.5 | 50 | 6 | 1 | ● |
| UP210-R2-04010 | 4 | 11 | 1 | 50 | 4 | 2 | ● |
| UP210-R2-05002 | 5 | 13 | 0.2 | 50 | 6 | 1 | ● |
| UP210-R2-05003 | 5 | 13 | 0.3 | 50 | 6 | 1 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC以下) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

# UP210-R2

2 Flute Corner Radius

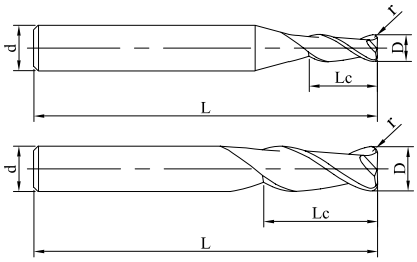



Fig1




Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UP210-R2-05005 | 5 | 13 | 0.5 | 50 | 6 | 1 | ● |
| UP210-R2-05010 | 5 | 13 | 1 | 50 | 6 | 1 | ● |
| UP210-R2-06005 | 6 | 16 | 0.5 | 50 | 6 | 2 | ● |
| UP210-R2-06010 | 6 | 16 | 1 | 50 | 6 | 2 | ● |
| UP210-R2-06015 | 6 | 16 | 1.5 | 50 | 6 | 2 | ● |
| UP210-R2-06020 | 6 | 16 | 2 | 50 | 6 | 2 | ● |
| UP210-R2-08003 | 8 | 20 | 0.3 | 60 | 8 | 2 | ○ |
| UP210-R2-08005 | 8 | 20 | 0.5 | 60 | 8 | 2 | ● |
| UP210-R2-08010 | 8 | 20 | 1 | 60 | 8 | 2 | ● |
| UP210-R2-08015 | 8 | 20 | 1.5 | 60 | 8 | 2 | ● |
| UP210-R2-08020 | 8 | 20 | 2 | 60 | 8 | 2 | ○ |
| UP210-R2-10003 | 10 | 25 | 0.3 | 75 | 10 | 2 | ○ |
| UP210-R2-10005 | 10 | 25 | 0.5 | 75 | 10 | 2 | ● |
| UP210-R2-10010 | 10 | 25 | 1 | 75 | 10 | 2 | ● |
| UP210-R2-10015 | 10 | 25 | 1.5 | 75 | 10 | 2 | ● |
| UP210-R2-10020 | 10 | 25 | 2 | 75 | 10 | 2 | ● |
| UP210-R2-10030 | 10 | 25 | 3 | 75 | 10 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC以下) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P457

# UP210-R2

2 Flute Corner Radius

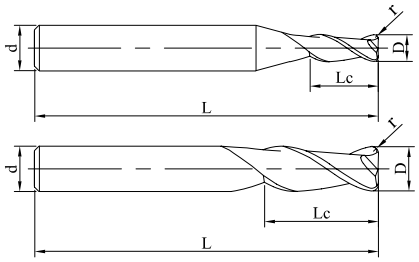



Fig1




Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UP210-R2-12005 | 12 | 30 | 0.5 | 75 | 12 | 2 | ● |
| UP210-R2-12010 | 12 | 30 | 1 | 75 | 12 | 2 | ● |
| UP210-R2-12015 | 12 | 30 | 1.5 | 75 | 12 | 2 | ● |
| UP210-R2-12020 | 12 | 30 | 2 | 75 | 12 | 2 | ● |
| UP210-R2-12030 | 12 | 30 | 3 | 75 | 12 | 2 | ● |
| UP210-R2-14010 | 14 | 32 | 1 | 100 | 14 | 2 | ○ |
| UP210-R2-14020 | 14 | 32 | 2 | 100 | 14 | 2 | ○ |
| UP210-R2-16005 | 16 | 36 | 0.5 | 100 | 16 | 2 | ○ |
| UP210-R2-16010 | 16 | 36 | 1 | 100 | 16 | 2 | ● |
| UP210-R2-16020 | 16 | 36 | 2 | 100 | 16 | 2 | ● |
| UP210-R2-16030 | 16 | 36 | 3 | 100 | 16 | 2 | ● |
| UP210-R2-18010 | 18 | 40 | 1 | 100 | 18 | 2 | ○ |
| UP210-R2-18020 | 18 | 40 | 2 | 100 | 18 | 2 | ○ |
| UP210-R2-20010 | 20 | 45 | 1 | 100 | 20 | 2 | ○ |
| UP210-R2-20020 | 20 | 45 | 2 | 100 | 20 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC以下) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P457

# UP210-RH2

2 Flute Corner Radius, with Long Shank Length

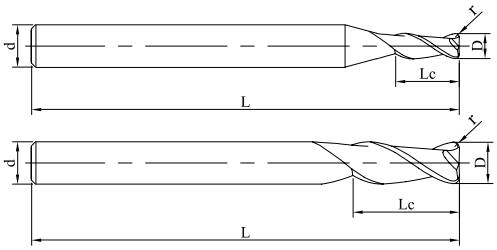



Fig1




Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UP210-RH2-04005 | 4 | 11 | 0.5 | 75 | 4 | 1 | ○ |
| UP210-RH2-06005 | 6 | 16 | 0.5 | 75 | 6 | 2 | ● |
| UP210-RH2-06010 | 6 | 16 | 1 | 75 | 6 | 2 | ● |
| UP210-RH2-06015 | 6 | 16 | 1.5 | 75 | 6 | 2 | ● |
| UP210-RH2-08005 | 8 | 20 | 0.5 | 100 | 8 | 2 | ● |
| UP210-RH2-08010 | 8 | 20 | 1 | 100 | 8 | 2 | ● |
| UP210-RH2-08015 | 8 | 20 | 1.5 | 100 | 8 | 2 | ● |
| UP210-RH2-10005 | 10 | 25 | 0.5 | 100 | 10 | 2 | ● |
| UP210-RH2-10010 | 10 | 25 | 1 | 100 | 10 | 2 | ● |
| UP210-RH2-10015 | 10 | 25 | 1.5 | 100 | 10 | 2 | ● |
| UP210-RH2-10020 | 10 | 25 | 2 | 100 | 10 | 2 | ○ |
| UP210-RH2-12005 | 12 | 30 | 0.5 | 100 | 12 | 2 | ● |
| UP210-RH2-12010 | 12 | 30 | 1 | 100 | 12 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC以下) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P457

# UP210-RH2

2 Flute Corner Radius, with Long Shank Length

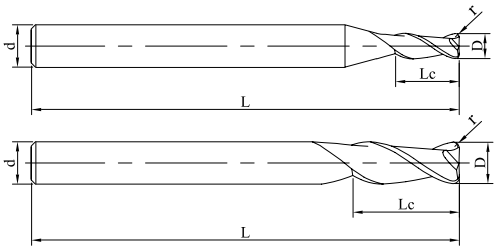



Fig1




Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UP210-RH2-12015 | 12 | 30 | 1.5 | 100 | 12 | 2 | ● |
| UP210-RH2-12020 | 12 | 30 | 2 | 100 | 12 | 2 | ● |
| UP210-RH2-14010 | 14 | 36 | 1 | 150 | 14 | 2 | ○ |
| UP210-RH2-14020 | 14 | 36 | 2 | 150 | 14 | 2 | ○ |
| UP210-RH2-16005 | 16 | 36 | 0.5 | 150 | 16 | 2 | ● |
| UP210-RH2-16010 | 16 | 36 | 1 | 150 | 16 | 2 | ● |
| UP210-RH2-16015 | 16 | 36 | 1.5 | 150 | 16 | 2 | ● |
| UP210-RH2-16020 | 16 | 36 | 2 | 150 | 16 | 2 | ● |
| UP210-RH2-18010 | 18 | 45 | 1 | 150 | 18 | 2 | ○ |
| UP210-RH2-18020 | 18 | 45 | 2 | 150 | 18 | 2 | ○ |
| UP210-RH2-20010 | 20 | 45 | 1 | 150 | 20 | 2 | ○ |
| UP210-RH2-20020 | 20 | 45 | 2 | 150 | 20 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC以下) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P457

# UP210-R4

4 Flute Corner Radius

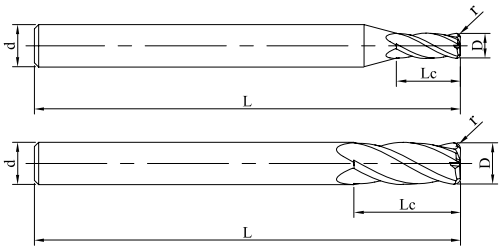



Fig1




Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UP210-R4-01002 | 1 | 3 | 0.2 | 50 | 4 | 1 | ○ |
| UP210-R4-01502 | 1.5 | 5 | 0.2 | 50 | 4 | 1 | ● |
| UP210-R4-02002 | 2 | 6 | 0.2 | 50 | 4 | 1 | ● |
| UP210-R4-03002 | 3 | 9 | 0.2 | 50 | 4 | 1 | ● |
| UP210-R4-03003 | 3 | 9 | 0.3 | 50 | 4 | 1 | ● |
| UP210-R4-03005 | 3 | 9 | 0.5 | 50 | 4 | 1 | ● |
| UP210-R4-04002 | 4 | 11 | 0.2 | 50 | 4 | 2 | ● |
| UP210-R4-04003 | 4 | 11 | 0.3 | 50 | 4 | 2 | ● |
| UP210-R4-04005 | 4 | 11 | 0.5 | 50 | 4 | 2 | ● |
| UP210-R4-04010 | 4 | 11 | 1 | 50 | 4 | 2 | ● |
| UP210-R4-04510 | 4.5 | 12 | 1 | 50 | 6 | 1 | ● |
| UP210-R4-05002 | 5 | 13 | 0.2 | 50 | 6 | 1 | ● |
| UP210-R4-05005 | 5 | 13 | 0.5 | 50 | 6 | 1 | ● |
| UP210-R4-05010 | 5 | 13 | 1 | 50 | 6 | 1 | ● |
| UP210-R4-05015 | 5 | 13 | 1.5 | 50 | 6 | 1 | ○ |
| UP210-R4-06002 | 6 | 16 | 0.2 | 50 | 6 | 2 | ● |
| UP210-R4-06005 | 6 | 16 | 0.5 | 50 | 6 | 2 | ● |

●Stock ○Available upon Orde

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

# UP210-R4

4 Flute Corner Radius

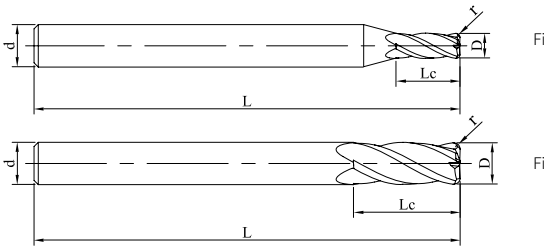



Fig1




Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UP210-R4-06010 | 6 | 16 | 1 | 50 | 6 | 2 | ● |
| UP210-R4-06015 | 6 | 16 | 1.5 | 50 | 6 | 2 | ● |
| UP210-R4-08003 | 8 | 20 | 0.3 | 60 | 8 | 2 | ● |
| UP210-R4-08005 | 8 | 20 | 0.5 | 60 | 8 | 2 | ● |
| UP210-R4-08010 | 8 | 20 | 1 | 60 | 8 | 2 | ● |
| UP210-R4-08015 | 8 | 20 | 1.5 | 60 | 8 | 2 | ● |
| UP210-R4-08020 | 8 | 20 | 2 | 60 | 8 | 2 | ● |
| UP210-R4-10002 | 10 | 25 | 0.2 | 75 | 10 | 2 | ● |
| UP210-R4-10003 | 10 | 25 | 0.3 | 75 | 10 | 2 | ● |
| UP210-R4-10005 | 10 | 25 | 0.5 | 75 | 10 | 2 | ● |
| UP210-R4-10010 | 10 | 25 | 1 | 75 | 10 | 2 | ● |
| UP210-R4-10015 | 10 | 25 | 1.5 | 75 | 10 | 2 | ● |
| UP210-R4-10020 | 10 | 25 | 2 | 75 | 10 | 2 | ● |
| UP210-R4-10025 | 10 | 25 | 2.5 | 75 | 10 | 2 | ● |
| UP210-R4-10030 | 10 | 25 | 3 | 75 | 10 | 2 | ○ |
| UP210-R4-12005 | 12 | 30 | 0.5 | 75 | 12 | 2 | ● |
| UP210-R4-12010 | 12 | 30 | 1 | 75 | 12 | 2 | ● |

●Stock ○Available upon Orde

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

# UP210-R4

4 Flute Corner Radius

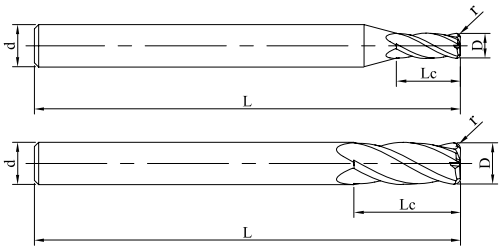



Fig1




Fig2



SHANK h6 | 4 | AlCrSiN | 35° Helix | Corner-R | L

See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UP210-R4-12015 | 12 | 30 | 1.5 | 75 | 12 | 2 | ● |
| UP210-R4-12020 | 12 | 30 | 2 | 75 | 12 | 2 | ● |
| UP210-R4-12025 | 12 | 30 | 2.5 | 75 | 12 | 2 | ● |
| UP210-R4-12030 | 12 | 30 | 3 | 75 | 12 | 2 | ● |
| UP210-R4-14010 | 14 | 32 | 1 | 100 | 14 | 2 | ● |
| UP210-R4-14020 | 14 | 32 | 2 | 100 | 14 | 2 | ● |
| UP210-R4-16005 | 16 | 36 | 0.5 | 100 | 16 | 2 | ● |
| UP210-R4-16010 | 16 | 36 | 1 | 100 | 16 | 2 | ● |
| UP210-R4-16020 | 16 | 36 | 2 | 100 | 16 | 2 | ● |
| UP210-R4-16030 | 16 | 36 | 3 | 100 | 16 | 2 | ● |
| UP210-R4-18010 | 18 | 40 | 1 | 100 | 18 | 2 | ○ |
| UP210-R4-18020 | 18 | 40 | 2 | 100 | 18 | 2 | ○ |
| UP210-R4-20010 | 20 | 45 | 1 | 100 | 20 | 2 | ● |
| UP210-R4-20020 | 20 | 45 | 2 | 100 | 20 | 2 | ● |
| UP210-R4-20030 | 20 | 45 | 3 | 100 | 20 | 2 | ● |
| UP210-R4-20040 | 20 | 45 | 4 | 100 | 20 | 2 | ● |
| UP210-R4-20050 | 20 | 45 | 5 | 100 | 20 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

# UP210-RH4

4 Flute Corner Radius, with Long Shank Length

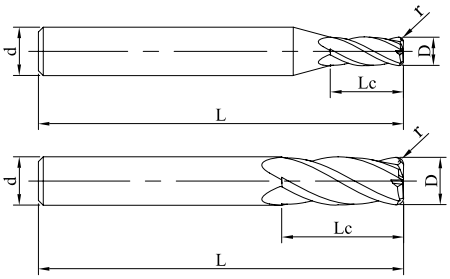



Fig1




Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UP210-RH4-03005 | 3 | 9 | 0.5 | 75 | 4 | 1 | ○ |
| UP210-RH4-04005 | 4 | 11 | 0.5 | 75 | 4 | 2 | ● |
| UP210-RH4-06005 | 6 | 16 | 0.5 | 75 | 6 | 2 | ● |
| UP210-RH4-06010 | 6 | 16 | 1 | 75 | 6 | 2 | ● |
| UP210-RH4-06015 | 6 | 16 | 1.5 | 75 | 6 | 2 | ○ |
| UP210-RH4-08005 | 8 | 20 | 0.5 | 100 | 8 | 2 | ● |
| UP210-RH4-08010 | 8 | 20 | 1 | 100 | 8 | 2 | ● |
| UP210-RH4-08015 | 8 | 20 | 1.5 | 100 | 8 | 2 | ● |
| UP210-RH4-08020 | 8 | 20 | 2 | 100 | 8 | 2 | ● |
| UP210-RH4-10005 | 10 | 25 | 0.5 | 100 | 10 | 2 | ● |
| UP210-RH4-10010 | 10 | 25 | 1 | 100 | 10 | 2 | ● |
| UP210-RH4-10015 | 10 | 25 | 1.5 | 100 | 10 | 2 | ● |
| UP210-RH4-10020 | 10 | 25 | 2 | 100 | 10 | 2 | ● |
| UP210-RH4-12005 | 12 | 30 | 0.5 | 100 | 12 | 2 | ● |
| UP210-RH4-12010 | 12 | 30 | 1 | 100 | 12 | 2 | ● |
| UP210-RH4-12015 | 12 | 30 | 1.5 | 100 | 12 | 2 | ● |
| UP210-RH4-12020 | 12 | 30 | 2 | 100 | 12 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

# UP210-RH4

4 Flute Corner Radius, with Long Shank Length

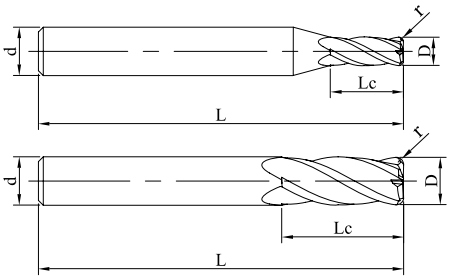



Fig1




Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UP210-RH4-12030 | 12 | 30 | 3 | 100 | 12 | 2 | ● |
| UP210-RH4-14010 | 14 | 36 | 1 | 150 | 14 | 2 | ○ |
| UP210-RH4-14020 | 14 | 36 | 2 | 150 | 14 | 2 | ○ |
| UP210-RH4-16005 | 16 | 36 | 0.5 | 150 | 16 | 2 | ○ |
| UP210-RH4-16010 | 16 | 36 | 1 | 150 | 16 | 2 | ● |
| UP210-RH4-16015 | 16 | 36 | 1.5 | 150 | 16 | 2 | ○ |
| UP210-RH4-16020 | 16 | 36 | 2 | 150 | 16 | 2 | ○ |
| UP210-RH4-16030 | 16 | 36 | 3 | 150 | 16 | 2 | ○ |
| UP210-RH4-18010 | 18 | 45 | 1 | 150 | 18 | 2 | ○ |
| UP210-RH4-18020 | 18 | 45 | 2 | 150 | 18 | 2 | ○ |
| UP210-RH4-20010 | 20 | 45 | 1 | 150 | 20 | 2 | ○ |
| UP210-RH4-20020 | 20 | 45 | 2 | 150 | 20 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | 0 -0.02 |
| D>12 | 0 -0.03 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

# UP210-R4A

4 Flute, Corner Radius-45°Helix

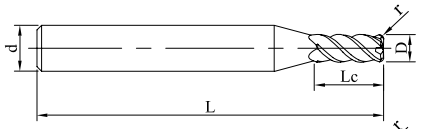



Fig1

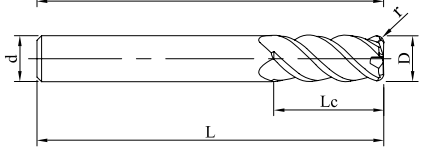



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UP210-R4A-04005 | 4 | 11 | 0.5 | 50 | 4 | 2 | ● |
| UP210-R4A-04010 | 4 | 11 | 1 | 50 | 4 | 2 | ● |
| UP210-R4A-06005 | 6 | 16 | 0.5 | 50 | 6 | 2 | ● |
| UP210-R4A-06010 | 6 | 16 | 1 | 50 | 6 | 2 | ● |
| UP210-R4A-06015 | 6 | 16 | 1.5 | 50 | 6 | 2 | ○ |
| UP210-R4A-08003 | 8 | 20 | 0.3 | 60 | 8 | 2 | ● |
| UP210-R4A-08005 | 8 | 20 | 0.5 | 60 | 8 | 2 | ● |
| UP210-R4A-08010 | 8 | 20 | 1 | 60 | 8 | 2 | ● |
| UP210-R4A-08015 | 8 | 20 | 1.5 | 60 | 8 | 2 | ○ |
| UP210-R4A-08020 | 8 | 20 | 2 | 60 | 8 | 2 | ○ |
| UP210-R4A-10002 | 10 | 25 | 0.2 | 75 | 10 | 2 | ● |
| UP210-R4A-10005 | 10 | 25 | 0.5 | 75 | 10 | 2 | ● |
| UP210-R4A-10010 | 10 | 25 | 1 | 75 | 10 | 2 | ● |
| UP210-R4A-10015 | 10 | 25 | 1.5 | 75 | 10 | 2 | ○ |
| UP210-R4A-10020 | 10 | 25 | 2 | 75 | 10 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

# UP210-R4A

4 Flute, Corner Radius-45°Helix

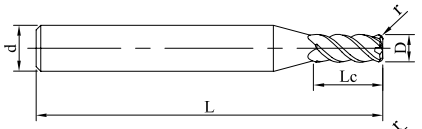



Fig1

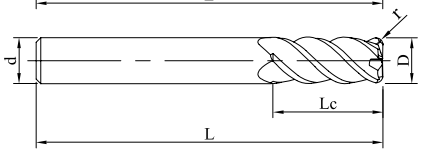



Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UP210-R4A-10025 | 10 | 25 | 2.5 | 75 | 10 | 2 | ○ |
| UP210-R4A-10030 | 10 | 25 | 3 | 75 | 10 | 2 | ○ |
| UP210-R4A-12005 | 12 | 30 | 0.5 | 75 | 12 | 2 | ● |
| UP210-R4A-12010 | 12 | 30 | 1 | 75 | 12 | 2 | ● |
| UP210-R4A-12015 | 12 | 30 | 1.5 | 75 | 12 | 2 | ○ |
| UP210-R4A-12020 | 12 | 30 | 2 | 75 | 12 | 2 | ○ |
| UP210-R4A-12025 | 12 | 30 | 2.5 | 75 | 12 | 2 | ○ |
| UP210-R4A-12030 | 12 | 30 | 3 | 75 | 12 | 2 | ○ |
| UP210-R4A-16005 | 16 | 36 | 0.5 | 100 | 16 | 2 | ○ |
| UP210-R4A-16010 | 16 | 36 | 1 | 100 | 16 | 2 | ○ |
| UP210-R4A-16020 | 16 | 36 | 2 | 100 | 16 | 2 | ○ |
| UP210-R4A-16030 | 16 | 36 | 3 | 100 | 16 | 2 | ○ |
| UP210-R4A-20010 | 20 | 45 | 1 | 100 | 20 | 2 | ○ |
| UP210-R4A-20020 | 20 | 45 | 2 | 100 | 20 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

# UP210-B2

2 Flute, Ballnose

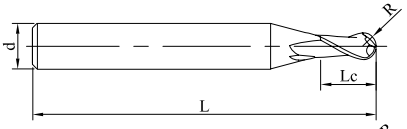



Fig1

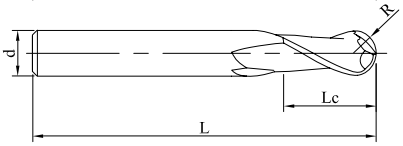



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | R | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UP210-B2-00801 | 0.8 | 0.4 | 1.6 | 50 | 4 | 1 | ● |
| UP210-B2-00901 | 0.9 | 0.45 | 1.8 | 50 | 4 | 1 | ● |
| UP210-B2-01002 | 1 | 0.5 | 2 | 50 | 4 | 1 | ● |
| UP210-B2-61002 | 1 | 0.5 | 2 | 50 | 6 | 1 | ● |
| UP210-B2-01503 | 1.5 | 0.75 | 3 | 50 | 4 | 1 | ● |
| UP210-B2-61503 | 1.5 | 0.75 | 3 | 50 | 6 | 1 | ● |
| UP210-B2-02004 | 2 | 1 | 4 | 50 | 4 | 1 | ● |
| UP210-B2-62004 | 2 | 1 | 4 | 50 | 6 | 1 | ● |
| UP210-B2-02505 | 2.5 | 1.25 | 5 | 50 | 4 | 1 | ● |
| UP210-B2-03006 | 3 | 1.5 | 6 | 50 | 4 | 1 | ● |
| UP210-B2-63006 | 3 | 1.5 | 6 | 50 | 6 | 1 | ● |
| UP210-B2-04008 | 4 | 2 | 8 | 50 | 4 | 2 | ● |
| UP210-B2-64008 | 4 | 2 | 8 | 50 | 6 | 1 | ● |
| UP210-B2-05010 | 5 | 2.5 | 10 | 50 | 6 | 1 | ● |

●Stock ○Available upon Order

| R | Tol |
|---|---|
| R≤1.5 | $^{0}_{-0.01}$ |
| 1.5<R<3 | $^{0}_{-0.015}$ |
| R≥12 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P460

# UP210-B2

2 Flute, Ballnose

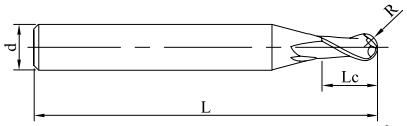



Fig1

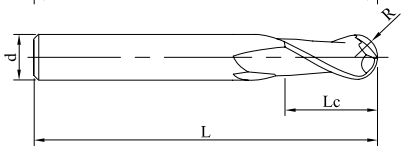



Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | R | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UP210-B2-05510 | 5.5 | 2.75 | 10 | 50 | 6 | 1 | ○ |
| UP210-B2-06012 | 6 | 3 | 12 | 50 | 6 | 2 | ● |
| UP210-B2-06012H | 6 | 3 | 12 | 60 | 6 | 2 | ● |
| UP210-B2-07014 | 7 | 3.5 | 14 | 60 | 8 | 1 | ● |
| UP210-B2-08014 | 8 | 4 | 14 | 60 | 8 | 2 | ● |
| UP210-B2-09016 | 9 | 4.5 | 16 | 75 | 10 | 1 | ● |
| UP210-B2-10018 | 10 | 5 | 18 | 75 | 10 | 2 | ● |
| UP210-B2-11020 | 11 | 5.5 | 20 | 75 | 12 | 1 | ● |
| UP210-B2-12022 | 12 | 6 | 22 | 75 | 12 | 2 | ● |
| UP210-B2-13026 | 13 | 6.5 | 26 | 90 | 14 | 1 | ○ |
| UP210-B2-14026 | 14 | 7 | 26 | 90 | 14 | 2 | ● |
| UP210-B2-15030 | 15 | 7.5 | 30 | 100 | 16 | 1 | ● |
| UP210-B2-16030 | 16 | 8 | 30 | 100 | 16 | 2 | ● |
| UP210-B2-18034 | 18 | 9 | 34 | 100 | 18 | 2 | ○ |
| UP210-B2-20038 | 20 | 10 | 38 | 100 | 20 | 2 | ● |

●Stock ○Available upon Order

| R | Tol |
|---|---|
| R≤1.5 | $^{0}_{-0.01}$ |
| 1.5<R<3 | $^{0}_{-0.015}$ |
| R≥3 | $^{0}_{-0.02}$ |

unit(mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P460

# UP210-BH2

2 Flute Ballnose, with Long Shank Length

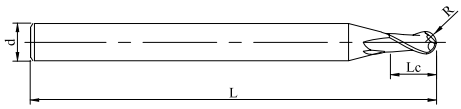



Fig1

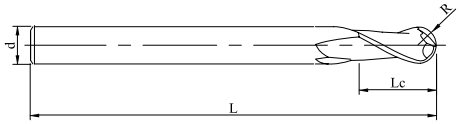



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | R | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UP210-BH2-02004 | 2 | 1 | 4 | 75 | 4 | 1 | ● |
| UP210-BH2-62004 | 2 | 1 | 4 | 75 | 6 | 1 | ● |
| UP210-BH2-03006 | 3 | 1.5 | 6 | 75 | 4 | 1 | ● |
| UP210-BH2-63006 | 3 | 1.5 | 6 | 75 | 6 | 1 | ● |
| UP210-BH2-04008 | 4 | 2 | 8 | 75 | 4 | 2 | ● |
| UP210-BH2-64008 | 4 | 2 | 8 | 75 | 6 | 1 | ● |
| UP210-BH2-05010 | 5 | 2.5 | 10 | 75 | 6 | 1 | ● |
| UP210-BH2-06012 | 6 | 3 | 12 | 75 | 6 | 2 | ● |
| UP210-BH2-06012H | 6 | 3 | 12 | 100 | 6 | 2 | ○ |
| UP210-BH2-07014 | 7 | 3.5 | 14 | 100 | 8 | 1 | ○ |
| UP210-BH2-08014 | 8 | 4 | 14 | 100 | 8 | 2 | ● |
| UP210-BH2-09016 | 9 | 4.5 | 16 | 100 | 10 | 1 | ○ |
| UP210-BH2-10018 | 10 | 5 | 18 | 100 | 10 | 2 | ● |
| UP210-BH2-11020 | 11 | 5.5 | 20 | 100 | 12 | 1 | ○ |
| UP210-BH2-12022 | 12 | 6 | 22 | 100 | 12 | 2 | ● |
| UP210-BH2-14026 | 14 | 7 | 26 | 150 | 14 | 2 | ○ |

●Stock ○Available upon Order

| R | Tol |
|---|---|
| R≤1.5 | 0 -0.01 |
| 1.5<R<3 | 0 -0.015 |
| R≥3 | 0 -0.02 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P460

# UP210-BH2

2 Flute Ballnose, with Long Shank Length

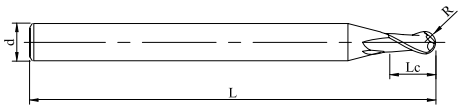



Fig1

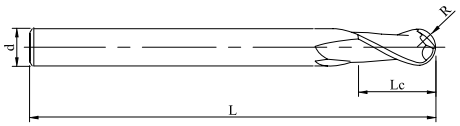



Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | R | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UP210-BH2-16030 | 16 | 8 | 30 | 150 | 16 | 2 | ● |
| UP210-BH2-18034 | 18 | 9 | 34 | 150 | 18 | 2 | ○ |
| UP210-BH2-20038 | 20 | 10 | 38 | 150 | 20 | 2 | ● |

●Stock ○Available upon Order

| R | Tol |
|---|---|
| R≤1.5 | 0 -0.01 |
| 1.5<R<3 | 0 -0.015 |
| R≥3 | 0 -0.02 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P460

# UP210-B4

4 Flute, Ballnose

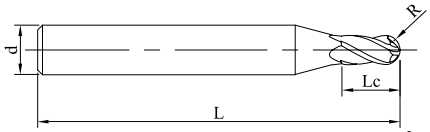



Fig1

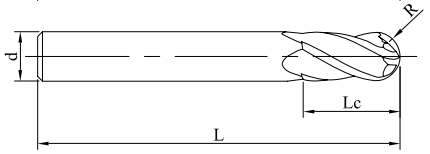



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | R | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UP210-B4-02004 | 2 | 1 | 4 | 50 | 4 | 1 | ● |
| UP210-B4-62004 | 2 | 1 | 4 | 50 | 6 | 1 | ● |
| UP210-B4-02505 | 2.5 | 1.25 | 5 | 50 | 4 | 1 | ○ |
| UP210-B4-03006 | 3 | 1.5 | 6 | 50 | 4 | 1 | ● |
| UP210-B4-63006 | 3 | 1.5 | 6 | 50 | 6 | 1 | ● |
| UP210-B4-04008 | 4 | 2 | 8 | 50 | 4 | 2 | ● |
| UP210-B4-64008 | 4 | 2 | 8 | 50 | 6 | 1 | ● |
| UP210-B4-05010 | 5 | 2.5 | 10 | 50 | 6 | 1 | ● |
| UP210-B4-06012 | 6 | 3 | 12 | 50 | 6 | 2 | ● |
| UP210-B4-07014 | 7 | 3.5 | 14 | 60 | 8 | 1 | ● |
| UP210-B4-08014 | 8 | 4 | 14 | 60 | 8 | 2 | ● |
| UP210-B4-09016 | 9 | 4.5 | 16 | 75 | 10 | 1 | ○ |
| UP210-B4-10018 | 10 | 5 | 18 | 75 | 10 | 2 | ● |
| UP210-B4-11020 | 11 | 5.5 | 20 | 75 | 12 | 1 | ● |
| UP210-B4-12022 | 12 | 6 | 22 | 75 | 12 | 2 | ● |
| UP210-B4-14024 | 14 | 7 | 24 | 75 | 14 | 2 | ● |

●Stock ○Available upon Order

| R | Tol |
|---|---|
| R≤1.5 | 0 -0.01 |
| 1.5<R<3 | 0 -0.015 |
| R≥3 | 0 -0.02 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P460

# UP210-B4

4 Flute, Ballnose

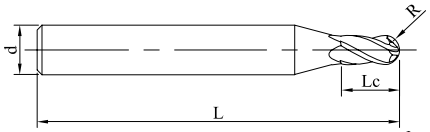



Fig1

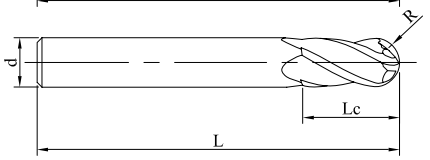



Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | R | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UP210-B4-16030 | 16 | 8 | 30 | 100 | 16 | 2 | ● |
| UP210-B4-18034 | 18 | 9 | 34 | 100 | 18 | 2 | ○ |
| UP210-B4-20038 | 20 | 10 | 38 | 100 | 20 | 2 | ● |

●Stock ○Available upon Order

| R | Tol |
|---|---|
| R≤1.5 | $^{0}_{-0.01}$ |
| 1.5<R<3 | $^{0}_{-0.015}$ |
| R≥3 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P460

# UP210-L60

4 Flute, 90° Chamfer Endmils

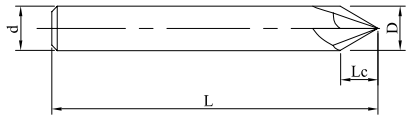



Fig1






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| UP210-L4-04060 | 4 | 3.5 | 50 | 4 | 1 | ● |
| UP210-L4-06060 | 6 | 5.2 | 50 | 6 | 1 | ● |
| UP210-L4-08060 | 8 | 7 | 60 | 8 | 1 | ● |
| UP210-L4-10060 | 10 | 8.7 | 75 | 10 | 1 | ● |
| UP210-L4-12060 | 12 | 10.4 | 75 | 12 | 1 | ● |
| UP210-L4-16060 | 16 | 13.9 | 100 | 16 | 1 | ● |
| UP210-L4-20060 | 20 | 17.4 | 100 | 20 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | 0 -0.02 |
| D>12 | 0 -0.03 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | ○ | ○ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P461

# UP210-L90

4 Flute, 90° Chamfer Endmils

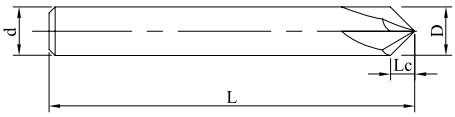



Fig1






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| UP210-L4-04090 | 4 | 2 | 50 | 4 | 1 | ● |
| UP210-L4-06090 | 6 | 3 | 50 | 6 | 1 | ● |
| UP210-L4-08090 | 8 | 4 | 60 | 8 | 1 | ● |
| UP210-L4-10090 | 10 | 5 | 75 | 10 | 1 | ● |
| UP210-L4-12090 | 12 | 6 | 75 | 12 | 1 | ● |
| UP210-L4-16090 | 16 | 8 | 100 | 16 | 1 | ● |
| UP210-L4-20090 | 20 | 10 | 100 | 20 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | ○ | ○ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P461

# UP210-L120

4 Flute, 120° Chamfer Endmils

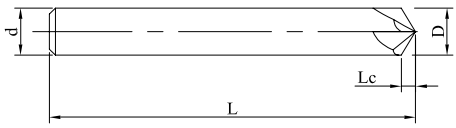



Fig1






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| UP210-L4-040120 | 4 | 1.2 | 50 | 4 | 1 | ● |
| UP210-L4-060120 | 6 | 1.8 | 50 | 6 | 1 | ● |
| UP210-L4-080120 | 8 | 2.4 | 60 | 8 | 1 | ● |
| UP210-L4-100120 | 10 | 2.9 | 75 | 10 | 1 | ● |
| UP210-L4-120120 | 12 | 3.5 | 75 | 12 | 1 | ● |
| UP210-L4-160120 | 16 | 4.6 | 100 | 16 | 1 | ● |
| UP210-L4-200120 | 20 | 5.8 | 100 | 20 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | 0 -0.02 |
| D>12 | 0 -0.03 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | ○ | ○ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P461

# SP210-S3

3 Flute, with Variable Helix

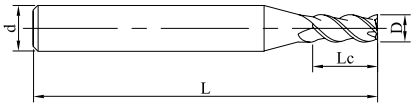



Fig1

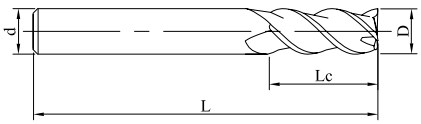



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| SP210-S3-02508 | 2.5 | 8 | 50 | 4 | 1 | ● |
| SP210-S3-03009 | 3 | 9 | 50 | 4 | 1 | ● |
| SP210-S3-04011 | 4 | 11 | 50 | 4 | 2 | ● |
| SP210-S3-05013 | 5 | 13 | 50 | 6 | 1 | ● |
| SP210-S3-06016 | 6 | 16 | 50 | 6 | 2 | ● |
| SP210-S3-08020 | 8 | 20 | 60 | 8 | 2 | ● |
| SP210-S3-10025 | 10 | 25 | 75 | 10 | 2 | ● |
| SP210-S3-12030 | 12 | 30 | 75 | 12 | 2 | ● |
| SP210-S3-16036 | 16 | 36 | 100 | 16 | 2 | ● |
| SP210-S3-20045 | 20 | 45 | 100 | 20 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P461

# SP210-C3

3 Flute, Variable Helix with Chamfer

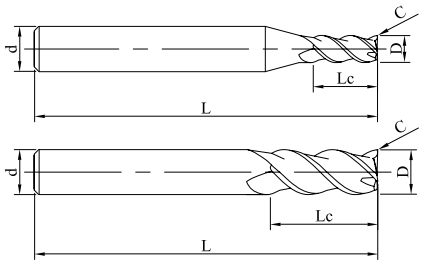



Fig1




Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | C | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SP210-C3-06020 | 6 | 16 | 0.2 | 50 | 6 | 2 | ● |
| SP210-C3-08020 | 8 | 20 | 0.2 | 60 | 8 | 2 | ● |
| SP210-C3-10030 | 10 | 25 | 0.3 | 75 | 10 | 2 | ● |
| SP210-C3-12030 | 12 | 30 | 0.3 | 75 | 12 | 2 | ● |
| SP210-C3-16030 | 16 | 36 | 0.3 | 100 | 16 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

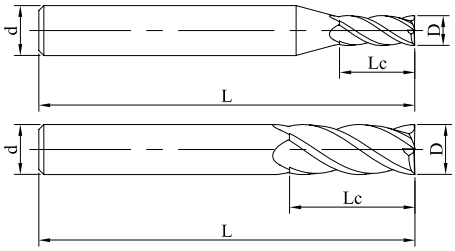
| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P461

# SP210-S4

4 Flute, with Variable Helix









See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| SP210-S4-02006 | 2 | 6 | 50 | 4 | 1 | ● |
| SP210-S4-62006 | 2 | 6 | 50 | 6 | 1 | ○ |
| SP210-S4-03009 | 3 | 9 | 50 | 4 | 1 | ● |
| SP210-S4-63009 | 3 | 9 | 50 | 6 | 1 | ● |
| SP210-S4-04011 | 4 | 11 | 50 | 4 | 2 | ● |
| SP210-S4-64011 | 4 | 11 | 50 | 6 | 1 | ○ |
| SP210-S4-05013 | 5 | 13 | 50 | 6 | 1 | ● |
| SP210-S4-06016 | 6 | 16 | 50 | 6 | 2 | ● |
| SP210-S4-07020 | 7 | 20 | 60 | 8 | 1 | ● |
| SP210-S4-08020 | 8 | 20 | 60 | 8 | 2 | ● |
| SP210-S4-10025 | 10 | 25 | 75 | 10 | 2 | ● |
| SP210-S4-12030 | 12 | 30 | 75 | 12 | 2 | ● |
| SP210-S4-16036 | 16 | 36 | 100 | 16 | 2 | ● |
| SP210-S4-20045 | 20 | 45 | 100 | 20 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P462

# SP210-C4

4 Flute, Variable Helix with Chamfer and with Reduced Neck

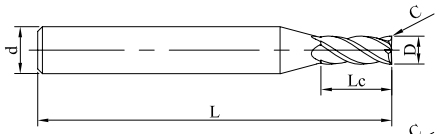



Fig1

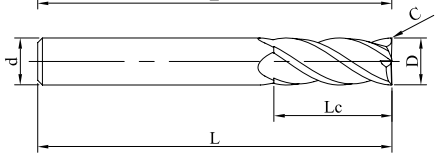



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | C | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SP210-C4-03003 | 3 | 9 | 0.03 | 50 | 4 | 1 | ● |
| SP210-C4-03013 | 3 | 9 | 0.13 | 50 | 4 | 1 | ● |
| SP210-C4-63008 | 3 | 8 | 0.15 | 57 | 6 | 1 | ● |
| SP210-C4-64011 | 4 | 11 | 0.15 | 57 | 6 | 1 | ● |
| SP210-C4-04004 | 4 | 11 | 0.04 | 50 | 4 | 2 | ● |
| SP210-C4-04018 | 4 | 11 | 0.18 | 50 | 4 | 2 | ● |
| SP210-C4-05005 | 5 | 13 | 0.05 | 50 | 6 | 1 | ○ |
| SP210-C4-05013 | 5 | 13 | 0.15 | 57 | 6 | 1 | ● |
| SP210-C4-05020 | 5 | 13 | 0.2 | 50 | 6 | 1 | ● |
| SP210-C4-06006 | 6 | 16 | 0.06 | 50 | 6 | 2 | ● |
| SP210-C4-06013 | 6 | 13 | 0.2 | 57 | 6 | 2 | ● |
| SP210-C4-06020 | 6 | 16 | 0.2 | 50 | 6 | 2 | ● |
| SP210-C4-06040 | 6 | 16 | 0.4 | 50 | 6 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P462

# SP210-C4

4 Flute, Variable Helix with Chamfer and with Reduced Neck

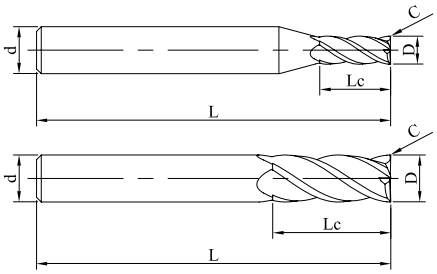



Fig1




Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | C | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SP210-C4-08008 | 8 | 20 | 0.08 | 60 | 8 | 2 | ● |
| SP210-C4-08019 | 8 | 19 | 0.2 | 63 | 8 | 2 | ● |
| SP210-C4-08020 | 8 | 20 | 0.2 | 60 | 8 | 2 | ● |
| SP210-C4-10010 | 10 | 25 | 0.1 | 75 | 10 | 2 | ● |
| SP210-C4-10022 | 10 | 22 | 0.3 | 72 | 10 | 2 | ● |
| SP210-C4-10030 | 10 | 25 | 0.3 | 75 | 10 | 2 | ● |
| SP210-C4-12012 | 12 | 30 | 0.12 | 75 | 12 | 2 | ● |
| SP210-C4-12030 | 12 | 30 | 0.3 | 75 | 12 | 2 | ● |
| SP210-C4-16015 | 16 | 36 | 0.15 | 100 | 16 | 2 | ○ |
| SP210-C4-16040 | 16 | 36 | 0.4 | 100 | 16 | 2 | ○ |
| SP210-C4-20015 | 20 | 45 | 0.15 | 100 | 20 | 2 | ○ |
| SP210-C4-20050 | 20 | 45 | 0.5 | 100 | 20 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P462

# SP210-CN4

4 Flute, Variable Helix with Chamfer and with Reduced Neck

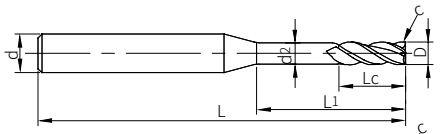



Fig1

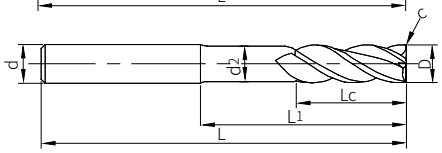



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | C | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SP210-CN4-03013 | 3 | 10 | 0.13 | 2.9 | 18 | 75 | 4 | 1 | ○ |
| SP210-CN4-04018 | 4 | 12 | 0.18 | 3.8 | 20 | 75 | 4 | 2 | ● |
| SP210-CN4-05020 | 5 | 15 | 0.2 | 4.8 | 35 | 75 | 6 | 1 | ● |
| SP210-CN4-06020 | 6 | 16 | 0.2 | 5.8 | 24 | 100 | 6 | 2 | ● |
| SP210-CN4-08020 | 8 | 20 | 0.2 | 7.5 | 30 | 100 | 8 | 2 | ○ |
| SP210-CN4-10030 | 10 | 25 | 0.3 | 9.5 | 40 | 150 | 10 | 2 | ○ |
| SP210-CN4-12030 | 12 | 30 | 0.3 | 11 | 40 | 150 | 12 | 2 | ● |
| SP210-CN4-16040 | 16 | 36 | 0.4 | 15 | 50 | 150 | 16 | 2 | ○ |
| SP210-CN4-20050 | 20 | 45 | 0.5 | 19 | 60 | 150 | 20 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P462

# SP210-R4

4 Flute, with Variable Helix

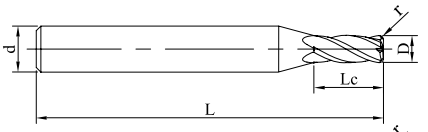



Fig1

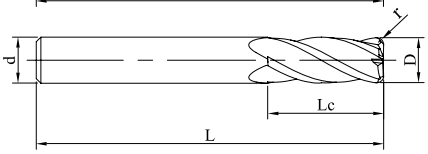



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SP210-R4-03002 | 3 | 9 | 0.2 | 50 | 4 | 1 | ○ |
| SP210-R4-03003 | 3 | 9 | 0.3 | 50 | 4 | 1 | ● |
| SP210-R4-03005 | 3 | 9 | 0.5 | 50 | 4 | 1 | ● |
| SP210-R4-04003 | 4 | 11 | 0.3 | 50 | 4 | 2 | ● |
| SP210-R4-04005 | 4 | 11 | 0.5 | 50 | 4 | 2 | ● |
| SP210-R4-05003 | 5 | 13 | 0.3 | 50 | 6 | 1 | ○ |
| SP210-R4-05005 | 5 | 13 | 0.5 | 50 | 6 | 1 | ● |
| SP210-R4-05010 | 5 | 13 | 1 | 50 | 6 | 1 | ○ |
| SP210-R4-06003 | 6 | 16 | 0.3 | 50 | 6 | 2 | ● |
| SP210-R4-06005 | 6 | 16 | 0.5 | 50 | 6 | 2 | ● |
| SP210-R4-06010 | 6 | 16 | 1 | 50 | 6 | 2 | ● |
| SP210-R4-06015 | 6 | 16 | 1.5 | 50 | 6 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | 0 -0.02 |
| D>12 | 0 -0.03 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P462

# SP210-R4

4刃 Flute, with Variable Helix

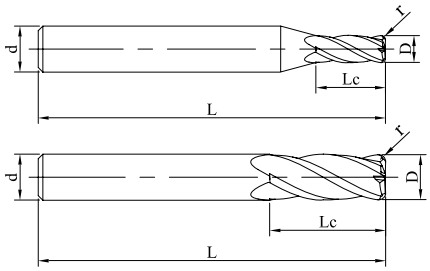



Fig1




Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SP210-R4-08005 | 8 | 20 | 0.5 | 60 | 8 | 2 | ● |
| SP210-R4-08010 | 8 | 20 | 1.0 | 60 | 8 | 2 | ● |
| SP210-R4-08015 | 8 | 20 | 1.5 | 60 | 8 | 2 | ● |
| SP210-R4-08020 | 8 | 20 | 2 | 60 | 8 | 2 | ● |
| SP210-R4-10005 | 10 | 25 | 0.5 | 75 | 10 | 2 | ● |
| SP210-R4-10010 | 10 | 25 | 1 | 75 | 10 | 2 | ● |
| SP210-R4-10015 | 10 | 25 | 1.5 | 75 | 10 | 2 | ● |
| SP210-R4-10020 | 10 | 25 | 2 | 75 | 10 | 2 | ● |
| SP210-R4-10030 | 10 | 25 | 3 | 75 | 10 | 2 | ● |
| SP210-R4-12005 | 12 | 30 | 0.5 | 75 | 12 | 2 | ● |
| SP210-R4-12010 | 12 | 30 | 1 | 75 | 12 | 2 | ● |
| SP210-R4-12015 | 12 | 30 | 1.5 | 75 | 12 | 2 | ● |
| SP210-R4-12020 | 12 | 30 | 2 | 75 | 12 | 2 | ● |
| SP210-R4-12030 | 12 | 30 | 3 | 75 | 12 | 2 | ● |
| SP210-R4-14020 | 14 | 32 | 2 | 75 | 14 | 2 | ○ |
| SP210-R4-16020 | 16 | 36 | 2 | 100 | 16 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P462

# SP210-RH4

4 Flute, with Long Shank Length, Variable Helix

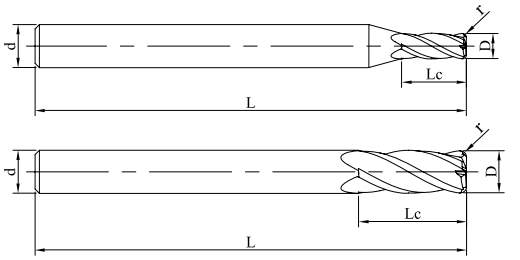



Fig1




Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SP210-RH4-04005 | 4 | 11 | 0.5 | 75 | 4 | 2 | ● |
| SP210-RH4-06005 | 6 | 15 | 0.5 | 75 | 6 | 2 | ● |
| SP210-RH4-08005 | 8 | 20 | 0.5 | 100 | 8 | 2 | ● |
| SP210-RH4-08010 | 8 | 20 | 1 | 100 | 8 | 2 | ● |
| SP210-RH4-10005 | 10 | 25 | 0.5 | 100 | 10 | 2 | ● |
| SP210-RH4-10010 | 10 | 25 | 1 | 100 | 10 | 2 | ● |
| SP210-RH4-12010 | 12 | 30 | 1 | 100 | 12 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P462

# SP210-B2

2 Flute, Ballnose

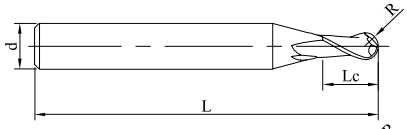



Fig1

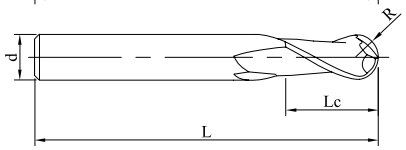



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | R | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SP210-B2-01002 | 1 | 0.5 | 2 | 50 | 4 | 1 | ● |
| SP210-B2-61002 | 1 | 0.5 | 2 | 50 | 6 | 1 | ○ |
| SP210-B2-01503 | 1.5 | 0.75 | 3 | 50 | 4 | 1 | ● |
| SP210-B2-61503 | 1.5 | 0.75 | 3 | 50 | 6 | 1 | ● |
| SP210-B2-02004 | 2 | 1 | 4 | 50 | 4 | 1 | ● |
| SP210-B2-62004 | 2 | 1 | 4 | 50 | 6 | 1 | ● |
| SP210-B2-03006 | 3 | 1.5 | 6 | 50 | 4 | 1 | ● |
| SP210-B2-63006 | 3 | 1.5 | 6 | 50 | 6 | 1 | ● |
| SP210-B2-04008 | 4 | 2 | 8 | 50 | 4 | 2 | ● |
| SP210-B2-06012 | 6 | 3 | 12 | 50 | 6 | 2 | ● |
| SP210-B2-06012H | 6 | 3 | 12 | 60 | 6 | 2 | ● |
| SP210-B2-08014 | 8 | 4 | 14 | 60 | 8 | 2 | ● |
| SP210-B2-10018 | 10 | 5 | 18 | 75 | 10 | 2 | ● |
| SP210-B2-11020 | 11 | 5.5 | 20 | 75 | 12 | 1 | ○ |
| SP210-B2-12022 | 12 | 6 | 22 | 75 | 12 | 2 | ● |

●Stock ○Available upon Order

| R | Tol |
|---|---|
| R≤1.5 | $^{0}_{-0.01}$ |
| 1.5<R<3 | $^{0}_{-0.015}$ |
| R≥3 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P463

# SP210-BH2

2 Flute Ballnose, with Long Shank length

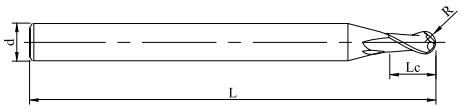



Fig1

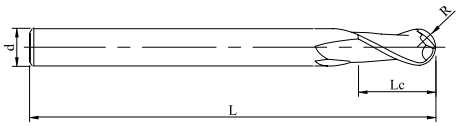



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | R | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SP210-BH2-61002 | 1 | 0.5 | 2 | 75 | 6 | 1 | ● |
| SP210-BH2-61503 | 1.5 | 0.75 | 3 | 75 | 6 | 1 | ● |
| SP210-BH2-02004 | 2 | 1 | 4 | 75 | 4 | 1 | ● |
| SP210-BH2-62004 | 2 | 1 | 4 | 75 | 6 | 1 | ● |
| SP210-BH2-63006 | 3 | 1.5 | 6 | 75 | 6 | 1 | ● |
| SP210-BH2-04008 | 4 | 2 | 8 | 75 | 4 | 2 | ● |
| SP210-BH2-04008H | 4 | 2 | 8 | 100 | 4 | 2 | ● |
| SP210-BH2-64008 | 4 | 2 | 8 | 75 | 6 | 1 | ● |
| SP210-BH2-06012 | 6 | 3 | 12 | 75 | 6 | 2 | ● |
| SP210-BH2-06012H | 6 | 3 | 12 | 100 | 6 | 2 | ● |
| SP210-BH2-08014 | 8 | 4 | 14 | 75 | 8 | 2 | ● |
| SP210-BH2-08014H | 8 | 4 | 14 | 100 | 8 | 2 | ● |
| SP210-BH2-10018 | 10 | 5 | 18 | 100 | 10 | 2 | ● |
| SP210-BH2-12022 | 12 | 6 | 22 | 100 | 12 | 2 | ● |

●Stock ○Available upon Order

| R | Tol |
|---|---|
| R≤1.5 | $^{0}_{-0.01}$ |
| 1.5<R<3 | $^{0}_{-0.015}$ |
| R≥3 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P463

# UPR100-S4

4 Flute, with Roughing Geometry

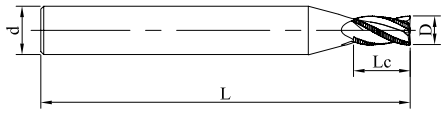



Fig1

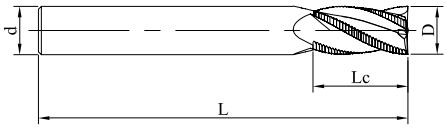



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| UPR100-S4-06015 | 6 | 15 | 50 | 6 | 2 | ● |
| UPR100-S4-08020 | 8 | 20 | 60 | 8 | 2 | ● |
| UPR100-S4-10025 | 10 | 25 | 75 | 10 | 2 | ● |
| UPR100-S4-12030 | 12 | 30 | 75 | 12 | 2 | ● |
| UPR100-S4-14034 | 14 | 34 | 100 | 14 | 2 | ● |
| UPR100-S4-16036 | 16 | 36 | 100 | 16 | 2 | ● |
| UPR100-S4-20045 | 20 | 45 | 100 | 20 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤6 | $^{0}_{-0.03}$ |
| 6 < D≤10 | $^{0}_{-0.04}$ |
| D>10 | $^{0}_{-0.05}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ◎ | ○ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P464

# UPN210-S4

4 Flute, with Roughing Geometry

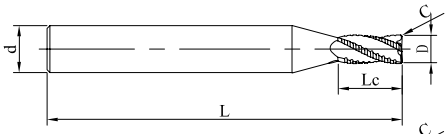



Fig1

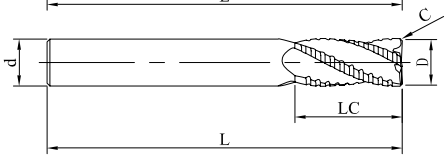



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | C | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UPN210-S4-06016 | 6 | 16 | 0.2 | 50 | 6 | 2 | ● |
| UPN210-S4-08020 | 8 | 20 | 0.2 | 60 | 8 | 2 | ● |
| UPN210-S4-10025 | 10 | 25 | 0.3 | 75 | 10 | 2 | ● |
| UPN210-S4-12030 | 12 | 30 | 0.3 | 75 | 12 | 2 | ● |
| UPN210-S4-16036 | 16 | 36 | 0.4 | 100 | 16 | 2 | ● |
| UPN210-S4-20045 | 20 | 45 | 0.5 | 100 | 20 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤6 | $^{0}_{-0.03}$ |
| 6 < D≤10 | $^{0}_{-0.04}$ |
| D>10 | $^{0}_{-0.05}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ○ | ○ | ◎ | ○ | ○ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P467

# UPR210-S4

4 Flute, with Roughing Geometry

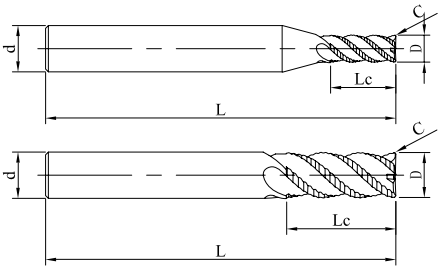



Fig1




Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | C | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UPR210-S4-06016 | 6 | 16 | 0.2 | 50 | 6 | 2 | ● |
| UPR210-S4-08020 | 8 | 20 | 0.2 | 60 | 8 | 2 | ● |
| UPR210-S4-10025 | 10 | 25 | 0.3 | 75 | 10 | 2 | ● |
| UPR210-S4-12030 | 12 | 30 | 0.3 | 75 | 12 | 2 | ● |
| UPR210-S4-16036 | 16 | 36 | 0.4 | 100 | 16 | 2 | ● |
| UPR210-S4-20045 | 20 | 45 | 0.5 | 100 | 20 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤6 | $^{0}_{-0.03}$ |
| 6 < D≤10 | $^{0}_{-0.04}$ |
| D>10 | $^{0}_{-0.05}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ◎ | ○ | ○ | ◎ | ○ | ○ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P466

# UPR300-S3/S4

3/4 Flute, with Roughing Geometry

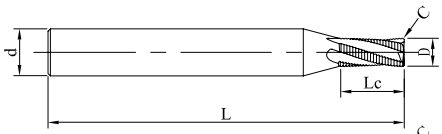



Fig1

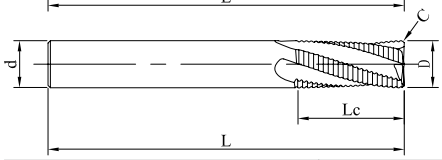



Fig2



SHANK h6 | 4 | AlCrSiN | 20° Helix | Chamfer

See page 149 or guidelines to icons

| Ordering Code | D | Lc | C | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UPR300-S3-06016 | 6 | 16 | 0.2 | 50 | 6 | 2 | ○ |
| UPR300-S3-08020 | 8 | 20 | 0.2 | 60 | 8 | 2 | ○ |
| UPR210-S4-10025 | 10 | 25 | 0.3 | 75 | 10 | 2 | ● |
| UPR210-S4-12030 | 12 | 30 | 0.3 | 75 | 12 | 2 | ● |
| UPR210-S4-16036 | 16 | 36 | 0.4 | 100 | 16 | 2 | ● |
| UPR210-S4-20045 | 20 | 45 | 0.5 | 100 | 20 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤6 | $^{0}_{-0.03}$ |
| 6＜D≤10 | $^{0}_{-0.04}$ |
| D＞10 | $^{0}_{-0.05}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | M | K | H | |
| 1234 | 5 | 123 | 123 | 1 | 23 |
| Carbon Steel, AlloySteel (＜35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Hardened Steels (45-55HRC) | Hardened Steels (＞55HRC) |
| ◎ | ◎ | ○ | ◎ | ○ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P469

# US200-S2

2 Flute, Standard Length

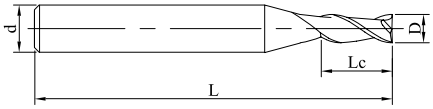



Fig1



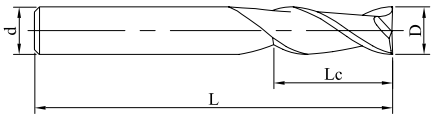



Fig2




See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| US200-S2-00501 | 0.5 | 1 | 50 | 4 | 1 | ● |
| US200-S2-00802 | 0.8 | 2 | 50 | 4 | 1 | ● |
| US200-S2-01003 | 1 | 3 | 50 | 4 | 1 | ● |
| US200-S2-01504 | 1.5 | 4 | 50 | 4 | 1 | ● |
| US200-S2-02006 | 2 | 6 | 50 | 4 | 1 | ● |
| US200-S2-02508 | 2.5 | 8 | 50 | 4 | 1 | ● |
| US200-S2-63008 | 3 | 8 | 50 | 6 | 1 | ● |
| US200-S2-03009 | 3 | 9 | 50 | 4 | 1 | ● |
| US200-S2-03510 | 3.5 | 10 | 50 | 4 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | 0 -0.02 |
| D>12 | 0 -0.03 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | M | K | S | |
| 1234 | 5 | 123 | 123 | 123 | 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Heat-resistant Alloys | Titanium Alloys |
| ○ | ○ | ◎ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P470

# US200-S2

2 Flute, Standard Length

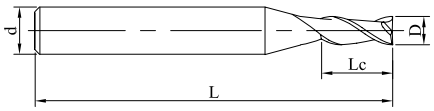



Fig1



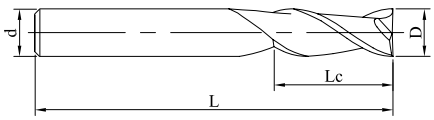



Fig2




See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| US200-S2-04011 | 4 | 11 | 50 | 4 | 2 | ● |
| US200-S2-64011 | 4 | 11 | 50 | 6 | 1 | ○ |
| US200-S2-05013 | 5 | 13 | 50 | 6 | 1 | ● |
| US200-S2-06016 | 6 | 16 | 50 | 6 | 2 | ● |
| US200-S2-08020 | 8 | 20 | 60 | 8 | 2 | ● |
| US200-S2-10025 | 10 | 25 | 75 | 10 | 2 | ● |
| US200-S2-12030 | 12 | 30 | 75 | 12 | 2 | ● |
| US200-S2-16036 | 16 | 36 | 100 | 16 | 2 | ○ |
| US200-S2-20045 | 20 | 45 | 100 | 20 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | M | K | S | |
| 1234 | 5 | 123 | 123 | 123 | 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Heat-resistant Alloys | Titanium Alloys |
| ○ | ○ | ◎ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P470

# US200-SS4

4 Flute, Stub Length

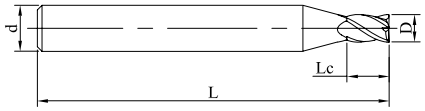



Fig1

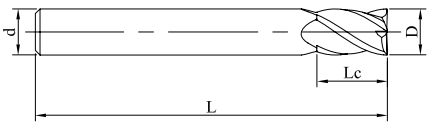



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| US200-SS4-02004 | 2 | 4 | 50 | 4 | 1 | ● |
| US200-SS4-03004 | 3 | 4 | 50 | 4 | 1 | ● |
| US200-SS4-04006 | 4 | 6 | 50 | 4 | 2 | ○ |
| US200-SS4-05008 | 5 | 8 | 50 | 6 | 1 | ○ |
| US200-SS4-06009 | 6 | 9 | 50 | 6 | 2 | ○ |
| US200-SS4-08010 | 8 | 10 | 60 | 8 | 2 | ○ |
| US200-SS4-10012 | 10 | 12 | 75 | 10 | 2 | ○ |
| US200-SS4-12016 | 12 | 16 | 75 | 12 | 2 | ○ |
| US200-SS4-14020 | 14 | 20 | 75 | 14 | 2 | ○ |
| US200-SS4-16024 | 16 | 24 | 100 | 16 | 2 | ○ |
| US200-SS4-18027 | 18 | 27 | 100 | 18 | 2 | ○ |
| US200-SS4-20030 | 20 | 30 | 100 | 20 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | M | K | S | |
| 1234 | 5 | 123 | 123 | 123 | 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Heat-resistant Alloys | Titanium Alloys |
| ○ | ○ | ◎ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P471

# US200-S4

4 Flute, Standard Length

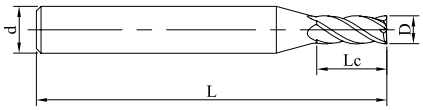



Fig1

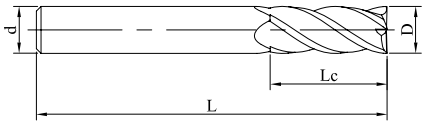



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| US200-S4-01003 | 1 | 3 | 50 | 4 | 1 | ● |
| US200-S4-01504 | 1.5 | 4 | 50 | 4 | 1 | ● |
| US200-S4-02006 | 2 | 6 | 50 | 4 | 1 | ● |
| US200-S4-02508 | 2.5 | 8 | 50 | 4 | 1 | ● |
| US200-S4-63008 | 3 | 8 | 50 | 6 | 1 | ● |
| US200-S4-03009 | 3 | 9 | 50 | 4 | 1 | ● |
| US200-S4-03510 | 3.5 | 10 | 50 | 4 | 1 | ● |
| US200-S4-04011 | 4 | 11 | 50 | 4 | 2 | ● |
| US200-S4-64011 | 4 | 11 | 50 | 6 | 1 | ● |
| US200-S4-05013 | 5 | 13 | 50 | 6 | 1 | ● |
| US200-S4-06016 | 6 | 16 | 50 | 6 | 2 | ● |
| US200-S4-08020 | 8 | 20 | 60 | 8 | 2 | ● |
| US200-S4-10025 | 10 | 25 | 75 | 10 | 2 | ● |
| US200-S4-12030 | 12 | 30 | 75 | 12 | 2 | ● |
| US200-S4-16036 | 16 | 36 | 100 | 16 | 2 | ● |
| US200-S4-20045 | 20 | 45 | 100 | 20 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | M | K | S | |
| 1234 | 5 | 123 | 123 | 123 | 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Heat-resistant Alloys | Titanium Alloys |
| ○ | ○ | ◎ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P471

# US200-SN4

4 Flute,with Reduced Neck Diameter

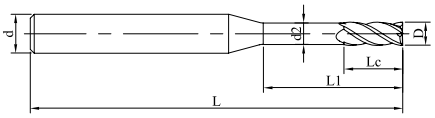



Fig1

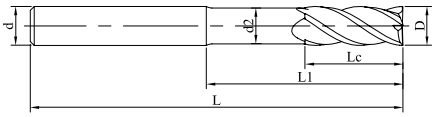



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|
| US200-SN4-02008 | 2 | 4 | 1.9 | 8 | 50 | 4 | 1 | ○ |
| US200-SN4-04012 | 4 | 8 | 3.8 | 12 | 50 | 4 | 2 | ○ |
| US200-SN4-06018 | 6 | 13 | 5.8 | 18 | 50 | 6 | 2 | ○ |
| US200-SN4-08025 | 8 | 19 | 7.5 | 25 | 60 | 8 | 2 | ○ |
| US200-SN4-10032 | 10 | 22 | 9.5 | 32 | 75 | 10 | 2 | ○ |
| US200-SN4-12034 | 12 | 24 | 11 | 34 | 75 | 12 | 2 | ○ |
| US200-SN4-16036 | 16 | 26 | 15 | 36 | 100 | 16 | 2 | ○ |
| US200-SN4-20040 | 20 | 28 | 19 | 40 | 100 | 20 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | 0 -0.02 |
| D>12 | 0 -0.03 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | M | K | S | |
| 1234 | 5 | 123 | 123 | 123 | 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Heat-resistant Alloys | Titanium Alloys |
| ○ | ○ | ◎ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P471

# US200-R2

2 Flute,Corner Radius

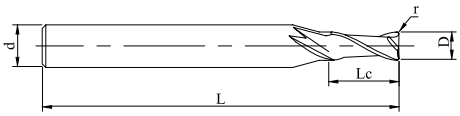



Fig1

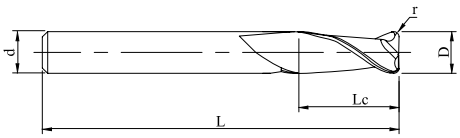



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| US200-R2-03003 | 3 | 9 | 0.3 | 50 | 4 | 1 | ● |
| US200-R2-03005 | 3 | 9 | 0.5 | 50 | 4 | 1 | ○ |
| US200-R2-04002 | 4 | 11 | 0.2 | 50 | 4 | 2 | ● |
| US200-R2-64002 | 4 | 11 | 0.2 | 50 | 6 | 1 | ○ |
| US200-R2-04003 | 4 | 11 | 0.3 | 50 | 4 | 2 | ● |
| US200-R2-64003 | 4 | 11 | 0.3 | 50 | 6 | 1 | ○ |
| US200-R2-64005 | 4 | 11 | 0.5 | 50 | 6 | 1 | ● |
| US200-R2-05002 | 5 | 13 | 0.2 | 50 | 6 | 1 | ● |
| US200-R2-05003 | 5 | 13 | 0.3 | 50 | 6 | 1 | ● |
| US200-R2-05005 | 5 | 13 | 0.5 | 50 | 6 | 1 | ● |
| US200-R2-06002 | 6 | 16 | 0.2 | 50 | 6 | 2 | ○ |
| US200-R2-06003 | 6 | 16 | 0.3 | 50 | 6 | 2 | ● |
| US200-R2-06005 | 6 | 16 | 0.5 | 50 | 6 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ○ | ○ | ◎ | ○ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P470

# US200-R2

2 Flute,Corner Radius

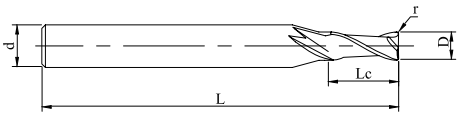



Fig1

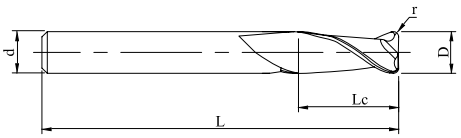



Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| US200-R2-08005 | 8 | 20 | 0.5 | 60 | 8 | 2 | ● |
| US200-R2-08010 | 8 | 20 | 1 | 60 | 8 | 2 | ● |
| US200-R2-10005 | 10 | 25 | 0.5 | 75 | 10 | 2 | ● |
| US200-R2-10010 | 10 | 25 | 1 | 75 | 10 | 2 | ○ |
| US200-R2-10015 | 10 | 25 | 1.5 | 75 | 10 | 2 | ○ |
| US200-R2-12005 | 12 | 30 | 0.5 | 75 | 12 | 2 | ○ |
| US200-R2-12010 | 12 | 30 | 1 | 75 | 12 | 2 | ○ |
| US200-R2-12015 | 12 | 30 | 1.5 | 75 | 12 | 2 | ○ |
| US200-R2-16005 | 16 | 36 | 0.5 | 100 | 16 | 2 | ○ |
| US200-R2-16010 | 16 | 36 | 1 | 100 | 16 | 2 | ○ |
| US200-R2-16020 | 16 | 36 | 2 | 100 | 16 | 2 | ● |
| US200-R2-16030 | 16 | 36 | 3 | 100 | 16 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ○ | ○ | ◎ | ○ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P470

# US200-R3

3 Flute,Corner Radius

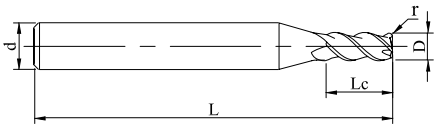



Fig1

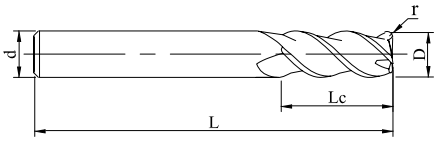



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| US200-R3-02001 | 2 | 6 | 0.1 | 50 | 4 | 1 | ○ |
| US200-R3-02002 | 2 | 6 | 0.2 | 50 | 4 | 1 | ● |
| US200-R3-04002 | 4 | 11 | 0.2 | 50 | 4 | 2 | ● |
| US200-R3-04005 | 4 | 11 | 0.5 | 50 | 4 | 2 | ● |
| US200-R3-06002 | 6 | 16 | 0.2 | 50 | 6 | 2 | ○ |
| US200-R3-06005 | 6 | 16 | 0.5 | 50 | 6 | 2 | ● |
| US200-R3-08005 | 8 | 20 | 0.5 | 60 | 8 | 2 | ● |
| US200-R3-08010 | 8 | 20 | 1 | 60 | 8 | 2 | ● |
| US200-R3-10005 | 10 | 25 | 0.5 | 75 | 10 | 2 | ○ |
| US200-R3-10010 | 10 | 25 | 1 | 75 | 10 | 2 | ● |
| US200-R3-10015 | 10 | 25 | 1.5 | 75 | 10 | 2 | ○ |
| US200-R3-10020 | 10 | 25 | 2 | 75 | 10 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ○ | ○ | ◎ | ○ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P470

# US200-R3

3 Flute,Corner Radius

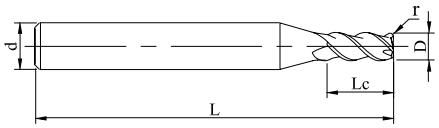



Fig1

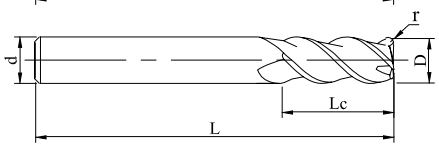



Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| US200-R3-12005 | 12 | 30 | 0.5 | 75 | 12 | 2 | ● |
| US200-R3-12010 | 12 | 30 | 1 | 75 | 12 | 2 | ● |
| US200-R3-12015 | 12 | 30 | 1.5 | 75 | 12 | 2 | ● |
| US200-R3-16005 | 16 | 36 | 0.5 | 100 | 16 | 2 | ● |
| US200-R3-16010 | 16 | 36 | 1 | 100 | 16 | 2 | ● |
| US200-R3-16020 | 16 | 36 | 2 | 100 | 16 | 2 | ● |
| US200-R3-16030 | 16 | 36 | 3 | 100 | 16 | 2 | ● |
| US200-R3-20005 | 20 | 45 | 0.5 | 100 | 20 | 2 | ● |
| US200-R3-20010 | 20 | 45 | 1 | 100 | 20 | 2 | ● |
| US200-R3-20020 | 20 | 45 | 2 | 100 | 20 | 2 | ● |
| US200-R3-20040 | 20 | 45 | 4 | 100 | 20 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ○ | ○ | ◎ | ○ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P470

# US200-R4/RS4

4 Flute,Corner Radius/Corner Radius with Stub length

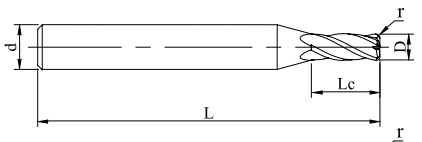



Fig1

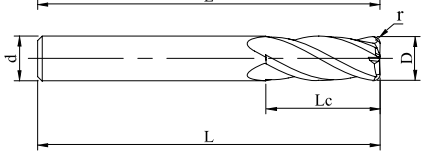



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| US200-R4-02002 | 2 | 6 | 0.2 | 50 | 4 | 1 | ● |
| US200-R4-03003 | 3 | 9 | 0.3 | 50 | 4 | 1 | ● |
| US200-R4-03005 | 3 | 9 | 0.5 | 50 | 4 | 1 | ● |
| US200-R4-64002 | 4 | 11 | 0.2 | 50 | 6 | 1 | ● |
| US200-R4-64003 | 4 | 11 | 0.3 | 50 | 6 | 1 | ● |
| US200-R4-04003 | 4 | 11 | 0.3 | 50 | 4 | 2 | ● |
| US200-R4-04005 | 4 | 11 | 0.5 | 50 | 4 | 2 | ● |
| US200-R4-05005 | 5 | 13 | 0.5 | 50 | 6 | 1 | ● |
| US200-R4-06005 | 6 | 16 | 0.5 | 50 | 6 | 2 | ● |
| US200-RS4-06005 | 6 | 5 | 0.5 | 50 | 6 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ○ | ○ | ◎ | ○ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P471

# US200-R4

4 Flute,Corner Radius

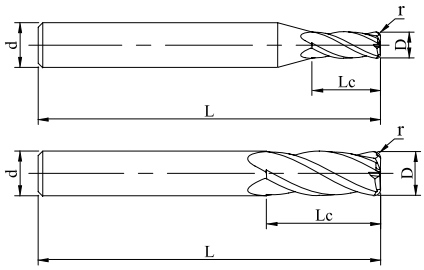



Fig1




Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| US200-R4-08002 | 8 | 20 | 0.2 | 60 | 8 | 2 | ● |
| US200-R4-08005 | 8 | 20 | 0.5 | 60 | 8 | 2 | ● |
| US200-R4-08010 | 8 | 20 | 1 | 60 | 8 | 2 | ● |
| US200-R4-10005 | 10 | 25 | 0.5 | 75 | 10 | 2 | ● |
| US200-R4-10010 | 10 | 25 | 1 | 75 | 10 | 2 | ● |
| US200-R4-12010 | 12 | 30 | 1 | 75 | 12 | 2 | ● |
| US200-R4-12020 | 12 | 30 | 2 | 75 | 12 | 2 | ● |
| US200-R4-16010 | 16 | 36 | 1 | 100 | 16 | 2 | ○ |
| US200-R4-16015 | 16 | 36 | 1.5 | 100 | 16 | 2 | ● |
| US200-R4-20010 | 20 | 45 | 1 | 100 | 20 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| ○ | ○ | ◎ | ○ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P471

# US200-B2

2 Flute,Ballnose

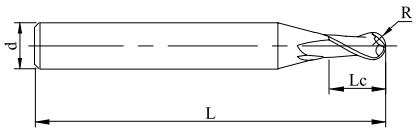



Fig1

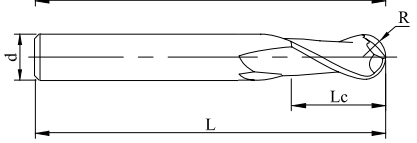



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | R | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| US200-B2-01002 | 1 | 2 | 0.5 | 50 | 4 | 1 | ● |
| US200-B2-01503 | 1.5 | 3 | 0.75 | 50 | 4 | 1 | ● |
| US200-B2-02004 | 2 | 4 | 1 | 50 | 4 | 1 | ● |
| US200-B2-03006 | 3 | 6 | 1.5 | 50 | 4 | 1 | ● |
| US200-B2-63006 | 3 | 6 | 1.5 | 50 | 6 | 1 | ● |
| US200-B2-04008 | 4 | 8 | 2 | 50 | 4 | 2 | ● |
| US200-B2-64008 | 4 | 8 | 2 | 50 | 6 | 1 | ● |
| US200-B2-05010 | 5 | 10 | 2.5 | 50 | 6 | 1 | ● |
| US200-B2-06012 | 6 | 12 | 3 | 50 | 6 | 2 | ● |
| US200-B2-08014 | 8 | 14 | 4 | 60 | 8 | 2 | ● |
| US200-B2-10018 | 10 | 18 | 5 | 75 | 10 | 2 | ● |
| US200-B2-12022 | 12 | 22 | 6 | 75 | 12 | 2 | ● |
| US200-B2-16026 | 16 | 26 | 8 | 100 | 16 | 2 | ● |
| US200-B2-20038 | 20 | 38 | 10 | 100 | 20 | 2 | ○ |

●Stock ○Available upon Order

| R | Tol |
|---|---|
| R<3 | ±0.015 |
| R≥3 | ±0.02 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | M | K | S | |
| 1234 | 5 | 123 | 123 | 123 | 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Heat-resistant Alloys | Titanium Alloys |
| ○ | ○ | ◎ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P471

# US200-B4

4 Flute,Ballnose

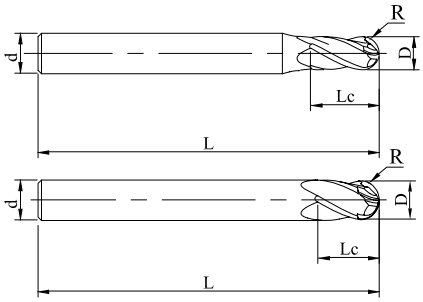



Fig1

Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | R | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| US200-B4-01002 | 1 | 2 | 0.5 | 50 | 4 | 1 | ● |
| US200-B4-01503 | 1.5 | 3 | 0.75 | 50 | 4 | 1 | ● |
| US200-B4-02004 | 2 | 4 | 1 | 50 | 4 | 1 | ● |
| US200-B4-03006 | 3 | 6 | 1.5 | 50 | 4 | 1 | ● |
| US200-B4-63006 | 3 | 1.5 | 6 | 50 | 6 | 1 | ● |
| US200-B4-04008 | 4 | 8 | 2 | 50 | 4 | 2 | ● |
| US200-B4-64008 | 4 | 8 | 2 | 50 | 6 | 1 | ○ |
| US200-B4-05010 | 5 | 10 | 2.5 | 50 | 6 | 1 | ● |
| US200-B4-06012 | 6 | 12 | 3 | 50 | 6 | 2 | ● |
| US200-B4-08014 | 8 | 14 | 4 | 60 | 8 | 2 | ● |
| US200-B4-10018 | 10 | 18 | 5 | 75 | 10 | 2 | ● |
| US200-B4-12022 | 12 | 22 | 6 | 75 | 12 | 2 | ● |
| US200-B4-16026 | 16 | 26 | 8 | 100 | 16 | 2 | ● |
| US200-B4-20038 | 20 | 38 | 10 | 100 | 20 | 2 | ○ |

●Stock ○Available upon Order

| R | Tol |
|---|---|
| R<3 | ±0.015 |
| R⩾3 | ±0.02 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | M | K | S | |
| 1234 | 5 | 123 | 123 | 123 | 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Heat-resistant Alloys | Titanium Alloys |
| ○ | ○ | ◎ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P471

# US300-SS4

4 Flute, Stub Length

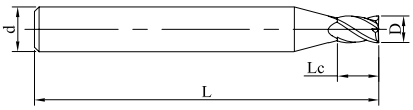



Fig1



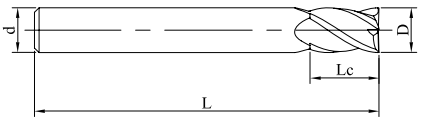



Fig2




See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| US300-SS4-01002 | 1 | 2 | 50 | 4 | 1 | ● |
| US300-SS4-01503 | 1.5 | 3 | 50 | 4 | 1 | ● |
| US300-SS4-02002 | 2 | 2 | 50 | 4 | 1 | ● |
| US300-SS4-02004 | 2 | 4 | 50 | 4 | 1 | ● |
| US300-SS4-03003 | 3 | 3 | 50 | 4 | 1 | ● |
| US300-SS4-03004 | 3 | 4 | 50 | 4 | 1 | ● |
| US300-SS4-04004 | 4 | 4 | 50 | 4 | 2 | ○ |
| US300-SS4-04006 | 4 | 6 | 50 | 4 | 2 | ● |
| US300-SS4-06010 | 6 | 10 | 50 | 6 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | M | K | S | |
| 1234 | 5 | 123 | 123 | 123 | 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Heat-resistant Alloys | Titanium Alloys |
| ○ | ○ | ◎ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P472

# US300-S4

4 Flute, Standard Length

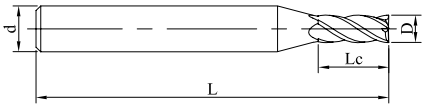



Fig1

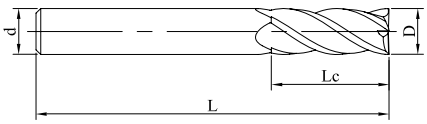



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| US300-S4-01003 | 1 | 3 | 50 | 4 | 1 | ● |
| US300-S4-01503 | 1.5 | 3.5 | 50 | 4 | 1 | ● |
| US300-S4-01504 | 1.5 | 4 | 50 | 4 | 1 | ● |
| US300-S4-02006 | 2 | 6 | 50 | 4 | 1 | ● |
| US300-S4-02508 | 2.5 | 8 | 50 | 4 | 1 | ● |
| US300-S4-03009 | 3 | 9 | 50 | 4 | 1 | ● |
| US300-S4-03510 | 3.5 | 10 | 50 | 4 | 1 | ● |
| US300-S4-04011 | 4 | 11 | 50 | 4 | 2 | ● |
| US300-S4-64011 | 4 | 11 | 50 | 6 | 1 | ● |
| US300-S4-05013 | 5 | 13 | 50 | 6 | 1 | ● |
| US300-S4-06016 | 6 | 16 | 50 | 6 | 2 | ● |
| US300-S4-08020 | 8 | 20 | 60 | 8 | 2 | ● |
| US300-S4-10025 | 10 | 25 | 75 | 10 | 2 | ● |
| US300-S4-12030 | 12 | 30 | 75 | 12 | 2 | ● |
| US300-S4-16036 | 16 | 36 | 100 | 16 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | M | K | S | |
| 1234 | 5 | 123 | 123 | 123 | 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Heat-resistant Alloys | Titanium Alloys |
| ○ | ○ | ◎ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P472

# SS200-CS4

4 Flute, Stub Length with variable Helix

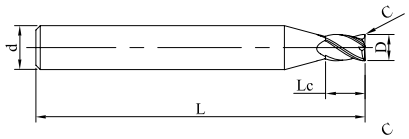



Fig1

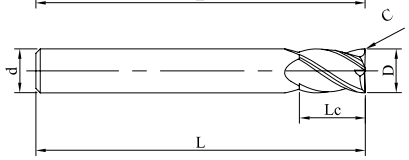



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | C | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SS200-CS4-02002 | 2 | 4 | 0.02 | 50 | 6 | 1 | ● |
| SS200-CS4-03003 | 3 | 6 | 0.03 | 50 | 6 | 1 | ● |
| SS200-CS4-04004 | 4 | 8 | 0.04 | 50 | 6 | 1 | ● |
| SS200-CS4-05005 | 5 | 9 | 0.05 | 50 | 6 | 1 | ● |
| SS200-CS4-06006 | 6 | 10 | 0.06 | 50 | 6 | 2 | ● |
| SS200-CS4-08008 | 8 | 12 | 0.08 | 60 | 8 | 2 | ● |
| SS200-CS4-10010 | 10 | 14 | 0.10 | 75 | 10 | 2 | ● |
| SS200-CS4-12012 | 12 | 16 | 0.12 | 75 | 12 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | 0 -0.04 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | M | K | S | |
| 1234 | 5 | 123 | 123 | 123 | 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Heat-resistant Alloys | Titanium Alloys |
| ○ | ○ | ◎ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P472

# SS200-C4

4 Flute, Stub Length with variable Helix

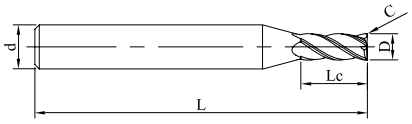



Fig1



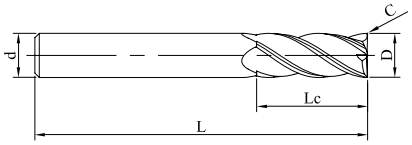



Fig2




See page 149 or guidelines to icons

| Ordering Code | D | Lc | C | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SS200-C4-02002 | 2 | 6 | 0.02 | 50 | 6 | 1 | ● |
| SS200-C4-02502 | 2.5 | 8 | 0.02 | 50 | 6 | 1 | ● |
| SS200-C4-03003 | 3 | 9 | 0.03 | 50 | 6 | 1 | ● |
| SS200-C4-04004 | 4 | 11 | 0.04 | 50 | 6 | 1 | ● |
| SS200-C4-05005 | 5 | 13 | 0.05 | 50 | 6 | 1 | ● |
| SS200-C4-06006 | 6 | 15 | 0.06 | 50 | 6 | 2 | ● |
| SS200-C4-08008 | 8 | 20 | 0.08 | 60 | 8 | 2 | ● |
| SS200-C4-10010 | 10 | 25 | 0.10 | 75 | 10 | 2 | ● |
| SS200-C4-12012 | 12 | 30 | 0.12 | 75 | 12 | 2 | ● |
| SS200-C4-14014 | 14 | 32 | 0.14 | 75 | 14 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.04}$ |
| D>12 | $^{0}_{-0.07}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | M | K | S | |
| 1234 | 5 | 123 | 123 | 123 | 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Heat-resistant Alloys | Titanium Alloys |
| ○ | ○ | ◎ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P472

# UA100-S2

2 Flute, Standard Length

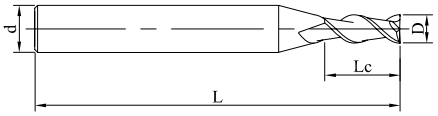



Fig1

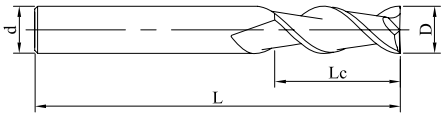



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| UA100-S2-01003 | 1 | 3 | 50 | 4 | 1 | ● |
| UA100-S2-01504 | 1.5 | 4 | 50 | 4 | 1 | ● |
| UA100-S2-02006 | 2 | 6 | 50 | 4 | 1 | ● |
| UA100-S2-03009 | 3 | 9 | 50 | 4 | 1 | ● |
| UA100-S2-63009 | 3 | 9 | 50 | 6 | 1 | ● |
| UA100-S2-04006 | 4 | 6 | 50 | 4 | 2 | ● |
| UA100-S2-04011 | 4 | 11 | 50 | 4 | 2 | ● |
| UA100-S2-64011 | 4 | 11 | 50 | 6 | 1 | ● |
| UA100-S2-04512 | 4.5 | 12 | 50 | 6 | 1 | ● |
| UA100-S2-05013 | 5 | 13 | 50 | 6 | 1 | ● |
| UA100-S2-05516 | 5.5 | 16 | 50 | 6 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ◎ | ◎ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P473

# UA100-S2

2 Flute, Standard Length

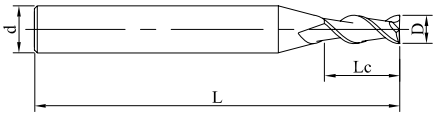



Fig1

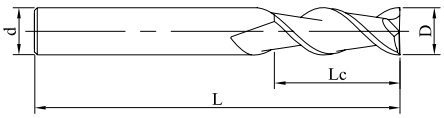
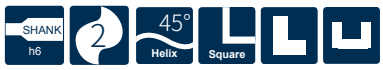



Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| UA100-S2-06006 | 6 | 6 | 50 | 6 | 2 | ● |
| UA100-S2-06012 | 6 | 12 | 50 | 6 | 2 | ● |
| UA100-S2-06016 | 6 | 16 | 50 | 6 | 2 | ● |
| UA100-S2-07020 | 7 | 20 | 60 | 8 | 1 | ○ |
| UA100-S2-08020 | 8 | 20 | 60 | 8 | 2 | ● |
| UA100-S2-09023 | 9 | 23 | 75 | 10 | 1 | ○ |
| UA100-S2-10025 | 10 | 25 | 75 | 10 | 2 | ● |
| UA100-S2-12030 | 12 | 30 | 75 | 12 | 2 | ● |
| UA100-S2-16036 | 16 | 36 | 100 | 16 | 2 | ● |
| UA100-S2-20045 | 20 | 45 | 100 | 20 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | 0 -0.02 |
| D>12 | 0 -0.03 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ◎ | ◎ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P473

# UA100-SL2

2 Flute, Long Flute Length

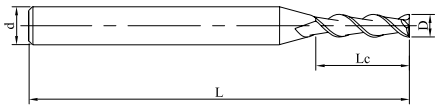



Fig1

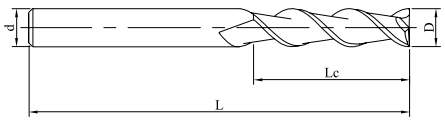



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| UA100-SL2-02020 | 2 | 20 | 75 | 4 | 1 | ● |
| UA100-SL2-03025 | 3 | 25 | 75 | 4 | 1 | ● |
| UA100-SL2-04030 | 4 | 30 | 75 | 4 | 2 | ● |
| UA100-SL2-05030 | 5 | 30 | 75 | 6 | 1 | ● |
| UA100-SL2-06035 | 6 | 35 | 75 | 6 | 2 | ● |
| UA100-SL2-08040 | 8 | 40 | 100 | 8 | 2 | ● |
| UA100-SL2-10045 | 10 | 45 | 100 | 10 | 2 | ● |
| UA100-SL2-12050 | 12 | 50 | 100 | 12 | 2 | ● |
| UA100-SL2-16060 | 16 | 60 | 150 | 16 | 2 | ● |
| UA100-SL2-20070 | 20 | 70 | 150 | 20 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ◎ | ◎ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P473

# UA100-SH2

2 Flute, with Long Shank Length

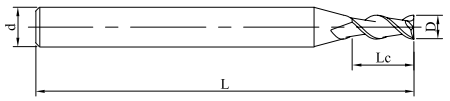



Fig1

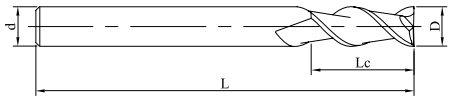



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| UA100-SH2-02006 | 2 | 6 | 75 | 4 | 1 | ● |
| UA100-SH2-03009 | 3 | 9 | 75 | 4 | 1 | ● |
| UA100-SH2-04010 | 4 | 10 | 75 | 4 | 2 | ● |
| UA100-SH2-06016 | 6 | 16 | 75 | 6 | 2 | ● |
| UA100-SH2-08020 | 8 | 20 | 100 | 8 | 2 | ● |
| UA100-SH2-10025 | 10 | 25 | 100 | 10 | 2 | ● |
| UA100-SH2-12030 | 12 | 30 | 100 | 12 | 2 | ● |
| UA100-SH2-16036 | 16 | 36 | 150 | 16 | 2 | ● |
| UA100-SH2-20045 | 20 | 45 | 150 | 20 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | 0 -0.02 |
| D>12 | 0 -0.03 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ◎ | ◎ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P473

# UA100-S3

3 Flute, Standard Length

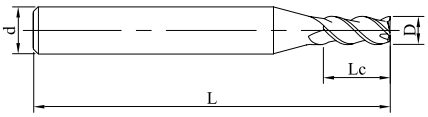



Fig1

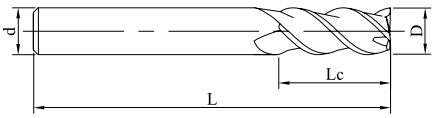



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| UA100-S3-01003 | 1 | 3 | 50 | 4 | 1 | ● |
| UA100-S3-01504 | 1.5 | 4 | 50 | 4 | 1 | ● |
| UA100-S3-02006 | 2 | 6 | 50 | 4 | 1 | ● |
| UA100-S3-02508 | 2.5 | 8 | 50 | 4 | 1 | ● |
| UA100-S3-03009 | 3 | 9 | 50 | 4 | 1 | ● |
| UA100-S3-04011 | 4 | 11 | 50 | 4 | 2 | ● |
| UA100-S3-64011 | 4 | 11 | 50 | 6 | 1 | ● |
| UA100-S3-05013 | 5 | 13 | 50 | 6 | 1 | ● |
| UA100-S3-06012 | 6 | 12 | 50 | 6 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ◎ | ◎ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P474

# UA100-S3

3 Flute, Standard Length

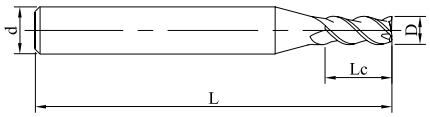



Fig1

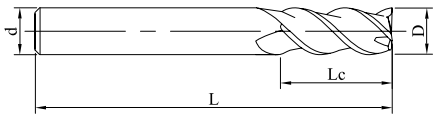



Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| UA100-S3-06016 | 6 | 16 | 50 | 6 | 2 | ● |
| UA100-S3-07020 | 7 | 20 | 60 | 8 | 1 | ● |
| UA100-S3-08020 | 8 | 20 | 60 | 8 | 2 | ● |
| UA100-S3-09023 | 9 | 23 | 75 | 10 | 1 | ● |
| UA100-S3-10025 | 10 | 25 | 75 | 10 | 2 | ● |
| UA100-S3-12030 | 12 | 30 | 75 | 12 | 2 | ● |
| UA100-S3-16036 | 16 | 36 | 100 | 16 | 2 | ● |
| UA100-S3-18038 | 18 | 38 | 100 | 18 | 2 | ● |
| UA100-S3-20045 | 20 | 45 | 100 | 20 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | 0 -0.02 |
| D>12 | 0 -0.03 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ◎ | ◎ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P474

# UA100-SL3

3 Flute, Long Flute Length

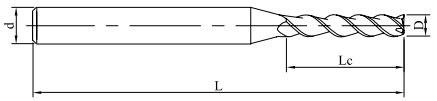



Fig1



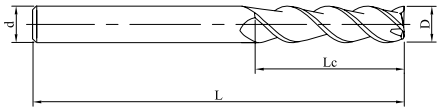



Fig2




See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| UA100-SL3-02020 | 2 | 20 | 75 | 4 | 1 | ● |
| UA100-SL3-03025 | 3 | 25 | 75 | 4 | 1 | ● |
| UA100-SL3-04030 | 4 | 30 | 75 | 4 | 2 | ● |
| UA100-SL3-05030 | 5 | 30 | 75 | 6 | 1 | ● |
| UA100-SL3-06035 | 6 | 35 | 75 | 6 | 2 | ● |
| UA100-SL3-08040 | 8 | 40 | 100 | 8 | 2 | ● |
| UA100-SL3-10045 | 10 | 45 | 100 | 10 | 2 | ● |
| UA100-SL3-12050 | 12 | 50 | 100 | 12 | 2 | ● |
| UA100-SL3-16060 | 16 | 60 | 150 | 16 | 2 | ● |
| UA100-SL3-20070 | 20 | 70 | 150 | 20 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | 0 -0.02 |
| D>12 | 0 -0.03 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ◎ | ◎ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P474

# UA100-SH3

3 Flute, with Long Shank Length

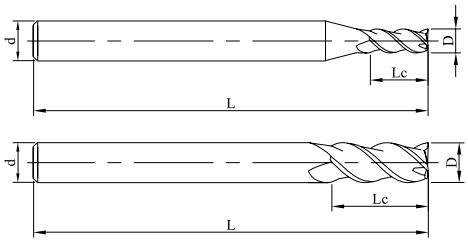



Fig1




Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| UA100-SH3-02008 | 2 | 8 | 75 | 4 | 1 | ● |
| UA100-SH3-03010 | 3 | 10 | 75 | 4 | 1 | ● |
| UA100-SH3-04012 | 4 | 12 | 75 | 4 | 2 | ● |
| UA100-SH3-06016 | 6 | 16 | 75 | 6 | 2 | ● |
| UA100-SH3-08020 | 8 | 20 | 100 | 8 | 2 | ● |
| UA100-SH3-10025 | 10 | 25 | 100 | 10 | 2 | ● |
| UA100-SH3-12030 | 12 | 30 | 100 | 12 | 2 | ● |
| UA100-SH3-16036 | 16 | 36 | 150 | 16 | 2 | ● |
| UA100-SH3-20045 | 20 | 45 | 150 | 20 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ◎ | ◎ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P474

# UA100-R2

2 Flute, Corner Radius

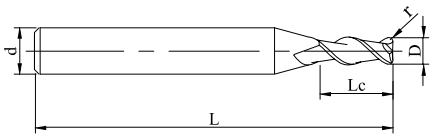



Fig1

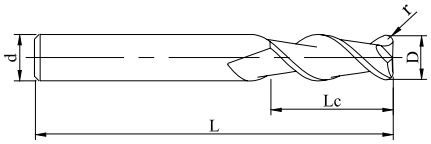



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UA100-R2-01001 | 1 | 3 | 0.1 | 50 | 4 | 1 | ● |
| UA100-R2-02002 | 2 | 6 | 0.2 | 50 | 4 | 1 | ● |
| UA100-R2-03002 | 3 | 9 | 0.2 | 50 | 4 | 1 | ● |
| UA100-R2-03003 | 3 | 9 | 0.3 | 50 | 4 | 1 | ● |
| UA100-R2-63003 | 3 | 9 | 0.3 | 50 | 6 | 1 | ● |
| UA100-R2-03005 | 3 | 9 | 0.5 | 50 | 4 | 1 | ● |
| UA100-R2-63005 | 3 | 9 | 0.5 | 50 | 6 | 1 | ● |
| UA100-R2-04002 | 4 | 11 | 0.2 | 50 | 4 | 2 | ● |
| UA100-R2-04003 | 4 | 11 | 0.3 | 50 | 4 | 2 | ● |
| UA100-R2-64003 | 4 | 11 | 0.3 | 50 | 6 | 1 | ● |
| UA100-R2-04005 | 4 | 11 | 0.5 | 50 | 4 | 2 | ● |
| UA100-R2-64005 | 4 | 11 | 0.5 | 50 | 6 | 1 | ● |
| UA100-R2-04010 | 4 | 11 | 1 | 50 | 4 | 2 | ● |
| UA100-R2-05002 | 5 | 13 | 0.2 | 50 | 6 | 1 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ◎ | ◎ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P473

# UA100-R2

2 Flute, Corner Radius

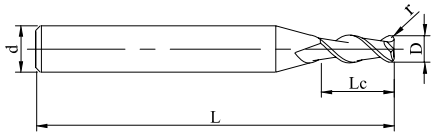



Fig1

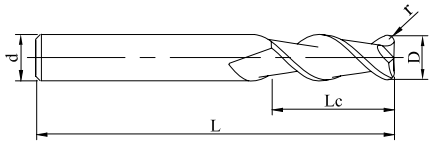
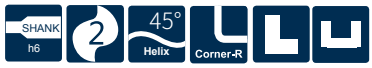



Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UA100-R2-05003 | 5 | 13 | 0.3 | 50 | 6 | 1 | ● |
| UA100-R2-05005 | 5 | 13 | 0.5 | 50 | 6 | 1 | ● |
| UA100-R2-05010 | 5 | 13 | 1 | 50 | 6 | 1 | ● |
| UA100-R2-05015 | 5 | 13 | 1.5 | 50 | 6 | 1 | ● |
| UA100-R2-06005 | 6 | 16 | 0.5 | 50 | 6 | 2 | ● |
| UA100-R2-06010 | 6 | 16 | 1 | 50 | 6 | 2 | ● |
| UA100-R2-06015 | 6 | 16 | 1.5 | 50 | 6 | 2 | ● |
| UA100-R2-06020 | 6 | 16 | 2 | 50 | 6 | 2 | ● |
| UA100-R2-08005 | 8 | 20 | 0.5 | 60 | 8 | 2 | ● |
| UA100-R2-08010 | 8 | 20 | 1 | 60 | 8 | 2 | ● |
| UA100-R2-08015 | 8 | 20 | 1.5 | 60 | 8 | 2 | ● |
| UA100-R2-08020 | 8 | 20 | 2 | 60 | 8 | 2 | ● |
| UA100-R2-10005 | 10 | 25 | 0.5 | 75 | 10 | 2 | ● |
| UA100-R2-10010 | 10 | 25 | 1 | 75 | 10 | 2 | ● |
| UA100-R2-10015 | 10 | 25 | 1.5 | 75 | 10 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ◎ | ◎ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P473

# UA100-R2

2 Flute, Corner Radius

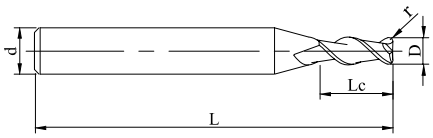



Fig1

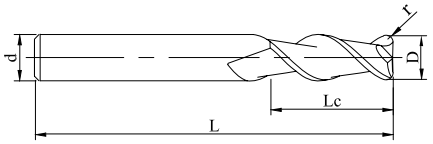



Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UA100-R2-10020 | 10 | 25 | 2 | 75 | 10 | 2 | ● |
| UA100-R2-10025 | 10 | 25 | 2.5 | 75 | 10 | 2 | ● |
| UA100-R2-12005 | 12 | 30 | 0.5 | 75 | 12 | 2 | ● |
| UA100-R2-12010 | 12 | 30 | 1 | 75 | 12 | 2 | ● |
| UA100-R2-12015 | 12 | 30 | 1.5 | 75 | 12 | 2 | ● |
| UA100-R2-12020 | 12 | 30 | 2 | 75 | 12 | 2 | ● |
| UA100-R2-12025 | 12 | 30 | 2.5 | 75 | 12 | 2 | ● |
| UA100-R2-16005 | 16 | 36 | 0.5 | 100 | 16 | 2 | ● |
| UA100-R2-16010 | 16 | 36 | 1 | 100 | 16 | 2 | ● |
| UA100-R2-16015 | 16 | 36 | 1.5 | 100 | 16 | 2 | ● |
| UA100-R2-16020 | 16 | 36 | 2 | 100 | 16 | 2 | ● |
| UA100-R2-16025 | 16 | 36 | 2.5 | 100 | 16 | 2 | ● |
| UA100-R2-20005 | 20 | 45 | 0.5 | 100 | 20 | 2 | ● |
| UA100-R2-20010 | 20 | 45 | 1 | 100 | 20 | 2 | ● |
| UA100-R2-20015 | 20 | 45 | 1.5 | 100 | 20 | 2 | ● |
| UA100-R2-20020 | 20 | 45 | 2 | 100 | 20 | 2 | ● |
| UA100-R2-20030 | 20 | 45 | 3 | 100 | 20 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ◎ | ◎ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P473

# UA100-RH2

2 Flute, Corner Radius, with Long Shank Length

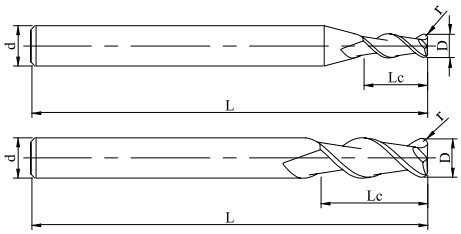



Fig1




Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UA100-RH2-06005 | 6 | 16 | 0.5 | 75 | 6 | 2 | ● |
| UA100-RH2-06010 | 6 | 16 | 1 | 75 | 6 | 2 | ● |
| UA100-RH2-06015 | 6 | 16 | 1.5 | 75 | 6 | 2 | ○ |
| UA100-RH2-06020 | 6 | 16 | 2 | 75 | 6 | 2 | ○ |
| UA100-RH2-08005 | 8 | 20 | 0.5 | 100 | 8 | 2 | ● |
| UA100-RH2-08010 | 8 | 20 | 1 | 100 | 8 | 2 | ● |
| UA100-RH2-08015 | 8 | 20 | 1.5 | 100 | 8 | 2 | ○ |
| UA100-RH2-08020 | 8 | 20 | 2 | 100 | 8 | 2 | ○ |
| UA100-RH2-10005 | 10 | 25 | 0.5 | 100 | 10 | 2 | ○ |
| UA100-RH2-10010 | 10 | 25 | 1 | 100 | 10 | 2 | ○ |
| UA100-RH2-10015 | 10 | 25 | 1.5 | 100 | 10 | 2 | ○ |
| UA100-RH2-10020 | 10 | 25 | 2 | 100 | 10 | 2 | ○ |
| UA100-RH2-10025 | 10 | 25 | 2.5 | 100 | 10 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit(mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ◎ | ◎ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P473

# UA100-RH2

2 Flute, Corner Radius, with Long Shank Length

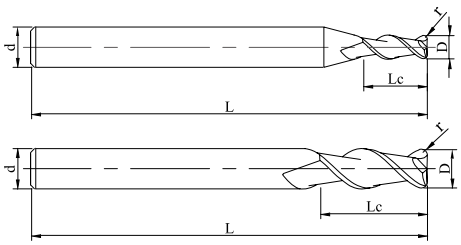
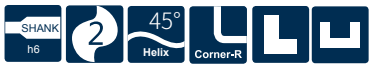



Fig1




Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UA100-RH2-12005 | 12 | 30 | 0.5 | 100 | 12 | 2 | ○ |
| UA100-RH2-12010 | 12 | 30 | 1 | 100 | 12 | 2 | ○ |
| UA100-RH2-12015 | 12 | 30 | 1.5 | 100 | 12 | 2 | ○ |
| UA100-RH2-12020 | 12 | 30 | 2 | 100 | 12 | 2 | ○ |
| UA100-RH2-12025 | 12 | 30 | 2.5 | 100 | 12 | 2 | ○ |
| UA100-RH2-16005 | 16 | 36 | 0.5 | 150 | 16 | 2 | ○ |
| UA100-RH2-16010 | 16 | 36 | 1 | 150 | 16 | 2 | ○ |
| UA100-RH2-16015 | 16 | 36 | 1.5 | 150 | 16 | 2 | ○ |
| UA100-RH2-16020 | 16 | 36 | 2 | 150 | 16 | 2 | ○ |
| UA100-RH2-16025 | 16 | 36 | 2.5 | 150 | 16 | 2 | ○ |
| UA100-RH2-20005 | 20 | 45 | 0.5 | 150 | 20 | 2 | ○ |
| UA100-RH2-20010 | 20 | 45 | 1 | 150 | 20 | 2 | ○ |
| UA100-RH2-20015 | 20 | 45 | 1.5 | 150 | 20 | 2 | ○ |
| UA100-RH2-20020 | 20 | 45 | 2 | 150 | 20 | 2 | ○ |
| UA100-RH2-20030 | 20 | 45 | 3 | 150 | 20 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | 0 -0.02 |
| D>12 | 0 -0.03 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ◎ | ◎ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P473

# UA100-R3

3 Flute, Corner Radius

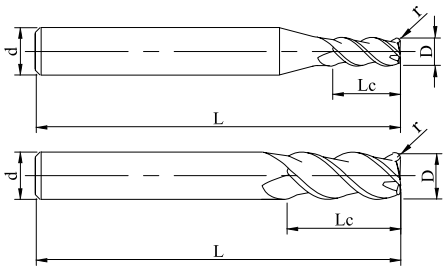



Fig1




Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UA100-R3-01001 | 1 | 3 | 0.1 | 50 | 4 | 1 | ● |
| UA100-R3- 02002 | 2 | 6 | 0.2 | 50 | 4 | 1 | ● |
| UA100-R3- 03002 | 3 | 9 | 0.2 | 50 | 4 | 1 | ● |
| UA100-R3- 03003 | 3 | 9 | 0.3 | 50 | 4 | 1 | ● |
| UA100-R3- 03005 | 3 | 9 | 0.5 | 50 | 4 | 1 | ● |
| UA100-R3- 04002 | 4 | 11 | 0.2 | 50 | 4 | 2 | ● |
| UA100-R3- 04003 | 4 | 11 | 0.3 | 50 | 4 | 2 | ● |
| UA100-R3- 04005 | 4 | 11 | 0.5 | 50 | 4 | 2 | ● |
| UA100-R3- 04010 | 4 | 11 | 1 | 50 | 4 | 2 | ● |
| UA100-R3- 05002 | 5 | 13 | 0.2 | 50 | 6 | 1 | ○ |
| UA100-R3- 05003 | 5 | 13 | 0.3 | 50 | 6 | 1 | ○ |
| UA100-R3- 05005 | 5 | 13 | 0.5 | 50 | 6 | 1 | ○ |
| UA100-R3- 05010 | 5 | 13 | 1 | 50 | 6 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ◎ | ◎ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P473

# UA100-R3

3 Flute, Corner Radius

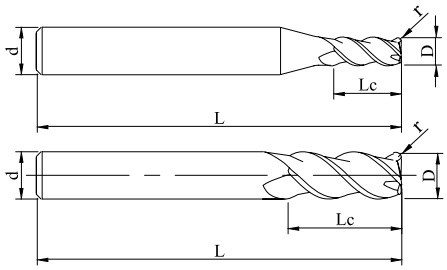



Fig1




Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UA100-R3-06005 | 6 | 16 | 0.5 | 50 | 6 | 2 | ● |
| UA100-R3-06010 | 6 | 16 | 1 | 50 | 6 | 2 | ● |
| UA100-R3-06015 | 6 | 16 | 1.5 | 50 | 6 | 2 | ○ |
| UA100-R3-06020 | 6 | 16 | 2 | 50 | 6 | 2 | ● |
| UA100-R3-08005 | 8 | 20 | 0.5 | 60 | 8 | 2 | ● |
| UA100-R3-08010 | 8 | 20 | 1 | 60 | 8 | 2 | ● |
| UA100-R3-08015 | 8 | 20 | 1.5 | 60 | 8 | 2 | ○ |
| UA100-R3-08020 | 8 | 20 | 2 | 60 | 8 | 2 | ● |
| UA100-R3-10005 | 10 | 25 | 0.5 | 75 | 10 | 2 | ● |
| UA100-R3-10010 | 10 | 25 | 1 | 75 | 10 | 2 | ● |
| UA100-R3-10015 | 10 | 25 | 1.5 | 75 | 10 | 2 | ● |
| UA100-R3-10020 | 10 | 25 | 2 | 75 | 10 | 2 | ● |
| UA100-R3-10025 | 10 | 25 | 2.5 | 75 | 10 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ◎ | ◎ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P474

# UA100-R3

3 Flute, Corner Radius

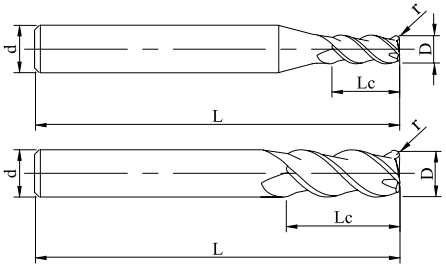



Fig1




Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UA100-R3-12005 | 12 | 30 | 0.5 | 75 | 12 | 2 | ● |
| UA100-R3- 12010 | 12 | 30 | 1 | 75 | 12 | 2 | ● |
| UA100-R3-12015 | 12 | 30 | 1.5 | 75 | 12 | 2 | ○ |
| UA100-R3-12020 | 12 | 30 | 2 | 75 | 12 | 2 | ● |
| UA100-R3-12025 | 12 | 30 | 2.5 | 75 | 12 | 2 | ○ |
| UA100-R3-16005 | 16 | 36 | 0.5 | 100 | 16 | 2 | ● |
| UA100-R3-16010 | 16 | 36 | 1 | 100 | 16 | 2 | ○ |
| UA100-R3-16015 | 16 | 36 | 1.5 | 100 | 16 | 2 | ○ |
| UA100-R3-16020 | 16 | 36 | 2 | 100 | 16 | 2 | ○ |
| UA100-R3-16025 | 16 | 36 | 2.5 | 100 | 16 | 2 | ○ |
| UA100-R3-20005 | 20 | 45 | 0.5 | 100 | 20 | 2 | ○ |
| UA100-R3-20010 | 20 | 45 | 1 | 100 | 20 | 2 | ○ |
| UA100-R3- 20015 | 20 | 45 | 1.5 | 100 | 20 | 2 | ○ |
| UA100-R3-20020 | 20 | 45 | 2 | 100 | 20 | 2 | ○ |
| UA100-R3- 20030 | 20 | 45 | 3 | 100 | 20 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | 0 -0.02 |
| D>12 | 0 -0.03 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ◎ | ◎ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P474

# UA100-RH3

3 Flute, Corner Radius, with Long Shank Length

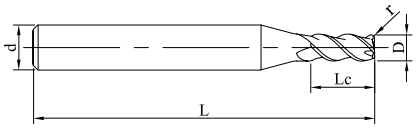



Fig1



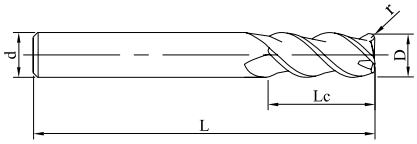



Fig2




See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UA100-RH3-06005 | 6 | 16 | 0.5 | 75 | 6 | 2 | ● |
| UA100-RH3-06010 | 6 | 16 | 1 | 75 | 6 | 2 | ● |
| UA100-RH3-06015 | 6 | 16 | 1.5 | 75 | 6 | 2 | ○ |
| UA100-RH3-06020 | 6 | 16 | 2 | 75 | 6 | 2 | ● |
| UA100-RH3-08005 | 8 | 20 | 0.5 | 100 | 8 | 2 | ● |
| UA100-RH3-08010 | 8 | 20 | 1 | 100 | 8 | 2 | ● |
| UA100-RH3-08015 | 8 | 20 | 1.5 | 100 | 8 | 2 | ○ |
| UA100-RH3-08020 | 8 | 20 | 2 | 100 | 8 | 2 | ● |
| UA100-RH3-10005 | 10 | 25 | 0.5 | 100 | 10 | 2 | ● |
| UA100-RH3-10010 | 10 | 25 | 1 | 100 | 10 | 2 | ● |
| UA100-RH3-10015 | 10 | 25 | 1.5 | 100 | 10 | 2 | ○ |
| UA100-RH3-10020 | 10 | 25 | 2 | 100 | 10 | 2 | ● |
| UA100-RH3-10025 | 10 | 25 | 2.5 | 100 | 10 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | 0 -0.02 |
| D>12 | 0 -0.03 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ◎ | ◎ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P475

# UA100-RH3

3 Flute, Corner Radius, with Long Shank Length

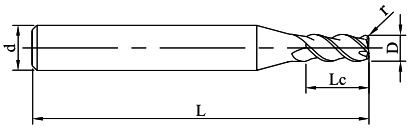



Fig1



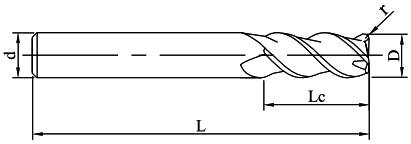



Fig2




See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UA100-RH3-12005 | 12 | 30 | 0.5 | 100 | 12 | 2 | ○ |
| UA100-RH3-12010 | 12 | 30 | 1 | 100 | 12 | 2 | ● |
| UA100-RH3-12015 | 12 | 30 | 1.5 | 100 | 12 | 2 | ● |
| UA100-RH3-12020 | 12 | 30 | 2 | 100 | 12 | 2 | ● |
| UA100-RH3-12025 | 12 | 30 | 2.5 | 100 | 12 | 2 | ○ |
| UA100-RH3-16005 | 16 | 36 | 0.5 | 150 | 16 | 2 | ● |
| UA100-RH3-16010 | 16 | 36 | 1 | 150 | 16 | 2 | ○ |
| UA100-RH3-16015 | 16 | 36 | 1.5 | 150 | 16 | 2 | ○ |
| UA100-RH3-16020 | 16 | 36 | 2 | 150 | 16 | 2 | ● |
| UA100-RH3-16025 | 16 | 36 | 2.5 | 150 | 16 | 2 | ○ |
| UA100-RH3-20005 | 20 | 45 | 0.5 | 150 | 20 | 2 | ○ |
| UA100-RH3-20010 | 20 | 45 | 1 | 150 | 20 | 2 | ○ |
| UA100-RH3-20015 | 20 | 45 | 1.5 | 150 | 20 | 2 | ○ |
| UA100-RH3-20020 | 20 | 45 | 2 | 150 | 20 | 2 | ○ |
| UA100-RH3-20030 | 20 | 45 | 3 | 150 | 20 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | 0 -0.02 |
| D>12 | 0 -0.03 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ◎ | ◎ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P475

# UA100-B2

2 Flute,Ballnose

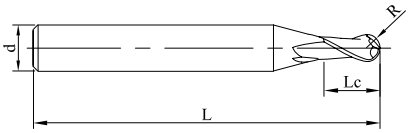



Fig1

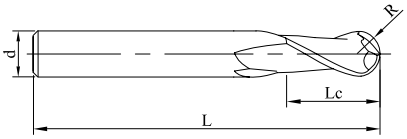



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | R | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| UA100-B2-01002 | 1 | 2 | 0.5 | 50 | 4 | 1 | ● |
| UA100-B2-02004 | 2 | 4 | 1 | 50 | 4 | 1 | ● |
| UA100-B2-03006 | 3 | 6 | 1.5 | 50 | 4 | 1 | ● |
| UA100-B2-63006 | 3 | 6 | 1.5 | 50 | 6 | 1 | ● |
| UA100-B2-04008 | 4 | 8 | 2 | 50 | 4 | 2 | ● |
| UA100-B2-64008 | 4 | 8 | 2 | 50 | 6 | 1 | ○ |
| UA100-B2-05010 | 5 | 10 | 2.5 | 50 | 6 | 1 | ● |
| UA100-B2-06012 | 6 | 12 | 3 | 50 | 6 | 2 | ● |
| UA100-B2-07014 | 7 | 14 | 3.5 | 60 | 8 | 1 | ○ |
| UA100-B2-08014 | 8 | 14 | 4 | 60 | 8 | 2 | ● |
| UA100-B2-09016 | 9 | 16 | 4.5 | 75 | 10 | 1 | ● |
| UA100-B2-10018 | 10 | 18 | 5 | 75 | 10 | 2 | ● |
| UA100-B2-12022 | 12 | 22 | 6 | 75 | 12 | 2 | ● |
| UA100-B2-16026 | 16 | 26 | 8 | 100 | 16 | 2 | ● |

●Stock ○Available upon Order

| R | Tol |
|---|---|
| R<3 | ±0.015 |
| R≥3 | ±0.02 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ◎ | ◎ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P475

# UA160-S2

2 Flute, Standard Length

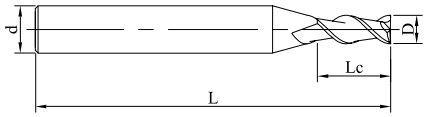



Fig1

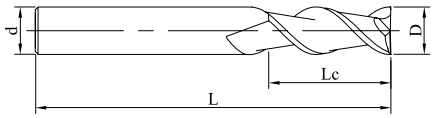
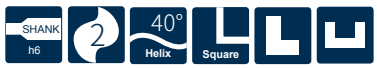



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| UA160-S2-01003 | 1 | 3 | 50 | 4 | 1 | ● |
| UA160-S2-01504 | 1.5 | 4 | 50 | 4 | 1 | ● |
| UA160-S2-02006 | 2 | 6 | 50 | 4 | 1 | ● |
| UA160-S2-02508 | 2.5 | 8 | 50 | 4 | 1 | ● |
| UA160-S2-03009 | 3 | 9 | 50 | 4 | 1 | ● |
| UA160-S2-04011 | 4 | 11 | 50 | 4 | 2 | ● |
| UA160-S2-05013 | 5 | 13 | 50 | 6 | 1 | ○ |
| UA160-S2-06016 | 6 | 16 | 50 | 6 | 2 | ● |
| UA160-S2-08020 | 8 | 20 | 60 | 8 | 2 | ● |
| UA160-S2-10025 | 10 | 25 | 75 | 10 | 2 | ● |
| UA160-S2-12030 | 12 | 30 | 75 | 12 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤10 | $^{0}_{-0.01}$ |
| D>10 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ◎ | ◎ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P476

# UA160-S3

3 Flute, Standard Length

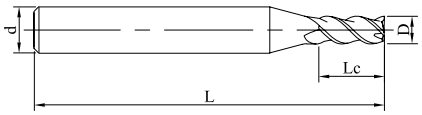



Fig1



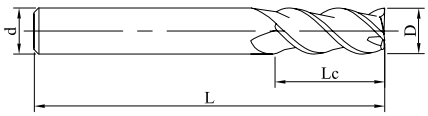



Fig2




See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| UA160-S3-02006 | 2 | 6 | 50 | 4 | 1 | ● |
| UA160-S3-02508 | 2.5 | 8 | 50 | 4 | 1 | ● |
| UA160-S3-03009 | 3 | 9 | 50 | 4 | 1 | ● |
| UA160-S3-04011 | 4 | 11 | 50 | 4 | 2 | ● |
| UA160-S3-64011 | 4 | 11 | 50 | 6 | 1 | ● |
| UA160-S3-05013 | 5 | 13 | 50 | 6 | 1 | ● |
| UA160-S3-06016 | 6 | 16 | 50 | 6 | 2 | ● |
| UA160-S3-08020 | 8 | 20 | 60 | 8 | 2 | ● |
| UA160-S3-10025 | 10 | 25 | 75 | 10 | 2 | ● |
| UA160-S3-12030 | 12 | 30 | 75 | 12 | 2 | ● |
| UA160-S3-16036 | 16 | 36 | 100 | 16 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤10 | $^{0}_{-0.01}$ |
| D>10 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ◎ | ◎ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P476

# UA160-S4

4Flute, Standard Length

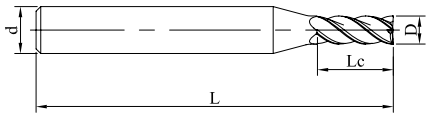



Fig1

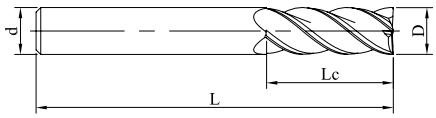



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| UA160-S4-04011 | 4 | 11 | 50 | 4 | 1 | ● |
| UA160-S4-06016 | 6 | 16 | 50 | 6 | 1 | ● |
| UA160-S4-08020 | 8 | 20 | 60 | 8 | 1 | ● |
| UA160-S4-10025 | 10 | 25 | 75 | 10 | 1 | ● |
| UA160-S4-12030 | 12 | 30 | 75 | 12 | 1 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤10 | $^{0}_{-0.01}$ |
| D>10 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ◎ | ◎ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P476

# SA100-S3

3 Flute, Standard Length

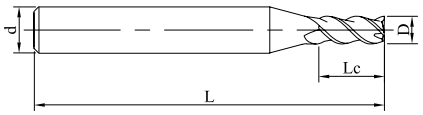



Fig1

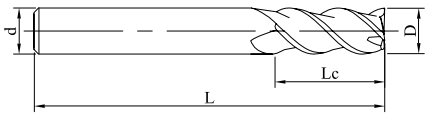



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| SA100-S3-03009 | 3 | 9 | 50 | 6 | 1 | ● |
| SA100-S3-04011 | 4 | 11 | 50 | 6 | 1 | ● |
| SA100-S3-05013 | 5 | 13 | 50 | 6 | 1 | ● |
| SA100-S3-06012 | 6 | 12 | 50 | 6 | 2 | ● |
| SA100-S3-06016 | 6 | 16 | 50 | 6 | 2 | ● |
| SA100-S3-08020 | 8 | 20 | 60 | 8 | 2 | ● |
| SA100-S3-10025 | 10 | 25 | 75 | 10 | 2 | ● |
| SA100-S3-12030 | 12 | 30 | 75 | 12 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤10 | $^{0}_{-0.01}$ |
| D>10 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ◎ | ◎ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P477

# SA210-BW

3 Flute Corner Radius, with Long Shank Length

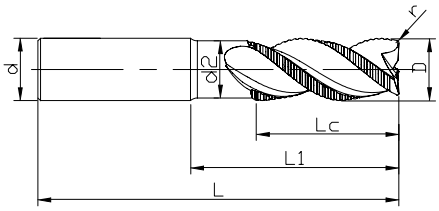
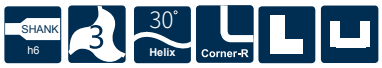



Fig1






See page 149 or guidelines to icons

| Ordering Code | D | r | Lc | L1 | D2 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SA210-BW-12010 | 12 | 1 | 16 | 50 | 11.5 | 100 | 12 | 1 | ○ |
| SA210-BW-16030 | 16 | 2 | 20 | 63 | 15.5 | 115 | 16 | 1 | ○ |
| SA210-BW-20030 | 20 | 3 | 20 | 70 | 19 | 125 | 20 | 1 | ○ |
| SA210-BW-25030 | 25 | 3 | 25 | 75 | 24 | 135 | 25 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| 12≤D<16 | 0/-0.03 |
| 16≤D≤25 | 0/-0.04 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ◎ | ◎ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P478

# SA210-HF

3 Flute Corner Radius, with Long Shank Length

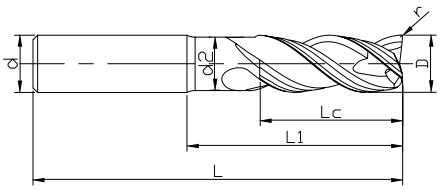



Fig1






See page 149 or guidelines to icons

| Ordering Code | D | r | Lc | L1 | D2 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SA210-HF-08005 | 8 | 0.5 | 12 | 19 | 7.5 | 63 | 8 | 1 | ● |
| SA210-HF-10008 | 10 | 0.8 | 15 | 22 | 9.5 | 72 | 10 | 1 | ● |
| SA210-HF-12010 | 12 | 1 | 18 | 26 | 11.5 | 83 | 12 | 1 | ● |
| SA210-HF-16012 | 16 | 1.2 | 24 | 32 | 15.5 | 92 | 16 | 1 | ● |
| SA210-HF-20015 | 20 | 1.5 | 30 | 38 | 19 | 104 | 20 | 1 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| 12≤D<16 | 0/-0.03 |
| 16≤D≤25 | 0/-0.04 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ◎ | ◎ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P477

# SA300-RN2

2 Flute Corner Radius, with Long Shank Length

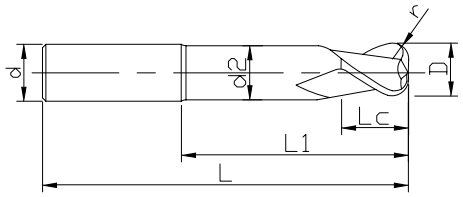



Fig1






See page 149 or guidelines to icons

| Ordering Code | D | r | Lc | L1 | D2 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SA300-RN2-06010 | 6 | 1 | 15 | 30 | 5.5 | 65 | 6 | 1 | ○ |
| SA300-RN2-08010 | 8 | 1 | 16 | 27 | 7.5 | 63 | 8 | 1 | ○ |
| SA300-RN2-10030 | 10 | 3 | 15 | 32 | 9.5 | 72 | 10 | 1 | ○ |
| SA300-RN2-12030 | 12 | 3 | 18 | 55 | 11.5 | 100 | 12 | 1 | ○ |
| SA300-RN2-16030 | 16 | 3 | 25 | 60 | 15.5 | 110 | 16 | 1 | ○ |
| SA300-RN2-20030 | 20 | 3 | 35 | 60 | 19.4 | 110 | 20 | 1 | ○ |
| SA300-RN2-20030-IC | 20 | 3 | 38 | 75 | 19.4 | 125 | 20 | 2 | ○ |
| SA300-RN2-25030 | 25 | 3 | 45 | 70 | 24.4 | 130 | 25 | 1 | ○ |
| SA300-RN2-25030-IC | 25 | 3 | 38 | 55 | 24.4 | 105 | 25 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| 12≤D<16 | 0/-0.03 |
| 16≤D≤25 | 0/-0.04 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ◎ | ◎ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P479

# SA300-RN3

3 Flute Corner Radius, with Long Shank Length

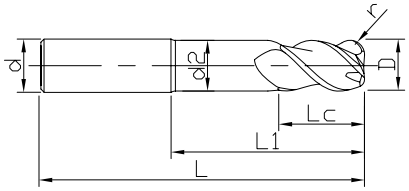



Fig1






See page 149 or guidelines to icons

| Ordering Code | D | r | Lc | L1 | D2 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SA300-RN3-06010 | 6 | 1 | 15 | 30 | 5.5 | 65 | 6 | 1 | ○ |
| SA300-RN3-08010 | 8 | 1 | 16 | 27 | 7.5 | 63 | 8 | 1 | ○ |
| SA300-RN3-10030 | 10 | 3 | 15 | 32 | 9.5 | 72 | 10 | 1 | ○ |
| SA300-RN3-12030 | 12 | 3 | 18 | 55 | 11.5 | 100 | 12 | 1 | ○ |
| SA300-RN3-16030 | 16 | 3 | 25 | 60 | 15.5 | 110 | 16 | 1 | ○ |
| SA300-RN3-20030 | 20 | 3 | 35 | 60 | 19.4 | 110 | 20 | 1 | ○ |
| SA300-RN3-25030 | 25 | 3 | 45 | 70 | 24.4 | 130 | 25 | 1 | ○ |
| SA300-RN3-32030 | 32 | 3 | 40 | 120 | 31 | 183 | 32 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| 12≤D<16 | 0/-0.03 |
| 16≤D≤25 | 0/-0.04 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ◎ | ◎ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P479

# SG200-S2

2 Flute, Standard Length

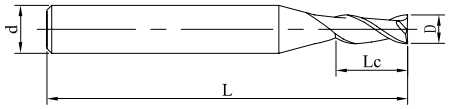



Fig1

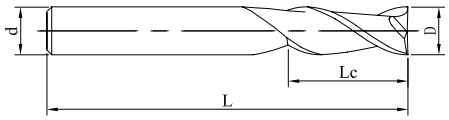



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| SG200-S2-00401 | 0.4 | 0.8 | 50 | 4 | 1 | ● |
| SG200-S2-00802 | 0.8 | 2 | 50 | 4 | 1 | ● |
| SG200-S2-01003 | 1 | 3 | 50 | 4 | 1 | ● |
| SG200-S2-01504 | 1.5 | 4 | 50 | 4 | 1 | ● |
| SG200-S2-02006 | 2 | 6 | 50 | 4 | 1 | ● |
| SG200-S2-02008 | 2 | 8 | 75 | 4 | 1 | ● |
| SG200-S2-03009 | 3 | 9 | 50 | 4 | 1 | ● |
| SG200-S2-03012 | 3 | 12 | 75 | 4 | 1 | ○ |
| SG200-S2-63009 | 3 | 9 | 50 | 6 | 1 | ○ |
| SG200-S2-04011 | 4 | 11 | 50 | 4 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D<6 | $^{0}_{-0.02}$ |
| 6≤D≤12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ○ | ○ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P480

# SG200-S2

2 Flute, Standard Length

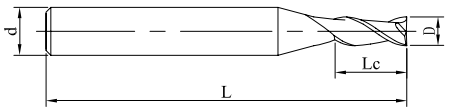



Fig1

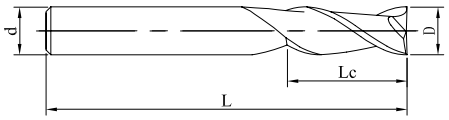



Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| SG200-S2-04016 | 4 | 16 | 75 | 4 | 2 | ○ |
| SG200-S2-64011 | 4 | 11 | 50 | 6 | 1 | ○ |
| SG200-S2-05013 | 5 | 13 | 50 | 6 | 1 | ● |
| SG200-S2-05020 | 5 | 20 | 100 | 6 | 1 | ○ |
| SG200-S2-06016 | 6 | 16 | 50 | 6 | 2 | ● |
| SG200-S2-06025 | 6 | 25 | 100 | 6 | 2 | ● |
| SG200-S2-08020 | 8 | 20 | 60 | 8 | 2 | ● |
| SG200-S2-10025 | 10 | 25 | 75 | 10 | 2 | ● |
| SG200-S2-12030 | 12 | 30 | 75 | 12 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D<6 | 0 -0.02 |
| 6≤D≤12 | 0 -0.03 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ○ | ○ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P480

# SG200-SN2

2 Flute,with Reduced Neck Diameter

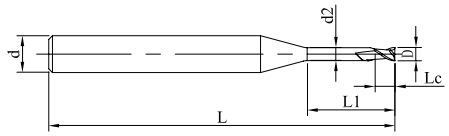



Fig1



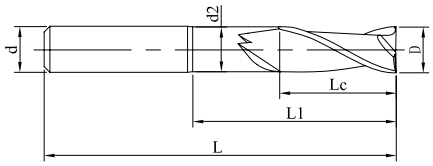



Fig2




See page 149 or guidelines to icons

| Ordering Code | D | Lc | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|
| SG200-SN2-01005 | 1 | 3 | 0.95 | 5 | 50 | 4 | 1 | ● |
| SG200-SN2-01020 | 1 | 3 | 0.95 | 20 | 60 | 4 | 1 | ○ |
| SG200-SN2-01510 | 1.5 | 6 | 1.44 | 10 | 50 | 4 | 1 | ● |
| SG200-SN2-01520 | 1.5 | 6 | 1.44 | 20 | 60 | 4 | 1 | ○ |
| SG200-SN2-02015 | 2 | 8 | 1.92 | 15 | 50 | 4 | 1 | ● |
| SG200-SN2-02020 | 2 | 8 | 1.92 | 20 | 50 | 4 | 1 | ● |
| SG200-SN2-02030 | 2 | 8 | 1.92 | 30 | 75 | 4 | 1 | ○ |
| SG200-SN2-03015 | 3 | 12 | 2.9 | 15 | 50 | 4 | 1 | ● |
| SG200-SN2-03030 | 3 | 12 | 2.9 | 30 | 75 | 4 | 1 | ○ |
| SG200-SN2-04020 | 4 | 16 | 3.9 | 20 | 50 | 4 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D<6 | $^{0}_{-0.02}$ |
| 6≤D≤12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ○ | ○ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P480

# SG200-SN2

2 Flute,with Reduced Neck Diameter

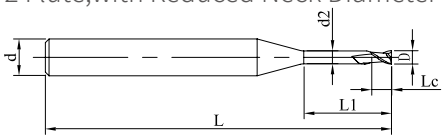



Fig1



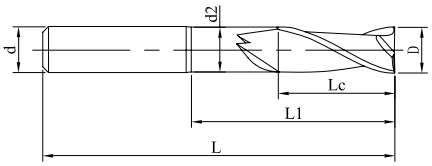



Fig2




See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|
| SG200-SN2-04025 | 4 | 16 | 3.9 | 25 | 75 | 4 | 2 | ○ |
| SG200-SN2-04040 | 4 | 16 | 3.9 | 40 | 75 | 4 | 2 | ● |
| SG200-SN2-05030 | 5 | 20 | 4.9 | 30 | 75 | 6 | 1 | ● |
| SG200-SN2-06030 | 6 | 24 | 5.9 | 30 | 75 | 6 | 2 | ● |
| SG200-SN2-06040 | 6 | 24 | 5.9 | 40 | 75 | 6 | 2 | ● |
| SG200-SN2-08040 | 8 | 25 | 7.9 | 40 | 100 | 8 | 2 | ● |
| SG200-SN2-10040 | 10 | 25 | 9.8 | 40 | 100 | 10 | 2 | ● |
| SG200-SN2-12040 | 12 | 25 | 11.8 | 40 | 100 | 12 | 2 | ○ |
| SG200-SN2-12060 | 12 | 25 | 11.8 | 60 | 100 | 12 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D<6 | $^{0}_{-0.02}$ |
| 6≤D≤12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ○ | ○ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P480

# SG200-S3

3 Flute, Standard Length

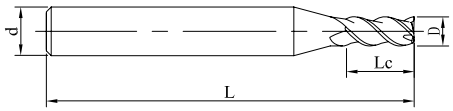



Fig1



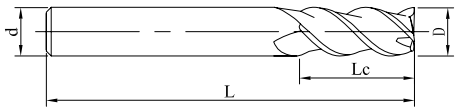



Fig2




See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| SG200-S3-01003 | 1 | 3 | 50 | 4 | 1 | ● |
| SG200-S3-01504 | 1.5 | 4 | 50 | 4 | 1 | ● |
| SG200-S3-01506 | 1.5 | 6 | 60 | 4 | 1 | ○ |
| SG200-S3-02006 | 2 | 6 | 50 | 4 | 1 | ○ |
| SG200-S3-02010 | 2 | 10 | 60 | 4 | 1 | ○ |
| SG200-S3-03009 | 3 | 9 | 50 | 4 | 1 | ● |
| SG200-S3-03015 | 3 | 15 | 60 | 4 | 1 | ○ |
| SG200-S3-63009 | 3 | 9 | 50 | 6 | 1 | ○ |
| SG200-S3-04011 | 4 | 11 | 50 | 4 | 2 | ○ |
| SG200-S3-04020 | 4 | 20 | 75 | 4 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D<6 | $^{0}_{-0.02}$ |
| 6≤D≤12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ○ | ○ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P480

# SG200-S3

3 Flute, Standard Length

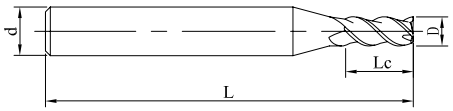



Fig1



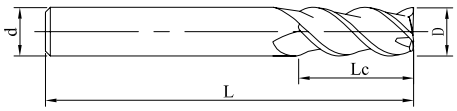



Fig2




See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| SG200-S3-64011 | 4 | 11 | 50 | 6 | 1 | ○ |
| SG200-S3-05013 | 5 | 13 | 50 | 6 | 1 | ○ |
| SG200-S3-06016 | 6 | 16 | 50 | 6 | 2 | ○ |
| SG200-S3-06018 | 6 | 18 | 75 | 6 | 2 | ○ |
| SG200-S3-06025 | 6 | 25 | 100 | 6 | 2 | ● |
| SG200-S3-08020 | 8 | 20 | 60 | 8 | 2 | ○ |
| SG200-S3-08035 | 8 | 35 | 100 | 8 | 2 | ○ |
| SG200-S3-10025 | 10 | 25 | 75 | 10 | 2 | ○ |
| SG200-S3-10040 | 10 | 40 | 100 | 10 | 2 | ● |
| SG200-S3-12030 | 12 | 30 | 75 | 12 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D<6 | $^{0}_{-0.02}$ |
| 6≤D≤12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ○ | ○ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P480

# SG200-S4

4 Flute, Standard Length

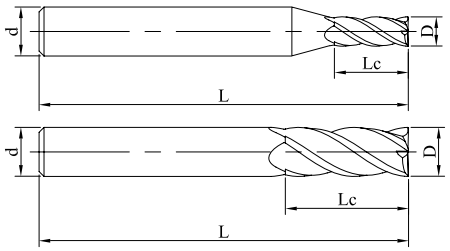



Fig1




Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| SG200-S4-02006 | 2 | 6 | 50 | 4 | 1 | ● |
| SG200-S4-02010 | 2 | 10 | 60 | 4 | 1 | ● |
| SG200-S4-03009 | 3 | 9 | 50 | 4 | 1 | ● |
| SG200-S4-03015 | 3 | 15 | 60 | 4 | 1 | ● |
| SG200-S4-63009 | 3 | 9 | 50 | 6 | 1 | ○ |
| SG200-S4-04011 | 4 | 11 | 50 | 4 | 2 | ● |
| SG200-S4-04020 | 4 | 20 | 75 | 4 | 2 | ● |
| SG200-S4-64011 | 4 | 11 | 50 | 6 | 1 | ● |
| SG200-S4-05013 | 5 | 13 | 50 | 6 | 1 | ● |
| SG200-S4-06016 | 6 | 16 | 50 | 6 | 2 | ● |
| SG200-S4-06025 | 6 | 25 | 100 | 6 | 2 | ● |
| SG200-S4-08020 | 8 | 20 | 60 | 8 | 2 | ● |
| SG200-S4-08025 | 8 | 25 | 100 | 8 | 2 | ● |
| SG200-S4-10025 | 10 | 25 | 75 | 10 | 2 | ● |
| SG200-S4-10040 | 10 | 40 | 100 | 10 | 2 | ● |
| SG200-S4-12030 | 12 | 30 | 75 | 12 | 2 | ● |
| SG200-S4-12045 | 12 | 45 | 100 | 12 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D<6 | $^{0}_{-0.02}$ |
| 6≤D≤12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ○ | ○ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P480

# SG200-R2

2 Flute, Corner Radius

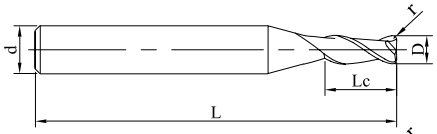



Fig1

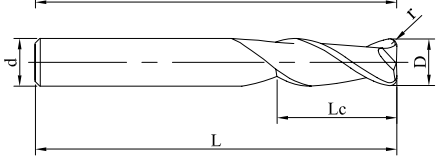



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SG200-R2-01002 | 1 | 2 | 0.2 | 60 | 4 | 1 | ○ |
| SG200-R2-01503 | 1.5 | 3 | 0.3 | 60 | 4 | 1 | ○ |
| SG200-R2-02002 | 2 | 3.5 | 0.2 | 50 | 4 | 1 | ● |
| SG200-R2-02005 | 2 | 3.5 | 0.5 | 60 | 4 | 1 | ○ |
| SG200-R2-03002 | 3 | 4 | 0.2 | 50 | 4 | 1 | ● |
| SG200-R2-03010 | 3 | 4 | 1 | 75 | 4 | 1 | ○ |
| SG200-R2-04002 | 4 | 5 | 0.2 | 75 | 4 | 2 | ● |
| SG200-R2-04005 | 4 | 5 | 0.5 | 50 | 4 | 2 | ● |
| SG200-R2-04010 | 4 | 5 | 1 | 75 | 4 | 2 | ○ |
| SG200-R2-05002 | 5 | 6 | 0.2 | 100 | 6 | 1 | ○ |
| SG200-R2-05005 | 5 | 6 | 0.5 | 50 | 6 | 1 | ● |
| SG200-R2-06002 | 6 | 7 | 0.2 | 100 | 6 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D<6 | $^{0}_{-0.02}$ |
| 6≤D≤12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ○ | ○ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P480

# SG200-R2

2 Flute, Corner Radius

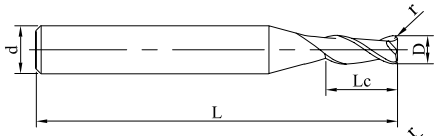



Fig1

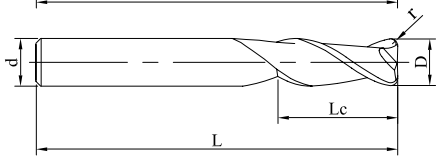



Fig2



SHANK h6 | 2 | U-DIA | 40° Helix | Corner-R

See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SG200-R2-06003 | 6 | 16 | 0.3 | 50 | 6 | 2 | ● |
| SG200-R2-06005 | 6 | 16 | 0.5 | 50 | 6 | 2 | ● |
| SG200-R2-06010 | 6 | 7 | 1 | 100 | 6 | 2 | ● |
| SG200-R2-08005 | 8 | 20 | 0.5 | 60 | 8 | 2 | ● |
| SG200-R2-08010 | 8 | 20 | 1 | 60 | 8 | 2 | ● |
| SG200-R2-10005 | 10 | 25 | 0.5 | 75 | 10 | 2 | ● |
| SG200-R2-10010 | 10 | 25 | 1 | 75 | 10 | 2 | ● |
| SG200- R2-10015 | 10 | 25 | 1.5 | 75 | 10 | 2 | ● |
| SG200-R2-12005 | 12 | 30 | 0.5 | 75 | 12 | 2 | ● |
| SG200-R2-12010 | 12 | 30 | 1 | 75 | 12 | 2 | ● |
| SG200- R2-12015 | 12 | 30 | 1.5 | 75 | 12 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D<6 | $^{0}_{-0.02}$ |
| 6≤D≤12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ○ | ○ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P480

# SG200-RN2

2 Flute with Reduced Neck , Cornor Raidus

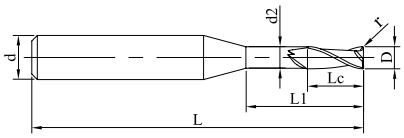



Fig1



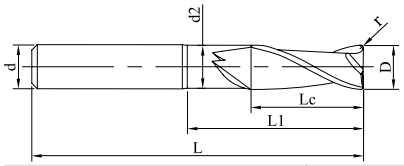



Fig2




See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SG200-RN2-01001 | 1 | 2 | 0.1 | 0.96 | 5 | 60 | 4 | 1 | ○ |
| SG200-RN2-01002 | 1 | 2 | 0.2 | 0.96 | 5 | 60 | 4 | 1 | ○ |
| SG200-RN2-01501 | 1.5 | 3 | 0.1 | 1.44 | 5 | 60 | 4 | 1 | ○ |
| SG200-RN2-01502 | 1.5 | 3 | 0.2 | 1.44 | 5 | 60 | 4 | 1 | ● |
| SG200-RN2-01503 | 1.5 | 3 | 0.3 | 1.44 | 5 | 60 | 4 | 1 | ○ |
| SG200-RN2-02002 | 2 | 3.5 | 0.2 | 1.92 | 6 | 50 | 4 | 1 | ● |
| SG200-RN2-02003 | 2 | 3.5 | 0.3 | 1.92 | 6 | 50 | 4 | 1 | ● |
| SG200-RN2-02005 | 2 | 3.5 | 0.5 | 1.92 | 6 | 50 | 4 | 1 | ● |
| SG200-RN2-03002 | 3 | 4 | 0.2 | 2.9 | 10 | 50 | 4 | 1 | ● |
| SG200-RN2-03003 | 3 | 4 | 0.3 | 2.9 | 10 | 50 | 4 | 1 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D<6 | 0 -0.02 |
| 6≤D≤12 | 0 -0.03 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ○ | ○ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P480

# SG200-RN2

2 Flute with Reduced Neck , Cornor Raidus

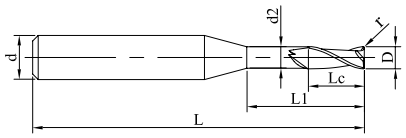



Fig1



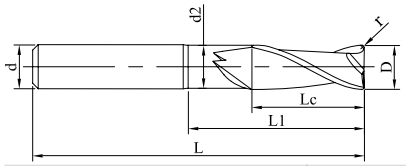



Fig2




See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SG200-RN2-03005 | 3 | 4 | 0.5 | 2.9 | 10 | 50 | 4 | 1 | ● |
| SG200-RN2-03010 | 3 | 4 | 1 | 2.95 | 10 | 75 | 4 | 1 | ○ |
| SG200-RN2-04002 | 4 | 5 | 0.2 | 3.9 | 15 | 50 | 4 | 2 | ● |
| SG200-RN2-04005 | 4 | 5 | 0.5 | 3.9 | 15 | 50 | 4 | 2 | ● |
| SG200-RN2-04010 | 4 | 5 | 1 | 3.9 | 15 | 50 | 4 | 2 | ● |
| SG200-RN2-05002 | 5 | 6 | 0.2 | 4.9 | 15 | 60 | 6 | 1 | ● |
| SG200-RN2-05005 | 5 | 6 | 0.5 | 4.9 | 15 | 60 | 6 | 1 | ● |
| SG200-RN2-06002 | 6 | 7 | 0.2 | 5.9 | 20 | 60 | 6 | 2 | ● |
| SG200-RN2-06005 | 6 | 7 | 0.5 | 5.9 | 20 | 60 | 6 | 2 | ● |
| SG200-RN2-06010 | 6 | 7 | 1 | 5.9 | 20 | 60 | 6 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D<6 | 0 -0.02 |
| 6≤D≤12 | 0 -0.03 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ○ | ○ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P480

# SG200-R4

4 Flute, Corner Radius

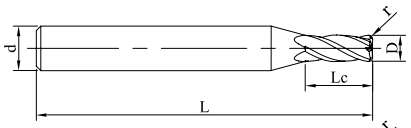



Fig1

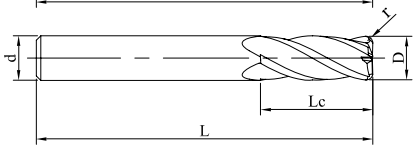



Fig2



SHANK h6 | 4 | U-DIA | 40° Helix | Corner-R | L

See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SG200-R4-02002 | 2 | 3.5 | 0.2 | 50 | 4 | 1 | ● |
| SG200-R4-02005 | 2 | 3.5 | 0.5 | 60 | 4 | 1 | ○ |
| SG200-R4-03002 | 3 | 4 | 0.2 | 50 | 4 | 1 | ● |
| SG200-R4-03005 | 3 | 4 | 0.5 | 75 | 4 | 1 | ○ |
| SG200-R4-03010 | 3 | 4 | 1 | 75 | 4 | 1 | ○ |
| SG200-R4-04002 | 4 | 6 | 0.2 | 50 | 4 | 2 | ● |
| SG200-R4-04010 | 4 | 6 | 1 | 50 | 4 | 2 | ● |
| SG200-R4-05003 | 5 | 7 | 0.3 | 50 | 6 | 1 | ● |
| SG200-R4-06005 | 6 | 9 | 0.5 | 50 | 6 | 2 | ● |
| SG200-R4-06010 | 6 | 9 | 1 | 50 | 6 | 2 | ● |
| SG200-R4-08005 | 8 | 12 | 0.5 | 60 | 8 | 2 | ● |
| SG200-R4-08010 | 8 | 12 | 1 | 60 | 8 | 2 | ● |
| SG200-R4-10005 | 10 | 15 | 0.5 | 75 | 10 | 2 | ● |
| SG200-R4-10010 | 10 | 15 | 1 | 75 | 10 | 2 | ● |
| SG200-R4-12005 | 12 | 18 | 0.5 | 75 | 12 | 2 | ● |
| SG200-R4-12010 | 12 | 18 | 1 | 75 | 12 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D<6 | $^{0}_{-0.02}$ |
| 6≤D≤12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ○ | ○ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P480

# SG200-RN4

4 Flute with Reduced Neck , Cornor Raidus

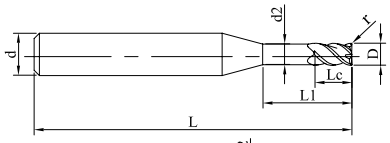



Fig1

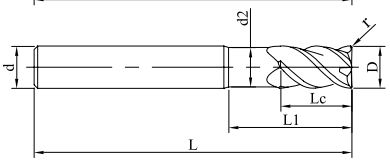



Fig2



SHANK h6 | 4 | U-DIA | 40° Helix | Corner-R | L

See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SG200-RN4-02002 | 2 | 3.5 | 0.2 | 1.92 | 6 | 50 | 4 | 1 | ● |
| SG200-RN4-02003 | 2 | 3.5 | 0.3 | 1.92 | 30 | 60 | 4 | 1 | ○ |
| SG200-RN4-02005 | 2 | 3.5 | 0.5 | 1.92 | 30 | 60 | 4 | 1 | ○ |
| SG200-RN4-03002 | 3 | 4 | 0.2 | 2.9 | 10 | 50 | 4 | 1 | ● |
| SG200-RN4-03003 | 3 | 4 | 0.3 | 2.9 | 20 | 50 | 4 | 1 | ● |
| SG200-RN4-03005 | 3 | 4 | 0.5 | 2.9 | 20 | 75 | 4 | 1 | ● |
| SG200-RN4-03010 | 3 | 4 | 1 | 2.9 | 20 | 75 | 4 | 1 | ○ |
| SG200-RN4-04002 | 4 | 6 | 0.2 | 3.9 | 20 | 75 | 4 | 2 | ● |
| SG200-RN4-04005 | 4 | 6 | 0.5 | 3.9 | 20 | 50 | 4 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D<6 | $^{0}_{-0.02}$ |
| 6≤D≤12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ○ | ○ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P480

# SG200-RN4

4 Flute with Reduced Neck , Cornor Raidus

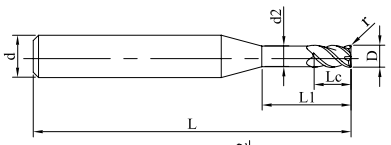



Fig1

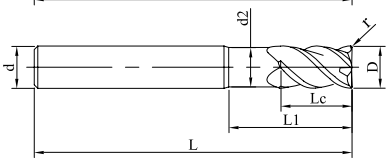



Fig2



SHANK h6 | 4 | U-DIA | 40° Helix | Corner-R | L

See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SG200-RN4-04010 | 4 | 6 | 1 | 3.9 | 20 | 50 | 4 | 2 | ● |
| SG200-RN4-06005 | 6 | 9 | 0.5 | 5.9 | 25 | 80 | 6 | 2 | ● |
| SG200-RN4-06010 | 6 | 9 | 1 | 5.9 | 25 | 60 | 6 | 2 | ● |
| SG200-RN4-08005 | 8 | 12 | 0.5 | 7.9 | 30 | 100 | 8 | 2 | ● |
| SG200-RN4-08010 | 8 | 12 | 1 | 7.9 | 30 | 100 | 8 | 2 | ● |
| SG200-RN4-10005 | 10 | 15 | 0.5 | 9.8 | 45 | 100 | 10 | 2 | ● |
| SG200-RN4-10010 | 10 | 15 | 1 | 9.8 | 35 | 100 | 10 | 2 | ● |
| SG200-RN4-12005 | 12 | 18 | 0.5 | 11.8 | 40 | 100 | 12 | 2 | ● |
| SG200-RN4-12010 | 12 | 18 | 1 | 11.8 | 40 | 100 | 12 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D<6 | $^{0}_{-0.02}$ |
| 6≤D≤12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ○ | ○ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P480

# SG200-B2

2 Flute,Ballnose

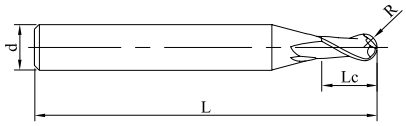



Fig1

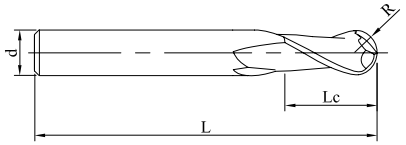



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | R | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SG200-B2-00502 | 0.5 | 0.25 | 2 | 50 | 4 | 1 | ○ |
| SG200-B2-00602 | 0.6 | 0.3 | 2 | 50 | 4 | 1 | ○ |
| SG200-B2-00803 | 0.8 | 0.4 | 3 | 50 | 4 | 1 | ○ |
| SG200-B2-01002 | 1 | 0.5 | 2 | 50 | 4 | 1 | ● |
| SG200-B2-01503 | 1.5 | 0.75 | 3 | 50 | 4 | 1 | ● |
| SG200-B2-02004 | 2 | 1 | 4 | 50 | 4 | 1 | ● |
| SG200-B2-02006 | 2 | 1 | 6 | 60 | 4 | 1 | ● |
| SG200-B2-03006 | 3 | 1.5 | 6 | 50 | 4 | 1 | ● |
| SG200-B2-03008 | 3 | 1.5 | 8 | 60 | 4 | 1 | ● |
| SG200-B2-04008 | 4 | 2 | 8 | 50 | 4 | 2 | ● |
| SG200-B2-04016 | 4 | 2 | 16 | 60 | 4 | 2 | ● |
| SG200-B2-05010 | 5 | 2.5 | 10 | 50 | 6 | 1 | ● |
| SG200-B2-06012 | 6 | 3 | 12 | 50 | 6 | 2 | ● |
| SG200-B2-08014 | 8 | 4 | 14 | 60 | 8 | 2 | ● |
| SG200-B2-10018 | 10 | 5 | 18 | 75 | 10 | 2 | ● |
| SG200-B2-12022 | 12 | 6 | 22 | 75 | 12 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| R<3 | 0 -0.02 |
| 3≤R≤6 | 0 -0.03 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ○ | ○ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P480

# SG200-BN2

2 Flute with Reduced Neck, Ballnose

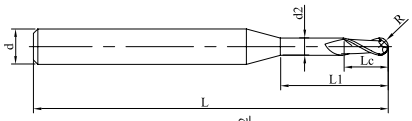



Fig1

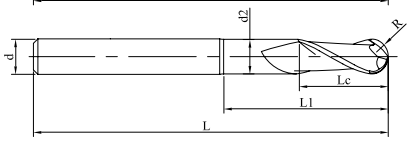



Fig2



SHANK h6 | 2 | U-DIA | 30° Helix | Ballnose

See page 149 or guidelines to icons

| Ordering Code | D | R | Lc | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SG200-BN2-00508 | 0.5 | 0.25 | 2 | 0.45 | 8 | 50 | 4 | 1 | ● |
| SG200-BN2-01010 | 1 | 0.5 | 3 | 0.95 | 10 | 50 | 4 | 1 | ● |
| SG200-BN2-01015 | 1 | 0.5 | 3 | 0.95 | 15 | 60 | 4 | 1 | ● |
| SG200-BN2-01020 | 1 | 0.5 | 3 | 0.95 | 20 | 60 | 4 | 1 | ○ |
| SG200-BN2-01515 | 1.5 | 0.75 | 3 | 1.44 | 15 | 50 | 4 | 1 | ● |
| SG200-BN2-02015 | 2 | 1 | 6 | 1.95 | 15 | 75 | 4 | 1 | ● |
| SG200-BN2-02020 | 2 | 1 | 4 | 1.92 | 20 | 75 | 4 | 1 | ● |
| SG200-BN2-02030 | 2 | 1 | 6 | 1.92 | 30 | 75 | 4 | 1 | ● |
| SG200-BN2-03015 | 3 | 1.5 | 6 | 2.9 | 15 | 50 | 4 | 1 | ○ |
| SG200-BN2-03020 | 3 | 1.5 | 6 | 2.9 | 20 | 75 | 4 | 1 | ● |
| SG200-BN2-04012 | 4 | 2 | 8 | 3.9 | 12 | 60 | 4 | 2 | ● |
| SG200-BN2-04020 | 4 | 2 | 8 | 3.9 | 20 | 60 | 4 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| R<3 | 0 -0.02 |
| 3≤R≤6 | 0 -0.03 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ○ | ○ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P481

# SG200-BN2

2 Flute with Reduced Neck, Ballnose

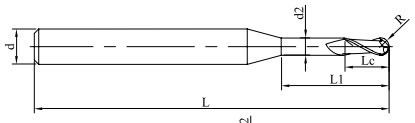



Fig1

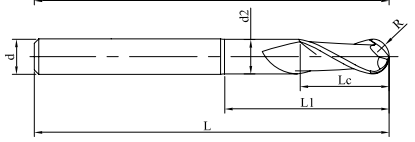



Fig2



SHANK h6 | 2 | U-DIA | 30° Helix | Ballnose

See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | R | Lc | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SG200-BN2-06018 | 6 | 3 | 12 | 5.9 | 18 | 75 | 6 | 2 | ○ |
| SG200-BN2-06025 | 6 | 3 | 16 | 5.9 | 25 | 75 | 6 | 2 | ● |
| SG200-BN2-06030 | 6 | 3 | 12 | 5.9 | 30 | 75 | 6 | 2 | ● |
| SG200-BN2-08024 | 8 | 4 | 14 | 7.9 | 24 | 100 | 8 | 2 | ○ |
| SG200-BN2-08030 | 8 | 4 | 20 | 7.9 | 30 | 100 | 8 | 2 | ● |
| SG200-BN2-08040 | 8 | 4 | 14 | 7.9 | 40 | 100 | 8 | 2 | ● |
| SG200-BN2-10030 | 10 | 5 | 18 | 9.8 | 30 | 100 | 10 | 2 | ● |
| SG200-BN2-10040 | 10 | 5 | 22 | 9.8 | 40 | 100 | 10 | 2 | ● |
| SG200-BN2-10050 | 10 | 5 | 18 | 9.8 | 50 | 100 | 10 | 2 | ● |
| SG200-BN2-12035 | 12 | 6 | 22 | 11.8 | 35 | 100 | 12 | 2 | ○ |
| SG200-BN2-12050 | 12 | 6 | 22 | 11.8 | 50 | 100 | 12 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| R<3 | $^{0}_{-0.02}$ |
| 3≤R≤6 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ○ | ○ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P481

# SG200-M-RN4

4 Flute with Reduced Neck, Cornor Raidus

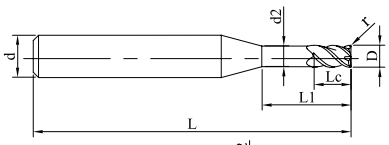



Fig1

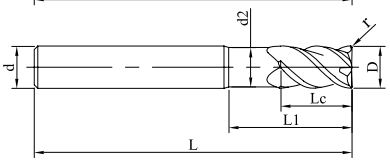



Fig2



SHANK h5 | 4 | N-DIA | 40° Helix | Corner-R | L

See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SG200-M-RN4-1-6-0.1-50 | 1 | 2 | 0.1 | 0.96 | 6 | 50 | 4 | 1 | ○ |
| SG200-M-RN4-2-6-0.15-50 | 2 | 3.5 | 0.15 | 1.92 | 6 | 50 | 4 | 1 | ● |
| SG200-M-RN4-2-12-0.15-50 | 2 | 3.5 | 0.15 | 1.92 | 12 | 50 | 4 | 1 | ● |
| SG200-M-RN4-2-6-0.2-50 | 2 | 3.5 | 0.2 | 1.92 | 6 | 50 | 4 | 1 | ● |
| SG200-M-RN4-2-12-0.2-50 | 2 | 3.5 | 0.2 | 1.92 | 12 | 50 | 4 | 1 | ● |
| SG200-M-RN4-2-6-0.3-50 | 2 | 3.5 | 0.3 | 1.92 | 6 | 50 | 4 | 1 | ○ |
| SG200-M-RN4-2-12-0.3-50 | 2 | 3.5 | 0.3 | 1.92 | 12 | 50 | 4 | 1 | ○ |
| SG200-M-RN4-3-10-0.15-50 | 3 | 4 | 0.15 | 2.9 | 10 | 50 | 4 | 1 | ● |
| SG200-M-RN4-3-10-0.2-50 | 3 | 4 | 0.2 | 2.9 | 10 | 50 | 4 | 1 | ● |
| SG200-M-RN4-3-15-0.2-50 | 3 | 4 | 0.2 | 2.9 | 15 | 50 | 4 | 1 | ● |
| SG200-M-RN4-3-10-0.5-50 | 3 | 4 | 0.5 | 2.9 | 10 | 50 | 4 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤4 | 0 -0.010 |
| D>4 | 0 -0.015 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ○ | ○ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P481

# SG200-M-RN4

4 Flute with Reduced Neck, Cornor Raidus

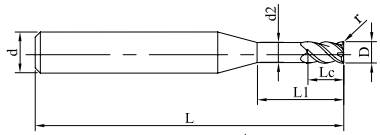



Fig1

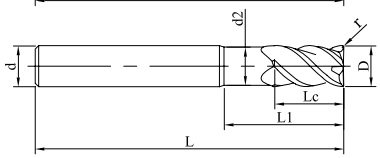



Fig2



SHANK h5 | 4 | N-DIA | 40° Helix | Corner-R | L

See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SG200-M-RN4-4-10-0.2-50 | 4 | 6 | 0.2 | 3.9 | 10 | 50 | 4 | 2 | ● |
| SG200-M-RN4-4-15-0.5-50 | 4 | 6 | 0.5 | 3.9 | 15 | 50 | 4 | 2 | ● |
| SG200-M-RN4-4-10-1-50 | 4 | 6 | 1 | 3.9 | 10 | 50 | 4 | 2 | ○ |
| SG200-M-RN4-6-25-0.5-50 | 6 | 9 | 0.5 | 5.9 | 25 | 50 | 6 | 2 | ● |
| SG200-M-RN4-6-25-1-50 | 6 | 9 | 1 | 5.9 | 25 | 50 | 6 | 2 | ○ |
| SG200-M-RN4-6-20-1.5-50 | 6 | 15 | 1.5 | 5.9 | 20 | 50 | 6 | 2 | ○ |
| SG200-M-RN4-6-20-2-50 | 6 | 15 | 2 | 5.9 | 20 | 50 | 6 | 2 | ○ |
| SG200-M-RN4-8-30-1-60 | 8 | 10 | 1 | 7.9 | 30 | 60 | 8 | 2 | ○ |
| SG200-M-RN4-10-35-0.5-75 | 10 | 15 | 0.5 | 9.8 | 35 | 75 | 10 | 2 | ● |
| SG200-M-RN4-10-45-1-75 | 10 | 15 | 1 | 9.8 | 45 | 75 | 10 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤4 | $^{0}_{-0.010}$ |
| D>4 | $^{0}_{-0.015}$ |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | ○ | ○ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P481

# SG200-M-B2

2 Flute,Ballnose

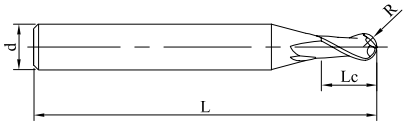



Fig1

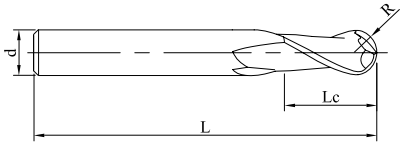



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | R | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SG200-M-B2-0.4-1.5-50 | 0.4 | 0.2 | 1.5 | 50 | 4 | 1 | ○ |
| SG200-M-B2-0.5-2-50 | 0.5 | 0.25 | 2 | 50 | 4 | 1 | ● |
| SG200-M-B2-0.6-2-50 | 0.6 | 0.3 | 2 | 50 | 4 | 1 | ○ |
| SG200-M-B2-0.8-3-50 | 0.8 | 0.4 | 3 | 50 | 4 | 1 | ○ |
| SG200-M-B2-1-3-50 | 1 | 0.5 | 3 | 50 | 4 | 1 | ● |
| SG200-M-B2-1.5-5-50 | 1.5 | 0.75 | 5 | 50 | 4 | 1 | ● |
| SG200-M-B2-2-6-50 | 2 | 1 | 6 | 50 | 4 | 1 | ● |
| SG200-M-B2-3-8-50 | 3 | 1.5 | 8 | 50 | 4 | 1 | ● |
| SG200-M-B2-4-16-50 | 4 | 2 | 16 | 50 | 4 | 2 | ● |
| SG200-M-B2-5-16-50 | 5 | 2.5 | 16 | 50 | 6 | 1 | ○ |
| SG200-M-B2-6-16-50 | 6 | 3 | 16 | 50 | 6 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| R≤0.4 | ±0.003 |
| R>0.4 | ±0.005 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | | | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P481

# SG200-M-BN2

2 Flute with Reduced Neck, Ballnose

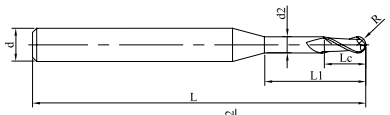



Fig1

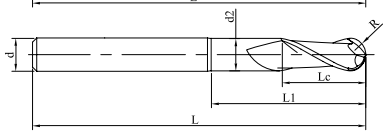



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | R | Lc | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SG200-M-BN2-0.5-8-50 | 0.5 | 0.25 | 2 | 0.46 | 8 | 50 | 4 | 1 | ○ |
| SG200-M-BN2-0.6-10-50 | 0.6 | 0.3 | 2 | 0.55 | 10 | 50 | 4 | 1 | ● |
| SG200-M-BN2-0.8-15-50 | 0.8 | 0.4 | 3 | 0.75 | 15 | 50 | 4 | 1 | ○ |
| SG200-M-BN2-1-10-50 | 1 | 0.5 | 3 | 0.95 | 10 | 50 | 4 | 1 | ● |
| SG200-M-BN2-1-15-50 | 1 | 0.5 | 3 | 0.95 | 15 | 50 | 4 | 1 | ● |
| SG200-M-BN2-1.5-15-50 | 1.5 | 0.75 | 5 | 1.44 | 15 | 50 | 4 | 1 | ● |
| SG200-M-BN2-2-10-50 | 2 | 1 | 6 | 1.92 | 10 | 50 | 4 | 1 | ● |
| SG200-M-BN2-3-15-50 | 3 | 1.5 | 8 | 2.90 | 15 | 50 | 4 | 1 | ● |
| SG200-M-BN2-4-25-50 | 4 | 2 | 8 | 3.90 | 25 | 50 | 4 | 2 | ● |
| SG200-M-BN2-6-25-50 | 6 | 3 | 16 | 5.90 | 25 | 50 | 6 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| R≤0.4 | ±0.003 |
| R>0.4 | ±0.005 |

unit (mm)

| Workpiece Material | | | | | | |
|---|---|---|---|---|---|---|
| P | | M | K | N | | |
| 1234 | 5 | 123 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Cast Iron | Aluminium Alloys | Copper Alloys | Graphite |
| | | | | | | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P481

# ST210-S4

4 Flute with Unequal Tooth Pitch

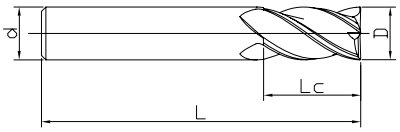



Fig1

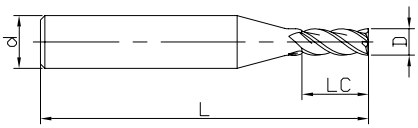



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| ST210-S4-02006 | 2 | 6 | 50 | 4 | 1 | ● |
| ST210-S4-02506 | 2.5 | 6 | 50 | 4 | 1 | ● |
| ST210-S4-03009 | 3 | 9 | 50 | 4 | 1 | ● |
| ST210-S4-03509 | 3.5 | 9 | 50 | 4 | 1 | ● |
| ST210-S4-04011 | 4 | 11 | 50 | 4 | 2 | ● |
| ST210-S4-04511 | 4.5 | 11 | 50 | 4 | 1 | ○ |
| ST210-S4-05013 | 5 | 13 | 50 | 6 | 1 | ● |
| ST210-S4-06016 | 6 | 16 | 50 | 6 | 2 | ● |
| ST210-S4-08020 | 8 | 20 | 60 | 8 | 2 | ● |
| ST210-S4-10025 | 10 | 25 | 72 | 10 | 2 | ● |
| ST210-S4-12030 | 12 | 30 | 75 | 12 | 2 | ● |
| ST210-S4-14032 | 14 | 32 | 80 | 14 | 2 | ○ |
| ST210-S4-16036 | 16 | 36 | 100 | 16 | 2 | ● |
| ST210-S4-20045 | 20 | 45 | 100 | 20 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D<6 | $^{0}_{-0.02}$ |
| 6≤D≤16 | $^{0}_{-0.03}$ |
| D>16 | $^{0}_{-0.04}$ |

unit (mm)

| Workpiece Material | | | | |
|---|---|---|---|---|
| P | | M | S | |
| 1 2 3 4 | 5 | 1 2 3 | 1 2 3 | 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Heat-resistant Alloys | Titanium Alloys |
| ○ | ○ | ◎ | ○ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P482

# ST210-R4

4 Flute with Unequal Tooth Pitch,Cornor Raidus

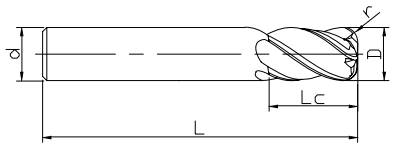



Fig1

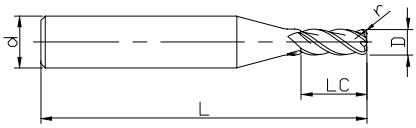



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | r | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| ST210-R4-02002 | 2 | 0.2 | 6 | 50 | 4 | 2 | ○ |
| ST210-R4-03003 | 3 | 0.3 | 9 | 50 | 4 | 2 | ○ |
| ST210-R4-03005 | 3 | 0.5 | 9 | 50 | 4 | 2 | ○ |
| ST210-R4-04005 | 4 | 0.5 | 11 | 50 | 4 | 1 | ● |
| ST210-R4-04010 | 4 | 1 | 11 | 50 | 4 | 1 | ● |
| ST210-R4-05005 | 5 | 0.5 | 13 | 50 | 6 | 2 | ○ |
| ST210-R4-06005 | 6 | 0.5 | 16 | 50 | 6 | 1 | ● |
| ST210-R4-06010 | 6 | 1 | 16 | 50 | 6 | 1 | ● |
| ST210-R4-08005 | 8 | 0.5 | 20 | 60 | 8 | 1 | ● |
| ST210-R4-08010 | 8 | 1 | 20 | 60 | 8 | 1 | ● |
| ST210-R4-10005 | 10 | 0.5 | 25 | 72 | 10 | 1 | ● |
| ST210-R4-10010 | 10 | 1 | 25 | 72 | 10 | 1 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D<6 | $^{0}_{-0.02}$ |
| 6≤D≤16 | $^{0}_{-0.03}$ |
| D>16 | $^{0}_{-0.04}$ |

unit (mm)

| Workpiece Material | | | | |
|---|---|---|---|---|
| P | | M | S | |
| 1 2 3 4 | 5 | 1 2 3 | 1 2 3 | 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Heat-resistant Alloys | Titanium Alloys |
| ○ | ○ | ◎ | ○ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P482

# ST210-R4

4 Flute with Unequal Tooth Pitch,Cornor Raidus

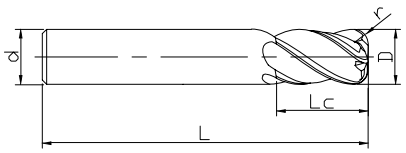



Fig1






See page 149 or guidelines to icons

| Ordering Code | D | r | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| ST210-R4-10020 | 10 | 2 | 25 | 72 | 10 | 1 | ○ |
| ST210-R4-12010 | 12 | 1 | 30 | 75 | 12 | 1 | ● |
| ST210-R4-12020 | 12 | 2 | 30 | 75 | 12 | 1 | ○ |
| ST210-R4-12030 | 12 | 3 | 30 | 75 | 12 | 1 | ● |
| ST210-R4-16010 | 16 | 1 | 36 | 100 | 16 | 1 | ● |
| ST210-R4-16020 | 16 | 2 | 36 | 100 | 16 | 1 | ○ |
| ST210-R4-16030 | 16 | 3 | 36 | 100 | 16 | 1 | ● |
| ST210-R4-20010 | 20 | 1 | 45 | 100 | 20 | 1 | ● |
| ST210-R4-20020 | 20 | 2 | 45 | 100 | 20 | 1 | ○ |
| ST210-R4-20030 | 20 | 3 | 45 | 100 | 20 | 1 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤16 | 0 -0.03 |
| D>16 | 0 -0.04 |

unit (mm)

| Workpiece Material | | | | |
|---|---|---|---|---|
| P | | M | S | |
| 1 2 3 4 | 5 | 1 2 3 | 1 2 3 | 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Heat-resistant Alloys | Titanium Alloys |
| ○ | ○ | ◎ | ○ | ◎ |

◎ Most Suitable ○ Suitable

# ST210-RN4

4 Flute with Unequal Tooth Pitch and Reduced Neck,Cornor Raidus

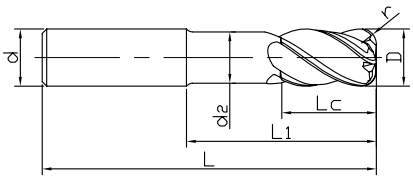



Fig1






See page 149 or guidelines to icons

| Ordering Code | D | r | Lc | L1 | D2 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| ST210-RN4-12010 | 12 | 1 | 24 | 45 | 11 | 90 | 12 | 1 | ○ |
| ST210-RN4-12030 | 12 | 3 | 24 | 45 | 11 | 90 | 12 | 1 | ○ |
| ST210-RN4-16010 | 16 | 1 | 30 | 60 | 15 | 110 | 16 | 1 | ○ |
| ST210-RN4-16030 | 16 | 3 | 30 | 60 | 15 | 110 | 16 | 1 | ○ |
| ST210-RN4-20010 | 20 | 1 | 40 | 65 | 19 | 115 | 20 | 1 | ○ |
| ST210-RN4-20030 | 20 | 3 | 40 | 65 | 19 | 115 | 20 | 1 | ○ |
| ST210-RN4-25030 | 25 | 3 | 50 | 75 | 24 | 135 | 25 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤16 | $^{0}_{-0.03}$ |
| D>16 | $^{0}_{-0.04}$ |

unit (mm)

| Workpiece Material | | | | |
|---|---|---|---|---|
| P | | M | S | |
| 1 2 3 4 | 5 | 1 2 3 | 1 2 3 | 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Heat-resistant Alloys | Titanium Alloys |
| ○ | ○ | ◎ | ○ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P482

# ST210-RL5

5 Flute with Unequal Tooth Pitch and Long Flute, Cornor Raidus

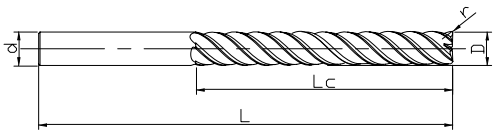



Fig1






See page 149 or guidelines to icons

| Ordering Code | D | r | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| ST210-RL5-16005 | 16 | 0.5 | 48 | 100 | 16 | 1 | ○ |
| ST210-RL5-16005A | 16 | 0.5 | 80 | 130 | 16 | 1 | ○ |
| ST210-RL5-200005 | 20 | 0.5 | 60 | 110 | 20 | 1 | ○ |
| ST210-RL5-200005A | 20 | 0.5 | 100 | 150 | 20 | 1 | ○ |
| ST210-RL5-25005 | 25 | 0.5 | 75 | 155 | 25 | 1 | ○ |
| ST210-RL5-25005A | 25 | 0.5 | 125 | 205 | 25 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤16 | $^{0}_{-0.03}$ |
| D>16 | $^{0}_{-0.04}$ |

unit (mm)

| Workpiece Material | | | | |
|---|---|---|---|---|
| P | | M | S | |
| 1 2 3 4 | 5 | 1 2 3 | 1 2 3 | 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Heat-resistant Alloys | Titanium Alloys |
| ○ | ○ | ◎ | ○ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P483

# ST210-B4

4 Flute with Unequal Tooth Pitch,Ballnose

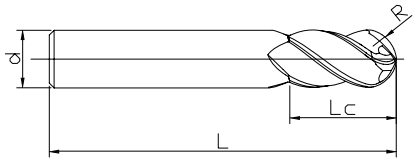



Fig1






See page 149 or guidelines to icons

| Ordering Code | D | R | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| ST210-B4-02004 | 2 | 1 | 4 | 50 | 6 | 1 | ○ |
| ST210-B4-03006 | 3 | 1.5 | 6 | 50 | 6 | 1 | ○ |
| ST210-B4-04008 | 4 | 2 | 8 | 50 | 6 | 1 | ● |
| ST210-B4-05010 | 5 | 2.5 | 10 | 50 | 6 | 1 | ○ |
| ST210-B4-06012 | 6 | 3 | 12 | 50 | 6 | 1 | ● |
| ST210-B4-08014 | 8 | 4 | 14 | 60 | 8 | 1 | ● |
| ST210-B4-10018 | 10 | 5 | 18 | 75 | 10 | 1 | ● |
| ST210-B4-12022 | 12 | 6 | 22 | 75 | 12 | 1 | ○ |
| ST210-B4-16030 | 16 | 8 | 30 | 100 | 16 | 1 | ○ |
| ST210-B4-20038 | 20 | 10 | 38 | 100 | 20 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| R≥1 | ±0.02 |

unit (mm)

| Workpiece Material | | | | |
|---|---|---|---|---|
| P | | M | S | |
| 1 2 3 4 | 5 | 1 2 3 | 1 2 3 | 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Heat-resistant Alloys | Titanium Alloys |
| ○ | ○ | ◎ | ○ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P483

# ST300-RN4

4 Flute with Unequal Tooth Pitch and Reduced Neck, Internal Coolant, Cornor Raidus

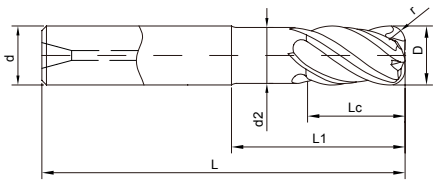



Fig1






See page 149 or guidelines to icons

| Ordering Code | D | r | Lc | L1 | d2 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| ST300-RN4-12010 | 12 | 1 | 24 | 38 | 11.4 | 90 | 12 | 1 | ○ |
| ST300-RN4-12030 | 12 | 3 | 24 | 38 | 11.4 | 90 | 12 | 1 | ○ |
| ST300-RN4-16010 | 16 | 1 | 32 | 47 | 15.4 | 100 | 16 | 1 | ○ |
| ST300-RN4-16030 | 16 | 3 | 32 | 47 | 15.4 | 100 | 16 | 1 | ○ |
| ST300-RN4-20010 | 20 | 1 | 40 | 57 | 19.4 | 115 | 20 | 1 | ○ |
| ST300-RN4-20030 | 20 | 3 | 40 | 57 | 19.4 | 115 | 20 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤16 | $^{0}_{-0.03}$ |
| D>12 | $^{0}_{-0.04}$ |

unit ( mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | M | S | | |
| 1 2 3 4 | 5 | 1 2 3 | 4 | | |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | TA α | TC α+β | TB β |
| ○ | ○ | ○ | ◎ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P484

# ST300-RN5

5 Flute with Unequal Tooth Pitch and Reduced Neck, Internal Coolant, Cornor Raidus

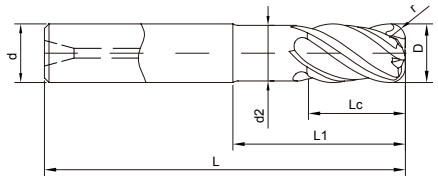
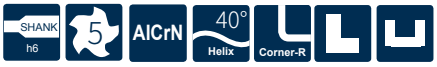



Fig1






See page 149 or guidelines to icons

| Ordering Code | D | r | Lc | L1 | d2 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| ST300-RN5-16010 | 16 | 1 | 32 | 47 | 15.4 | 100 | 16 | 1 | ○ |
| ST300-RN5-16030 | 16 | 3 | 32 | 47 | 15.4 | 100 | 16 | 1 | ● |
| ST300-RN5-20010 | 20 | 1 | 40 | 67 | 19.4 | 117 | 20 | 1 | ○ |
| ST300-RN5-20030 | 20 | 3 | 40 | 67 | 19.4 | 117 | 20 | 1 | ○ |
| ST300-RN5-25030 | 25 | 3 | 50 | 82 | 24.4 | 138 | 25 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤16 | $^{0}_{-0.03}$ |
| D>12 | $^{0}_{-0.04}$ |

unit ( mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | M | S | | |
| 1 2 3 4 | 5 | 1 2 3 | 4 | | |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | TA α | TC α+β | TB β |
| ○ | ○ | ○ | ◎ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P485

# SN200-R4

4Flute with Unequal Tooth Pitch,Cornor Raidus

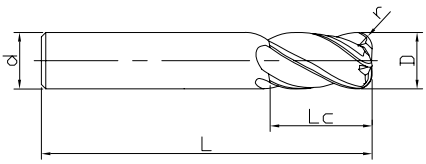



Fig1






See page 149 or guidelines to icons

| Ordering Code | D | r | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SN200-R4-06005 | 6 | 0.5 | 15 | 50 | 6 | 1 | ● |
| SN200-R4-08010 | 8 | 1 | 19 | 63 | 8 | 1 | ● |
| SN200-R4-10010 | 10 | 1 | 22 | 72 | 10 | 1 | ● |
| SN200-R4-12010 | 12 | 1 | 26 | 83 | 12 | 1 | ● |
| SN200-R4-16010 | 16 | 1 | 32 | 92 | 16 | 1 | ○ |
| SN200-R4-18010 | 18 | 1 | 32 | 92 | 18 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.03}$ |
| D>12 | $^{0}_{-0.04}$ |

unit (mm)

| Workpiece Material | | | | |
|---|---|---|---|---|
| P | | M | S | |
| 1 2 3 4 | 5 | 1 2 3 | 1 2 3 | 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Heat-resistant Alloys | Titanium Alloys |
| ○ | ○ | ◎ | ○ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P486

# SN200-B4

4 Flute with Unequal Tooth Pitch,Ballnose

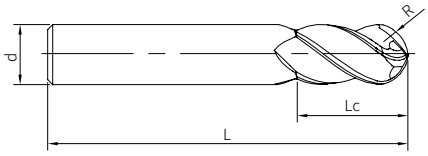



Fig1






See page 149 or guidelines to icons

| Ordering Code | D | R | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SN200-B4-06012 | 6 | 3 | 12 | 50 | 6 | 1 | ○ |
| SN200-B4-08014 | 8 | 4 | 14 | 60 | 8 | 1 | ○ |
| SN200-B4-10018 | 10 | 5 | 18 | 75 | 10 | 1 | ○ |
| SN200-B4-12022 | 12 | 6 | 22 | 75 | 12 | 1 | ○ |
| SN200-B4-16026 | 16 | 8 | 26 | 90 | 16 | 1 | ○ |

●Stock ○Available upon Order

| R | Tol |
|---|---|
| R≥3 | ±0.020 |

unit (mm)

| Workpiece Material | | | | |
|---|---|---|---|---|
| P | | M | S | |
| 1 2 3 4 | 5 | 1 2 3 | 1 2 3 | 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | Heat-resistant Alloys | Titanium Alloys |
| ○ | ○ | ◎ | ○ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P487

# SD200-KDA

12 Flute, Rhombic teeth

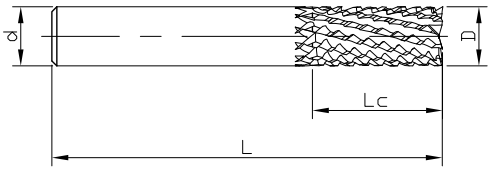



Fig1






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| SD200-KDA-04010 | 4 | 10 | 50 | 4 | 1 | ○ |
| SD200-KDA-06015 | 6 | 15 | 60 | 6 | 1 | ○ |
| SD200-KDA-08020 | 8 | 20 | 60 | 8 | 1 | ○ |
| SD200-KDA-10025 | 10 | 25 | 75 | 10 | 1 | ○ |
| SD200-KDA-12030 | 12 | 30 | 85 | 12 | 1 | ○ |

●Stock ○Available upon Order

| R | Tol |
|---|---|
| 4≤D≤12 | $^{0}_{-0.04}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | M | N | | |
| 1234 | 5 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | AluminiumAlloys | Copper Alloys | Carbon fiber, glass fiber,composite material |
| | | | | | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P488

# SD200-JD2

2 Flute, Herringbone Endmill

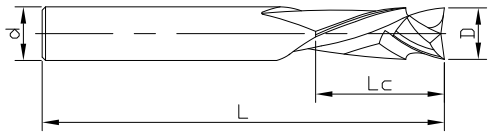



Fig1






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| SD200-JD2-04010 | 4 | 10 | 50 | 4 | 1 | ○ |
| SD200-JD2-06015 | 6 | 15 | 50 | 6 | 1 | ○ |
| SD200-JD2-08020 | 8 | 20 | 60 | 8 | 1 | ○ |
| SD200-JD2-10025 | 10 | 25 | 75 | 10 | 1 | ○ |
| SD200-JD2-12030 | 12 | 30 | 75 | 12 | 1 | ○ |

●Stock ○Available upon Order

| R | Tol |
|---|---|
| 4≤D≤12 | $^{0}_{-0.04}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | M | N | | |
| 1234 | 5 | 123 | 123 | 4 | 5 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | StainlessSteel | AluminiumAlloys | Copper Alloys | Carbon fiber, glass fiber,composite material |
| | | | | | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P488

# SH260-S2-H

NEW

2 Flute, Standard Length

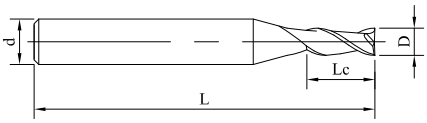



Fig1

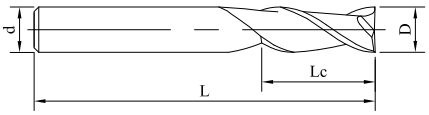



Fig2



SHANK h6 | 2 | TiAlCrSiN | 35° Helix | Square

See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| SH260-S2-1-2.5-H | 1 | 2.5 | 50 | 4 | 1 | ● |
| SH260-S2-2-5-H | 2 | 5 | 50 | 4 | 1 | ● |
| SH260-S2-3-7.5-H | 3 | 7.5 | 50 | 4 | 1 | ● |
| SH260-S2-4-10-H | 4 | 10 | 50 | 4 | 2 | ● |
| SH260-S2-5-12.5-H | 5 | 12.5 | 50 | 6 | 1 | ● |
| SH260-S2-6-15-H | 6 | 15 | 50 | 6 | 2 | ● |
| SH260-S2-8-20-H | 8 | 20 | 60 | 8 | 2 | ● |
| SH260-S2-10-25-H | 10 | 25 | 75 | 10 | 2 | ● |
| SH260-S2-12-30-H | 12 | 30 | 75 | 12 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤6 | 0 -0.01 |
| D>6 | 0 -0.02 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P489

# SH260-SN2-H NEW

2 Flute, Reduced Neck

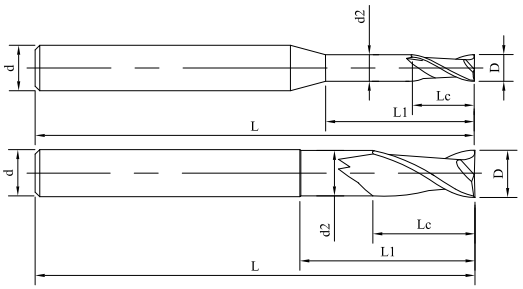



Fig1

Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|
| SH260-SN2-1-3-H | 1 | 1.5 | 0.96 | 3 | 50 | 4 | 1 | ● |
| SH260-SN2-1-4-H | 1 | 1.5 | 0.96 | 4 | 50 | 4 | 1 | ● |
| SH260-SN2-1-6-H | 1 | 1.5 | 0.96 | 6 | 50 | 4 | 1 | ● |
| SH260-SN2-1-8-H | 1 | 1.5 | 0.96 | 8 | 50 | 4 | 1 | ● |
| SH260-SN2-1-10-H | 1 | 1.5 | 0.96 | 10 | 50 | 4 | 1 | ● |
| SH260-SN2-1.5-6-H | 1.5 | 2.5 | 1.44 | 6 | 50 | 4 | 1 | ● |
| SH260-SN2-1.5-10-H | 1.5 | 2.5 | 1.44 | 10 | 50 | 4 | 1 | ● |
| SH260-SN2-2-6-H | 2 | 3 | 1.92 | 6 | 50 | 4 | 1 | ● |
| SH260-SN2-2-8-H | 2 | 3 | 1.92 | 8 | 50 | 4 | 1 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤6 | 0 -0.01 |
| D>6 | 0 -0.02 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P489

# SH260-SN2-H NEW

2 Flute,Reduced Neck

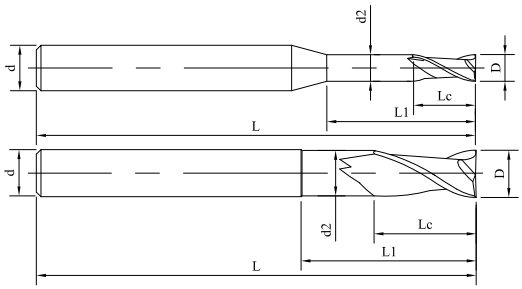



Fig1

Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|
| SH260-SN2-2-10-H | 2 | 3 | 1.92 | 10 | 50 | 4 | 1 | ● |
| SH260-SN2-2-12-H | 2 | 3 | 1.92 | 12 | 50 | 4 | 1 | ● |
| SH260-SN2-3-9-H | 3 | 4.5 | 2.88 | 9 | 50 | 4 | 1 | ● |
| SH260-SN2-3-18-H | 3 | 4.5 | 2.88 | 18 | 50 | 4 | 1 | ● |
| SH260-SN2-4-12-H-6 | 4 | 6 | 3.8 | 12 | 60 | 6 | 1 | ● |
| SH260-SN2-4-24-H-6 | 4 | 6 | 3.8 | 24 | 60 | 6 | 1 | ● |
| SH260-SN2-5-15-H | 5 | 7.5 | 4.8 | 15 | 60 | 6 | 1 | ● |
| SH260-SN2-6-18-H | 6 | 9 | 5.8 | 18 | 75 | 6 | 2 | ● |
| SH260-SN2-6-36-H | 6 | 9 | 5.8 | 36 | 75 | 6 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤6 | 0 -0.01 |
| D>6 | 0 -0.02 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P489

# SH260-S4-H

NEW

4 Flute, Standard Length

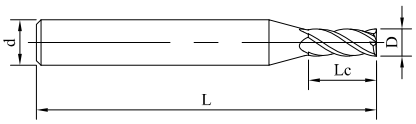



Fig1

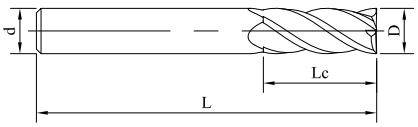



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| SH260-S4-1-2.5-H | 1 | 2.5 | 50 | 4 | 1 | ● |
| SH260-S4-1-2.5-H-6 | 1 | 2.5 | 50 | 6 | 1 | ● |
| SH260-S4-1.5-4-H | 1.5 | 4 | 50 | 4 | 1 | ● |
| SH260-S4-2-5-H | 2 | 5 | 50 | 4 | 1 | ● |
| SH260-S4-2.5-6-H | 2.5 | 6 | 50 | 4 | 1 | ● |
| SH260-S4-3-8-H-3 | 3 | 8 | 50 | 3 | 2 | ● |
| SH260-S4-3-8-H | 3 | 8 | 50 | 4 | 1 | ● |
| SH260-S4-4-10-H | 4 | 10 | 50 | 4 | 2 | ● |
| SH260-S4-5-13-H | 5 | 13 | 50 | 6 | 1 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤6 | $^{0}_{-0.01}$ |
| 6<D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

# SH260-S4-H NEW

4 Flute, Standard Length

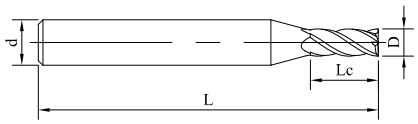



Fig1

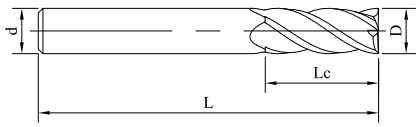



Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| SH260-S4-6-15-H | 6 | 15 | 50 | 6 | 2 | ● |
| SH260-S4-8-20-H | 8 | 20 | 60 | 8 | 2 | ● |
| SH260-S4-10-25-H | 10 | 25 | 75 | 10 | 2 | ● |
| SH260-S4-10-30-H | 10 | 30 | 75 | 10 | 2 | ● |
| SH260-S4-12-30-H | 12 | 30 | 75 | 12 | 2 | ● |
| SH260-S4-12-36-H | 12 | 36 | 75 | 12 | 2 | ● |
| SH260-S4-16-40-H | 16 | 40 | 100 | 16 | 2 | ● |
| SH260-S4-20-50-H | 20 | 50 | 100 | 20 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤6 | 0 -0.01 |
| 6<D≤12 | 0 -0.02 |
| D>12 | 0 -0.03 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

# SH260-SH4-H

NEW

4 Flute, Long Shank

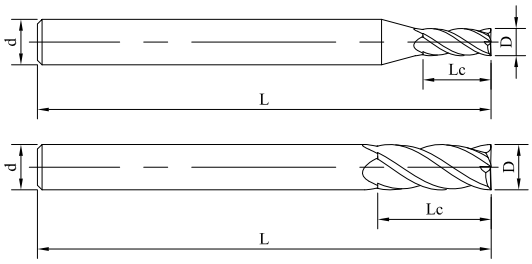



Fig1

Fig2



SHANK h6 | 4 | TiAlCrSiN | 30° Helix | Square

See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| SH260-SH4-1-60-H | 1 | 2.5 | 60 | 4 | 1 | ● |
| SH260-SH4-2-60-H | 2 | 5 | 60 | 4 | 1 | ● |
| SH260-SH4-3-60-H | 3 | 8 | 60 | 4 | 1 | ● |
| SH260-SH4-3-60-H-6 | 3 | 8 | 60 | 6 | 1 | ● |
| SH260-SH4-4-60-H | 4 | 10 | 60 | 4 | 2 | ● |
| SH260-SH4-4-75-H | 4 | 10 | 75 | 4 | 2 | ● |
| SH260-SH4-4-60-H-6 | 4 | 10 | 60 | 6 | 1 | ● |
| SH260-SH4-4-75-H-6 | 4 | 10 | 75 | 6 | 1 | ● |
| SH260-SH4-5-60-H | 5 | 13 | 60 | 6 | 1 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤6 | $^{0}_{-0.01}$ |
| 6<D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

# SH260-SH4-H NEW

4 Flute, Long Shank

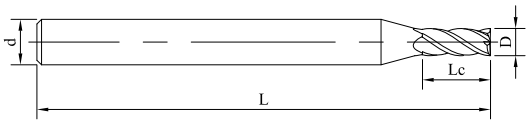



Fig1



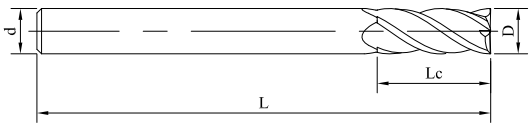



Fig2




See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| SH260-SH4-6-60-H | 6 | 15 | 60 | 6 | 2 | ● |
| SH260-SH4-6-75-H | 6 | 15 | 75 | 6 | 2 | ● |
| SH260-SH4-8-75-H | 8 | 20 | 75 | 8 | 2 | ● |
| SH260-SH4-8-100-H | 8 | 20 | 100 | 8 | 2 | ● |
| SH260-SH4-10-100-H | 10 | 25 | 100 | 10 | 2 | ● |
| SH260-SH4-12-100-H | 12 | 30 | 100 | 12 | 2 | ● |
| SH260-SH4-16-150-H | 16 | 40 | 150 | 16 | 2 | ● |
| SH260-SH4-20-150-H | 20 | 50 | 150 | 20 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤6 | $^{0}_{-0.01}$ |
| 6<D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

# SH260-SN4-H

NEW

4 Flute, Reduced Neck

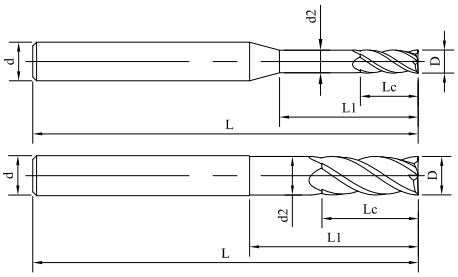



Fig1




Fig2



SHANK h6 | 4 | TiAlCrSiN | 30° Helix | Square

See page 149 or guidelines to icons

| Ordering Code | D | Lc | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|
| SH260-SN4-1-3-H | 1 | 2 | 0.96 | 3 | 50 | 4 | 1 | ● |
| SH260-SN4-1-6-H | 1 | 2 | 0.96 | 6 | 50 | 4 | 1 | ● |
| SH260-SN4-2-6-H | 2 | 4 | 1.92 | 6 | 50 | 4 | 1 | ● |
| SH260-SN4-2-12-H | 2 | 4 | 1.92 | 12 | 50 | 4 | 1 | ● |
| SH260-SN4-2.5-10-H | 2.5 | 5 | 2.4 | 10 | 60 | 4 | 1 | ● |
| SH260-SN4-3-9-H | 3 | 6 | 2.88 | 9 | 50 | 4 | 1 | ● |
| SH260-SN4-3-18-H-6 | 3 | 6 | 2.88 | 18 | 60 | 6 | 1 | ● |
| SH260-SN4-4-12-H | 4 | 8 | 3.8 | 12 | 60 | 4 | 2 | ● |
| SH260-SN4-4-24-H-6 | 4 | 8 | 3.8 | 24 | 60 | 6 | 1 | ● |
| SH260-SN4-5-15-H | 5 | 10 | 4.8 | 15 | 60 | 6 | 1 | ● |
| SH260-SN4-6-18-H | 6 | 12 | 5.8 | 18 | 75 | 6 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤6 | 0 -0.01 |
| 6<D≤12 | 0 -0.02 |
| D>12 | 0 -0.03 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

# SH260-SN4-H

NEW

4 Flute,Reduced Neck

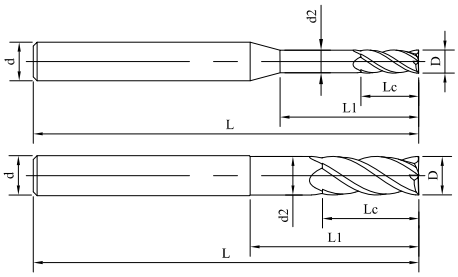



Fig1

Fig2



SHANK h6 | 4 | TiAlCrSiN | 30° Helix | Square

See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|
| SH260-SN4-6-24-H | 6 | 12 | 5.8 | 24 | 75 | 6 | 2 | ● |
| SH260-SN4-8-24-H | 8 | 16 | 7.8 | 24 | 75 | 8 | 2 | ● |
| SH260-SN4-8-32-H | 8 | 16 | 7.8 | 32 | 100 | 8 | 2 | ● |
| SH260-SN4-10-30-H | 10 | 20 | 9.8 | 30 | 100 | 10 | 2 | ● |
| SH260-SN4-10-40-H | 10 | 20 | 9.8 | 40 | 100 | 10 | 2 | ● |
| SH260-SN4-12-36-H | 12 | 24 | 11.8 | 36 | 100 | 12 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤6 | $^{0}_{-0.01}$ |
| 6<D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

# SH260-SL4-H NEW

4 Flute,Long Flute

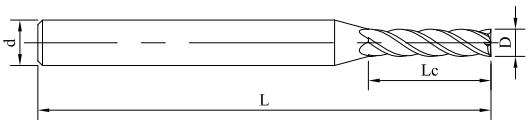



Fig1



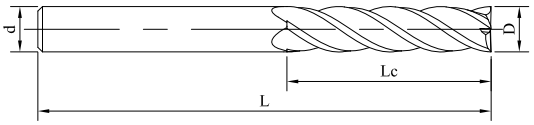



Fig2




See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| SH260-SL4-1-5-H | 1 | 5 | 50 | 4 | 1 | ● |
| SH260-SL4-2-10-H | 2 | 10 | 50 | 4 | 1 | ● |
| SH260-SL4-3-15-H | 3 | 15 | 50 | 4 | 1 | ● |
| SH260-SL4-4-16-H | 4 | 16 | 60 | 4 | 2 | ● |
| SH260-SL4-4-20-H-6 | 4 | 20 | 60 | 6 | 1 | ● |
| SH260-SL4-5-20-H | 5 | 20 | 60 | 6 | 1 | ● |
| SH260-SL4-6-24-H | 6 | 24 | 75 | 6 | 2 | ● |
| SH260-SL4-8-32-H | 8 | 32 | 75 | 8 | 2 | ● |
| SH260-SL4-10-40-H | 10 | 40 | 100 | 10 | 2 | ● |
| SH260-SL4-10-50-H | 10 | 50 | 120 | 10 | 2 | ● |
| SH260-SL4-12-50-H | 12 | 50 | 120 | 12 | 2 | ● |
| SH260-SL4-16-60-H | 16 | 60 | 150 | 16 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤6 | $^{0}_{-0.01}$ |
| 6<D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

# SH260-S6-H NEW

6 Flute, Standard Length

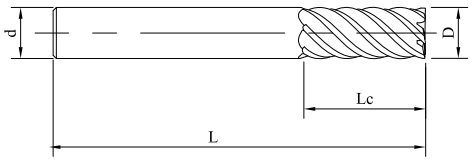



Fig1






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| SH260-S6-6-15-H | 6 | 15 | 50 | 6 | 1 | ● |
| SH260-S6-8-20-H | 8 | 20 | 60 | 8 | 1 | ● |
| SH260-S6-10-25-H | 10 | 25 | 75 | 10 | 1 | ● |
| SH260-S6-12-30-H | 12 | 30 | 75 | 12 | 1 | ● |
| SH260-S6-16-40-H | 16 | 40 | 100 | 16 | 1 | ● |
| SH260-S6-20-45-H | 20 | 45 | 100 | 20 | 1 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤6 | $^{0}_{-0.010}$ |
| D>6 | $^{0}_{-0.020}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

# SH260-SH6-H NEW

6 Flute, Long Shank

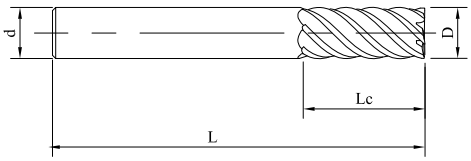



Fig1






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| SH260-SH6-6-60-H | 6 | 15 | 60 | 6 | 1 | ● |
| SH260-SH6-8-75-H | 8 | 20 | 75 | 8 | 1 | ● |
| SH260-SH6-10-100-H | 10 | 25 | 100 | 10 | 1 | ● |
| SH260-SH6-12-100-H | 12 | 30 | 100 | 12 | 1 | ● |
| SH260-SH6-16-150-H | 16 | 45 | 150 | 16 | 1 | ● |
| SH260-SH6-20-150-H | 20 | 60 | 150 | 20 | 1 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤6 | $^{0}_{-0.010}$ |
| D>6 | $^{0}_{-0.020}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

# SH260-SL6-H

NEW

6 Flute, Long Flute

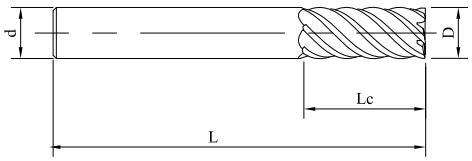



Fig1






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| SH260-SL6-6-24-H | 6 | 24 | 75 | 6 | 1 | ● |
| SH260-SL6-6-30-H | 6 | 30 | 100 | 6 | 1 | ● |
| SH260-SL6-8-32-H | 8 | 32 | 75 | 8 | 1 | ● |
| SH260-SL6-8-40-H | 8 | 40 | 100 | 8 | 1 | ● |
| SH260-SL6-10-40-H | 10 | 40 | 100 | 10 | 1 | ● |
| SH260-SL6-10-45-H | 10 | 45 | 100 | 10 | 1 | ● |
| SH260-SL6-10-50-H | 10 | 50 | 150 | 10 | 1 | ● |
| SH260-SL6-12-50-H | 12 | 50 | 100 | 12 | 1 | ● |
| SH260-SL6-12-60-H | 12 | 60 | 150 | 12 | 1 | ● |
| SH260-SL6-16-70-H | 16 | 70 | 150 | 16 | 1 | ● |
| SH260-SL6-16-80-H | 16 | 80 | 150 | 16 | 1 | ● |
| SH260-SL6-20-80-H | 20 | 80 | 150 | 20 | 1 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤6 | 0 -0.010 |
| D>6 | 0 -0.020 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

# SH260-R2-H NEW

2 Flute, Cornor Raidus

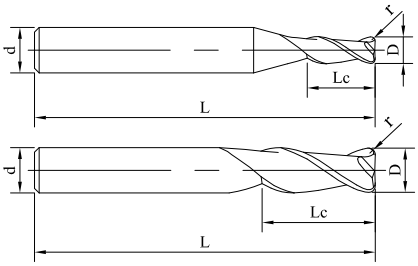



Fig1




Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SH260-R2-1-0.1-H | 1 | 2.5 | 0.1 | 50 | 4 | 1 | ● |
| SH260-R2-1-0.2-H | 1 | 2.5 | 0.2 | 50 | 4 | 1 | ● |
| SH260-R2-2-0.2-H | 2 | 5 | 0.2 | 50 | 4 | 1 | ● |
| SH260-R2-2-0.3-H | 2 | 5 | 0.3 | 50 | 4 | 1 | ● |
| SH260-R2-3-0.2-H | 3 | 7.5 | 0.2 | 50 | 4 | 1 | ● |
| SH260-R2-3-0.5-H | 3 | 7.5 | 0.5 | 50 | 4 | 1 | ● |
| SH260-R2-4-0.2-H | 4 | 10 | 0.2 | 50 | 4 | 2 | ● |
| SH260-R2-4-0.5-H | 4 | 10 | 0.5 | 50 | 4 | 2 | ● |
| SH260-R2-6-0.5-H | 6 | 15 | 0.5 | 50 | 6 | 2 | ● |
| SH260-R2-6-1-H | 6 | 15 | 1 | 50 | 6 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤6 | $^{0}_{-0.01}$ |
| D>6 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

# SH260-RN2-H NEW

2 Flute with Reduced Neck ,Cornor Raidus

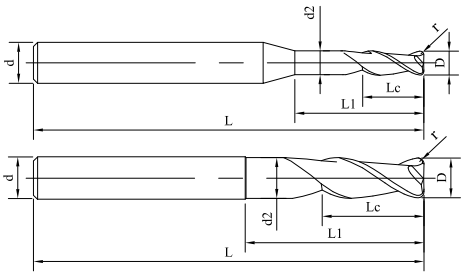



Fig1




Fig2



SHANK h6 | 2 | TiAlCrSiN | 35° Helix | Corner-R

See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SH260-RN2-1-3-0.1-H | 1 | 1.5 | 0.1 | 0.96 | 3 | 50 | 4 | 1 | ● |
| SH260-RN2-1-3-0.2-H | 1 | 1.5 | 0.2 | 0.96 | 3 | 50 | 4 | 1 | ● |
| SH260-RN2-1-4-0.2-H | 1 | 1.5 | 0.2 | 0.96 | 4 | 50 | 4 | 1 | ● |
| SH260-RN2-1-6-0.1-H | 1 | 1.5 | 0.1 | 0.96 | 6 | 50 | 4 | 1 | ● |
| SH260-RN2-1-6-0.2-H | 1 | 1.5 | 0.2 | 0.96 | 6 | 50 | 4 | 1 | ● |
| SH260-RN2-1-8-0.2-H | 1 | 1.5 | 0.2 | 0.96 | 8 | 50 | 4 | 1 | ● |
| SH260-RN2-1-10-0.2-H | 1 | 1.5 | 0.2 | 0.96 | 10 | 50 | 4 | 1 | ● |
| SH260-RN2-1.5-6-0.2-H | 1.5 | 2.5 | 0.2 | 1.44 | 6 | 50 | 4 | 1 | ● |
| SH260-RN2-1.5-8-0.2-H | 1.5 | 2.5 | 0.2 | 1.44 | 8 | 50 | 4 | 1 | ● |
| SH260-RN2-1.5-10-0.2-H | 1.5 | 2.5 | 0.2 | 1.44 | 10 | 50 | 4 | 1 | ● |
| SH260-RN2-2-6-0.2-H | 2 | 3 | 0.2 | 1.92 | 6 | 50 | 4 | 1 | ● |
| SH260-RN2-2-6-0.5-H | 2 | 3 | 0.5 | 1.92 | 6 | 50 | 4 | 1 | ● |
| SH260-RN2-2-8-0.2-H | 2 | 3 | 0.2 | 1.92 | 8 | 50 | 4 | 1 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤6 | $^{0}_{-0.01}$ |
| D>6 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P489

# SH260-RN2-H NEW

2 Flute with Reduced Neck ,Cornor Raidus

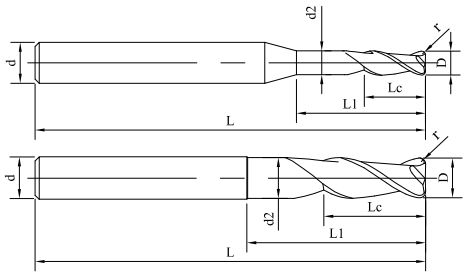



Fig1




Fig2



SHANK h6 | 2 | TiAlCrSiN | 35° Helix | Corner-R

See page 149 or guidelines to icons

》 Continuation

| Ordering Code | D | Lc | r | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SH260-RN2-2-10-0.2-H | 2 | 3 | 0.2 | 1.92 | 10 | 50 | 4 | 1 | ● |
| SH260-RN2-2-12-0.2-H | 2 | 3 | 0.2 | 1.92 | 12 | 50 | 4 | 1 | ● |
| SH260-RN2-2-12-0.5-H | 2 | 3 | 0.5 | 1.92 | 12 | 50 | 4 | 1 | ● |
| SH260-RN2-3-9-0.2-H | 3 | 4.5 | 0.2 | 2.88 | 9 | 50 | 4 | 1 | ● |
| SH260-RN2-3-9-0.5-H | 3 | 4.5 | 0.5 | 2.88 | 9 | 50 | 4 | 1 | ● |
| SH260-RN2-3-18-0.2-H | 3 | 4.5 | 0.2 | 2.88 | 18 | 50 | 4 | 1 | ● |
| SH260-RN2-3-18-0.5-H | 3 | 4.5 | 0.5 | 2.88 | 18 | 50 | 4 | 1 | ● |
| SH260-RN2-4-12-0.2-H | 4 | 6 | 0.2 | 3.8 | 12 | 50 | 4 | 2 | ● |
| SH260-RN2-4-12-0.5-H | 4 | 6 | 0.5 | 3.8 | 12 | 50 | 4 | 2 | ● |
| SH260-RN2-4-24-0.2-H | 4 | 6 | 0.2 | 3.8 | 24 | 60 | 4 | 2 | ● |
| SH260-RN2-4-24-0.5-H | 4 | 6 | 0.5 | 3.8 | 24 | 60 | 4 | 2 | ● |
| SH260-RN2-5-15-0.5-H | 5 | 7.5 | 0.5 | 4.8 | 15 | 50 | 6 | 1 | ● |
| SH260-RN2-5-30-0.5-H | 5 | 7.5 | 0.5 | 4.8 | 30 | 60 | 6 | 1 | ● |
| SH260-RN2-6-18-0.5-H | 6 | 9 | 0.5 | 5.8 | 18 | 60 | 6 | 2 | ● |
| SH260-RN2-6-36-0.5-H | 6 | 9 | 0.5 | 5.8 | 36 | 60 | 6 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤6 | $^{0}_{-0.01}$ |
| D>6 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P489

# SH260-R4-H NEW

4 Flute, Cornor Raidus

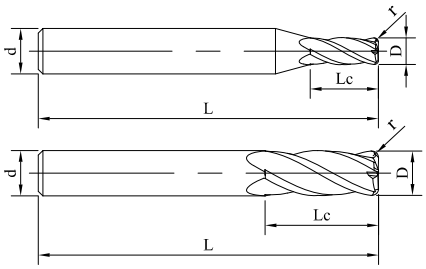



Fig1




Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SH260-R4-1-0.1-H | 1 | 2.5 | 0.1 | 50 | 4 | 1 | ● |
| SH260-R4-1-0.2-H | 1 | 2.5 | 0.2 | 50 | 4 | 1 | ● |
| SH260-R4-1.5-0.1-H | 1.5 | 4 | 0.1 | 50 | 4 | 1 | ● |
| SH260-R4-1.5-0.15-H | 1.5 | 4 | 0.15 | 50 | 4 | 1 | ○ |
| SH260-R4-1.5-0.2-H | 1.5 | 4 | 0.2 | 50 | 4 | 1 | ● |
| SH260-R4-1.5-0.3-H | 1.5 | 4 | 0.3 | 50 | 4 | 1 | ● |
| SH260-R4-2-0.1-H | 2 | 5 | 0.1 | 50 | 4 | 1 | ● |
| SH260-R4-2-0.2-H | 2 | 5 | 0.2 | 50 | 4 | 1 | ● |
| SH260-R4-2-0.3-H | 2 | 5 | 0.3 | 50 | 4 | 1 | ● |
| SH260-R4-2-0.5-H | 2 | 5 | 0.5 | 50 | 4 | 1 | ● |
| SH260-R4-3-0.2-H | 3 | 8 | 0.2 | 50 | 4 | 1 | ● |
| SH260-R4-3-0.3-H | 3 | 8 | 0.3 | 50 | 4 | 1 | ● |
| SH260-R4-3-0.5-H | 3 | 8 | 0.5 | 50 | 4 | 1 | ● |
| SH260-R4-3-0.2-H-3 | 3 | 8 | 0.2 | 50 | 3 | 2 | ● |
| SH260-R4-3-0.3-H-3 | 3 | 8 | 0.3 | 50 | 3 | 2 | ● |
| SH260-R4-3-0.2-H-6 | 3 | 8 | 0.2 | 50 | 6 | 1 | ● |
| SH260-R4-4-0.2-H | 4 | 10 | 0.2 | 50 | 4 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤6 | $^{0}_{-0.01}$ |
| 6＜D≤12 | $^{0}_{-0.02}$ |
| D＞12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (＜35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( ＜ 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( ＞ 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

# SH260-R4-H NEW

4 Flute, Cornor Raidus

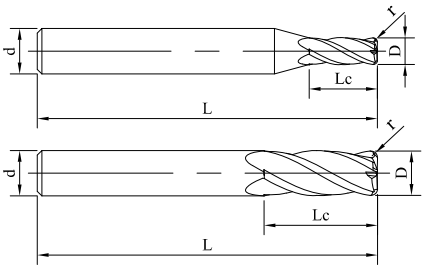



Fig1




Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SH260-R4-4-0.3-H | 4 | 10 | 0.3 | 50 | 4 | 2 | ● |
| SH260-R4-4-0.5-H | 4 | 10 | 0.5 | 50 | 4 | 2 | ● |
| SH260-R4-4-1-H | 4 | 10 | 1 | 50 | 4 | 2 | ● |
| SH260-R4-4-0.5-H-6 | 4 | 10 | 0.5 | 50 | 6 | 1 | ● |
| SH260-R4-5-0.2-H | 5 | 13 | 0.2 | 50 | 6 | 1 | ● |
| SH260-R4-5-0.5-H | 5 | 13 | 0.5 | 50 | 6 | 1 | ● |
| SH260-R4-6-0.2-H | 6 | 15 | 0.2 | 50 | 6 | 2 | ● |
| SH260-R4-6-0.3-H | 6 | 15 | 0.3 | 50 | 6 | 2 | ● |
| SH260-R4-6-0.5-H | 6 | 15 | 0.5 | 50 | 6 | 2 | ● |
| SH260-R4-6-1-H | 6 | 15 | 1 | 50 | 6 | 2 | ● |
| SH260-R4-8-0.2-H | 8 | 20 | 0.2 | 60 | 8 | 2 | ● |
| SH260-R4-8-0.3-H | 8 | 20 | 0.3 | 60 | 8 | 2 | ● |
| SH260-R4-8-0.5-H | 8 | 20 | 0.5 | 60 | 8 | 2 | ● |
| SH260-R4-8-1-H | 8 | 20 | 1 | 60 | 8 | 2 | ● |
| SH260-R4-10-0.2-H | 10 | 25 | 0.2 | 75 | 10 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤6 | $^{0}_{-0.01}$ |
| 6 < D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

# SH260-R4-H NEW

4 Flute, Cornor Raidus

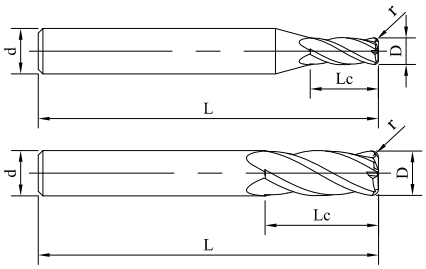



Fig1




Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SH260-R4-10-0.5-H | 10 | 25 | 0.5 | 75 | 10 | 2 | ● |
| SH260-R4-10-1-H | 10 | 25 | 1 | 75 | 10 | 2 | ● |
| SH260-R4-10-2-H | 10 | 25 | 2 | 75 | 10 | 2 | ● |
| SH260-R4-12-0.5-H | 12 | 30 | 0.5 | 75 | 12 | 2 | ● |
| SH260-R4-12-1-H | 12 | 30 | 1 | 75 | 12 | 2 | ● |
| SH260-R4-12-2-H | 12 | 30 | 2 | 75 | 12 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤6 | $^{0}_{-0.01}$ |
| 6＜D≤12 | $^{0}_{-0.02}$ |
| D＞12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (＜35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( ＜ 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( ＞ 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

# SH260-RH4-H NEW

4 Flute with Long Shank, Cornor Raidus

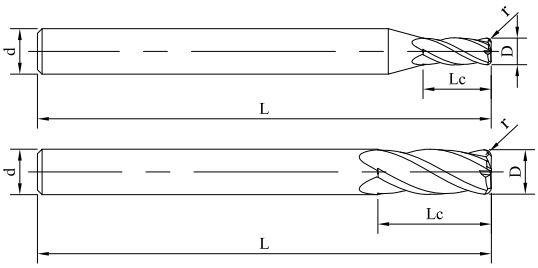



Fig1

Fig2



SHANK h6 | 4 | TiAlCrSiN | 30° Helix | Corner-R | L

See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SH260-RH4-2.5-60-0.5-H-6 | 2.5 | 6 | 0.5 | 60 | 6 | 1 | ● |
| SH260-RH4-3-60-0.5-H-6 | 3 | 8 | 0.5 | 60 | 6 | 1 | ● |
| SH260-RH4-4-60-0.2-H | 4 | 10 | 0.2 | 60 | 4 | 2 | ● |
| SH260-RH4-4-60-0.3-H | 4 | 10 | 0.3 | 60 | 4 | 2 | ● |
| SH260-RH4-4-60-0.5-H | 4 | 10 | 0.5 | 60 | 4 | 2 | ● |
| SH260-RH4-4-75-0.5-H | 4 | 10 | 0.5 | 75 | 4 | 2 | ● |
| SH260-RH4-4-60-1-H | 4 | 10 | 1 | 60 | 4 | 2 | ● |
| SH260-RH4-4-75-0.5-H-6 | 4 | 10 | 0.5 | 75 | 6 | 1 | ● |
| SH260-RH4-4-60-1-H-6 | 4 | 10 | 1 | 60 | 6 | 1 | ● |
| SH260-RH4-5-60-0.5-H | 5 | 13 | 0.5 | 60 | 6 | 1 | ● |
| SH260-RH4-6-60-0.2-H | 6 | 15 | 0.2 | 60 | 6 | 2 | ● |
| SH260-RH4-6-60-0.3-H | 6 | 15 | 0.3 | 60 | 6 | 2 | ● |
| SH260-RH4-6-75-0.3-H | 6 | 15 | 0.3 | 60 | 6 | 2 | ● |
| SH260-RH4-6-60-0.5-H | 6 | 15 | 0.5 | 6 | 6 | 2 | ● |
| SH260-RH4-6-75-0.5-H | 6 | 15 | 0.5 | 75 | 6 | 2 | ● |
| SH260-RH4-6-100-0.5-H | 6 | 15 | 0.5 | 100 | 6 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤6 | $^{0}_{-0.01}$ |
| 6 < D≤12 | $^{0}_{-0.02}$ |
| D>12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

# SH260-RH4-H

NEW

4 Flute with Long Shank, Cornor Raidus

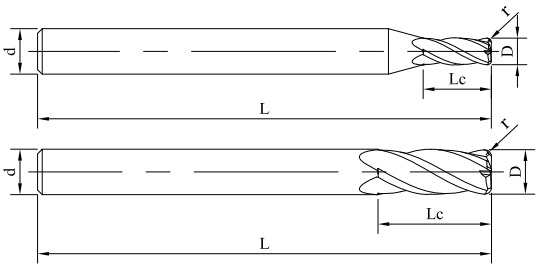



Fig1



Fig2




See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SH260-RH4-6-60-1-H | 6 | 15 | 1 | 60 | 6 | 2 | ● |
| SH260-RH4-6-75-1-H | 6 | 15 | 1 | 75 | 6 | 2 | ● |
| SH260-RH4-8-75-0.3-H | 8 | 20 | 0.3 | 75 | 8 | 2 | ● |
| SH260-RH4-8-75-0.5-H | 8 | 20 | 0.5 | 75 | 8 | 2 | ● |
| SH260-RH4-8-100-0.5-H | 8 | 20 | 0.5 | 100 | 8 | 2 | ● |
| SH260-RH4-8-75-1-H | 8 | 20 | 1 | 75 | 8 | 2 | ● |
| SH260-RH4-8-100-1-H | 8 | 20 | 1 | 100 | 8 | 2 | ● |
| SH260-RH4-10-100-0.5-H | 10 | 25 | 0.5 | 100 | 10 | 2 | ● |
| SH260-RH4-10-120-0.5-H | 10 | 25 | 0.5 | 120 | 10 | 2 | ● |
| SH260-RH4-10-100-1-H | 10 | 25 | 1 | 100 | 10 | 2 | ● |
| SH260-RH4-10-120-1-H | 10 | 25 | 1 | 120 | 10 | 2 | ● |
| SH260-RH4-10-100-2-H | 10 | 25 | 2 | 120 | 10 | 2 | ● |
| SH260-RH4-12-100-0.5-H | 12 | 30 | 0.5 | 100 | 12 | 2 | ● |
| SH260-RH4-12-120-0.5-H | 12 | 30 | 0.5 | 120 | 12 | 2 | ● |
| SH260-RH4-12-100-1-H | 12 | 30 | 1 | 100 | 12 | 2 | ● |
| SH260-RH4-12-120-1-H | 12 | 30 | 1 | 120 | 12 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤6 | $^{0}_{-0.01}$ |
| 6＜D≤12 | $^{0}_{-0.02}$ |
| D＞12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (＜35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( ＜ 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( ＞ 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

# SH260-RN4-H NEW

4 Flute with Reduced Neck,Cornor Raidus

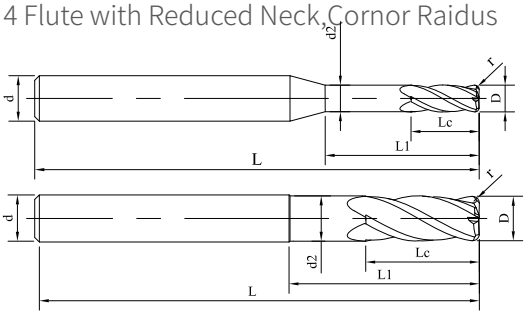



Fig1

Fig2



SHANK h6 | 4 | TiAlCrSiN | 30° Helix | Corner-R | L

See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SH260-RN4-1-3-0.1-H | 1 | 2 | 0.1 | 0.96 | 3 | 50 | 4 | 1 | ● |
| SH260-RN4-1-6-0.1-H | 1 | 2 | 0.1 | 0.96 | 6 | 50 | 4 | 1 | ● |
| SH260-RN4-1.5-4.5-0.1-H | 1.5 | 3 | 0.1 | 1.45 | 4.5 | 50 | 4 | 1 | ● |
| SH260-RN4-1.5-9-0.1-H | 1.5 | 3 | 0.1 | 1.45 | 9 | 50 | 4 | 1 | ● |
| SH260-RN4-2-6-0.2-H | 2 | 4 | 0.2 | 1.92 | 6 | 50 | 4 | 1 | ● |
| SH260-RN4-2-12-0.2-H | 2 | 4 | 0.2 | 1.92 | 12 | 50 | 4 | 1 | ● |
| SH260-RN4-2-6-0.3-H | 2 | 4 | 0.3 | 1.92 | 6 | 50 | 4 | 1 | ● |
| SH260-RN4-2-12-0.3-H | 2 | 4 | 0.3 | 1.92 | 12 | 50 | 4 | 1 | ● |
| SH260-RN4-3-9-0.2-H-6 | 3 | 6 | 0.2 | 2.88 | 9 | 60 | 6 | 1 | ● |
| SH260-RN4-3-18-0.2-H-6 | 3 | 6 | 0.2 | 2.88 | 18 | 60 | 6 | 1 | ● |
| SH260-RN4-3-9-0.3-H-6 | 3 | 6 | 0.3 | 2.88 | 9 | 60 | 6 | 1 | ● |
| SH260-RN4-3-18-0.3-H-6 | 3 | 6 | 0.3 | 2.88 | 18 | 60 | 6 | 1 | ● |
| SH260-RN4-4-12-0.2-H-6 | 4 | 8 | 0.2 | 3.8 | 12 | 60 | 6 | 1 | ● |
| SH260-RN4-4-12-0.3-H-6 | 4 | 8 | 0.3 | 3.8 | 12 | 60 | 6 | 1 | ● |
| SH260-RN4-4-12-0.5-H-6 | 4 | 8 | 0.5 | 3.8 | 12 | 60 | 6 | 1 | ● |
| SH260-RN4-4-24-0.5-H-6 | 4 | 8 | 0.5 | 3.8 | 24 | 75 | 6 | 1 | ● |
| SH260-RN4-6-18-0.2-H | 6 | 12 | 0.2 | 5.8 | 18 | 75 | 6 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤6 | 0 -0.01 |
| 6 < D≤12 | 0 -0.02 |
| D>12 | 0 -0.03 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

# SH260-RN4-H NEW

4 Flute with Reduced Neck,Cornor Raidus

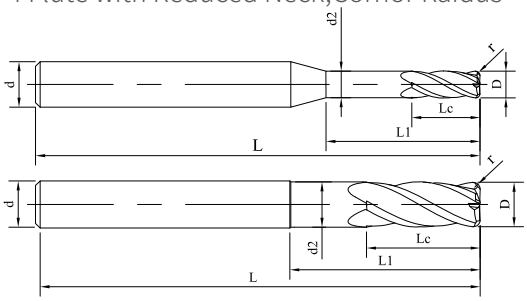



Fig1



Fig2

SHANK h6 | 4 | TiAlCrSiN | 30° Helix | Corner-R

See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SH260-RN4-6-24-0.2-H | 6 | 12 | 0.2 | 5.8 | 24 | 75 | 6 | 2 | ● |
| SH260-RN4-6-18-0.5-H | 6 | 12 | 0.5 | 5.8 | 18 | 75 | 6 | 2 | ● |
| SH260-RN4-6-24-0.5-H | 6 | 12 | 0.5 | 5.8 | 24 | 75 | 6 | 2 | ● |
| SH260-RN4-8-24-0.2-H | 8 | 16 | 0.2 | 7.8 | 24 | 75 | 8 | 2 | ● |
| SH260-RN4-8-32-0.2-H | 8 | 16 | 0.2 | 7.8 | 32 | 75 | 8 | 2 | ● |
| SH260-RN4-8-24-0.5-H | 8 | 16 | 0.5 | 7.8 | 24 | 75 | 8 | 2 | ● |
| SH260-RN4-8-32-0.5-H | 8 | 16 | 0.5 | 7.8 | 32 | 75 | 8 | 2 | ● |
| SH260-RN4-10-30-0.5-H | 10 | 20 | 0.5 | 9.8 | 30 | 100 | 10 | 2 | ● |
| SH260-RN4-10-40-0.5-H | 10 | 20 | 0.5 | 9.8 | 40 | 100 | 10 | 2 | ● |
| SH260-RN4-10-30-1-H | 10 | 20 | 1 | 9.8 | 30 | 100 | 10 | 2 | ● |
| SH260-RN4-10-40-1-H | 10 | 20 | 1 | 9.8 | 40 | 100 | 10 | 2 | ● |
| SH260-RN4-12-36-0.5-H | 12 | 24 | 0.5 | 11.8 | 36 | 100 | 12 | 2 | ● |
| SH260-RN4-12-48-0.5-H | 12 | 24 | 0.5 | 11.8 | 48 | 100 | 12 | 2 | ● |
| SH260-RN4-12-48-1-H | 12 | 24 | 1 | 11.8 | 48 | 100 | 12 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤6 | $^{0}_{-0.01}$ |
| 6＜D≤12 | $^{0}_{-0.02}$ |
| D＞12 | $^{0}_{-0.03}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (＜35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( ＜ 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( ＞ 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

# SH260-B2-H NEW

2 Flute, Ballnose

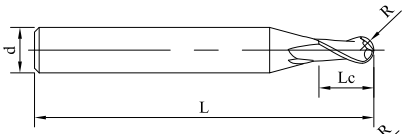



Fig1

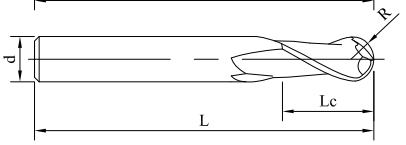



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | R | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SH260-B2-1-1.5-H | 1 | 0.5 | 1.5 | 50 | 4 | 1 | ● |
| SH260-B2-1.5-2.5-H | 1.5 | 0.75 | 2.5 | 50 | 4 | 1 | ● |
| SH260-B2-1.5-2.5-H-6 | 1.5 | 0.75 | 2.5 | 50 | 6 | 1 | ● |
| SH260-B2-2-3-H | 2 | 1 | 3 | 50 | 4 | 1 | ● |
| SH260-B2-3-4.5-H | 3 | 1.5 | 4.5 | 50 | 4 | 1 | ● |
| SH260-B2-3-4.5-H-3 | 3 | 1.5 | 4.5 | 50 | 3 | 2 | ● |
| SH260-B2-3-4.5-H-6 | 3 | 1.5 | 4.5 | 50 | 6 | 1 | ● |
| SH260-B2-4-6-H | 4 | 2 | 6 | 50 | 4 | 2 | ● |
| SH260-B2-4-6-H-6 | 4 | 2 | 6 | 50 | 6 | 1 | ● |
| SH260-B2-5-7.5-H | 5 | 2.5 | 7.5 | 50 | 6 | 1 | ● |
| SH260-B2-6-9-H | 6 | 3 | 9 | 50 | 6 | 2 | ● |
| SH260-B2-7-10.5-H | 7 | 3.5 | 10.5 | 60 | 8 | 1 | ● |
| SH260-B2-8-12-H | 8 | 4 | 12 | 60 | 8 | 2 | ● |
| SH260-B2-10-15-H | 10 | 5 | 15 | 75 | 10 | 2 | ● |
| SH260-B2-12-18-H | 12 | 6 | 18 | 75 | 12 | 2 | ● |
| SH260-B2-16-24-H | 16 | 8 | 24 | 100 | 16 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| R≤3 | ±0.005 |
| R>3 | ±0.008 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P491

# SH260-BH2-H NEW

2 Flute Long Shank, Ballnose

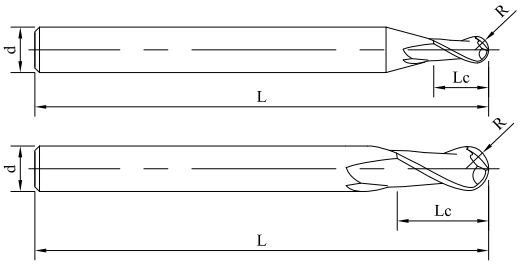



Fig1



Fig2




See page 149 or guidelines to icons

| Ordering Code | D | R | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SH260-BH2-2-60-H | 2 | 1 | 3 | 60 | 4 | 1 | ● |
| SH260-BH2-2-60-H-6 | 2 | 1 | 3 | 60 | 6 | 1 | ● |
| SH260-BH2-3-60-H | 3 | 1.5 | 4.5 | 60 | 4 | 1 | ● |
| SH260-BH2-3-60-H-6 | 3 | 1.5 | 4.5 | 60 | 6 | 1 | ● |
| SH260-BH2-3-75-H | 3 | 1.5 | 4.5 | 75 | 4 | 1 | ● |
| SH260-BH2-3-75-H-6 | 3 | 1.5 | 4.5 | 75 | 6 | 1 | ● |
| SH260-BH2-4-60-H | 4 | 2 | 6 | 60 | 4 | 2 | ● |
| SH260-BH2-4-75-H | 4 | 2 | 6 | 75 | 4 | 2 | ● |
| SH260-BH2-4-60-H-6 | 4 | 2 | 6 | 60 | 6 | 1 | ● |
| SH260-BH2-4-75-H-6 | 4 | 2 | 6 | 75 | 6 | 1 | ● |
| SH260-BH2-5-60-H | 5 | 2.5 | 7.5 | 60 | 6 | 1 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| R≤3 | ±0.005 |
| R>3 | ±0.008 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P491

# SH260-BH2-H NEW

2 Flute Long Shank, Ballnose

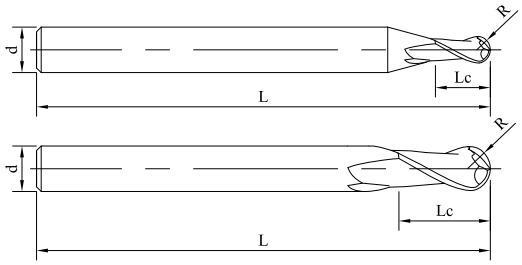



Fig1




Fig2



SHANK h5 | 2 | TiAlCrSiN | 30° Helix | Ballnose

See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | R | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SH260-BH2-6-60-H | 6 | 3 | 9 | 60 | 6 | 2 | ● |
| SH260-BH2-6-75-H | 6 | 3 | 9 | 75 | 6 | 2 | ● |
| SH260-BH2-6-100-H | 6 | 3 | 9 | 100 | 6 | 2 | ● |
| SH260-BH2-8-75-H | 8 | 4 | 12 | 75 | 8 | 2 | ● |
| SH260-BH2-8-100-H | 8 | 4 | 12 | 100 | 8 | 2 | ● |
| SH260-BH2-10-100-H | 10 | 5 | 15 | 100 | 10 | 2 | ● |
| SH260-BH2-10-120-H | 10 | 5 | 15 | 120 | 10 | 2 | ● |
| SH260-BH2-12-100-H | 12 | 6 | 18 | 100 | 12 | 2 | ● |
| SH260-BH2-12-120-H | 12 | 6 | 18 | 120 | 12 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| R≤3 | ±0.005 |
| R>3 | ±0.008 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P491

# SH260-BN2-H

NEW

2 Flute with Reduced Neck, Ballnose

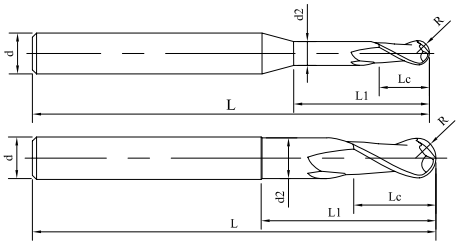



Fig1

Fig2



SHANK h5 | 2 | TiAlCrSiN | 30° Helix | Ballnose

See page 149 or guidelines to icons

| Ordering Code | D | R | Lc | d2 | L1 | L | d. | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SH260-BN2-1-3-H | 1 | 0.5 | 1 | 0.96 | 3 | 50 | 4 | 1 | ● |
| SH260-BN2-1-6-H | 1 | 0.5 | 1 | 0.96 | 6 | 50 | 4 | 1 | ● |
| SH260-BN2-1-8-H | 1 | 0.5 | 1 | 0.96 | 8 | 50 | 4 | 1 | ● |
| SH260-BN2-1-10-H | 1 | 0.5 | 1 | 0.96 | 10 | 50 | 4 | 1 | ● |
| SH260-BN2-1.5-5-H | 1.5 | 0.75 | 1.5 | 1.45 | 5 | 50 | 4 | 1 | ● |
| SH260-BN2-1.5-5-H-6 | 1.5 | 0.75 | 1.5 | 1.45 | 5 | 50 | 6 | 1 | ● |
| SH260-BN2-1.5-6-H | 1.5 | 0.75 | 1.5 | 1.45 | 6 | 50 | 4 | 1 | ● |
| SH260-BN2-1.5-9-H | 1.5 | 0.75 | 1.5 | 1.45 | 9 | 50 | 4 | 1 | ● |
| SH260-BN2-2-6-H | 2 | 1 | 2 | 1.95 | 6 | 50 | 4 | 1 | ● |
| SH260-BN2-2-6-H-6 | 2 | 1 | 2 | 1.95 | 6 | 50 | 6 | 1 | ● |
| SH260-BN2-2-8-H | 2 | 1 | 2 | 1.95 | 8 | 50 | 4 | 1 | ● |
| SH260-BN2-2-10-H | 2 | 1 | 2 | 1.95 | 10 | 50 | 4 | 1 | ● |
| SH260-BN2-2-12-H | 2 | 1 | 2 | 1.95 | 12 | 50 | 4 | 1 | ● |
| SH260-BN2-3-9-H | 3 | 1.5 | 3 | 2.9 | 9 | 50 | 4 | 1 | ● |
| SH260-BN2-3-16-H-6 | 3 | 1.5 | 3 | 2.9 | 16 | 50 | 6 | 1 | ● |
| SH260-BN2-3-18-H | 3 | 1.5 | 3 | 2.9 | 18 | 50 | 4 | 1 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| R≤3 | ±0.005 |
| R>3 | ±0.008 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P491

# SH260-BN2-H

NEW

2 Flute with Reduced Neck, Ballnose

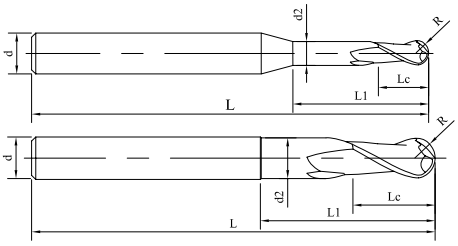



Fig1




Fig2



SHANK h5 | 2 | TiAlCrSiN | 30° Helix | Ballnose

See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | R | Lc | d2 | L1 | L | d. | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SH260-BN2-3-18-H-6 | 3 | 1.5 | 3 | 2.9 | 18 | 50 | 6 | 1 | ● |
| SH260-BN2-4-12-H | 4 | 2 | 4 | 3.9 | 12 | 50 | 4 | 2 | ● |
| SH260-BN2-4-12-H-6 | 4 | 2 | 4 | 3.9 | 12 | 50 | 6 | 1 | ● |
| SH260-BN2-4-24-H | 4 | 2 | 4 | 3.9 | 24 | 60 | 4 | 2 | ● |
| SH260-BN2-4-24-H-6 | 4 | 2 | 4 | 3.9 | 24 | 60 | 6 | 1 | ● |
| SH260-BN2-5-15-H | 5 | 2.5 | 5 | 4.9 | 15 | 60 | 6 | 1 | ● |
| SH260-BN2-5-30-H | 5 | 2.5 | 5 | 4.9 | 30 | 75 | 6 | 1 | ● |
| SH260-BN2-6-18-H | 6 | 3 | 6 | 5.9 | 18 | 75 | 6 | 2 | ● |
| SH260-BN2-8-24-H | 8 | 4 | 8 | 7.9 | 24 | 75 | 8 | 2 | ● |
| SH260-BN2-10-30-H | 10 | 5 | 10 | 9.9 | 30 | 100 | 10 | 2 | ● |
| SH260-BN2-12-36-H | 12 | 6 | 12 | 11.9 | 36 | 100 | 12 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| R≤3 | ±0.005 |
| R>3 | ±0.008 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P491

# SH300-S2-H

2 Flute, Standard Length

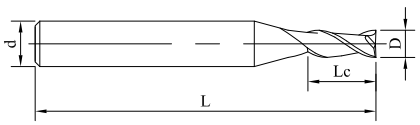



Fig1

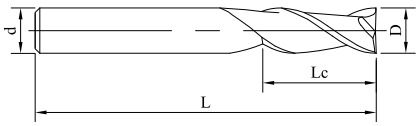



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| SH300-S2-01003-H | 1 | 2.5 | 50 | 4 | 1 | ○ |
| SH300-S2-01504-H | 1.5 | 3.75 | 50 | 4 | 1 | ○ |
| SH300-S2-02005-H | 2 | 5 | 50 | 4 | 1 | ○ |
| SH300-S2-03008-H | 3 | 7.5 | 50 | 4 | 1 | ○ |
| SH300-S2-63008-H | 3 | 7.5 | 50 | 6 | 1 | ○ |
| SH300-S2-04010-H | 4 | 10 | 50 | 4 | 2 | ○ |
| SH300-S2-64010-H | 4 | 10 | 50 | 6 | 1 | ○ |
| SH300-S2-05013-H | 5 | 12.5 | 50 | 6 | 1 | ○ |
| SH300-S2-06015-H | 6 | 15 | 50 | 6 | 2 | ○ |
| SH300-S2-08020-H | 8 | 20 | 60 | 8 | 2 | ○ |
| SH300-S2-08020E-H | 8 | 20 | 75 | 8 | 2 | ○ |
| SH300-S2-10025-H | 10 | 25 | 75 | 10 | 2 | ○ |
| SH300-S2-12030-H | 12 | 30 | 75 | 10 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤8 | $^{0}_{-0.01}$ |
| D>8 | $^{0}_{-0.015}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P491

# SH300-SN2-H

2 Flute,Reduced Neck

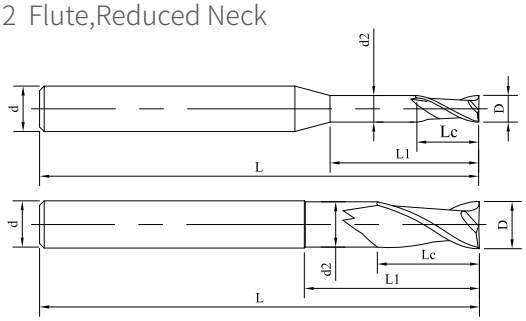



Fig1

Fig2



SHANK h5 | 2 | TiAlCrSiN | 35° Helix | Square

See page 149 or guidelines to icons

| Ordering Code | D | Lc | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|
| SH300-SN2-01003-H | 1 | 1.5 | 0.95 | 3 | 50 | 4 | 1 | ○ |
| SH300-SN2-01006-H | 1 | 1.5 | 0.95 | 6 | 50 | 4 | 1 | ○ |
| SH300-SN2-01505-H | 1.5 | 2.25 | 1.45 | 4.5 | 50 | 4 | 1 | ○ |
| SH300-SN2-01509-H | 1.5 | 2.25 | 1.45 | 9 | 50 | 4 | 1 | ○ |
| SH300-SN2-02006-H | 2 | 3 | 1.95 | 6 | 50 | 4 | 1 | ○ |
| SH300-SN2-02012-H | 2 | 3 | 1.95 | 12 | 60 | 4 | 1 | ○ |
| SH300-SN2-63009-H | 3 | 4.5 | 2.9 | 9 | 60 | 6 | 1 | ○ |
| SH300-SN2-63018-H | 3 | 4.5 | 2.9 | 18 | 60 | 6 | 1 | ○ |
| SH300-SN2-64012-H | 4 | 6 | 3.9 | 12 | 60 | 6 | 1 | ○ |
| SH300-SN2-64024-H | 4 | 6 | 3.9 | 24 | 75 | 6 | 1 | ○ |
| SH300-SN2-05015-H | 5 | 7.5 | 4.9 | 15 | 60 | 6 | 1 | ○ |
| SH300-SN2-05030-H | 5 | 7.5 | 4.9 | 30 | 75 | 6 | 1 | ○ |
| SH300-SN2-06018-H | 6 | 9 | 5.9 | 18 | 75 | 6 | 2 | ○ |
| SH300-SN2-06036-H | 6 | 9 | 5.9 | 36 | 90 | 6 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤6 | $^{0}_{-0.01}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P491

# SH300-SS4-H

4 Flute, Stub Length

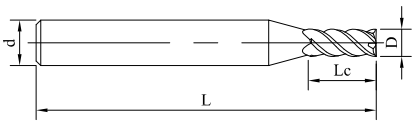



Fig1



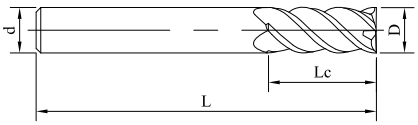



Fig2




See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| SH300-SS4-31002-H | 1 | 2 | 50 | 3 | 1 | ○ |
| SH300-SS4-01002-H | 1 | 2 | 50 | 4 | 1 | ○ |
| SH300-SS4-61002-H | 1 | 2 | 50 | 6 | 1 | ○ |
| SH300-SS4-31503-H | 1.5 | 3 | 50 | 3 | 1 | ○ |
| SH300-SS4-01503-H | 1.5 | 3 | 50 | 4 | 1 | ○ |
| SH300-SS4-61503-H | 1.5 | 3 | 50 | 6 | 1 | ○ |
| SH300-SS4-32004-H | 2 | 4 | 50 | 3 | 1 | ○ |
| SH300-SS4-02004-H | 2 | 4 | 50 | 4 | 1 | ○ |
| SH300-SS4-62004-H | 2 | 4 | 50 | 6 | 1 | ○ |
| SH300-SS4-33006-H | 3 | 6 | 50 | 3 | 2 | ○ |
| SH300-SS4-03006-H | 3 | 6 | 50 | 4 | 1 | ○ |
| SH300-SS4-63006-H | 3 | 6 | 50 | 6 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D⩽8 | 0 -0.01 |
| 10 ⩽ D⩽12 | 0 -0.015 |
| D>12 | 0 -0.02 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

# SH300-SS4-H

4 Flute, Stub Length

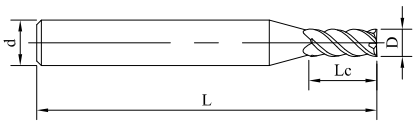



Fig1

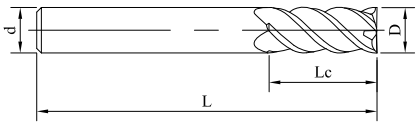



Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| SH300-SS4-04008-H | 4 | 8 | 50 | 4 | 2 | ○ |
| SH300-SS4-64008-H | 4 | 8 | 50 | 6 | 1 | ○ |
| SH300-SS4-05010-H | 5 | 10 | 50 | 6 | 1 | ○ |
| SH300-SS4-06012-H | 6 | 12 | 50 | 6 | 2 | ○ |
| SH300-SS4-08012E-H | 8 | 12 | 75 | 8 | 2 | ○ |
| SH300-SS4-08016-H | 8 | 16 | 60 | 8 | 2 | ○ |
| SH300-SS4-10020-H | 10 | 20 | 75 | 10 | 2 | ○ |
| SH300-SS4-12024-H | 12 | 24 | 75 | 12 | 2 | ○ |
| SH300-SS4-14028-H | 14 | 28 | 100 | 14 | 2 | ○ |
| SH300-SS4-16032-H | 16 | 32 | 100 | 16 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤8 | $^{0}_{-0.01}$ |
| 10 ≤ D≤12 | $^{0}_{-0.015}$ |
| D>12 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| ○ | ◎ | | ◎ | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

# SH300-S4-H

4 Flute, Standard Length

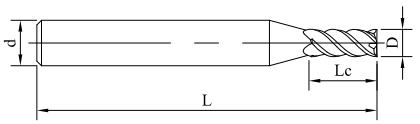



Fig1



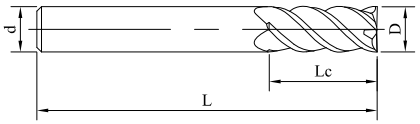



Fig2




See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| SH300-S4-31004-H | 1 | 3.5 | 50 | 3 | 1 | ○ |
| SH300-S4-01004-H | 1 | 3.5 | 50 | 4 | 1 | ● |
| SH300-S4-61004-H | 1 | 3.5 | 50 | 6 | 1 | ○ |
| SH300-S4-31505-H | 1.5 | 5 | 50 | 3 | 1 | ○ |
| SH300-S4-01505-H | 1.5 | 5 | 50 | 4 | 1 | ● |
| SH300-S4-61505-H | 1.5 | 5 | 50 | 6 | 1 | ○ |
| SH300-S4-32007-H | 2 | 7 | 50 | 3 | 1 | ○ |
| SH300-S4-02007-H | 2 | 7 | 50 | 4 | 1 | ● |
| SH300-S4-62007-H | 2 | 7 | 50 | 6 | 1 | ○ |
| SH300-S4-33010-H | 3 | 10 | 50 | 3 | 2 | ○ |
| SH300-S4-03010-H | 3 | 10 | 50 | 4 | 1 | ● |
| SH300-S4-63010-H | 3 | 10 | 50 | 6 | 1 | ○ |
| SH300-S4-04012-H | 4 | 12 | 50 | 4 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D⩽8 | $^{0}_{-0.01}$ |
| 10 ⩽ D⩽12 | $^{0}_{-0.015}$ |
| D>12 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

# SH300-S4-H

4 Flute, Standard Length

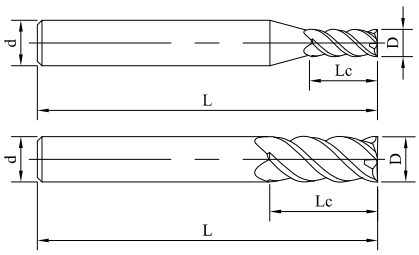



Fig1




Fig2



SHANK h5 | 4 | TiAlCrSiN | 45° Helix | Square

See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| SH300-S4-64012-H | 4 | 12 | 50 | 6 | 1 | ○ |
| SH300-S4-05015-H | 5 | 15 | 50 | 6 | 1 | ○ |
| SH300-S4-06015-H | 6 | 15 | 50 | 6 | 2 | ● |
| SH300-S4-08020-H | 8 | 20 | 60 | 8 | 2 | ● |
| SH300-S4-08020E-H | 8 | 20 | 75 | 8 | 2 | ● |
| SH300-S4-10025-H | 10 | 25 | 75 | 10 | 2 | ● |
| SH300-S4-10025E-H | 10 | 25 | 90 | 10 | 2 | ○ |
| SH300-S4-12030-H | 12 | 30 | 75 | 12 | 2 | ● |
| SH300-S4-12030E-H | 12 | 30 | 90 | 12 | 2 | ○ |
| SH300-S4-14035-H | 14 | 35 | 100 | 14 | 2 | ○ |
| SH300-S4-16040-H | 16 | 40 | 100 | 16 | 2 | ○ |
| SH300-S4-18040-H | 18 | 40 | 100 | 18 | 2 | ○ |
| SH300-S4-20045-H | 20 | 45 | 100 | 20 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D⩽8 | $^{0}_{-0.01}$ |
| 10 ⩽ D⩽12 | $^{0}_{-0.015}$ |
| D>12 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

# SH300-SH4-H

4 Flute, Long Shank

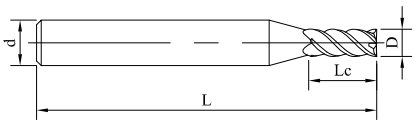



Fig1

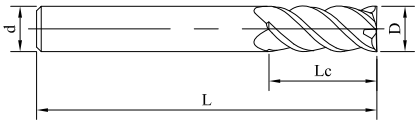



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| SH300-SH4-31004-H | 1 | 3.5 | 60 | 3 | 1 | ○ |
| SH300-SH4-01004-H | 1 | 3.5 | 60 | 4 | 1 | ● |
| SH300-SH4-61004-H | 1 | 3.5 | 60 | 6 | 1 | ○ |
| SH300-SH4-31505-H | 1.5 | 5 | 60 | 3 | 1 | ○ |
| SH300-SH4-01505-H | 1.5 | 5 | 60 | 4 | 1 | ● |
| SH300-SH4-61505-H | 1.5 | 5 | 60 | 6 | 1 | ○ |
| SH300-SH4-32007-H | 2 | 7 | 60 | 3 | 1 | ○ |
| SH300-SH4-02007-H | 2 | 7 | 60 | 4 | 1 | ● |
| SH300-SH4-62007-H | 2 | 7 | 60 | 6 | 1 | ○ |
| SH300-SH4-33010-H | 3 | 10 | 60 | 3 | 2 | ○ |
| SH300-SH4-03010-H | 3 | 10 | 60 | 4 | 1 | ● |
| SH300-SH4-63010-H | 3 | 10 | 60 | 6 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D⩽8 | $^{0}_{-0.01}$ |
| 10 ⩽ D⩽12 | $^{0}_{-0.015}$ |
| D>12 | $^{0}_{-0.02}$ |

unit(mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

# SH300-SH4-H

4 Flute, Long Shank

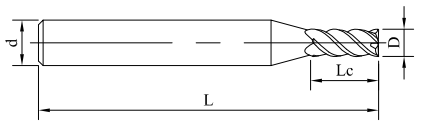



Fig1

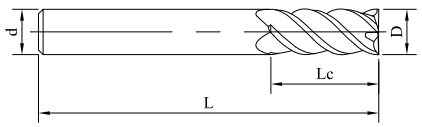



Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| SH300-SH4-04012-H | 4 | 12 | 60 | 4 | 2 | ● |
| SH300-SH4-64012-H | 4 | 12 | 60 | 6 | 1 | ○ |
| SH300-SH4-05015-H | 5 | 15 | 60 | 6 | 1 | ○ |
| SH300-SH4-06015-H | 6 | 15 | 60 | 6 | 2 | ○ |
| SH300-SH4-06015E-H | 6 | 15 | 75 | 6 | 2 | ● |
| SH300-SH4-08020E-H | 8 | 20 | 100 | 8 | 2 | ● |
| SH300-SH4-10025-H | 10 | 25 | 100 | 10 | 2 | ● |
| SH300-SH4-12030-H | 12 | 30 | 100 | 12 | 2 | ● |
| SH300-SH4-14035-H | 14 | 35 | 120 | 14 | 2 | ○ |
| SH300-SH4-16040-H | 16 | 40 | 120 | 16 | 2 | ○ |
| SH300-SH4-18040-H | 18 | 40 | 150 | 18 | 2 | ○ |
| SH300-SH4-20045-H | 20 | 45 | 150 | 20 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D⩽8 | $^{0}_{-0.01}$ |
| 10 ⩽ D⩽12 | $^{0}_{-0.015}$ |
| D>12 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

# SH300-SL4-H

4 Flute, Long Flute

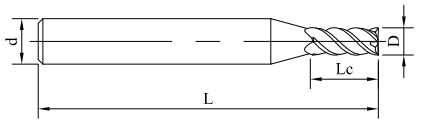



Fig1

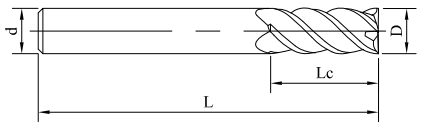



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| SH300-SL4-01004-H | 1 | 4 | 60 | 4 | 1 | ○ |
| SH300-SL4-01006-H | 1 | 6 | 60 | 4 | 1 | ● |
| SH300-SL4-61004-H | 1 | 4 | 60 | 6 | 1 | ○ |
| SH300-SL4-01508-H | 1.5 | 8 | 60 | 4 | 1 | ● |
| SH300-SL4-61508-H | 1.5 | 8 | 60 | 6 | 1 | ○ |
| SH300-SL4-02008-H | 2 | 8 | 60 | 4 | 1 | ○ |
| SH300-SL4-62008-H | 2 | 8 | 60 | 6 | 1 | ○ |
| SH300-SL4-03012-H | 3 | 12 | 60 | 4 | 1 | ○ |
| SH300-SL4-63012-H | 3 | 12 | 60 | 6 | 1 | ○ |
| SH300-SL4-04016-H | 4 | 16 | 60 | 4 | 2 | ○ |
| SH300-SL4-64016-H | 4 | 16 | 60 | 6 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤8 | $^{0}_{-0.01}$ |
| 10 ≤ D≤12 | $^{0}_{-0.015}$ |
| D>12 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

# SH300-SL4-H

4 Flute, Long Flute

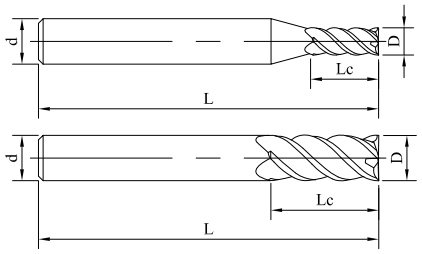



Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| SH300-SL4-05020-H | 5 | 20 | 60 | 6 | 1 | ○ |
| SH300-SL4-06020-H | 6 | 20 | 60 | 6 | 2 | ○ |
| SH300-SL4-06025E-H | 6 | 25 | 75 | 6 | 2 | ○ |
| SH300-SL4-08025-H | 8 | 25 | 75 | 8 | 2 | ○ |
| SH300-SL4-08030-H | 8 | 30 | 75 | 8 | 2 | ○ |
| SH300-SL4-10040-H | 10 | 40 | 100 | 10 | 2 | ○ |
| SH300-SL4-12040-H | 12 | 40 | 100 | 12 | 2 | ○ |
| SH300-SL4-16055-H | 16 | 55 | 120 | 16 | 2 | ○ |
| SH300-SL4-20060-H | 20 | 60 | 120 | 20 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤8 | $^{0}_{-0.01}$ |
| 10 ≤ D≤12 | $^{0}_{-0.015}$ |
| D>12 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

# SH300-SN4-H

4 Flute, Reduced Neck

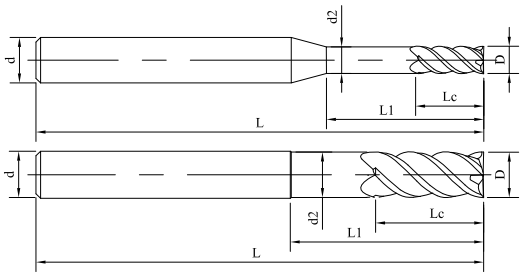



Fig1

Fig2



SHANK h5 | 4 | TiAlCrSiN | 45° Helix | Square

See page 149 or guidelines to icons

| Ordering Code | D | Lc | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|
| SH300-SN4-31004-H | 1 | 2 | 0.96 | 4 | 50 | 3 | 1 | ○ |
| SH300-SN4-01004-H | 1 | 2 | 0.96 | 4 | 50 | 4 | 1 | ○ |
| SH300-SN4-61004-H | 1 | 2 | 0.96 | 4 | 50 | 6 | 1 | ○ |
| SH300-SN4-31004E-H | 1 | 2 | 0.96 | 4 | 60 | 3 | 1 | ○ |
| SH300-SN4-01004E-H | 1 | 2 | 0.96 | 4 | 60 | 4 | 1 | ● |
| SH300-SN4-61004E-H | 1 | 2 | 0.96 | 4 | 60 | 6 | 1 | ● |
| SH300-SN4-31506-H | 1.5 | 3 | 1.45 | 6 | 50 | 3 | 1 | ○ |
| SH300-SN4-01506-H | 1.5 | 3 | 1.45 | 6 | 50 | 4 | 1 | ○ |
| SH300-SN4-61506-H | 1.5 | 3 | 1.45 | 6 | 50 | 6 | 1 | ○ |
| SH300-SN4-31506E-H | 1.5 | 3 | 1.45 | 6 | 60 | 3 | 1 | ○ |
| SH300-SN4-01506E-H | 1.5 | 3 | 1.45 | 6 | 60 | 4 | 1 | ○ |
| SH300-SN4-61508E-H | 1.5 | 3 | 1.45 | 8 | 60 | 4 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤8 | 0 -0.01 |
| 10 ≤ D≤12 | 0 -0.015 |
| D>12 | 0 -0.02 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

# SH300-SN4-H

4 Flute, Reduced Neck

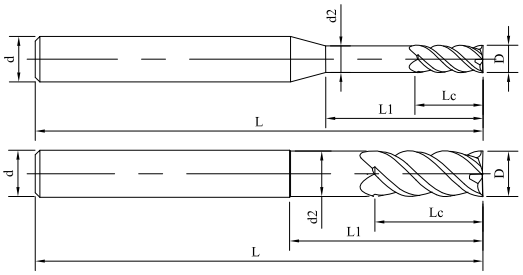



Fig1




Fig2



SHANK h5 | 4 | TiAlCrSiN | 45° Helix | Square | L

See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|
| SH300-SN4-61506E-H | 1.5 | 3 | 1.45 | 6 | 60 | 6 | 1 | ● |
| SH300-SN4-32008-H | 2 | 4 | 1.9 | 8 | 50 | 3 | 1 | ○ |
| SH300-SN4-02008-H | 2 | 4 | 1.9 | 8 | 50 | 4 | 1 | ○ |
| SH300-SN4-62008-H | 2 | 4 | 1.9 | 8 | 50 | 6 | 1 | ○ |
| SH300-SN4-32008E-H | 2 | 4 | 1.9 | 8 | 60 | 3 | 1 | ○ |
| SH300-SN4-02008E-H | 2 | 4 | 1.9 | 8 | 60 | 4 | 1 | ● |
| SH300-SN4-62008E-H | 2 | 4 | 1.9 | 8 | 60 | 6 | 1 | ● |
| SH300-SN4-33012-H | 3 | 6 | 2.9 | 12 | 50 | 3 | 2 | ○ |
| SH300-SN4-03012-H | 3 | 6 | 2.9 | 12 | 50 | 4 | 1 | ○ |
| SH300-SN4-63012-H | 3 | 6 | 2.9 | 12 | 50 | 6 | 1 | ○ |
| SH300-SN4-33012E-H | 3 | 6 | 2.9 | 12 | 60 | 3 | 2 | ○ |
| SH300-SN4-03012E-H | 3 | 6 | 2.9 | 12 | 60 | 4 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤8 | $^{0}_{-0.01}$ |
| 10 ≤ D≤12 | $^{0}_{-0.015}$ |
| D>12 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

# SH300-SN4-H

4 Flute, Reduced Neck

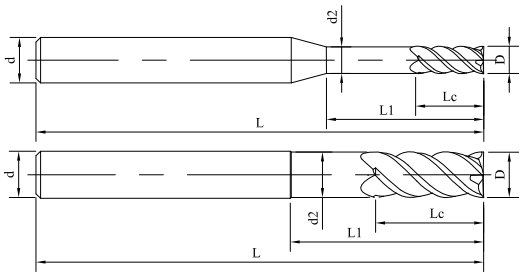



Fig1

Fig2



SHANK h5 | 4 | TiAlCrSiN | 45° Helix | Square

See page 149 or guidelines to icons

》 Continuation

| Ordering Code | D | Lc | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|
| SH300-SN4-63009E-H | 3 | 6 | 2.9 | 9 | 60 | 6 | 1 | ● |
| SH300-SN4-63012E-H | 3 | 6 | 2.9 | 12 | 60 | 6 | 1 | ● |
| SH300-SN4-64012E-H | 4 | 8 | 3.9 | 12 | 60 | 6 | 1 | ● |
| SH300-SN4-04016-H | 4 | 8 | 3.9 | 16 | 50 | 4 | 2 | ○ |
| SH300-SN4-64016-H | 4 | 8 | 3.9 | 16 | 50 | 6 | 1 | ○ |
| SH300-SN4-04016E-H | 4 | 8 | 3.9 | 16 | 60 | 4 | 2 | ○ |
| SH300-SN4-64016E-H | 4 | 8 | 3.9 | 16 | 60 | 6 | 1 | ● |
| SH300-SN4-05020-H | 5 | 10 | 5.9 | 20 | 50 | 6 | 1 | ○ |
| SH300-SN4-05020E-H | 5 | 10 | 5.9 | 20 | 60 | 6 | 1 | ○ |
| SH300-SN4-05020F-H | 5 | 10 | 5.9 | 20 | 75 | 6 | 1 | ○ |
| SH300-SN4-06018E-H | 6 | 12 | 5.9 | 18 | 60 | 6 | 2 | ● |
| SH300-SN4-06024-H | 6 | 12 | 5.9 | 24 | 75 | 6 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D⩽8 | 0 -0.01 |
| 10 ⩽ D⩽12 | 0 -0.015 |
| D>12 | 0 -0.02 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

# SH300-SN4-H

4 Flute, Reduced Neck

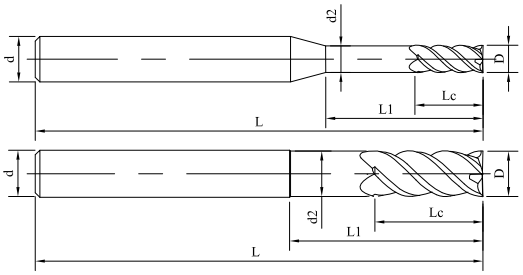



Fig1




Fig2



SHANK h5 | 4 | TiAlCrSiN | 45° Helix | Square

See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|
| SH300-SN4-06024E-H | 6 | 12 | 5.9 | 24 | 90 | 6 | 2 | ○ |
| SH300-SN4-06024F-H | 6 | 12 | 5.9 | 24 | 100 | 6 | 2 | ○ |
| SH300-SN4-08024-H | 8 | 16 | 7.9 | 24 | 75 | 8 | 2 | ● |
| SH300-SN4-08032-H | 8 | 16 | 7.9 | 32 | 75 | 8 | 2 | ○ |
| SH300-SN4-08032E-H | 8 | 16 | 7.9 | 32 | 100 | 8 | 2 | ○ |
| SH300-SN4-10040-H | 10 | 20 | 9.9 | 40 | 100 | 10 | 2 | ● |
| SH300-SN4-10040E-H | 10 | 20 | 9.9 | 40 | 120 | 10 | 2 | ○ |
| SH300-SN4-12048-H | 12 | 24 | 11.9 | 48 | 100 | 12 | 2 | ● |
| SH300-SN4-12048E-H | 12 | 24 | 11.9 | 48 | 120 | 12 | 2 | ○ |
| SH300-SN4-14056-H | 14 | 28 | 13.9 | 56 | 120 | 14 | 2 | ○ |
| SH300-SN4-16064-H | 16 | 32 | 15.9 | 64 | 120 | 16 | 2 | ○ |
| SH300-SN4-20080-H | 20 | 40 | 19.9 | 80 | 120 | 20 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤8 | $^{0}_{-0.01}$ |
| 10 ≤ D≤12 | $^{0}_{-0.015}$ |
| D>12 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

# SH300-S6-H

6 Flute, Standard Length

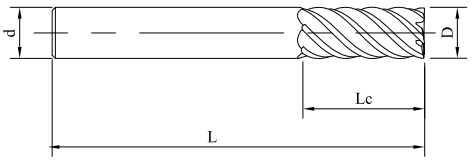



Fig1






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| SH300-S6-06015-H | 6 | 15 | 50 | 6 | 1 | ● |
| SH300-S6-08020-H | 8 | 20 | 60 | 8 | 1 | ● |
| SH300-S6-08020E-H | 8 | 20 | 75 | 8 | 1 | ○ |
| SH300-S6-10025-H | 10 | 25 | 75 | 10 | 1 | ● |
| SH300-S6-12030-H | 12 | 30 | 75 | 12 | 1 | ○ |
| SH300-S6-14035-H | 14 | 35 | 100 | 14 | 1 | ○ |
| SH300-S6-16040-H | 16 | 40 | 100 | 16 | 1 | ○ |
| SH300-S6-18040-H | 18 | 40 | 100 | 18 | 1 | ○ |
| SH300-S6-20045-H | 20 | 45 | 100 | 20 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.015}$ |
| D>12 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

# SH300-SH6-H

6 Flute, Long Shank

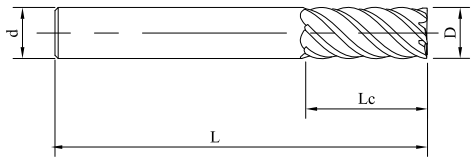



Fig1






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| SH300-SH6-06015-H | 6 | 15 | 60 | 6 | 1 | ○ |
| SH300-SH6-06015E-H | 6 | 15 | 75 | 6 | 1 | ○ |
| SH300-SH6-08020-H | 8 | 20 | 90 | 8 | 1 | ○ |
| SH300-SH6-10025-H | 10 | 25 | 100 | 10 | 1 | ○ |
| SH300-SH6-12030-H | 12 | 30 | 100 | 12 | 1 | ● |
| SH300-SH6-14035-H | 14 | 35 | 120 | 14 | 1 | ○ |
| SH300-SH6-16040-H | 16 | 40 | 120 | 16 | 1 | ○ |
| SH300-SH6-18040-H | 18 | 40 | 120 | 18 | 1 | ○ |
| SH300-SH6-20045-H | 20 | 45 | 120 | 20 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.015}$ |
| D>12 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

# SH300-SL6-H

6 Flute, Long Flute

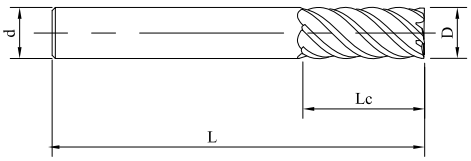



Fig1






See page 149 or guidelines to icons

| Ordering Code | D | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|
| SH300-SL6-06025-H | 6 | 25 | 75 | 6 | 1 | ○ |
| SH300-SL6-08035-H | 8 | 35 | 100 | 8 | 1 | ○ |
| SH300-SL6-10045-H | 10 | 45 | 100 | 10 | 1 | ○ |
| SH300-SL6-12055-H | 12 | 55 | 100 | 12 | 1 | ○ |
| SH300-SL6-14055-H | 14 | 55 | 120 | 14 | 1 | ○ |
| SH300-SL6-16065-H | 16 | 65 | 120 | 16 | 1 | ○ |
| SH300-SL6-18065-H | 18 | 65 | 150 | 18 | 1 | ○ |
| SH300-SL6-20075-H | 20 | 75 | 150 | 20 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.015}$ |
| D>12 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

# SH300-R2-H

2 Flute, Cornor Raidus

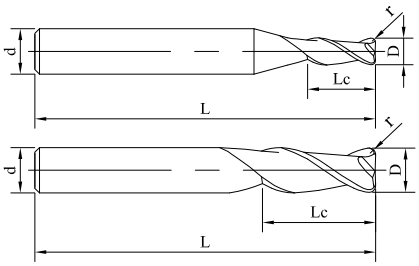



Fig1




Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SH300-R2-01001-H | 1 | 2.5 | 0.1 | 50 | 4 | 1 | ○ |
| SH300-R2-01002-H | 1 | 2.5 | 0.2 | 50 | 4 | 1 | ○ |
| SH300-R2-02001-H | 2 | 5 | 0.1 | 50 | 4 | 1 | ○ |
| SH300-R2-02002-H | 2 | 5 | 0.2 | 50 | 4 | 1 | ○ |
| SH300-R2-02003-H | 2 | 5 | 0.3 | 50 | 4 | 1 | ○ |
| SH300-R2-63002-H | 3 | 7.5 | 0.2 | 50 | 6 | 1 | ○ |
| SH300-R2-63003-H | 3 | 7.5 | 0.3 | 50 | 6 | 1 | ○ |
| SH300-R2-63005-H | 3 | 7.5 | 0.5 | 50 | 6 | 1 | ○ |
| SH300-R2-04003-H | 4 | 10 | 0.3 | 50 | 4 | 2 | ○ |
| SH300-R2-04005-H | 4 | 10 | 0.5 | 50 | 4 | 2 | ○ |
| SH300-R2-64005-H | 4 | 10 | 0.5 | 50 | 6 | 1 | ○ |
| SH300-R2-04010-H | 4 | 10 | 1 | 50 | 4 | 2 | ○ |
| SH300-R2-64010-H | 4 | 10 | 1 | 50 | 6 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D⩽8 | $^{0}_{-0.01}$ |
| 10 ⩽ D⩽12 | $^{0}_{-0.015}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

# SH300-R2-H

2 Flute, Cornor Raidus

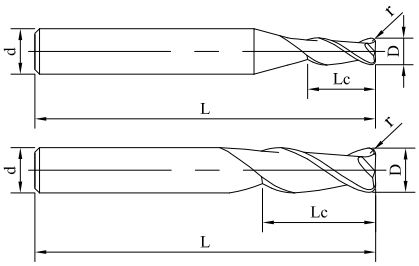



Fig1




Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SH300-R2-05005-H | 5 | 12.5 | 0.5 | 50 | 6 | 1 | ○ |
| SH300-R2-05010-H | 5 | 12.5 | 1 | 50 | 6 | 1 | ○ |
| SH300-R2-06005-H | 6 | 15 | 0.5 | 50 | 6 | 2 | ○ |
| SH300-R2-06010-H | 6 | 15 | 1 | 50 | 6 | 2 | ○ |
| SH300-R2-08005-H | 8 | 20 | 0.5 | 60 | 8 | 2 | ○ |
| SH300-R2-08010-H | 8 | 20 | 1 | 60 | 8 | 2 | ○ |
| SH300-R2-10005-H | 10 | 25 | 0.5 | 75 | 10 | 2 | ○ |
| SH300-R2-10010-H | 10 | 25 | 1 | 75 | 10 | 2 | ○ |
| SH300-R2-10015-H | 10 | 25 | 1.5 | 75 | 10 | 2 | ○ |
| SH300-R2-10020-H | 10 | 25 | 2 | 75 | 10 | 2 | ○ |
| SH300-R2-12005-H | 12 | 30 | 0.5 | 75 | 12 | 2 | ○ |
| SH300-R2-12010-H | 12 | 30 | 1 | 75 | 12 | 2 | ○ |
| SH300-R2-12015-H | 12 | 30 | 1.5 | 75 | 12 | 2 | ○ |
| SH300-R2-12020-H | 12 | 30 | 2 | 75 | 12 | 2 | ○ |

●Stock ○Available upon Order

| D | 公差 |
|---|---|
| D≤8 | $^{0}_{-0.01}$ |
| 10 ≤ D≤12 | $^{0}_{-0.015}$ |

单位 (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

# SH300-RN2-H

2 Flute with Reduced Neck, Cornor Raidus

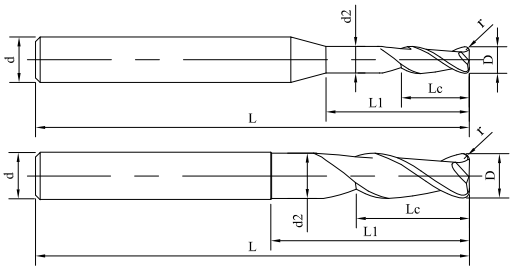



Fig1




Fig2



SHANK h5 | 2 | TiAlCrSiN | 35° Helix | Corner-R | L

See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | L1 | d2 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SH300-RN2-01001-H | 1 | 1.5 | 0.1 | 6 | 0.95 | 50 | 4 | 1 | ○ |
| SH300-RN2-01002-H | 1 | 1.5 | 0.2 | 6 | 0.95 | 50 | 4 | 1 | ○ |
| SH300-RN2-02001-H | 2 | 3 | 0.1 | 12 | 1.95 | 50 | 4 | 1 | ○ |
| SH300-RN2-02002-H | 2 | 3 | 0.2 | 12 | 1.95 | 50 | 4 | 1 | ○ |
| SH300-RN2-02003-H | 2 | 3 | 0.3 | 12 | 1.95 | 50 | 4 | 1 | ○ |
| SH300-RN2-63002-H | 3 | 4.5 | 0.2 | 18 | 2.9 | 60 | 6 | 1 | ○ |
| SH300-RN2-63003-H | 3 | 4.5 | 0.3 | 18 | 2.9 | 60 | 6 | 1 | ○ |
| SH300-RN2-63005-H | 3 | 4.5 | 0.5 | 18 | 2.9 | 60 | 6 | 1 | ○ |
| SH300-RN2-64005-H | 4 | 6 | 0.5 | 24 | 3.9 | 75 | 6 | 1 | ○ |
| SH300-RN2-64010-H | 4 | 6 | 1 | 24 | 3.9 | 75 | 6 | 1 | ○ |
| SH300-RN2-05005-H | 5 | 7.5 | 0.5 | 30 | 4.9 | 75 | 6 | 1 | ○ |
| SH300-RN2-05010-H | 5 | 7.5 | 1 | 30 | 4.9 | 75 | 6 | 1 | ○ |
| SH300-RN2-06005-H | 6 | 9 | 0.5 | 36 | 5.9 | 90 | 6 | 2 | ○ |
| SH300-RN2-06010-H | 6 | 9 | 1 | 36 | 5.9 | 90 | 6 | 2 | ○ |

●Stock ○Available upon Order

| D | 公差 |
|---|---|
| D≤8 | $^{0}_{-0.01}$ |
| 10 ≤ D≤12 | $^{0}_{-0.015}$ |

单位 (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

# SH300-R4-H

4 Flute, Cornor Raidus

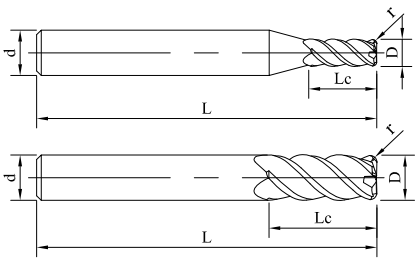



Fig1




Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SH300-R4-31001-H | 1 | 3.5 | 0.1 | 50 | 3 | 1 | ○ |
| SH300-R4-01001-H | 1 | 3.5 | 0.1 | 50 | 4 | 1 | ○ |
| SH300-R4-61001-H | 1 | 3.5 | 0.1 | 50 | 6 | 1 | ○ |
| SH300-R4-31002-H | 1 | 3.5 | 0.2 | 50 | 3 | 1 | ○ |
| SH300-R4-01002-H | 1 | 3.5 | 0.2 | 50 | 4 | 1 | ○ |
| SH300-R4-61002-H | 1 | 3.5 | 0.2 | 50 | 6 | 1 | ○ |
| SH300-R4-31501-H | 1.5 | 5 | 0.1 | 50 | 3 | 1 | ○ |
| SH300-R4-01501-H | 1.5 | 5 | 0.1 | 50 | 4 | 1 | ○ |
| SH300-R4-61501-H | 1.5 | 5 | 0.1 | 50 | 6 | 1 | ○ |
| SH300-R4-31502-H | 1.5 | 5 | 0.2 | 50 | 3 | 1 | ○ |
| SH300-R4-01502-H | 1.5 | 5 | 0.2 | 50 | 4 | 1 | ○ |
| SH300-R4-61502-H | 1.5 | 5 | 0.2 | 50 | 6 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤8 | $^{0}_{-0.01}$ |
| 10 ≤ D≤12 | $^{0}_{-0.015}$ |
| D>12 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

# SH300-R4-H

4 Flute, Cornor Raidus

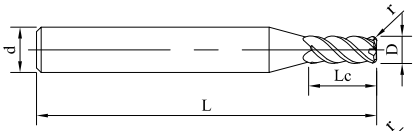



Fig1

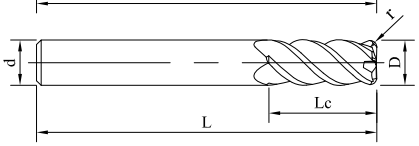



Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SH300-R4-32001-H | 2 | 7 | 0.1 | 50 | 3 | 1 | ○ |
| SH300-R4-02001-H | 2 | 7 | 0.1 | 50 | 4 | 1 | ○ |
| SH300-R4-62001-H | 2 | 7 | 0.1 | 50 | 6 | 1 | ○ |
| SH300-R4-32002-H | 2 | 7 | 0.2 | 50 | 3 | 1 | ○ |
| SH300-R4-02002-H | 2 | 7 | 0.2 | 50 | 4 | 1 | ● |
| SH300-R4-62002-H | 2 | 7 | 0.2 | 50 | 6 | 1 | ○ |
| SH300-R4-33002-H | 3 | 10 | 0.2 | 50 | 3 | 2 | ○ |
| SH300-R4-03002-H | 3 | 10 | 0.2 | 50 | 4 | 1 | ○ |
| SH300-R4-63002-H | 3 | 10 | 0.2 | 50 | 6 | 1 | ○ |
| SH300-R4-33005-H | 3 | 10 | 0.5 | 50 | 3 | 2 | ○ |
| SH300-R4-03005-H | 3 | 10 | 0.5 | 50 | 4 | 1 | ● |
| SH300-R4-63005-H | 3 | 10 | 0.5 | 50 | 6 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤8 | $^{0}_{-0.01}$ |
| 10 ≤ D≤12 | $^{0}_{-0.015}$ |
| D>12 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

# SH300-R4-H

4 Flute, Cornor Raidus

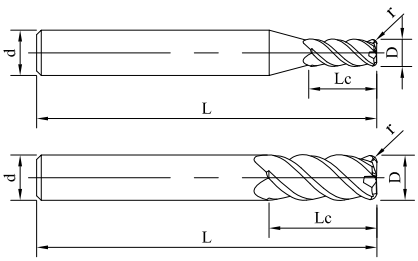



Fig1




Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SH300-R4-04002-H | 4 | 12 | 0.2 | 50 | 4 | 2 | ● |
| SH300-R4-64002-H | 4 | 12 | 0.2 | 50 | 6 | 1 | ● |
| SH300-R4-04005-H | 4 | 12 | 0.5 | 50 | 4 | 2 | ○ |
| SH300-R4-64005-H | 4 | 12 | 0.5 | 50 | 6 | 1 | ● |
| SH300-R4-05002-H | 5 | 15 | 0.2 | 50 | 6 | 1 | ○ |
| SH300-R4-05005-H | 5 | 15 | 0.5 | 50 | 6 | 1 | ● |
| SH300-R4-06005-H | 6 | 15 | 0.5 | 50 | 6 | 2 | ● |
| SH300-R4-06007-H | 6 | 15 | 0.7 | 50 | 6 | 2 | ● |
| SH300-R4-06010-H | 6 | 15 | 1 | 50 | 6 | 2 | ● |
| SH300-R4-08005-H | 8 | 20 | 0.5 | 60 | 8 | 2 | ○ |
| SH300-R4-08005E-H | 8 | 20 | 0.5 | 75 | 8 | 2 | ● |
| SH300-R4-08010-H | 8 | 20 | 1 | 60 | 8 | 2 | ○ |
| SH300-R4-08010E-H | 8 | 20 | 1 | 75 | 8 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤8 | $^{0}_{-0.01}$ |
| 10 ≤ D≤12 | $^{0}_{-0.015}$ |
| D>12 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

# SH300-R4-H

4 Flute, Cornor Raidus

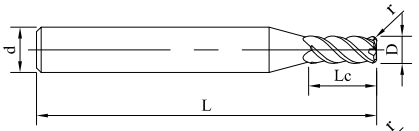



Fig1

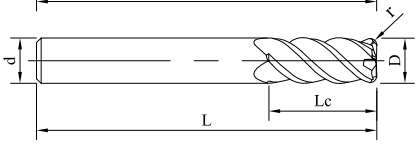



Fig2






See page 149 or guidelines to icons

》 Continuation

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SH300-R4-10005-H | 10 | 25 | 0.5 | 75 | 10 | 2 | ● |
| SH300-R4-10006-H | 10 | 16 | 0.6 | 75 | 10 | 2 | ● |
| SH300-R4-10010-H | 10 | 25 | 1 | 75 | 10 | 2 | ○ |
| SH300-R4-10020-H | 10 | 25 | 2 | 75 | 10 | 2 | ○ |
| SH300-R4-12005-H | 12 | 30 | 0.5 | 75 | 12 | 2 | ● |
| SH300-R4-12010-H | 12 | 30 | 1 | 75 | 12 | 2 | ● |
| SH300-R4-12020-H | 12 | 30 | 2 | 75 | 12 | 2 | ○ |
| SH300-R4-14010-H | 14 | 35 | 1 | 100 | 14 | 2 | ● |
| SH300-R4-16010-H | 16 | 40 | 1 | 100 | 16 | 2 | ● |
| SH300-R4-16020-H | 16 | 40 | 2 | 100 | 16 | 2 | ● |
| SH300-R4-20010-H | 20 | 45 | 1 | 100 | 20 | 2 | ○ |
| SH300-R4-20020-H | 20 | 45 | 2 | 100 | 20 | 2 | ○ |
| SH300-R4-20030-H | 20 | 45 | 3 | 100 | 20 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D⩽8 | $^{0}_{-0.01}$ |
| 10 ⩽ D⩽12 | $^{0}_{-0.015}$ |
| D>12 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

# SH300-RH4-H

4 Flute with Long Shank,Cornor Raidus

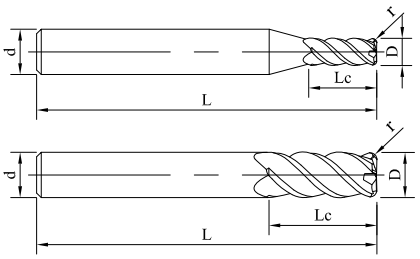



Fig1




Fig2






See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SH300-RH4-31001-H | 1 | 3.5 | 0.1 | 60 | 3 | 1 | ○ |
| SH300-RH4-01001-H | 1 | 3.5 | 0.1 | 60 | 4 | 1 | ○ |
| SH300-RH4-61001-H | 1 | 3.5 | 0.1 | 60 | 6 | 1 | ○ |
| SH300-RH4-31002-H | 1 | 3.5 | 0.2 | 60 | 3 | 1 | ○ |
| SH300-RH4-01002-H | 1 | 3.5 | 0.2 | 60 | 4 | 1 | ○ |
| SH300-RH4-61002-H | 1 | 3.5 | 0.2 | 60 | 6 | 1 | ○ |
| SH300-RH4-31501-H | 1.5 | 5 | 0.1 | 60 | 3 | 1 | ○ |
| SH300-RH4-01501-H | 1.5 | 5 | 0.1 | 60 | 4 | 1 | ○ |
| SH300-RH4-61501-H | 1.5 | 5 | 0.1 | 60 | 6 | 1 | ○ |
| SH300-RH4-31502-H | 1.5 | 5 | 0.2 | 60 | 3 | 1 | ○ |
| SH300-RH4-01502-H | 1.5 | 5 | 0.2 | 60 | 4 | 1 | ○ |
| SH300-RH4-61502-H | 1.5 | 5 | 0.2 | 60 | 6 | 1 | ○ |
| SH300-RH4-32001-H | 2 | 7 | 0.1 | 60 | 3 | 1 | ○ |
| SH300-RH4-02001J-H | 2 | 6 | 0.1 | 60 | 4 | 1 | ○ |
| SH300-RH4-02001-H | 2 | 7 | 0.1 | 60 | 4 | 1 | ○ |
| SH300-RH4-62001-H | 2 | 7 | 0.1 | 60 | 6 | 1 | ○ |
| SH300-RH4-32002-H | 2 | 7 | 0.2 | 60 | 3 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D⩽8 | $^{0}_{-0.01}$ |
| 10 ⩽ D⩽12 | $^{0}_{-0.015}$ |
| D>12 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

# SH300-RH4-H

4 Flute with Long Shank,Cornor Raidus

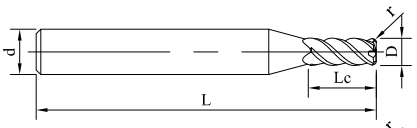



Fig1

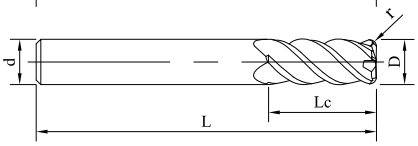



Fig2



SHANK h5 | 4 | TiAlCrSiN | 45° Helix | Corner-R | L

See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SH300-RH4-02002-H | 2 | 7 | 0.2 | 60 | 4 | 1 | ○ |
| SH300-RH4-62002-H | 2 | 7 | 0.2 | 60 | 6 | 1 | ○ |
| SH300-RH4-33002-H | 3 | 10 | 0.2 | 60 | 3 | 2 | ○ |
| SH300-RH4-03002-H | 3 | 10 | 0.2 | 60 | 4 | 1 | ○ |
| SH300-RH4-63002A-H | 3 | 8 | 0.2 | 60 | 6 | 1 | ○ |
| SH300-RH4-63002-H | 3 | 10 | 0.2 | 60 | 6 | 1 | ○ |
| SH300-RH4-33005-H | 3 | 10 | 0.5 | 60 | 3 | 2 | ○ |
| SH300-RH4-03005-H | 3 | 10 | 0.5 | 60 | 4 | 1 | ○ |
| SH300-RH4-63005-H | 3 | 10 | 0.5 | 60 | 6 | 1 | ○ |
| SH300-RH4-04002-H | 4 | 12 | 0.2 | 60 | 4 | 2 | ● |
| SH300-RH4-04005-H | 4 | 12 | 0.5 | 60 | 4 | 2 | ○ |
| SH300-RH4-05002-H | 5 | 15 | 0.2 | 60 | 6 | 1 | ○ |
| SH300-RH4-05005-H | 5 | 15 | 0.5 | 60 | 6 | 1 | ○ |
| SH300-RH4-06005-H | 6 | 15 | 0.5 | 60 | 6 | 2 | ● |
| SH300-RH4-06005E-H | 6 | 15 | 0.5 | 75 | 6 | 2 | ● |
| SH300-RH4-06005G-H | 6 | 15 | 0.5 | 100 | 6 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤8 | $^{0}_{-0.01}$ |
| 10 ≤ D≤12 | $^{0}_{-0.015}$ |
| D>12 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

# SH300-RH4-H

4 Flute with Long Shank,Cornor Raidus

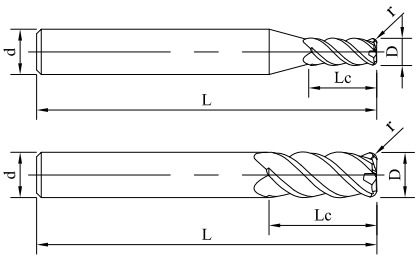



Fig1




Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SH300-RH4-06010-H | 6 | 15 | 1 | 60 | 6 | 2 | ○ |
| SH300-RH4-06010E-H | 6 | 15 | 1 | 75 | 6 | 2 | ● |
| SH300-RH4-08005-H | 8 | 20 | 0.5 | 100 | 8 | 2 | ○ |
| SH300-RH4-08010-H | 8 | 20 | 1 | 100 | 8 | 2 | ● |
| SH300-RH4-10005-H | 10 | 25 | 0.5 | 100 | 10 | 2 | ● |
| SH300-RH4-10010-H | 10 | 25 | 1 | 100 | 10 | 2 | ○ |
| SH300-RH4-10020-H | 10 | 25 | 2 | 100 | 10 | 2 | ● |
| SH300-RH4-12005-H | 12 | 30 | 0.5 | 100 | 12 | 2 | ○ |
| SH300-RH4-12010-H | 12 | 30 | 1 | 100 | 12 | 2 | ● |
| SH300-RH4-12020-H | 12 | 30 | 2 | 100 | 12 | 2 | ● |
| SH300-RH4-12020E-H | 12 | 30 | 2 | 120 | 12 | 2 | ● |
| SH300-RH4-16010-H | 16 | 40 | 1 | 150 | 16 | 2 | ● |
| SH300-RH4-16020-H | 16 | 40 | 2 | 150 | 16 | 2 | ○ |
| SH300-RH4-20010-H | 20 | 45 | 1 | 150 | 20 | 2 | ○ |
| SH300-RH4-20020-H | 20 | 45 | 2 | 150 | 20 | 2 | ○ |
| SH300-RH4-20030-H | 20 | 45 | 2 | 150 | 20 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤8 | $^{0}_{-0.01}$ |
| 10 ≤ D≤12 | $^{0}_{-0.015}$ |
| D>12 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

# SH300-RN4-H

4 Flute with Reduced Neck, Cornor Raidus

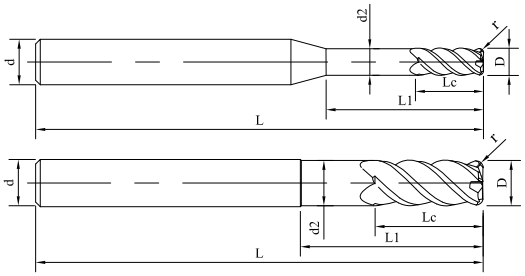



Fig1




Fig2



SHANK h5 | 4 | TiAlCrSiN | 45° Helix | Corner-R | L

See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L1 | d2 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SH300-RN4-31001-H | 1 | 2 | 0.1 | 4 | 0.95 | 50 | 3 | 1 | ○ |
| SH300-RN4-01001-H | 1 | 2 | 0.1 | 4 | 0.95 | 50 | 4 | 1 | ● |
| SH300-RN4-61001-H | 1 | 2 | 0.1 | 4 | 0.95 | 50 | 6 | 1 | ○ |
| SH300-RN4-31001E-H | 1 | 2 | 0.1 | 4 | 0.95 | 60 | 3 | 1 | ○ |
| SH300-RN4-01001E-H | 1 | 2 | 0.1 | 4 | 0.95 | 60 | 4 | 1 | ● |
| SH300-RN4-61001E-H | 1 | 2 | 0.1 | 4 | 0.95 | 60 | 6 | 1 | ○ |
| SH300-RN4-01001M-H | 1 | 2 | 0.1 | 6 | 0.95 | 50 | 4 | 1 | ● |
| SH300-RN4-61001M-H | 1 | 2 | 0.1 | 6 | 0.95 | 60 | 6 | 1 | ● |
| SH300-RN4-01001N-H | 1 | 2 | 0.1 | 6 | 0.95 | 60 | 4 | 1 | ● |
| SH300-RN4-31002-H | 1 | 2 | 0.2 | 4 | 0.95 | 50 | 3 | 1 | ○ |
| SH300-RN4-01002-H | 1 | 2 | 0.2 | 4 | 0.95 | 50 | 4 | 1 | ○ |
| SH300-RN4-61002-H | 1 | 2 | 0.2 | 4 | 0.95 | 50 | 6 | 1 | ○ |
| SH300-RN4-31002E-H | 1 | 2 | 0.2 | 4 | 0.95 | 60 | 3 | 1 | ○ |
| SH300-RN4-01002E-H | 1 | 2 | 0.2 | 4 | 0.95 | 60 | 4 | 1 | ○ |
| SH300-RN4-61002E-H | 1 | 2 | 0.2 | 4 | 0.95 | 60 | 6 | 1 | ○ |
| SH300-RN4-31501-H | 1.5 | 3 | 0.1 | 6 | 1.45 | 50 | 3 | 1 | ○ |
| SH300-RN4-01501-H | 1.5 | 3 | 0.1 | 6 | 1.45 | 50 | 4 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤8 | $^{0}_{-0.01}$ |
| 10 ≤ D≤12 | $^{0}_{-0.015}$ |
| D>12 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

# SH300-RN4-H

4 Flute with Reduced Neck, Cornor Raidus

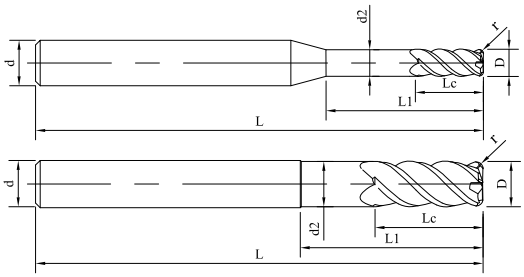



Fig1




Fig2



SHANK h5 | 4 | TiAlCrSiN | 45° Helix | Corner-R | L

See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L1 | d2 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SH300-RN4-61501-H | 1.5 | 3 | 0.1 | 6 | 1.45 | 50 | 6 | 1 | ○ |
| SH300-RN4-31501E-H | 1.5 | 3 | 0.1 | 6 | 1.45 | 60 | 3 | 1 | ○ |
| SH300-RN4-01501E-H | 1.5 | 3 | 0.1 | 6 | 1.45 | 60 | 4 | 1 | ○ |
| SH300-RN4-61501E-H | 1.5 | 3 | 0.1 | 6 | 1.45 | 60 | 6 | 1 | ○ |
| SH300-RN4-31502-H | 1.5 | 3 | 0.2 | 6 | 1.45 | 50 | 3 | 1 | ○ |
| SH300-RN4-01502-H | 1.5 | 3 | 0.2 | 6 | 1.45 | 50 | 4 | 1 | ○ |
| SH300-RN4-61502-H | 1.5 | 3 | 0.2 | 6 | 1.45 | 50 | 6 | 1 | ○ |
| SH300-RN4-31502E-H | 1.5 | 3 | 0.2 | 6 | 1.45 | 60 | 3 | 1 | ○ |
| SH300-RN4-01502E-H | 1.5 | 3 | 0.2 | 6 | 1.45 | 60 | 4 | 1 | ○ |
| SH300-RN4-61502E-H | 1.5 | 3 | 0.2 | 6 | 1.45 | 60 | 6 | 1 | ○ |
| SH300-RN4-32001-H | 2 | 4 | 0.1 | 8 | 1.95 | 50 | 3 | 1 | ○ |
| SH300-RN4-02001-H | 2 | 4 | 0.1 | 8 | 1.95 | 50 | 4 | 1 | ○ |
| SH300-RN4-62001-H | 2 | 4 | 0.1 | 8 | 1.95 | 50 | 6 | 1 | ○ |
| SH300-RN4-32001E-H | 2 | 4 | 0.1 | 8 | 1.95 | 60 | 3 | 1 | ○ |
| SH300-RN4-02001J-H | 2 | 4 | 0.1 | 6 | 1.95 | 60 | 4 | 1 | ● |
| SH300-RN4-02001E-H | 2 | 4 | 0.1 | 8 | 1.95 | 60 | 4 | 1 | ● |
| SH300-RN4-62001E-H | 2 | 4 | 0.1 | 8 | 1.95 | 60 | 6 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤8 | $^{0}_{-0.01}$ |
| 10 ≤ D≤12 | $^{0}_{-0.015}$ |
| D>12 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

# SH300-RN4-H

4 Flute with Reduced Neck, Cornor Raidus

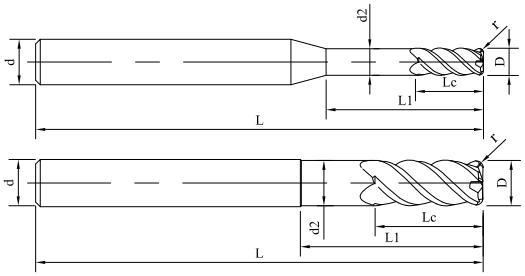



Fig1




Fig2



SHANK h5 | 4 | TiAlCrSiN | 45° Helix | Corner-R | L

See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L1 | d2 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SH300-RN4-32002-H | 2 | 4 | 0.2 | 8 | 1.95 | 50 | 3 | 1 | ○ |
| SH300-RN4-02002-H | 2 | 4 | 0.2 | 8 | 1.95 | 50 | 4 | 1 | ● |
| SH300-RN4-62002-H | 2 | 4 | 0.2 | 8 | 1.95 | 50 | 6 | 1 | ● |
| SH300-RN4-32002E-H | 2 | 4 | 0.2 | 8 | 1.95 | 60 | 3 | 1 | ○ |
| SH300-RN4-02002E-H | 2 | 4 | 0.2 | 8 | 1.95 | 60 | 4 | 1 | ○ |
| SH300-RN4-62002E-H | 2 | 4 | 0.2 | 8 | 1.95 | 60 | 6 | 1 | ○ |
| SH300-RN4-33002-H | 3 | 6 | 0.2 | 12 | 2.9 | 50 | 3 | 2 | ● |
| SH300-RN4-03002-H | 3 | 6 | 0.2 | 12 | 2.9 | 50 | 4 | 1 | ○ |
| SH300-RN4-63002-H | 3 | 6 | 0.2 | 12 | 2.9 | 50 | 6 | 1 | ○ |
| SH300-RN4-33002E-H | 3 | 6 | 0.2 | 12 | 2.9 | 60 | 3 | 2 | ○ |
| SH300-RN4-03002E-H | 3 | 6 | 0.2 | 12 | 2.9 | 60 | 4 | 1 | ● |
| SH300-RN4-63002J-H | 3 | 6 | 0.2 | 12 | 2.9 | 60 | 6 | 1 | ● |
| SH300-RN4-63002E-H | 3 | 6 | 0.2 | 12 | 2.9 | 60 | 6 | 1 | ● |
| SH300-RN4-63002L-H | 3 | 6 | 0.2 | 15 | 2.9 | 60 | 6 | 1 | ● |
| SH300-RN4-33005-H | 3 | 6 | 0.5 | 12 | 2.9 | 50 | 3 | 2 | ○ |
| SH300-RN4-03005-H | 3 | 6 | 0.5 | 12 | 2.9 | 50 | 4 | 1 | ○ |
| SH300-RN4-63005-H | 3 | 6 | 0.5 | 12 | 2.9 | 50 | 6 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤8 | $^{0}_{-0.01}$ |
| 10 ≤ D≤12 | $^{0}_{-0.015}$ |
| D>12 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

# SH300-RN4-H

4 Flute with Reduced Neck, Cornor Raidus

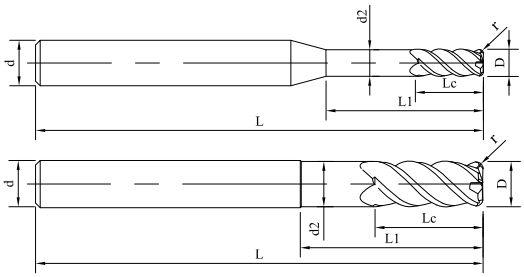



Fig1




Fig2



SHANK h5 | 4 | TiAlCrSiN | 45° Helix | Corner-R | L

See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L1 | d2 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SH300-RN4-33005E-H | 3 | 6 | 0.5 | 12 | 2.9 | 60 | 3 | 2 | ○ |
| SH300-RN4-03005E-H | 3 | 6 | 0.5 | 12 | 2.9 | 60 | 4 | 1 | ○ |
| SH300-RN4-63005E-H | 3 | 6 | 0.5 | 12 | 2.9 | 60 | 6 | 1 | ○ |
| SH300-RN4-04002-H | 4 | 8 | 0.2 | 16 | 3.9 | 50 | 4 | 2 | ○ |
| SH300-RN4-64002-H | 4 | 8 | 0.2 | 16 | 3.9 | 50 | 6 | 1 | ○ |
| SH300-RN4-04002E-H | 4 | 8 | 0.2 | 16 | 3.9 | 60 | 4 | 2 | ○ |
| SH300-RN4-64002E-H | 4 | 8 | 0.2 | 16 | 3.9 | 60 | 6 | 1 | ○ |
| SH300-RN4-04005-H | 4 | 8 | 0.5 | 16 | 3.9 | 50 | 4 | 2 | ○ |
| SH300-RN4-64005-H | 4 | 8 | 0.5 | 16 | 3.9 | 50 | 6 | 1 | ● |
| SH300-RN4-04005E-H | 4 | 8 | 0.5 | 16 | 3.9 | 60 | 4 | 2 | ○ |
| SH300-RN4-64005E-H | 4 | 8 | 0.5 | 16 | 3.9 | 60 | 6 | 1 | ○ |
| SH300-RN4-64005L-H | 4 | 8 | 0.5 | 20 | 3.9 | 60 | 6 | 1 | ● |
| SH300-RN4-05002-H | 5 | 10 | 0.2 | 20 | 4.9 | 50 | 6 | 1 | ○ |
| SH300-RN4-05002F-H | 5 | 10 | 0.2 | 20 | 4.9 | 75 | 6 | 1 | ○ |
| SH300-RN4-05005-H | 5 | 10 | 0.5 | 20 | 4.9 | 50 | 6 | 1 | ○ |
| SH300-RN4-05005F-H | 5 | 10 | 0.5 | 20 | 4.9 | 75 | 6 | 1 | ○ |
| SH300-RN4-06005J-H | 6 | 12 | 0.5 | 24 | 5.9 | 60 | 6 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤8 | $^{0}_{-0.01}$ |
| 10 ≤ D≤12 | $^{0}_{-0.015}$ |
| D>12 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

# SH300-RN4-H

4 Flute with Reduced Neck, Cornor Raidus

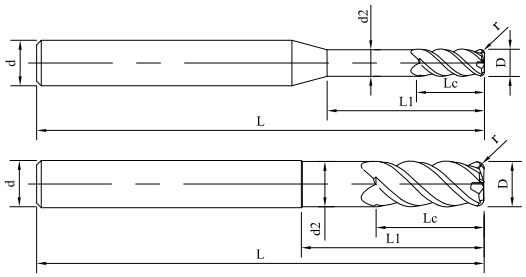



Fig1




Fig2



SHANK h5 | 4 | TiAlCrSiN | 45° Helix | Corner-R | L

See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L1 | d2 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SH300-RN4-06005-H | 6 | 12 | 0.5 | 24 | 5.9 | 50 | 6 | 2 | ○ |
| SH300-RN4-06005E-H | 6 | 12 | 0.5 | 24 | 5.9 | 60 | 6 | 2 | ○ |
| SH300-RN4-06005F-H | 6 | 12 | 0.5 | 24 | 5.9 | 75 | 6 | 2 | ● |
| SH300-RN4-06010-H | 6 | 12 | 1 | 24 | 5.9 | 50 | 6 | 2 | ○ |
| SH300-RN4-06010E-H | 6 | 12 | 1 | 24 | 5.9 | 60 | 6 | 2 | ○ |
| SH300-RN4-06010F-H | 6 | 12 | 1 | 24 | 5.9 | 75 | 6 | 2 | ○ |
| SH300-RN4-08005-H | 8 | 16 | 0.5 | 32 | 7.9 | 60 | 8 | 2 | ○ |
| SH300-RN4-08005E-H | 8 | 16 | 0.5 | 32 | 7.9 | 75 | 8 | 2 | ○ |
| SH300-RN4-08010-H | 8 | 16 | 1 | 32 | 7.9 | 60 | 8 | 2 | ○ |
| SH300-RN4-08010E-H | 8 | 16 | 1 | 32 | 7.9 | 75 | 8 | 2 | ● |
| SH300-RN4-10005J-H | 10 | 20 | 0.5 | 30 | 9.9 | 100 | 10 | 2 | ● |
| SH300-RN4-10005-H | 10 | 20 | 0.5 | 40 | 9.9 | 75 | 10 | 2 | ○ |
| SH300-RN4-10005F-H | 10 | 20 | 0.5 | 40 | 9.9 | 100 | 10 | 2 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤8 | $^{0}_{-0.01}$ |
| 10 ≤ D≤12 | $^{0}_{-0.015}$ |
| D>12 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

# SH300-RN4-H

4 Flute with Reduced Neck, Cornor Raidus

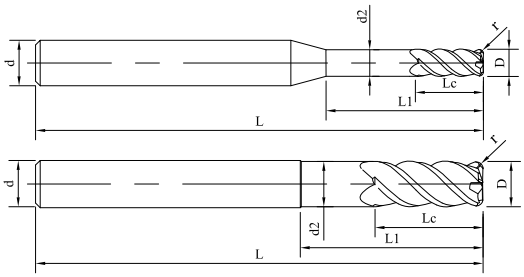



Fig1




Fig2






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L1 | d2 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SH300-RN4-10010-H | 10 | 20 | 1 | 40 | 9.9 | 75 | 10 | 2 | ○ |
| SH300-RN4-10010F-H | 10 | 20 | 1 | 40 | 9.9 | 100 | 10 | 2 | ● |
| SH300-RN4-10020-H | 10 | 20 | 2 | 40 | 9.9 | 75 | 10 | 2 | ○ |
| SH300-RN4-10020F-H | 10 | 20 | 2 | 40 | 9.9 | 100 | 10 | 2 | ○ |
| SH300-RN4-12005-H | 12 | 24 | 0.5 | 48 | 11.9 | 75 | 12 | 2 | ○ |
| SH300-RN4-12005F-H | 12 | 24 | 0.5 | 48 | 11.9 | 100 | 12 | 2 | ○ |
| SH300-RN4-12010-H | 12 | 24 | 1 | 48 | 11.9 | 75 | 12 | 2 | ○ |
| SH300-RN4-12010F-H | 12 | 24 | 1 | 48 | 11.9 | 100 | 12 | 2 | ● |
| SH300-RN4-12020-H | 12 | 24 | 2 | 48 | 11.9 | 75 | 12 | 2 | ○ |
| SH300-RN4-12020F-H | 12 | 24 | 2 | 48 | 11.9 | 100 | 12 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤8 | $^{0}_{-0.01}$ |
| 10 ≤ D≤12 | $^{0}_{-0.015}$ |
| D>12 | $^{0}_{-0.02}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

# SH300-R6-H

6 Flute, Cornor Raidus

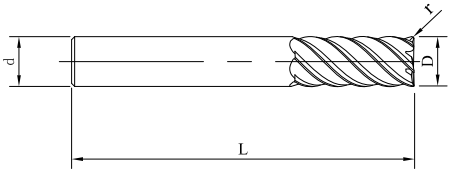



Fig1






See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SH300-R6-06005-H | 6 | 15 | 0.5 | 50 | 6 | 1 | ● |
| SH300-R6-06010-H | 6 | 15 | 1 | 50 | 6 | 1 | ● |
| SH300-R6-08005-H | 8 | 20 | 0.5 | 60 | 8 | 1 | ○ |
| SH300-R6-08010-H | 8 | 20 | 1 | 60 | 8 | 1 | ● |
| SH300-R6-08005E-H | 8 | 20 | 0.5 | 75 | 8 | 1 | ● |
| SH300-R6-08010E-H | 8 | 20 | 1 | 75 | 8 | 1 | ○ |
| SH300-R6-10005-H | 10 | 25 | 0.5 | 75 | 10 | 1 | ○ |
| SH300-R6-10010-H | 10 | 25 | 1 | 75 | 10 | 1 | ● |
| SH300-R6-10020-H | 10 | 25 | 2 | 75 | 10 | 1 | ○ |
| SH300-R6-12005-H | 12 | 30 | 0.5 | 75 | 12 | 1 | ○ |
| SH300-R6-12010-H | 12 | 30 | 1 | 75 | 12 | 1 | ○ |
| SH300-R6-12020-H | 12 | 30 | 2 | 75 | 12 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.015}$ |
| D>12 | $^{0}_{-0.020}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

# SH300-R6-H

6 Flute, Cornor Raidus

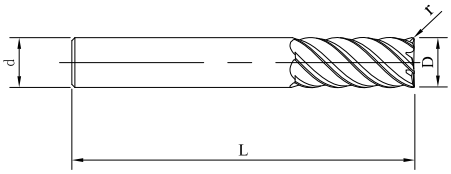



Fig1






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SH300-R6-14005-H | 14 | 35 | 0.5 | 100 | 14 | 1 | ○ |
| SH300-R6-14010-H | 14 | 35 | 1 | 100 | 14 | 1 | ○ |
| SH300-R6-14020-H | 14 | 35 | 2 | 100 | 14 | 1 | ○ |
| SH300-R6-16010-H | 16 | 40 | 1 | 100 | 16 | 1 | ○ |
| SH300-R6-16020-H | 16 | 40 | 2 | 100 | 16 | 1 | ○ |
| SH300-R6-16030-H | 16 | 40 | 3 | 100 | 16 | 1 | ○ |
| SH300-R6-20010-H | 20 | 45 | 1 | 100 | 20 | 1 | ○ |
| SH300-R6-20020-H | 20 | 45 | 2 | 100 | 20 | 1 | ○ |
| SH300-R6-20030-H | 20 | 45 | 3 | 100 | 20 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | 0 -0.015 |
| D>12 | 0 -0.020 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

# SH300-RH6-H

6 Flute with Long Shank, Cornor Raidus

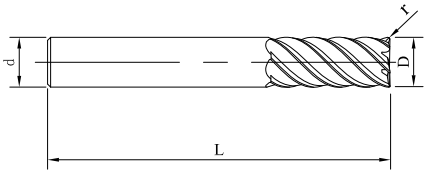



Fig1






See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SH300-RH6-06005-H | 6 | 15 | 0.5 | 60 | 6 | 1 | ○ |
| SH300-RH6-06010-H | 6 | 15 | 1 | 60 | 6 | 1 | ○ |
| SH300-RH6-06005E-H | 6 | 15 | 0.5 | 75 | 6 | 1 | ○ |
| SH300-RH6-06010E-H | 6 | 15 | 1 | 75 | 6 | 1 | ○ |
| SH300-RH6-08005-H | 8 | 20 | 0.5 | 75 | 8 | 1 | ○ |
| SH300-RH6-08010-H | 8 | 20 | 1 | 75 | 8 | 1 | ○ |
| SH300-RH6-10005-H | 10 | 25 | 0.5 | 100 | 10 | 1 | ○ |
| SH300-RH6-10010-H | 10 | 25 | 1 | 100 | 10 | 1 | ○ |
| SH300-RH6-10020-H | 10 | 25 | 2 | 100 | 10 | 1 | ○ |
| SH300-RH6-12005-H | 12 | 30 | 0.5 | 100 | 12 | 1 | ○ |
| SH300-RH6-12010-H | 12 | 30 | 1 | 100 | 12 | 1 | ● |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.015}$ |
| D>12 | $^{0}_{-0.020}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

# SH300-RH6-H

6 Flute with Long Shank, Cornor Raidus

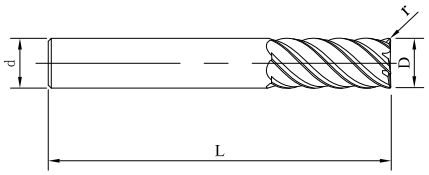



Fig1






See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SH300-RH6-12020-H | 12 | 30 | 2 | 100 | 12 | 1 | ○ |
| SH300-RH6-14005-H | 14 | 35 | 0.5 | 120 | 14 | 1 | ○ |
| SH300-RH6-14010-H | 14 | 35 | 1 | 120 | 14 | 1 | ○ |
| SH300-RH6-14020-H | 14 | 35 | 2 | 120 | 14 | 1 | ○ |
| SH300-RH6-16010-H | 16 | 40 | 1 | 120 | 16 | 1 | ○ |
| SH300-RH6-16020-H | 16 | 40 | 2 | 120 | 16 | 1 | ○ |
| SH300-RH6-16030-H | 16 | 40 | 3 | 120 | 16 | 1 | ○ |
| SH300-RH6-20002-H | 20 | 45 | 0.2 | 120 | 20 | 1 | ○ |
| SH300-RH6-20010-H | 20 | 45 | 1 | 120 | 20 | 1 | ○ |
| SH300-RH6-20020-H | 20 | 45 | 2 | 120 | 20 | 1 | ○ |
| SH300-RH6-20030-H | 20 | 45 | 3 | 120 | 20 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤12 | $^{0}_{-0.015}$ |
| D>12 | $^{0}_{-0.020}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

# SH300-B2-H

2 Flute, Ballnose

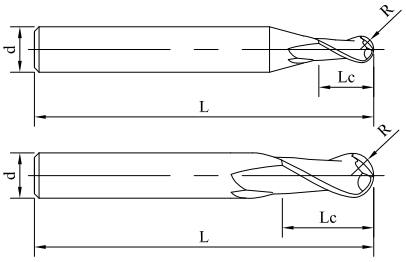



Fig1

Fig2






See page 149 or guidelines to icons

| Ordering Code | D | R | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SH300-B2-30601-H | 0.6 | 0.3 | 0.9 | 50 | 3 | 1 | ○ |
| SH300-B2-00601-H | 0.6 | 0.3 | 0.9 | 50 | 4 | 1 | ● |
| SH300-B2-60601-H | 0.6 | 0.3 | 0.9 | 50 | 6 | 1 | ○ |
| SH300-B2-31002-H | 1 | 0.5 | 1.5 | 50 | 3 | 1 | ○ |
| SH300-B2-01002-H | 1 | 0.5 | 1.5 | 50 | 4 | 1 | ● |
| SH300-B2-61002-H | 1 | 0.5 | 1.5 | 50 | 6 | 1 | ○ |
| SH300-B2-31502-H | 1.5 | 0.75 | 2.3 | 50 | 3 | 1 | ● |
| SH300-B2-01502-H | 1.5 | 0.75 | 2.3 | 50 | 4 | 1 | ● |
| SH300-B2-61502-H | 1.5 | 0.75 | 2.3 | 50 | 6 | 1 | ○ |
| SH300-B2-32003-H | 2 | 1 | 3 | 50 | 3 | 1 | ● |
| SH300-B2-02003-H | 2 | 1 | 3 | 50 | 4 | 1 | ○ |
| SH300-B2-62003-H | 2 | 1 | 3 | 50 | 6 | 1 | ○ |

●Stock ○Available upon Order

| R | Tol |
|---|---|
| R≤3 | ±0.005 |
| R>3 | ±0.007 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

# SH300-B2-H

2 Flute, Ballnose

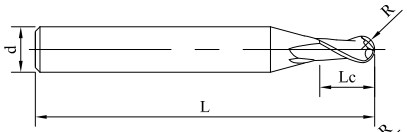



Fig1

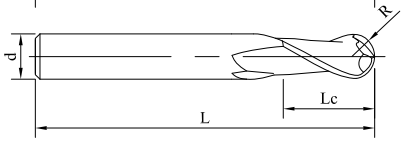



Fig2






See page 149 or guidelines to icons

》 Continuation

| Ordering Code | D | R | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SH300-B2-33005-H | 3 | 1.5 | 4.5 | 50 | 3 | 2 | ● |
| SH300-B2-03005-H | 3 | 1.5 | 4.5 | 50 | 4 | 1 | ● |
| SH300-B2-63005-H | 3 | 1.5 | 4.5 | 50 | 6 | 1 | ○ |
| SH300-B2-04006-H | 4 | 2 | 6 | 50 | 4 | 2 | ● |
| SH300-B2-64006-H | 4 | 2 | 6 | 50 | 6 | 1 | ○ |
| SH300-B2-05008-H | 5 | 2.5 | 7.5 | 50 | 6 | 1 | ○ |
| SH300-B2-06006A-H | 6 | 3 | 6 | 50 | 6 | 2 | ○ |
| SH300-B2-06009-H | 6 | 3 | 9 | 50 | 6 | 2 | ● |
| SH300-B2-08008A-H | 8 | 4 | 8 | 60 | 8 | 2 | ○ |
| SH300-B2-08012-H | 8 | 4 | 12 | 60 | 8 | 2 | ● |
| SH300-B2-08012E-H | 8 | 4 | 12 | 75 | 8 | 2 | ● |
| SH300-B2-10015-H | 10 | 5 | 15 | 75 | 10 | 2 | ● |
| SH300-B2-12018-H | 12 | 6 | 18 | 75 | 12 | 2 | ● |

●Stock ○Available upon Order

| R | Tol |
|---|---|
| R≤3 | ±0.005 |
| R>3 | ±0.007 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

# SH300-BH2-H

2 Flute with Long Shank, Ballnose

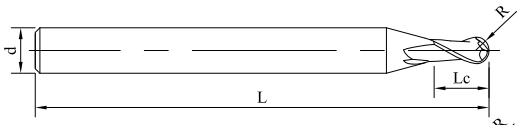



Fig1

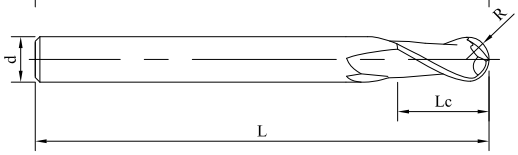



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | R | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SH300-BH2-30601-H | 0.6 | 0.3 | 0.9 | 60 | 3 | 1 | ○ |
| SH300-BH2-00601-H | 0.6 | 0.3 | 0.9 | 60 | 4 | 1 | ○ |
| SH300-BH2-60601-H | 0.6 | 0.3 | 0.9 | 60 | 6 | 1 | ○ |
| SH300-BH2-31002-H | 1 | 0.5 | 1.5 | 60 | 3 | 1 | ○ |
| SH300-BH2-01002-H | 1 | 0.5 | 1.5 | 60 | 4 | 1 | ○ |
| SH300-BH2-61002-H | 1 | 0.5 | 1.5 | 60 | 6 | 1 | ○ |
| SH300-BH2-31502-H | 1.5 | 0.75 | 2.3 | 60 | 3 | 1 | ● |
| SH300-BH2-01502-H | 1.5 | 0.75 | 2.3 | 60 | 4 | 1 | ○ |
| SH300-BH2-61502-H | 1.5 | 0.75 | 2.3 | 60 | 6 | 1 | ○ |
| SH300-BH2-32003-H | 2 | 1 | 3 | 60 | 3 | 1 | ● |

●Stock ○Available upon Order

| R | Tol |
|---|---|
| R≤3 | ±0.005 |
| R>3 | ±0.007 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

# SH300-BH2-H

2 Flute with Long Shank, Ballnose

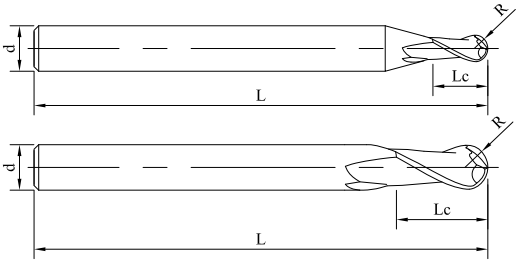



Fig1




Fig2






See page 149 or guidelines to icons

》 Continuation

| Ordering Code | D | R | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SH300-BH2-02003-H | 2 | 1 | 3 | 60 | 4 | 1 | ○ |
| SH300-BH2-62003-H | 2 | 1 | 3 | 60 | 6 | 1 | ○ |
| SH300-BH2-04006-H | 4 | 2 | 6 | 60 | 4 | 2 | ○ |
| SH300-BH2-64006-H | 4 | 2 | 6 | 60 | 6 | 1 | ○ |
| SH300-BH2-05008-H | 5 | 2.5 | 7.5 | 60 | 6 | 1 | ○ |
| SH300-BH2-06009-H | 6 | 3 | 9 | 60 | 6 | 2 | ● |
| SH300-BH2-06009E-H | 6 | 3 | 9 | 75 | 6 | 2 | ● |
| SH300-BH2-06012F-H | 6 | 3 | 12 | 100 | 6 | 2 | ○ |
| SH300-BH2-08012-H | 8 | 4 | 12 | 100 | 8 | 2 | ● |
| SH300-BH2-10015-H | 10 | 5 | 15 | 100 | 10 | 2 | ● |
| SH300-BH2-10015F-H | 10 | 5 | 15 | 150 | 10 | 2 | ● |
| SH300-BH2-12018-H | 12 | 6 | 18 | 100 | 12 | 2 | ● |

●Stock ○Available upon Order

| R | Tol |
|---|---|
| R≤3 | ±0.005 |
| R>3 | ±0.007 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

# SH300-BN2-H

2 Flute, Ballnose

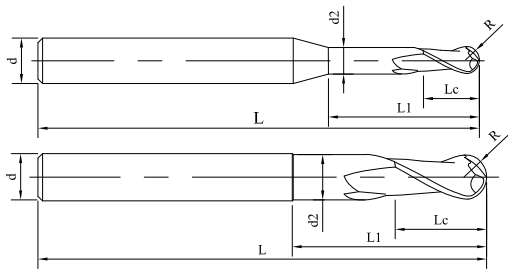



Fig1

Fig2






See page 149 or guidelines to icons

| Ordering Code | D | R | Lc | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SH300-BN2-30602-H | 0.6 | 0.3 | 0.9 | 0.55 | 1.5 | 50 | 3 | 1 | ○ |
| SH300-BN2-00602-H | 0.6 | 0.3 | 0.9 | 0.55 | 1.5 | 50 | 4 | 1 | ○ |
| SH300-BN2-60602-H | 0.6 | 0.3 | 0.9 | 0.55 | 1.5 | 50 | 6 | 1 | ○ |
| SH300-BN2-31003-H | 1 | 0.5 | 1.5 | 0.95 | 2.5 | 50 | 3 | 1 | ● |
| SH300-BN2-01003-H | 1 | 0.5 | 1.5 | 0.95 | 2.5 | 50 | 4 | 1 | ● |
| SH300-BN2-61003-H | 1 | 0.5 | 1.5 | 0.95 | 2.5 | 50 | 6 | 1 | ○ |
| SH300-BN2-01006-H | 1 | 0.5 | 1.5 | 0.95 | 6 | 50 | 4 | 1 | ● |
| SH300-BN2-31504-H | 1.5 | 0.75 | 2.3 | 1.45 | 3.75 | 50 | 3 | 1 | ● |
| SH300-BN2-01504-H | 1.5 | 0.75 | 2.3 | 1.45 | 3.75 | 50 | 4 | 1 | ● |
| SH300-BN2-61504-H | 1.5 | 0.75 | 2.3 | 1.45 | 3.75 | 50 | 6 | 1 | ○ |
| SH300-BN2-01506-H | 1.5 | 0.75 | 2.3 | 1.45 | 6 | 50 | 4 | 1 | ● |
| SH300-BN2-61506-H | 1.5 | 0.75 | 2.3 | 1.45 | 6 | 50 | 6 | 1 | ● |

●Stock ○Available upon Order

| R | Tol |
|---|---|
| R≤3 | ±0.005 |
| R>3 | ±0.007 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

# SH300-BN2-H

2 Flute with Reduced Neck, Ballnose

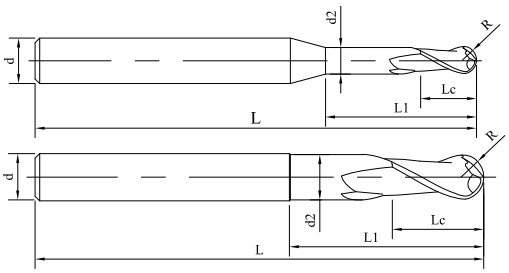



Fig1

Fig2






See page 149 or guidelines to icons

》 Continuation

| Ordering Code | D | R | Lc | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SH300-BN2-32005-H | 2 | 1 | 3 | 1.95 | 5 | 50 | 3 | 1 | ● |
| SH300-BN2-02005-H | 2 | 1 | 3 | 1.95 | 5 | 50 | 4 | 1 | ● |
| SH300-BN2-62005-H | 2 | 1 | 3 | 1.95 | 5 | 50 | 6 | 1 | ○ |
| SH300-BN2-32005E-H | 2 | 1 | 3 | 1.95 | 5 | 60 | 3 | 1 | ○ |
| SH300-BN2-02005E-H | 2 | 1 | 3 | 1.95 | 5 | 60 | 4 | 1 | ○ |
| SH300-BN2-62005E-H | 2 | 1 | 3 | 1.95 | 5 | 60 | 6 | 1 | ○ |
| SH300-BN2-02006E-H | 2 | 1 | 3 | 1.95 | 6 | 60 | 4 | 1 | ● |
| SH300-BN2-02008-H | 2 | 1 | 3 | 1.95 | 8 | 50 | 4 | 1 | ● |
| SH300-BN2-02008M-H | 2 | 1 | 2 | 1.95 | 8 | 50 | 4 | 1 | ○ |
| SH300-BN2-02010E-H | 2 | 1 | 3 | 1.95 | 10 | 60 | 4 | 1 | ● |
| SH300-BN2-33008-H | 3 | 1.5 | 4.5 | 2.9 | 7.5 | 50 | 3 | 2 | ● |
| SH300-BN2-03006-H | 3 | 1.5 | 4.5 | 2.9 | 6 | 50 | 4 | 1 | ○ |
| SH300-BN2-03008-H | 3 | 1.5 | 4.5 | 2.9 | 7.5 | 50 | 4 | 1 | ○ |
| SH300-BN2-03015E-H | 3 | 1.5 | 4.5 | 2.9 | 15 | 60 | 4 | 1 | ○ |

●Stock ○Available upon Order

| R | Tol |
|---|---|
| R≤3 | ±0.005 |
| R>3 | ±0.007 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

# SH300-BN2-H

2 Flute with Reduced Neck, Ballnose

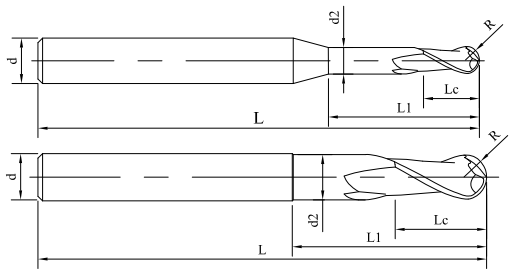



Fig1

Fig2






See page 149 or guidelines to icons

| Ordering Code | D | R | Lc | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SH300-BN2-63008-H | 3 | 1.5 | 4.5 | 2.9 | 7.5 | 50 | 6 | 1 | ○ |
| SH300-BN2-63012-H | 3 | 1.5 | 4.5 | 2.9 | 12 | 50 | 6 | 1 | ○ |
| SH300-BN2-33008E-H | 3 | 1.5 | 4.5 | 2.9 | 7.5 | 60 | 3 | 2 | ○ |
| SH300-BN2-03008E-H | 3 | 1.5 | 4.5 | 2.9 | 7.5 | 60 | 4 | 1 | ○ |
| SH300-BN2-63008E-H | 3 | 1.5 | 4.5 | 2.9 | 7.5 | 60 | 6 | 1 | ○ |
| SH300-BN2-63009E-H | 3 | 1.5 | 4.5 | 2.9 | 9 | 60 | 6 | 1 | ○ |
| SH300-BN2-63012E-H | 3 | 1.5 | 4.5 | 2.9 | 12 | 60 | 6 | 1 | ● |
| SH300-BN2-63015E-H | 3 | 1.5 | 4.5 | 2.9 | 15 | 60 | 6 | 1 | ○ |
| SH300-BN2-04010-H | 4 | 2 | 6 | 3.9 | 10 | 50 | 4 | 2 | ● |
| SH300-BN2-04010E-H | 4 | 2 | 6 | 3.9 | 10 | 60 | 4 | 2 | ○ |
| SH300-BN2-64010-H | 4 | 2 | 6 | 3.9 | 10 | 50 | 6 | 1 | ● |
| SH300-BN2-64010E-H | 4 | 2 | 6 | 3.9 | 10 | 60 | 6 | 1 | ○ |
| SH300-BN2-64012E-H | 4 | 2 | 6 | 3.9 | 12 | 60 | 6 | 1 | ● |
| SH300-BN2-64016E-H | 4 | 2 | 6 | 3.9 | 16 | 60 | 6 | 1 | ● |

●Stock ○Available upon Order

| R | Tol |
|---|---|
| R≤3 | ±0.005 |
| R>3 | ±0.007 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

# SH300-BN2-H

2 Flute with Reduced Neck, Ballnose

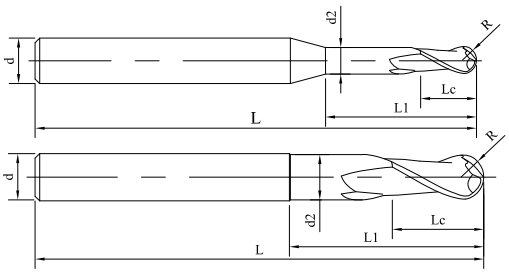



Fig1




Fig2



SHANK h5 | 2 | TiAlCrSiN | 30° Helix | Ballnose

See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | R | Lc | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SH300-BN2-04020F-H | 4 | 2 | 6 | 3.9 | 20 | 75 | 4 | 2 | ● |
| SH300-BN2-05013-H | 5 | 2.5 | 7.5 | 4.9 | 12.5 | 50 | 6 | 1 | ● |
| SH300-BN2-06015-H | 6 | 3 | 9 | 5.9 | 15 | 50 | 6 | 2 | ● |
| SH300-BN2-06015E-H | 6 | 3 | 9 | 5.9 | 15 | 60 | 6 | 2 | ○ |
| SH300-BN2-06015F-H | 6 | 3 | 9 | 5.9 | 15 | 75 | 6 | 2 | ○ |
| SH300-BN2-06030G-H | 6 | 3 | 9 | 5.9 | 30 | 100 | 6 | 2 | ● |
| SH300-BN2-08020-H | 8 | 4 | 12 | 7.9 | 20 | 60 | 8 | 2 | ● |
| SH300-BN2-08020E-H | 8 | 4 | 12 | 7.9 | 20 | 75 | 8 | 2 | ○ |
| SH300-BN2-08020G-H | 8 | 4 | 12 | 7.9 | 20 | 100 | 8 | 2 | ○ |
| SH300-BN2-08040G-H | 8 | 4 | 12 | 7.9 | 40 | 100 | 8 | 2 | ● |
| SH300-BN2-10025-H | 10 | 5 | 15 | 9.9 | 25 | 75 | 10 | 2 | ○ |
| SH300-BN2-10025F-H | 10 | 5 | 15 | 9.9 | 25 | 100 | 10 | 2 | ○ |
| SH300-BN2-12030-H | 12 | 6 | 18 | 11.9 | 30 | 75 | 12 | 2 | ○ |
| SH300-BN2-12030F-H | 12 | 6 | 18 | 11.9 | 30 | 100 | 12 | 2 | ○ |

●Stock ○Available upon Order

| R | Tol |
|---|---|
| R≤3 | ±0.005 |
| R>3 | ±0.007 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

# SH300-B4-H

4 Flute, Ballnose

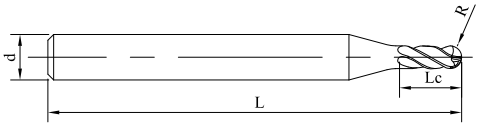



Fig1



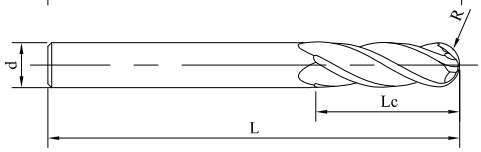



Fig2




See page 149 or guidelines to icons

| Ordering Code | D | R | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SH300-B4-02003-H | 2 | 1 | 3 | 50 | 4 | 1 | ○ |
| SH300-B4-62003-H | 2 | 1 | 3 | 50 | 6 | 1 | ○ |
| SH300-B4-03005-H | 3 | 1.5 | 4.5 | 50 | 4 | 1 | ○ |
| SH300-B4-63005-H | 4 | 2 | 4.5 | 50 | 6 | 1 | ○ |
| SH300-B4-64006-H | 4 | 2 | 6 | 50 | 6 | 1 | ○ |
| SH300-B4-05008-H | 5 | 2.5 | 7.5 | 50 | 6 | 1 | ● |
| SH300-B4-06009-H | 6 | 3 | 9 | 50 | 6 | 2 | ● |
| SH300-B4-08012-H | 8 | 4 | 12 | 60 | 8 | 2 | ● |
| SH300-B4-10015-H | 10 | 5 | 15 | 75 | 10 | 2 | ● |
| SH300-B4-12018-H | 12 | 6 | 18 | 75 | 12 | 2 | ○ |

●Stock ○Available upon Order

| R | Tol |
|---|---|
| R≤3 | ±0.005 |
| R>3 | ±0.007 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

# SH300-BH4-H

4 Flute with Long Shank, Ballnose

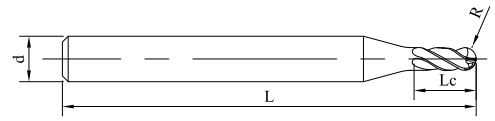



Fig1

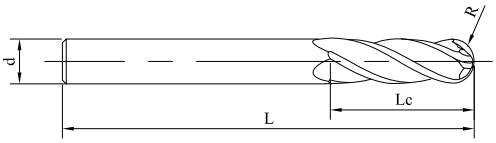



Fig2






See page 149 or guidelines to icons

| Ordering Code | D | R | Lc | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|
| SH300-BH4-02003-H | 2 | 1 | 3 | 60 | 4 | 1 | ○ |
| SH300-BH4-62003-H | 2 | 1 | 3 | 60 | 6 | 1 | ○ |
| SH300-BH4-03005-H | 3 | 1.5 | 4.5 | 60 | 4 | 1 | ○ |
| SH300-BH4-63005-H | 3 | 1.5 | 4.5 | 60 | 6 | 1 | ○ |
| SH300-BH4-64006-H | 4 | 2 | 6 | 60 | 6 | 1 | ○ |
| SH300-BH4-05008-H | 5 | 2.5 | 7.5 | 60 | 6 | 1 | ○ |
| SH300-BH4-06009-H | 6 | 3 | 9 | 75 | 6 | 2 | ● |
| SH300-BH4-08012-H | 8 | 4 | 12 | 75 | 8 | 2 | ○ |
| SH300-BH4-10015-H | 10 | 5 | 15 | 100 | 10 | 2 | ● |
| SH300-BH4-12018-H | 12 | 6 | 18 | 100 | 12 | 2 | ○ |

●Stock ○Available upon Order

| R | Tol |
|---|---|
| R≤3 | ±0.005 |
| R>3 | ±0.007 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P494

# SH300-BN4-H

4 Flute with Reduced Neck, Ballnose

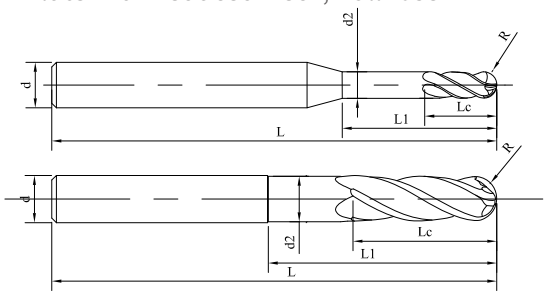



Fig1



Fig2




See page 149 or guidelines to icons

| Ordering Code | D | R | Lc | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| SH300-BN4-02006-H | 2 | 1 | 3 | 1.9 | 6 | 50 | 4 | 1 | ● |
| SH300-BN4-62006-H | 2 | 1 | 3 | 1.9 | 6 | 50 | 6 | 1 | ○ |
| SH300-BN4-02508-H | 2.5 | 1.25 | 4 | 2.38 | 7.5 | 50 | 4 | 1 | ○ |
| SH300-BN4-62508-H | 2.5 | 1.25 | 4 | 2.38 | 7.5 | 50 | 6 | 1 | ○ |
| SH300-BN4-03009-H | 3 | 1.5 | 4.5 | 2.9 | 9 | 60 | 4 | 1 | ● |
| SH300-BN4-63009-H | 3 | 1.5 | 4.5 | 2.9 | 9 | 60 | 6 | 1 | ○ |
| SH300-BN4-04012-H | 4 | 2 | 6 | 3.9 | 12 | 75 | 4 | 2 | ● |
| SH300-BN4-64012-H | 4 | 2 | 6 | 3.9 | 12 | 75 | 6 | 1 | ○ |
| SH300-BN4-05015-H | 5 | 2.5 | 7.5 | 4.7 | 15 | 75 | 6 | 1 | ○ |
| SH300-BN4-06018-H | 6 | 3 | 9 | 5.7 | 18 | 75 | 6 | 2 | ● |
| SH300-BN4-08024-H | 8 | 4 | 12 | 7.6 | 24 | 100 | 8 | 2 | ● |
| SH300-BN4-10030-H | 10 | 5 | 15 | 9.5 | 30 | 100 | 10 | 2 | ○ |
| SH300-BN4-12036-H | 12 | 6 | 18 | 11.5 | 36 | 120 | 12 | 2 | ○ |

●Stock ○Available upon Order

| R | Tol |
|---|---|
| R≤3 | ±0.005 |
| R>3 | ±0.007 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ○ | | ○ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P494

# FH200-R4-H

4 Flute, Cornor Raidus

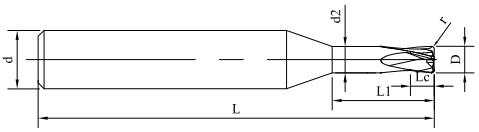



Fig1

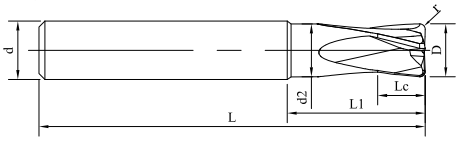



Fig2



SHANK h5 | 4 | TiAlCrSiN | 15° Helix | Corner-R | L

See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| FH200-R4-01002-H | 1 | 1 | 0.2 | 0.95 | 2 | 50 | 4 | 1 | ○ |
| FH200-R4-01505-H | 1.5 | 1.5 | 0.5 | 1.45 | 3 | 50 | 4 | 1 | ○ |
| FH200-R4-02005-H | 2 | 2 | 0.5 | 1.9 | 4 | 50 | 6 | 1 | ○ |
| FH200-R4-03005-H | 3 | 3 | 0.5 | 2.9 | 6 | 50 | 6 | 1 | ○ |
| FH200-R4-04005-H | 4 | 4 | 0.5 | 3.8 | 8 | 60 | 6 | 1 | ● |
| FH200-R4-05005-H | 5 | 5 | 0.5 | 4.7 | 10 | 60 | 6 | 1 | ○ |
| FH200-R4-05010-H | 5 | 5 | 1 | 4.7 | 10 | 60 | 6 | 1 | ○ |
| FH200-R4-06003-H | 6 | 6 | 0.3 | 5.7 | 12 | 60 | 6 | 2 | ○ |
| FH200-R4-06005-H | 6 | 6 | 0.5 | 5.7 | 12 | 60 | 6 | 2 | ● |
| FH200-R4-06010-H | 6 | 6 | 1 | 5.7 | 12 | 60 | 6 | 2 | ○ |
| FH200-R4-06015-H | 6 | 6 | 1.5 | 5.7 | 12 | 60 | 6 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤5 | $^{0}_{-0.01}$ |
| D>5 | $^{0}_{-0.015}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ◎ | | ◎ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P495

# FH200-R4-H

4 Flute, Cornor Raidus

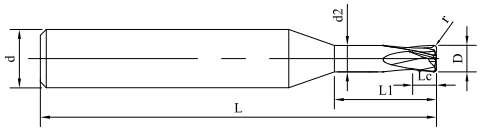



Fig1

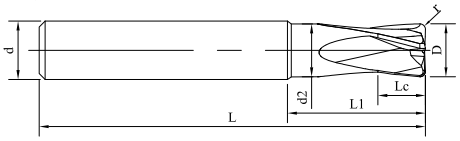



Fig2



SHANK h5 | 4 | TiAlCrSiN | 15° Helix | Corner-R | L

See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| FH200-R4-08003-H | 8 | 8 | 0.3 | 7.6 | 16 | 60 | 8 | 2 | ○ |
| FH200-R4-08005-H | 8 | 8 | 0.5 | 7.6 | 16 | 60 | 8 | 2 | ○ |
| FH200-R4-08010-H | 8 | 8 | 1 | 7.6 | 16 | 60 | 8 | 2 | ● |
| FH200-R4-08020-H | 8 | 8 | 2 | 7.6 | 16 | 60 | 8 | 2 | ○ |
| FH200-R4-10005-H | 10 | 10 | 0.5 | 9.5 | 20 | 75 | 10 | 2 | ○ |
| FH200-R4-10010-H | 10 | 10 | 1 | 9.5 | 20 | 75 | 10 | 2 | ● |
| FH200-R4-10020-H | 10 | 10 | 2 | 9.5 | 20 | 75 | 10 | 2 | ○ |
| FH200-R4-12005-H | 12 | 12 | 0.5 | 11.5 | 24 | 75 | 12 | 2 | ○ |
| FH200-R4-12010-H | 12 | 12 | 1 | 11.5 | 24 | 75 | 12 | 2 | ○ |
| FH200-R4-12020-H | 12 | 12 | 2 | 11.5 | 24 | 75 | 12 | 2 | ○ |
| FH200-R4-12030-H | 12 | 12 | 3 | 11.5 | 24 | 75 | 12 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤5 | $^{0}_{-0.01}$ |
| D>5 | $^{0}_{-0.015}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ◎ | | ◎ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P495

# FH200-RN4-H

4 Flute with Reduced Neck,Cornor Raidus

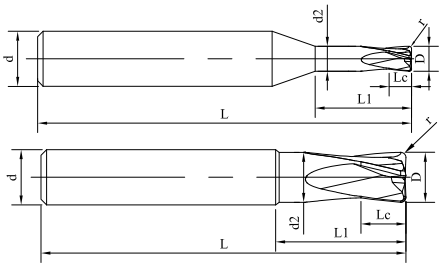



Fig1




Fig2



SHANK h5 | 4 | TiAlCrSiN | 15° Helix | Corner-R | L

See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| FH200-RN4-08005-H | 8 | 8 | 0.5 | 7.6 | 24 | 75 | 8 | 2 | ○ |
| FH200-RN4-08005E-H | 8 | 8 | 0.5 | 7.6 | 24 | 100 | 8 | 2 | ○ |
| FH200-RN4-08010-H | 8 | 8 | 1 | 7.6 | 24 | 75 | 8 | 2 | ○ |
| FH200-RN4-08010E-H | 8 | 8 | 1 | 7.6 | 24 | 100 | 8 | 2 | ○ |
| FH200-RN4-08020-H | 8 | 8 | 2 | 7.6 | 24 | 75 | 8 | 2 | ○ |
| FH200-RN4-08020E-H | 8 | 8 | 2 | 7.6 | 24 | 100 | 8 | 2 | ○ |
| FH200-RN4-10005-H | 10 | 10 | 0.5 | 9.5 | 30 | 100 | 10 | 2 | ○ |
| FH200-RN4-10010-H | 10 | 10 | 1 | 9.5 | 30 | 100 | 10 | 2 | ○ |
| FH200-RN4-10020-H | 10 | 10 | 2 | 9.5 | 30 | 100 | 10 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤5 | 0 -0.01 |
| D>5 | 0 -0.015 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ◎ | | ◎ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P495

# FH200-RN4-H

4 Flute with Reduced Neck,Cornor Raidus

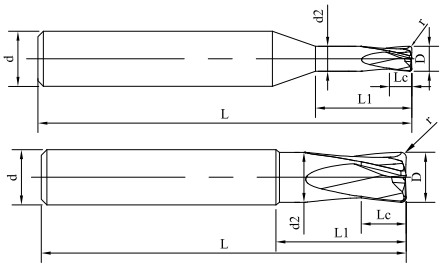



Fig1




Fig2



SHANK h5 | 4 | TiAlCrSiN | 15° Helix | Corner-R | L

See page 149 or guidelines to icons

》Continuation

| Ordering Code | D | Lc | r | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| FH200-RN4-12005-H | 12 | 12 | 0.5 | 11.5 | 36 | 100 | 12 | 2 | ○ |
| FH200-RN4-12010-H | 12 | 12 | 1 | 11.5 | 36 | 100 | 12 | 2 | ○ |
| FH200-RN4-12010E-H | 12 | 12 | 1 | 11.5 | 36 | 120 | 12 | 2 | ○ |
| FH200-RN4-12020-H | 12 | 12 | 2 | 11.5 | 36 | 100 | 12 | 2 | ○ |
| FH200-RN4-12020E-H | 12 | 12 | 2 | 11.5 | 36 | 120 | 12 | 2 | ○ |
| FH200-RN4-12030-H | 12 | 12 | 3 | 11.5 | 36 | 100 | 12 | 2 | ○ |
| FH200-RN4-12030E-H | 12 | 12 | 3 | 11.5 | 36 | 120 | 12 | 2 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤5 | $^{0}_{-0.01}$ |
| D>5 | $^{0}_{-0.015}$ |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ◎ | | ◎ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P495

# FH200-R6-H

6 Flute, Cornor Raidus

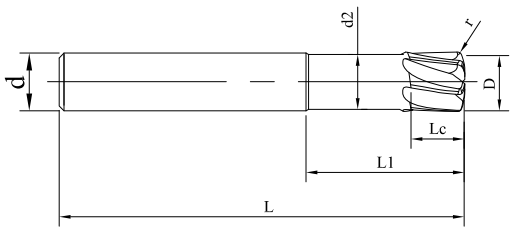



Fig1






See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| FH200-R6-06004-H | 6 | 5 | 0.375 | 5.5 | 18 | 60 | 6 | 1 | ● |
| FH200-R6-08005-H | 8 | 7 | 0.5 | 7.5 | 24 | 75 | 8 | 1 | ● |
| FH200-R6-10006-H | 10 | 8 | 0.625 | 9.5 | 30 | 90 | 10 | 1 | ● |
| FH200-R6-12008-H | 12 | 10 | 0.75 | 11.5 | 36 | 100 | 12 | 1 | ● |
| FH200-R6-16010-H | 16 | 14 | 1 | 15.5 | 48 | 110 | 16 | 1 | ○ |
| FH200-R6-20013-H | 20 | 18 | 1.25 | 19.5 | 60 | 125 | 20 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤20 | -0.014<br>-0.038 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ◎ | | ◎ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P495

# FH200-RH6-H

6 Flute with Long Shank, Cornor Raidus

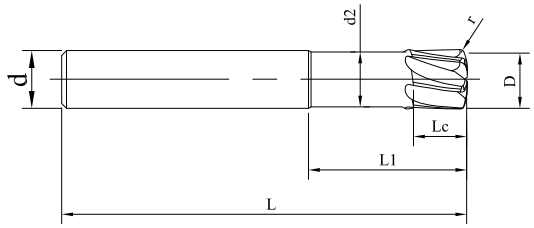



Fig1



SHANK h5 | 6 | TiAlCrSiN | 20° Helix | Corner-R | L

See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| FH200-RH6-06004-H | 6 | 5 | 0.375 | 5.5 | 18 | 100 | 6 | 1 | ○ |
| FH200-RH6-08005-H | 8 | 7 | 0.5 | 7.5 | 24 | 100 | 8 | 1 | ○ |
| FH200-RH6-10006-H | 10 | 8 | 0.625 | 9.5 | 30 | 120 | 10 | 1 | ○ |
| FH200-RH6-12008-H | 12 | 10 | 0.75 | 11.5 | 36 | 120 | 12 | 1 | ○ |
| FH200-RH6-16010-H | 16 | 14 | 1 | 15.5 | 48 | 150 | 16 | 1 | ○ |
| FH200-RH6-20013-H | 20 | 18 | 1.25 | 19.5 | 60 | 150 | 20 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤20 | -0.014<br>-0.038 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ◎ | | ◎ | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P495

# FH200-RN6-H

6 Flute with Reduced Neck, Cornor Raidus

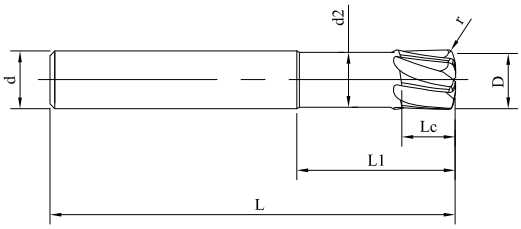



Fig1






See page 149 or guidelines to icons

| Ordering Code | D | Lc | r | d2 | L1 | L | d | Figure No. | Stock |
|---|---|---|---|---|---|---|---|---|---|
| FH200-RN6-06004-H | 6 | 5 | 0.375 | 5.5 | 24 | 100 | 6 | 1 | ○ |
| FH200-RN6-08005-H | 8 | 7 | 0.5 | 7.5 | 32 | 100 | 8 | 1 | ○ |
| FH200-RN6-10006-H | 10 | 8 | 0.625 | 9.5 | 40 | 120 | 10 | 1 | ○ |
| FH200-RN6-12008-H | 12 | 10 | 0.75 | 11.5 | 48 | 120 | 12 | 1 | ○ |
| FH200-RN6-16010-H | 16 | 14 | 1 | 15.5 | 64 | 150 | 16 | 1 | ○ |
| FH200-RN6-20013-H | 20 | 18 | 1.25 | 19.5 | 80 | 150 | 20 | 1 | ○ |

●Stock ○Available upon Order

| D | Tol |
|---|---|
| D≤20 | -0.014<br>-0.038 |

unit (mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | H | | |
| 1 2 3 4 | 5 | 6 | 1 | 2 | 3 4 |
| Carbon Steel, AlloySteel (<35HRC) | Alloy Steel,ToolSteel (48HRC) | PH,Ferrite,Martensite Steel( < 35HRC) | Hardened Steel (45-55HRC) | Hardened Steel (55-60HRC) | Hardened Steel( > 60HRC) |
| | ◎ | | ◎ | ◎ | ◎ |

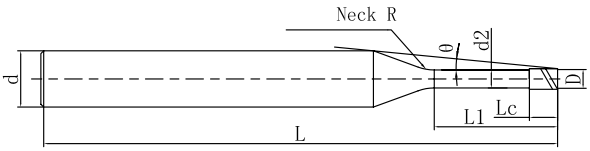
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P495



# SPM200-SN2

2 Flute with Extended Neck,Square









See page 149 for guidelines to icons

| Ordering Code | Mill Dia. | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-SN2-0.1-0.3-V | 0.1 | 0.3 | 0.15 | 0.08 | 50 | 4 | 1 | 14.39 | 0.31 | 0.33 | 0.35 | 0.37 | 0.40 | ● |
| SPM200-SN2-0.1-0.5-V | | 0.5 | | | | | | 14.03 | 0.52 | 0.55 | 0.58 | 0.60 | 0.65 | ● |
| SPM200-SN2-0.1-1-V | | 1 | | | | | | 13.22 | 1.05 | 1.09 | 1.13 | 1.18 | 1.27 | ● |
| SPM200-SN2-0.2-0.5-V | 0.2 | 0.5 | 0.3 | 0.17 | 50 | 4 | 1 | 14.03 | 0.52 | 0.54 | 0.57 | 0.59 | 0.64 | ● |
| SPM200-SN2-0.2-1-V | | 1 | | | | | | 13.20 | 1.04 | 1.08 | 1.12 | 1.16 | 1.26 | ○ |
| SPM200-SN2-0.2-1.5-V | | 1.5 | | | | | | 12.45 | 1.56 | 1.62 | 1.67 | 1.74 | 1.88 | ● |
| SPM200-SN2-0.2-2-V | | 2 | | | | | | 11.79 | 2.08 | 2.15 | 2.23 | 2.31 | 2.50 | ● |
| SPM200-SN2-0.2-3-V | | 3 | | | | | | 10.65 | 3.11 | 3.22 | 3.34 | 3.46 | 3.74 | ○ |
| SPM200-SN2-0.3-1-V | 0.3 | 1 | 0.45 | 0.27 | 50 | 4 | 2 | 13.06 | 1.06 | 1.12 | 1.18 | 1.23 | 1.33 | ● |
| SPM200-SN2-0.3-1.5-V | | 1.5 | | | | | | 12.31 | 1.59 | 1.67 | 1.74 | 1.81 | 1.95 | ● |
| SPM200-SN2-0.3-2-V | | 2 | | | | | | 11.65 | 2.12 | 2.21 | 2.29 | 2.38 | 2.57 | ● |
| SPM200-SN2-0.3-2.5-V | | 2.5 | | | | | | 11.05 | 2.64 | 2.75 | 2.85 | 2.96 | 3.20 | ● |
| SPM200-SN2-0.3-3-V | | 3 | | | | | | 10.51 | 3.16 | 3.28 | 3.40 | 3.53 | 3.82 | ● |
| SPM200-SN2-0.4-1-V | 0.4 | 1 | 0.6 | 0.37 | 50 | 4 | 2 | 13.01 | 1.06 | 1.12 | 1.18 | 1.23 | 1.33 | ● |
| SPM200-SN2-0.4-1.5-V | | 1.5 | | | | | | 12.25 | 1.59 | 1.67 | 1.74 | 1.81 | 1.95 | ● |
| SPM200-SN2-0.4-2-V | | 2 | | | | | | 11.57 | 2.12 | 2.21 | 2.29 | 2.38 | 2.57 | ● |
| SPM200-SN2-0.4-2.5-V | | 2.5 | | | | | | 10.97 | 2.64 | 2.75 | 2.85 | 2.96 | 3.20 | ○ |
| SPM200-SN2-0.4-3-V | | 3 | | | | | | 10.42 | 3.16 | 3.28 | 3.40 | 3.53 | 3.82 | ○ |
| SPM200-SN2-0.4-3.5-V | | 3.5 | | | | | | 9.92 | 3.68 | 3.82 | 3.96 | 4.11 | 4.44 | ● |
| SPM200-SN2-0.4-4-V | | 4 | | | | | | 9.47 | 4.20 | 4.35 | 4.51 | 4.68 | 5.06 | ● |
| SPM200-SN2-0.4-5-V | | 5 | | | | | | 8.68 | 5.24 | 5.42 | 5.62 | 5.83 | 6.30 | ○ |
| SPM200-SN2-0.4-6-V | | 6 | | | | | | 8.01 | 6.27 | 6.49 | 6.73 | 6.98 | 7.55 | ● |
| SPM200-SN2-0.4-8-V | | 8 | | | | | | 6.94 | 8.34 | 8.63 | 8.94 | 9.28 | 10.03 | ● |
| SPM200-SN2-0.4-10-V | | 10 | | | | | | 6.12 | 10.41 | 10.77 | 11.16 | 11.58 | 12.52 | ● |

● Stock ○ Available upon Order

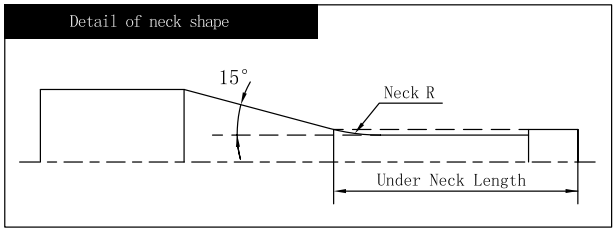
| D | Tol |
|---|---|
| 0.1≤D≤0.5 | 0 -0.007 |
| 0.6≤D≤0.9 | 0 -0.01 |
| 1.0≤D≤6.0 | 0 -0.015 |

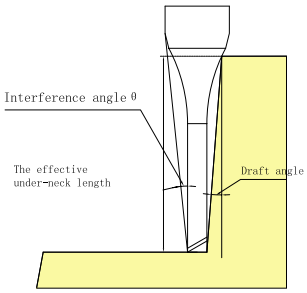
(mm)

Cutting Parameters ※ P497

# SPM200-SN2

2 Flute with Extended Neck,Square







See page 149 for guidelines to icons

》Continue

| Ordering Code | Mill Dia. | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-SN2-0.5-1-V | 0.5 | 1 | 0.75 | 0.47 | 50 | 4 | 2 | 12.96 | 1.06 | 1.12 | 1.18 | 1.23 | 1.33 | ● |
| SPM200-SN2-0.5-1.5-V | | 1.5 | | | | | | 12.19 | 1.59 | 1.67 | 1.74 | 1.81 | 1.95 | ● |
| SPM200-SN2-0.5-2-V | | 2 | | | | | | 11.50 | 2.12 | 2.21 | 2.29 | 2.38 | 2.57 | ● |
| SPM200-SN2-0.5-2.5-V | | 2.5 | | | | | | 10.88 | 2.64 | 2.75 | 2.85 | 2.96 | 3.20 | ● |
| SPM200-SN2-0.5-3-V | | 3 | | | | | | 10.33 | 3.16 | 3.28 | 3.40 | 3.53 | 3.82 | ○ |
| SPM200-SN2-0.5-4-V | | 4 | | | | | | 9.37 | 4.20 | 4.35 | 4.51 | 4.68 | 5.06 | ● |
| SPM200-SN2-0.5-5-V | | 5 | | | | | | 8.58 | 5.24 | 5.42 | 5.62 | 5.83 | 6.30 | ○ |
| SPM200-SN2-0.5-6-V | | 6 | | | | | | 7.91 | 6.27 | 6.49 | 6.73 | 6.98 | 7.55 | ● |
| SPM200-SN2-0.5-8-V | | 8 | | | | | | 6.84 | 8.34 | 8.63 | 8.94 | 9.28 | 10.03 | ○ |
| SPM200-SN2-0.5-10-V | | 10 | | | | | | 6.02 | 10.41 | 10.77 | 11.16 | 11.58 | 12.52 | ○ |
| SPM200-SN2-0.6-2-V | 0.6 | 2 | 0.9 | 0.57 | 50 | 4 | 4 | 11.21 | 2.17 | 2.31 | 2.44 | 2.56 | 2.78 | ● |
| SPM200-SN2-0.6-3-V | | 3 | | | | | | 10.07 | 3.24 | 3.42 | 3.58 | 3.72 | 4.02 | ● |
| SPM200-SN2-0.6-4-V | | 4 | | | | | | 9.13 | 4.30 | 4.51 | 4.69 | 4.87 | 5.26 | ● |
| SPM200-SN2-0.6-5-V | | 5 | | | | | | 8.36 | 5.35 | 5.59 | 5.80 | 6.02 | 6.50 | ○ |
| SPM200-SN2-0.6-6-V | | 6 | | | | | | 7.70 | 6.40 | 6.67 | 6.91 | 7.17 | 7.75 | ● |
| SPM200-SN2-0.6-7-V | | 7 | | | | | | 7.14 | 7.44 | 7.74 | 8.02 | 8.32 | 8.99 | ● |
| SPM200-SN2-0.6-8-V | | 8 | | | | | | 6.66 | 8.49 | 8.81 | 9.12 | 9.47 | 10.23 | ○ |
| SPM200-SN2-0.6-9-V | | 9 | | | | | | 6.23 | 9.53 | 9.88 | 10.23 | 10.62 | 11.48 | ● |
| SPM200-SN2-0.6-10-V | | 10 | | | | | | 5.86 | 10.57 | 10.94 | 11.34 | 11.77 | 12.72 | ○ |
| SPM200-SN2-0.7-2-V | 0.7 | 2 | 1.05 | 0.67 | 50 | 4 | 4 | 11.13 | 2.17 | 2.31 | 2.44 | 2.56 | 2.78 | ○ |
| SPM200-SN2-0.7-4-V | | 4 | | | | | | 9.02 | 4.30 | 4.51 | 4.69 | 4.87 | 5.26 | ● |
| SPM200-SN2-0.7-6-V | | 6 | | | | | | 7.59 | 6.40 | 6.67 | 6.91 | 7.17 | 7.75 | ● |
| SPM200-SN2-0.7-8-V | | 8 | | | | | | 6.54 | 8.49 | 8.81 | 9.12 | 9.47 | 10.23 | ○ |
| SPM200-SN2-0.7-10-V | | 10 | | | | | | 5.75 | 10.57 | 10.94 | 11.34 | 11.77 | 12.72 | ● |

● Stock ○ Available upon Order

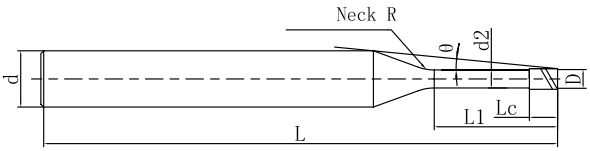
| D | Tol |
|---|---|
| 0.1≤D≤0.5 | $^{0}_{-0.007}$ |
| 0.6≤D≤0.9 | $^{0}_{-0.01}$ |
| 1.0≤D≤6.0 | $^{0}_{-0.015}$ |

(mm)

Cutting Parameters ※ P497

# SPM200-SN2

2 Flute with Extended Neck,Square









See page 149 for guidelines to icons

》 Continue

| Ordering Code | Mill Dia. | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-SN2-0.8-4-V | 0.8 | 4 | 1.2 | 0.76 | 50 | 4 | 4 | 8.94 | 4.27 | 4.48 | 4.65 | 4.83 | 5.22 | ● |
| SPM200-SN2-0.8-6-V | | 6 | | | 50 | | | 7.49 | 6.37 | 6.63 | 6.87 | 7.13 | 7.70 | ● |
| SPM200-SN2-0.8-8-V | | 8 | | | 50 | | | 6.45 | 8.46 | 8.77 | 9.09 | 9.43 | 10.19 | ● |
| SPM200-SN2-0.8-10-V | | 10 | | | 50 | | | 5.65 | 10.54 | 10.91 | 11.30 | 11.73 | 12.68 | ○ |
| SPM200-SN2-0.8-12-V | | 12 | | | 55 | | | 5.04 | 12.61 | 13.05 | 13.52 | 14.03 | 15.16 | ● |
| SPM200-SN2-0.9-6-V | 0.9 | 6 | 1.35 | 0.86 | 50 | 4 | 4 | 7.37 | 6.37 | 6.63 | 6.87 | 7.13 | 7.70 | ● |
| SPM200-SN2-0.9-8-V | | 8 | | | 50 | | | 6.33 | 8.46 | 8.77 | 9.09 | 9.43 | 10.19 | ● |
| SPM200-SN2-0.9-10-V | | 10 | | | 50 | | | 5.54 | 10.54 | 10.91 | 11.30 | 11.73 | 12.68 | ● |
| SPM200-SN2-0.9-12-V | | 12 | | | 55 | | | 4.93 | 12.61 | 13.05 | 13.52 | 14.03 | 15.16 | ● |
| SPM200-SN2-1-2-V | 1 | 2 | 1.5 | 0.96 | 50 | 4 | 4 | 10.89 | 2.15 | 2.29 | 2.41 | 2.52 | 2.73 | ● |
| SPM200-SN2-1-3-V | | 3 | | | 50 | | | 9.68 | 3.21 | 3.39 | 3.54 | 3.68 | 3.98 | ● |
| SPM200-SN2-1-4-V | | 4 | | | 50 | | | 8.71 | 4.27 | 4.48 | 4.65 | 4.83 | 5.22 | ● |
| SPM200-SN2-1-5-V | | 5 | | | 50 | | | 7.91 | 5.32 | 5.56 | 5.76 | 5.98 | 6.46 | ○ |
| SPM200-SN2-1-6-V | | 6 | | | 50 | | | 7.25 | 6.37 | 6.63 | 6.87 | 7.13 | 7.70 | ● |
| SPM200-SN2-1-7-V | | 7 | | | 50 | | | 6.69 | 7.41 | 7.7 | 7.98 | 8.28 | 8.95 | ● |
| SPM200-SN2-1-8-V | | 8 | | | 50 | | | 6.21 | 8.46 | 8.77 | 9.09 | 9.43 | 10.19 | ● |
| SPM200-SN2-1-9-V | | 9 | | | 50 | | | 5.79 | 9.50 | 9.84 | 10.19 | 10.58 | 11.43 | ○ |
| SPM200-SN2-1-10-V | | 10 | | | 50 | | | 5.43 | 10.54 | 10.91 | 11.30 | 11.73 | 12.68 | ● |
| SPM200-SN2-1-12-V | | 12 | | | 55 | | | 4.82 | 12.61 | 13.05 | 13.52 | 14.03 | 15.16 | ● |
| SPM200-SN2-1-14-V | | 14 | | | 55 | | | 4.34 | 14.67 | 15.19 | 15.73 | 16.32 | 17.65 | ● |
| SPM200-SN2-1-16-V | | 16 | | | 55 | | | 3.94 | 16.74 | 17.33 | 17.95 | 18.62 | 20.14 | ● |
| SPM200-SN2-1-20-V | | 20 | | | 60 | | | 3.33 | 20.88 | 21.6 | 22.38 | 23.22 | 25.11 | ○ |
| SPM200-SN2-1-25-V | | 25 | | | 65 | | | 2.79 | 26.05 | 26.95 | 27.93 | 28.97 | - | ● |
| SPM200-SN2-1.2-6-V | 1.2 | 6 | 1.8 | 1.15 | 50 | 4 | 4 | 7.01 | 6.35 | 6.6 | 6.84 | 7.09 | 7.67 | ● |

● Stock ○ Available upon Order

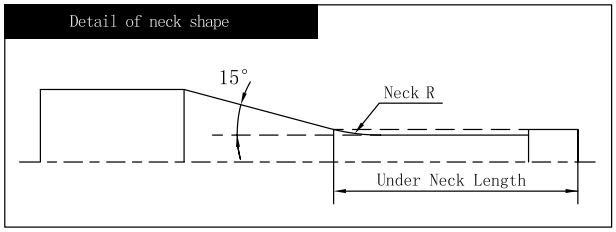
| D | Tol |
|---|---|
| 0.1≤D≤0.5 | 0 -0.007 |
| 0.6≤D≤0.9 | 0 -0.01 |
| 1.0≤D≤6.0 | 0 -0.015 |

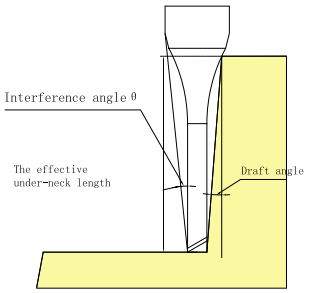
(mm)

Cutting Parameters ※ P497

# SPM200-SN2

2 Flute with Extended Neck,Square







See page 149 for guidelines to icons

》Continue

| Ordering Code | Mill Dia. | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-SN2-1.2-8-V | 1.2 | 8 | 1.8 | 1.15 | 50 | 4 | 4 | 5.97 | 8.43 | 8.74 | 9.05 | 9.39 | 10.16 | ○ |
| SPM200-SN2-1.2-10-V | | 10 | | | 50 | | | 5.20 | 10.51 | 10.88 | 11.27 | 11.69 | 12.64 | ● |
| SPM200-SN2-1.2-12-V | | 12 | | | 55 | | | 4.61 | 12.58 | 13.02 | 13.49 | 13.99 | 15.13 | ● |
| SPM200-SN2-1.2-16-V | | 16 | | | 55 | | | 3.75 | 16.71 | 17.3 | 17.92 | 18.59 | 20.10 | ○ |
| SPM200-SN2-1.4-6-V | 1.4 | 6 | 2.1 | 1.34 | 50 | 4 | 4 | 6.74 | 6.33 | 6.57 | 6.81 | 7.07 | 7.64 | ● |
| SPM200-SN2-1.4-12-V | | 12 | | | 55 | | | 4.38 | 12.55 | 12.99 | 13.46 | 13.97 | 15.10 | ○ |
| SPM200-SN2-1.5-4-V | 1.5 | 4 | 2.25 | 1.44 | 50 | 4 | 4 | 8.08 | 4.24 | 4.43 | 4.59 | 4.77 | 5.15 | ● |
| SPM200-SN2-1.5-6-V | | 6 | | | 50 | | | 6.60 | 6.33 | 6.57 | 6.81 | 7.07 | 7.64 | ● |
| SPM200-SN2-1.5-8-V | | 8 | | | 50 | | | 5.58 | 8.41 | 8.71 | 9.03 | 9.37 | 10.13 | ● |
| SPM200-SN2-1.5-10-V | | 10 | | | 50 | | | 4.83 | 10.48 | 10.85 | 11.24 | 11.67 | 12.61 | ○ |
| SPM200-SN2-1.5-12-V | | 12 | | | 55 | | | 4.26 | 12.55 | 12.99 | 13.46 | 13.97 | 15.10 | ● |
| SPM200-SN2-1.5-14-V | | 14 | | | 55 | | | 3.81 | 14.62 | 15.13 | 15.68 | 16.26 | 17.58 | ○ |
| SPM200-SN2-1.5-16-V | | 16 | | | 55 | | | 3.44 | 16.69 | 17.27 | 17.89 | 18.56 | 20.07 | ● |
| SPM200-SN2-1.5-18-V | | 18 | | | 60 | | | 3.14 | 18.76 | 19.41 | 20.11 | 20.86 | 22.56 | ● |
| SPM200-SN2-1.5-20-V | | 20 | | | 60 | | | 2.89 | 20.82 | 21.55 | 22.33 | 23.16 | - | ○ |
| SPM200-SN2-1.5-25-V | | 25 | | | 65 | | | 2.41 | 25.99 | 26.9 | 27.87 | 28.91 | - | ● |
| SPM200-SN2-1.5-30-V | | 30 | | | 70 | | | 2.06 | 31.16 | 32.25 | 33.41 | 34.66 | - | ● |
| SPM200-SN2-1.5-35-V | | 35 | | | 75 | | | 1.80 | 36.33 | 37.59 | 38.95 | - | - | ● |
| SPM200-SN2-1.5-40-V | | 40 | | | 80 | | | 1.60 | 41.50 | 42.94 | 44.49 | - | - | ○ |
| SPM200-SN2-1.6-6-V | 1.6 | 6 | 2.4 | 1.54 | 50 | 4 | 4 | 6.45 | 6.33 | 6.57 | 6.81 | 7.07 | 7.64 | ● |
| SPM200-SN2-1.6-8-V | | 8 | | | 50 | | | 5.43 | 8.41 | 8.71 | 9.03 | 9.37 | 10.13 | ● |
| SPM200-SN2-1.8-6-V | 1.8 | 6 | 2.7 | 1.73 | 50 | 4 | 4 | 6.14 | 6.31 | 6.55 | 6.79 | 7.04 | 7.61 | ● |
| SPM200-SN2-1.8-8-V | | 8 | | | 50 | | | 5.14 | 8.39 | 8.69 | 9.00 | 9.34 | 10.10 | ● |
| SPM200-SN2-2-4-V | 2 | 4 | 3 | 1.92 | 50 | 4 | 4 | 7.27 | 4.21 | 4.39 | 4.55 | 4.72 | 5.11 | ● |

● Stock ○ Available upon Order

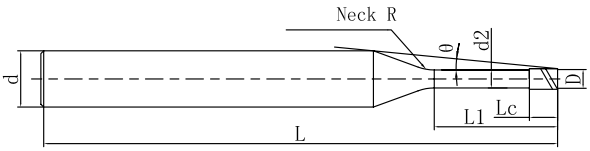
| D | Tol |
|---|---|
| 0.1≤D≤0.5 | $^{0}_{-0.007}$ |
| 0.6≤D≤0.9 | $^{0}_{-0.01}$ |
| 1.0≤D≤6.0 | $^{0}_{-0.015}$ |

(mm)

Cutting Parameters ※ P497

# SPM200-SN2

2 Flute with Extended Neck,Square









See page 149 for guidelines to icons

》 Continue

| Ordering Code | Mill Dia. | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-SN2-2-6-V | 2 | 6 | 3 | 1.92 | 50 | 4 | 4 | 5.81 | 6.30 | 6.53 | 6.77 | 7.02 | 7.59 | ● |
| SPM200-SN2-2-8-V | | 8 | | | 50 | | | 4.83 | 8.38 | 8.67 | 8.99 | 9.32 | 10.08 | ● |
| SPM200-SN2-2-10-V | | 10 | | | 50 | | | 4.14 | 10.45 | 10.81 | 11.20 | 11.62 | 12.57 | ● |
| SPM200-SN2-2-12-V | | 12 | | | 55 | | | 3.62 | 12.51 | 12.95 | 13.42 | 13.92 | 15.05 | ● |
| SPM200-SN2-2-14-V | | 14 | | | 55 | | | 3.21 | 14.58 | 15.09 | 15.64 | 16.22 | 17.54 | ● |
| SPM200-SN2-2-16-V | | 16 | | | 55 | | | 2.89 | 16.65 | 17.23 | 17.85 | 18.52 | - | ● |
| SPM200-SN2-2-18-V | | 18 | | | 60 | | | 2.63 | 18.72 | 19.37 | 20.07 | 20.82 | - | ● |
| SPM200-SN2-2-20-V | | 20 | | | 60 | | | 2.41 | 20.78 | 21.51 | 22.28 | 23.12 | - | ○ |
| SPM200-SN2-2-25-V | | 25 | | | 65 | | | 1.99 | 25.95 | 26.86 | 27.83 | - | - | ● |
| SPM200-SN2-2-30-V | | 30 | | | 70 | | | 1.70 | 31.12 | 32.2 | 33.37 | - | - | ○ |
| SPM200-SN2-2-35-V | | 35 | | | 75 | | | 1.48 | 36.29 | 37.55 | - | - | - | ● |
| SPM200-SN2-2-40-V | | 40 | | | 80 | | | 1.31 | 41.46 | 42.9 | - | - | - | ● |
| SPM200-SN2-2-50-V | | 50 | | | 90 | | | 1.07 | 51.79 | 53.6 | - | - | - | ○ |
| SPM200-SN2-2.5-8-V | 2.5 | 8 | 3.75 | 2.4 | 50 | 4 | 4 | 3.95 | 8.35 | 8.64 | 8.95 | 9.29 | 10.04 | ● |
| SPM200-SN2-2.5-12-V | | 12 | | | 55 | | | 2.89 | 12.48 | 12.92 | 13.39 | 13.89 | - | ○ |
| SPM200-SN2-2.5-16-V | | 16 | | | 55 | | | 2.28 | 16.62 | 17.2 | 17.82 | 18.49 | - | ● |
| SPM200-SN2-2.5-20-V | | 20 | | | 60 | | | 1.88 | 20.75 | 21.48 | 22.25 | - | - | ● |
| SPM200-SN2-2.5-30-V | | 30 | | | 70 | | | 1.31 | 31.09 | 32.17 | - | - | - | ● |
| SPM200-SN2-2.5-40-V | | 40 | | | 80 | | | 1.01 | 41.43 | 42.87 | - | - | - | ○ |
| SPM200-SN2-2.5-50-V | | 50 | | | 90 | | | 0.82 | 51.76 | - | - | - | - | ○ |
| SPM200-SN2-3-8-V | 3 | 8 | 4.5 | 2.88 | 55 | 6 | 4 | 6.27 | 8.33 | 8.62 | 8.93 | 9.26 | 10.02 | ● |
| SPM200-SN2-3-12-V | | 12 | | | 60 | | | 4.86 | 12.46 | 12.9 | 13.36 | 13.86 | 14.99 | ● |
| SPM200-SN2-3-16-V | | 16 | | | 60 | | | 3.97 | 16.60 | 17.17 | 17.79 | 18.46 | 19.96 | ● |
| SPM200-SN2-3-20-V | | 20 | | | 65 | | | 3.35 | 20.73 | 21.45 | 22.23 | 23.06 | 24.93 | ● |

● Stock ○ Available upon Order

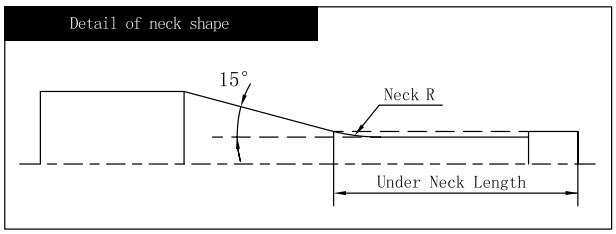
| D | Tol |
|---|---|
| 0.1≤D≤0.5 | 0 -0.007 |
| 0.6≤D≤0.9 | 0 -0.01 |
| 1.0≤D≤6.0 | 0 -0.015 |

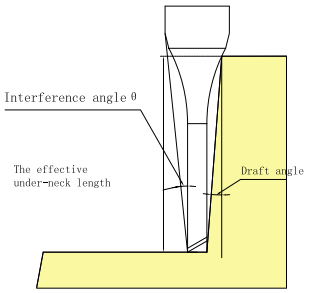
(mm)

Cutting Parameters ※ P497

# SPM200-SN2

2 Flute with Extended Neck,Square







See page 149 for guidelines to icons

》Continue

| Ordering Code | Mill Dia. | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-SN2-3-25-V | 3 | 25 | 4.5 | 2.88 | 70 | 6 | 4 | 2.81 | 25.90 | 26.8 | 27.77 | 28.81 | - | ○ |
| SPM200-SN2-3-30-V | | 30 | | | 75 | | | 2.41 | 31.07 | 32.15 | 33.31 | 34.56 | - | ● |
| SPM200-SN2-3-40-V | | 40 | | | 90 | | | 1.89 | 41.40 | 42.85 | 44.39 | - | - | ● |
| SPM200-SN2-3-50-V | | 50 | | | 100 | | | 1.55 | 51.74 | 53.54 | 55.48 | - | - | ○ |
| SPM200-SN2-4-12-V | 4 | 12 | 6 | 3.86 | 60 | 6 | 4 | 3.63 | 12.44 | 12.88 | 13.34 | 13.84 | 14.97 | ● |
| SPM200-SN2-4-16-V | | 16 | | | 60 | | | 2.90 | 16.58 | 17.16 | 17.78 | 18.44 | - | ● |
| SPM200-SN2-4-20-V | | 20 | | | 70 | | | 2.41 | 20.71 | 21.43 | 22.21 | 23.04 | - | ● |
| SPM200-SN2-4-25-V | | 25 | | | 70 | | | 2.00 | 25.88 | 26.78 | 27.75 | - | - | ○ |
| SPM200-SN2-4-30-V | | 30 | | | 80 | | | 1.70 | 31.05 | 32.13 | 33.29 | - | - | ● |
| SPM200-SN2-4-35-V | | 35 | | | 80 | | | 1.48 | 36.22 | 37.48 | - | - | - | ● |
| SPM200-SN2-4-40-V | | 40 | | | 90 | | | 1.31 | 41.39 | 42.83 | - | - | - | ○ |
| SPM200-SN2-4-50-V | | 50 | | | 100 | | | 1.07 | 51.72 | 53.52 | - | - | - | ○ |
| SPM200-SN2-5-20-V | 5 | 20 | 7.5 | 4.85 | 70 | 6 | 4 | 1.31 | 20.71 | 21.43 | - | - | - | ● |
| SPM200-SN2-5-25-V | | 25 | | | 70 | | | 1.07 | 25.87 | 26.78 | - | - | - | ● |
| SPM200-SN2-5-30-V | | 30 | | | 80 | | | 0.90 | 31.04 | - | - | - | - | ○ |
| SPM200-SN2-5-40-V | | 40 | | | 90 | | | 0.69 | 41.38 | - | - | - | - | ● |
| SPM200-SN2-5-50-V | | 50 | | | 100 | | | 0.56 | 51.72 | - | - | - | - | ○ |
| SPM200-SN2-6-20-V | 6 | 20 | 9 | 5.85 | 70 | 6 | - | - | - | - | - | - | - | ● |
| SPM200-SN2-6-30-V | | 30 | | | 80 | | | - | - | - | - | - | - | ○ |
| SPM200-SN2-6-40-V | | 40 | | | 90 | | | - | - | - | - | - | - | ● |
| SPM200-SN2-6-50-V | | 50 | | | 100 | | | - | - | - | - | - | - | ○ |

● Stock ○ Available upon Order

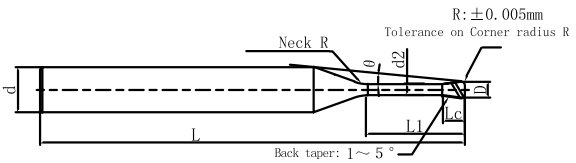
| D | Tol |
|---|---|
| 0.1≤D≤0.5 | 0 -0.007 |
| 0.6≤D≤0.9 | 0 -0.01 |
| 1.0≤D≤6.0 | 0 -0.015 |

(mm)

Cutting Parameters ※ P497

# SPM200-RN2

2 Flute with Extended Neck, Cornor Raidus




Φ4 or higher does not have backdraft shape






See page 149 for guidelines to icons

| Ordering Code | Mill | r | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-RN2-0.2-0.5-0.02-V | 0.2 | 0.02 | 0.5 | 0.16 | 0.17 | 50 | 4 | 1 | 14.07 | 0.52 | 0.54 | 0.56 | 0.58 | 0.63 | ● |
| SPM200-RN2-0.2-1-0.02-V | | | 1 | | | | | | 13.23 | 1.04 | 1.08 | 1.12 | 1.16 | 1.25 | ● |
| SPM200-RN2-0.2-2-0.02-V | | | 2 | | | | | | 11.82 | 2.08 | 2.15 | 2.23 | 2.31 | 2.50 | ○ |
| SPM200-RN2-0.2-0.5-0.05-V | | 0.05 | 0.5 | | | | | | 14.12 | 0.52 | 0.54 | 0.56 | 0.58 | 0.62 | ● |
| SPM200-RN2-0.2-1-0.05-V | | | 1 | | | | | | 13.28 | 1.04 | 1.08 | 1.11 | 1.15 | 1.24 | ○ |
| SPM200-RN2-0.2-1.5-0.05-V | | | 1.5 | | | | | | 12.53 | 1.56 | 1.61 | 1.67 | 1.73 | 1.87 | ● |
| SPM200-RN2-0.2-2-0.05-V | | | 2 | | | | | | 11.85 | 2.08 | 2.15 | 2.22 | 2.30 | 2.49 | ● |
| SPM200-RN2-0.3-1-0.02-V | 0.3 | 0.02 | 1 | 0.24 | 0.27 | 50 | 4 | 2 | 13.09 | 1.06 | 1.12 | 1.17 | 1.23 | 1.33 | ● |
| SPM200-RN2-0.3-2-0.02-V | | | 2 | | | | | | 11.67 | 2.11 | 2.21 | 2.29 | 2.38 | 2.57 | ● |
| SPM200-RN2-0.3-3-0.02-V | | | 3 | | | | | | 10.53 | 3.16 | 3.28 | 3.40 | 3.53 | 3.81 | ○ |
| SPM200-RN2-0.3-1-0.05-V | | 0.05 | 1 | | | | | | 13.14 | 1.06 | 1.12 | 1.17 | 1.22 | 1.32 | ● |
| SPM200-RN2-0.3-1.5-0.05-V | | | 1.5 | | | | | | 12.38 | 1.59 | 1.66 | 1.73 | 1.80 | 1.94 | ● |
| SPM200-RN2-0.3-2-0.05-V | | | 2 | | | | | | 11.71 | 2.11 | 2.21 | 2.29 | 2.37 | 2.56 | ○ |
| SPM200-RN2-0.3-2.5-0.05-V | | | 2.5 | | | | | | 11.11 | 2.64 | 2.75 | 2.84 | 2.95 | 3.18 | ● |
| SPM200-RN2-0.3-3-0.05-V | | | 3 | | | | | | 10.56 | 3.16 | 3.28 | 3.40 | 3.52 | 3.81 | ○ |
| SPM200-RN2-0.4-1-0.02-V | 0.4 | 0.02 | 1 | 0.32 | 0.37 | 50 | 4 | 2 | 13.04 | 1.06 | 1.12 | 1.17 | 1.23 | 1.33 | ● |
| SPM200-RN2-0.4-2-0.02-V | | | 2 | | | | | | 11.60 | 2.11 | 2.21 | 2.29 | 2.38 | 2.57 | ● |
| SPM200-RN2-0.4-3-0.02-V | | | 3 | | | | | | 10.44 | 3.16 | 3.28 | 3.40 | 3.53 | 3.81 | ○ |
| SPM200-RN2-0.4-4-0.02-V | | | 4 | | | | | | 9.49 | 4.20 | 4.35 | 4.51 | 4.68 | 5.06 | ● |
| SPM200-RN2-0.4-1-0.05-V | | 0.05 | 1 | | | | | | 13.09 | 1.06 | 1.12 | 1.17 | 1.22 | 1.32 | ● |
| SPM200-RN2-0.4-1.5-0.05-V | | | 1.5 | | | | | | 12.32 | 1.59 | 1.66 | 1.73 | 1.80 | 1.94 | ● |
| SPM200-RN2-0.4-2-0.05-V | | | 2 | | | | | | 11.64 | 2.11 | 2.21 | 2.29 | 2.37 | 2.56 | ○ |
| SPM200-RN2-0.4-2.5-0.05-V | | | 2.5 | | | | | | 11.03 | 2.64 | 2.75 | 2.84 | 2.95 | 3.18 | ● |
| SPM200-RN2-0.4-3-0.05-V | | | 3 | | | | | | 10.47 | 3.16 | 3.28 | 3.40 | 3.52 | 3.81 | ● |

● Stock ○ Available upon Order

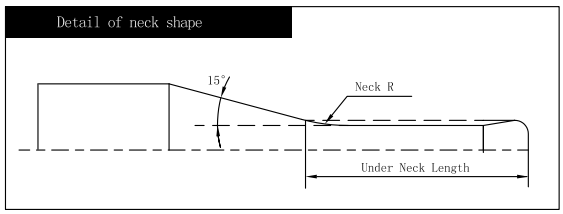
| R | Tol |
|---|---|
| R | ±0.005 |

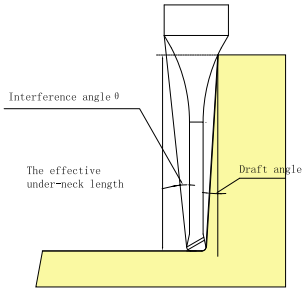
(mm)

Cutting Parameters ※ P507

# SPM200-RN2

2 Flute with Extended Neck, Cornor Raidus







See page 149 for guidelines to icons

》Continue

| Ordering Code | Mill | r | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-RN2-0.4-3.5-0.05-V | 0.4 | 0.05 | 3.5 | 0.32 | 0.37 | 50 | 4 | 2 | 9.97 | 3.68 | 3.82 | 3.95 | 4.10 | 4.43 | ● |
| SPM200-RN2-0.4-4-0.05-V | | | 4 | | | | | | 9.52 | 4.20 | 4.35 | 4.51 | 4.67 | 5.05 | ○ |
| SPM200-RN2-0.4-1-0.1-V | | 0.1 | 1 | | | | | | 13.17 | 1.06 | 1.11 | 1.16 | 1.21 | 1.31 | ● |
| SPM200-RN2-0.4-2-0.1-V | | | 2 | | | | | | 11.70 | 2.11 | 2.20 | 2.28 | 2.37 | 2.55 | ● |
| SPM200-RN2-0.4-3-0.1-V | | | 3 | | | | | | 10.53 | 3.16 | 3.28 | 3.39 | 3.52 | 3.79 | ● |
| SPM200-RN2-0.4-4-0.1-V | | | 4 | | | | | | 9.56 | 4.20 | 4.35 | 4.50 | 4.67 | 5.04 | ○ |
| SPM200-RN2-0.5-1-0.02-V | 0.5 | 0.02 | 1 | 0.4 | 0.47 | 50 | 4 | 2 | 13.00 | 1.06 | 1.12 | 1.17 | 1.23 | 1.33 | ● |
| SPM200-RN2-0.5-2-0.02-V | | | 2 | | | | | | 11.53 | 2.11 | 2.21 | 2.29 | 2.38 | 2.57 | ● |
| SPM200-RN2-0.5-3-0.02-V | | | 3 | | | | | | 10.35 | 3.16 | 3.28 | 3.40 | 3.53 | 3.81 | ● |
| SPM200-RN2-0.5-4-0.02-V | | | 4 | | | | | | 9.39 | 4.20 | 4.35 | 4.51 | 4.68 | 5.06 | ○ |
| SPM200-RN2-0.5-6-0.02-V | | | 6 | | | | | | 7.92 | 6.27 | 6.49 | 6.73 | 6.98 | 7.54 | ● |
| SPM200-RN2-0.5-1-0.05-V | | 0.05 | 1 | | | | | | 13.05 | 1.06 | 1.12 | 1.17 | 1.22 | 1.32 | ● |
| SPM200-RN2-0.5-2-0.05-V | | | 2 | | | | | | 11.56 | 2.11 | 2.21 | 2.29 | 2.37 | 2.56 | ○ |
| SPM200-RN2-0.5-3-0.05-V | | | 3 | | | | | | 10.38 | 3.16 | 3.28 | 3.40 | 3.52 | 3.81 | ● |
| SPM200-RN2-0.5-4-0.05-V | | | 4 | | | | | | 9.42 | 4.20 | 4.35 | 4.51 | 4.67 | 5.05 | ○ |
| SPM200-RN2-0.5-5-0.05-V | | | 5 | | | | | | 8.62 | 5.24 | 5.42 | 5.61 | 5.82 | 6.29 | ● |
| SPM200-RN2-0.5-6-0.05-V | | | 6 | | | | | | 7.94 | 6.27 | 6.49 | 6.72 | 6.97 | 7.53 | ● |
| SPM200-RN2-0.5-1-0.1-V | | 0.1 | 1 | | | | | | 13.13 | 1.06 | 1.11 | 1.16 | 1.21 | 1.31 | ● |
| SPM200-RN2-0.5-2-0.1-V | | | 2 | | | | | | 11.63 | 2.11 | 2.20 | 2.28 | 2.37 | 2.55 | ● |
| SPM200-RN2-0.5-3-0.1-V | | | 3 | | | | | | 10.44 | 3.16 | 3.28 | 3.39 | 3.52 | 3.79 | ○ |
| SPM200-RN2-0.5-4-0.1-V | | | 4 | | | | | | 9.46 | 4.20 | 4.35 | 4.50 | 4.67 | 5.04 | ● |
| SPM200-RN2-0.5-5-0.1-V | | | 5 | | | | | | 8.65 | 5.24 | 5.42 | 5.61 | 5.82 | 6.28 | ● |
| SPM200-RN2-0.5-6-0.1-V | | | 6 | | | | | | 7.97 | 6.27 | 6.49 | 6.72 | 6.97 | 7.52 | ○ |
| SPM200-RN2-0.6-2-0.02-V | 0.6 | 0.02 | 2 | 0.48 | 0.57 | 50 | 4 | 4 | 11.24 | 2.17 | 2.31 | 2.44 | 2.55 | 2.77 | ● |

● Stock ○ Available upon Order

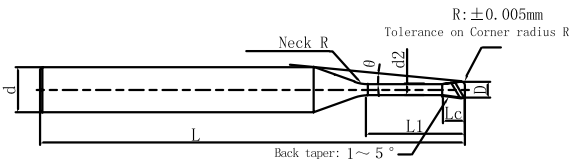
| R | Tol |
|---|---|
| R | ±0.005 |

(mm)

Cutting Parameters ※ P507

# SPM200-RN2

2 Flute with Extended Neck, Cornor Raidus




Φ4 or higher does not have backdraft shape






See page 149 for guidelines to icons

》 Continue

| Ordering Code | Mill | r | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-RN2-0.6-4-0.02-V | 0.6 | 0.02 | 4 | 0.48 | 0.57 | 50 | 4 | 4 | 9.15 | 4.29 | 4.51 | 4.69 | 4.86 | 5.26 | ● |
| SPM200-RN2-0.6-6-0.02-V | | | 6 | | | | | | 7.71 | 6.40 | 6.66 | 6.90 | 7.16 | 7.74 | ○ |
| SPM200-RN2-0.6-2-0.05-V | | 0.05 | 2 | | | | | | 11.27 | 2.17 | 2.31 | 2.43 | 2.55 | 2.76 | ● |
| SPM200-RN2-0.6-4-0.05-V | | | 4 | | | | | | 9.18 | 4.29 | 4.51 | 4.68 | 4.86 | 5.25 | ○ |
| SPM200-RN2-0.6-6-0.05-V | | | 6 | | | | | | 7.73 | 6.40 | 6.66 | 6.90 | 7.16 | 7.74 | ● |
| SPM200-RN2-0.6-8-0.05-V | | | 8 | | | | | | 6.68 | 8.49 | 8.80 | 9.12 | 9.46 | 10.22 | ● |
| SPM200-RN2-0.6-10-0.05-V | | | 10 | | | | | | 5.88 | 10.57 | 10.94 | 11.33 | 11.76 | 12.71 | ○ |
| SPM200-RN2-0.6-2-0.1-V | | 0.1 | 2 | | | | | | 11.34 | 2.16 | 2.30 | 2.43 | 2.54 | 2.75 | ● |
| SPM200-RN2-0.6-4-0.1-V | | | 4 | | | | | | 9.22 | 4.29 | 4.50 | 4.68 | 4.85 | 5.24 | ● |
| SPM200-RN2-0.6-6-0.1-V | | | 6 | | | | | | 7.76 | 6.39 | 6.66 | 6.90 | 7.15 | 7.72 | ● |
| SPM200-RN2-0.6-8-0.1-V | | | 8 | | | | | | 6.70 | 8.48 | 8.80 | 9.11 | 9.45 | 10.21 | ○ |
| SPM200-RN2-0.6-10-0.1-V | | | 10 | | | | | | 5.89 | 10.57 | 10.94 | 11.33 | 11.75 | 12.70 | ● |
| SPM200-RN2-0.7-4-0.05-V | 0.7 | 0.05 | 4 | 0.56 | 0.67 | 50 | 4 | 4 | 9.07 | 4.29 | 4.51 | 4.68 | 4.86 | 5.25 | ● |
| SPM200-RN2-0.7-6-0.05-V | | | 6 | | | | | | 7.62 | 6.40 | 6.66 | 6.90 | 7.16 | 7.74 | ○ |
| SPM200-RN2-0.7-4-0.1-V | | 0.1 | 4 | | | | | | 9.11 | 4.29 | 4.50 | 4.68 | 4.85 | 5.24 | ● |
| SPM200-RN2-0.7-6-0.1-V | | | 6 | | | | | | 7.65 | 6.39 | 6.66 | 6.90 | 7.15 | 7.72 | ○ |
| SPM200-RN2-0.8-4-0.02-V | 0.8 | 0.02 | 4 | 0.64 | 0.76 | 50 | 4 | 4 | 8.96 | 4.27 | 4.47 | 4.65 | 4.82 | 5.21 | ● |
| SPM200-RN2-0.8-6-0.02-V | | | 6 | | | 50 | | | 7.51 | 6.37 | 6.63 | 6.87 | 7.12 | 7.70 | ○ |
| SPM200-RN2-0.8-4-0.05-V | | 0.05 | 4 | | | 50 | | | 8.99 | 4.27 | 4.47 | 4.65 | 4.82 | 5.21 | ● |
| SPM200-RN2-0.8-6-0.05-V | | | 6 | | | 50 | | | 7.52 | 6.37 | 6.63 | 6.86 | 7.12 | 7.69 | ● |
| SPM200-RN2-0.8-8-0.05-V | | | 8 | | | 50 | | | 6.47 | 8.45 | 8.76 | 9.08 | 9.42 | 10.18 | ○ |
| SPM200-RN2-0.8-12-0.05-V | | | 12 | | | 55 | | | 5.05 | 12.61 | 13.04 | 13.51 | 14.02 | 15.15 | ○ |
| SPM200-RN2-0.8-4-0.1-V | | 0.1 | 4 | | | 50 | | | 9.03 | 4.26 | 4.47 | 4.64 | 4.81 | 5.19 | ● |
| SPM200-RN2-0.8-6-0.1-V | | | 6 | | | 50 | | | 7.55 | 6.37 | 6.62 | 6.86 | 7.11 | 7.68 | ● |

● Stock ○ Available upon Order

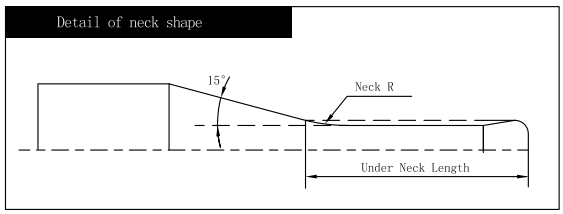
| R | Tol |
|---|---|
| R | ±0.005 |

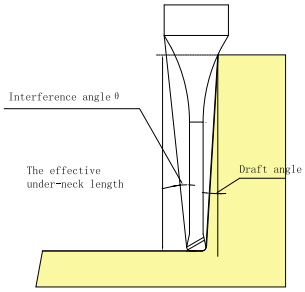
(mm)

Cutting Parameters ※ P507

# SPM200-RN2

2 Flute with Extended Neck, Cornor Raidus







See page 149 for guidelines to icons

》Continue

| Ordering Code | Mill | r | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-RN2-0.8-8-0.1-V | 0.8 | 0.1 | 8 | 0.64 | 0.76 | 50 | 4 | 4 | 6.49 | 8.45 | 8.76 | 9.07 | 9.41 | 10.17 | ● |
| SPM200-RN2-0.8-12-0.1-V | | | 12 | | | 55 | | | 5.06 | 12.60 | 13.04 | 13.51 | 14.01 | 15.14 | ○ |
| SPM200-RN2-0.8-4-0.2-V | | 0.2 | 4 | | | 50 | | | 9.12 | 4.26 | 4.46 | 4.63 | 4.80 | 5.17 | ● |
| SPM200-RN2-0.8-6-0.2-V | | | 6 | | | 50 | | | 7.62 | 6.36 | 6.61 | 6.85 | 7.10 | 7.66 | ○ |
| SPM200-RN2-0.8-8-0.2-V | | | 8 | | | 50 | | | 6.54 | 8.45 | 8.75 | 9.06 | 9.40 | 10.14 | ● |
| SPM200-RN2-0.8-12-0.2-V | | | 12 | | | 55 | | | 5.09 | 12.60 | 13.03 | 13.50 | 14.00 | 15.11 | ○ |
| SPM200-RN2-1-2-0.02-V | 1 | 0.02 | 2 | 0.8 | 0.96 | 50 | 4 | 4 | 10.92 | 2.15 | 2.28 | 2.40 | 2.52 | 2.73 | ● |
| SPM200-RN2-1-4-0.02-V | | | 4 | | | 50 | | | 8.72 | 4.27 | 4.47 | 4.65 | 4.82 | 5.21 | ● |
| SPM200-RN2-1-6-0.02-V | | | 6 | | | 50 | | | 7.26 | 6.37 | 6.63 | 6.87 | 7.12 | 7.70 | ○ |
| SPM200-RN2-1-8-0.02-V | | | 8 | | | 50 | | | 6.22 | 8.46 | 8.77 | 9.08 | 9.42 | 10.19 | ● |
| SPM200-RN2-1-10-0.02-V | | | 10 | | | 50 | | | 5.44 | 10.53 | 10.91 | 11.30 | 11.72 | 12.67 | ● |
| SPM200-RN2-1-12-0.02-V | | | 12 | | | 55 | | | 4.83 | 12.61 | 13.05 | 13.52 | 14.02 | 15.16 | ○ |
| SPM200-RN2-1-2-0.05-V | | 0.05 | 2 | | | 50 | | | 10.96 | 2.15 | 2.28 | 2.40 | 2.51 | 2.72 | ● |
| SPM200-RN2-1-3-0.05-V | | | 3 | | | 50 | | | 9.73 | 3.21 | 3.38 | 3.53 | 3.67 | 3.96 | ● |
| SPM200-RN2-1-4-0.05-V | | | 4 | | | 50 | | | 8.75 | 4.27 | 4.47 | 4.65 | 4.82 | 5.21 | ○ |
| SPM200-RN2-1-5-0.05-V | | | 5 | | | 50 | | | 7.95 | 5.32 | 5.55 | 5.75 | 5.97 | 6.45 | ● |
| SPM200-RN2-1-6-0.05-V | | | 6 | | | 50 | | | 7.28 | 6.37 | 6.63 | 6.86 | 7.12 | 7.69 | ● |
| SPM200-RN2-1-8-0.05-V | | | 8 | | | 50 | | | 6.23 | 8.45 | 8.76 | 9.08 | 9.42 | 10.18 | ○ |
| SPM200-RN2-1-10-0.05-V | | | 10 | | | 50 | | | 5.45 | 10.53 | 10.90 | 11.30 | 11.72 | 12.67 | ● |
| SPM200-RN2-1-12-0.05-V | | | 12 | | | 55 | | | 4.84 | 12.61 | 13.04 | 13.51 | 14.02 | 15.15 | ○ |
| SPM200-RN2-1-16-0.05-V | | | 16 | | | 60 | | | 3.95 | 16.74 | 17.32 | 17.95 | 18.62 | 20.12 | ○ |
| SPM200-RN2-1-20-0.05-V | | | 20 | | | 60 | | | 3.34 | 20.88 | 21.60 | 22.38 | 23.22 | 25.10 | ○ |
| SPM200-RN2-1-2-0.1-V | | 0.1 | 2 | | | 50 | | | 11.03 | 2.14 | 2.27 | 2.39 | 2.50 | 2.71 | ● |
| SPM200-RN2-1-3-0.1-V | | | 3 | | | 50 | | | 9.79 | 3.21 | 3.38 | 3.53 | 3.66 | 3.95 | ● |

● Stock ○ Available upon Order

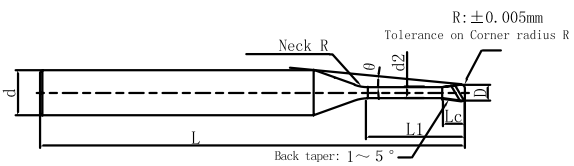
| R | Tol |
|---|---|
| R | ±0.005 |

(mm)

Cutting Parameters ※ P507

# SPM200-RN2

2 Flute with Extended Neck, Cornor Raidus




Φ4 or higher does not have backdraft shape






See page 149 for guidelines to icons

》Continue

| Ordering Code | Mill | r | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-RN2-1-4-0.1-V | 1 | 0.1 | 4 | 0.8 | 0.96 | 50 | 4 | 4 | 8.80 | 4.26 | 4.47 | 4.64 | 4.81 | 5.19 | ○ |
| SPM200-RN2-1-5-0.1-V | | | 5 | | | 50 | | | 7.99 | 5.32 | 5.55 | 5.75 | 5.96 | 6.44 | ● |
| SPM200-RN2-1-6-0.1-V | | | 6 | | | 50 | | | 7.31 | 6.37 | 6.62 | 6.86 | 7.11 | 7.68 | ● |
| SPM200-RN2-1-8-0.1-V | | | 8 | | | 50 | | | 6.25 | 8.45 | 8.76 | 9.07 | 9.41 | 10.17 | ● |
| SPM200-RN2-1-10-0.1-V | | | 10 | | | 50 | | | 5.46 | 10.53 | 10.90 | 11.29 | 11.71 | 12.65 | ● |
| SPM200-RN2-1-12-0.1-V | | | 12 | | | 55 | | | 4.85 | 12.60 | 13.04 | 13.51 | 14.01 | 15.14 | ○ |
| SPM200-RN2-1-16-0.1-V | | | 16 | | | 60 | | | 3.96 | 16.74 | 17.32 | 17.94 | 18.61 | 20.11 | ● |
| SPM200-RN2-1-20-0.1-V | | | 20 | | | 60 | | | 3.35 | 20.87 | 21.60 | 22.37 | 23.21 | 25.08 | ○ |
| SPM200-RN2-1-2-0.2-V | | 0.2 | 2 | | | 50 | | | 11.17 | 2.14 | 2.26 | 2.38 | 2.48 | 2.68 | ● |
| SPM200-RN2-1-3-0.2-V | | | 3 | | | 50 | | | 9.90 | 3.20 | 3.37 | 3.51 | 3.65 | 3.93 | ● |
| SPM200-RN2-1-4-0.2-V | | | 4 | | | 50 | | | 8.89 | 4.26 | 4.46 | 4.63 | 4.80 | 5.17 | ● |
| SPM200-RN2-1-5-0.2-V | | | 5 | | | 50 | | | 8.06 | 5.31 | 5.54 | 5.74 | 5.95 | 6.41 | ○ |
| SPM200-RN2-1-6-0.2-V | | | 6 | | | 50 | | | 7.37 | 6.36 | 6.61 | 6.85 | 7.10 | 7.66 | ● |
| SPM200-RN2-1-8-0.2-V | | | 8 | | | 50 | | | 6.30 | 8.45 | 8.75 | 9.06 | 9.40 | 10.14 | ● |
| SPM200-RN2-1-10-0.2-V | | | 10 | | | 50 | | | 5.50 | 10.53 | 10.89 | 11.28 | 11.70 | 12.63 | ○ |
| SPM200-RN2-1-12-0.2-V | | | 12 | | | 55 | | | 4.88 | 12.60 | 13.03 | 13.50 | 14.00 | 15.11 | ● |
| SPM200-RN2-1-16-0.2-V | | | 16 | | | 60 | | | 3.98 | 16.74 | 17.31 | 17.93 | 18.59 | 20.09 | ○ |
| SPM200-RN2-1-20-0.2-V | | | 20 | | | 60 | | | 3.36 | 20.87 | 21.59 | 22.36 | 23.19 | 25.06 | ○ |
| SPM200-RN2-1-2-0.3-V | | 0.3 | 2 | | | 50 | | | 11.32 | 2.13 | 2.25 | 2.36 | 2.47 | 2.66 | ● |
| SPM200-RN2-1-3-0.3-V | | | 3 | | | 50 | | | 10.01 | 3.20 | 3.36 | 3.50 | 3.63 | 3.90 | ○ |
| SPM200-RN2-1-4-0.3-V | | | 4 | | | 50 | | | 8.98 | 4.25 | 4.45 | 4.62 | 4.78 | 5.15 | ● |
| SPM200-RN2-1-5-0.3-V | | | 5 | | | 50 | | | 8.14 | 5.31 | 5.53 | 5.73 | 5.93 | 6.39 | ○ |
| SPM200-RN2-1-6-0.3-V | | | 6 | | | 50 | | | 7.44 | 6.36 | 6.61 | 6.84 | 7.08 | 7.63 | ● |
| SPM200-RN2-1-8-0.3-V | | | 8 | | | 50 | | | 6.35 | 8.44 | 8.75 | 9.05 | 9.38 | 10.12 | ● |

● Stock ○ Available upon Order

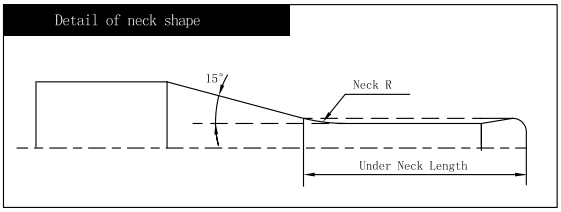
| R | Tol |
|---|---|
| R | ±0.005 |

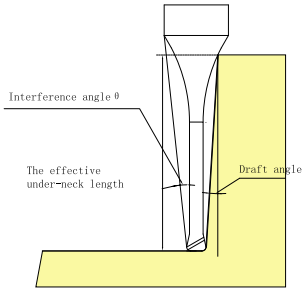
(mm)

Cutting Parameters ※ P507

# SPM200-RN2

2 Flute with Extended Neck, Cornor Raidus







See page 149 for guidelines to icons

》Continue

| Ordering Code | Mill | r | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-RN2-1-10-0.3-V | 1 | 0.3 | 10 | 0.8 | 0.96 | 50 | 4 | 4 | 5.53 | 10.52 | 10.89 | 11.27 | 11.68 | 12.60 | ● |
| SPM200-RN2-1-12-0.3-V | | | 12 | | | 55 | | | 4.90 | 12.60 | 13.03 | 13.49 | 13.98 | 15.09 | ○ |
| SPM200-RN2-1-16-0.3-V | | | 16 | | | 60 | | | 4.00 | 16.73 | 17.30 | 17.92 | 18.58 | 20.06 | ● |
| SPM200-RN2-1-20-0.3-V | | | 20 | | | 60 | | | 3.37 | 20.87 | 21.58 | 22.35 | 23.18 | 25.04 | ○ |
| SPM200-RN2-1.25-5-0.1-V | 1.25 | 0.1 | 5 | 1 | 1.20 | 50 | 4 | 4 | 7.68 | 5.30 | 5.52 | 5.72 | 5.93 | 6.40 | ● |
| SPM200-RN2-1.25-10-0.1-V | | | 10 | | | 50 | | | 5.17 | 10.50 | 10.87 | 11.26 | 11.68 | 12.62 | ○ |
| SPM200-RN2-1.25-15-0.1-V | | | 15 | | | 55 | | | 3.90 | 15.68 | 16.22 | 16.80 | 17.43 | 18.83 | ● |
| SPM200-RN2-1.25-20-0.1-V | | | 20 | | | 60 | | | 3.13 | 20.84 | 21.57 | 22.34 | 23.18 | 25.05 | ● |
| SPM200-RN2-1.25-5-0.2-V | | 0.2 | 5 | | | 50 | | | 7.75 | 5.29 | 5.51 | 5.71 | 5.91 | 6.38 | ○ |
| SPM200-RN2-1.25-10-0.2-V | | | 10 | | | 50 | | | 5.21 | 10.50 | 10.86 | 11.25 | 11.66 | 12.59 | ● |
| SPM200-RN2-1.25-15-0.2-V | | | 15 | | | 55 | | | 3.92 | 15.67 | 16.21 | 16.79 | 17.41 | 18.81 | ● |
| SPM200-RN2-1.25-20-0.2-V | | | 20 | | | 60 | | | 3.14 | 20.84 | 21.56 | 22.33 | 23.16 | 25.02 | ○ |
| SPM200-RN2-1.25-5-0.3-V | | 0.3 | 5 | | | 50 | | | 7.83 | 5.29 | 5.50 | 5.70 | 5.90 | 6.35 | ● |
| SPM200-RN2-1.25-10-0.3-V | | | 10 | | | 50 | | | 5.24 | 10.50 | 10.86 | 11.24 | 11.65 | 12.57 | ● |
| SPM200-RN2-1.25-15-0.3-V | | | 15 | | | 55 | | | 3.94 | 15.67 | 16.20 | 16.78 | 17.40 | 18.78 | ● |
| SPM200-RN2-1.25-20-0.3-V | | | 20 | | | 60 | | | 3.15 | 20.84 | 21.55 | 22.32 | 23.15 | 25.00 | ○ |
| SPM200-RN2-1.5-4-0.1-V | 1.5 | 0.1 | 4 | 1.2 | 1.44 | 50 | 4 | 4 | 8.17 | 4.23 | 4.42 | 4.58 | 4.75 | 5.13 | ● |
| SPM200-RN2-1.5-6-0.1-V | | | 6 | | | 50 | | | 6.66 | 6.32 | 6.57 | 6.80 | 7.05 | 7.62 | ○ |
| SPM200-RN2-1.5-8-0.1-V | | | 8 | | | 50 | | | 5.62 | 8.41 | 8.71 | 9.02 | 9.35 | 10.10 | ● |
| SPM200-RN2-1.5-12-0.1-V | | | 12 | | | 55 | | | 4.28 | 12.55 | 12.98 | 13.45 | 13.95 | 15.07 | ● |
| SPM200-RN2-1.5-15-0.1-V | | | 15 | | | 55 | | | 3.63 | 15.65 | 16.19 | 16.77 | 17.40 | 18.80 | ○ |
| SPM200-RN2-1.5-20-0.1-V | | | 20 | | | 60 | | | 2.90 | 20.82 | 21.54 | 22.32 | 23.15 | - | ● |
| SPM200-RN2-1.5-4-0.2-V | | 0.2 | 4 | | | 50 | | | 8.26 | 4.23 | 4.41 | 4.57 | 4.74 | 5.10 | ● |
| SPM200-RN2-1.5-6-0.2-V | | | 6 | | | 50 | | | 6.72 | 6.32 | 6.56 | 6.79 | 7.04 | 7.59 | ● |

● Stock ○ Available upon Order

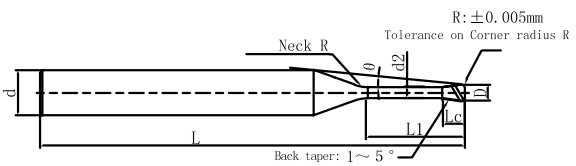
| R | Tol |
|---|---|
| R | ±0.005 |

(mm)

Cutting Parameters ※ P507

# SPM200-RN2

2 Flute with Extended Neck, Cornor Raidus




Φ4 or higher does not have backdraft shape






See page 149 for guidelines to icons

》Continue

| Ordering Code | Mill | r | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-RN2-1.5-8-0.2-V | 1.5 | 0.2 | 8 | 1.2 | 1.44 | 50 | 4 | 4 | 5.66 | 8.40 | 8.70 | 9.01 | 9.34 | 10.08 | ○ |
| SPM200-RN2-1.5-12-0.2-V | | | 12 | | | 55 | | | 4.31 | 12.55 | 12.98 | 13.44 | 13.94 | 15.05 | ● |
| SPM200-RN2-1.5-15-0.2-V | | | 15 | | | 55 | | | 3.65 | 15.65 | 16.19 | 16.76 | 17.38 | 18.78 | ● |
| SPM200-RN2-1.5-20-0.2-V | | | 20 | | | 60 | | | 2.91 | 20.82 | 21.53 | 22.31 | 23.13 | - | ○ |
| SPM200-RN2-1.5-4-0.3-V | | 0.3 | 4 | | | 50 | | | 8.36 | 4.22 | 4.40 | 4.56 | 4.72 | 5.08 | ● |
| SPM200-RN2-1.5-6-0.3-V | | | 6 | | | 50 | | | 6.78 | 6.31 | 6.55 | 6.78 | 7.02 | 7.57 | ● |
| SPM200-RN2-1.5-8-0.3-V | | | 8 | | | 50 | | | 5.71 | 8.40 | 8.69 | 8.99 | 9.32 | 10.05 | ○ |
| SPM200-RN2-1.5-12-0.3-V | | | 12 | | | 55 | | | 4.33 | 12.54 | 12.97 | 13.43 | 13.92 | 15.03 | ● |
| SPM200-RN2-1.5-15-0.3-V | | | 15 | | | 55 | | | 3.67 | 15.64 | 16.18 | 16.75 | 17.37 | 18.76 | ● |
| SPM200-RN2-1.5-20-0.3-V | | | 20 | | | 60 | | | 2.92 | 20.81 | 21.53 | 22.29 | 23.12 | - | ○ |
| SPM200-RN2-1.5-4-0.5-V | | 0.5 | 4 | | | 50 | | | 8.55 | 4.21 | 4.39 | 4.54 | 4.69 | 5.03 | ● |
| SPM200-RN2-1.5-6-0.5-V | | | 6 | | | 50 | | | 6.91 | 6.31 | 6.54 | 6.76 | 6.99 | 7.52 | ● |
| SPM200-RN2-1.5-8-0.5-V | | | 8 | | | 50 | | | 5.80 | 8.39 | 8.68 | 8.97 | 9.29 | 10.00 | ○ |
| SPM200-RN2-1.5-12-0.5-V | | | 12 | | | 55 | | | 4.39 | 12.54 | 12.96 | 13.41 | 13.89 | 14.98 | ● |
| SPM200-RN2-1.5-15-0.5-V | | | 15 | | | 55 | | | 3.71 | 15.64 | 16.17 | 16.73 | 17.34 | 18.71 | ● |
| SPM200-RN2-1.5-20-0.5-V | | | 20 | | | 60 | | | 2.95 | 20.81 | 21.51 | 22.27 | 23.09 | - | ○ |
| SPM200-RN2-1.75-5-0.1-V | 1.75 | 0.1 | 5 | 1.4 | 1.68 | 50 | 4 | 4 | 6.96 | 5.26 | 5.47 | 5.67 | 5.88 | 6.35 | ● |
| SPM200-RN2-1.75-10-0.1-V | | | 10 | | | 50 | | | 4.53 | 10.46 | 10.82 | 11.21 | 11.63 | 12.56 | ● |
| SPM200-RN2-1.75-15-0.1-V | | | 15 | | | 55 | | | 3.35 | 15.63 | 16.17 | 16.75 | 17.38 | 18.78 | ○ |
| SPM200-RN2-1.75-20-0.1-V | | | 20 | | | 60 | | | 2.66 | 20.80 | 21.52 | 22.29 | 23.13 | - | ● |
| SPM200-RN2-1.75-5-0.2-V | | 0.2 | 5 | | | 50 | | | 7.03 | 5.26 | 5.47 | 5.66 | 5.86 | 6.32 | ● |
| SPM200-RN2-1.75-10-0.2-V | | | 10 | | | 50 | | | 4.56 | 10.46 | 10.82 | 11.20 | 11.61 | 12.54 | ○ |
| SPM200-RN2-1.75-15-0.2-V | | | 15 | | | 55 | | | 3.37 | 15.63 | 16.16 | 16.74 | 17.36 | 18.75 | ● |
| SPM200-RN2-1.75-20-0.2-V | | | 20 | | | 60 | | | 2.67 | 20.80 | 21.51 | 22.28 | 23.11 | - | ● |

● Stock ○ Available upon Order

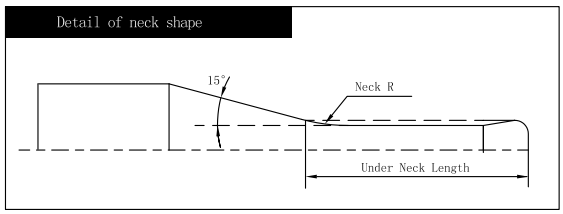
| R | Tol |
|---|---|
| R | ±0.005 |

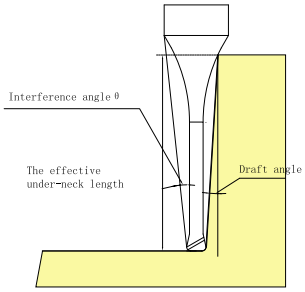
(mm)

Cutting Parameters ※ P507

# SPM200-RN2

2 Flute with Extended Neck, Cornor Raidus







See page 149 for guidelines to icons

》Continue

| Ordering Code | Mill | r | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-RN2-1.75-5-0.3-V | 1.75 | 0.3 | 5 | 1.4 | 1.68 | 50 | 4 | 4 | 7.11 | 5.25 | 5.46 | 5.65 | 5.85 | 6.30 | ● |
| SPM200-RN2-1.75-10-0.3-V | | | 10 | | | 50 | | | 4.59 | 10.45 | 10.81 | 11.19 | 11.60 | 12.51 | ○ |
| SPM200-RN2-1.75-15-0.3-V | | | 15 | | | 55 | | | 3.39 | 15.62 | 16.16 | 16.73 | 17.35 | 18.73 | ● |
| SPM200-RN2-1.75-20-0.3-V | | | 20 | | | 60 | | | 2.69 | 20.79 | 21.51 | 22.27 | 23.10 | - | ● |
| SPM200-RN2-2-4-0.1-V | 2 | 0.1 | 4 | 1.6 | 1.92 | 50 | 4 | 4 | 7.36 | 4.21 | 4.38 | 4.54 | 4.71 | 5.08 | ● |
| SPM200-RN2-2-6-0.1-V | | | 6 | | | 50 | | | 5.86 | 6.29 | 6.53 | 6.76 | 7.01 | 7.57 | ● |
| SPM200-RN2-2-8-0.1-V | | | 8 | | | 50 | | | 4.87 | 8.37 | 8.66 | 8.97 | 9.31 | 10.05 | ○ |
| SPM200-RN2-2-12-0.1-V | | | 12 | | | 55 | | | 3.64 | 12.51 | 12.94 | 13.41 | 13.91 | 15.03 | ● |
| SPM200-RN2-2-16-0.1-V | | | 16 | | | 55 | | | 2.90 | 16.65 | 17.22 | 17.84 | 18.51 | - | ● |
| SPM200-RN2-2-20-0.1-V | | | 20 | | | 60 | | | 2.42 | 20.78 | 21.50 | 22.27 | 23.11 | - | ○ |
| SPM200-RN2-2-25-0.1-V | | | 25 | | | 65 | | | 2.00 | 25.95 | 26.85 | 27.82 | - | - | ● |
| SPM200-RN2-2-30-0.1-V | | | 30 | | | 70 | | | 1.70 | 31.12 | 32.20 | 33.36 | - | - | ○ |
| SPM200-RN2-2-4-0.2-V | | 0.2 | 4 | | | 50 | | | 7.46 | 4.20 | 4.37 | 4.53 | 4.69 | 5.06 | ● |
| SPM200-RN2-2-6-0.2-V | | | 6 | | | 50 | | | 5.93 | 6.29 | 6.52 | 6.75 | 6.99 | 7.54 | ● |
| SPM200-RN2-2-8-0.2-V | | | 8 | | | 50 | | | 4.91 | 8.37 | 8.66 | 8.96 | 9.29 | 10.03 | ○ |
| SPM200-RN2-2-12-0.2-V | | | 12 | | | 55 | | | 3.66 | 12.51 | 12.94 | 13.40 | 13.89 | 15.00 | ● |
| SPM200-RN2-2-16-0.2-V | | | 16 | | | 55 | | | 2.92 | 16.64 | 17.22 | 17.83 | 18.49 | - | ● |
| SPM200-RN2-2-20-0.2-V | | | 20 | | | 60 | | | 2.43 | 20.78 | 21.49 | 22.26 | 23.09 | - | ○ |
| SPM200-RN2-2-25-0.2-V | | | 25 | | | 65 | | | 2.00 | 25.95 | 26.84 | 27.80 | - | - | ● |
| SPM200-RN2-2-30-0.2-V | | | 30 | | | 70 | | | 1.71 | 31.11 | 32.19 | 33.35 | - | - | ○ |
| SPM200-RN2-2-4-0.3-V | | 0.3 | 4 | | | 50 | | | 7.56 | 4.20 | 4.37 | 4.52 | 4.68 | 5.03 | ● |
| SPM200-RN2-2-6-0.3-V | | | 6 | | | 50 | | | 5.99 | 6.28 | 6.51 | 6.74 | 6.98 | 7.52 | ● |
| SPM200-RN2-2-8-0.3-V | | | 8 | | | 50 | | | 4.96 | 8.36 | 8.65 | 8.95 | 9.28 | 10.01 | ○ |
| SPM200-RN2-2-12-0.3-V | | | 12 | | | 55 | | | 3.69 | 12.50 | 12.93 | 13.39 | 13.88 | 14.98 | ● |

● Stock ○ Available upon Order

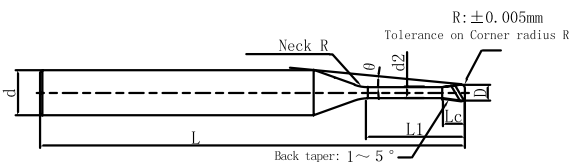
| R | Tol |
|---|---|
| R | ±0.005 |

(mm)

Cutting Parameters ※ P507

# SPM200-RN2

2 Flute with Extended Neck, Cornor Raidus




Φ4 or higher does not have backdraft shape






See page 149 for guidelines to icons

》Continue

| Ordering Code | Mill | r | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-RN2-2-16-0.3-V | 2 | 0.3 | 16 | 1.6 | 1.92 | 55 | 4 | 4 | 2.93 | 16.64 | 17.21 | 17.82 | 18.48 | - | ○ |
| SPM200-RN2-2-20-0.3-V | | | 20 | | | 60 | | | 2.44 | 20.77 | 21.49 | 22.25 | 23.08 | - | ● |
| SPM200-RN2-2-25-0.3-V | | | 25 | | | 65 | | | 2.01 | 25.94 | 26.84 | 27.79 | 28.82 | - | ● |
| SPM200-RN2-2-30-0.3-V | | | 30 | | | 70 | | | 1.71 | 31.11 | 32.18 | 33.34 | - | - | ○ |
| SPM200-RN2-2-6-0.5-V | | 0.5 | 6 | | | 50 | | | 6.11 | 6.28 | 6.50 | 6.71 | 6.95 | 7.47 | ● |
| SPM200-RN2-2-8-0.5-V | | | 8 | | | 50 | | | 5.04 | 8.36 | 8.64 | 8.93 | 9.25 | 9.96 | ● |
| SPM200-RN2-2-12-0.5-V | | | 12 | | | 55 | | | 3.73 | 12.50 | 12.92 | 13.36 | 13.85 | 14.93 | ○ |
| SPM200-RN2-2-16-0.5-V | | | 16 | | | 55 | | | 2.96 | 16.63 | 17.19 | 17.80 | 18.45 | - | ● |
| SPM200-RN2-2-20-0.5-V | | | 20 | | | 60 | | | 2.46 | 20.77 | 21.47 | 22.23 | 23.05 | - | ● |
| SPM200-RN2-2-25-0.5-V | | | 25 | | | 65 | | | 2.03 | 25.94 | 26.82 | 27.77 | 28.79 | - | ○ |
| SPM200-RN2-2-30-0.5-V | | | 30 | | | 70 | | | 1.72 | 31.10 | 32.17 | 33.31 | - | - | ○ |
| SPM200-RN2-2-6-0.8-V | | 0.8 | 6 | | | 50 | | | 6.31 | 6.26 | 6.48 | 6.68 | 6.90 | 7.40 | ● |
| SPM200-RN2-2-8-0.8-V | | | 8 | | | 50 | | | 5.18 | 8.35 | 8.62 | 8.90 | 9.20 | 9.88 | ● |
| SPM200-RN2-2-12-0.8-V | | | 12 | | | 55 | | | 3.81 | 12.49 | 12.89 | 13.33 | 13.80 | 14.86 | ○ |
| SPM200-RN2-2-16-0.8-V | | | 16 | | | 55 | | | 3.01 | 16.62 | 17.17 | 17.77 | 18.40 | 19.83 | ● |
| SPM200-RN2-2-20-0.8-V | | | 20 | | | 60 | | | 2.49 | 20.76 | 21.45 | 22.20 | 23.00 | - | ○ |
| SPM200-RN2-2-25-0.8-V | | | 25 | | | 65 | | | 2.05 | 25.93 | 26.80 | 27.74 | 28.75 | - | ● |
| SPM200-RN2-2-30-0.8-V | | | 30 | | | 70 | | | 1.74 | 31.09 | 32.15 | 33.28 | - | - | ○ |
| SPM200-RN2-2.5-10-0.1-V | 2.5 | 0.1 | 10 | 2 | 2.40 | 50 | 4 | 4 | 3.36 | 10.41 | 10.77 | 11.16 | 11.57 | 12.50 | ● |
| SPM200-RN2-2.5-20-0.1-V | | | 20 | | | 60 | | | 1.89 | 20.75 | 21.47 | 22.24 | - | - | ○ |
| SPM200-RN2-2.5-30-0.1-V | | | 30 | | | 70 | | | 1.32 | 31.09 | 32.17 | - | - | - | ● |
| SPM200-RN2-2.5-10-0.2-V | | 0.2 | 10 | | | 50 | | | 3.39 | 10.41 | 10.77 | 11.15 | 11.56 | 12.48 | ● |
| SPM200-RN2-2.5-20-0.2-V | | | 20 | | | 60 | | | 1.90 | 20.75 | 21.46 | 22.23 | - | - | ○ |
| SPM200-RN2-2.5-30-0.2-V | | | 30 | | | 70 | | | 1.32 | 31.08 | 32.16 | - | - | - | ○ |

● Stock ○ Available upon Order

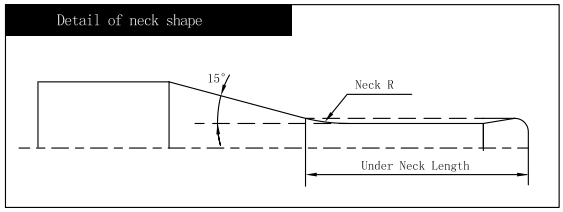
| R | Tol |
|---|---|
| R | ±0.005 |

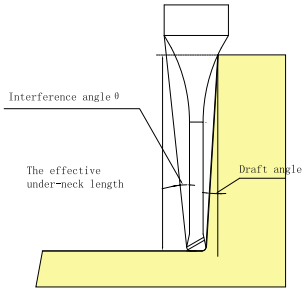
(mm)

Cutting Parameters ※ P507

# SPM200-RN2

2 Flute with Extended Neck, Cornor Raidus







See page 149 for guidelines to icons

》Continue

| Ordering Code | Mill | r | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-RN2-2.5-10-0.3-V | 2.5 | 0.3 | 10 | 2 | 2.40 | 50 | 4 | 4 | 3.42 | 10.41 | 10.76 | 11.14 | 11.54 | 12.46 | ● |
| SPM200-RN2-2.5-20-0.3-V | | | 20 | | | 60 | | | 1.91 | 20.74 | 21.46 | 22.22 | - | - | ○ |
| SPM200-RN2-2.5-30-0.3-V | | | 30 | | | 70 | | | 1.32 | 31.08 | 32.15 | - | - | - | ● |
| SPM200-RN2-2.5-10-0.5-V | | 0.5 | 10 | | | 50 | | | 3.47 | 10.40 | 10.75 | 11.12 | 11.51 | 12.41 | ○ |
| SPM200-RN2-2.5-20-0.5-V | | | 20 | | | 60 | | | 1.92 | 20.74 | 21.44 | 22.20 | - | - | ● |
| SPM200-RN2-2.5-30-0.5-V | | | 30 | | | 70 | | | 1.33 | 31.07 | 32.14 | - | - | - | ○ |
| SPM200-RN2-3-6-0.1-V | 3 | 0.1 | 6 | 2.4 | 2.88 | 50 | 6 | 4 | 7.40 | 6.25 | 6.47 | 6.70 | 6.95 | 7.50 | ● |
| SPM200-RN2-3-8-0.1-V | | | 8 | | | 55 | | | 6.32 | 8.32 | 8.61 | 8.92 | 9.25 | 9.99 | ● |
| SPM200-RN2-3-12-0.1-V | | | 12 | | | 60 | | | 4.89 | 12.46 | 12.89 | 13.35 | 13.85 | 14.96 | ○ |
| SPM200-RN2-3-16-0.1-V | | | 16 | | | 60 | | | 3.99 | 16.59 | 17.17 | 17.78 | 18.45 | 19.94 | ● |
| SPM200-RN2-3-18-0.1-V | | | 18 | | | 65 | | | 3.65 | 18.66 | 19.31 | 20.00 | 20.75 | 22.42 | ● |
| SPM200-RN2-3-20-0.1-V | | | 20 | | | 65 | | | 3.36 | 20.73 | 21.45 | 22.22 | 23.05 | 24.91 | ○ |
| SPM200-RN2-3-30-0.1-V | | | 30 | | | 75 | | | 2.42 | 31.06 | 32.14 | 33.30 | 34.55 | - | ○ |
| SPM200-RN2-3-35-0.1-V | | | 35 | | | 80 | | | 2.12 | 36.23 | 37.49 | 38.84 | 40.29 | - | ○ |
| SPM200-RN2-3-6-0.2-V | | 0.2 | 6 | | | 50 | | | 7.46 | 6.25 | 6.46 | 6.69 | 6.93 | 7.48 | ● |
| SPM200-RN2-3-8-0.2-V | | | 8 | | | 55 | | | 6.36 | 8.32 | 8.60 | 8.91 | 9.23 | 9.97 | ● |
| SPM200-RN2-3-12-0.2-V | | | 12 | | | 60 | | | 4.92 | 12.45 | 12.88 | 13.34 | 13.83 | 14.94 | ● |
| SPM200-RN2-3-16-0.2-V | | | 16 | | | 60 | | | 4.00 | 16.59 | 17.16 | 17.77 | 18.43 | 19.91 | ○ |
| SPM200-RN2-3-18-0.2-V | | | 18 | | | 65 | | | 3.66 | 18.66 | 19.30 | 19.99 | 20.73 | 22.40 | ● |
| SPM200-RN2-3-20-0.2-V | | | 20 | | | 65 | | | 3.38 | 20.72 | 21.44 | 22.21 | 23.03 | 24.88 | ● |
| SPM200-RN2-3-30-0.2-V | | | 30 | | | 75 | | | 2.43 | 31.06 | 32.14 | 33.29 | 34.53 | - | ○ |
| SPM200-RN2-3-35-0.2-V | | | 35 | | | 80 | | | 2.13 | 36.23 | 37.48 | 38.83 | 40.28 | - | ○ |
| SPM200-RN2-3-6-0.3-V | | 0.3 | 6 | | | 50 | | | 7.53 | 6.24 | 6.46 | 6.68 | 6.92 | 7.46 | ● |
| SPM200-RN2-3-8-0.3-V | | | 8 | | | 55 | | | 6.41 | 8.32 | 8.60 | 8.90 | 9.22 | 9.94 | ● |

● Stock ○ Available upon Order

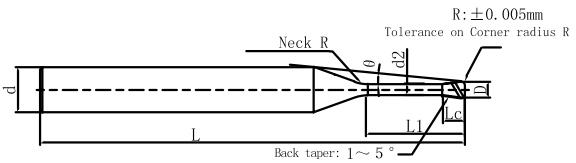
| R | Tol |
|---|---|
| R | ±0.005 |

(mm)

Cutting Parameters ※ P507

# SPM200-RN2

2 Flute with Extended Neck, Cornor Raidus




Φ4 or higher does not have backdraft shape






See page 149 for guidelines to icons

》 Continue

| Ordering Code | Mill | r | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-RN2-3-12-0.3-V | 3 | 0.3 | 12 | 2.4 | 2.88 | 60 | 6 | 4 | 4.94 | 12.45 | 12.87 | 13.33 | 13.82 | 14.91 | ○ |
| SPM200-RN2-3-16-0.3-V | | | 16 | | | 60 | | | 4.02 | 16.59 | 17.15 | 17.76 | 18.42 | 19.89 | ● |
| SPM200-RN2-3-18-0.3-V | | | 18 | | | 65 | | | 3.68 | 18.65 | 19.29 | 19.98 | 20.72 | 22.37 | ● |
| SPM200-RN2-3-20-0.3-V | | | 20 | | | 65 | | | 3.39 | 20.72 | 21.43 | 22.20 | 23.02 | 24.86 | ○ |
| SPM200-RN2-3-30-0.3-V | | | 30 | | | 75 | | | 2.43 | 31.06 | 32.13 | 33.28 | 34.52 | - | ● |
| SPM200-RN2-3-35-0.3-V | | | 35 | | | 80 | | | 2.13 | 36.23 | 37.48 | 38.82 | 40.26 | - | ○ |
| SPM200-RN2-3-8-0.5-V | | 0.5 | 8 | | | 55 | | | 6.51 | 8.31 | 8.58 | 8.87 | 9.19 | 9.89 | ● |
| SPM200-RN2-3-12-0.5-V | | | 12 | | | 60 | | | 5.00 | 12.44 | 12.86 | 13.31 | 13.79 | 14.87 | ● |
| SPM200-RN2-3-16-0.5-V | | | 16 | | | 60 | | | 4.06 | 16.58 | 17.14 | 17.74 | 18.39 | 19.84 | ● |
| SPM200-RN2-3-18-0.5-V | | | 18 | | | 65 | | | 3.71 | 18.65 | 19.28 | 19.96 | 20.69 | 22.33 | ● |
| SPM200-RN2-3-20-0.5-V | | | 20 | | | 65 | | | 3.42 | 20.71 | 21.42 | 22.17 | 22.99 | 24.81 | ● |
| SPM200-RN2-3-30-0.5-V | | | 30 | | | 75 | | | 2.45 | 31.05 | 32.12 | 33.26 | 34.49 | - | ○ |
| SPM200-RN2-3-35-0.5-V | | | 35 | | | 80 | | | 2.14 | 36.22 | 37.46 | 38.80 | 40.23 | - | ○ |
| SPM200-RN2-3-8-1-V | | 1 | 8 | | | 55 | | | 6.76 | 8.29 | 8.55 | 8.82 | 9.11 | 9.77 | ● |
| SPM200-RN2-3-12-1-V | | | 12 | | | 60 | | | 5.15 | 12.43 | 12.83 | 13.25 | 13.71 | 14.74 | ● |
| SPM200-RN2-3-16-1-V | | | 16 | | | 60 | | | 4.16 | 16.56 | 17.10 | 17.69 | 18.31 | 19.72 | ○ |
| SPM200-RN2-3-18-1-V | | | 18 | | | 65 | | | 3.79 | 18.63 | 19.24 | 19.90 | 20.61 | 22.20 | ● |
| SPM200-RN2-3-20-1-V | | | 20 | | | 65 | | | 3.49 | 20.70 | 21.38 | 22.12 | 22.91 | 24.69 | ○ |
| SPM200-RN2-3-30-1-V | | | 30 | | | 75 | | | 2.48 | 31.03 | 32.08 | 33.20 | 34.41 | - | ● |
| SPM200-RN2-3-35-1-V | | | 35 | | | 80 | | | 2.17 | 36.20 | 37.43 | 38.74 | 40.16 | - | ○ |
| SPM200-RN2-4-8-0.1-V | 4 | 0.1 | 8 | 3.2 | 3.86 | 55 | 6 | 4 | 4.90 | 8.31 | 8.59 | 8.90 | 9.23 | 9.97 | ● |
| SPM200-RN2-4-12-0.1-V | | | 12 | | | 60 | | | 3.66 | 12.44 | 12.87 | 13.33 | 13.83 | 14.94 | ● |
| SPM200-RN2-4-16-0.1-V | | | 16 | | | 60 | | | 2.91 | 16.57 | 17.15 | 17.76 | 18.43 | - | ○ |
| SPM200-RN2-4-20-0.1-V | | | 20 | | | 65 | | | 2.42 | 20.71 | 21.43 | 22.20 | 23.03 | - | ● |

● Stock ○ Available upon Order

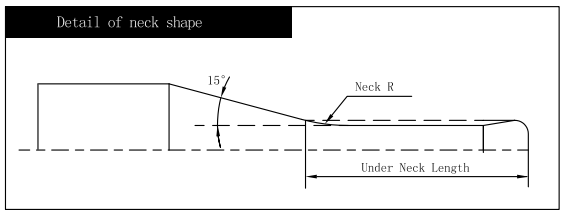
| R | Tol |
|---|---|
| R | ±0.005 |

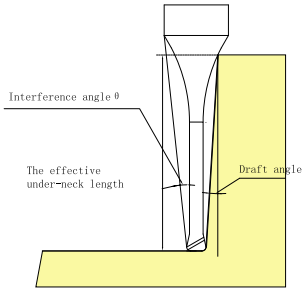
(mm)

Cutting Parameters ※ P507

# SPM200-RN2

2 Flute with Extended Neck, Cornor Raidus







See page 149 for guidelines to icons

》Continue

| Ordering Code | Mill | r | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-RN2-4-30-0.1-V | 4 | 0.1 | 30 | 3.2 | 3.86 | 75 | 6 | 4 | 1.71 | 31.05 | 32.12 | 33.28 | - | - | ○ |
| SPM200-RN2-4-35-0.1-V | | | 35 | | | 80 | | | 1.49 | 36.21 | 37.47 | - | - | - | ○ |
| SPM200-RN2-4-45-0.1-V | | | 45 | | | 90 | | | 1.18 | 46.55 | 48.17 | - | - | - | ○ |
| SPM200-RN2-4-8-0.2-V | | 0.2 | 8 | | | 55 | | | 4.94 | 8.30 | 8.58 | 8.89 | 9.21 | 9.94 | ● |
| SPM200-RN2-4-12-0.2-V | | | 12 | | | 60 | | | 3.68 | 12.44 | 12.86 | 13.32 | 13.81 | 14.92 | ● |
| SPM200-RN2-4-16-0.2-V | | | 16 | | | 60 | | | 2.93 | 16.57 | 17.14 | 17.75 | 18.41 | - | ● |
| SPM200-RN2-4-20-0.2-V | | | 20 | | | 65 | | | 2.43 | 20.71 | 21.42 | 22.19 | 23.01 | - | ● |
| SPM200-RN2-4-30-0.2-V | | | 30 | | | 75 | | | 1.71 | 31.04 | 32.12 | 33.27 | - | - | ○ |
| SPM200-RN2-4-35-0.2-V | | | 35 | | | 80 | | | 1.49 | 36.21 | 37.47 | - | - | - | ● |
| SPM200-RN2-4-45-0.2-V | | | 45 | | | 90 | | | 1.18 | 46.55 | 48.16 | - | - | - | ○ |
| SPM200-RN2-4-8-0.3-V | | 0.3 | 8 | | | 55 | | | 4.99 | 8.30 | 8.58 | 8.88 | 9.20 | 9.92 | ● |
| SPM200-RN2-4-12-0.3-V | | | 12 | | | 60 | | | 3.70 | 12.43 | 12.86 | 13.31 | 13.80 | 14.89 | ● |
| SPM200-RN2-4-16-0.3-V | | | 16 | | | 60 | | | 2.94 | 16.57 | 17.13 | 17.74 | 18.40 | - | ● |
| SPM200-RN2-4-20-0.3-V | | | 20 | | | 65 | | | 2.44 | 20.70 | 21.41 | 22.18 | 23.00 | - | ● |
| SPM200-RN2-4-30-0.3-V | | | 30 | | | 75 | | | 1.72 | 31.04 | 32.11 | 33.26 | - | - | ● |
| SPM200-RN2-4-35-0.3-V | | | 35 | | | 80 | | | 1.49 | 36.21 | 37.46 | - | - | - | ● |
| SPM200-RN2-4-45-0.3-V | | | 45 | | | 90 | | | 1.19 | 46.54 | 48.16 | - | - | - | ○ |
| SPM200-RN2-4-12-0.5-V | | 0.5 | 12 | | | 60 | | | 3.75 | 12.43 | 12.84 | 13.29 | 13.77 | 14.84 | ● |
| SPM200-RN2-4-16-0.5-V | | | 16 | | | 60 | | | 2.97 | 16.56 | 17.12 | 17.72 | 18.37 | - | ● |
| SPM200-RN2-4-20-0.5-V | | | 20 | | | 65 | | | 2.47 | 20.70 | 21.40 | 22.15 | 22.97 | - | ● |
| SPM200-RN2-4-30-0.5-V | | | 30 | | | 75 | | | 1.73 | 31.03 | 32.10 | 33.24 | - | - | ● |
| SPM200-RN2-4-35-0.5-V | | | 35 | | | 80 | | | 1.50 | 36.20 | 37.44 | - | - | - | ○ |
| SPM200-RN2-4-45-0.5-V | | | 45 | | | 90 | | | 1.19 | 46.54 | 48.14 | - | - | - | ○ |
| SPM200-RN2-4-12-1-V | | 1 | 12 | | | 60 | | | 3.88 | 12.41 | 12.81 | 13.23 | 13.69 | 14.72 | ● |

● Stock ○ Available upon Order

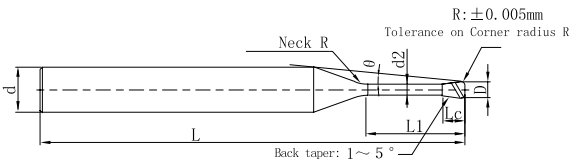
| R | Tol |
|---|---|
| R | ±0.005 |

(mm)

Cutting Parameters ※ P507

# SPM200-RN2

2 Flute with Extended Neck, Cornor Raidus




Φ4 or higher does not have backdraft shape






See page 149 for guidelines to icons

》Continue

| Ordering Code | Mill | r | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-RN2-4-16-1-V | 4 | 1 | 16 | 3.2 | 3.86 | 60 | 6 | 4 | 3.05 | 16.54 | 17.09 | 17.67 | 18.29 | 19.70 | ● |
| SPM200-RN2-4-20-1-V | | | 20 | | | 65 | | | 2.52 | 20.68 | 21.36 | 22.10 | 22.89 | - | ○ |
| SPM200-RN2-4-30-1-V | | | 30 | | | 75 | | | 1.75 | 31.02 | 32.06 | 33.18 | - | - | ● |
| SPM200-RN2-4-35-1-V | | | 35 | | | 80 | | | 1.52 | 36.18 | 37.41 | 38.73 | - | - | ○ |
| SPM200-RN2-4-45-1-V | | | 45 | | | 90 | | | 1.20 | 46.52 | 48.11 | - | - | - | ● |
| SPM200-RN2-5-20-0.1-V | 5 | 0.1 | 20 | 4 | 4.85 | 65 | 6 | 4 | 1.32 | 20.70 | 21.42 | - | - | - | ● |
| SPM200-RN2-5-40-0.1-V | | | 40 | | | 85 | | | 0.69 | 41.38 | - | - | - | - | ○ |
| SPM200-RN2-5-20-0.2-V | | 0.2 | 20 | | | 65 | | | 1.32 | 20.70 | 21.41 | - | - | - | ● |
| SPM200-RN2-5-40-0.2-V | | | 40 | | | 85 | | | 0.69 | 41.37 | - | - | - | - | ● |
| SPM200-RN2-5-20-0.3-V | | 0.3 | 20 | | | 65 | | | 1.33 | 20.69 | 21.41 | - | - | - | ○ |
| SPM200-RN2-5-40-0.3-V | | | 40 | | | 85 | | | 0.69 | 41.37 | - | - | - | - | ● |
| SPM200-RN2-5-20-0.5-V | | 0.5 | 20 | | | 65 | | | 1.34 | 20.69 | 21.39 | - | - | - | ● |
| SPM200-RN2-5-40-0.5-V | | | 40 | | | 85 | | | 0.70 | 41.36 | - | - | - | - | ○ |
| SPM200-RN2-5-20-1-V | | 1 | 20 | | | 65 | | | 1.38 | 20.67 | 21.36 | - | - | - | ● |
| SPM200-RN2-5-40-1-V | | | 40 | | | 85 | | | 0.71 | 41.34 | - | - | - | - | ○ |
| SPM200-RN2-6-12-0.1-V | 6 | 0.1 | 12 | 4.8 | 5.85 | 50 | 6 | - | - | - | - | - | - | - | ● |
| SPM200-RN2-6-18-0.1-V | | | 18 | | | 60 | | | - | - | - | - | - | - | ● |
| SPM200-RN2-6-24-0.1-V | | | 24 | | | 70 | | | - | - | - | - | - | - | ● |
| SPM200-RN2-6-35-0.1-V | | | 35 | | | 80 | | | - | - | - | - | - | - | ○ |
| SPM200-RN2-6-55-0.1-V | | | 55 | | | 100 | | | - | - | - | - | - | - | ○ |
| SPM200-RN2-6-12-0.2-V | | 0.2 | 12 | | | 50 | | | - | - | - | - | - | - | ○ |
| SPM200-RN2-6-18-0.2-V | | | 18 | | | 60 | | | - | - | - | - | - | - | ● |
| SPM200-RN2-6-24-0.2-V | | | 24 | | | 70 | | | - | - | - | - | - | - | ● |
| SPM200-RN2-6-35-0.2-V | | | 35 | | | 80 | | | - | - | - | - | - | - | ○ |

● Stock ○ Available upon Order

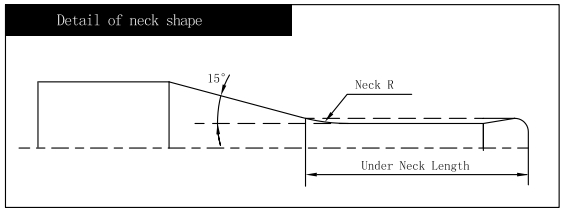
| R | Tol |
|---|---|
| R | ±0.005 |

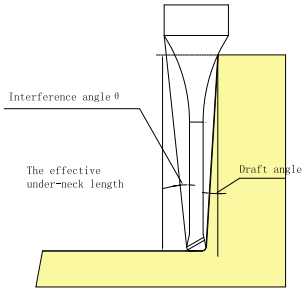
(mm)

Cutting Parameters ※ P507

# SPM200-RN2

2 Flute with Extended Neck, Cornor Raidus







See page 149 for guidelines to icons

》 Continue

| Ordering Code | Mill | r | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-RN2-6-55-0.2-V | 6 | 0.2 | 55 | 4.8 | 5.85 | 100 | 6 | - | - | - | - | - | - | - | ● |
| SPM200-RN2-6-12-0.3-V | | 0.3 | 12 | | | 50 | | | - | - | - | - | - | - | ● |
| SPM200-RN2-6-18-0.3-V | | | 18 | | | 60 | | | - | - | - | - | - | - | ● |
| SPM200-RN2-6-24-0.3-V | | | 24 | | | 70 | | | - | - | - | - | - | - | ○ |
| SPM200-RN2-6-35-0.3-V | | | 35 | | | 80 | | | - | - | - | - | - | - | ● |
| SPM200-RN2-6-55-0.3-V | | | 55 | | | 100 | | | - | - | - | - | - | - | ○ |
| SPM200-RN2-6-18-0.5-V | | 0.5 | 18 | | | 60 | | | - | - | - | - | - | - | ● |
| SPM200-RN2-6-24-0.5-V | | | 24 | | | 70 | | | - | - | - | - | - | - | ● |
| SPM200-RN2-6-35-0.5-V | | | 35 | | | 80 | | | - | - | - | - | - | - | ○ |
| SPM200-RN2-6-55-0.5-V | | | 55 | | | 100 | | | - | - | - | - | - | - | ○ |
| SPM200-RN2-6-18-1-V | | 1 | 18 | | | 60 | | | - | - | - | - | - | - | ● |
| SPM200-RN2-6-24-1-V | | | 24 | | | 70 | | | - | - | - | - | - | - | ● |
| SPM200-RN2-6-35-1-V | | | 35 | | | 80 | | | - | - | - | - | - | - | ○ |
| SPM200-RN2-6-55-1-V | | | 55 | | | 100 | | | - | - | - | - | - | - | ○ |

● Stock ○ Available upon Order

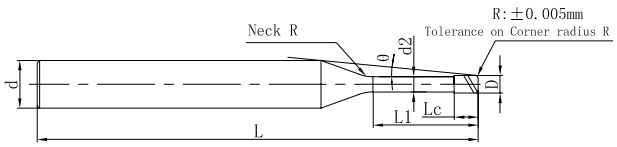
| R | Tol |
|---|---|
| R | ±0.005 |

(mm)

Cutting Parameters ※ P507

# SPM200-RN4 NEW

4 Flute with Extended Neck, Cornor Raidus









See page 149 for guidelines to icons

| Ordering Code | Mill | r | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-RN4-1-4-0.05-V | 1 | 0.05 | 4 | 0.8 | 0.96 | 50 | 4 | 4 | 8.75 | 4.27 | 4.47 | 4.65 | 4.82 | 5.21 | ● |
| SPM200-RN4-1-6-0.05-V | | | 6 | | | 50 | | | 7.28 | 6.37 | 6.63 | 6.86 | 7.12 | 7.69 | ● |
| SPM200-RN4-1-8-0.05-V | | | 8 | | | 50 | | | 6.23 | 8.45 | 8.76 | 9.08 | 9.42 | 10.18 | ● |
| SPM200-RN4-1-10-0.05-V | | | 10 | | | 50 | | | 5.45 | 10.53 | 10.90 | 11.30 | 11.72 | 12.67 | ● |
| SPM200-RN4-1-12-0.05-V | | | 12 | | | 60 | | | 4.84 | 12.61 | 13.04 | 13.51 | 14.02 | 15.15 | ● |
| SPM200-RN4-1-16-0.05-V | | | 16 | | | 60 | | | 3.95 | 16.74 | 17.32 | 17.95 | 18.62 | 20.12 | ○ |
| SPM200-RN4-1-20-0.05-V | | | 20 | | | 60 | | | 3.34 | 20.88 | 21.60 | 22.38 | 23.22 | 25.10 | ○ |
| SPM200-RN4-1-4-0.1-V | | 0.1 | 4 | | | 50 | | | 8.80 | 4.26 | 4.47 | 4.64 | 4.81 | 5.19 | ● |
| SPM200-RN4-1-6-0.1-V | | | 6 | | | 50 | | | 7.31 | 6.37 | 6.62 | 6.86 | 7.11 | 7.68 | ● |
| SPM200-RN4-1-8-0.1-V | | | 8 | | | 50 | | | 6.25 | 8.45 | 8.76 | 9.07 | 9.41 | 10.17 | ● |
| SPM200-RN4-1-10-0.1-V | | | 10 | | | 50 | | | 5.46 | 10.53 | 10.90 | 11.29 | 11.71 | 12.65 | ○ |
| SPM200-RN4-1-12-0.1-V | | | 12 | | | 60 | | | 4.85 | 12.60 | 13.04 | 13.51 | 14.01 | 15.14 | ● |
| SPM200-RN4-1-16-0.1-V | | | 16 | | | 60 | | | 3.96 | 16.74 | 17.32 | 17.94 | 18.61 | 20.11 | ● |
| SPM200-RN4-1-20-0.1-V | | | 20 | | | 60 | | | 3.35 | 20.87 | 21.60 | 22.37 | 23.21 | 25.08 | ○ |
| SPM200-RN4-1.5-4-0.05-V | 1.5 | 0.05 | 4 | 1.2 | 1.44 | 50 | | | 8.12 | 4.23 | 4.42 | 4.59 | 4.76 | 5.14 | ● |
| SPM200-RN4-1.5-8-0.05-V | | | 8 | | | 50 | | | 5.60 | 8.41 | 8.71 | 9.02 | 9.36 | 10.11 | ● |
| SPM200-RN4-1.5-12-0.05-V | | | 12 | | | 60 | | | 4.27 | 12.55 | 12.99 | 13.46 | 13.96 | 15.09 | ○ |
| SPM200-RN4-1.5-15-0.05-V | | | 15 | | | 60 | | | 3.62 | 15.65 | 16.20 | 16.78 | 17.41 | 18.82 | ● |
| SPM200-RN4-1.5-20-0.05-V | | | 20 | | | 60 | | | 2.89 | 20.82 | 21.55 | 22.32 | 23.16 | - | ○ |
| SPM200-RN4-1.5-4-0.1-V | | 0.1 | 4 | | | 50 | | | 8.17 | 4.23 | 4.42 | 4.58 | 4.75 | 5.13 | ● |
| SPM200-RN4-1.5-8-0.1-V | | | 8 | | | 50 | | | 5.62 | 8.41 | 8.71 | 9.02 | 9.35 | 10.10 | ○ |
| SPM200-RN4-1.5-12-0.1-V | | | 12 | | | 60 | | | 4.28 | 12.55 | 12.98 | 13.45 | 13.95 | 15.07 | ● |
| SPM200-RN4-1.5-15-0.1-V | | | 15 | | | 60 | | | 3.63 | 15.65 | 16.19 | 16.77 | 17.40 | 18.80 | ● |
| SPM200-RN4-1.5-20-0.1-V | | | 20 | | | 60 | | | 2.90 | 20.82 | 21.54 | 22.32 | 23.15 | - | ○ |

● Stock ○ Available upon Order

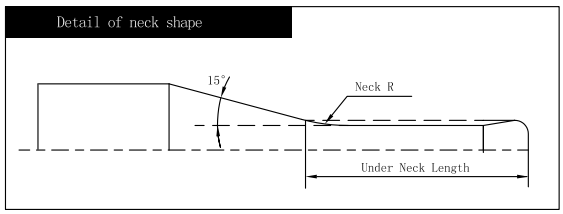
| R | Tol |
|---|---|
| R | ±0.005 |
| D | 0 -0.01 |

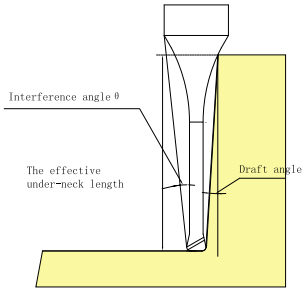
(mm)

Cutting Parameters ※ P529

# SPM200-RN4 NEW

4 Flute with Extended Neck, Cornor Raidus







See page 149 for guidelines to icons

》Continue

| Ordering Code | Mill | r | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-RN4-2-4-0.05-V | 2 | 0.05 | 4 | 1.6 | 1.92 | 50 | 4 | 4 | 7.32 | 4.21 | 4.39 | 4.55 | 4.72 | 5.09 | ● |
| SPM200-RN4-2-6-0.05-V | | | 6 | | | 50 | | | 5.84 | 6.30 | 6.53 | 6.76 | 7.01 | 7.58 | ● |
| SPM200-RN4-2-8-0.05-V | | | 8 | | | 50 | | | 4.85 | 8.37 | 8.67 | 8.98 | 9.31 | 10.07 | ○ |
| SPM200-RN4-2-12-0.05-V | | | 12 | | | 60 | | | 3.63 | 12.51 | 12.95 | 13.41 | 13.91 | 15.04 | ● |
| SPM200-RN4-2-16-0.05-V | | | 16 | | | 60 | | | 2.90 | 16.65 | 17.23 | 17.85 | 18.51 | - | ○ |
| SPM200-RN4-2-20-0.05-V | | | 20 | | | 60 | | | 2.41 | 20.78 | 21.50 | 22.28 | 23.11 | - | ○ |
| SPM200-RN4-2-4-0.1-V | | 0.1 | 4 | | | 50 | | | 7.36 | 4.21 | 4.38 | 4.54 | 4.71 | 5.08 | ● |
| SPM200-RN4-2-6-0.1-V | | | 6 | | | 50 | | | 5.86 | 6.29 | 6.53 | 6.76 | 7.01 | 7.57 | ● |
| SPM200-RN4-2-8-0.1-V | | | 8 | | | 50 | | | 4.87 | 8.37 | 8.66 | 8.97 | 9.31 | 10.05 | ● |
| SPM200-RN4-2-12-0.1-V | | | 12 | | | 60 | | | 3.64 | 12.51 | 12.94 | 13.41 | 13.91 | 15.03 | ● |
| SPM200-RN4-2-16-0.1-V | | | 16 | | | 60 | | | 2.90 | 16.65 | 17.22 | 17.84 | 18.51 | - | ○ |
| SPM200-RN4-2-20-0.1-V | | | 20 | | | 60 | | | 2.42 | 20.78 | 21.50 | 22.27 | 23.11 | - | ○ |
| SPM200-RN4-2-4-0.2-V | | 0.2 | 4 | | | 50 | | | 7.46 | 4.20 | 4.37 | 4.53 | 4.69 | 5.06 | ● |
| SPM200-RN4-2-6-0.2-V | | | 6 | | | 50 | | | 5.93 | 6.29 | 6.52 | 6.75 | 6.99 | 7.54 | ● |
| SPM200-RN4-2-8-0.2-V | | | 8 | | | 50 | | | 4.91 | 8.37 | 8.66 | 8.96 | 9.29 | 10.03 | ● |
| SPM200-RN4-2-12-0.2-V | | | 12 | | | 60 | | | 3.66 | 12.51 | 12.94 | 13.40 | 13.89 | 15.00 | ○ |
| SPM200-RN4-2-16-0.2-V | | | 16 | | | 60 | | | 2.92 | 16.64 | 17.22 | 17.83 | 18.49 | - | ● |
| SPM200-RN4-2-20-0.2-V | | | 20 | | | 60 | | | 2.43 | 20.78 | 21.49 | 22.26 | 23.09 | - | ● |
| SPM200-RN4-2-25-0.2-V | | | 25 | | | 70 | | | 2.00 | 25.95 | 26.84 | 27.80 | - | - | ○ |
| SPM200-RN4-2-30-0.2-V | | | 30 | | | 70 | | | 1.71 | 31.11 | 32.19 | 33.35 | - | - | ● |
| SPM200-RN4-2-4-0.3-V | | 0.3 | 4 | | | 50 | | | 7.56 | 4.20 | 4.37 | 4.52 | 4.68 | 5.03 | ○ |
| SPM200-RN4-2-8-0.3-V | | | 8 | | | 50 | | | 4.96 | 8.36 | 8.65 | 8.95 | 9.28 | 10.01 | ● |
| SPM200-RN4-2-12-0.3-V | | | 12 | | | 60 | | | 3.69 | 12.50 | 12.93 | 13.39 | 13.88 | 14.98 | ○ |
| SPM200-RN4-2-16-0.3-V | | | 16 | | | 60 | | | 2.93 | 16.64 | 17.21 | 17.82 | 18.48 | - | ● |
| SPM200-RN4-2-20-0.3-V | | | 20 | | | 60 | | | 2.44 | 20.77 | 21.49 | 22.25 | 23.08 | - | ○ |

● Stock ○ Available upon Order

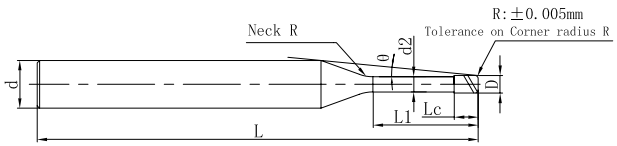
| R | Tol |
|---|---|
| R | ±0.005 |
| D | 0 -0.01 |

(mm)

Cutting Parameters ※ P529

# SPM200-RN4 NEW

4 Flute with Extended Neck, Cornor Raidus






SHANK h5 | 4 | AlCrSiN | 35°/38° Helix | Corner-R

See page 149 for guidelines to icons

》Continue

| Ordering Code | Mill | r | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-RN4-2-4-0.5-V | 2 | 0.5 | 4 | 1.6 | 1.92 | 50 | 4 | 4 | 7.76 | 4.19 | 4.35 | 4.50 | 4.65 | 4.98 | ● |
| SPM200-RN4-2-6-0.5-V | | | 6 | | | 50 | | | 6.11 | 6.28 | 6.50 | 6.71 | 6.95 | 7.47 | ● |
| SPM200-RN4-2-8-0.5-V | | | 8 | | | 50 | | | 5.04 | 8.36 | 8.64 | 8.93 | 9.25 | 9.96 | ○ |
| SPM200-RN4-2-12-0.5-V | | | 12 | | | 60 | | | 3.73 | 12.50 | 12.92 | 13.36 | 13.85 | 14.93 | ● |
| SPM200-RN4-2-16-0.5-V | | | 16 | | | 60 | | | 2.96 | 16.63 | 17.19 | 17.80 | 18.45 | - | ● |
| SPM200-RN4-2-20-0.5-V | | | 20 | | | 60 | | | 2.46 | 20.77 | 21.47 | 22.23 | 23.05 | - | ○ |
| SPM200-RN4-2-25-0.5-V | | | 25 | | | 70 | | | 2.03 | 25.94 | 26.82 | 27.77 | 28.79 | - | ● |
| SPM200-RN4-2-30-0.5-V | | | 30 | | | 70 | | | 1.72 | 31.10 | 32.17 | 33.31 | - | - | ○ |
| SPM200-RN4-2.5-8-0.1-V | 2.5 | 0.1 | 8 | 2 | 2.4 | 50 | | | 3.98 | 8.34 | 8.63 | 8.94 | 9.27 | 10.02 | ● |
| SPM200-RN4-2.5-16-0.1-V | | | 16 | | | 60 | | | 2.29 | 16.62 | 17.19 | 17.81 | 18.47 | - | ● |
| SPM200-RN4-2.5-20-0.1-V | | | 20 | | | 60 | | | 1.89 | 20.75 | 21.47 | 22.24 | - | - | ○ |
| SPM200-RN4-2.5-8-0.2-V | | 0.2 | 8 | | | 50 | | | 4.02 | 8.34 | 8.63 | 8.93 | 9.26 | 9.99 | ● |
| SPM200-RN4-2.5-16-0.2-V | | | 16 | | | 60 | | | 2.30 | 16.61 | 17.18 | 17.80 | 18.46 | - | ○ |
| SPM200-RN4-2.5-20-0.2-V | | | 20 | | | 60 | | | 1.90 | 20.75 | 21.46 | 22.23 | - | - | ● |
| SPM200-RN4-2.5-12-0.3-V | | 0.3 | 12 | | | 60 | | | 2.95 | 12.47 | 12.90 | 13.35 | 13.84 | - | ● |
| SPM200-RN4-2.5-20-0.3-V | | | 20 | | | 60 | | | 1.91 | 20.74 | 21.46 | 22.22 | - | - | ○ |
| SPM200-RN4-2.5-12-0.5-V | | 0.5 | 12 | | | 60 | | | 2.99 | 12.47 | 12.88 | 13.33 | 13.81 | - | ● |
| SPM200-RN4-2.5-20-0.5-V | | | 20 | | | 60 | | | 1.92 | 20.74 | 21.44 | 22.20 | - | - | ● |
| SPM200-RN4-3-8-0.1-V | 3 | 0.1 | 8 | 2.4 | 2.88 | 60 | 6 | | 6.32 | 8.32 | 8.61 | 8.92 | 9.25 | 9.99 | ● |
| SPM200-RN4-3-16-0.1-V | | | 16 | | | 60 | | | 3.99 | 16.59 | 17.17 | 17.78 | 18.45 | 19.94 | ○ |
| SPM200-RN4-3-25-0.1-V | | | 25 | | | 70 | | | 2.82 | 25.90 | 26.79 | 27.76 | 28.80 | - | ● |
| SPM200-RN4-3-30-0.1-V | | | 30 | | | 80 | | | 2.42 | 31.06 | 32.14 | 33.30 | 34.55 | - | ○ |
| SPM200-RN4-3-8-0.2-V | | 0.2 | 8 | | | 60 | | | 6.36 | 8.32 | 8.60 | 8.91 | 9.23 | 9.97 | ● |
| SPM200-RN4-3-12-0.2-V | | | 12 | | | 60 | | | 4.92 | 12.45 | 12.88 | 13.34 | 13.83 | 14.94 | ● |

● Stock ○ Available upon Order

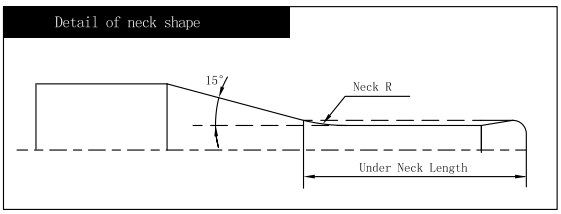
| R | Tol |
|---|---|
| R | ±0.005 |
| D | 0 -0.01 |

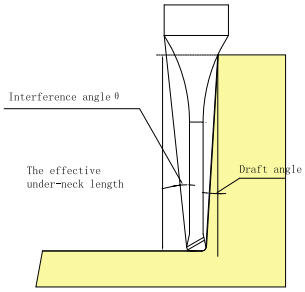
(mm)

Cutting Parameters ※ P529

# SPM200-RN4 NEW

4 Flute with Extended Neck, Cornor Raidus







See page 149 for guidelines to icons

》Continue

| Ordering Code | Mill | r | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-RN4-3-16-0.2-V | 3 | 0.2 | 16 | 2.4 | 2.88 | 60 | 6 | 4 | 4.00 | 16.59 | 17.16 | 17.77 | 18.43 | 19.91 | ● |
| SPM200-RN4-3-20-0.2-V | | | 20 | | | 70 | | | 3.38 | 20.72 | 21.44 | 22.21 | 23.03 | 24.88 | ○ |
| SPM200-RN4-3-25-0.2-V | | | 25 | | | 70 | | | 2.82 | 25.89 | 26.79 | 27.75 | 28.78 | - | ● |
| SPM200-RN4-3-30-0.2-V | | | 30 | | | 80 | | | 2.43 | 31.06 | 32.14 | 33.29 | 34.53 | - | ○ |
| SPM200-RN4-3-8-0.3-V | | 0.3 | 8 | | | 60 | | | 6.41 | 8.32 | 8.60 | 8.90 | 9.22 | 9.94 | ● |
| SPM200-RN4-3-16-0.3-V | | | 16 | | | 60 | | | 4.02 | 16.59 | 17.15 | 17.76 | 18.42 | 19.89 | ● |
| SPM200-RN4-3-20-0.3-V | | | 20 | | | 70 | | | 3.39 | 20.72 | 21.43 | 22.20 | 23.02 | 24.86 | ○ |
| SPM200-RN4-3-25-0.3-V | | | 25 | | | 70 | | | 2.83 | 25.89 | 26.78 | 27.74 | 28.77 | - | ● |
| SPM200-RN4-3-30-0.3-V | | | 30 | | | 80 | | | 2.43 | 31.06 | 32.13 | 33.28 | 34.52 | - | ○ |
| SPM200-RN4-3-8-0.5-V | | 0.5 | 8 | | | 60 | | | 6.51 | 8.31 | 8.58 | 8.87 | 9.19 | 9.89 | ● |
| SPM200-RN4-3-12-0.5-V | | | 12 | | | 60 | | | 5.00 | 12.44 | 12.86 | 13.31 | 13.79 | 14.87 | ● |
| SPM200-RN4-3-16-0.5-V | | | 16 | | | 60 | | | 4.06 | 16.58 | 17.14 | 17.74 | 18.39 | 19.84 | ○ |
| SPM200-RN4-3-20-0.5-V | | | 20 | | | 70 | | | 3.42 | 20.71 | 21.42 | 22.17 | 22.99 | 24.81 | ● |
| SPM200-RN4-3-25-0.5-V | | | 25 | | | 70 | | | 2.85 | 25.88 | 26.77 | 27.72 | 28.74 | - | ● |
| SPM200-RN4-3-30-0.5-V | | | 30 | | | 80 | | | 2.45 | 31.05 | 32.12 | 33.26 | 34.49 | - | ○ |
| SPM200-RN4-3-35-0.5-V | | | 35 | | | 80 | | | 2.14 | 36.22 | 37.46 | 38.80 | 40.23 | - | ● |
| SPM200-RN4-4-12-0.1-V | 4 | 0.1 | 12 | 3.2 | 3.86 | 60 | | | 3.66 | 12.44 | 12.87 | 13.33 | 13.83 | 14.94 | ● |
| SPM200-RN4-4-20-0.1-V | | | 20 | | | 60 | | | 2.42 | 20.71 | 21.43 | 22.20 | 23.03 | - | ○ |
| SPM200-RN4-4-30-0.1-V | | | 30 | | | 80 | | | 1.71 | 31.05 | 32.12 | 33.28 | - | - | ● |
| SPM200-RN4-4-40-0.1-V | | | 40 | | | 80 | | | 1.32 | 41.38 | 42.82 | - | - | - | ○ |
| SPM200-RN4-4-12-0.2-V | | 0.2 | 12 | | | 60 | | | 3.68 | 12.44 | 12.86 | 13.32 | 13.81 | 14.92 | ● |
| SPM200-RN4-4-20-0.2-V | | | 20 | | | 60 | | | 2.43 | 20.71 | 21.42 | 22.19 | 23.01 | - | ● |
| SPM200-RN4-4-30-0.2-V | | | 30 | | | 80 | | | 1.71 | 31.04 | 32.12 | 33.27 | - | - | ○ |
| SPM200-RN4-4-40-0.2-V | | | 40 | | | 80 | | | 1.32 | 41.38 | 42.81 | - | - | - | ○ |

● Stock ○ Available upon Order

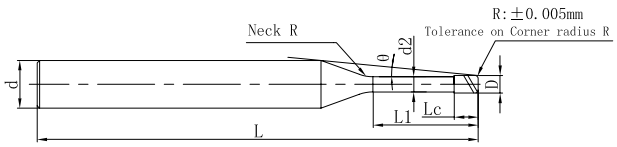
| R | Tol |
|---|---|
| R | ±0.005 |
| D | 0 -0.01 |

(mm)

Cutting Parameters ※ P529

# SPM200-RN4 NEW

4 Flute with Extended Neck, Cornor Raidus









See page 149 for guidelines to icons

》Continue

| Ordering Code | Mill | r | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-RN4-4-12-0.3-V | 4 | 0.3 | 12 | 3.2 | 3.86 | 60 | 6 | 4 | 3.70 | 12.43 | 12.86 | 13.31 | 13.80 | 14.89 | ● |
| SPM200-RN4-4-20-0.3-V | | | 20 | | | 60 | | | 2.44 | 20.70 | 21.41 | 22.18 | 23.00 | - | ● |
| SPM200-RN4-4-30-0.3-V | | | 30 | | | 80 | | | 1.72 | 31.04 | 32.11 | 33.26 | - | - | ● |
| SPM200-RN4-4-40-0.3-V | | | 40 | | | 80 | | | 1.32 | 41.38 | 42.81 | - | - | - | ○ |
| SPM200-RN4-4-12-0.5-V | | 0.5 | 12 | | | 60 | | | 3.75 | 12.43 | 12.84 | 13.29 | 13.77 | 14.84 | ● |
| SPM200-RN4-4-20-0.5-V | | | 20 | | | 60 | | | 2.47 | 20.70 | 21.40 | 22.15 | 22.97 | - | ● |
| SPM200-RN4-4-30-0.5-V | | | 30 | | | 80 | | | 1.73 | 31.03 | 32.10 | 33.24 | - | - | ○ |
| SPM200-RN4-4-40-0.5-V | | | 40 | | | 80 | | | 1.33 | 41.37 | 42.79 | - | - | - | ○ |
| SPM200-RN4-5-20-0.1-V | 5 | 0.1 | 20 | 4 | 4.85 | 70 | | | 1.32 | 20.70 | 21.42 | - | - | - | ● |
| SPM200-RN4-5-40-0.1-V | | | 40 | | | 90 | | | 0.69 | 41.38 | - | - | - | - | ○ |
| SPM200-RN4-5-20-0.2-V | | 0.2 | 20 | | | 70 | | | 1.32 | 20.70 | 21.41 | - | - | - | ● |
| SPM200-RN4-5-40-0.2-V | | | 40 | | | 90 | | | 0.69 | 41.37 | - | - | - | - | ○ |
| SPM200-RN4-5-20-0.3-V | | 0.3 | 20 | | | 70 | | | 1.33 | 20.69 | 21.41 | - | - | - | ● |
| SPM200-RN4-5-40-0.3-V | | | 40 | | | 90 | | | 0.69 | 41.37 | - | - | - | - | ○ |
| SPM200-RN4-5-20-0.5-V | | 0.5 | 20 | | | 70 | | | 1.34 | 20.69 | 21.39 | - | - | - | ● |
| SPM200-RN4-5-40-0.5-V | | | 40 | | | 90 | | | 0.70 | 41.36 | - | - | - | - | ○ |
| SPM200-RN4-5-20-1-V | | 1 | 20 | | | 70 | | | 1.38 | 20.67 | 21.36 | - | - | - | ● |
| SPM200-RN4-5-40-1-V | | | 40 | | | 90 | | | 0.71 | 41.34 | - | - | - | - | ○ |
| SPM200-RN4-6-30-0.2-V | 6 | 0.2 | 30 | 4.8 | 5.85 | 80 | | | - | - | - | - | - | - | ● |
| SPM200-RN4-6-54-0.2-V | | | 54 | | | 100 | | | - | - | - | - | - | - | ○ |
| SPM200-RN4-6-72-0.2-V | | | 72 | | | 120 | | | - | - | - | - | - | - | ○ |
| SPM200-RN4-6-30-0.3-V | | 0.3 | 30 | | | 80 | | | - | - | - | - | - | - | ● |
| SPM200-RN4-6-54-0.3-V | | | 54 | | | 100 | | | - | - | - | - | - | - | ○ |
| SPM200-RN4-6-72-0.3-V | | | 72 | | | 120 | | | - | - | - | - | - | - | ○ |

● Stock ○ Available upon Order

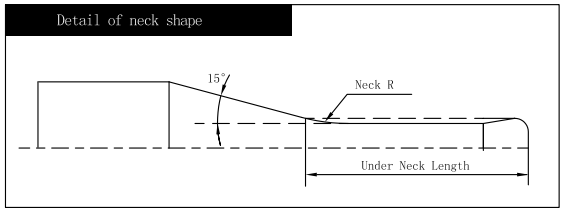
| R | Tol |
|---|---|
| R | ±0.005 |
| D | 0 -0.01 |

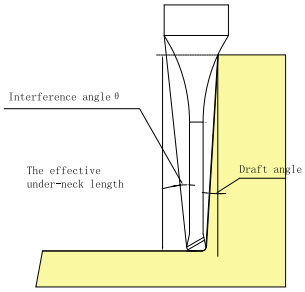
(mm)

Cutting Parameters ※ P529

# SPM200-RN4 NEW

4 Flute with Extended Neck, Cornor Raidus







See page 149 for guidelines to icons

》Continue

| Ordering Code | Mill | r | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-RN4-6-30-0.5-V | 6 | 0.5 | 30 | 4.8 | 5.85 | 80 | 6 | 4 | - | - | - | - | - | - | ● |
| SPM200-RN4-6-54-0.5-V | | | 54 | | | 100 | | | - | - | - | - | - | - | ○ |
| SPM200-RN4-6-72-0.5-V | | | 72 | | | 120 | | | - | - | - | - | - | - | ○ |
| SPM200-RN4-6-30-1-V | | 1 | 30 | | | 80 | | | - | - | - | - | - | - | ● |
| SPM200-RN4-6-54-1-V | | | 54 | | | 100 | | | - | - | - | - | - | - | ○ |
| SPM200-RN4-6-72-1-V | | | 72 | | | 120 | | | - | - | - | - | - | - | ○ |

● Stock ○ Available upon Order

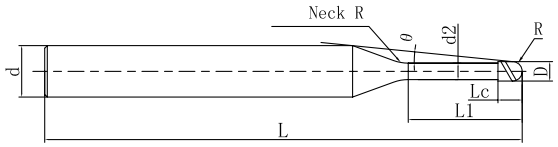
| R | Tol |
|---|---|
| R | ±0.005 |
| D | 0 -0.01 |

(mm)

Cutting Parameters ※ P529

# SPM200-BN2

2 Flute with Extended Neck,Ballnose









See page 149 for guidelines to icons

| Ordering Code | Mill Dia. | R | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-BN2-0.1-0.2-V | 0.1 | 0.05 | 0.2 | 0.08 | 0.08 | 50 | 4 | 1 | 14.66 | 0.2 | 0.21 | 0.22 | 0.24 | 0.26 | ○ |
| SPM200-BN2-0.1-0.3-V | | | 0.3 | | | | | | 14.48 | 0.31 | 0.33 | 0.34 | 0.36 | 0.39 | ● |
| SPM200-BN2-0.1-0.5-V | | | 0.5 | | | | | | 14.12 | 0.52 | 0.55 | 0.57 | 0.59 | 0.64 | ○ |
| SPM200-BN2-0.2-0.5-V | 0.2 | 0.1 | 0.5 | 0.16 | 0.17 | 50 | 4 | 1 | 14.21 | 0.51 | 0.53 | 0.55 | 0.57 | 0.61 | ● |
| SPM200-BN2-0.2-0.75-V | | | 0.75 | | | | | | 13.77 | 0.78 | 0.8 | 0.83 | 0.86 | 0.92 | ● |
| SPM200-BN2-0.2-1-V | | | 1 | | | | | | 13.36 | 1.04 | 1.07 | 1.11 | 1.15 | 1.23 | ● |
| SPM200-BN2-0.2-1.25-V | | | 1.25 | | | | | | 12.97 | 1.3 | 1.34 | 1.39 | 1.43 | 1.54 | ● |
| SPM200-BN2-0.2-1.5-V | | | 1.5 | | | | | | 12.6 | 1.56 | 1.61 | 1.66 | 1.72 | 1.85 | ● |
| SPM200-BN2-0.2-2-V | | | 2 | | | | | | 11.92 | 2.07 | 2.14 | 2.22 | 2.3 | 2.48 | ● |
| SPM200-BN2-0.2-2.5-V | | | 2.5 | | | | | | 11.31 | 2.59 | 2.68 | 2.77 | 2.87 | 3.1 | ● |
| SPM200-BN2-0.2-3-V | | | 3 | | | | | | 10.76 | 3.11 | 3.21 | 3.33 | 3.45 | 3.72 | ● |
| SPM200-BN2-0.3-0.5-V | 0.3 | 0.15 | 0.5 | 0.24 | 0.27 | 50 | 4 | 2 | 14.17 | 0.52 | 0.55 | 0.57 | 0.6 | 0.66 | ● |
| SPM200-BN2-0.3-0.75-V | | | 0.75 | | | | | | 13.72 | 0.79 | 0.83 | 0.87 | 0.91 | 0.98 | ○ |
| SPM200-BN2-0.3-1-V | | | 1 | | | | | | 13.3 | 1.05 | 1.11 | 1.16 | 1.2 | 1.29 | ● |
| SPM200-BN2-0.3-1.25-V | | | 1.25 | | | | | | 12.9 | 1.32 | 1.38 | 1.44 | 1.5 | 1.61 | ○ |
| SPM200-BN2-0.3-1.5-V | | | 1.5 | | | | | | 12.53 | 1.58 | 1.66 | 1.72 | 1.78 | 1.92 | ○ |
| SPM200-BN2-0.3-2-V | | | 2 | | | | | | 11.84 | 2.11 | 2.2 | 2.28 | 2.36 | 2.54 | ○ |
| SPM200-BN2-0.3-2.5-V | | | 2.5 | | | | | | 11.22 | 2.63 | 2.74 | 2.83 | 2.93 | 3.16 | ● |
| SPM200-BN2-0.3-3-V | | | 3 | | | | | | 10.66 | 3.15 | 3.27 | 3.39 | 3.51 | 3.78 | ○ |
| SPM200-BN2-0.4-0.75-V | 0.4 | 0.2 | 0.75 | 0.32 | 0.37 | 50 | 4 | 2 | 13.78 | 0.78 | 0.82 | 0.86 | 0.9 | 0.97 | ● |
| SPM200-BN2-0.4-1-V | | | 1 | | | | | | 13.34 | 1.05 | 1.1 | 1.15 | 1.19 | 1.28 | ● |
| SPM200-BN2-0.4-1.5-V | | | 1.5 | | | | | | 12.55 | 1.58 | 1.65 | 1.72 | 1.78 | 1.9 | ● |
| SPM200-BN2-0.4-2-V | | | 2 | | | | | | 11.84 | 2.11 | 2.19 | 2.27 | 2.35 | 2.53 | ● |
| SPM200-BN2-0.4-2.5-V | | | 2.5 | | | | | | 11.2 | 2.63 | 2.73 | 2.83 | 2.93 | 3.15 | ● |

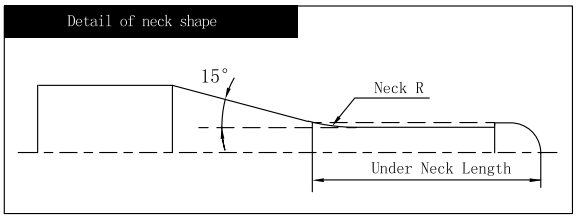
● Stock ○ Available upon Order

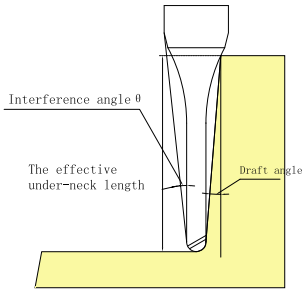
| R | Tol |
|---|---|
| R≤0.25 | ±0.003 |
| R>0.25 | ±0.005 |

Cutting Parameters ※ P534

# SPM200-BN2

2 Flute with Extended Neck,Ballnose







See page 149 for guidelines to icons

》Continue

| Ordering Code | Mill Dia. | R | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-BN2-0.4-3-V | 0.4 | 0.2 | 3 | 0.32 | 0.37 | 50 | 4 | 2 | 10.63 | 3.15 | 3.27 | 3.38 | 3.5 | 3.77 | ● |
| SPM200-BN2-0.4-3.5-V | | | 3.5 | | | | | | 10.12 | 3.67 | 3.8 | 3.94 | 4.08 | 4.39 | ○ |
| SPM200-BN2-0.4-4-V | | | 4 | | | | | | 9.65 | 4.19 | 4.34 | 4.49 | 4.65 | 5.01 | ○ |
| SPM200-BN2-0.4-4.5-V | | | 4.5 | | | | | | 9.22 | 4.71 | 4.87 | 5.04 | 5.23 | 5.63 | ● |
| SPM200-BN2-0.5-1-V | 0.5 | 0.25 | 1 | 0.4 | 0.47 | 50 | 4 | 2 | 13.39 | 1.05 | 1.09 | 1.14 | 1.19 | 1.27 | ● |
| SPM200-BN2-0.5-1.5-V | | | 1.5 | | | | | | 12.56 | 1.58 | 1.65 | 1.71 | 1.77 | 1.89 | ○ |
| SPM200-BN2-0.5-2-V | | | 2 | | | | | | 11.83 | 2.1 | 2.19 | 2.27 | 2.34 | 2.51 | ● |
| SPM200-BN2-0.5-2.5-V | | | 2.5 | | | | | | 11.18 | 2.63 | 2.73 | 2.82 | 2.92 | 3.14 | ○ |
| SPM200-BN2-0.5-3-V | | | 3 | | | | | | 10.6 | 3.15 | 3.27 | 3.38 | 3.49 | 3.76 | ● |
| SPM200-BN2-0.5-4-V | | | 4 | | | | | | 9.6 | 4.19 | 4.34 | 4.48 | 4.64 | 5 | ○ |
| SPM200-BN2-0.5-5-V | | | 5 | | | | | | 8.77 | 5.23 | 5.41 | 5.59 | 5.79 | 6.24 | ● |
| SPM200-BN2-0.5-5.5-V | | | 5.5 | | | | | | 8.4 | 5.75 | 5.94 | 6.15 | 6.37 | 6.86 | ● |
| SPM200-BN2-0.5-6-V | | | 6 | | | | | | 8.07 | 6.27 | 6.48 | 6.7 | 6.94 | 7.49 | ● |
| SPM200-BN2-0.5-8-V | | | 8 | | | | | | 6.96 | 8.33 | 8.62 | 8.92 | 9.24 | 9.97 | ○ |
| SPM200-BN2-0.6-1-V | 0.6 | 0.3 | 1 | 0.48 | 0.57 | 50 | 4 | 4 | 13.15 | 1.07 | 1.14 | 1.2 | 1.27 | 1.41 | ● |
| SPM200-BN2-0.6-2-V | | | 2 | | | | | | 11.61 | 2.15 | 2.28 | 2.39 | 2.5 | 2.7 | ● |
| SPM200-BN2-0.6-2.5-V | | | 2.5 | | | | | | 10.96 | 2.68 | 2.84 | 2.97 | 3.09 | 3.32 | ○ |
| SPM200-BN2-0.6-3-V | | | 3 | | | | | | 10.38 | 3.22 | 3.39 | 3.54 | 3.67 | 3.95 | ● |
| SPM200-BN2-0.6-3.5-V | | | 3.5 | | | | | | 9.86 | 3.75 | 3.94 | 4.1 | 4.25 | 4.57 | ● |
| SPM200-BN2-0.6-4-V | | | 4 | | | | | | 9.39 | 4.28 | 4.48 | 4.66 | 4.82 | 5.19 | ● |
| SPM200-BN2-0.6-4.5-V | | | 4.5 | | | | | | 8.97 | 4.81 | 5.03 | 5.21 | 5.4 | 5.81 | ○ |
| SPM200-BN2-0.6-5-V | | | 5 | | | | | | 8.57 | 5.33 | 5.57 | 5.77 | 5.97 | 6.43 | ● |
| SPM200-BN2-0.6-5.5-V | | | 5.5 | | | | | | 8.22 | 5.86 | 6.11 | 6.32 | 6.55 | 7.05 | ○ |
| SPM200-BN2-0.6-6-V | | | 6 | | | | | | 7.89 | 6.38 | 6.64 | 6.87 | 7.12 | 7.67 | ● |

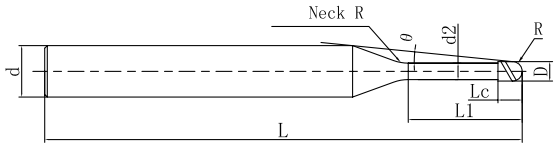
● Stock ○ Available upon Order

| R | Tol |
|---|---|
| R≤0.25 | ±0.003 |
| R>0.25 | ±0.005 |

Cutting Parameters ※ P534

# SPM200-BN2

2 Flute with Extended Neck,Ballnose









See page 149 for guidelines to icons

》Continue

| Ordering Code | Mill Dia. | R | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-BN2-0.6-7-V | 0.6 | 0.3 | 7 | 0.48 | 0.57 | 50 | 4 | 4 | 7.3 | 7.43 | 7.71 | 7.98 | 8.27 | 8.92 | ○ |
| SPM200-BN2-0.6-8-V | | | 8 | | | | | | 6.79 | 8.48 | 8.78 | 9.09 | 9.42 | 10.16 | ○ |
| SPM200-BN2-0.6-9-V | | | 9 | | | | | | 6.35 | 9.52 | 9.85 | 10.2 | 10.57 | 11.4 | ● |
| SPM200-BN2-0.6-10-V | | | 10 | | | | | | 5.97 | 10.56 | 10.92 | 11.31 | 11.72 | 12.65 | ● |
| SPM200-BN2-0.6-12-V | | | 12 | | | | | | 5.32 | 12.63 | 13.06 | 13.52 | 14.02 | 15.13 | ● |
| SPM200-BN2-0.7-2-V | 0.7 | 0.35 | 2 | 0.56 | 0.67 | 50 | 4 | 4 | 11.6 | 2.14 | 2.27 | 2.39 | 2.49 | 2.69 | ● |
| SPM200-BN2-0.7-4-V | | | 4 | | | | | | 9.33 | 4.27 | 4.48 | 4.65 | 4.81 | 5.18 | ● |
| SPM200-BN2-0.7-6-V | | | 6 | | | | | | 7.81 | 6.38 | 6.64 | 6.87 | 7.11 | 7.66 | ● |
| SPM200-BN2-0.7-8-V | | | 8 | | | | | | 6.71 | 8.47 | 8.78 | 9.09 | 9.41 | 10.15 | ● |
| SPM200-BN2-0.8-2-V | 0.8 | 0.4 | 2 | 0.64 | 0.76 | 50 | 4 | 4 | 11.64 | 2.12 | 2.24 | 2.35 | 2.45 | 2.63 | ● |
| SPM200-BN2-0.8-4-V | | | 4 | | | | | | 9.3 | 4.25 | 4.44 | 4.61 | 4.77 | 5.12 | ● |
| SPM200-BN2-0.8-5-V | | | 5 | | | | | | 8.45 | 5.3 | 5.53 | 5.72 | 5.92 | 6.36 | ○ |
| SPM200-BN2-0.8-6-V | | | 6 | | | | | | 7.74 | 6.35 | 6.6 | 6.83 | 7.07 | 7.61 | ● |
| SPM200-BN2-0.8-8-V | | | 8 | | | | | | 6.63 | 8.44 | 8.74 | 9.04 | 9.37 | 10.09 | ● |
| SPM200-BN2-0.8-10-V | | | 10 | | | | | | 5.8 | 10.52 | 10.88 | 11.26 | 11.67 | 12.58 | ○ |
| SPM200-BN2-0.9-2-V | 0.9 | 0.45 | 2 | 0.72 | 0.86 | 50 | 4 | 4 | 11.63 | 2.12 | 2.23 | 2.34 | 2.44 | 2.62 | ● |
| SPM200-BN2-0.9-4-V | | | 4 | | | | | | 9.24 | 4.25 | 4.44 | 4.6 | 4.76 | 5.11 | ● |
| SPM200-BN2-0.9-6-V | | | 6 | | | | | | 7.66 | 6.35 | 6.6 | 6.82 | 7.06 | 7.6 | ● |
| SPM200-BN2-0.9-8-V | | | 8 | | | | | | 6.54 | 8.44 | 8.74 | 9.04 | 9.36 | 10.08 | ● |
| SPM200-BN2-1-2-V | 1 | 0.5 | 2 | 0.8 | 0.96 | 50 | 4 | 4 | 11.62 | 2.12 | 2.23 | 2.33 | 2.43 | 2.61 | ● |
| SPM200-BN2-1-3-V | | | 3 | | | | | | 10.25 | 3.18 | 3.34 | 3.48 | 3.6 | 3.85 | ● |
| SPM200-BN2-1-4-V | | | 4 | | | | | | 9.17 | 4.24 | 4.43 | 4.6 | 4.75 | 5.1 | ● |
| SPM200-BN2-1-5-V | | | 5 | | | | | | 8.29 | 5.3 | 5.52 | 5.71 | 5.9 | 6.34 | ○ |
| SPM200-BN2-1-6-V | | | 6 | | | | | | 7.57 | 6.35 | 6.59 | 6.81 | 7.05 | 7.58 | ● |

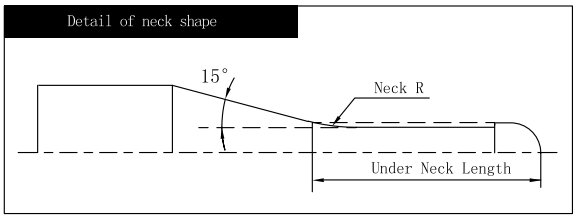
● Stock ○ Available upon Order

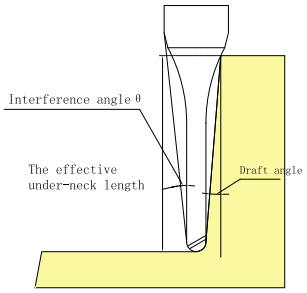
| R | Tol |
|---|---|
| R≤0.25 | ±0.003 |
| R>0.25 | ±0.005 |

Cutting Parameters ※ P534

# SPM200-BN2

2 Flute with Extended Neck,Ballnose







See page 149 for guidelines to icons

》Continue

| Ordering Code | Mill Dia. | R | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-BN2-1-7-V | 1 | 0.5 | 7 | 0.8 | 0.96 | 50 | 4 | 4 | 6.96 | 7.39 | 7.66 | 7.92 | 8.2 | 8.83 | ● |
| SPM200-BN2-1-8-V | | | 8 | | | 50 | | | 6.44 | 8.44 | 8.73 | 9.03 | 9.35 | 10.07 | ● |
| SPM200-BN2-1-9-V | | | 9 | | | 50 | | | 5.99 | 9.48 | 9.8 | 10.14 | 10.5 | 11.31 | ○ |
| SPM200-BN2-1-10-V | | | 10 | | | 50 | | | 5.6 | 10.52 | 10.87 | 11.25 | 11.65 | 12.56 | ○ |
| SPM200-BN2-1-12-V | | | 12 | | | 55 | | | 4.96 | 12.59 | 13.01 | 13.46 | 13.95 | 15.04 | ● |
| SPM200-BN2-1-13-V | | | 13 | | | 55 | | | 4.69 | 13.62 | 14.08 | 14.57 | 15.1 | 16.29 | ● |
| SPM200-BN2-1-14-V | | | 14 | | | 55 | | | 4.45 | 14.66 | 15.15 | 15.68 | 16.25 | 17.53 | ● |
| SPM200-BN2-1-16-V | | | 16 | | | 55 | | | 4.03 | 16.73 | 17.29 | 17.9 | 18.55 | 20.01 | ● |
| SPM200-BN2-1-18-V | | | 18 | | | 60 | | | 3.69 | 18.79 | 19.43 | 20.11 | 20.85 | 22.5 | ○ |
| SPM200-BN2-1-20-V | | | 20 | | | 60 | | | 3.4 | 20.86 | 21.57 | 22.33 | 23.15 | 24.99 | ● |
| SPM200-BN2-1.1-2-V | 1.1 | 0.55 | 2 | 0.88 | 1.06 | 50 | 4 | 4 | 11.61 | 2.11 | 2.22 | 2.32 | 2.42 | 2.6 | ● |
| SPM200-BN2-1.1-4-V | | | 4 | | | | | | 9.09 | 4.24 | 4.43 | 4.59 | 4.74 | 5.08 | ● |
| SPM200-BN2-1.1-6-V | | | 6 | | | | | | 7.47 | 6.34 | 6.59 | 6.81 | 7.04 | 7.57 | ● |
| SPM200-BN2-1.1-8-V | | | 8 | | | | | | 6.34 | 8.43 | 8.73 | 9.03 | 9.34 | 10.06 | ● |
| SPM200-BN2-1.1-10-V | | | 10 | | | | | | 5.5 | 10.51 | 10.87 | 11.24 | 11.64 | 12.54 | ○ |
| SPM200-BN2-1.2-4-V | 1.2 | 0.6 | 4 | 0.96 | 1.15 | 50 | 4 | 4 | 9.05 | 4.22 | 4.4 | 4.55 | 4.7 | 5.04 | ● |
| SPM200-BN2-1.2-8-V | | | 8 | | | 50 | | | 6.25 | 8.41 | 8.7 | 8.99 | 9.3 | 10.01 | ○ |
| SPM200-BN2-1.2-10-V | | | 10 | | | 50 | | | 5.41 | 10.49 | 10.84 | 11.21 | 11.6 | 12.5 | ● |
| SPM200-BN2-1.2-12-V | | | 12 | | | 55 | | | 4.77 | 12.56 | 12.97 | 13.42 | 13.9 | 14.98 | ○ |
| SPM200-BN2-1.4-8-V | 1.4 | 0.7 | 8 | 1.12 | 1.34 | 50 | 4 | 4 | 6.04 | 8.38 | 8.66 | 8.95 | 9.26 | 9.96 | ● |
| SPM200-BN2-1.4-12-V | | | 12 | | | 55 | | | 4.56 | 12.53 | 12.94 | 13.38 | 13.86 | 14.93 | ● |
| SPM200-BN2-1.4-16-V | | | 16 | | | 55 | | | 3.67 | 16.66 | 17.22 | 17.82 | 18.46 | 19.9 | ● |
| SPM200-BN2-1.5-4-V | 1.5 | 0.75 | 4 | 1.2 | 1.44 | 50 | 4 | 4 | 8.82 | 4.2 | 4.36 | 4.51 | 4.65 | 4.97 | ● |
| SPM200-BN2-1.5-6-V | | | 6 | | | | | | 7.08 | 6.29 | 6.52 | 6.73 | 6.95 | 7.46 | ● |

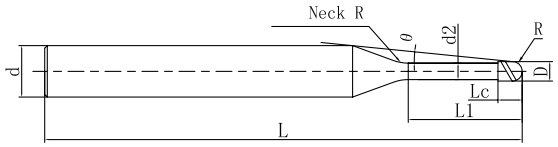
● Stock ○ Available upon Order

| R | Tol |
|---|---|
| R≤0.25 | ±0.003 |
| R>0.25 | ±0.005 |

Cutting Parameters ※ P534

# SPM200-BN2

2 Flute with Extended Neck,Ballnose









See page 149 for guidelines to icons

》Continue

| Ordering Code | Mill Dia. | R | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-BN2-1.5-8-V | 1.5 | 0.75 | 8 | 1.2 | 1.44 | 50 | 4 | 4 | 5.92 | 8.38 | 8.66 | 8.95 | 9.25 | 9.94 | ● |
| SPM200-BN2-1.5-10-V | | | 10 | | | 50 | | | 5.08 | 10.46 | 10.8 | 11.16 | 11.55 | 12.43 | ● |
| SPM200-BN2-1.5-12-V | | | 12 | | | 55 | | | 4.45 | 12.53 | 12.94 | 13.38 | 13.85 | 14.92 | ○ |
| SPM200-BN2-1.5-14-V | | | 14 | | | 55 | | | 3.96 | 14.6 | 15.08 | 15.6 | 16.15 | 17.4 | ● |
| SPM200-BN2-1.5-16-V | | | 16 | | | 55 | | | 3.57 | 16.66 | 17.22 | 17.81 | 18.45 | 19.89 | ● |
| SPM200-BN2-1.5-18-V | | | 18 | | | 60 | | | 3.25 | 18.73 | 19.36 | 20.03 | 20.75 | 22.38 | ● |
| SPM200-BN2-1.5-20-V | | | 20 | | | 60 | | | 2.98 | 20.8 | 21.5 | 22.25 | 23.05 | - | ● |
| SPM200-BN2-1.6-8-V | 1.6 | 0.8 | 8 | 1.28 | 1.54 | 50 | 4 | 4 | 5.8 | 8.38 | 8.66 | 8.94 | 9.25 | 9.93 | ○ |
| SPM200-BN2-1.6-12-V | | | 12 | | | 55 | | | 4.34 | 12.53 | 12.94 | 13.37 | 13.85 | 14.9 | ● |
| SPM200-BN2-1.6-16-V | | | 16 | | | 55 | | | 3.47 | 16.66 | 17.21 | 17.81 | 18.44 | 19.88 | ● |
| SPM200-BN2-1.6-20-V | | | 20 | | | 60 | | | 2.89 | 20.8 | 21.49 | 22.24 | 23.04 | - | ● |
| SPM200-BN2-1.8-8-V | 1.8 | 0.9 | 8 | 1.44 | 1.73 | 50 | 4 | 4 | 5.55 | 8.36 | 8.63 | 8.91 | 9.21 | 9.88 | ● |
| SPM200-BN2-1.8-12-V | | | 12 | | | 55 | | | 4.11 | 12.5 | 12.91 | 13.34 | 13.81 | 14.85 | ● |
| SPM200-BN2-1.8-16-V | | | 16 | | | 55 | | | 3.26 | 16.64 | 17.19 | 17.77 | 18.41 | 19.83 | ● |
| SPM200-BN2-1.8-20-V | | | 20 | | | 60 | | | 2.7 | 20.77 | 21.46 | 22.21 | 23.01 | - | ● |
| SPM200-BN2-2-3-V | 2 | 1 | 3 | 1.6 | 1.92 | 50 | 4 | 4 | 9.72 | 3.11 | 3.22 | 3.32 | 3.42 | 3.62 | ● |
| SPM200-BN2-2-4-V | | | 4 | | | 50 | | | 8.32 | 4.16 | 4.31 | 4.44 | 4.57 | 4.86 | ● |
| SPM200-BN2-2-6-V | | | 6 | | | 50 | | | 6.46 | 6.26 | 6.46 | 6.66 | 6.87 | 7.35 | ● |
| SPM200-BN2-2-8-V | | | 8 | | | 50 | | | 5.27 | 8.34 | 8.6 | 8.88 | 9.17 | 9.84 | ● |
| SPM200-BN2-2-10-V | | | 10 | | | 50 | | | 4.46 | 10.41 | 10.74 | 11.09 | 11.47 | 12.32 | ● |
| SPM200-BN2-2-12-V | | | 12 | | | 55 | | | 3.86 | 12.48 | 12.88 | 13.31 | 13.77 | 14.81 | ○ |
| SPM200-BN2-2-13-V | | | 13 | | | 55 | | | 3.62 | 13.51 | 13.95 | 14.42 | 14.92 | 16.05 | ● |
| SPM200-BN2-2-14-V | | | 14 | | | 55 | | | 3.4 | 14.55 | 15.02 | 15.53 | 16.07 | 17.29 | ● |
| SPM200-BN2-2-16-V | | | 16 | | | 55 | | | 3.04 | 16.62 | 17.16 | 17.74 | 18.37 | 19.78 | ● |

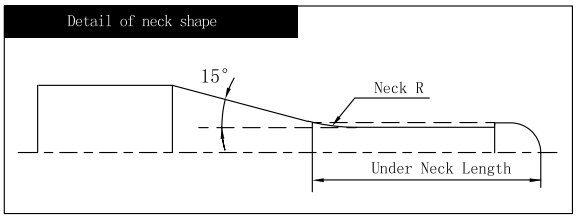
● Stock ○ Available upon Order

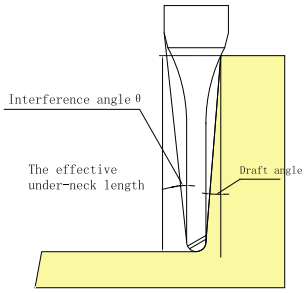
| R | Tol |
|---|---|
| R≤0.25 | ±0.003 |
| R>0.25 | ±0.005 |

Cutting Parameters ※ P534

# SPM200-BN2

2 Flute with Extended Neck,Ballnose







See page 149 for guidelines to icons

》Continue

| Ordering Code | Mill Dia. | R | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-BN2-2-18-V | 2 | 1 | 18 | 1.6 | 1.92 | 60 | 4 | 4 | 2.75 | 18.68 | 19.3 | 19.96 | 20.67 | - | ● |
| SPM200-BN2-2-20-V | | | 20 | | | 60 | | | 2.51 | 20.75 | 21.44 | 22.18 | 22.97 | - | ● |
| SPM200-BN2-2-22-V | | | 22 | | | 60 | | | 2.31 | 22.82 | 23.58 | 24.39 | 25.27 | - | ● |
| SPM200-BN2-2-25-V | | | 25 | | | 65 | | | 2.06 | 25.92 | 26.79 | 27.72 | 28.72 | - | ● |
| SPM200-BN2-2-30-V | | | 30 | | | 70 | | | 1.75 | 31.09 | 32.14 | 33.26 | - | - | ● |
| SPM200-BN2-2-35-V | | | 35 | | | 75 | | | 1.52 | 36.26 | 37.48 | 38.8 | - | - | ● |
| SPM200-BN2-2-40-V | | | 40 | | | 80 | | | 1.34 | 41.42 | 42.83 | - | - | - | ○ |
| SPM200-BN2-2.5-6-V | 2.5 | 1.25 | 6 | 2 | 2.4 | 50 | 4 | 4 | 5.62 | 6.22 | 6.41 | 6.6 | 6.8 | 7.25 | ● |
| SPM200-BN2-2.5-10-V | | | 10 | | | 50 | | | 3.69 | 10.37 | 10.69 | 11.03 | 11.4 | 12.23 | ● |
| SPM200-BN2-2.5-15-V | | | 15 | | | 55 | | | 2.59 | 15.54 | 16.04 | 16.58 | 17.15 | - | ● |
| SPM200-BN2-2.5-20-V | | | 20 | | | 60 | | | 1.99 | 20.71 | 21.39 | 22.12 | - | - | ● |
| SPM200-BN2-2.5-25-V | | | 25 | | | 65 | | | 1.62 | 25.88 | 26.74 | 27.66 | - | - | ● |
| SPM200-BN2-2.5-30-V | | | 30 | | | 70 | | | 1.36 | 31.05 | 32.09 | - | - | - | ● |
| SPM200-BN2-3-8-V | 3 | 1.5 | 8 | 2.4 | 2.88 | 55 | 6 | 4 | 7.04 | 8.27 | 8.51 | 8.77 | 9.04 | 9.65 | ● |
| SPM200-BN2-3-10-V | | | 10 | | | 55 | | | 6.05 | 10.34 | 10.65 | 10.98 | 11.34 | 12.14 | ● |
| SPM200-BN2-3-13-V | | | 13 | | | 60 | | | 5 | 13.44 | 13.86 | 14.31 | 14.79 | 15.87 | ○ |
| SPM200-BN2-3-16-V | | | 16 | | | 60 | | | 4.26 | 16.55 | 17.07 | 17.63 | 18.24 | 19.6 | ● |
| SPM200-BN2-3-20-V | | | 20 | | | 65 | | | 3.56 | 20.68 | 21.35 | 22.07 | 22.84 | 24.57 | ● |
| SPM200-BN2-3-25-V | | | 25 | | | 70 | | | 2.95 | 25.85 | 26.7 | 27.61 | 28.59 | - | ● |
| SPM200-BN2-3-30-V | | | 30 | | | 75 | | | 2.52 | 31.02 | 32.05 | 33.15 | 34.34 | - | ○ |
| SPM200-BN2-3-35-V | | | 35 | | | 80 | | | 2.2 | 36.19 | 37.39 | 38.69 | 40.08 | - | ● |
| SPM200-BN2-3.5-15-V | 3.5 | 1.75 | 15 | 2.8 | 3.36 | 60 | 6 | 4 | 3.99 | 15.49 | 15.96 | 16.48 | 17.03 | 18.27 | ● |
| SPM200-BN2-3.5-25-V | | | 25 | | | 70 | | | 2.56 | 25.82 | 26.66 | 27.56 | 28.53 | - | ● |
| SPM200-BN2-3.5-35-V | | | 35 | | | 80 | | | 1.89 | 36.16 | 37.36 | 38.64 | - | - | ● |

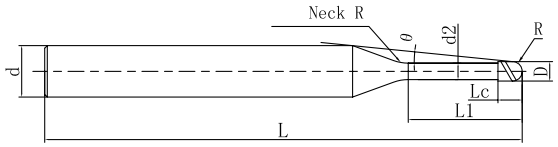
● Stock ○ Available upon Order

| R | Tol |
|---|---|
| R≤0.25 | ±0.003 |
| R>0.25 | ±0.005 |

Cutting Parameters ※ P534

# SPM200-BN2

2 Flute with Extended Neck,Ballnose









See page 149 for guidelines to icons

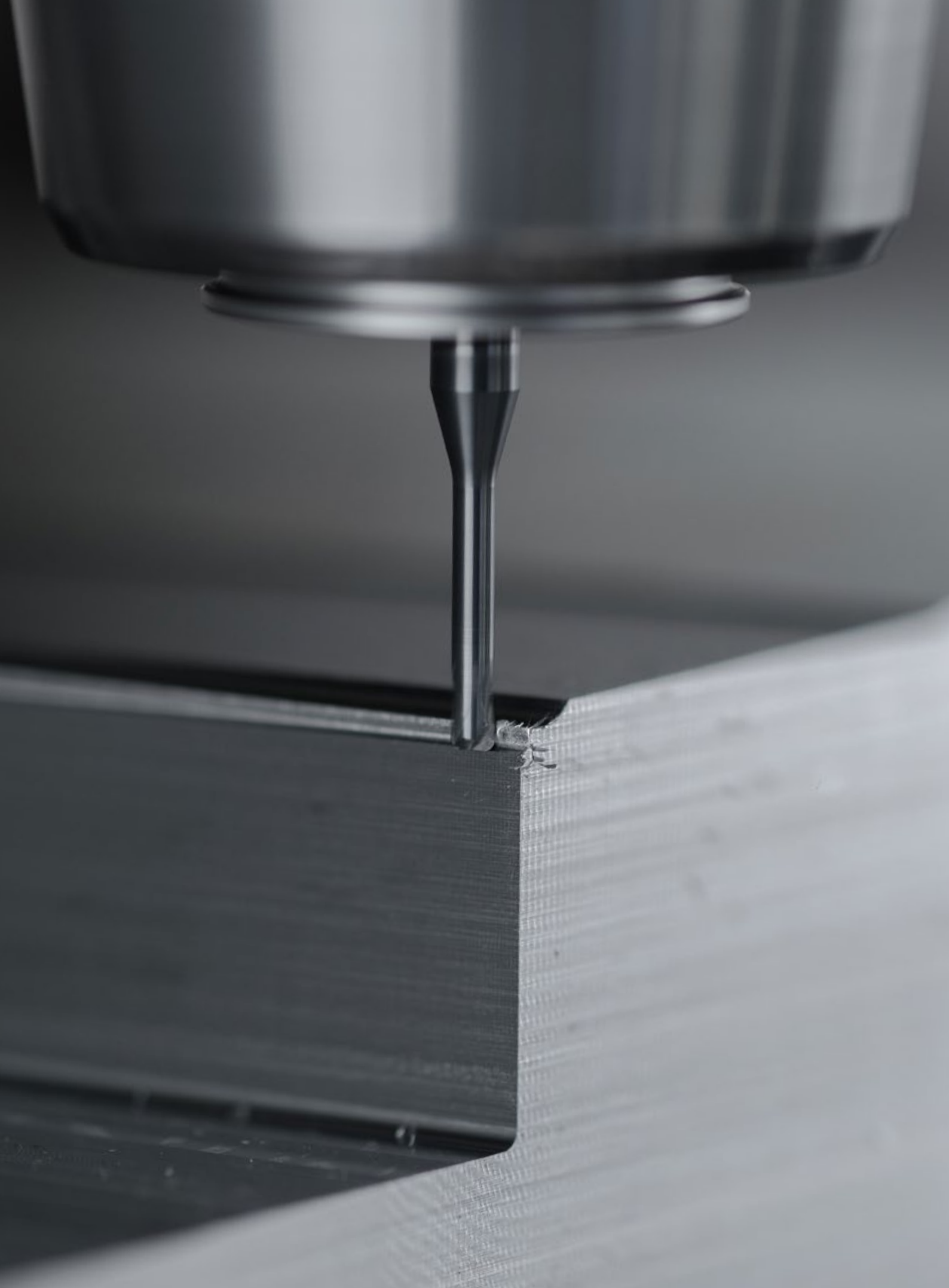
》Continue

| Ordering Code | Mill Dia. | R | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SPM200-BN2-3.5-45-V | 3.5 | 1.75 | 45 | 2.8 | 3.36 | 90 | 6 | 4 | 1.5 | 46.5 | 48.05 | - | - | - | ○ |
| SPM200-BN2-4-10-V | 4 | 2 | 10 | 3.2 | 3.86 | 55 | 6 | 4 | 4.86 | 10.31 | 10.6 | 10.91 | 11.24 | 11.99 | ○ |
| SPM200-BN2-4-13-V | | | 13 | | | 60 | | | 3.88 | 13.41 | 13.81 | 14.23 | 14.69 | 15.72 | ● |
| SPM200-BN2-4-16-V | | | 16 | | | 60 | | | 3.23 | 16.51 | 17.02 | 17.56 | 18.14 | 19.45 | ● |
| SPM200-BN2-4-20-V | | | 20 | | | 65 | | | 2.63 | 20.65 | 21.3 | 21.99 | 22.74 | - | ○ |
| SPM200-BN2-4-25-V | | | 25 | | | 70 | | | 2.14 | 25.81 | 26.64 | 27.53 | 28.49 | - | ● |
| SPM200-BN2-4-30-V | | | 30 | | | 75 | | | 1.81 | 30.98 | 31.99 | 33.08 | - | - | ○ |
| SPM200-BN2-4-35-V | | | 35 | | | 80 | | | 1.56 | 36.15 | 37.34 | 38.62 | - | - | ● |
| SPM200-BN2-4-40-V | | | 40 | | | 80 | | | 1.38 | 41.32 | 42.69 | - | - | - | ● |
| SPM200-BN2-4-45-V | | | 45 | | | 90 | | | 1.23 | 46.49 | 48.04 | - | - | - | ● |
| SPM200-BN2-4-50-V | | | 50 | | | 100 | | | 1.11 | 51.66 | 53.39 | - | - | - | ● |
| SPM200-BN2-5-20-V | 5 | 2.5 | 20 | 4 | 4.85 | 65 | 6 | 4 | 1.48 | 20.62 | 21.25 | - | - | - | ○ |
| SPM200-BN2-5-25-V | | | 25 | | | 70 | | | 1.18 | 25.79 | 26.6 | - | - | - | ● |
| SPM200-BN2-5-30-V | | | 30 | | | 75 | | | 0.98 | 30.96 | - | - | - | - | ○ |
| SPM200-BN2-5-40-V | | | 40 | | | 80 | | | 0.73 | 41.29 | - | - | - | - | ● |
| SPM200-BN2-6-12-V | 6 | 3 | 12 | 6 | 5.85 | 60 | 6 | - | - | - | - | - | - | - | ● |
| SPM200-BN2-6-20-V | | | 20 | | | 65 | | | - | - | - | - | - | - | ○ |
| SPM200-BN2-6-30-V | | | 30 | | | 75 | | | - | - | - | - | - | - | ● |
| SPM200-BN2-6-50-V | | | 50 | | | 100 | | | - | - | - | - | - | - | ○ |

● Stock ○ Available upon Order

| R | Tol |
|---|---|
| R≤0.25 | ±0.003 |
| R>0.25 | ±0.005 |

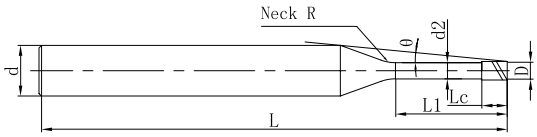
Cutting Parameters ※ P534



# SAM200-SN2

NEW

2 Flute with Extended Neck,Square






SHANK h5 | 2 | TiAlCrSiN | 30° Helix | Square

See page 149 for guidelines to icons

| Ordering Code | Mill Dia. | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SAM200-SN2-0.2-1-H | 0.2 | 1 | 0.3 | 0.17 | 50 | 4 | 1 | 13.19 | 1.05 | 1.09 | 1.13 | 1.17 | 1.26 | ● |
| SAM200-SN2-0.3-1.5-H | 0.3 | 1.5 | 0.45 | 0.27 | 50 | 4 | 2 | 12.31 | 1.59 | 1.67 | 1.74 | 1.81 | 1.96 | ● |
| SAM200-SN2-0.4-2-H | 0.4 | 2 | 0.6 | 0.37 | 50 | 4 | 2 | 11.57 | 2.12 | 2.22 | 2.30 | 2.39 | 2.58 | ● |
| SAM200-SN2-0.5-2-H | 0.5 | 2 | 0.75 | 0.47 | 50 | 4 | 2 | 11.49 | 2.12 | 2.22 | 2.30 | 2.39 | 2.58 | ● |
| SAM200-SN2-0.5-4-H | | 4 | | | | | | 9.37 | 4.21 | 4.36 | 4.52 | 4.69 | 5.07 | ● |
| SAM200-SN2-0.5-6-H | | 6 | | | | | | 7.90 | 6.28 | 6.50 | 6.73 | 6.99 | 7.55 | ○ |
| SAM200-SN2-0.5-8-H | | 8 | | | | | | 6.83 | 8.35 | 8.64 | 8.95 | 9.28 | 10.04 | ○ |
| SAM200-SN2-0.6-2-H | 0.6 | 2 | 0.9 | 0.57 | 50 | 4 | 4 | 11.21 | 2.17 | 2.32 | 2.45 | 2.56 | 2.78 | ● |
| SAM200-SN2-0.6-4-H | | 4 | | | | | | 9.13 | 4.30 | 4.52 | 4.70 | 4.87 | 5.27 | ● |
| SAM200-SN2-0.6-6-H | | 6 | | | | | | 7.70 | 6.40 | 6.67 | 6.91 | 7.17 | 7.75 | ○ |
| SAM200-SN2-0.6-8-H | | 8 | | | | | | 6.65 | 8.49 | 8.81 | 9.13 | 9.47 | 10.24 | ○ |
| SAM200-SN2-0.8-4-H | 0.8 | 4 | 1.2 | 0.76 | 50 | 4 | 4 | 8.94 | 4.28 | 4.48 | 4.66 | 4.83 | 5.22 | ● |
| SAM200-SN2-0.8-6-H | | 6 | | | | | | 7.49 | 6.37 | 6.63 | 6.87 | 7.13 | 7.71 | ○ |
| SAM200-SN2-0.8-8-H | | 8 | | | | | | 6.44 | 8.46 | 8.77 | 9.09 | 9.43 | 10.20 | ● |
| SAM200-SN2-0.8-10-H | | 10 | | | | | | 5.65 | 10.54 | 10.91 | 11.31 | 11.73 | 12.68 | ○ |
| SAM200-SN2-1-4-H | 1 | 4 | 1.5 | 0.96 | 50 | 4 | 4 | 8.70 | 4.28 | 4.48 | 4.66 | 4.83 | 5.22 | ● |
| SAM200-SN2-1-6-H | | 6 | | | 50 | | | 7.24 | 6.37 | 6.63 | 6.87 | 7.13 | 7.71 | ○ |
| SAM200-SN2-1-8-H | | 8 | | | 50 | | | 6.20 | 8.46 | 8.77 | 9.09 | 9.43 | 10.20 | ● |
| SAM200-SN2-1-10-H | | 10 | | | 50 | | | 5.42 | 10.54 | 10.91 | 11.31 | 11.73 | 12.68 | ○ |
| SAM200-SN2-1-12-H | | 12 | | | 55 | | | 4.82 | 12.61 | 13.05 | 13.52 | 14.03 | 15.17 | ● |
| SAM200-SN2-1-14-H | | 14 | | | 55 | | | 4.33 | 14.68 | 15.19 | 15.74 | 16.33 | 17.65 | ○ |
| SAM200-SN2-1.5-6-H | 1.5 | 6 | 2.25 | 1.44 | 50 | 4 | 4 | 6.59 | 6.33 | 6.58 | 6.82 | 7.07 | 7.64 | ● |
| SAM200-SN2-1.5-8-H | | 8 | | | 50 | | | 5.57 | 8.41 | 8.72 | 9.03 | 9.37 | 10.13 | ● |
| SAM200-SN2-1.5-12-H | | 12 | | | 55 | | | 4.25 | 12.56 | 13.00 | 13.47 | 13.97 | 15.10 | ○ |

● Stock ○ Available upon Order

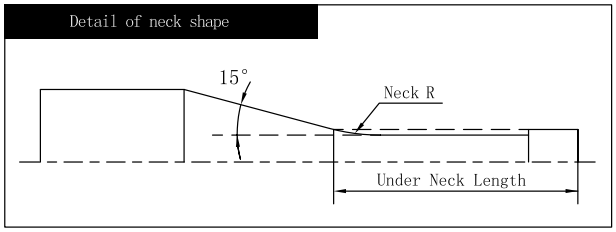
| R | Tol |
|---|---|
| 0.2≤D≤0.5 | $^{0}_{-0.007}$ |
| 0.6≤D≤0.9 | $^{0}_{-0.01}$ |
| 1.0≤D≤6.0 | $^{0}_{-0.015}$ |

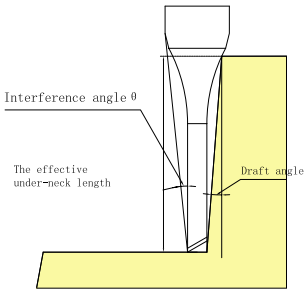
(mm)

Cutting Parameters ※ P545

# SAM200-SN2 NEW

2 Flute with Extended Neck,Square







See page 149 for guidelines to icons

》Continue

| Ordering Code | Mill Dia. | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SAM200-SN2-1.5-16-H | 1.5 | 16 | 2.25 | 1.44 | 55 | 4 | 4 | 3.44 | 16.69 | 17.27 | 17.90 | 18.57 | 20.08 | ○ |
| SAM200-SN2-1.5-18-H | | 18 | | | 60 | | | 3.14 | 18.76 | 19.41 | 20.12 | 20.87 | 22.56 | ○ |
| SAM200-SN2-2-6-H | 2 | 6 | 3 | 1.92 | 50 | 4 | 4 | 5.80 | 6.30 | 6.54 | 6.77 | 7.03 | 7.60 | ● |
| SAM200-SN2-2-8-H | | 8 | | | 50 | | | 4.83 | 8.38 | 8.68 | 8.99 | 9.33 | 10.08 | ● |
| SAM200-SN2-2-10-H | | 10 | | | 50 | | | 4.13 | 10.45 | 10.82 | 11.21 | 11.63 | 12.57 | ● |
| SAM200-SN2-2-12-H | | 12 | | | 55 | | | 3.61 | 12.52 | 12.96 | 13.42 | 13.93 | 15.06 | ● |
| SAM200-SN2-2-14-H | | 14 | | | 55 | | | 3.21 | 14.59 | 15.09 | 15.64 | 16.23 | 17.54 | ○ |
| SAM200-SN2-2-16-H | | 16 | | | 55 | | | 2.88 | 16.65 | 17.23 | 17.86 | 18.53 | - | ○ |
| SAM200-SN2-2-24-H | | 24 | | | 65 | | | 2.06 | 24.92 | 25.79 | 26.72 | 27.72 | - | ○ |
| SAM200-SN2-2.5-10-H | 2.5 | 10 | 3.75 | 2.4 | 55 | 4 | 4 | 3.33 | 10.42 | 10.78 | 11.17 | 11.59 | 12.53 | ● |
| SAM200-SN2-2.5-20-H | | 20 | | | 60 | | | 1.88 | 20.76 | 21.48 | 22.26 | - | - | ○ |
| SAM200-SN2-3-10-H | 3 | 10 | 4.5 | 2.88 | 50 | 6 | 4 | 5.47 | 10.40 | 10.76 | 11.15 | 11.57 | 12.51 | ● |
| SAM200-SN2-3-12-H | | 12 | | | 60 | | | 4.86 | 12.47 | 12.90 | 13.37 | 13.87 | 14.99 | ● |
| SAM200-SN2-3-20-H | | 20 | | | 65 | | | 3.35 | 20.74 | 21.46 | 22.23 | 23.07 | 24.94 | ● |
| SAM200-SN2-3-24-H | | 24 | | | 70 | | | 2.90 | 24.87 | 25.74 | 26.67 | 27.67 | - | ○ |
| SAM200-SN2-3-36-H | | 36 | | | 75 | | | 2.06 | 37.27 | 38.57 | 39.97 | 41.46 | - | ○ |
| SAM200-SN2-4-16-H | 4 | 16 | 6 | 3.86 | 60 | 6 | 4 | 2.89 | 16.58 | 17.16 | 17.78 | 18.45 | - | ● |
| SAM200-SN2-4-25-H | | 25 | | | 70 | | | 1.99 | 25.89 | 26.79 | 27.76 | - | - | ○ |
| SAM200-SN2-4-32-H | | 32 | | | 80 | | | 1.60 | 33.12 | 34.28 | 35.51 | - | - | ● |
| SAM200-SN2-4-48-H | | 48 | | | 100 | | | 1.11 | 49.66 | 51.39 | - | - | - | ○ |
| SAM200-SN2-5-16-H | 5 | 16 | 7.5 | 4.85 | 70 | 6 | 4 | 1.60 | 16.58 | 17.15 | 17.77 | - | - | ● |
| SAM200-SN2-5-25-H | | 25 | | | 70 | | | 1.06 | 25.88 | 26.78 | - | - | - | ● |
| SAM200-SN2-6-20-H | 6 | 20 | 9 | 5.85 | 70 | 6 | 4 | - | - | - | - | - | - | ● |
| SAM200-SN2-6-30-H | | 30 | | | 80 | | | - | - | - | - | - | - | ● |

● Stock ○ Available upon Order

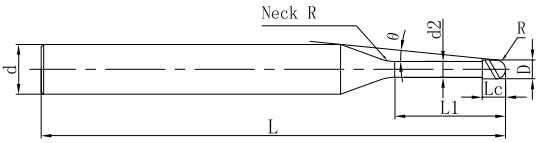
| R | Tol |
|---|---|
| 0.2≤D≤0.5 | 0 -0.007 |
| 0.6≤D≤0.9 | 0 -0.01 |
| 1.0≤D≤6.0 | 0 -0.015 |

(mm)

Cutting Parameters ※ P545

# SAM200-BN2 NEW

2 Flute with Extended Neck,Ballnose









See page 149 for guidelines to icons

》Continue

| Ordering Code | Mill Dia. | R | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SAM200-BN2-0.2-1-H | 0.2 | 0.1 | 1 | 0.16 | 0.17 | 50 | 4 | 1 | 13.35 | 1.04 | 1.08 | 1.11 | 1.15 | 1.24 | ● |
| SAM200-BN2-0.4-2-H | 0.4 | 0.2 | 2 | 0.32 | 0.37 | 50 | 4 | 2 | 11.83 | 2.11 | 2.20 | 2.28 | 2.36 | 2.53 | ● |
| SAM200-BN2-0.4-3-H | | | 3 | | | | | | 10.63 | 3.16 | 3.28 | 3.39 | 3.51 | 3.77 | ● |
| SAM200-BN2-0.4-4-H | | | 4 | | | | | | 9.64 | 4.20 | 4.34 | 4.49 | 4.66 | 5.02 | ○ |
| SAM200-BN2-0.4-5-H | | | 5 | | | | | | 8.83 | 5.24 | 5.41 | 5.60 | 5.81 | 6.26 | ○ |
| SAM200-BN2-0.5-2-H | 0.5 | 0.25 | 2 | 0.4 | 0.47 | 50 | 4 | 2 | 11.83 | 2.11 | 2.20 | 2.27 | 2.35 | 2.52 | ● |
| SAM200-BN2-0.5-4-H | | | 4 | | | | | | 9.59 | 4.20 | 4.34 | 4.49 | 4.65 | 5.00 | ● |
| SAM200-BN2-0.5-6-H | | | 6 | | | | | | 8.06 | 6.27 | 6.48 | 6.71 | 6.95 | 7.49 | ○ |
| SAM200-BN2-0.6-2-H | 0.6 | 0.3 | 2 | 0.48 | 0.57 | 50 | 4 | 4 | 11.60 | 2.15 | 2.28 | 2.40 | 2.51 | 2.71 | ● |
| SAM200-BN2-0.6-4-H | | | 4 | | | | | | 9.39 | 4.28 | 4.49 | 4.66 | 4.83 | 5.19 | ● |
| SAM200-BN2-0.6-6-H | | | 6 | | | | | | 7.88 | 6.39 | 6.65 | 6.88 | 7.13 | 7.68 | ● |
| SAM200-BN2-0.6-8-H | | | 8 | | | | | | 6.79 | 8.48 | 8.79 | 9.10 | 9.43 | 10.17 | ○ |
| SAM200-BN2-0.8-4-H | 0.8 | 0.4 | 4 | 0.64 | 0.76 | 50 | 4 | 4 | 9.30 | 4.25 | 4.45 | 4.61 | 4.77 | 5.13 | ● |
| SAM200-BN2-0.8-6-H | | | 6 | | | | | | 7.74 | 6.36 | 6.61 | 6.83 | 7.07 | 7.61 | ● |
| SAM200-BN2-0.8-8-H | | | 8 | | | | | | 6.63 | 8.45 | 8.75 | 9.05 | 9.37 | 10.10 | ○ |
| SAM200-BN2-0.8-10-H | | | 10 | | | | | | 5.79 | 10.53 | 10.88 | 11.26 | 11.67 | 12.58 | ○ |
| SAM200-BN2-1-4-H | 1 | 0.5 | 4 | 0.8 | 0.96 | 50 | 4 | 4 | 9.16 | 4.25 | 4.44 | 4.60 | 4.76 | 5.10 | ● |
| SAM200-BN2-1-6-H | | | 6 | | | 50 | | | 9.44 | 6.35 | 6.60 | 6.82 | 7.06 | 7.59 | ● |
| SAM200-BN2-1-8-H | | | 8 | | | 50 | | | 6.43 | 8.44 | 8.74 | 9.04 | 9.36 | 10.07 | ○ |
| SAM200-BN2-1-10-H | | | 10 | | | 50 | | | 5.60 | 10.52 | 10.88 | 11.25 | 11.66 | 12.56 | ● |
| SAM200-BN2-1-12-H | | | 12 | | | 55 | | | 4.96 | 12.59 | 13.02 | 13.47 | 13.96 | 15.05 | ○ |

● Stock ○ Available upon Order

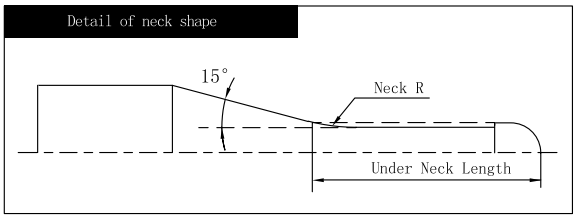
| R | Tol |
|---|---|
| R≤0.25 | ±0.003 |
| R>0.25 | ±0.005 |

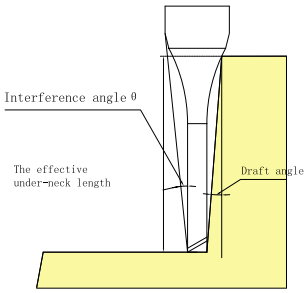
(mm)

Cutting Parameters ※ P547

# SAM200-BN2 NEW

2 Flute with Extended Neck,Ballnose







See page 149 for guidelines to icons

》Continue

| Ordering Code | Mill Dia. | R | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SAM200-BN2-1.5-6-H | 1.5 | 0.75 | 6 | 1.2 | 1.44 | 50 | 4 | 4 | 7.08 | 6.30 | 6.53 | 6.73 | 6.96 | 7.46 | ● |
| SAM200-BN2-1.5-8-H | | | 8 | | | 50 | | | 5.92 | 8.38 | 8.67 | 8.95 | 9.26 | 9.95 | ● |
| SAM200-BN2-1.5-10-H | | | 10 | | | 50 | | | 5.08 | 10.46 | 10.80 | 11.17 | 11.56 | 12.44 | ● |
| SAM200-BN2-1.5-12-H | | | 12 | | | 55 | | | 4.45 | 12.53 | 12.94 | 13.38 | 13.86 | 14.92 | ● |
| SAM200-BN2-1.5-16-H | | | 16 | | | 55 | | | 3.56 | 16.67 | 17.22 | 17.82 | 18.46 | 19.89 | ○ |
| SAM200-BN2-1.5-18-H | | | 18 | | | 60 | | | 3.24 | 18.74 | 19.36 | 20.03 | 20.76 | 22.38 | ○ |
| SAM200-BN2-2-6-H | 2 | 1 | 6 | 1.6 | 1.92 | 50 | 4 | 4 | 6.45 | 6.26 | 6.47 | 6.67 | 6.88 | 7.35 | ● |
| SAM200-BN2-2-8-H | | | 8 | | | 50 | | | 5.27 | 8.34 | 8.61 | 8.88 | 9.18 | 9.84 | ● |
| SAM200-BN2-2-10-H | | | 10 | | | 50 | | | 4.45 | 10.42 | 10.75 | 11.10 | 11.48 | 12.33 | ● |
| SAM200-BN2-2-12-H | | | 12 | | | 55 | | | 3.85 | 12.49 | 12.89 | 13.32 | 13.78 | 14.81 | ○ |
| SAM200-BN2-2-16-H | | | 16 | | | 55 | | | 3.04 | 16.62 | 17.16 | 17.75 | 18.38 | 19.79 | ● |
| SAM200-BN2-2-20-H | | | 20 | | | 60 | | | 2.51 | 20.76 | 21.44 | 22.18 | 22.98 | - | ○ |
| SAM200-BN2-2-24-H | | | 24 | | | 70 | | | 2.13 | 24.89 | 25.72 | 26.61 | 27.58 | - | ○ |
| SAM200-BN2-3-8-H | 3 | 1.5 | 8 | 2.4 | 2.88 | 55 | 6 | 4 | 7.03 | 8.28 | 8.52 | 8.77 | 9.04 | 9.66 | ● |
| SAM200-BN2-3-10-H | | | 10 | | | 60 | | | 6.05 | 10.35 | 10.66 | 10.99 | 11.34 | 12.14 | ● |
| SAM200-BN2-3-12-H | | | 12 | | | 60 | | | 5.30 | 12.42 | 12.80 | 13.20 | 13.64 | 14.63 | ● |
| SAM200-BN2-3-16-H | | | 16 | | | 60 | | | 4.26 | 16.55 | 17.07 | 17.64 | 18.24 | 19.60 | ● |
| SAM200-BN2-3-20-H | | | 20 | | | 65 | | | 3.55 | 20.69 | 21.35 | 22.07 | 22.84 | 24.57 | ○ |
| SAM200-BN2-3-25-H | | | 25 | | | 70 | | | 2.94 | 25.85 | 26.70 | 27.61 | 28.59 | - | ● |
| SAM200-BN2-3-30-H | | | 30 | | | 75 | | | 2.51 | 31.02 | 32.05 | 33.15 | 34.34 | - | ○ |
| SAM200-BN2-3-36-H | | | 36 | | | 80 | | | 2.14 | 37.22 | 38.47 | 39.80 | 41.24 | - | ○ |

● Stock ○ Available upon Order

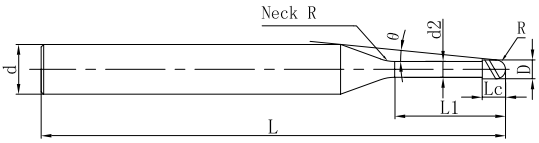
| R | Tol |
|---|---|
| R≤0.25 | ±0.003 |
| R>0.25 | ±0.005 |

(mm)

Cutting Parameters ※ P547

# SAM200-BN2 NEW

2 Flute with Extended Neck,Ballnose









See page 149 for guidelines to icons

》Continue

| Ordering Code | Mill Dia. | R | Under Neck Length | Flute Length | Neck Dia. | Overall Length | Shank Dia. | Neck | Interference Angle | The effective under-neck length for the various draft angles | | | | | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 0.5° | 1° | 1.5° | 2° | 3° | |
| SAM200-BN2-4-10-H | 4 | 2 | 10 | 3.2 | 3.86 | 55 | 6 | 4 | 4.85 | 10.31 | 10.60 | 10.91 | 11.25 | 12.00 | ● |
| SAM200-BN2-4-12-H | | | 12 | | | 60 | | | 4.15 | 12.38 | 12.74 | 13.13 | 13.55 | 14.48 | ● |
| SAM200-BN2-4-16-H | | | 16 | | | 60 | | | 3.22 | 16.52 | 17.02 | 17.56 | 18.15 | 19.46 | ● |
| SAM200-BN2-4-20-H | | | 20 | | | 65 | | | 2.63 | 20.65 | 21.30 | 22.00 | 22.75 | - | ● |
| SAM200-BN2-4-25-H | | | 25 | | | 70 | | | 2.14 | 25.82 | 26.65 | 27.54 | 28.50 | - | ● |
| SAM200-BN2-4-32-H | | | 32 | | | 75 | | | 1.70 | 33.05 | 34.14 | 35.30 | - | - | ○ |
| SAM200-BN2-4-35-H | | | 35 | | | 80 | | | 1.56 | 36.16 | 37.35 | 38.62 | - | - | ○ |
| SAM200-BN2-4-48-H | | | 48 | | | 90 | | | 1.15 | 49.59 | 51.25 | - | - | - | ○ |
| SAM200-BN2-5-16-H | 5 | 2.5 | 16 | 4 | 4.85 | 65 | 6 | 4 | 1.86 | 16.49 | 16.98 | 17.50 | - | - | ● |
| SAM200-BN2-5-20-H | | | 20 | | | 70 | | | 1.48 | 20.63 | 21.26 | - | - | - | ● |
| SAM200-BN2-5-25-H | | | 25 | | | 75 | | | 1.17 | 25.79 | 26.61 | - | - | - | ● |
| SAM200-BN2-5-40-H | | | 40 | | | 80 | | | 0.73 | 41.30 | - | - | - | - | ○ |
| SAM200-BN2-6-12-H | 6 | 3 | 12 | 4.8 | 5.85 | 60 | 6 | - | - | - | - | - | - | - | ● |
| SAM200-BN2-6-20-H | | | 20 | | | 65 | | | - | - | - | - | - | - | ● |
| SAM200-BN2-6-30-H | | | 30 | | | 75 | | | - | - | - | - | - | - | ○ |
| SAM200-BN2-6-50-H | | | 50 | | | 100 | | | - | - | - | - | - | - | ○ |

● Stock ○ Available upon Order

| R | Tol |
|---|---|
| R≤0.25 | ±0.003 |
| R>0.25 | ±0.005 |

(mm)

Cutting Parameters ※ P547

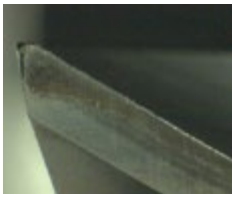
# Case Study

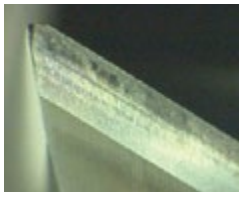
## UP210 Stamp die Machining

| Model | UP210-SL4-12045 |
|---|---|
| Spec | D12*45*100*d12 |
| Workpiece | H13（45HRC） |
| Cutting Speed | 2600RPM(100m/min) |
| Feed Rate | 1600mm/min（0.15mm/z） |
| Cutting Method | Side Milling |
| Cutting Depth | ap=30mm，ae=0.05~0.2mm |
| Cooling Method | Air Cooling |


Workpiece


Profiling


A

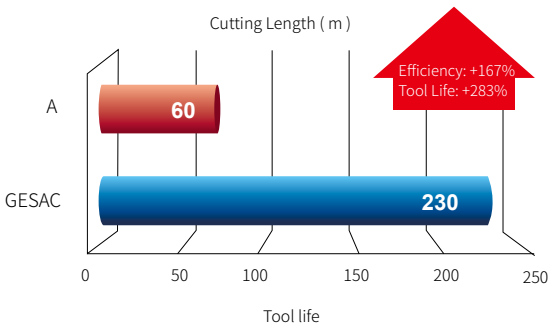

GESAC

Wear Condition after Cutting 1.5H

## SP210 Type Block Contour Finishing

| Model | SP210-S4-10025 |
|---|---|
| Spec | D10*25*75*d10 |
| Workpiece | Q235A(HB200) |
| Cutting Speed | 5100RPM(160m/min) |
| Feed Rate | 1600mm/min（0.078mm/z） |
| Cutting Method | Contour Finishing |
| Cutting Depth | ap=5-12mm,ae=0.15mm |
| Cooling Method | Emulsion |

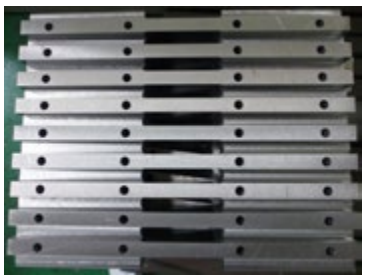


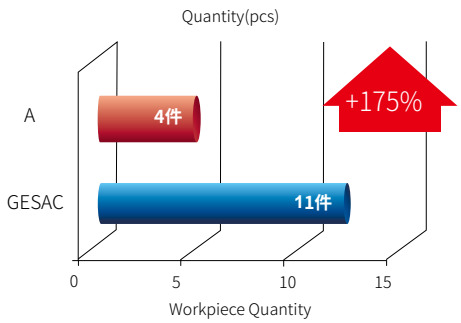


# Case Study

## UPR210 Magnechuck machining

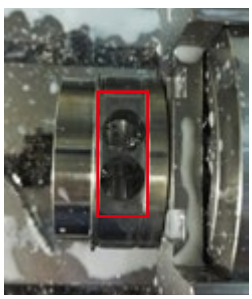
| Model | UPR210-S4-10025 |
|---|---|
| Spec | D10*C0.3*25*75*d10 |
| Workpiece | 45#(180HB) |
| Cutting Speed | 172.7m/min (5500rpm) |
| Feed Rate | 600mm/min（0.027mm/z） |
| Cutting Method | Side Milling |
| Cutting Depth | ap=6mm,ae=10mm |
| Cooling Method | Emulsion |



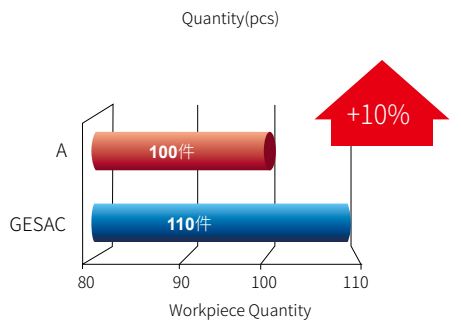



## UPR300 Output Shaft side milling

| Model | UPR300-S4-10025 |
|---|---|
| Spec | D10*C0.3*25*75*d10 |
| Workpiece | SCM440（30HRC） |
| Cutting Speed | 4777rpm (150m/min) |
| Feed Rate | 0.012mm/z（238mm/min） |
| Cutting Method | Side Milling |
| Cutting Depth | ap=20mm,ae=5mm |
| Cooling Method | Emulsion |







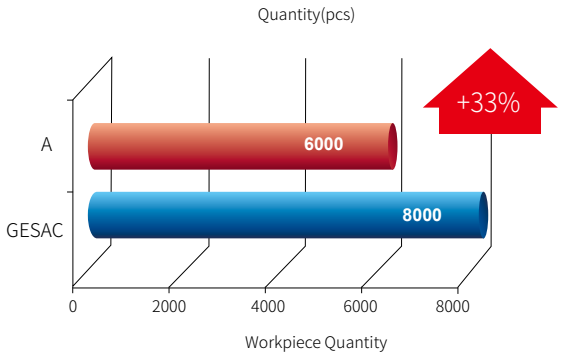
# Case Study

## US300 Cellphone Charge Jack machining

| Model | US300-S4-01503 |
|---|---|
| Spec | D1.5*3*50*d4 |
| Workpiece | SUS316L（HB150-200） |
| Cutting Speed | 8000rpm (37.68m/min) |
| Feed Rate | Plunge Milling 20mm/min<br>Side Milling 200mm/min |
| Cutting Method | Plunge milling, Side milling |
| Cutting Depth | ap=2.6 mm，ae=0.32 mm |
| Cooling Method | Oil Cooling |



Machining zone marked as Red

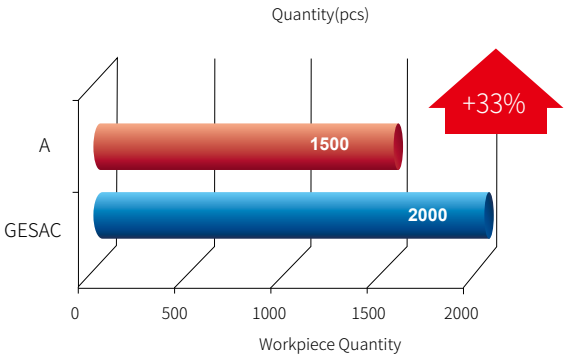



## SA100 Cellphone cavity milling

| Model | SA100-S3-06012 |
|---|---|
| Spec | D6*12*50*d6 |
| Workpiece | AL6063 |
| Cutting Speed | 16000RPM(301.44m/min) |
| Feed Rate | 0.083mm/z(4000mm/min) |
| Cutting Method | Face milling |
| Cutting Depth | ap=0.8mm，ae=4.8mm |
| Cooling Method | Emuslion |



Machining zone marked as Red

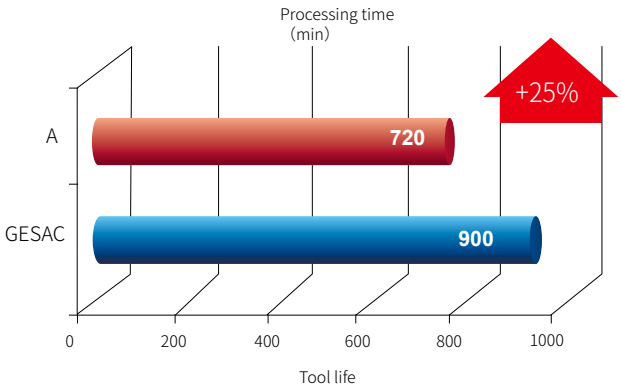


# Case Study

## SG200 Graphite Electrode Machining

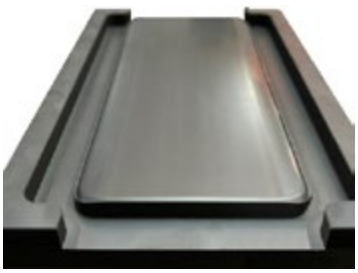
| Model | SG200-RN4-10005 |
|---|---|
| Spec | D10*R0.5*15*45*100*d10 |
| Workpiece | Graphite |
| Cutting Speed | 9000RPM(280m/min) |
| Feed Rate | 4000mm/min（0.11mm/z） |
| Cutting Method | Side Milling |
| Cutting Depth | ap=0.15mm，ae=0.25mm |
| Cooling Method | Air Cooling |

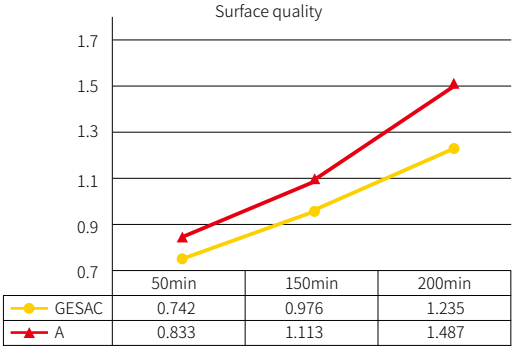





## SG200 Graphite Mold Machining

| Model | SG200-M-BN2 |
|---|---|
| Spec | Terrace Die：R0.75*5*10*50*d4 |
| Workpiece | HK-75 |
| Cutting Speed | 15000 RPM |
| Feed Rate | 3500mm/min |
| Cutting Method | Profile Milling |
| Cutting Depth | ap=0.05mm，ae=0.03mm |
| Cooling Method | Dry, Dust extraction |





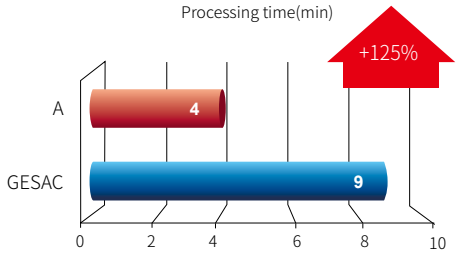

| | 50min | 150min | 200min |
|---|---|---|---|
| GESAC | 0.742 | 0.976 | 1.235 |
| A | 0.833 | 1.113 | 1.487 |

# Case Study

## SH260-H Automobile die machining NEW

| Model | SH260-B2-10-15-H |
|---|---|
| Spec | R5*15*75*d10 |
| Workpiece | NAK80（48-52HRC） |
| Cutting Speed | 4000RPM（126.6m/min） |
| Feed Rate | 2000mm/min（0.25mm/z） |
| Cutting Method | Profile Milling |
| Cutting Depth | ap=0.1mm |
| Cooling Method | Air Cooling |

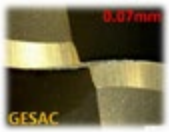





## SH300-H Male die of automobile

| Model | SH300-BH2-06009E-H |
|---|---|
| Spec | R3*9*75*d6 |
| Workpiece | SKD11（62HRC） |
| Cutting Speed | 10000RPM（188.4m/min） |
| Feed Rate | 1200mm/min（0.06mm/z） |
| Cutting Method | Profile Milling |
| Cutting Depth | ap=0.03mm，ae=0.05mm |
| Cooling Method | Oil Cooling |



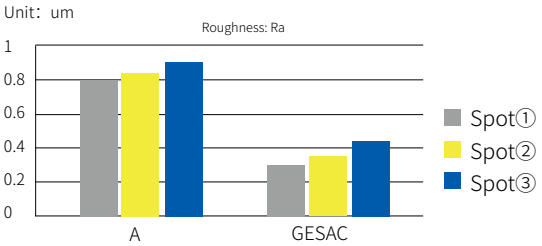










after 9 hours continually profile milling



# Case Study

## FH200-H:SKD11 Rough Machining

| Model | FH200-R6-12008-H |
|---|---|
| Spec | D12*R0.75*10*36*100*d12*D11.5 |
| Workpiece | SKD11(60HRC) |
| Cutting Speed | 1592RPM(60m/min) |
| Feed Rate | 1911mm/min (0.2mm/z) |
| Cutting Method | Face Milling |
| Cutting Depth | ap=0.25mm，ae=6mm |
| Cooling Method | Air Cooling |



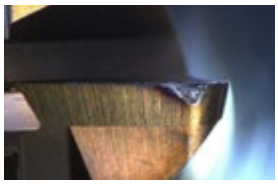
Machining Process



Chip Form



GESAC



A

## SPM200 High Precision Copper-Tungsten Electrode Mold Finishing Machining

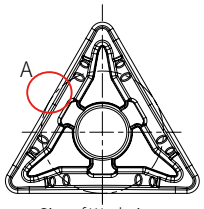
| Model | SPM200-BN2-0.6-4-V |
|---|---|
| Type | 2 Flute, Extended Neck,Ballnose, Coating |
| Spec | R0.3*0.48*4*50*d4*D0.57 |
| Workpiece | Copper-Tungsten(25~30HRC) |
| Machine | Germany Karn (KARN-771) |
| Tool Holder | HSK—E25 Heat Shrinkable Tool Holder |
| Cutting Speed | 30000RPM(56m/min) |
| Feed Rate | 500mm/min |
| Cutting Method | Profile Milling, Finishing |
| Cutting Depth | ap=0.01mm，ae=0.02mm |
| Cooling Method | Oil Mis |
| Workpiece | Angles Tol. : ± 15 ′,<br>Surface Roughness: Ra＜0.1μm |



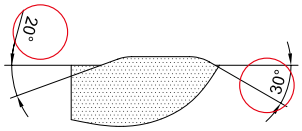
Cutting Tool



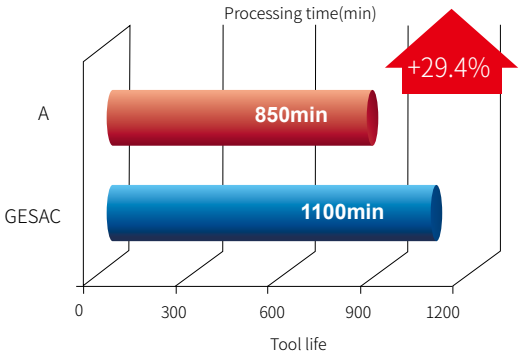
Workpiece




Size of Workpiece




Enlarged view of zone A



# Recommended Cutting Data

## UP210- SS2/S2/SL2 /SH2/R2/RH2
Side Milling : For Steel, Cast Iron

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 3 | 4 | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | Carbon Steel,Alloy (<35HRC) | ap≤1.5D | 180 | n | 19110 | 14330 | 9550 | 7170 | 5730 | 4780 | 3580 | 2870 |
| | | ae≤0.15D | | Vf | 1070 | 1030 | 920 | 930 | 920 | 860 | 860 | 860 |
| | Alloy Steel (35-48HRC) | ap≤1D | 130 | n | 13800 | 10350 | 6900 | 5180 | 4140 | 3450 | 2590 | 2070 |
| | | ae≤0.12D | | Vf | 610 | 580 | 550 | 620 | 560 | 500 | 410 | 370 |
| M | Stainless Steel | ap≤1.5D | 130 | n) | 13800 | 10350 | 6900 | 5180 | 4140 | 3450 | 2590 | 2070 |
| | | ae≤0.15D | | Vf) | 690 | 660 | 590 | 650 | 610 | 590 | 490 | 460 |
| K | Gray Cast Iron Nodular Cast Iron (<32HRC) | ap≤1.5D | 160 | n | 16990 | 12740 | 8490 | 6370 | 5100 | 4250 | 3190 | 2550 |
| | | ae≤0.15D | | Vf | 850 | 820 | 820 | 750 | 700 | 680 | 610 | 560 |
| | High Alloy Cast Iron (35-45HRC) | ap≤1D | 140 | n | 14860 | 11150 | 7430 | 5570 | 4460 | 3720 | 2790 | 2230 |
| | | ae≤0.12D | | Vf | 650 | 670 | 670 | 620 | 580 | 560 | 500 | 460 |

## UP210- S3
Side Milling : For Steel, Cast Iron

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 3 | 4 | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | Carbon Steel,Alloy (<35HRC) | ap≤1.5D | 180 | n | 19110 | 14330 | 9550 | 7170 | 5730 | 4780 | 3580 | 2870 |
| | | ae≤0.15D | | Vf | 1610 | 1550 | 1380 | 1400 | 1380 | 1290 | 1290 | 1290 |
| | Alloy Steel (35-48HRC) | ap≤1D | 130 | n | 13800 | 10350 | 6900 | 5180 | 4140 | 3450 | 2590 | 2070 |
| | | ae≤0.12D | | Vf | 910 | 870 | 830 | 930 | 850 | 760 | 620 | 560 |
| M | Stainless Steel | ap≤1.5D | 130 | n) | 13800 | 10350 | 6900 | 5180 | 4140 | 3450 | 2590 | 2070 |
| | | ae≤0.15D | | Vf) | 1040 | 990 | 890 | 980 | 920 | 880 | 740 | 680 |
| K | Gray Cast Iron Nodular Cast Iron (<32HRC) | ap≤1.5D | 160 | n | 16990 | 12740 | 8490 | 6370 | 5100 | 4250 | 3190 | 2550 |
| | | ae≤0.15D | | Vf | 1270 | 1220 | 1220 | 1130 | 1060 | 1020 | 910 | 840 |
| | High Alloy Cast Iron (35-45HRC) | ap≤1D | 140 | n | 14860 | 11150 | 7430 | 5570 | 4460 | 3720 | 2790 | 2230 |
| | | ae≤0.12D | | Vf | 980 | 1000 | 1000 | 940 | 870 | 840 | 750 | 680 |

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia ).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

# Recommended Cutting Data

## UP210- SS4/S4/SC4/S4A/SL4 /SH4/R4/R4A/RH4
Side Milling : For Steel, Cast Iron

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 3 | 4 | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | Carbon Steel,Alloy (<35HRC) | ap≤1.5D | 180 | n | 19110 | 14330 | 9550 | 7170 | 5730 | 4780 | 3580 | 2870 |
| | | ae≤0.15D | | Vf | 2140 | 2060 | 1830 | 1860 | 1830 | 1720 | 1720 | 1720 |
| | Alloy Steel (35-48HRC) | ap≤1D | 130 | n | 13800 | 10350 | 6900 | 5180 | 4140 | 3450 | 2590 | 2070 |
| | | ae≤0.12D | | Vf | 1210 | 1160 | 1100 | 1240 | 1130 | 1010 | 830 | 750 |
| M | Stainless Steel | ap≤1.5D | 130 | n) | 13800 | 10350 | 6900 | 5180 | 4140 | 3450 | 2590 | 2070 |
| | | ae≤0.15D | | Vf) | 1380 | 1330 | 1190 | 1300 | 1230 | 1170 | 980 | 910 |
| K | Gray Cast Iron Nodular Cast Iron (<32HRC) | ap≤1.5D | 160 | n | 16990 | 12740 | 8490 | 6370 | 5100 | 4250 | 3190 | 2550 |
| | | ae≤0.15D | | Vf | 1700 | 1630 | 1630 | 1500 | 1410 | 1360 | 1210 | 1120 |
| | High Alloy Cast Iron (35-45HRC) | ap≤1D | 140 | n | 14860 | 11150 | 7430 | 5570 | 4460 | 3720 | 2790 | 2230 |
| | | ae≤0.12D | | Vf | 1310 | 1340 | 1340 | 1250 | 1160 | 1120 | 1000 | 910 |

## UP210- S6
Side Milling : For Steel, Cast Iron

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 3 | 4 | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | Carbon Steel,Alloy (<35HRC) | ap≤1.5D | 180 | n | 19110 | 14330 | 9550 | 7170 | 5730 | 4780 | 3580 | 2870 |
| | | ae≤0.15D | | Vf | 3210 | 3100 | 2750 | 2800 | 2750 | 2580 | 2580 | 2580 |
| | Alloy Steel (35-48HRC) | ap≤1D | 130 | n | 13800 | 10350 | 6900 | 5180 | 4140 | 3450 | 2590 | 2070 |
| | | ae≤0.12D | | Vf | 1820 | 1740 | 1660 | 1860 | 1690 | 1510 | 1240 | 1120 |
| M | Stainless Steel | ap≤1.5D | 130 | n) | 13800 | 10350 | 6900 | 5180 | 4140 | 3450 | 2590 | 2070 |
| | | ae≤0.15D | | Vf) | 2070 | 1990 | 1780 | 1960 | 1840 | 1760 | 1480 | 1370 |
| K | Gray Cast Iron Nodular Cast Iron (<32HRC) | ap≤1.5D | 160 | n | 16990 | 12740 | 8490 | 6370 | 5100 | 4250 | 3190 | 2550 |
| | | ae≤0.15D | | Vf | 2550 | 2450 | 2450 | 2260 | 2110 | 2040 | 1820 | 1680 |
| | High Alloy Cast Iron (35-45HRC) | ap≤1D | 140 | n | 14860 | 11150 | 7430 | 5570 | 4460 | 3720 | 2790 | 2230 |
| | | ae≤0.12D | | Vf | 1960 | 2010 | 2010 | 1870 | 1740 | 1670 | 1510 | 1360 |

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia ).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

# Recommended Cutting Data

## UP210- SS2/S2/SL2/SH2/R2/RH2
Slot Milling : For Steel, Cast Iron

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 3 | 4 | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | Carbon Steel,Alloy (<35HRC) | ap≤0.8D | 80 | n | 8490 | 6370 | 4250 | 3190 | 2550 | 2120 | 1590 | 1270 |
| | | | | Vf | 430 | 540 | 440 | 400 | 370 | 350 | 400 | 410 |
| | Alloy Steel (35-48HRC) | ap≤0.3D | 60 | n | 6370 | 4780 | 3190 | 2390 | 1910 | 1590 | 1190 | 960 |
| | | | | Vf | 260 | 310 | 270 | 230 | 220 | 220 | 230 | 230 |
| M | Stainless Steel | ap≤0.3D | 55 | n) | 5840 | 4380 | 2920 | 2190 | 1750 | 1460 | 1100 | 880 |
| | | | | Vf) | 140 | 160 | 200 | 200 | 200 | 190 | 170 | 160 |
| K | Gray Cast Iron Nodular Cast Iron (<32HRC) | ap≤0.5D | 55 | n | 5840 | 4380 | 2920 | 2190 | 1750 | 1460 | 1100 | 880 |
| | | | | Vf | 210 | 250 | 250 | 220 | 210 | 200 | 190 | 170 |
| | High Alloy Cast Iron (35-45HRC) | ap≤0.3D | 50 | n | 5310 | 3980 | 2650 | 1990 | 1590 | 1330 | 1000 | 800 |
| | | | | Vf | 160 | 180 | 210 | 180 | 180 | 170 | 160 | 140 |

## UP210- S3
Slot Milling : For Steel, Cast Iron

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 3 | 4 | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | Carbon Steel,Alloy (<35HRC) | ap≤0.8D | 80 | n | 8490 | 6370 | 4250 | 3190 | 2550 | 2120 | 1590 | 1270 |
| | | | | Vf | 640 | 800 | 660 | 590 | 550 | 520 | 600 | 610 |
| | Alloy Steel (35-48HRC) | ap≤0.3D | 60 | n | 6370 | 4780 | 3190 | 2390 | 1910 | 1590 | 1190 | 960 |
| | | | | Vf | 380 | 460 | 400 | 340 | 330 | 330 | 340 | 340 |
| M | Stainless Steel | ap≤0.3D | 55 | n) | 5840 | 4380 | 2920 | 2190 | 1750 | 1460 | 1100 | 880 |
| | | | | Vf) | 210 | 240 | 310 | 300 | 290 | 290 | 260 | 240 |
| K | Gray Cast Iron Nodular Cast Iron (<32HRC) | ap≤0.5D | 55 | n | 5840 | 4380 | 2920 | 2190 | 1750 | 1460 | 1100 | 880 |
| | | | | Vf | 320 | 370 | 380 | 330 | 320 | 310 | 280 | 250 |
| | High Alloy Cast Iron (35-45HRC) | ap≤0.3D | 50 | n | 5310 | 3980 | 2650 | 1990 | 1590 | 1330 | 1000 | 800 |
| | | | | Vf | 240 | 280 | 320 | 270 | 260 | 260 | 240 | 220 |

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia ).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

# Recommended Cutting Data

## UP210- B2/BH2

Profile Milling： For Steel, Cast Iron

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | Carbon Steel,Alloy (<35HRC) | ap≤0.2D | 160 | n | 12740 | 10190 | 8490 | 7280 | 6370 | 5660 | 5100 | 4630 | 4250 |
| | | ae≤0.3D | | Vf | 1020 | 1020 | 1020 | 1020 | 1020 | 1020 | 1020 | 1020 | 1020 |
| | Alloy Steel (35-48HRC) | ap≤0.15D | 120 | n | 9550 | 7640 | 6370 | 5460 | 4780 | 4250 | 3820 | 3470 | 3190 |
| | | ae≤0.15D | | Vf | 610 | 640 | 660 | 630 | 620 | 610 | 610 | 610 | 610 |
| M | Stainless Steel | ap≤0.2D | 110 | n | 8760 | 7010 | 5840 | 5010 | 4380 | 3890 | 3500 | 3190 | 2920 |
| | | ae≤0.2D | | Vf | 610 | 630 | 640 | 630 | 630 | 620 | 630 | 640 | 640 |
| K | Gray Cast Iron Nodular Cast Iron (<32HRC) | ap≤0.2D | 140 | n | 11150 | 8920 | 7430 | 6370 | 5570 | 4950 | 4460 | 4050 | 3720 |
| | | ae≤0.2D | | Vf | 780 | 800 | 820 | 800 | 800 | 790 | 800 | 810 | 820 |
| | High Alloy Cast Iron (35-45HRC) | ap≤0.1D | 120 | n | 9550 | 7640 | 6370 | 5460 | 4780 | 4250 | 3820 | 3470 | 3190 |
| | | ae≤0.1D | | Vf | 610 | 640 | 660 | 660 | 670 | 650 | 650 | 660 | 670 |

## UP210- B4

Profile Milling： For Steel, Cast Iron

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | Carbon Steel,Alloy (<35HRC) | ap≤0.2D | 160 | n | 12740 | 10190 | 8490 | 7280 | 6370 | 5660 | 5100 | 4630 | 4250 |
| | | ae≤0.3D | | Vf | 2040 | 2040 | 2040 | 2040 | 2040 | 2040 | 2040 | 2040 | 2040 |
| | Alloy Steel (35-48HRC) | ap≤0.15D | 120 | n | 9550 | 7640 | 6370 | 5460 | 4780 | 4250 | 3820 | 3470 | 3190 |
| | | ae≤0.15D | | Vf | 1220 | 1280 | 1330 | 1270 | 1240 | 1220 | 1220 | 1210 | 1210 |
| M | Stainless Steel | ap≤0.2D | 110 | n) | 8760 | 7010 | 5840 | 5010 | 4380 | 3890 | 3500 | 3190 | 2920 |
| | | ae≤0.2D | | Vf) | 1230 | 1260 | 1290 | 1260 | 1260 | 1250 | 1260 | 1270 | 1290 |
| K | Gray Cast Iron Nodular Cast Iron (<32HRC) | ap≤0.2D | 140 | n | 11150 | 8920 | 7430 | 6370 | 5570 | 4950 | 4460 | 4050 | 3720 |
| | | ae≤0.2D | | Vf | 1560 | 1610 | 1640 | 1610 | 1610 | 1590 | 1610 | 1620 | 1640 |
| | High Alloy Cast Iron (35-45HRC) | ap≤0.1D | 120 | n | 9550 | 7640 | 6370 | 5460 | 4780 | 4250 | 3820 | 3470 | 3190 |
| | | ae≤0.1D | | Vf | 1220 | 1280 | 1330 | 1310 | 1340 | 1310 | 1300 | 1320 | 1340 |

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia ).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

# Recommended Cutting Data

## UP210- L60/L90/L120

## Chamfer Milling: For Steel, Cast Iron

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|
| P | Carbon Steel,Alloy (<35HRC) | 130 | n | 10350 | 6900 | 5175 | 4140 | 3450 | 2588 | 2070 |
| | | | Vf | 414 | 33 | 311 | 414 | 442 | 435 | 406 |
| | Alloy Steel (35-48HRC) | 90 | n | 7166 | 4777 | 3583 | 2866 | 2389 | 1791 | 1433 |
| | | | Vf | 229 | 191 | 172 | 172 | 239 | 229 | 241 |
| M | Stainless Steel | 80 | n) | 6369 | 4246 | 3185 | 2548 | 2123 | 1592 | 1274 |
| | | | Vf) | 204 | 170 | 153 | 153 | 212 | 204 | 214 |
| K | Gray Cast Iron Nodular Cast Iron (<32HRC) | 100 | n | 7962 | 5308 | 3981 | 3185 | 2654 | 1990 | 1592 |
| | | | Vf | 318 | 255 | 239 | 318 | 340 | 334 | 312 |
| | High Alloy Cast Iron (35-45HRC) | 150 | n | 11943 | 7962 | 5971 | 4777 | 3981 | 2986 | 2389 |
| | | | Vf | 621 | 573 | 597 | 611 | 669 | 585 | 602 |

## SP210- S3/C3

## Side Milling : For Steel, Cast Iron

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 3 | 4 | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | Carbon Steel,Alloy (<35HRC) | ap≤1.5D | 200 | 10350 | 21230 | 15920 | 10620 | 7960 | 6370 | 5310 | 3980 | 3190 |
| | | ae≤0.15D | | 414 | 2040 | 1960 | 1690 | 1670 | 1620 | 1590 | 1490 | 1480 |
| | Alloy Steel (35-48HRC) | ap≤1D | 150 | 7166 | 15920 | 11940 | 7960 | 5970 | 4780 | 3980 | 2990 | 2390 |
| | | ae≤0.12D | | 229 | 1290 | 1180 | 1080 | 1160 | 1050 | 930 | 760 | 680 |
| M | Stainless Steel | ap≤1.5D | 150 | 6369 | 15920 | 11940 | 7960 | 5970 | 4780 | 3980 | 2990 | 2390 |
| | | ae≤0.15D | | 204 | 1580 | 1330 | 1150 | 1220 | 1130 | 1080 | 900 | 820 |
| K | Gray Cast Iron Nodular Cast Iron (<32HRC) | ap≤1.5D | 170 | 7962 | 18050 | 13540 | 9020 | 6770 | 5410 | 4510 | 3380 | 2710 |
| | | ae≤0.15D | | 318 | 1620 | 1500 | 1440 | 1300 | 1200 | 1150 | 1020 | 930 |
| | High Alloy Cast Iron (35-45HRC) | ap≤1D | 150 | 11943 | 15920 | 11940 | 7960 | 5970 | 4780 | 3980 | 2990 | 2390 |
| | | ae≤0.12D | | 621 | 1290 | 1250 | 1190 | 1090 | 1000 | 960 | 850 | 770 |

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia ).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

# Recommended Cutting Data

## SP210- C4/CN4/R4/RH4/S4

## Side Milling : For Steel, Cast Iron

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 3 | 4 | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | Carbon Steel,Alloy (<35HRC) | ap≤1.5D | 200 | n | 21230 | 15920 | 10620 | 7960 | 6370 | 5310 | 3980 | 3190 |
| | | ae≤0.15D | | Vf | 2720 | 2610 | 2250 | 2230 | 2170 | 2120 | 1990 | 1980 |
| | Alloy Steel (35-48HRC) | ap≤1D | 150 | n | 15920 | 11940 | 7960 | 5970 | 4780 | 3980 | 2990 | 2390 |
| | | ae≤0.12D | | Vf | 1720 | 1580 | 1430 | 1550 | 1400 | 1240 | 1020 | 910 |
| M | Stainless Steel | ap≤1.5D | 150 | n) | 15920 | 11940 | 7960 | 5970 | 4780 | 3980 | 2990 | 2390 |
| | | ae≤0.15D | | Vf) | 2100 | 1770 | 1530 | 1620 | 1510 | 1430 | 1190 | 1100 |
| K | Gray Cast Iron Nodular Cast Iron (<32HRC) | ap≤1.5D | 170 | n | 18050 | 13540 | 9020 | 6770 | 5410 | 4510 | 3380 | 2710 |
| | | ae≤0.15D | | Vf | 2170 | 2000 | 1910 | 1730 | 1600 | 1530 | 1350 | 1250 |
| | High Alloy Cast Iron (35-45HRC) | ap≤1D | 150 | n | 15920 | 11940 | 7960 | 5970 | 4780 | 3980 | 2990 | 2390 |
| | | ae≤0.12D | | Vf | 1720 | 1670 | 1590 | 1460 | 1340 | 1270 | 1140 | 1020 |

## SP210- S3/C3

## Slot Milling : For Steel, Cast Iron

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 3 | 4 | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | Carbon Steel,Alloy (<35HRC) | ap≤1D | 80 | n | 8490 | 6370 | 4250 | 3190 | 2550 | 2120 | 1590 | 1270 |
| | | | | Vf | 790 | 920 | 730 | 640 | 590 | 570 | 640 | 650 |
| | Alloy Steel (35-48HRC) | ap≤0.5D | 60 | n | 6370 | 4780 | 3190 | 2390 | 1910 | 1590 | 1190 | 960 |
| | | | | Vf | 500 | 550 | 450 | 370 | 360 | 360 | 370 | 370 |
| M | Stainless Steel | ap≤0.3D | 55 | n) | 5840 | 4380 | 2920 | 2190 | 1750 | 1460 | 1100 | 880 |
| | | | | Vf) | 320 | 320 | 350 | 340 | 320 | 320 | 280 | 260 |
| K | Gray Cast Iron Nodular Cast Iron (<32HRC) | ap≤0.8D | 55 | n | 5840 | 4380 | 2920 | 2190 | 1750 | 1460 | 1100 | 880 |
| | | | | Vf | 420 | 450 | 420 | 360 | 340 | 340 | 310 | 280 |
| | High Alloy Cast Iron (35-45HRC) | ap≤0.5D | 50 | n | 5310 | 3980 | 2650 | 1990 | 1590 | 1330 | 1000 | 800 |
| | | | | Vf | 330 | 350 | 360 | 300 | 290 | 290 | 260 | 240 |

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia ).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

# Recommended Cutting Data

## SP210- C4/CN4/R4/RH4/S4
## Slot Milling : For Steel, Cast Iron

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 3 | 4 | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | Carbon Steel,Alloy (<35HRC) | ap≤1D | 80 | n | 8490 | 6370 | 4250 | 3190 | 2550 | 2120 | 1590 | 1270 |
| | | | | Vf | 1050 | 1220 | 970 | 850 | 790 | 760 | 850 | 870 |
| | Alloy Steel (35-48HRC) | ap≤0.5D | 60 | n | 6370 | 4780 | 3190 | 2390 | 1910 | 1590 | 1190 | 960 |
| | | | | Vf | 660 | 730 | 600 | 500 | 470 | 480 | 490 | 500 |
| M | Stainless Steel | ap≤0.3D | 55 | n) | 5840 | 4380 | 2920 | 2190 | 1750 | 1460 | 1100 | 880 |
| | | | | Vf) | 420 | 420 | 470 | 450 | 430 | 430 | 380 | 350 |
| K | Gray Cast Iron Nodular Cast Iron (<32HRC) | ap≤0.8D | 55 | n | 5840 | 4380 | 2920 | 2190 | 1750 | 1460 | 1100 | 880 |
| | | | | Vf | 560 | 600 | 560 | 480 | 460 | 450 | 410 | 370 |
| | High Alloy Cast Iron (35-45HRC) | ap≤0.5D | 50 | n | 5310 | 3980 | 2650 | 1990 | 1590 | 1330 | 1000 | 800 |
| | | | | Vf | 450 | 460 | 480 | 400 | 380 | 380 | 350 | 320 |

## SP210- B2/BH2
## Profile Milling : For Steel, Cast Iron

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 1 | 2 | 3 | 4 | 6 | 8 | 10 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | Carbon Steel,Alloy (<35HRC) | ap≤0.04D | 220 | n | 50000 | 35030 | 23360 | 17520 | 11680 | 8760 | 7010 | 5840 |
| | | ae≤0.04D | | Vf | 2800 | 2800 | 2800 | 2800 | 2800 | 2800 | 2800 | 2800 |
| | Alloy Steel (35-48HRC) | ap≤0.02D | 180 | n | 50000 | 28660 | 19110 | 14330 | 9550 | 7170 | 5730 | 4780 |
| | | ae≤0.02D | | Vf | 1950 | 2010 | 1990 | 2010 | 2010 | 2010 | 2000 | 2000 |
| M | Stainless Steel | ap≤0.04D | 220 | n) | 50000 | 35030 | 23360 | 17520 | 11680 | 8760 | 7010 | 5840 |
| | | ae≤0.04D | | Vf) | 2520 | 2450 | 2570 | 2630 | 2570 | 2540 | 2520 | 2530 |
| K | Gray Cast Iron Nodular Cast Iron (<32HRC) | ap≤0.04D | 220 | n | 50000 | 35030 | 23360 | 17520 | 11680 | 8760 | 7010 | 5840 |
| | | ae≤0.04D | | Vf | 2520 | 2450 | 2570 | 2630 | 2570 | 2540 | 2520 | 2530 |
| | High Alloy Cast Iron (35-45HRC) | ap≤0.04D | 220 | n | 50000 | 35030 | 23360 | 17520 | 11680 | 8760 | 7010 | 5840 |
| | | ae≤0.04D | | Vf | 2380 | 2450 | 2430 | 2450 | 2450 | 2450 | 2440 | 2440 |

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia ).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

# Recommended Cutting Data

UPR100- S4

Side Milling : For Steel, Cast Iron

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|
| P | Carbon Steel,Alloy (<35HRC) | ap≤1D | 130 | n | 6900 | 5180 | 4140 | 3450 | 2590 | 2070 |
| | | ae≤0.2D | | Vf | 990 | 990 | 990 | 990 | 930 | 830 |
| | Alloy Steel (35-48HRC) | ap≤1D | 110 | n | 5840 | 4380 | 3500 | 2920 | 2190 | 1750 |
| | | ae≤0.12D | | Vf | 580 | 610 | 630 | 640 | 525 | 490 |
| M | Stainless Steel | ap≤1D | 130 | n) | 6900 | 5180 | 4140 | 3450 | 2590 | 2070 |
| | | ae≤0.2D | | Vf) | 280 | 310 | 330 | 350 | 310 | 290 |
| K | Gray Cast Iron Nodular Cast Iron (<32HRC) | ap≤1D | 130 | n | 6900 | 5180 | 4140 | 3450 | 2590 | 2070 |
| | | ae≤0.2D | | Vf | 990 | 990 | 990 | 990 | 930 | 830 |
| | High Alloy Cast Iron (35-45HRC) | ap≤1D | 110 | n | 5840 | 4380 | 3500 | 2920 | 2190 | 1750 |
| | | ae≤0.12D | | Vf | 580 | 610 | 630 | 640 | 525 | 490 |

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia ).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

# Recommended Cutting Data

UPR100- S4

Slot Milling : For Steel, Cast Iron

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|
| P | Carbon Steel,Alloy (<35HRC) | ap≤1D | 80 | n | 4250 | 3190 | 2550 | 2120 | 1590 | 1270 |
| | | | | Vf | 760 | 700 | 660 | 640 | 700 | 710 |
| | Alloy Steel (35-48HRC) | ap≤0.5D | 60 | n | 3190 | 2390 | 1910 | 1590 | 1190 | 960 |
| | | | | Vf | 380 | 380 | 380 | 380 | 330 | 310 |
| M | Stainless Steel | ap≤0.5D | 55 | n) | 2920 | 2190 | 1750 | 1460 | 1100 | 880 |
| | | | | Vf) | 350 | 350 | 350 | 350 | 310 | 280 |
| K | Gray Cast Iron Nodular Cast Iron (<32HRC) | ap≤1D | 55 | n | 2920 | 2190 | 1750 | 1460 | 1100 | 880 |
| | | | | Vf | 370 | 370 | 360 | 350 | 310 | 280 |
| | High Alloy Cast Iron (35-45HRC) | ap≤0.75D | 55 | n | 2920 | 2190 | 1750 | 1460 | 1100 | 880 |
| | | | | Vf | 350 | 350 | 350 | 320 | 290 | 260 |

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia ).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

# Recommended Cutting Data

## UPR210- S4

## Side Milling : For Steel, Cast Iron

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|
| P | Carbon Steel,Alloy (<35HRC) | ap ⩽ 1.5D | 140 | n | 7430 | 5570 | 4460 | 3720 | 2790 | 2230 |
| | | ae ⩽ 0.3D | | Vf | 1070 | 1070 | 1070 | 1070 | 1000 | 900 |
| | Alloy Steel (35-48HRC) | ap ⩽ 1D | 120 | n | 6370 | 4780 | 3820 | 3190 | 2390 | 1910 |
| | | ae ⩽ 0.25D | | Vf | 630 | 660 | 690 | 700 | 570 | 535 |
| M | Stainless Steel | ap ⩽ 1.5D | 110 | n) | 5840 | 4380 | 3500 | 2920 | 2190 | 1750 |
| | | ae ⩽ 0.3D | | Vf) | 580 | 610 | 630 | 640 | 525 | 490 |
| K | Gray Cast Iron Nodular Cast Iron (<32HRC) | ap ⩽ 1.5D | 140 | n | 7430 | 5570 | 4460 | 3720 | 2790 | 2230 |
| | | ae ⩽ 0.3D | | Vf | 1070 | 1070 | 1070 | 1070 | 1000 | 900 |
| | High Alloy Cast Iron (35-45HRC) | ap ⩽ 1D | 120 | n | 6370 | 4780 | 3820 | 3190 | 2390 | 1910 |
| | | ae ⩽ 0.25D | | Vf | 630 | 660 | 690 | 700 | 570 | 535 |
| H | Alloy Steel Hardened Steel (<55HRC) | ap ⩽ 1D | 100 | n | 5300 | 3980 | 3190 | 2650 | 1990 | 1590 |
| | | ae ⩽ 0.125D | | Vf | 530 | 480 | 450 | 420 | 400 | 380 |

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia ).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

## UPR210- S4

## Slot Milling : For Steel, Cast Iron

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|
| P | Carbon Steel,Alloy (<35HRC) | ap ⩽ 1D | 120 | n | 6370 | 4780 | 3820 | 3190 | 2390 | 1910 |
| | | | | Vf | 640 | 630 | 610 | 640 | 570 | 535 |
| | Alloy Steel (35-48HRC) | ap ⩽ 0.75D | 100 | n | 5310 | 4000 | 3190 | 2650 | 1990 | 1590 |
| | | | | Vf | 430 | 400 | 450 | 425 | 360 | 320 |
| M | Stainless Steel | ap ⩽ 0.75D | 90 | n) | 4775 | 3580 | 2865 | 2385 | 1790 | 1432 |
| | | | | Vf) | 382 | 160 | 190 | 210 | 200 | 190 |
| K | Gray Cast Iron Nodular Cast Iron (<32HRC) | ap ⩽ 1D | 120 | n | 6370 | 4780 | 3820 | 3190 | 2390 | 1910 |
| | | | | Vf | 640 | 630 | 610 | 640 | 570 | 535 |
| | High Alloy Cast Iron (35-45HRC) | ap ⩽ 0.75D | 100 | n | 5310 | 4000 | 3190 | 2650 | 1990 | 1590 |
| | | | | Vf | 430 | 400 | 450 | 425 | 360 | 320 |

# Recommended Cutting Data

UPN210- S4

Side Milling : For Steel, Cast Iron

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|
| P | Carbon Steel,Alloy (<35HRC) | ap ⩽ 1.5D | 130 | n | 6900 | 5180 | 4140 | 3450 | 2590 | 2070 |
| | | ae ⩽ 0.3D | | Vf | 990 | 990 | 990 | 990 | 930 | 830 |
| | Alloy Steel (35-48HRC) | ap ⩽ 1D | 110 | n | 5840 | 4380 | 3500 | 2920 | 2190 | 1750 |
| | | ae ⩽ 0.25D | | Vf | 580 | 610 | 630 | 640 | 525 | 490 |
| M | Stainless Steel | ap ⩽ 1.5D | 130 | n) | 6900 | 5180 | 4140 | 3450 | 2590 | 2070 |
| | | ae ⩽ 0.3D | | Vf) | 280 | 310 | 330 | 350 | 310 | 290 |
| K | Gray Cast Iron Nodular Cast Iron (<32HRC) | ap ⩽ 1.5D | 130 | n | 6900 | 5180 | 4140 | 3450 | 2590 | 2070 |
| | | ae ⩽ 0.3D | | Vf | 990 | 990 | 990 | 990 | 930 | 830 |
| | High Alloy Cast Iron (35-45HRC) | ap ⩽ 1D | 110 | n | 5840 | 4380 | 3500 | 2920 | 2190 | 1750 |
| | | ae ⩽ 0.25D | | Vf | 580 | 610 | 630 | 640 | 525 | 490 |
| H | Alloy Steel Hardened Steel (<55HRC) | ap ⩽ 1D | 90 | n | 4780 | 3580 | 2870 | 2390 | 1790 | 1430 |
| | | ae ⩽ 0.125D | | Vf | 480 | 430 | 400 | 380 | 360 | 345 |

# Recommended Cutting Data

## UPN210- S4

Slot Milling : For Steel, Cast Iron

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|
| P | Carbon Steel,Alloy (<35HRC) | ap≤0.8D | 120 | n | 6370 | 4780 | 3820 | 3190 | 2390 | 1910 |
| | | | | Vf | 640 | 630 | 610 | 640 | 570 | 535 |
| | Alloy Steel (35-48HRC) | ap≤0.5D | 100 | n | 5310 | 4000 | 3190 | 2650 | 1990 | 1590 |
| | | | | Vf | 430 | 400 | 450 | 425 | 360 | 320 |
| M | Stainless Steel | ap≤0.8D | 100 | n) | 5310 | 3980 | 3190 | 2655 | 1990 | 1600 |
| | | | | Vf) | 150 | 160 | 190 | 210 | 200 | 190 |
| K | Gray Cast Iron Nodular Cast Iron (<32HRC) | ap≤0.8D | 120 | n | 6370 | 4780 | 3820 | 3190 | 2390 | 1910 |
| | | | | Vf | 640 | 630 | 610 | 640 | 570 | 535 |
| | High Alloy Cast Iron (35-45HRC) | ap≤0.5D | 100 | n | 5310 | 4000 | 3190 | 2650 | 1990 | 1590 |
| | | | | Vf | 430 | 400 | 450 | 425 | 360 | 320 |

## UPR300-S3/S4

Side Milling : For Steel, Cast Iron

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|
| P | Carbon Steel,Alloy (<35HRC) | ap ⩽ 1.5D | 160 | n | 8490 | 6370 | 5090 | 4240 | 3180 | 2550 |
| | | ae ⩽ 0.4D | | Vf | 790 | 820 | 1040 | 1020 | 940 | 880 |
| | Alloy Steel (35-48HRC) | ap ⩽ 1.5D | 150 | n | 7960 | 5970 | 4770 | 3980 | 2980 | 2390 |
| | | ae ⩽ 0.3D | | Vf | 670 | 680 | 880 | 840 | 780 | 720 |
| M | Stainless Steel | ap ⩽ 1.5D | 115 | n) | 6100 | 4580 | 3660 | 3050 | 2290 | 1830 |
| | | ae ⩽ 0.4D | | Vf) | 570 | 590 | 750 | 730 | 680 | 630 |
| K | Gray Cast Iron Nodular Cast Iron (<32HRC) | ap ⩽ 1.5D | 150 | n | 7960 | 5970 | 4770 | 3980 | 2980 | 2390 |
| | | ae ⩽ 0.5D | | Vf | 880 | 910 | 1170 | 1110 | 1030 | 930 |
| | High Alloy Cast Iron (35-45HRC) | ap ⩽ 1.5D | 130 | n | 6900 | 5170 | 4140 | 3450 | 2590 | 2070 |
| | | ae ⩽ 0.4D | | Vf | 520 | 530 | 680 | 660 | 610 | 570 |
| H | Alloy Steel Hardened Steel (<55HRC) | ap ⩽ 1.5D | 140 | n | 7430 | 5570 | 4460 | 3710 | 2790 | 2230 |
| | | ae ⩽ 0.3D | | Vf | 620 | 640 | 820 | 790 | 720 | 670 |

# Recommended Cutting Data

UPR300-S3/S4

Slot Milling : For Steel, Cast Iron

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|
| P | Carbon Steel,Alloy (<35HRC) | ap ⩽ 1D | 130 | n | 6900 | 5175 | 4140 | 3450 | 2590 | 2070 |
| | | | | Vf | 510 | 530 | 680 | 660 | 610 | 570 |
| | Alloy Steel (35-48HRC) | ap ⩽ 0.75D | 120 | n | 6370 | 4780 | 3820 | 3185 | 2390 | 1910 |
| | | | | Vf | 430 | 440 | 560 | 540 | 500 | 460 |
| M | Stainless Steel | ap ⩽ 0.75D | 90 | n) | 4780 | 3580 | 2870 | 2390 | 1790 | 1430 |
| | | | | Vf) | 360 | 370 | 470 | 460 | 430 | 395 |
| K | Gray Cast Iron Nodular Cast Iron (<32HRC) | ap ⩽ 1D | 120 | n | 6370 | 4780 | 3820 | 3185 | 2390 | 1910 |
| | | | | Vf | 570 | 590 | 750 | 710 | 660 | 595 |
| | High Alloy Cast Iron (35-45HRC) | ap ⩽ 1D | 100 | n | 5310 | 3980 | 3185 | 2650 | 1990 | 1590 |
| | | | | Vf | 320 | 325 | 420 | 410 | 375 | 350 |
| H | Alloy Steel Hardened Steel (<55HRC) | ap ⩽ 0.3D | 110 | n | 5840 | 4380 | 3500 | 2920 | 2190 | 1750 |
| | | | | Vf | 390 | 400 | 515 | 500 | 450 | 420 |

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia ).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

# Recommended Cutting Data

## US200-S2/R2
## Side Milling：Stainless Steel

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 1 | 2 | 4 | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | Stainless Steel | ap≤1D | 100 (80-120) | n | 25000 | 15900 | 7960 | 5300 | 3980 | 3180 | 2650 | 1990 | 1590 |
| | | ae≤0.1D | | Vf | 220 | 254 | 340 | 340 | 365 | 330 | 300 | 245 | 230 |

## US200-S2/R2
## Slot Milling：Stainless Steel

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 1 | 2 | 4 | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | Stainless Steel | ap≤0.1D | 45 (35-55) | n | 14330 | 7165 | 3580 | 2390 | 1790 | 1430 | 1195 | 895 | 715 |
| | | ae≤1D | | Vf | 200 | 140 | 120 | 155 | 155 | 155 | 155 | 135 | 120 |

## US200- R3
## Side Milling：Stainless Steel

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 1 | 2 | 4 | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | Stainless Steel | ap≤1D | 100 (80-120) | n | 25000 | 15900 | 7960 | 5300 | 3980 | 3180 | 2650 | 1990 | 1590 |
| | | ae≤0.1D | | Vf | 525 | 480 | 525 | 510 | 550 | 500 | 450 | 370 | 340 |

## US200-R3
## Slot Milling：Stainless Steel

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 1 | 2 | 4 | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | Stainless Steel | ap≤0.1D | 45 (35-55) | n | 14330 | 7165 | 3580 | 2390 | 1790 | 1430 | 1195 | 895 | 715 |
| | | ae≤1D | | Vf | 300 | 215 | 180 | 235 | 235 | 230 | 230 | 200 | 180 |

# Recommended Cutting Data

## US200-SS4/S4/SN4/R4

Side Milling：Stainless Steel

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 1 | 2 | 4 | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | Stainless Steel | ap≤1D | 100 (80-120) | n | 25000 | 15900 | 7960 | 5300 | 3980 | 3180 | 2650 | 1990 | 1590 |
| | | ae≤0.1D | | Vf | 700 | 635 | 700 | 680 | 730 | 660 | 600 | 490 | 460 |

## US200-R4

Slot Milling：Stainless Steel

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 1 | 2 | 4 | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | Stainless Steel | ap≤0.1D | 45 (35-55) | n | 14330 | 7165 | 3580 | 2390 | 1790 | 1430 | 1195 | 895 | 715 |
| | | ae≤1D | | Vf | 400 | 280 | 240 | 310 | 310 | 310 | 310 | 270 | 240 |

## US200- B2

Profile Milling：Stainless Steel

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 1 | 2 | 4 | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | Stainless Steel | ap≤0.2D | 100 (80-120) | n | 25000 | 15900 | 7960 | 5300 | 3980 | 3180 | 2650 | 1990 | 1590 |
| | | ae≤0.2D | | Vf | 525 | 480 | 510 | 550 | 560 | 540 | 560 | 520 | 510 |

## US200-B4

Profile Milling：Stainless Steel

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 1 | 2 | 4 | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | Stainless Steel | ap≤0.2D | 100 (80-120) | n | 25000 | 15900 | 7960 | 5300 | 3980 | 3180 | 2650 | 1990 | 1590 |
| | | ae≤0.2D | | Vf | 560 | 955 | 1020 | 1100 | 1110 | 1080 | 1115 | 1030 | 1020 |

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia ).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

# Recommended Cutting Data

## US300-SS4/S4
Side Milling：Stainless Steel

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 1 | 2 | 4 | 6 | 8 | 10 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| M | Stainless Steel | ap≤1D | 100 (80-120) | n | 20000 | 15900 | 7960 | 5300 | 3980 | 3180 | 2650 |
| | | ae≤0.1D | | Vf | 960 | 950 | 1110 | 950 | 950 | 890 | 850 |

## US300-SS4/S4
Slot Milling：Stainless Steel

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 1 | 2 | 4 | 6 | 8 | 10 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| M | Stainless Steel | ap≤0.3D | 45 (35-55) | n | 14300 | 7160 | 3580 | 2390 | 1790 | 1400 | 1200 |
| | | ae≤1D | | Vf | 340 | 250 | 215 | 300 | 300 | 300 | 300 |

## SS200-CS4/C4
Side Milling：Stainless Steel

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 2 | 4 | 6 | 8 | 10 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|
| M | Stainless Steel | ap≤1D | 80 (60-100) | n | 15900 | 7960 | 5300 | 3980 | 3180 | 2650 |
| | | ae≤0.5D | | Vf | 600 | 480 | 500 | 510 | 490 | 480 |

## SS200-CS4/C4
Slot Milling：Stainless Steel

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 2 | 4 | 6 | 8 | 10 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|
| M | Stainless Steel | ap≤1D | 60 (50-70) | n | 9550 | 4780 | 3180 | 2390 | 1900 | 1590 |
| | | ae≤1D | | Vf | 500 | 350 | 350 | 380 | 350 | 350 |

# Recomme nded Cutting Data

## UA100-S2/SH2/R2/RH2
## Side Milling： Aluminium Alloy

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 1 | 2 | 4 | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N | Wrought Aluminum Alloys Cast Aluminum Alloys (Si≤12%) | ap≤1.5D | 150 (60-350) | n | 16000 | 12700 | 12000 | 10600 | 10000 | 9500 | 9280 | 7000 | 5600 |
| | | ae≤0.2D | | Vf | 580 | 710 | 1200 | 1280 | 1390 | 1720 | 2400 | 2500 | 2450 |
| | Copper Alloy (＜HB200) | ap≤1.5D | 150 (60-350) | n | 16000 | 12700 | 12000 | 10600 | 10000 | 9500 | 9280 | 7000 | 5600 |
| | | ae≤0.2D | | Vf | 520 | 650 | 1070 | 1150 | 1250 | 1550 | 2170 | 2250 | 2200 |

## UA100-S2/SH2/R2/RH2
## Slot Milling： Aluminium Alloy

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 1 | 2 | 4 | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N | Wrought Aluminum Alloys Cast Aluminum Alloys (Si≤12%) | ap≤0.5D | 150 (60-350) | n | 16000 | 10000 | 9000 | 8000 | 7800 | 8000 | 6800 | 5000 | 4000 |
| | | ae=1D | | Vf | 400 | 500 | 810 | 920 | 1100 | 1280 | 1300 | 1310 | 1200 |
| | Copper Alloy (＜HB200) | ap≤0.5D | 150 (60-350) | n | 16000 | 10000 | 9000 | 8000 | 7800 | 8000 | 6800 | 5000 | 4000 |
| | | ae=1D | | Vf | 380 | 450 | 800 | 830 | 1000 | 1150 | 1130 | 1000 | 1080 |

## UA100-SL2
## Side Milling：Aluminium Alloy

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 1 | 2 | 4 | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N | Wrought Aluminum Alloys Cast Aluminum Alloys (Si≤12%) | ap≤2.5D | 150 (60-350) | n | 16000 | 10000 | 9000 | 8000 | 7800 | 8000 | 6800 | 5000 | 4000 |
| | | ae≤0.15D | | Vf | 400 | 500 | 810 | 920 | 1100 | 1280 | 1300 | 1310 | 1200 |
| | Copper Alloy (＜HB200) | ap≤2.5D | 150 (60-350) | n | 16000 | 10000 | 9000 | 8000 | 7800 | 8000 | 6800 | 5000 | 4000 |
| | | ae≤0.15D | | Vf | 380 | 450 | 800 | 830 | 1000 | 1150 | 1130 | 1000 | 1080 |

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia ).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

# Recommended Cutting Data

## UA100-S3/SH3/R3/RH3
## Side Milling : Aluminium Alloys

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 1 | 2 | 4 | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N | Wrought Aluminum Alloys Cast Aluminum Alloys (Si≤12%) | ap≤1.5D | 150 (60-350) | n | 16000 | 13000 | 12000 | 10600 | 10000 | 9500 | 9280 | 7000 | 5600 |
| | | ae≤0.2D | | Vf | 650 | 850 | 1430 | 1530 | 1670 | 2050 | 2800 | 3000 | 3150 |
| | Copper Alloy (<HB200) | ap≤1.5D | 150 (60-350) | n | 16000 | 13000 | 12000 | 10600 | 10000 | 9500 | 9280 | 7000 | 5600 |
| | | ae≤0.2D | | Vf | 720 | 900 | 1200 | 1200 | 1500 | 1800 | 2225 | 2500 | 3000 |

## UA100-S3/SH3/R3/RH3
## Slot Milling: Aluminium Alloys

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 1 | 2 | 4 | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N | Wrought Aluminum Alloys Cast Aluminum Alloys (Si≤12%) | ap≤0.5D | 150 (60-350) | n | 16000 | 10000 | 9000 | 8000 | 7800 | 8000 | 6800 | 5000 | 4000 |
| | | ae=1D | | Vf | 450 | 570 | 960 | 1050 | 1300 | 1500 | 1620 | 1680 | 1800 |
| | Copper Alloy (<HB200) | ap≤0.5D | 150 (60-350) | n | 16000 | 10000 | 9000 | 8000 | 7800 | 8000 | 6800 | 5000 | 4000 |
| | | ae=1D | | Vf | 450 | 520 | 860 | 830 | 960 | 1240 | 1500 | 1550 | 1510 |

## UA100- SL3
## Side Milling : Aluminium Alloys

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 1 | 2 | 4 | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N | Wrought Aluminum Alloys Cast Aluminum Alloys (Si≤12%) | ap≤2.5D | 150 (60-350) | n | 16000 | 10000 | 9000 | 8000 | 7800 | 8000 | 6800 | 5000 | 4000 |
| | | ae≤0.15D | | Vf | 450 | 570 | 960 | 1050 | 1300 | 1500 | 1620 | 1680 | 1800 |
| | Copper Alloy (<HB200) | ap≤2.5D | 150 (60-350) | n | 16000 | 10000 | 9000 | 8000 | 7800 | 8000 | 6800 | 5000 | 4000 |
| | | ae≤0.15D | | Vf | 450 | 520 | 860 | 830 | 960 | 1240 | 1500 | 1550 | 1510 |

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia ).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

# Recommended Cutting Data

## UA100-B2

Profile Milling : Aluminium Alloys

| | Workpiece | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 1 | 2 | 4 | 6 | 8 | 10 | 12 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N | Wrought Aluminum Alloys Cast Aluminum Alloys (Si≤12%) | ap≤0.3D | 150 (60-350) | n | 19000 | 15900 | 11900 | 10600 | 8000 | 7950 | 7950 | 7000 |
| | | ae≤0.3D | | Vf | 950 | 1600 | 1900 | 2500 | 2550 | 3200 | 3800 | 4450 |
| | Copper Alloy (<HB200) | ap≤0.3D | 150 (60-350) | n | 19000 | 15900 | 11900 | 10600 | 8000 | 7950 | 7950 | 7000 |
| | | ae≤0.3D | | Vf | 860 | 1430 | 1720 | 2300 | 2300 | 2850 | 3450 | 4010 |

## UA160-S2

Side Milling : Aluminium A

| | Workpiece | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 1 | 2 | 4 | 6 | 8 | 10 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| N | Wrought Aluminum Alloys Cast Aluminum Alloys (Si≤12%) | ap≤1.5D | 150 (60-350) | n | 19000 | 16000 | 12000 | 10600 | 10000 | 9500 | 9300 |
| | | ae≤0.2D | | Vf | 760 | 950 | 1300 | 1380 | 1500 | 1900 | 2600 |
| | Copper Alloy (<HB200) | ap≤1.5D | 150 (60-350) | n | 19000 | 16000 | 12000 | 10600 | 10000 | 9500 | 9300 |
| | | ae≤0.2D | | Vf | 690 | 860 | 1180 | 1240 | 1340 | 1720 | 2340 |

## UA160-S2

Slot Milling : Aluminium Alloys

| | Workpiece | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 1 | 2 | 4 | 6 | 8 | 10 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| N | Wrought Aluminum Alloys Cast Aluminum Alloys (Si≤12%) | ap≤0.5D | 150 (60-350) | n | 16000 | 12800 | 10000 | 9300 | 8750 | 8000 | 7450 |
| | | ae=1D | | Vf | 350 | 650 | 900 | 1100 | 1230 | 1280 | 1410 |
| | Copper Alloy (<HB200) | ap≤0.5D | 150 (60-350) | n | 16000 | 12800 | 10000 | 9300 | 8750 | 8000 | 7450 |
| | | ae=1D | | Vf | 300 | 570 | 800 | 970 | 1100 | 1150 | 1270 |

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia ).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

# Recommended Cutting Data

## UA160-S3
## Side Milling : Aluminium Alloys

| | Workpiece | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 2 | 4 | 6 | 8 | 10 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|
| N | Wrought Aluminum Alloys Cast Aluminum Alloys (Si≤12%) | ap≤1.5D | 150 (60-350) | n | 16000 | 12000 | 10600 | 10000 | 9500 | 9300 |
| | | ae≤0.2D | | Vf | 1150 | 1570 | 1650 | 1800 | 2300 | 3100 |
| | Copper Alloy (＜HB200) | ap≤1.5D | 150 (60-350) | n | 16000 | 12000 | 10600 | 10000 | 9500 | 9300 |
| | | ae≤0.2D | | Vf | 1030 | 1420 | 1490 | 1610 | 2060 | 2800 |

## UA160-S3
## Slot Milling : Aluminium Alloys

| | Workpiece | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 2 | 4 | 6 | 8 | 10 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|
| N | Wrought Aluminum Alloys Cast Aluminum Alloys (Si≤12%) | ap≤0.5D | 150 (60-350) | n | 12800 | 10000 | 9300 | 8750 | 8000 | 7450 |
| | | ae=1D | | Vf | 760 | 1080 | 1300 | 1470 | 1530 | 1700 |
| | Copper Alloy (＜HB200) | ap≤0.5D | 150 (60-350) | n | 12800 | 10000 | 9300 | 8750 | 8000 | 7450 |
| | | ae=1D | | Vf | 690 | 970 | 1160 | 1320 | 1380 | 1530 |

## UA160-S4
## Side Milling : Aluminium Alloys

| | Workpiece | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 4 | 6 | 8 | 10 | 12 |
|---|---|---|---|---|---|---|---|---|---|
| N | Wrought Aluminum Alloys Cast Aluminum Alloys (Si≤12%) | ap≤1.5D | 200 (120-350) | n | 16000 | 12000 | 10000 | 8000 | 6600 |
| | | ae≤0.1D | | Vf | 1500 | 1800 | 2000 | 2250 | 2500 |

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia ).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

# Recommended Cutting Data

SA100-S3

Side Milling : Aluminium Alloys

| Recommended Cutting Data | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 2 | 4 | 6 | 8 | 10 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|
| N | Wrought Aluminum Alloys Cast Aluminum Alloys (Si≤12%) | ap≤1.5D | 150 (60-350) | n | 14000 | 12000 | 10000 | 9000 | 8500 | 8000 |
| | | ae≤0.2D | | Vf | 2000 | 3000 | 3500 | 4000 | 4500 | 5000 |
| | Copper Alloy (＜HB200) | ap≤1.5D | 150 (60-350) | n | 14000 | 12000 | 10000 | 9000 | 8500 | 8000 |
| | | ae≤0.2D | | Vf | 2000 | 3000 | 3500 | 4000 | 4500 | 5000 |

SA100-S3

For Aluminium Alloy ——Slotting

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 2 | 4 | 6 | 8 | 10 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|
| N | Wrought Aluminum Alloys Cast Aluminum Alloys (Si≤12%) | ap≤1D | 150 (60-350) | n | 11500 | 10000 | 9300 | 8750 | 8000 | 7450 |
| | | azte≤1D | | Vf | 1000 | 1500 | 2000 | 2500 | 3500 | 4000 |
| | Copper Alloy (＜HB200) | ap≤1D | 150 (60-350) | n | 11500 | 10000 | 9300 | 8750 | 8000 | 7450 |
| | | ae≤1D | | Vf | 1000 | 1500 | 2000 | 2500 | 3500 | 4000 |

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia ).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

# Recommended Cutting Data

## SA210-BW
## Side Milling : Aluminium Alloys

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 12 | 16 | 20 | 25 |
|---|---|---|---|---|---|---|---|---|
| N | Aluminium Alloy | ap≤0.75D | 950 | n | 20000 | 18000 | 16000 | 12000 |
| | | ae≤1D | | Vf | 7800 | 8100 | 7200 | 5760 |

## SA210-BW
## Slot Milling: Aluminium Alloys

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 12 | 16 | 20 | 25 |
|---|---|---|---|---|---|---|---|---|
| N | Aluminium Alloy | ap≤0.75D | 800 | n | 20000 | 15000 | 12000 | 10000 |
| | | | | Vf | 6000 | 5400 | 4680 | 3900 |

## SA210-HF
## Slot Milling: Aluminium Alloys

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|
| N | Aluminium Alloy 7075, 7050 | ap≤0.2D | 385 (300~471) | n | 8000 | 6400 | 6000 | 5000 | 4000 |
| | | ae=1D | | Vf | 2300 | 2880 | 3200 | 3700 | 4000 |

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia ).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

# Recommended Cutting Data

## SA300-RN2
## Aluminium Alloy ——Side Milling

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 6 | 8 | 10 | 12 | 16 | 20 | 25 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| N | Aluminium Alloy 7075, 7050 | ap≤0.15D | 835 (370～1300) | n | 20000 | 20000 | 20000 | 20000 | 20000 | 20000 | 16000 |
| | | ae≤0.5D | | Vf | 3200 | 4000 | 5200 | 6000 | 6600 | 6800 | 7560 |

## SA300-RN2
## Aluminium Alloy ——Slotting

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 6 | 8 | 10 | 12 | 16 | 20 | 25 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| N | Aluminium Alloy 7075, 7050 | ap≤0.2D | 385 (300~471) | n | 16000 | 15000 | 12000 | 10000 | 8000 | 7000 | 6000 |
| | | ae=1D | | Vf | 3200 | 3600 | 3360 | 3200 | 3040 | 2940 | 3000 |

## SA300-RN3
## Aluminium Alloy ——Side Milling

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 6 | 8 | 10 | 12 | 16 | 20 | 25 | 32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N | Aluminium Alloy 7075, 7050 | ap≤0.25D | 785 (370~1200) | n | 20000 | 20000 | 20000 | 20000 | 20000 | 20000 | 16000 | 12000 |
| | | ae≤0.5D | | Vf | 4800 | 6000 | 7200 | 8400 | 9000 | 9000 | 10000 | 10800 |

## SA300-RN3
## Aluminium Alloy ——Slotting

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 6 | 8 | 10 | 12 | 16 | 20 | 25 | 32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N | Aluminium Alloy 7075, 7050 | ap≤0.2D | 400 (300~500) | n | 16000 | 15000 | 12000 | 10000 | 8000 | 7000 | 6000 | 4000 |
| | | ae=1D | | Vf | 4800 | 5400 | 5040 | 4800 | 4560 | 4410 | 4500 | 3000 |

1、Maximum T.I.R. in when tool is chucked is 0.005mm(0.005mm maximum recommended).
2、Pls pay attention to use machine and holder with high rigidity .
3、Please adjust the speed,feed and cutting depth according to actual cutting conditons.
4、The milling conditions are for an end mill where the tool overhang length is less than 4*D (mill dia ).When the tool overhang length is longer, please adjust the speed,feed and cutting depth.

# Recommended Cutting Data

## SG200- S2/SN2/R2/RN2
## Side Milling :Graphite

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 2 | 4 | 6 | 8 | 10 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|
| N | For High silicon aluminum (Si>12%) | ap≤1D | 200 | n | 31850 | 15920 | 10620 | 7960 | 6370 | 5310 |
| | | ae≤0.15D | | Vf | 1910 | 1590 | 1270 | 1120 | 1080 | 1380 |
| | Graphite | ap≤1.5D | 250 | n | 39810 | 19900 | 13270 | 9950 | 7960 | 6640 |
| | | ae≤0.5D | | Vf | 3980 | 2790 | 2390 | 2190 | 2390 | 2390 |

## SG200-S3
## Side Milling :Graphite

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 2 | 4 | 6 | 8 | 10 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|
| N | For High silicon aluminum (Si>12%) | ap≤1D | 200 | n | 31850 | 15920 | 10620 | 7960 | 6370 | 5310 |
| | | ae≤0.15D | | Vf | 2870 | 2390 | 1910 | 1670 | 1620 | 2070 |
| | Graphite | ap≤1.5D | 250 | n | 39810 | 19900 | 13270 | 9950 | 7960 | 6640 |
| | | ae≤0.5D | | Vf | 5970 | 4180 | 3580 | 3280 | 3580 | 3580 |

## SG200- S4/R4/RN4
## Side Milling :Graphite

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 2 | 4 | 6 | 8 | 10 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|
| N | For High silicon aluminum (Si>12%) ) | ap≤1D | 200 | n | 31850 | 15920 | 10620 | 7960 | 6370 | 5310 |
| | | ae≤0.15D | | Vf | 3820 | 3190 | 2550 | 2230 | 2170 | 2760 |
| | Graphite | ap≤1.5D | 250 | n | 39810 | 19900 | 13270 | 9950 | 7960 | 6640 |
| | | ae≤0.5D | | Vf | 7960 | 5570 | 4780 | 4380 | 4780 | 4780 |

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia ).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

# Recommended Cutting Data

## SG200- S2/SN2/R2/RN2
Slot Milling :Graphite

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 2 | 4 | 6 | 8 | 10 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|
| N | For High silicon aluminum (Si>12%) | ap≤0.5D | 180 | n | 28660 | 14330 | 9550 | 7170 | 5730 | 4780 |
| | | | | Vf | 1150 | 1150 | 960 | 860 | 800 | 860 |
| | Graphite | ap≤0.5D | 200 | n | 31850 | 15920 | 10620 | 7960 | 6370 | 5310 |
| | | | | Vf | 1910 | 1430 | 1380 | 1350 | 1400 | 1590 |

## SG200-S3
Slot Milling :Graphite

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 2 | 4 | 6 | 8 | 10 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|
| N | For High silicon aluminum (Si>12%) | ap≤0.5D | 180 | n | 28660 | 14330 | 9550 | 7170 | 5730 | 4780 |
| | | | | Vf | 1720 | 1720 | 1430 | 1290 | 1200 | 1290 |
| | Graphite | ap≤0.5D | 200 | n | 31850 | 15920 | 10620 | 7960 | 6370 | 5310 |
| | | | | Vf | 2870 | 2150 | 2070 | 2030 | 2100 | 2390 |

## SG200-B2/BN2
Profile Milling :Graphite

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter (mm) | 2 | 4 | 6 | 8 | 10 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|
| N | For High silicon aluminum (Si>12%) | ap≤0.3D | 200 | n | 31850 | 15920 | 10620 | 7960 | 6370 | 5310 |
| | | ae≤0.3D | | Vf | 2040 | 1430 | 1270 | 1270 | 1400 | 1380 |
| | Graphite | ap≤0.5D | 250 | n | 39810 | 19900 | 13270 | 9950 | 7960 | 6640 |
| | | ae≤0.4D | | Vf | 2790 | 1990 | 1860 | 1790 | 1910 | 1990 |

## SG200-M-RN4/B2/BN2
Profile Milling :Graphite

| Workpiece | | Cutting Depth（mm） | Cutting Application | n | Feed Spped (mm/min) |
|---|---|---|---|---|---|
| N | Graphite | 0.03≤ap≤0.05<br>0.03≤ae≤0.05 | General Condition | 10000~15000 | 2000~3000 |
| | | | High Speed Condition | 25000~32000 | 3500~4500 |

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia ).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

# Recommended Cutting Data

## ST210—S4/R4/RN4
## Side Milling: Titanium Alloy

| Workpiece | | Cutting Depth | Vc m/min | Tool Diameter (mm) | 2 | 3 | 4 | 5 | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S | Titanium Alloy | ap≤1.5D | 60 (40~100) | n (min-1) | 9555 | 6370 | 4780 | 3820 | 3185 | 2390 | 1910 | 1590 | 1195 | 955 |
| | | ae≤0.25D | | Vf (mm/min) | 380 | 305 | 285 | 305 | 320 | 335 | 345 | 350 | 310 | 305 |
| M | Stainless Steel | ap≤1.5D | 80 (60~110) | n (min-1) | 12740 | 8490 | 6370 | 5095 | 4245 | 3185 | 2545 | 2020 | 1590 | 1275 |
| | | ae≤0.25D | | Vf (mm/min) | 760 | 575 | 510 | 510 | 510 | 510 | 510 | 485 | 445 | 430 |

## ST210-S4/R4/RN4
## Slot Milling: Titanium Alloy

| Workpiece | | Cutting Depth | Vc m/min | Tool Diameter (mm) | 2 | 3 | 4 | 5 | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S | Titanium Alloy | ap≤1D | 40 (30~60) | n (min-1) | 6370 | 4245 | 3185 | 2545 | 2120 | 1590 | 1270 | 1060 | 795 | 635 |
| | | ae≤1D | | Vf (mm/min) | 255 | 200 | 190 | 170 | 170 | 190 | 200 | 210 | 190 | 190 |
| M | Stainless Steel | ap≤1D | 60 (50~70) | n (min-1) | 9555 | 6370 | 4775 | 3820 | 3185 | 2390 | 1910 | 1590 | 1195 | 955 |
| | | ae≤1D | | Vf (mm/min) | 380 | 305 | 285 | 305 | 320 | 335 | 345 | 350 | 310 | 305 |

# Recommended Cutting Data

## ST210—RL5

Profile Milling: Titanium Alloy

| Workpiece | | Cutting Depth | Vc m/min | Tool Diameter (mm) | 16 | 20 | 25 |
|---|---|---|---|---|---|---|---|
| S | Titanium Alloy | ap≤0.7*Lc | 50 (40-60) | n (min-1) | 980 | 780 | 620 |
| | | ae≤0.1D | | Vf (mm/min) | 390 | 370 | 300 |

Remark: Lc is the length of the edge

1、Pls pay attention to use machine and holder with high rigidity .
2、Please adjust the speed,feed and cutting depth according to actual cutting conditons.

## ST210-B4

Profile Milling: Titanium Alloy

| Workpiece | | Cutting Depth | Vc m/min | Tool Diameter (mm) | 2 | 3 | 4 | 5 | 6 | 8 | 10 | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S | Titanium Alloy | ap≤0.2D | 70 (60~80) | n (min-1) | 8000 | 6300 | 5580 | 4500 | 3715 | 2785 | 2230 | 1860 | 1390 | 1120 |
| | | ae≤0.3D | | Vf (mm/min) | 800 | 1000 | 1000 | 800 | 670 | 610 | 535 | 480 | 445 | 360 |

1、Maximum T.I.R. in when tool is chucked is 0.01mm(0.01mm maximum recommended).
2、Pls pay attention to use machine and holder with high rigidity .
3、Please adjust the speed,feed and cutting depth according to actual cutting conditons.
4、The milling conditions are for an end mill where the tool overhang length is less than 4*D (mill dia ).When the tool overhang length is longer, please adjust the speed,feed and cutting depth.

# Recommended Cutting Data

ST300-RN4
Side Milling:Titanium Alloy

| Workpiece | | Cutting Depth | Vc m/min | Tool Diameter (mm) | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|
| S | TA Titanium Alloys | ap≤1.5D | 100 (80-120) | n (min-1) | 2650 | 1990 | 1590 |
| | | ae≤0.2D | | Vf (mm/min) | 740 | 635 | 605 |
| | TC Titanium Alloys | ap≤1.5D | 100 (80-120) | n (min-1) | 2650 | 1990 | 1590 |
| | | ae≤0.2D | | Vf (mm/min) | 690 | 635 | 570 |
| | TB Titanium Alloys | ap≤1.5D | 80 (60-100) | n (min-1) | 2120 | 1590 | 1270 |
| | | ae≤0.2D | | Vf (mm/min) | 550 | 510 | 460 |

ST300-RN4
Slot Milling: Titanium Alloy

| Workpiece | | Cutting Depth | Vc m/min | Tool Diameter (mm) | 12 | 16 | 20 |
|---|---|---|---|---|---|---|---|
| S | TA Titanium Alloy | ap≤1D | 80 (60-100) | n (min-1) | 2120 | 1590 | 1275 |
| | | ae≤1D | | Vf (mm/min) | 595 | 510 | 485 |
| | TC Titanium Alloy | ap≤1D | 80 (60-100) | n (min-1) | 2120 | 1590 | 1275 |
| | | ae≤1D | | Vf (mm/min) | 550 | 510 | 460 |
| | TB Titanium Alloy | ap≤1D | 50 (40-60) | n (min-1) | 1460 | 1095 | 875 |
| | | ae≤1D | | Vf (mm/min) | 380 | 350 | 315 |

1、Make sure workpiece and machine are suitable, use high qualitycollect chucks.
2、Please adjust the speed feed and cutting depth according to actual cutting conditions.
3、The milling cindition are for an endmill where the tool overhang length ie less than 4D. When the tool overhang length is longer, please adjust the speed, feed and cutting depth.
4、If corner radius is ＞15% of D then ap=-30%，fz=-20%.

# Recommended Cutting Data

## ST300-RN5
## Side Milling:Titanium Alloy

| Workpiece | | Cutting Depth | Vc m/min | Tool Diameter (mm) | 16 | 20 | 25 |
|---|---|---|---|---|---|---|---|
| S | TA Titanium Alloys | ap≤1.5D | 100 (80-120) | n (min-1) | 1990 | 1590 | 1270 |
| | | ae≤0.2D | | Vf (mm/min) | 795 | 755 | 605 |
| | TC Titanium Alloys | ap≤1.5D | 100 (80-120) | n (min-1) | 1990 | 1590 | 1270 |
| | | ae≤0.2D | | Vf (mm/min) | 795 | 715 | 570 |
| | TB Titanium Alloys | ap≤1.5D | 80 (60-100) | n (min-1) | 1590 | 1270 | 1020 |
| | | ae≤0.2D | | Vf (mm/min) | 635 | 570 | 460 |

## ST300-RN5
## Slot Milling: Titanium Alloy

| Workpiece | | Cutting Depth | Vc m/min | Tool Diameter (mm) | 16 | 20 | 25 |
|---|---|---|---|---|---|---|---|
| S | TA Titanium Alloy | ap≤1D | 80 (60-100) | n (min-1) | 1590 | 1275 | 1020 |
| | | ae≤1D | | Vf (mm/min) | 635 | 605 | 485 |
| | TC Titanium Alloy | ap≤1D | 80 (60-100) | n (min-1) | 1590 | 1275 | 1020 |
| | | ae≤1D | | Vf (mm/min) | 635 | 570 | 460 |
| | TB Titanium Alloy | ap≤1D | 50 (40-60) | n (min-1) | 1095 | 875 | 700 |
| | | ae≤1D | | Vf (mm/min) | 435 | 395 | 315 |

1、Make sure workpiece and machine are suitable, use high qualitycollect chucks.
2、Please adjust the speed feed and cutting depth according to actual cutting conditions.
3、The milling cindition are for an endmill where the tool overhang length ie less than 4D. When the tool overhang length is longer, please adjust the speed, feed and cutting depth.
4、If corner radius is ＞15% of D then ap=-30%，fz=-20%.

# Recommended Cutting Data

## SN200-R4
## Heat Resistant Super Alloy:Side Milling

| Workpiece | | Cutting Depth | Vc m/min | Tool Diameter (mm) | 6 | 8 | 10 | 12 | 16 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|
| S | TA Titanium Alloys | ap≤1D | 25 (15-35) | n (min-1) | 1325 | 995 | 795 | 660 | 495 | 450 |
| | | ae≤0.1D | | Vf (mm/min) | 160 | 160 | 190 | 185 | 160 | 180 |
| | TC Titanium Alloys | ap≤1D | 20 (15-30) | n (min-1) | 1060 | 795 | 635 | 530 | 400 | 360 |
| | | ae≤0.1D | | Vf (mm/min) | 125 | 125 | 150 | 145 | 125 | 140 |
| | TB Titanium Alloys | ap≤1D | 25 (15-30) | n (min-1) | 1325 | 995 | 795 | 660 | 495 | 450 |
| | | ae≤0.1D | | Vf (mm/min) | 160 | 160 | 190 | 185 | 160 | 180 |

## SN200-R4
## Heat Resistant Super Alloy: Slot Milling

| Workpiece | | Cutting Depth | Vc m/min | Tool Diameter (mm) | 6 | 8 | 10 | 12 | 16 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|
| S | TA Titanium Alloys | ap≤0.5D | 20 (10-30) | n (min-1) | 1060 | 795 | 635 | 530 | 400 | 360 |
| | | ae≤1D | | Vf (mm/min) | 105 | 95 | 90 | 95 | 80 | 80 |
| | TC Titanium Alloys | ap≤0.5D | 15 (10-25) | n (min-1) | 795 | 600 | 475 | 400 | 300 | 270 |
| | | ae≤1D | | Vf (mm/min) | 65 | 60 | 60 | 60 | 60 | 60 |
| | TB Titanium Alloys | ap≤0.5D | 20 (10-30) | n (min-1) | 1060 | 795 | 635 | 530 | 400 | 360 |
| | | ae≤1D | | Vf (mm/min) | 105 | 95 | 90 | 95 | 80 | 80 |

1、Maximum T.I.R. in when tool is chucked is 0.01mm(0.01mm maximum recommended).
2、Pls pay attention to use machine and holder with high rigidity .
3、Please adjust the speed,feed and cutting depth according to actual cutting conditons.
4、The milling conditions are for an end mill where the tool overhang length is less than 4*D (mill dia ).When the tool overhang length is longer, please adjust the speed,feed and cutting depth.

# Recommended Cutting Data

SN200-B4

Heat Resistant Super Alloy:Profile Milling

| Workpiece | | Cutting Depth | Vc m/min | Tool Diameter (mm) | 6 | 8 | 10 | 12 | 16 |
|---|---|---|---|---|---|---|---|---|---|
| S | TA Titanium Alloys | ap≤0.04D | 40 (30-50) | n (min-1) | 2120 | 1590 | 1270 | 1060 | 795 |
| | | ae≤0.04D | | Vf (mm/min) | 255 | 285 | 305 | 340 | 320 |
| | TC Titanium Alloys | ap≤0.04D | 35 (25-45) | n (min-1) | 1855 | 1390 | 1115 | 930 | 695 |
| | | ae≤0.04D | | Vf (mm/min) | 220 | 220 | 265 | 260 | 280 |
| | TB Titanium Alloys | ap≤0.03D | 40 (30-50) | n (min-1) | 2120 | 1590 | 1270 | 1060 | 795 |
| | | ae≤0.03D | | Vf (mm/min) | 255 | 285 | 305 | 320 | 320 |

1、Maximum T.I.R. in when tool is chucked is 0.01mm(0.01mm maximum recommended).
2、Pls pay attention to use machine and holder with high rigidity .
3、Please adjust the speed,feed and cutting depth according to actual cutting conditons.
4、The milling conditions are for an end mill where the tool overhang length is less than 4*D (mill dia ).When the tool overhang length is longer, please adjust the speed,feed and cutting depth.

# Recommended Cutting Data

## SD200-KDA
## Compound material- Side Milling

| Workpiece | | Cutting Depth | Vc m/min | Tool Diameter (mm) | 4 | 6 | 8 | 10 | 12 |
|---|---|---|---|---|---|---|---|---|---|
| N | CFRP | ap≤2D | 140 (80-200) | n (min-1) | 8000 | 7430 | 5570 | 4460 | 3715 |
| | | ae≤0.2D | | Vf (mm/min) | 480 | 445 | 445 | 445 | 370 |
| | GFRP | ap≤2D | 150 (100-200) | n (min-1) | 8000 | 7960 | 5970 | 4775 | 3980 |
| | | ae≤0.2D | | Vf (mm/min) | 480 | 475 | 475 | 475 | 400 |

## SD200-KDA
## Compound material - Slot Milling

| Workpiece | | Cutting Depth | Vc m/min | Tool Diameter (mm) | 4 | 6 | 8 | 10 | 12 |
|---|---|---|---|---|---|---|---|---|---|
| N | CFRP | ap≤1D | 120 (80-160) | n (min-1) | 8000 | 6370 | 4775 | 3820 | 3185 |
| | | ae≤1D | | Vf (mm/min) | 320 | 255 | 285 | 305 | 320 |
| | GFRP | ap≤1D | 150 (100-200) | n (min-1) | 8000 | 7960 | 5970 | 4775 | 3980 |
| | | ae≤1D | | Vf (mm/min) | 320 | 320 | 360 | 380 | 400 |

## SD200-JD2
## Compound material - Side Milling

| Workpiece | | Cutting Depth | Vc m/min | Tool Diameter (mm) | 4 | 6 | 8 | 10 | 12 |
|---|---|---|---|---|---|---|---|---|---|
| N | CFRP | ap≤2D | 140 (80-200) | n (min-1) | 10350 | 6900 | 5175 | 4140 | 3450 |
| | | ae≤0.2D | | Vf (mm/min) | 621 | 483 | 414 | 414 | 345 |
| | GFRP | ap≤2D | 150 (100-200) | n (min-1) | 9554 | 6369 | 4777 | 3822 | 3185 |
| | | ae≤0.2D | | Vf (mm/min) | 573 | 445 | 382 | 382 | 318 |

1、Please attention to use machine and holder with high rigidity .
2、Please adjust the speed,feed and cutting depth according to actual cutting conditons.
3、The milling conditions are for an end mill where the tool overhang length is less than 4*D (mill dia ).When the tool overhang length is longer, please adjust the speed,feed and cutting depth.

# Recommended Cutting Data

## SH260- S2/SN2/R2/RN2-H
## Alloy Steel, Hardened Steel - Slot Milling

| Workpiece | | Cutting Depth | Tool Diameter | Tool Diameter (mm) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 2 | 4 | 6 | 8 | 10 | 12 |
| P | Alloy Steel (30-45HRC) | ae=1D | n (min-1) | 20000 | 10350 | 8500 | 6600 | 5250 | 4400 |
| | | ap≤0.05D | Vf (mm/min) | 520 | 550 | 630 | 610 | 580 | 580 |
| H | Hardened Steel (45-55HRC) | ae=1D | n (min-1) | 16000 | 8300 | 5200 | 3800 | 3100 | 2800 |
| | | ap≤0.02D | Vf (mm/min) | 380 | 410 | 340 | 320 | 300 | 300 |
| | Hardened Steel (55-60HRC) | ae=1D | n (min-1) | 13500 | 6800 | 4600 | 3000 | 2400 | 2000 |
| | | ap≤0.01D | Vf (mm/min) | 240 | 240 | 230 | 190 | 180 | 170 |

## SH260- S2/SN2/R2/RN2-H
## Alloy Steel, Hardened Steel - Side Milling

| Workpiece Material | | Cutting Depth (mm) | Tool Diameter | Tool Diameter（mm） | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 2 | 4 | 6 | 8 | 10 | 12 |
| P | Alloy Steel (30-45HRC) | ap≤0.8D | n (min-1) | 20000 | 10350 | 8500 | 6600 | 5250 | 4400 |
| | | ae≤0.03D | Vf (mm/min) | 720 | 750 | 880 | 610 | 820 | 820 |
| H | Hardened Steel (45-55HRC) | ap≤0.5D | n (min-1) | 16000 | 8300 | 5200 | 3800 | 3100 | 2800 |
| | | ae≤0.03D | Vf (mm/min) | 540 | 570 | 520 | 460 | 420 | 420 |
| | Hardened Steel (55-60HRC) | ap≤0.5D | n (min-1) | 13500 | 6800 | 4600 | 3000 | 2400 | 2000 |
| | | ae≤0.01D | Vf (mm/min) | 340 | 360 | 350 | 270 | 250 | 250 |

1、Please attention to use machine and holder with high rigidity .
2、Please adjust the speed,feed and cutting depth according to actual cutting conditons.
3、The milling conditions are for an end mill where the tool overhang length is less than 4*D (mill dia ).When the tool overhang length is longer, please adjust the speed,feed and cutting depth.

# Recommended Cutting Data

## SH260- S4/SH4/SL4/SN4/R4/RH4/RN4-H
## Alloy Steel, Hardened Steel - Side Milling

| Workpiece | | Cutting Depth (mm) | Cutting Application | Tool Diameter | Tool Diameter（mm） | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 2 | 4 | 6 | 8 | 10 | 12 |
| P | Alloy Steel (30-45HRC) | ap≤1.2D ae≤0.08D | General Condition | n (min-1) | 14000 | 7200 | 4800 | 3600 | 2900 | 2400 |
| | | | | Vf (mm/min) | 800 | 900 | 1000 | 1100 | 1050 | 1000 |
| | | | High Speed Condition | n (min-1) | 20000 | 10000 | 7000 | 5200 | 4200 | 3600 |
| | | | | Vf (mm/min) | 1200 | 1400 | 1600 | 1800 | 1600 | 1500 |
| H | Hardened Steel (45-55HRC) | ap≤1.0D ae≤0.04D | General Condition | n (min-1) | 12500 | 6400 | 4200 | 3200 | 2500 | 2100 |
| | | | | Vf (mm/min) | 500 | 600 | 700 | 800 | 700 | 640 |
| | | | High Speed Condition | n (min-1) | 18000 | 9200 | 6100 | 4600 | 3600 | 3000 |
| | | | | Vf (mm/min) | 900 | 1150 | 1300 | 1400 | 1300 | 1200 |
| | Hardened Steel (55-60HRC) | ap≤0.8D ae≤0.02D | General Condition | n (min-1) | 11000 | 5600 | 3700 | 2800 | 2200 | 1900 |
| | | | | Vf (mm/min) | 440 | 500 | 580 | 630 | 570 | 550 |
| | | | High Speed Condition | n (min-1) | 15000 | 8000 | 5300 | 4000 | 3200 | 2700 |
| | | | | Vf (mm/min) | 790 | 900 | 1040 | 1100 | 1000 | 900 |

## SH260- S6/SH6/SL6-H
## Alloy Steel, Hardened Steel - Side Milling

| Workpiece | | Cutting Depth (mm) | Tool Diameter | Tool Diameter（mm） | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 6 | 8 | 10 | 12 | 16 | 20 |
| P | Alloy Steel (30-45HRC) | ap≤1.5D ae≤0.05D | n (min-1) | 6200 | 4800 | 4000 | 3200 | 2400 | 1600 |
| | | | Vf (mm/min) | 1674 | 1584 | 1560 | 1440 | 1296 | 960 |
| H | Hardened Steel (45-55HRC) | ap≤1.5D ae≤0.03D | n (min-1) | 4500 | 3600 | 3000 | 2400 | 1800 | 1200 |
| | | | Vf (mm/min) | 1215 | 1188 | 1170 | 1080 | 972 | 720 |
| | Hardened Steel (55-60HRC) | ap≤1.5D ae≤0.02D | n (min-1) | 3100 | 2400 | 2000 | 1600 | 1200 | 800 |
| | | | Vf (mm/min) | 744 | 720 | 720 | 627 | 576 | 432 |

1、Please attention to use machine and holder with high rigidity .
2、Please adjust the speed,feed and cutting depth according to actual cutting conditons.
3、The milling conditions are for an end mill where the tool overhang length is less than 4*D (mill dia ).When the tool overhang length is longer, please adjust the speed,feed and cutting depth.

# Recommended Cutting Data

SH260-B2/BH2/BN2-H

Alloy Steel ,Hardened Steel - Profile Milling

| Workpiece | | Cutting Depth (mm) | Cutting Application | Tool Diameter | Tool Diameter（mm） | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 2 | 4 | 6 | 8 | 10 | 12 |
| P | Alloy Steel (30-45HRC) | ap=0.05~0.1D ae≤0.02D | General Condition | n (min-1) | 20000 | 10300 | 6900 | 5100 | 4100 | 3400 |
| | | | | Vf (mm/min) | 1500 | 1650 | 1650 | 1700 | 1700 | 1750 |
| | | | High Speed Condition | n (min-1) | 35000 | 17500 | 11600 | 8700 | 7000 | 6000 |
| | | | | Vf (mm/min) | 2600 | 2700 | 2700 | 2850 | 2850 | 2900 |
| H | Hardened Steel (45-55HRC) | ap=0.05~0.1D ae≤0.02D | General Condition | n (min-1) | 15900 | 8000 | 5300 | 4000 | 3200 | 2600 |
| | | | | Vf (mm/min) | 1200 | 1300 | 1300 | 1350 | 1350 | 1400 |
| | | | High Speed Condition | n (min-1) | 28600 | 14300 | 9500 | 7200 | 5700 | 4500 |
| | | | | Vf (mm/min) | 2200 | 2300 | 2300 | 2350 | 2350 | 2400 |
| | Hardened Steel (55-60HRC) | ap=0.05~0.1D ae≤0.02D | General Condition | n (min-1) | 12000 | 6000 | 4000 | 2900 | 2400 | 2100 |
| | | | | Vf (mm/min) | 900 | 960 | 960 | 920 | 920 | 900 |
| | | | High Speed Condition | n (min-1) | 25400 | 12700 | 8500 | 6400 | 5000 | 1900 |
| | | | | Vf (mm/min) | 1800 | 1800 | 1800 | 1500 | 1500 | 1500 |

1、Please attention to use machine and holder with high rigidity .
2、Please adjust the speed,feed and cutting depth according to actual cutting conditons.
3、The milling conditions are for an end mill where the tool overhang length is less than 4*D (mill dia ).When the tool overhang length is longer, please adjust the speed,feed and cutting depth.

# Recommended Cutting Data

## SH300-S2/SN2/R2/RN2-H
## For Alloy Steels, Hardened Steel——Side Milling

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter | Tool Diameter（mm） | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1 | 2 | 4 | 6 | 8 | 10 | 12 |
| H | Alloy Steel Hardened Steel (< 55HRC) | ap ⩽ 1D | 100 | n (min-1) | 25400 | 15900 | 7960 | 5300 | 3980 | 3180 | 2650 |
| | | ae ⩽ 0.02D | | Vf (mm/min) | 500 | 570 | 560 | 530 | 480 | 480 | 430 |
| | Alloy Steel Hardened Steel (55-60HRC) | ap ⩽ 1D | 80 | n (min-1) | 19100 | 12700 | 6370 | 4250 | 3180 | 2550 | 2120 |
| | | ae ⩽ 0.015D | | Vf (mm/min) | 280 | 300 | 320 | 290 | 280 | 260 | 260 |
| | Alloy Steel Hardened Steel (> 60HRC) | ap ⩽ 1D | 60 | n (min-1) | 16000 | 9550 | 4780 | 3180 | 2390 | 1910 | 1590 |
| | | ae ⩽ 0.01D | | Vf (mm/min) | 160 | 190 | 200 | 200 | 180 | 160 | 160 |

## SH300-SS4/S4/SH4/SL4/SN4/R4/RH4/RN4-H
## For Alloy Steels, Hardened Steel——Side Milling

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter | Tool Diameter（mm） | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1 | 2 | 4 | 6 | 8 | 10 | 12 |
| H | Alloy Steel Hardened Steel (< 55HRC) | ap ⩽ 1D | 150 | n (min-1) | 40000 | 24000 | 12000 | 8000 | 6000 | 4800 | 4000 |
| | | ae ⩽ 0.02D | | Vf (mm/min) | 1350 | 1440 | 2400 | 1760 | 1440 | 1248 | 1200 |
| | Alloy Steel Hardened Steel (55-60HRC) | ap ⩽ 1D | 120 | n (min-1) | 30000 | 18000 | 10350 | 6900 | 5175 | 4140 | 3450 |
| | | ae ⩽ 0.015D | | Vf (mm/min) | 1000 | 1080 | 2070 | 1518 | 1242 | 1076.4 | 1035 |
| | Alloy Steel Hardened Steel (> 60HRC) | ap ⩽ 1D | 100 | n (min-1) | 20000 | 14000 | 7960 | 5300 | 4000 | 3280 | 2600 |
| | | ae ⩽ 0.01D | | Vf (mm/min) | 800 | 840 | 1592 | 1166 | 960 | 852.8 | 780 |

1、Please attention to use machine and holder with high rigidity .
2、Please adjust the speed,feed and cutting depth according to actual cutting conditons.
3、The milling conditions are for an end mill where the tool overhang length is less than 4*D (mill dia ).When the tool overhang length is longer, please adjust the speed,feed and cutting depth.

# Recommended Cutting Data

## SH300-S6/SH6/SL6/R6/RH6-H

## For Alloy Steels, Hardened Steel——Side Milling

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter | Tool Diameter（mm） | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 6 | 8 | 10 | 12 | 14 | 16 | 20 |
| H | Alloy Steel Hardened Steel (< 55HRC) | ap ⩽ 1.5D | 120 | n (min-1) | 6200 | 4800 | 4000 | 3200 | 2800 | 2400 | 1600 |
| | | ae ⩽ 0.03D | | Vf (mm/min) | 1674 | 1584 | 1560 | 1440 | 1344 | 1296 | 960 |
| | Alloy Steel Hardened Steel (55-60HRC) | ap ⩽ 1.5D | 100 | n (min-1) | 4500 | 3600 | 3000 | 2400 | 2100 | 1800 | 1200 |
| | | ae ⩽ 0.025D | | Vf (mm/min) | 1215 | 1188 | 1170 | 1080 | 1020 | 972 | 720 |
| | Alloy Steel Hardened Steel (> 60HRC) | ap ⩽ 1.5D | 70 | n (min-1) | 3100 | 2400 | 2000 | 1600 | 1400 | 1200 | 800 |
| | | ae ⩽ 0.02D | | Vf (mm/min) | 744 | 720 | 720 | 627 | 600 | 576 | 432 |

## SH300-B2/BH2/BN2-H

## For Alloy Steels, Hardened Steel——Profiling

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter | Tool Diameter（mm） | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 0.6 | 1 | 2 | 4 | 6 | 8 | 10 | 12 |
| H | Alloy Steel Hardened Steel (< 55HRC) | ap ⩽ 0.02D | 150 | n (min-1) | 44000 | 23000 | 16000 | 10000 | 7400 | 5700 | 4500 | 3800 |
| | | ae ⩽ 0.02D | | Vf (mm/min) | 1100 | 1200 | 1770 | 1680 | 1500 | 1300 | 1100 | 1000 |
| | Alloy Steel Hardened Steel (55-60HRC) | ap ⩽ 0.015D | 120 | n (min-1) | 41000 | 21000 | 14000 | 9500 | 5100 | 4100 | 3500 | 2600 |
| | | ae ⩽ 0.015D | | Vf (mm/min) | 1000 | 1200 | 1480 | 1390 | 1300 | 1170 | 1000 | 800 |
| | Alloy Steel Hardened Steel (> 60HRC) | ap ⩽ 0.01D | 90 | n (min-1) | 40000 | 20000 | 13000 | 7000 | 5100 | 3900 | 3100 | 2600 |
| | | ae ⩽ 0.01D | | Vf (mm/min) | 700 | 800 | 1300 | 1100 | 960 | 800 | 700 | 600 |

1、Please attention to use machine and holder with high rigidity .
2、Please adjust the speed,feed and cutting depth according to actual cutting conditons.
3、The milling conditions are for an end mill where the tool overhang length is less than 4*D (mill dia ).When the tool overhang length is longer, please adjust the speed,feed and cutting depth.

# Recommended Cutting Data

## SH300-B4/BH4/BN4-H
## For Alloy Steels, Hardened Steel——Profiling Roughing

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter | Tool Diameter（mm） | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 2 | 4 | 6 | 8 | 10 | 12 |
| H | Alloy Steel Hardened Steel (< 55HRC) | ap ⩽ 0.08D | 130 | n (min-1) | 21000 | 10350 | 6900 | 5175 | 4140 | 3450 |
| | | ae ⩽ 0.18D | | Vf (mm/min) | 2520 | 2484 | 2484 | 2270 | 2150 | 2070 |
| | Alloy Steel Hardened Steel (55-60HRC) | ap ⩽ 0.06D | 100 | n (min-1) | 15120 | 7560 | 5040 | 3780 | 3020 | 2520 |
| | | ae ⩽ 0.13D | | Vf (mm/min) | 1210 | 1210 | 1310 | 1280 | 1200 | 1210 |
| | Alloy Steel Hardened Steel (> 60HRC) | ap ⩽ 0.04D | 80 | n (min-1) | 12740 | 6370 | 4250 | 3180 | 2550 | 2120 |
| | | ae ⩽ 0.08D | | Vf (mm/min) | 920 | 1020 | 980 | 890 | 920 | 850 |

## SH300-B4/BH4/BN4-H
## For Alloy Steels, Hardened Steel——Profiling Finishiing

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter | Tool Diameter（mm） | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 2 | 4 | 6 | 8 | 10 | 12 |
| H | Alloy Steel Hardened Steel (< 55HRC) | ap ⩽ 0.03D | 180 | n (min-1) | 29460 | 14700 | 9800 | 7360 | 5890 | 4900 |
| | | ae ⩽ 0.02D | | Vf (mm/min) | 2360 | 2640 | 2660 | 2650 | 2590 | 2700 |
| | Alloy Steel Hardened Steel (55-60HRC) | ap ⩽ 0.02D | 150 | n (min-1) | 23880 | 11940 | 7960 | 5970 | 4780 | 3980 |
| | | ae ⩽ 0.02D | | Vf (mm/min) | 1720 | 1760 | 1850 | 1860 | 1870 | 1910 |
| | Alloy Steel Hardened Steel (> 60HRC) | ap ⩽ 0.01D | 130 | n (min-1) | 20700 | 10350 | 6900 | 5180 | 4140 | 3450 |
| | | ae ⩽ 0.01D | | Vf (mm/min) | 1160 | 1240 | 1240 | 1300 | 1320 | 1240 |

1、Please attention to use machine and holder with high rigidity .
2、Please adjust the speed,feed and cutting depth according to actual cutting conditons.
3、The milling conditions are for an end mill where the tool overhang length is less than 4*D (mill dia ).When the tool overhang length is longer, please adjust the speed,feed and cutting depth.

# Recommended Cutting Data

## FH200-R4/RN4-H
## For Alloy Steels, Hardened Steel——Face Milling

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter | Tool Diameter（mm） | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1 | 2 | 4 | 6 | 8 | 10 | 12 |
| P | Alloy Steel (< 48HRC) | ap≤0.03D | 150 | n (min-1) | 40000 | 24000 | 12000 | 8000 | 6500 | 5000 | 4500 |
| | | ae≤0.5D | | Vf (mm/min) | 2640 | 3120 | 3840 | 5760 | 5760 | 5800 | 5200 |
| H | Alloy Steel Hardened Steel (45-55HRC) | ap≤0.025D | 125 | n (min-1) | 33000 | 20000 | 10000 | 7000 | 5500 | 4000 | 3500 |
| | | ae≤0.5D | | Vf (mm/min) | 2200 | 2600 | 3200 | 4800 | 4800 | 4400 | 3800 |
| | Alloy Steel Hardened Steel (55-65HRC) | ap≤0.02D | 90 | n (min-1) | 23000 | 14000 | 7200 | 5000 | 3600 | 3000 | 2500 |
| | | ae≤0.5D | | Vf (mm/min) | 2000 | 2500 | 2800 | 3500 | 3300 | 3000 | 2600 |

1、Turning red is a normal phenomenonIn the process of processing,As long as the machine does not have obvious vibration or cutting tool without obvious damage, you can continue to use.
2、The knife type is not suitable for large depth and side milling.
3、Please adjust the speed,feed and cutting depth according to actual cutting conditons.
4、Air blow or oil mist is recommended for good chip evacuation.

## FH200-R6/RN6/RH6-H
## For Alloy Steels, Hardened Steel——Face Milling

| Workpiece | | Cutting Depth (mm) | Vc m/min | Tool Diameter | Tool Diameter（mm） | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 6 | 8 | 10 | 12 | 16 | 20 |
| P | Alloy Steel (35-48 HRC) | ap≤0.035D | 60-90 | n (min-1) | 3200-4800 | 2400-3600 | 1900-2900 | 1600-2400 | 1200-1800 | 950-1450 |
| | | ae≤0.5D | | Vf (mm/min) | 2200-3000 | 2200-3000 | 2200-3000 | 2200-3000 | 2500-3500 | 2500-3500 |
| H | Alloy Steel Hardened Steel (45-65HRC) | ap≤0.035D | 60-90 | n (min-1) | 3200-4800 | 2400-3600 | 1900-2900 | 1600-2400 | 1200-1800 | 950-1450 |
| | | ae≤0.5D | | Vf (mm/min) | 1920-2880 | 1950-2920 | 1950-2950 | 1920-2880 | 2160-3240 | 2280-3480 |

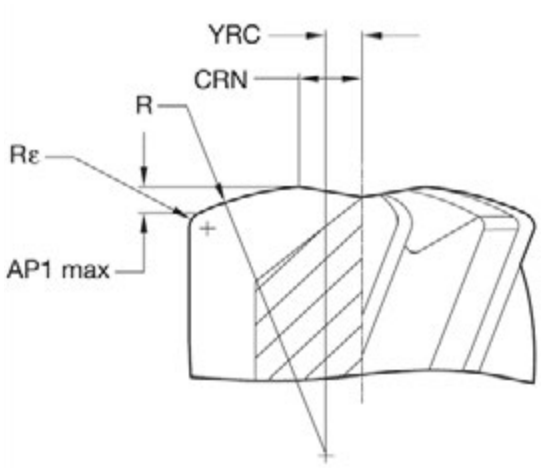
1、Turning red is a normal phenomenonIn the process of processing,As long as the machine does not have obvious vibration or cutting tool without obvious damage, you can continue to use.
2、The knife type is not suitable for large depth and side milling.
3、Please adjust the speed,feed and cutting depth according to actual cutting conditons.
4、Air blow or oil mist is recommended for good chip evacuation.

# Programming Data

## FH200-R6、RN6、RH6-H

| Geometrical Parameters | | | | | | Ramping Guide For Circular and Linear Ramping | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Circular Interpolation | | Linear Ramping | | | | |
| | | | | | | Optimal Range of Circle Diameter for A Single Pass | | Calculated Length Per Ramp Angle（mm） | | | | |
| diameter | Ap1 max | R | $R_\varepsilon$ | YRC | CRN | | | Ramp Angle(degree) | | | | |
| [mm] | [mm] | [mm] | [mm] | [mm] | [mm] | Smallest | largest | 1° | 2° | 3° | 4° | 5° |
| 6 | 0.20 | 9 | 0.375 | 0.75 | 1.26 | 8.52 | 12.00 | 11.51 | 5.75 | 3.83 | 2.87 | 2.30 |
| 8 | 0.27 | 12 | 0.500 | 1.00 | 1.68 | 11.36 | 16.00 | 15.34 | 7.67 | 5.11 | 3.83 | 3.06 |
| 10 | 0.33 | 15 | 0.625 | 1.25 | 2.10 | 14.20 | 20.00 | 19.18 | 9.58 | 6.39 | 4.79 | 3.83 |
| 12 | 0.40 | 18 | 0.750 | 1.50 | 2.52 | 17.04 | 24.00 | 23.01 | 11.50 | 7.66 | 5.74 | 4.59 |
| 16 | 0.54 | 24 | 1.000 | 2.00 | 3.36 | 22.72 | 32.00 | 30.68 | 15.34 | 10.22 | 7.66 | 6.12 |
| 20 | 0.67 | 30 | 1.250 | 2.00 | 4.2 | 28.40 | 40.00 | 38.35 | 19.17 | 12.77 | 9.57 | 7.65 |
| Recommended Percentage of Programmed Feed Rate To Use While Ramping | | | | | | | | 100% | 70% | 50% | 30% | 10% |

R=the head radius size.
YRC=distance from centreline to the crown of the R radius.
CRN=distance from centreline to the start of the cutting edge. This dimension can also help determine the minimum circle size when helical ramping.
Rε=the shoulder radius or radius at the corner of the cutter.




FH200-H schematic diagram of 6 flute endmill shaear blade

# Recommended Cutting Data

## SPM200-SN2

### 2 Flute, Standard Length
### Endmills of Micro Diameter for Deep Machining

| Workpiece Material | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Carbon Steel,Alloy Steel (180~250HB) | | Alloy Steels,Tool Steels(25~35HRC) | | PH,Ferrite,Martensite Steel (35~45HRC) | | Copper, Copper Alloys | | Hardened Steels (45~55HRC) | | Hardened Steels (55~65HRC) | |
| Ratio to standard depth of cut(ap) | | | 1.00 | | 0.90 | | 0.70 | | 1.20 | | 0.50 | | 0.45 | |
| Mill Dia. (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 0.1 | 0.3 | 0.006 | 45,000 | 450 | 45,000 | 428 | 43,740 | 313 | 50,000 | 500 | 38,475 | 230 | 36,045 | 187 |
| | 0.5 | 0.004 | 45,000 | 450 | 45,000 | 428 | 43,740 | 313 | 50,000 | 500 | 38,475 | 230 | 36,045 | 187 |
| | 1 | 0.003 | 45,000 | 410 | 43,740 | 387 | 39,330 | 284 | 50,000 | 455 | 34,650 | 209 | 32,445 | 168 |
| 0.2 | 0.5 | 0.02 | 40,500 | 574 | 36,450 | 517 | 34,425 | 363 | 45,000 | 637 | 30,375 | 271 | 28,350 | 218 |
| | 1 | 0.014 | 40,500 | 574 | 36,450 | 517 | 34,425 | 363 | 45,000 | 637 | 30,375 | 271 | 28,350 | 218 |
| | 1.5 | 0.008 | 36,450 | 473 | 32,805 | 425 | 30,983 | 326 | 43,740 | 567 | 27,338 | 244 | 25,515 | 196 |
| | 2 | 0.005 | 32,400 | 378 | 29,160 | 340 | 27,540 | 257 | 38,880 | 454 | 24,300 | 193 | 22,680 | 155 |
| | 3 | 0.003 | 32,400 | 340 | 29,160 | 306 | 27,540 | 231 | 38,880 | 409 | 24,300 | 174 | 22,680 | 140 |
| 0.3 | 1 | 0.021 | 36,000 | 510 | 32,400 | 459 | 30,600 | 322 | 43,200 | 612 | 27,000 | 240 | 25,200 | 194 |
| | 1.5 | 0.021 | 36,000 | 510 | 32,400 | 459 | 30,600 | 322 | 43,200 | 612 | 27,000 | 240 | 25,200 | 194 |
| | 2 | 0.012 | 32,400 | 420 | 29,160 | 378 | 27,540 | 290 | 38,880 | 504 | 24,300 | 217 | 22,680 | 175 |
| | 2.5 | 0.01 | 32,400 | 420 | 29,160 | 378 | 27,540 | 290 | 38,880 | 504 | 24,300 | 217 | 22,680 | 175 |
| | 3 | 0.008 | 32,400 | 420 | 29,160 | 378 | 27,540 | 290 | 38,880 | 504 | 24,300 | 217 | 22,680 | 175 |
| 0.4 | 1 | 0.04 | 28,800 | 635 | 25,920 | 572 | 24,480 | 401 | 34,560 | 762 | 21,600 | 300 | 20,160 | 241 |
| | 1.5 | 0.028 | 28,800 | 635 | 25,920 | 572 | 24,480 | 401 | 34,560 | 762 | 21,600 | 300 | 20,160 | 241 |
| | 2 | 0.028 | 28,800 | 635 | 25,920 | 572 | 24,480 | 401 | 34,560 | 762 | 21,600 | 300 | 20,160 | 241 |
| | 2.5 | 0.022 | 25,920 | 523 | 23,328 | 471 | 22,032 | 361 | 31,104 | 627 | 19,440 | 269 | 18,144 | 217 |
| | 3 | 0.016 | 25,920 | 523 | 23,328 | 471 | 22,032 | 361 | 31,104 | 627 | 19,440 | 269 | 18,144 | 217 |
| | 3.5 | 0.012 | 25,920 | 523 | 23,328 | 471 | 22,032 | 361 | 31,104 | 627 | 19,440 | 269 | 18,144 | 217 |
| | 4 | 0.01 | 25,920 | 523 | 23,328 | 471 | 22,032 | 361 | 31,104 | 627 | 19,440 | 269 | 18,144 | 217 |
| | 5 | 0.01 | 23,040 | 407 | 20,736 | 365 | 19,584 | 234 | 27,648 | 488 | 17,280 | 207 | 16,128 | 163 |
| | 6 | 0.006 | 23,040 | 407 | 20,736 | 365 | 19,584 | 234 | 27,648 | 488 | 17,280 | 207 | 16,128 | 163 |
| | 8 | 0.003 | 20,160 | 310 | 18,144 | 279 | 17,136 | 180 | 24,192 | 372 | 15,120 | 155 | 14,112 | 118 |
| | 10 | 0.002 | 17,280 | 228 | 15,552 | 205 | 14,688 | 132 | 20,736 | 274 | 12,960 | 114 | 12,096 | 86 |
| 0.5 | 1 | 0.05 | 28,800 | 635 | 25,920 | 572 | 24,480 | 482 | 34,560 | 762 | 21,600 | 300 | 20,160 | 241 |
| | 1.5 | 0.05 | 28,800 | 635 | 25,920 | 572 | 24,480 | 482 | 34,560 | 762 | 21,600 | 300 | 20,160 | 241 |
| | 2 | 0.035 | 28,800 | 635 | 25,920 | 572 | 24,480 | 482 | 34,560 | 762 | 21,600 | 300 | 20,160 | 241 |
| | 2.5 | 0.03 | 25,920 | 523 | 23,328 | 471 | 22,032 | 397 | 31,104 | 627 | 19,440 | 269 | 18,144 | 217 |
| | 3 | 0.02 | 25,920 | 523 | 23,328 | 471 | 22,032 | 397 | 31,104 | 627 | 19,440 | 269 | 18,144 | 217 |
| | 4 | 0.02 | 25,920 | 523 | 23,328 | 471 | 22,032 | 361 | 31,104 | 627 | 19,440 | 269 | 18,144 | 217 |
| | 5 | 0.013 | 25,920 | 523 | 23,328 | 471 | 22,032 | 361 | 31,104 | 627 | 19,440 | 269 | 18,144 | 217 |
| | 6 | 0.013 | 23,040 | 407 | 20,736 | 365 | 19,584 | 234 | 27,648 | 488 | 17,280 | 207 | 16,128 | 163 |

【Note】Please refer to P501

# Recommended Cutting Data

## SPM200-SN2

### 2 Flute, Standard Length
### Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | 1.00 | | 0.90 | | 0.70 | | 1.20 | | 0.50 | | 0.45 | |
| Mill Dia. (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 0.5 | 8 | 0.008 | 23,040 | 348 | 20,736 | 313 | 19,584 | 222 | 27,648 | 418 | 17,280 | 175 | 16,128 | 132 |
| | 10 | 0.004 | 20,160 | 270 | 18,144 | 243 | 17,136 | 157 | 24,192 | 324 | 15,120 | 135 | 14,112 | 103 |
| 0.6 | 2 | 0.042 | 28,800 | 907 | 25,920 | 816 | 24,480 | 572 | 34,560 | 1,089 | 21,600 | 428 | 20,160 | 345 |
| | 3 | 0.035 | 25,920 | 746 | 23,328 | 671 | 22,032 | 516 | 31,104 | 896 | 19,440 | 385 | 18,144 | 311 |
| | 4 | 0.024 | 25,920 | 746 | 23,328 | 671 | 22,032 | 516 | 31,104 | 896 | 19,440 | 385 | 18,144 | 311 |
| | 5 | 0.02 | 25,920 | 746 | 23,328 | 671 | 22,032 | 516 | 31,104 | 896 | 19,440 | 385 | 18,144 | 311 |
| | 6 | 0.015 | 25,920 | 746 | 23,328 | 671 | 22,032 | 516 | 31,104 | 896 | 19,440 | 385 | 18,144 | 311 |
| | 7 | 0.015 | 23,040 | 644 | 20,736 | 580 | 19,584 | 445 | 27,648 | 773 | 17,280 | 332 | 16,128 | 268 |
| | 8 | 0.015 | 23,040 | 581 | 20,736 | 523 | 19,584 | 335 | 27,648 | 697 | 17,280 | 295 | 16,128 | 232 |
| | 9 | 0.012 | 23,040 | 581 | 20,736 | 523 | 19,584 | 335 | 27,648 | 697 | 17,280 | 295 | 16,128 | 232 |
| | 10 | 0.009 | 23,040 | 581 | 20,736 | 523 | 19,584 | 335 | 27,648 | 697 | 17,280 | 295 | 16,128 | 232 |
| 0.7 | 2 | 0.07 | 28,800 | 907 | 25,920 | 816 | 24,480 | 572 | 34,560 | 1,089 | 21,600 | 428 | 20,160 | 346 |
| | 4 | 0.049 | 25,920 | 746 | 23,328 | 671 | 22,032 | 516 | 31,104 | 896 | 19,440 | 385 | 18,144 | 311 |
| | 6 | 0.018 | 25,920 | 746 | 23,328 | 671 | 22,032 | 516 | 31,104 | 896 | 19,440 | 385 | 18,144 | 311 |
| | 8 | 0.018 | 23,040 | 581 | 20,736 | 523 | 19,584 | 335 | 27,648 | 697 | 17,280 | 295 | 16,128 | 232 |
| | 10 | 0.018 | 23,040 | 581 | 20,736 | 523 | 19,584 | 335 | 27,648 | 697 | 17,280 | 295 | 16,128 | 232 |
| 0.8 | 4 | 0.056 | 28,800 | 907 | 25,920 | 816 | 24,480 | 702 | 34,560 | 1,089 | 21,600 | 619 | 20,160 | 380 |
| | 6 | 0.032 | 25,920 | 746 | 23,328 | 671 | 22,032 | 610 | 31,104 | 896 | 21,600 | 599 | 18,144 | 341 |
| | 8 | 0.02 | 25,920 | 746 | 23,328 | 671 | 22,032 | 516 | 31,104 | 896 | 19,440 | 385 | 18,144 | 311 |
| | 10 | 0.02 | 23,040 | 581 | 20,736 | 523 | 19,584 | 335 | 27,648 | 697 | 17,280 | 295 | 16,128 | 232 |
| | 12 | 0.012 | 23,040 | 581 | 20,736 | 523 | 19,584 | 335 | 27,648 | 697 | 17,280 | 295 | 16,128 | 232 |
| 0.9 | 6 | 0.036 | 25,920 | 895 | 23,328 | 806 | 22,032 | 618 | 31,104 | 985 | 19,440 | 500 | 18,144 | 373 |
| | 8 | 0.023 | 25,920 | 820 | 23,328 | 738 | 22,032 | 567 | 31,104 | 985 | 19,440 | 462 | 18,144 | 341 |
| | 10 | 0.023 | 23,040 | 581 | 20,736 | 523 | 19,584 | 335 | 27,648 | 697 | 17,280 | 295 | 16,128 | 232 |
| | 12 | 0.023 | 23,040 | 581 | 20,736 | 523 | 19,584 | 335 | 27,648 | 697 | 17,280 | 295 | 16,128 | 232 |
| 1 | 2 | 0.1 | 25,920 | 1,220 | 23,328 | 1,098 | 22,032 | 1,035 | 31,104 | 1,465 | 20,637 | 907 | 18,144 | 761 |
| | 3 | 0.085 | 25,920 | 1,220 | 23,328 | 1,098 | 22,032 | 1,035 | 31,104 | 1,465 | 20,637 | 907 | 18,144 | 761 |
| | 4 | 0.07 | 25,920 | 1,220 | 23,328 | 1,098 | 22,032 | 969 | 31,104 | 1,465 | 20,637 | 867 | 18,144 | 689 |
| | 5 | 0.055 | 25,920 | 1,220 | 23,328 | 1,098 | 22,032 | 925 | 31,104 | 1,465 | 20,637 | 784 | 18,144 | 617 |
| | 6 | 0.04 | 23,328 | 1,008 | 20,995 | 907 | 19,829 | 813 | 27,994 | 1,210 | 18,630 | 671 | 16,330 | 419 |
| | 7 | 0.04 | 23,328 | 1,008 | 20,995 | 907 | 19,829 | 753 | 27,994 | 1,210 | 18,630 | 633 | 16,330 | 419 |
| | 8 | 0.04 | 23,328 | 1,008 | 20,995 | 907 | 19,829 | 753 | 27,994 | 1,210 | 18,630 | 560 | 16,330 | 419 |

【Note】Please refer to P501

# Recommended Cutting Data

## SPM200-SN2

### 2 Flute, Standard Length
### Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | 1.00 | | 0.90 | | 0.70 | | 1.20 | | 0.50 | | 0.45 | |
| Mill Dia. (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 1 | 9 | 0.033 | 23,328 | 1,008 | 20,995 | 907 | 19,829 | 696 | 27,994 | 1,210 | 17,496 | 519 | 16,330 | 419 |
| | 10 | 0.025 | 23,328 | 1,008 | 20,995 | 907 | 19,829 | 696 | 27,994 | 1,210 | 17,496 | 519 | 16,330 | 419 |
| | 12 | 0.025 | 20,736 | 784 | 18,662 | 706 | 17,626 | 452 | 24,883 | 941 | 15,552 | 399 | 14,515 | 313 |
| | 14 | 0.025 | 20,736 | 784 | 18,662 | 706 | 17,626 | 452 | 24,883 | 941 | 15,552 | 399 | 14,515 | 313 |
| | 16 | 0.015 | 20,736 | 671 | 18,662 | 605 | 17,626 | 428 | 24,883 | 806 | 15,552 | 336 | 14,515 | 255 |
| | 20 | 0.01 | 18,621 | 549 | 20,111 | 494 | 15,828 | 313 | 22,345 | 659 | 13,966 | 275 | 13,035 | 203 |
| | 25 | 0.005 | 15,750 | 427 | 17,010 | 384 | 13,388 | 243 | 18,900 | 512 | 11,813 | 213 | 11,025 | 158 |
| 1.2 | 6 | 0.084 | 23,040 | 1,089 | 20,736 | 980 | 19,584 | 783 | 27,648 | 1,307 | 17,280 | 513 | 16,128 | 414 |
| | 8 | 0.048 | 20,736 | 896 | 18,662 | 806 | 17,626 | 705 | 24,883 | 1,075 | 15,552 | 462 | 14,515 | 373 |
| | 10 | 0.03 | 20,736 | 896 | 18,662 | 806 | 17,626 | 670 | 24,883 | 1,075 | 15,552 | 462 | 14,515 | 373 |
| | 12 | 0.03 | 20,736 | 896 | 18,662 | 806 | 17,626 | 618 | 24,883 | 1,075 | 15,552 | 462 | 14,515 | 373 |
| | 16 | 0.02 | 18,432 | 796 | 16,589 | 716 | 15,667 | 550 | 22,118 | 955 | 13,824 | 410 | 12,902 | 331 |
| 1.4 | 6 | 0.1 | 20,160 | 952 | 18,144 | 858 | 17,136 | 601 | 24,192 | 1,143 | 15,120 | 449 | 14,112 | 363 |
| | 12 | 0.035 | 18,144 | 784 | 16,330 | 706 | 15,422 | 541 | 21,773 | 941 | 13,608 | 404 | 12,701 | 326 |
| 1.5 | 4 | 0.11 | 20,160 | 1,047 | 18,144 | 943 | 17,136 | 721 | 24,192 | 1,257 | 15,120 | 583 | 14,112 | 434 |
| | 6 | 0.11 | 20,160 | 1,047 | 18,144 | 943 | 17,136 | 721 | 24,192 | 1,257 | 15,120 | 561 | 14,112 | 434 |
| | 8 | 0.08 | 18,144 | 862 | 16,330 | 846 | 15,422 | 649 | 21,773 | 1,034 | 13,608 | 484 | 12,701 | 374 |
| | 10 | 0.06 | 18,144 | 784 | 16,330 | 776 | 15,422 | 649 | 21,773 | 1,034 | 13,608 | 484 | 12,701 | 374 |
| | 12 | 0.06 | 18,144 | 784 | 16,330 | 706 | 15,422 | 649 | 21,773 | 941 | 13,608 | 404 | 12,701 | 326 |
| | 14 | 0.038 | 18,144 | 784 | 16,330 | 706 | 15,422 | 649 | 21,773 | 941 | 13,608 | 404 | 12,701 | 326 |
| | 16 | 0.038 | 16,128 | 609 | 14,515 | 549 | 13,709 | 352 | 19,354 | 732 | 12,096 | 311 | 11,290 | 244 |
| | 18 | 0.038 | 16,128 | 609 | 14,515 | 549 | 13,709 | 352 | 19,354 | 732 | 12,096 | 311 | 11,290 | 244 |
| | 20 | 0.038 | 16,128 | 609 | 14,515 | 549 | 13,709 | 352 | 19,354 | 732 | 12,096 | 311 | 11,290 | 244 |
| | 25 | 0.023 | 12,096 | 392 | 10,886 | 353 | 10,282 | 250 | 14,515 | 471 | 9,072 | 196 | 8,467 | 149 |
| | 30 | 0.015 | 10,080 | 266 | 10,886 | 239 | 8,568 | 160 | 12,096 | 320 | 7,560 | 125 | 7,056 | 101 |
| | 35 | 0.01 | 10,080 | 266 | 10,886 | 239 | 8,568 | 160 | 12,096 | 320 | 7,560 | 125 | 7,056 | 101 |
| | 40 | 0.005 | 8,064 | 142 | 7,258 | 128 | 6,854 | 86 | 9,677 | 171 | 6,048 | 67 | 5,645 | 54 |
| 1.6 | 6 | 0.11 | 18,720 | 1,081 | 16,848 | 1,017 | 15,912 | 683 | 22,464 | 1,179 | 14,040 | 509 | 13,104 | 410 |
| | 8 | 0.11 | 18,720 | 1,081 | 16,848 | 885 | 15,912 | 621 | 22,464 | 1,179 | 14,040 | 509 | 13,104 | 410 |
| 1.8 | 6 | 0.13 | 18,720 | 1,081 | 16,848 | 1,061 | 15,912 | 683 | 22,464 | 1,179 | 14,040 | 556 | 13,104 | 448 |
| | 8 | 0.13 | 18,720 | 1,081 | 16,848 | 973 | 15,912 | 621 | 22,464 | 1,179 | 14,040 | 556 | 13,104 | 448 |
| 2 | 4 | 0.2 | 15,120 | 1,057 | 13,608 | 943 | 12,852 | 661 | 18,144 | 1,257 | 11,340 | 493 | 10,584 | 399 |

【Note】Please refer to P501

# Recommended Cutting Data

SPM200-SN2
2 Flute, Standard Length
Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | 1.00 | | 0.90 | | 0.70 | | 1.20 | | 0.50 | | 0.45 | |
| Mill Dia. (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 2 | 6 | 0.2 | 15,120 | 1,057 | 13,608 | 943 | 12,852 | 661 | 18,144 | 1,257 | 11,340 | 493 | 10,584 | 399 |
| | 8 | 0.14 | 15,120 | 1,057 | 13,608 | 943 | 12,852 | 661 | 18,144 | 1,257 | 11,340 | 493 | 10,584 | 399 |
| | 10 | 0.14 | 15,120 | 1,057 | 13,608 | 943 | 12,852 | 661 | 18,144 | 1,257 | 11,340 | 493 | 10,584 | 399 |
| | 12 | 0.1 | 13,608 | 862 | 12,247 | 776 | 11,567 | 595 | 16,330 | 1,034 | 10,206 | 444 | 9,526 | 358 |
| | 14 | 0.08 | 13,608 | 862 | 12,247 | 776 | 11,567 | 595 | 16,330 | 1,034 | 10,206 | 444 | 9,526 | 326 |
| | 16 | 0.08 | 13,608 | 823 | 12,247 | 776 | 11,567 | 541 | 16,330 | 941 | 10,206 | 404 | 9,526 | 326 |
| | 18 | 0.05 | 13,608 | 823 | 12,247 | 776 | 11,567 | 541 | 16,330 | 941 | 10,206 | 404 | 9,526 | 326 |
| | 20 | 0.05 | 13,608 | 784 | 12,247 | 706 | 11,567 | 541 | 16,330 | 941 | 10,206 | 404 | 9,526 | 326 |
| | 25 | 0.05 | 12,096 | 609 | 10,886 | 549 | 10,282 | 352 | 14,515 | 732 | 9,072 | 311 | 8,467 | 244 |
| | 30 | 0.03 | 12,096 | 609 | 10,886 | 549 | 10,282 | 352 | 14,515 | 732 | 9,072 | 311 | 8,467 | 244 |
| | 35 | 0.02 | 10,584 | 437 | 9,526 | 393 | 8,996 | 254 | 12,701 | 525 | 7,938 | 205 | 7,409 | 167 |
| | 40 | 0.01 | 10,584 | 437 | 9,526 | 393 | 8,996 | 254 | 12,701 | 525 | 7,938 | 205 | 7,409 | 167 |
| | 50 | 0.005 | 9,072 | 266 | 8,165 | 239 | 7,711 | 155 | 10,886 | 320 | 6,804 | 125 | 6,350 | 101 |
| 2.5 | 8 | 0.18 | 12,960 | 1,122 | 11,664 | 1,011 | 11,016 | 708 | 15,552 | 1,347 | 9,720 | 578 | 9,072 | 427 |
| | 12 | 0.18 | 12,960 | 1,122 | 11,664 | 1,011 | 11,016 | 644 | 15,552 | 1,134 | 9,720 | 529 | 9,072 | 388 |
| | 16 | 0.1 | 11,664 | 966 | 10,498 | 869 | 9,914 | 580 | 13,997 | 1,008 | 8,748 | 476 | 8,165 | 349 |
| | 20 | 0.1 | 11,664 | 840 | 10,498 | 756 | 9,914 | 580 | 13,997 | 1,008 | 8,748 | 476 | 8,165 | 349 |
| | 30 | 0.06 | 10,368 | 653 | 9,331 | 588 | 8,813 | 392 | 12,442 | 783 | 7,776 | 307 | 7,258 | 248 |
| | 40 | 0.03 | 9,072 | 469 | 8,165 | 422 | 7,711 | 282 | 10,886 | 563 | 6,804 | 221 | 6,350 | 178 |
| | 50 | 0.01 | 9,072 | 469 | 8,165 | 422 | 7,711 | 282 | 10,886 | 563 | 6,804 | 221 | 6,350 | 178 |
| 3 | 8 | 0.3 | 11,520 | 997 | 10,368 | 897 | 9,792 | 629 | 13,824 | 1,198 | 9,540 | 513 | 8,064 | 380 |
| | 12 | 0.21 | 11,520 | 997 | 10,368 | 897 | 9,792 | 629 | 13,824 | 1,198 | 9,540 | 513 | 8,064 | 380 |
| | 16 | 0.15 | 10,368 | 895 | 9,331 | 738 | 8,813 | 567 | 12,442 | 1,030 | 8,505 | 462 | 7,258 | 341 |
| | 20 | 0.12 | 10,368 | 820 | 9,331 | 738 | 8,813 | 567 | 12,442 | 896 | 8,505 | 462 | 7,258 | 341 |
| | 25 | 0.08 | 10,368 | 820 | 9,331 | 738 | 8,813 | 567 | 12,442 | 896 | 8,505 | 462 | 7,258 | 341 |
| | 30 | 0.08 | 10,368 | 746 | 9,331 | 671 | 8,813 | 567 | 12,442 | 896 | 8,505 | 462 | 7,258 | 312 |
| | 40 | 0.05 | 9,216 | 663 | 8,294 | 597 | 7,834 | 458 | 11,059 | 796 | 6,912 | 342 | 6,451 | 276 |
| | 50 | 0.02 | 8,064 | 417 | 7,258 | 375 | 6,854 | 250 | 9,677 | 500 | 6,048 | 196 | 5,645 | 158 |
| 4 | 12 | 0.4 | 8,460 | 1,692 | 7,614 | 1,372 | 7,191 | 1,222 | 10,350 | 2,070 | 6,345 | 812 | 5,922 | 655 |
| | 16 | 0.28 | 8,460 | 1,692 | 7,614 | 1,372 | 7,191 | 1,222 | 10,350 | 2,070 | 6,345 | 812 | 5,922 | 655 |
| | 20 | 0.28 | 7,614 | 1,523 | 6,853 | 1,234 | 6,472 | 1,100 | 9,315 | 1,863 | 5,711 | 731 | 5,330 | 590 |
| | 25 | 0.16 | 7,614 | 1,372 | 6,853 | 1,110 | 6,472 | 990 | 9,315 | 1,677 | 5,711 | 731 | 5,330 | 590 |

【Note】Please refer to P501

# Recommended Cutting Data

## SPM200-SN2

## 2 Flute, Standard Length
## Endmills of Micro Diameter for Deep Machining

》 Continuation

| Workpiece Material | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Carbon Steel,Alloy Steel (180~250HB) | | Alloy Steels,Tool Steels(25~35HRC) | | PH,Ferrite,Martensite Steel (35~45HRC) | | Copper, Copper Alloys | | Hardened Steels (45~55HRC) | | Hardened Steels (55~65HRC) | |
| Ratio to standard depth of cut(ap) | | | 1.00 | | 0.90 | | 0.70 | | 1.20 | | 0.50 | | 0.45 | |
| Mill Dia. (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 4 | 30 | 0.16 | 7,614 | 1,372 | 6,853 | 1,110 | 6,472 | 990 | 9,315 | 1,677 | 5,711 | 731 | 5,330 | 590 |
| | 35 | 0.1 | 6,853 | 1,234 | 6,168 | 999 | 5,825 | 891 | 8,223 | 1,481 | 5,140 | 658 | 4,797 | 530 |
| | 40 | 0.1 | 6,853 | 1,234 | 6,168 | 999 | 5,825 | 891 | 8,223 | 1,481 | 5,140 | 658 | 4,797 | 530 |
| | 50 | 0.06 | 5,922 | 846 | 5,330 | 761 | 5,034 | 592 | 7,106 | 1,015 | 4,442 | 398 | 4,145 | 321 |
| 5 | 20 | 0.3 | 6,761 | 1,487 | 6,085 | 1,338 | 5,747 | 946 | 8,113 | 1,622 | 5,071 | 635 | 4,732 | 514 |
| | 25 | 0.3 | 6,084 | 1,216 | 5,476 | 1,094 | 5,171 | 851 | 7,301 | 1,459 | 4,563 | 572 | 4,259 | 462 |
| | 30 | 0.2 | 6,084 | 1,095 | 5,476 | 985 | 5,171 | 766 | 7,301 | 1,315 | 4,563 | 516 | 4,259 | 416 |
| | 40 | 0.15 | 5,476 | 986 | 4,928 | 887 | 4,654 | 690 | 6,571 | 1,184 | 4,107 | 464 | 3,833 | 374 |
| | 50 | 0.1 | 5,476 | 986 | 4,928 | 887 | 4,654 | 690 | 6,571 | 1,184 | 4,107 | 464 | 3,833 | 374 |
| 6 | 20 | 0.5 | 5,564 | 1,333 | 5,008 | 1,200 | 4,730 | 932 | 6,676 | 1,466 | 4,173 | 689 | 3,894 | 506 |
| | 30 | 0.4 | 5,058 | 1,211 | 4,552 | 1,091 | 4,299 | 848 | 6,070 | 1,332 | 3,794 | 626 | 3,541 | 460 |
| | 40 | 0.3 | 5,058 | 998 | 4,552 | 898 | 4,299 | 762 | 6,070 | 1,199 | 3,794 | 563 | 3,541 | 413 |
| | 50 | 0.2 | 4,500 | 887 | 4,050 | 798 | 3,825 | 621 | 5,400 | 981 | 3,375 | 464 | 3,150 | 341 |

【Note】
1. For different materials, adjust the cutting depth (ap) according to the cutting depth factors in the above table. E.g. for hardened steels (45~55HRC), ap*0.5.
2. Use the appropriate coolant such as air cooling or emulsion for the work material and machining shape.
3. In actual machining, the condition should be adjusted according to the machining shape, purpose and the machine type.
4. If the rpm of the machine is low, lower the feed rate also to put the rpm and feed rate in the same ratio.

# Recommended Cutting Data（High Precision）

SPM200-SN2

2 Flute, Standard Length
Endmills of Micro Diameter for Deep Machining

| Workpiece Material | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | 1.00 | | 0.90 | | 0.70 | | 1.20 | | 0.50 | | 0.45 | |
| Mill Dia. (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 0.1 | 0.3 | 0.006 | 50,000 | 350 | 45,000 | 299 | 43,740 | 218 | 50,000 | 350 | 38,475 | 160 | 36,045 | 130 |
| | 0.5 | 0.004 | 50,000 | 350 | 45,000 | 299 | 43,740 | 218 | 50,000 | 350 | 38,475 | 160 | 36,045 | 130 |
| | 1 | 0.003 | 50,000 | 318 | 43,740 | 271 | 39,330 | 198 | 50,000 | 318 | 34,650 | 146 | 32,445 | 116 |
| 0.2 | 0.5 | 0.015 | 40,500 | 401 | 36,450 | 361 | 34,425 | 254 | 45,000 | 446 | 30,375 | 189 | 28,350 | 152 |
| | 1 | 0.011 | 40,500 | 401 | 36,450 | 361 | 34,425 | 254 | 45,000 | 446 | 30,375 | 189 | 28,350 | 152 |
| | 1.5 | 0.006 | 36,450 | 330 | 32,805 | 297 | 30,983 | 228 | 43,740 | 397 | 27,338 | 170 | 25,515 | 137 |
| | 2 | 0.004 | 32,400 | 265 | 29,160 | 238 | 27,540 | 180 | 38,880 | 317 | 24,300 | 149 | 22,680 | 132 |
| | 3 | 0.002 | 32,400 | 238 | 29,160 | 214 | 27,540 | 161 | 38,880 | 285 | 24,300 | 149 | 22,680 | 120 |
| 0.3 | 1 | 0.021 | 36,000 | 408 | 32,400 | 367 | 30,600 | 257 | 43,200 | 490 | 27,000 | 216 | 25,200 | 174 |
| | 1.5 | 0.021 | 36,000 | 408 | 32,400 | 367 | 30,600 | 257 | 43,200 | 490 | 27,000 | 216 | 25,200 | 174 |
| | 2 | 0.012 | 32,400 | 336 | 29,160 | 302 | 27,540 | 231 | 38,880 | 403 | 24,300 | 173 | 22,680 | 140 |
| | 2.5 | 0.01 | 32,400 | 336 | 29,160 | 302 | 27,540 | 231 | 38,880 | 403 | 24,300 | 173 | 22,680 | 140 |
| | 3 | 0.008 | 32,400 | 336 | 29,160 | 302 | 27,540 | 231 | 38,880 | 403 | 24,300 | 162 | 22,680 | 131 |
| 0.4 | 1 | 0.04 | 28,800 | 572 | 25,920 | 514 | 24,480 | 361 | 34,560 | 686 | 21,600 | 267 | 20,160 | 217 |
| | 1.5 | 0.028 | 28,800 | 572 | 25,920 | 514 | 24,480 | 361 | 34,560 | 686 | 21,600 | 267 | 20,160 | 217 |
| | 2 | 0.028 | 28,800 | 572 | 25,920 | 514 | 24,480 | 361 | 34,560 | 686 | 21,600 | 267 | 20,160 | 217 |
| | 2.5 | 0.022 | 25,920 | 418 | 23,328 | 376 | 22,032 | 288 | 31,104 | 501 | 19,440 | 215 | 18,144 | 173 |
| | 3 | 0.016 | 25,920 | 418 | 23,328 | 376 | 22,032 | 288 | 31,104 | 501 | 19,440 | 215 | 18,144 | 173 |
| | 3.5 | 0.012 | 25,920 | 418 | 23,328 | 376 | 22,032 | 288 | 31,104 | 501 | 19,440 | 215 | 18,144 | 173 |
| | 4 | 0.01 | 25,920 | 418 | 23,328 | 376 | 22,032 | 288 | 31,104 | 501 | 19,440 | 215 | 18,144 | 173 |
| | 5 | 0.01 | 23,040 | 284 | 20,736 | 256 | 19,584 | 187 | 27,648 | 365 | 17,280 | 166 | 16,128 | 130 |
| | 6 | 0.006 | 23,040 | 284 | 20,736 | 256 | 19,584 | 187 | 27,648 | 365 | 17,280 | 166 | 16,128 | 130 |
| | 8 | 0.003 | 20,160 | 216 | 18,144 | 195 | 17,136 | 144 | 24,192 | 260 | 15,120 | 127 | 14,112 | 115 |
| | 10 | 0.002 | 17,280 | 159 | 15,552 | 143 | 14,688 | 105 | 20,736 | 191 | 12,960 | 93 | 12,096 | 85 |
| 0.5 | 1 | 0.05 | 28,800 | 572 | 25,920 | 514 | 24,480 | 401 | 34,560 | 686 | 21,600 | 269 | 20,160 | 217 |
| | 1.5 | 0.05 | 28,800 | 572 | 25,920 | 514 | 24,480 | 401 | 34,560 | 686 | 21,600 | 269 | 20,160 | 217 |
| | 2 | 0.035 | 28,800 | 572 | 25,920 | 514 | 24,480 | 401 | 34,560 | 686 | 21,600 | 269 | 20,160 | 217 |
| | 2.5 | 0.03 | 25,920 | 418 | 23,328 | 376 | 22,032 | 319 | 31,104 | 501 | 19,440 | 215 | 18,144 | 173 |
| | 3 | 0.02 | 25,920 | 418 | 23,328 | 376 | 22,032 | 319 | 31,104 | 501 | 19,440 | 215 | 18,144 | 173 |
| | 4 | 0.02 | 25,920 | 418 | 23,328 | 376 | 22,032 | 288 | 31,104 | 501 | 19,440 | 215 | 18,144 | 173 |
| | 5 | 0.013 | 25,920 | 418 | 23,328 | 376 | 22,032 | 288 | 31,104 | 501 | 19,440 | 215 | 18,144 | 173 |
| | 6 | 0.013 | 23,040 | 325 | 20,736 | 292 | 19,584 | 187 | 27,648 | 390 | 17,280 | 166 | 16,128 | 130 |

【Note】Please refer to P506

# Recommended Cutting Data（High Precision）

SPM200-SN2

2 Flute, Standard Length
Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | 1.00 | | 0.90 | | 0.70 | | 1.20 | | 0.50 | | 0.45 | |
| Mill Dia. (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 0.5 | 8 | 0.008 | 23,040 | 278 | 20,736 | 250 | 19,584 | 155 | 27,648 | 334 | 17,280 | 140 | 16,128 | 105 |
| | 10 | 0.004 | 20,160 | 216 | 18,144 | 194 | 17,136 | 109 | 24,192 | 259 | 15,120 | 95 | 14,112 | 71 |
| 0.6 | 2 | 0.042 | 28,800 | 816 | 25,920 | 734 | 24,480 | 515 | 34,560 | 980 | 21,600 | 384 | 20,160 | 310 |
| | 3 | 0.035 | 25,920 | 671 | 23,328 | 604 | 22,032 | 464 | 31,104 | 806 | 19,440 | 347 | 18,144 | 279 |
| | 4 | 0.024 | 25,920 | 671 | 23,328 | 604 | 22,032 | 464 | 31,104 | 806 | 19,440 | 347 | 18,144 | 279 |
| | 5 | 0.02 | 25,920 | 597 | 23,328 | 536 | 22,032 | 412 | 31,104 | 716 | 19,440 | 308 | 18,144 | 248 |
| | 6 | 0.015 | 25,920 | 597 | 23,328 | 536 | 22,032 | 412 | 31,104 | 716 | 19,440 | 308 | 18,144 | 248 |
| | 7 | 0.015 | 23,040 | 515 | 20,736 | 464 | 19,584 | 356 | 27,648 | 618 | 17,280 | 266 | 16,128 | 214 |
| | 8 | 0.015 | 23,040 | 464 | 20,736 | 418 | 19,584 | 267 | 27,648 | 536 | 17,280 | 236 | 16,128 | 185 |
| | 9 | 0.012 | 23,040 | 464 | 20,736 | 418 | 19,584 | 267 | 27,648 | 536 | 17,280 | 236 | 16,128 | 185 |
| | 10 | 0.009 | 23,040 | 464 | 20,736 | 418 | 19,584 | 267 | 27,648 | 536 | 17,280 | 236 | 16,128 | 185 |
| 0.7 | 2 | 0.07 | 28,800 | 816 | 25,920 | 734 | 24,480 | 515 | 34,560 | 980 | 21,600 | 384 | 20,160 | 310 |
| | 4 | 0.049 | 25,920 | 597 | 23,328 | 536 | 22,032 | 412 | 31,104 | 716 | 19,440 | 308 | 18,144 | 248 |
| | 6 | 0.018 | 25,920 | 597 | 23,328 | 536 | 22,032 | 412 | 31,104 | 716 | 19,440 | 308 | 18,144 | 248 |
| | 8 | 0.018 | 23,040 | 406 | 20,736 | 365 | 19,584 | 234 | 27,648 | 487 | 17,280 | 206 | 16,128 | 162 |
| | 10 | 0.018 | 23,040 | 406 | 20,736 | 365 | 19,584 | 234 | 27,648 | 487 | 17,280 | 206 | 16,128 | 162 |
| 0.8 | 4 | 0.056 | 28,800 | 816 | 25,920 | 734 | 24,480 | 572 | 34,560 | 980 | 21,600 | 428 | 20,160 | 345 |
| | 6 | 0.032 | 25,920 | 597 | 23,328 | 536 | 22,032 | 516 | 31,104 | 716 | 19,440 | 385 | 18,144 | 311 |
| | 8 | 0.02 | 25,920 | 597 | 23,328 | 536 | 22,032 | 412 | 31,104 | 716 | 19,440 | 308 | 18,144 | 248 |
| | 10 | 0.02 | 23,040 | 406 | 20,736 | 365 | 19,584 | 234 | 27,648 | 487 | 17,280 | 206 | 16,128 | 162 |
| | 12 | 0.012 | 23,040 | 406 | 20,736 | 365 | 19,584 | 234 | 27,648 | 487 | 17,280 | 206 | 16,128 | 162 |
| 0.9 | 6 | 0.036 | 25,920 | 746 | 23,328 | 671 | 22,032 | 516 | 31,104 | 896 | 19,440 | 385 | 18,144 | 311 |
| | 8 | 0.023 | 25,920 | 671 | 23,328 | 671 | 22,032 | 516 | 31,104 | 896 | 19,440 | 385 | 18,144 | 311 |
| | 10 | 0.023 | 23,040 | 464 | 20,736 | 418 | 19,584 | 267 | 27,648 | 557 | 17,280 | 236 | 16,128 | 185 |
| | 12 | 0.023 | 23,040 | 406 | 20,736 | 373 | 19,584 | 267 | 27,648 | 487 | 17,280 | 236 | 16,128 | 185 |
| 1 | 2 | 0.09 | 25,920 | 1,098 | 23,328 | 988 | 22,032 | 842 | 31,104 | 1,319 | 19,440 | 629 | 18,144 | 507 |
| | 3 | 0.07 | 25,920 | 1,098 | 23,328 | 988 | 22,032 | 842 | 31,104 | 1,319 | 19,440 | 629 | 18,144 | 507 |
| | 4 | 0.065 | 25,920 | 1,098 | 23,328 | 988 | 22,032 | 842 | 31,104 | 1,319 | 19,440 | 629 | 18,144 | 507 |
| | 5 | 0.05 | 25,920 | 1,098 | 23,328 | 988 | 22,032 | 842 | 31,104 | 1,319 | 19,440 | 629 | 18,144 | 507 |
| | 6 | 0.035 | 23,328 | 907 | 20,995 | 816 | 19,829 | 696 | 27,994 | 1,148 | 17,496 | 519 | 16,330 | 376 |
| | 7 | 0.035 | 23,328 | 907 | 20,995 | 816 | 19,829 | 696 | 27,994 | 1,148 | 17,496 | 519 | 16,330 | 376 |
| | 8 | 0.035 | 23,328 | 907 | 20,995 | 816 | 19,829 | 696 | 27,994 | 1,088 | 17,496 | 519 | 16,330 | 376 |

【Note】Please refer to P506

# Recommended Cutting Data（High Precision）

SPM200-SN2

2 Flute, Standard Length
Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | 1.00 | | 0.90 | | 0.70 | | 1.20 | | 0.50 | | 0.45 | |
| Mill Dia. (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 1 | 9 | 0.03 | 23,328 | 907 | 20,995 | 816 | 19,829 | 626 | 27,994 | 1,088 | 17,496 | 415 | 16,330 | 335 |
| | 10 | 0.022 | 23,328 | 806 | 20,995 | 734 | 19,829 | 626 | 27,994 | 1,088 | 17,496 | 415 | 16,330 | 335 |
| | 12 | 0.022 | 20,736 | 626 | 18,662 | 564 | 17,626 | 361 | 24,883 | 752 | 15,552 | 319 | 14,515 | 250 |
| | 14 | 0.022 | 20,736 | 626 | 18,662 | 564 | 17,626 | 361 | 24,883 | 752 | 15,552 | 319 | 14,515 | 250 |
| | 16 | 0.012 | 20,736 | 536 | 18,662 | 483 | 17,626 | 342 | 24,883 | 644 | 15,552 | 268 | 14,515 | 203 |
| | 20 | 0.008 | 18,621 | 439 | 16,759 | 395 | 15,828 | 250 | 22,345 | 527 | 13,966 | 192 | 13,035 | 142 |
| | 25 | 0.005 | 15,750 | 341 | 14,175 | 307 | 13,388 | 194 | 18,900 | 410 | 11,813 | 149 | 11,025 | 110 |
| 1.2 | 6 | 0.084 | 23,040 | 980 | 20,736 | 882 | 19,584 | 684 | 27,648 | 1,175 | 17,280 | 462 | 16,128 | 373 |
| | 8 | 0.048 | 20,736 | 806 | 18,662 | 725 | 17,626 | 616 | 24,883 | 967 | 15,552 | 415 | 14,515 | 335 |
| | 10 | 0.03 | 20,736 | 806 | 18,662 | 725 | 17,626 | 616 | 24,883 | 967 | 15,552 | 415 | 14,515 | 335 |
| | 12 | 0.03 | 20,736 | 644 | 18,662 | 578 | 17,626 | 494 | 24,883 | 860 | 15,552 | 369 | 14,515 | 298 |
| | 16 | 0.02 | 18,432 | 636 | 16,589 | 501 | 15,667 | 439 | 22,118 | 763 | 13,824 | 328 | 12,902 | 265 |
| 1.4 | 6 | 0.1 | 20,160 | 857 | 18,144 | 771 | 17,136 | 541 | 24,192 | 1,029 | 15,120 | 404 | 14,112 | 325 |
| | 12 | 0.035 | 18,144 | 705 | 16,330 | 635 | 15,422 | 486 | 21,773 | 846 | 13,608 | 364 | 12,701 | 293 |
| 1.5 | 4 | 0.11 | 20,160 | 952 | 18,144 | 858 | 17,136 | 601 | 24,192 | 1,143 | 15,120 | 449 | 14,112 | 362 |
| | 6 | 0.11 | 20,160 | 857 | 18,144 | 779 | 17,136 | 601 | 24,192 | 1,029 | 15,120 | 449 | 14,112 | 362 |
| | 8 | 0.06 | 18,144 | 784 | 16,330 | 706 | 15,422 | 541 | 21,773 | 941 | 13,608 | 404 | 12,701 | 326 |
| | 10 | 0.06 | 18,144 | 705 | 16,330 | 635 | 15,422 | 541 | 21,773 | 941 | 13,608 | 404 | 12,701 | 326 |
| | 12 | 0.06 | 18,144 | 705 | 16,330 | 635 | 15,422 | 541 | 21,773 | 846 | 13,608 | 364 | 12,701 | 293 |
| | 14 | 0.038 | 18,144 | 705 | 16,330 | 635 | 15,422 | 541 | 21,773 | 846 | 13,608 | 364 | 12,701 | 293 |
| | 16 | 0.038 | 16,128 | 548 | 14,515 | 494 | 13,709 | 316 | 19,354 | 658 | 12,096 | 279 | 11,290 | 219 |
| | 18 | 0.038 | 16,128 | 548 | 14,515 | 494 | 13,709 | 316 | 19,354 | 658 | 12,096 | 279 | 11,290 | 219 |
| | 20 | 0.038 | 16,128 | 548 | 14,515 | 439 | 13,709 | 281 | 19,354 | 658 | 12,096 | 248 | 11,290 | 194 |
| | 25 | 0.023 | 12,096 | 352 | 10,886 | 282 | 10,282 | 200 | 14,515 | 423 | 9,072 | 157 | 8,467 | 119 |
| | 30 | 0.015 | 10,080 | 239 | 10,886 | 191 | 8,568 | 134 | 12,096 | 287 | 7,560 | 100 | 7,056 | 80 |
| | 35 | 0.01 | 10,080 | 212 | 10,886 | 167 | 8,568 | 134 | 12,096 | 256 | 7,560 | 100 | 7,056 | 80 |
| | 40 | 0.005 | 8,064 | 113 | 7,258 | 102 | 6,854 | 68 | 9,677 | 137 | 6,048 | 53 | 5,645 | 43 |
| 1.6 | 6 | 0.11 | 18,720 | 879 | 16,848 | 796 | 15,912 | 621 | 22,464 | 1,061 | 14,040 | 464 | 13,104 | 374 |
| | 8 | 0.11 | 18,720 | 879 | 16,848 | 796 | 15,912 | 559 | 22,464 | 1,061 | 14,040 | 464 | 13,104 | 374 |
| 1.8 | 6 | 0.13 | 18,720 | 897 | 16,848 | 796 | 15,912 | 621 | 22,464 | 1,061 | 14,040 | 464 | 13,104 | 374 |
| | 8 | 0.13 | 18,720 | 897 | 16,848 | 796 | 15,912 | 559 | 22,464 | 1,061 | 14,040 | 464 | 13,104 | 374 |
| 2 | 4 | 0.2 | 15,120 | 857 | 13,608 | 775 | 12,852 | 590 | 18,144 | 1,143 | 11,340 | 449 | 10,584 | 362 |

【Note】Please refer to P506

# Recommended Cutting Data（High Precision）

SPM200-SN2

## 2 Flute, Standard Length
## Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | 1.00 | | 0.90 | | 0.70 | | 1.20 | | 0.50 | | 0.45 | |
| Mill Dia. (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 2 | 6 | 0.2 | 15,120 | 857 | 13,608 | 775 | 12,852 | 590 | 18,144 | 1,143 | 11,340 | 449 | 10,584 | 362 |
| | 8 | 0.14 | 15,120 | 857 | 13,608 | 775 | 12,852 | 590 | 18,144 | 1,143 | 11,340 | 449 | 10,584 | 362 |
| | 10 | 0.14 | 15,120 | 857 | 13,608 | 775 | 12,852 | 590 | 18,144 | 1,143 | 11,340 | 449 | 10,584 | 362 |
| | 12 | 0.08 | 13,608 | 784 | 12,247 | 706 | 11,567 | 531 | 16,330 | 941 | 10,206 | 404 | 9,526 | 326 |
| | 14 | 0.08 | 13,608 | 784 | 12,247 | 706 | 11,567 | 531 | 16,330 | 941 | 10,206 | 404 | 9,526 | 293 |
| | 16 | 0.08 | 13,608 | 705 | 12,247 | 636 | 11,567 | 486 | 16,330 | 846 | 10,206 | 383 | 9,526 | 293 |
| | 18 | 0.05 | 13,608 | 705 | 12,247 | 636 | 11,567 | 486 | 16,330 | 846 | 10,206 | 364 | 9,526 | 260 |
| | 20 | 0.05 | 13,608 | 626 | 12,247 | 564 | 11,567 | 432 | 16,330 | 799 | 10,206 | 323 | 9,526 | 260 |
| | 25 | 0.05 | 12,096 | 548 | 10,886 | 494 | 10,282 | 281 | 14,515 | 658 | 9,072 | 279 | 8,467 | 209 |
| | 30 | 0.03 | 12,096 | 487 | 10,886 | 439 | 10,282 | 246 | 14,515 | 585 | 9,072 | 248 | 8,467 | 194 |
| | 35 | 0.02 | 10,584 | 349 | 9,526 | 314 | 8,996 | 203 | 12,701 | 419 | 7,938 | 164 | 7,409 | 133 |
| | 40 | 0.01 | 10,584 | 306 | 9,527 | 275 | 8,996 | 177 | 12,701 | 367 | 7,938 | 143 | 7,409 | 116 |
| | 50 | 0.005 | 9,072 | 212 | 8,165 | 167 | 7,711 | 108 | 10,886 | 256 | 6,804 | 87 | 6,350 | 70 |
| 2.5 | 8 | 0.18 | 12,960 | 1,021 | 11,664 | 919 | 11,016 | 644 | 15,552 | 1,225 | 9,720 | 482 | 9,072 | 388 |
| | 12 | 0.18 | 12,960 | 918 | 11,664 | 840 | 11,016 | 580 | 15,552 | 1,021 | 9,720 | 468 | 9,072 | 348 |
| | 16 | 0.1 | 11,664 | 755 | 10,498 | 682 | 9,914 | 521 | 13,997 | 907 | 8,748 | 405 | 8,165 | 314 |
| | 20 | 0.1 | 11,664 | 715 | 10,498 | 640 | 9,914 | 464 | 13,997 | 756 | 8,748 | 405 | 8,165 | 279 |
| | 30 | 0.06 | 10,368 | 522 | 9,331 | 411 | 8,813 | 313 | 12,442 | 626 | 7,776 | 245 | 7,258 | 198 |
| | 40 | 0.03 | 9,072 | 328 | 8,165 | 295 | 7,711 | 225 | 10,886 | 393 | 6,804 | 176 | 6,350 | 142 |
| | 50 | 0.01 | 9,072 | 304 | 8,165 | 274 | 7,711 | 183 | 10,886 | 338 | 6,804 | 154 | 6,350 | 124 |
| 3 | 8 | 0.3 | 11,520 | 907 | 10,368 | 816 | 9,792 | 572 | 13,824 | 1,089 | 8,640 | 428 | 8,064 | 345 |
| | 12 | 0.21 | 11,520 | 907 | 10,368 | 816 | 9,792 | 572 | 13,824 | 1,089 | 8,640 | 428 | 8,064 | 345 |
| | 16 | 0.12 | 10,368 | 746 | 9,331 | 671 | 8,813 | 516 | 12,442 | 896 | 7,776 | 385 | 7,258 | 310 |
| | 20 | 0.12 | 10,368 | 708 | 9,331 | 635 | 8,813 | 516 | 12,442 | 806 | 7,776 | 385 | 7,258 | 310 |
| | 25 | 0.08 | 10,368 | 708 | 9,331 | 635 | 8,813 | 516 | 12,442 | 806 | 7,776 | 385 | 7,258 | 310 |
| | 30 | 0.08 | 10,368 | 597 | 9,331 | 541 | 8,813 | 516 | 12,442 | 716 | 7,776 | 385 | 7,258 | 279 |
| | 40 | 0.05 | 9,216 | 464 | 8,294 | 418 | 7,834 | 320 | 11,059 | 556 | 6,912 | 274 | 6,451 | 221 |
| | 50 | 0.02 | 8,064 | 312 | 7,258 | 262 | 6,854 | 175 | 9,677 | 350 | 6,048 | 137 | 5,645 | 111 |
| 4 | 12 | 0.4 | 8,460 | 1,523 | 7,614 | 1,233 | 7,191 | 1,100 | 10,350 | 1,863 | 6,345 | 730 | 5,922 | 589 |
| | 16 | 0.28 | 8,460 | 1,523 | 7,614 | 1,233 | 7,191 | 1,100 | 10,350 | 1,863 | 6,345 | 730 | 5,922 | 589 |
| | 20 | 0.28 | 7,614 | 1,370 | 6,853 | 1,110 | 6,472 | 989 | 9,315 | 1,677 | 5,711 | 657 | 5,330 | 529 |
| | 25 | 0.16 | 7,614 | 1,233 | 6,853 | 998 | 6,472 | 891 | 9,315 | 1,508 | 5,711 | 657 | 5,330 | 529 |

【Note】Please refer to P506

# Recommended Cutting Data（High Precision）

SPM200-SN2

2 Flute, Standard Length

Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | 1.00 | | 0.90 | | 0.70 | | 1.20 | | 0.50 | | 0.45 | |
| Mill Dia. (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 4 | 30 | 0.16 | 7,614 | 1,233 | 6,853 | 998 | 6,472 | 792 | 9,315 | 1,508 | 5,711 | 584 | 5,330 | 529 |
| | 35 | 0.1 | 6,853 | 986 | 6,168 | 799 | 5,825 | 713 | 8,223 | 1,184 | 5,140 | 526 | 4,797 | 424 |
| | 40 | 0.1 | 6,853 | 863 | 6,168 | 699 | 5,825 | 624 | 8,223 | 1,036 | 5,140 | 460 | 4,797 | 371 |
| | 50 | 0.06 | 5,922 | 592 | 6,395 | 533 | 5,034 | 414 | 7,106 | 710 | 4,442 | 278 | 4,145 | 224 |
| 5 | 20 | 0.3 | 6,761 | 1,216 | 6,085 | 1,094 | 5,747 | 851 | 8,113 | 1,459 | 5,071 | 572 | 4,732 | 462 |
| | 25 | 0.3 | 6,084 | 1,094 | 5,476 | 985 | 5,171 | 765 | 7,301 | 1,312 | 4,563 | 514 | 4,259 | 415 |
| | 30 | 0.2 | 6,084 | 985 | 5,476 | 886 | 5,171 | 689 | 7,301 | 1,182 | 4,563 | 463 | 4,259 | 374 |
| | 40 | 0.15 | 5,476 | 788 | 4,928 | 709 | 4,654 | 552 | 6,571 | 947 | 4,107 | 371 | 3,833 | 299 |
| | 50 | 0.1 | 5,476 | 788 | 4,928 | 621 | 4,654 | 518 | 6,571 | 887 | 4,107 | 324 | 3,833 | 262 |
| 6 | 20 | 0.5 | 5,564 | 1,111 | 5,008 | 1,000 | 4,730 | 778 | 6,676 | 1,333 | 4,173 | 522 | 3,894 | 422 |
| | 30 | 0.4 | 5,058 | 1,010 | 4,552 | 909 | 4,299 | 707 | 6,070 | 1,211 | 3,794 | 474 | 3,541 | 383 |
| | 40 | 0.3 | 5,058 | 908 | 4,552 | 817 | 4,299 | 635 | 6,070 | 1,090 | 3,794 | 427 | 3,541 | 345 |
| | 50 | 0.2 | 4,500 | 735 | 4,050 | 662 | 3,825 | 572 | 5,400 | 883 | 3,375 | 384 | 3,150 | 311 |

【Note】
1. For different materials, adjust the cutting depth (ap) according to the cutting depth factors in the above table. E.g. for hardened steels (45～55HRC), ap*0.5.
2. Use the appropriate coolant such as air cooling or emulsion for the work material and machining shape.
3. In actual machining, the condition should be adjusted according to the machining shape, purpose and the machine type.
4. If the rpm of the machine is low, lower the feed rate also to put the rpm and feed rate in the same ratio.

# Recommended Cutting Data（General type）

SPM200-RN2

## 2 Flute, Corner Radius
## Endmills of Micro Diameter for Deep Machining

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| Mill Dia. (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | Vf mm/min |
| 0.2 | 0.02 | 0.5 | 0.016 | 45,000 | 830 | 40,500 | 746 | 38,250 | 635 | 45,000 | 830 | 33,750 | 498 | 31,500 | 407 |
| | | 1 | 0.011 | 45,000 | 830 | 40,500 | 746 | 38,250 | 635 | 45,000 | 830 | 33,750 | 498 | 31,500 | 407 |
| | | 2 | 0.007 | 37,800 | 697 | 36,450 | 671 | 34,425 | 572 | 45,000 | 728 | 30,375 | 448 | 28,350 | 365 |
| | 0.05 | 0.5 | 0.02 | 45,000 | 830 | 40,500 | 746 | 38,250 | 635 | 45,000 | 830 | 33,750 | 498 | 31,500 | 407 |
| | | 1 | 0.014 | 45,000 | 830 | 40,500 | 746 | 38,250 | 635 | 45,000 | 830 | 33,750 | 498 | 31,500 | 407 |
| | | 1.5 | 0.008 | 42,300 | 779 | 38,475 | 709 | 36,338 | 603 | 45,000 | 728 | 32,063 | 473 | 29,925 | 386 |
| | | 2 | 0.008 | 37,800 | 697 | 36,450 | 671 | 34,425 | 572 | 45,000 | 728 | 30,375 | 448 | 28,350 | 365 |
| 0.3 | 0.02 | 1 | 0.016 | 43,200 | 1,045 | 38,880 | 941 | 36,720 | 660 | 45,000 | 1,087 | 32,400 | 492 | 30,240 | 397 |
| | | 2 | 0.011 | 34,992 | 774 | 31,493 | 697 | 29,743 | 535 | 40,500 | 898 | 26,244 | 399 | 24,494 | 321 |
| | | 3 | 0.007 | 33,242 | 684 | 29,918 | 616 | 28,256 | 473 | 38,475 | 793 | 24,932 | 353 | 23,270 | 284 |
| | 0.05 | 1 | 0.021 | 43,200 | 1,045 | 38,880 | 941 | 36,720 | 660 | 45,000 | 1,087 | 32,400 | 492 | 30,240 | 397 |
| | | 1.5 | 0.016 | 41,040 | 993 | 36,936 | 894 | 34,884 | 627 | 42,750 | 1,032 | 30,780 | 468 | 28,728 | 377 |
| | | 2 | 0.012 | 34,992 | 774 | 31,493 | 697 | 29,743 | 535 | 40,500 | 898 | 26,244 | 399 | 24,494 | 321 |
| | | 2.5 | 0.01 | 34,992 | 774 | 31,493 | 697 | 29,743 | 535 | 40,500 | 898 | 26,244 | 399 | 24,494 | 321 |
| | | 3 | 0.008 | 33,242 | 684 | 29,918 | 616 | 28,256 | 473 | 38,475 | 793 | 24,932 | 353 | 23,270 | 284 |
| 0.4 | 0.02 | 1 | 0.016 | 34,470 | 929 | 31,104 | 836 | 29,030 | 714 | 41,472 | 1,115 | 25,920 | 558 | 24,053 | 457 |
| | | 2 | 0.013 | 34,470 | 836 | 31,104 | 752 | 29,030 | 643 | 41,472 | 1,004 | 25,920 | 501 | 24,053 | 411 |
| | | 3 | 0.01 | 26,393 | 584 | 23,793 | 527 | 22,208 | 449 | 31,725 | 702 | 19,828 | 351 | 18,401 | 288 |
| | | 4 | 0.007 | 21,735 | 482 | 19,595 | 433 | 18,288 | 370 | 26,126 | 578 | 16,329 | 289 | 15,153 | 237 |
| | 0.05 | 1 | 0.025 | 34,470 | 929 | 31,104 | 836 | 29,030 | 714 | 41,472 | 1,115 | 25,920 | 558 | 24,053 | 457 |
| | | 1.5 | 0.02 | 34,470 | 929 | 31,104 | 836 | 29,030 | 714 | 41,472 | 1,115 | 25,920 | 558 | 24,053 | 457 |
| | | 2 | 0.016 | 34,470 | 836 | 31,104 | 752 | 29,030 | 643 | 41,472 | 1,004 | 25,920 | 501 | 24,053 | 411 |
| | | 2.5 | 0.015 | 32,400 | 797 | 29,160 | 716 | 27,540 | 609 | 38,880 | 956 | 24,300 | 478 | 22,680 | 391 |
| | | 3 | 0.014 | 26,393 | 584 | 23,793 | 527 | 22,208 | 449 | 31,725 | 702 | 19,828 | 351 | 18,401 | 288 |
| | | 3.5 | 0.012 | 24,786 | 548 | 22,307 | 493 | 21,068 | 420 | 29,743 | 658 | 18,590 | 329 | 17,350 | 269 |
| | | 4 | 0.008 | 21,735 | 482 | 19,595 | 433 | 18,288 | 370 | 26,126 | 578 | 16,329 | 289 | 15,153 | 237 |
| | 0.1 | 1 | 0.033 | 34,470 | 929 | 31,104 | 836 | 29,030 | 714 | 41,472 | 1,115 | 25,920 | 558 | 24,053 | 457 |
| | | 2 | 0.028 | 34,470 | 836 | 31,104 | 752 | 29,030 | 643 | 41,472 | 1,004 | 25,920 | 501 | 24,053 | 411 |
| | | 3 | 0.016 | 26,393 | 584 | 23,793 | 527 | 22,208 | 449 | 31,725 | 702 | 19,828 | 351 | 18,401 | 288 |
| | | 4 | 0.01 | 21,735 | 482 | 19,595 | 433 | 18,288 | 370 | 26,126 | 578 | 16,329 | 289 | 15,153 | 237 |
| 0.5 | 0.02 | 1 | 0.016 | 34,470 | 929 | 31,104 | 836 | 29,030 | 714 | 41,472 | 1,115 | 25,920 | 558 | 24,053 | 457 |
| | | 2 | 0.013 | 34,470 | 929 | 31,104 | 836 | 29,030 | 714 | 41,472 | 1,115 | 25,920 | 558 | 24,053 | 457 |

【Note】Please refer to P517

# Recommended Cutting Data（General type）

SPM200-RN2

2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| Mill Dia. (mm) | r (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 0.5 | 0.02 | 3 | 0.01 | 27,994 | 755 | 25,195 | 675 | 23,794 | 571 | 33,593 | 900 | 20,995 | 426 | 19,596 | 343 |
| | | 4 | 0.008 | 24,883 | 671 | 22,395 | 599 | 21,151 | 507 | 29,860 | 800 | 18,662 | 378 | 17,419 | 305 |
| | | 6 | 0.006 | 19,354 | 500 | 17,419 | 449 | 16,450 | 288 | 23,225 | 599 | 14,515 | 254 | 13,548 | 200 |
| | 0.05 | 1 | 0.03 | 34,470 | 929 | 31,104 | 836 | 29,030 | 714 | 41,472 | 1,115 | 25,920 | 558 | 24,053 | 457 |
| | | 2 | 0.023 | 34,470 | 929 | 31,104 | 836 | 29,030 | 714 | 41,472 | 1,115 | 25,920 | 558 | 24,053 | 457 |
| | | 3 | 0.017 | 27,994 | 755 | 25,195 | 675 | 23,794 | 571 | 33,593 | 900 | 20,995 | 426 | 19,596 | 343 |
| | | 4 | 0.017 | 24,883 | 671 | 22,395 | 599 | 21,151 | 507 | 29,860 | 800 | 18,662 | 378 | 17,419 | 305 |
| | | 5 | 0.011 | 21,773 | 588 | 19,596 | 525 | 18,507 | 444 | 26,127 | 700 | 16,330 | 331 | 15,241 | 267 |
| | | 6 | 0.008 | 19,354 | 500 | 17,419 | 449 | 16,450 | 288 | 23,225 | 599 | 14,515 | 254 | 13,548 | 200 |
| | 0.1 | 1 | 0.035 | 34,470 | 929 | 31,104 | 836 | 29,030 | 714 | 41,472 | 1,115 | 25,920 | 558 | 24,053 | 457 |
| | | 2 | 0.03 | 34,470 | 929 | 31,104 | 836 | 29,030 | 714 | 41,472 | 1,115 | 25,920 | 558 | 24,053 | 457 |
| | | 3 | 0.02 | 27,994 | 755 | 25,195 | 675 | 23,794 | 571 | 33,593 | 900 | 20,995 | 426 | 19,596 | 343 |
| | | 4 | 0.02 | 24,883 | 671 | 22,395 | 599 | 21,151 | 507 | 29,860 | 800 | 18,662 | 378 | 17,419 | 305 |
| | | 5 | 0.013 | 21,773 | 588 | 19,596 | 525 | 18,507 | 444 | 26,127 | 700 | 16,330 | 331 | 15,241 | 267 |
| | | 6 | 0.013 | 19,354 | 500 | 17,419 | 449 | 16,450 | 288 | 23,225 | 599 | 14,515 | 254 | 13,548 | 200 |
| 0.6 | 0.02 | 2 | 0.016 | 34,470 | 1,310 | 31,104 | 1,182 | 29,030 | 892 | 41,472 | 1,576 | 25,920 | 697 | 24,053 | 572 |
| | | 4 | 0.013 | 27,994 | 1,032 | 25,195 | 929 | 23,794 | 713 | 33,593 | 1,238 | 20,995 | 532 | 19,596 | 429 |
| | | 6 | 0.01 | 21,773 | 803 | 19,596 | 723 | 18,507 | 554 | 26,127 | 963 | 16,330 | 414 | 15,241 | 334 |
| | 0.05 | 2 | 0.028 | 34,470 | 1,310 | 31,104 | 1,182 | 29,030 | 892 | 41,472 | 1,576 | 25,920 | 697 | 24,053 | 572 |
| | | 4 | 0.019 | 27,994 | 1,032 | 25,195 | 929 | 23,794 | 713 | 33,593 | 1,238 | 20,995 | 532 | 19,596 | 429 |
| | | 6 | 0.012 | 21,773 | 803 | 19,596 | 723 | 18,507 | 554 | 26,127 | 963 | 16,330 | 414 | 15,241 | 334 |
| | | 8 | 0.01 | 20,684 | 762 | 18,616 | 687 | 17,582 | 527 | 24,821 | 915 | 15,513 | 393 | 14,479 | 317 |
| | | 10 | 0.007 | 18,507 | 610 | 16,656 | 549 | 15,731 | 440 | 22,208 | 733 | 13,880 | 320 | 12,955 | 258 |
| | 0.1 | 2 | 0.035 | 34,470 | 1,310 | 31,104 | 1,182 | 29,030 | 892 | 41,472 | 1,576 | 25,920 | 697 | 24,053 | 572 |
| | | 4 | 0.024 | 27,994 | 1,032 | 25,195 | 929 | 23,794 | 713 | 33,593 | 1,238 | 20,995 | 532 | 19,596 | 429 |
| | | 6 | 0.015 | 21,773 | 803 | 19,596 | 723 | 18,507 | 554 | 26,127 | 963 | 16,330 | 414 | 15,241 | 334 |
| | | 8 | 0.013 | 20,684 | 762 | 18,616 | 687 | 17,582 | 527 | 24,821 | 915 | 15,513 | 393 | 14,479 | 317 |
| | | 10 | 0.009 | 18,507 | 610 | 16,656 | 549 | 15,731 | 440 | 22,208 | 733 | 13,880 | 320 | 12,955 | 258 |
| 0.7 | 0.05 | 4 | 0.024 | 27,994 | 1,032 | 25,195 | 929 | 23,794 | 713 | 33,593 | 1,238 | 20,995 | 532 | 19,596 | 429 |
| | | 6 | 0.015 | 21,773 | 803 | 19,596 | 723 | 18,507 | 554 | 26,127 | 963 | 16,330 | 414 | 15,241 | 334 |
| | 0.1 | 4 | 0.029 | 27,994 | 1,032 | 25,195 | 929 | 23,794 | 713 | 33,593 | 1,238 | 20,995 | 532 | 19,596 | 429 |
| | | 6 | 0.018 | 21,773 | 803 | 19,596 | 723 | 18,507 | 554 | 26,127 | 963 | 16,330 | 414 | 15,241 | 334 |

【Note】Please refer to P517

# Recommended Cutting Data（General type）

SPM200-RN2

## 2 Flute, Corner Radius
## Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| Mill Dia. (mm) | r (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 0.8 | 0.02 | 4 | 0.016 | 36,000 | 1,328 | 32,400 | 1,194 | 30,600 | 1,015 | 43,200 | 1,592 | 27,000 | 797 | 25,200 | 651 |
| | | 6 | 0.013 | 27,540 | 914 | 24,786 | 823 | 23,409 | 777 | 33,048 | 1,096 | 20,655 | 609 | 19,278 | 498 |
| | 0.05 | 4 | 0.026 | 36,000 | 1,328 | 32,400 | 1,194 | 30,600 | 1,015 | 43,200 | 1,592 | 27,000 | 797 | 25,200 | 651 |
| | | 6 | 0.015 | 27,540 | 914 | 24,786 | 823 | 23,409 | 777 | 33,048 | 1,096 | 20,655 | 609 | 19,278 | 498 |
| | | 8 | 0.012 | 22,032 | 680 | 19,829 | 612 | 18,727 | 578 | 26,438 | 815 | 16,524 | 454 | 15,422 | 370 |
| | | 12 | 0.01 | 19,829 | 569 | 17,846 | 512 | 16,854 | 483 | 23,794 | 683 | 14,872 | 379 | 13,880 | 310 |
| | 0.1 | 4 | 0.032 | 36,000 | 1,328 | 32,400 | 1,194 | 30,600 | 1,015 | 43,200 | 1,592 | 27,000 | 797 | 25,200 | 651 |
| | | 6 | 0.019 | 27,540 | 914 | 24,786 | 823 | 23,409 | 777 | 33,048 | 1,096 | 20,655 | 609 | 19,278 | 498 |
| | | 8 | 0.015 | 22,032 | 680 | 19,829 | 612 | 18,727 | 578 | 26,438 | 815 | 16,524 | 454 | 15,422 | 370 |
| | | 12 | 0.012 | 19,829 | 569 | 17,846 | 512 | 16,854 | 483 | 23,794 | 683 | 14,872 | 379 | 13,880 | 310 |
| | 0.2 | 4 | 0.056 | 36,000 | 1,328 | 32,400 | 1,194 | 30,600 | 1,015 | 43,200 | 1,592 | 27,000 | 797 | 25,200 | 651 |
| | | 6 | 0.032 | 27,540 | 914 | 24,786 | 823 | 23,409 | 777 | 33,048 | 1,096 | 20,655 | 609 | 19,278 | 498 |
| | | 8 | 0.018 | 22,032 | 680 | 19,829 | 612 | 18,727 | 578 | 26,438 | 815 | 16,524 | 454 | 15,422 | 370 |
| | | 12 | 0.015 | 19,829 | 569 | 17,846 | 512 | 16,854 | 483 | 23,794 | 683 | 14,872 | 379 | 13,880 | 310 |
| 1 | 0.02 | 2 | 0.016 | 35,541 | 2,132 | 32,101 | 1,926 | 30,095 | 1,625 | 42,993 | 2,579 | 26,655 | 1,279 | 24,936 | 1,047 |
| | | 4 | 0.013 | 32,400 | 1,941 | 29,160 | 1,747 | 27,540 | 1,485 | 38,880 | 2,329 | 24,300 | 1,165 | 22,680 | 951 |
| | | 6 | 0.01 | 26,244 | 1,415 | 26,369 | 1,581 | 22,307 | 1,202 | 31,493 | 1,698 | 19,683 | 943 | 18,371 | 770 |
| | | 8 | 0.008 | 23,328 | 1,257 | 23,620 | 1,274 | 19,829 | 1,069 | 27,994 | 1,509 | 17,496 | 839 | 16,330 | 685 |
| | | 10 | 0.006 | 20,412 | 1,101 | 20,995 | 1,132 | 17,350 | 935 | 24,494 | 1,320 | 15,309 | 734 | 14,288 | 599 |
| | | 12 | 0.005 | 18,144 | 869 | 18,371 | 990 | 15,422 | 647 | 21,773 | 1,043 | 13,608 | 571 | 12,701 | 456 |
| | 0.05 | 2 | 0.046 | 35,541 | 2,132 | 32,101 | 1,926 | 30,095 | 1,625 | 42,993 | 2,579 | 26,655 | 1,279 | 24,936 | 1,047 |
| | | 3 | 0.035 | 35,541 | 2,132 | 32,101 | 1,926 | 30,095 | 1,625 | 42,993 | 2,579 | 26,655 | 1,279 | 24,936 | 1,047 |
| | | 4 | 0.027 | 32,400 | 1,941 | 29,160 | 1,747 | 27,540 | 1,485 | 38,880 | 2,329 | 24,300 | 1,165 | 22,680 | 951 |
| | | 5 | 0.021 | 28,662 | 1,719 | 26,369 | 1,581 | 24,936 | 1,346 | 35,827 | 2,149 | 22,070 | 1,059 | 20,636 | 867 |
| | | 6 | 0.017 | 26,244 | 1,415 | 23,620 | 1,274 | 22,307 | 1,202 | 31,493 | 1,698 | 19,683 | 943 | 18,371 | 770 |
| | | 8 | 0.016 | 23,328 | 1,257 | 20,995 | 1,132 | 19,829 | 1,069 | 27,994 | 1,509 | 17,496 | 839 | 16,330 | 685 |
| | | 10 | 0.011 | 20,412 | 1,101 | 18,371 | 990 | 17,350 | 935 | 24,494 | 1,320 | 15,309 | 734 | 14,288 | 599 |
| | | 12 | 0.01 | 18,144 | 869 | 16,330 | 783 | 15,422 | 647 | 21,773 | 1,043 | 13,608 | 571 | 12,701 | 456 |
| | | 16 | 0.006 | 18,144 | 761 | 16,330 | 685 | 15,422 | 600 | 21,773 | 913 | 13,608 | 489 | 12,701 | 381 |
| | | 20 | 0.004 | 13,608 | 571 | 12,247 | 514 | 11,567 | 450 | 16,330 | 685 | 10,206 | 367 | 9,526 | 285 |
| | 0.1 | 2 | 0.065 | 35,541 | 2,132 | 32,101 | 1,926 | 30,095 | 1,625 | 42,993 | 2,579 | 26,655 | 1,279 | 24,936 | 1,047 |
| | | 3 | 0.05 | 35,541 | 2,132 | 32,101 | 1,926 | 30,095 | 1,625 | 42,993 | 2,579 | 26,655 | 1,279 | 24,936 | 1,047 |

【Note】Please refer to P517

# Recommended Cutting Data（General type）

SPM200-RN2
2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| Mill Dia. (mm) | r (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 1 | 0.1 | 4 | 0.038 | 32,400 | 1,941 | 29,160 | 1,747 | 27,540 | 1,485 | 38,880 | 2,329 | 24,300 | 1,165 | 22,680 | 951 |
| | | 5 | 0.03 | 28,662 | 1,719 | 26,369 | 1,581 | 24,936 | 1,346 | 35,827 | 2,149 | 22,070 | 1,059 | 20,636 | 867 |
| | | 6 | 0.024 | 26,244 | 1,415 | 23,620 | 1,274 | 22,307 | 1,202 | 31,493 | 1,698 | 19,683 | 943 | 18,371 | 770 |
| | | 8 | 0.024 | 23,328 | 1,257 | 20,995 | 1,132 | 19,829 | 1,069 | 27,994 | 1,509 | 17,496 | 839 | 16,330 | 685 |
| | | 10 | 0.015 | 20,412 | 1,101 | 18,371 | 990 | 17,350 | 935 | 24,494 | 1,320 | 15,309 | 734 | 14,288 | 599 |
| | | 12 | 0.015 | 18,144 | 869 | 16,330 | 783 | 15,422 | 647 | 21,773 | 1,043 | 13,608 | 571 | 12,701 | 456 |
| | | 16 | 0.009 | 18,144 | 761 | 16,330 | 685 | 15,422 | 600 | 21,773 | 913 | 13,608 | 489 | 12,701 | 381 |
| | | 20 | 0.006 | 13,608 | 571 | 12,247 | 514 | 11,567 | 450 | 16,330 | 685 | 10,206 | 367 | 9,526 | 285 |
| | 0.2 | 2 | 0.11 | 35,541 | 2,132 | 32,101 | 1,926 | 30,095 | 1,625 | 42,993 | 2,579 | 26,655 | 1,279 | 24,936 | 1,047 |
| | | 3 | 0.09 | 35,541 | 2,132 | 32,101 | 1,926 | 30,095 | 1,625 | 42,993 | 2,579 | 26,655 | 1,279 | 24,936 | 1,047 |
| | | 4 | 0.07 | 32,400 | 1,941 | 29,160 | 1,747 | 27,540 | 1,485 | 38,880 | 2,329 | 24,300 | 1,165 | 22,680 | 951 |
| | | 5 | 0.05 | 28,662 | 1,719 | 26,369 | 1,581 | 24,936 | 1,346 | 35,827 | 2,149 | 22,070 | 1,059 | 20,636 | 867 |
| | | 6 | 0.04 | 26,244 | 1,415 | 23,620 | 1,274 | 22,307 | 1,202 | 31,493 | 1,698 | 19,683 | 943 | 18,371 | 770 |
| | | 8 | 0.04 | 23,328 | 1,257 | 20,995 | 1,132 | 19,829 | 1,069 | 27,994 | 1,509 | 17,496 | 839 | 16,330 | 685 |
| | | 10 | 0.025 | 20,412 | 1,101 | 18,371 | 990 | 17,350 | 935 | 24,494 | 1,320 | 15,309 | 734 | 14,288 | 599 |
| | | 12 | 0.025 | 18,144 | 869 | 16,330 | 783 | 15,422 | 647 | 21,773 | 1,043 | 13,608 | 571 | 12,701 | 456 |
| | | 16 | 0.015 | 18,144 | 761 | 16,330 | 685 | 15,422 | 600 | 21,773 | 913 | 13,608 | 489 | 12,701 | 381 |
| | | 20 | 0.01 | 13,608 | 571 | 12,247 | 514 | 11,567 | 450 | 16,330 | 685 | 10,206 | 367 | 9,526 | 285 |
| | 0.3 | 2 | 0.11 | 35,541 | 2,132 | 32,101 | 1,926 | 30,095 | 1,625 | 42,993 | 2,579 | 26,655 | 1,279 | 24,936 | 1,047 |
| | | 3 | 0.09 | 35,541 | 2,132 | 32,101 | 1,926 | 30,095 | 1,625 | 42,993 | 2,579 | 26,655 | 1,279 | 24,936 | 1,047 |
| | | 4 | 0.07 | 32,400 | 1,941 | 29,160 | 1,747 | 27,540 | 1,485 | 38,880 | 2,329 | 24,300 | 1,165 | 22,680 | 951 |
| | | 5 | 0.05 | 28,662 | 1,719 | 26,369 | 1,581 | 24,936 | 1,346 | 35,827 | 2,149 | 22,070 | 1,059 | 20,636 | 867 |
| | | 6 | 0.04 | 26,244 | 1,415 | 23,620 | 1,274 | 22,307 | 1,202 | 31,493 | 1,698 | 19,683 | 943 | 18,371 | 770 |
| | | 8 | 0.04 | 23,328 | 1,257 | 20,995 | 1,132 | 19,829 | 1,069 | 27,994 | 1,509 | 17,496 | 839 | 16,330 | 685 |
| | | 10 | 0.025 | 20,412 | 1,101 | 18,371 | 990 | 17,350 | 935 | 24,494 | 1,320 | 15,309 | 734 | 14,288 | 599 |
| | | 12 | 0.025 | 18,144 | 869 | 16,330 | 783 | 15,422 | 647 | 21,773 | 1,043 | 13,608 | 571 | 12,701 | 456 |
| | | 16 | 0.015 | 18,144 | 761 | 16,330 | 685 | 15,422 | 600 | 21,773 | 913 | 13,608 | 489 | 12,701 | 381 |
| | | 20 | 0.01 | 13,608 | 571 | 12,247 | 514 | 11,567 | 450 | 16,330 | 685 | 10,206 | 367 | 9,526 | 285 |
| 1.25 | 0.1 | 5 | 0.03 | 28,662 | 1,719 | 26,369 | 1,581 | 24,936 | 1,346 | 35,827 | 2,149 | 22,070 | 1,059 | 20,636 | 867 |
| | | 10 | 0.015 | 23,328 | 1,257 | 18,371 | 990 | 17,350 | 935 | 24,494 | 1,320 | 15,309 | 734 | 14,288 | 599 |
| | | 15 | 0.01 | 18,144 | 761 | 16,330 | 685 | 15,422 | 600 | 21,773 | 913 | 13,608 | 489 | 12,701 | 381 |
| | | 20 | 0.006 | 13,608 | 571 | 12,247 | 514 | 11,567 | 450 | 16,330 | 685 | 10,206 | 367 | 9,526 | 285 |

【Note】Please refer to P517

# Recommended Cutting Data（General type）

SPM200-RN2
2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| Mill Dia. (mm) | r (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 1.25 | 0.2 | 5 | 0.05 | 28,662 | 1,719 | 26,369 | 1,581 | 24,936 | 1,346 | 35,827 | 2,149 | 22,070 | 1,059 | 20,636 | 867 |
| | | 10 | 0.025 | 23,328 | 1,257 | 18,371 | 990 | 17,350 | 935 | 24,494 | 1,320 | 15,309 | 734 | 14,288 | 599 |
| | | 15 | 0.016 | 18,144 | 761 | 16,330 | 685 | 15,422 | 600 | 21,773 | 913 | 13,608 | 489 | 12,701 | 381 |
| | | 20 | 0.01 | 13,608 | 571 | 12,247 | 514 | 11,567 | 450 | 16,330 | 685 | 10,206 | 367 | 9,526 | 285 |
| | 0.3 | 5 | 0.05 | 28,662 | 1,719 | 26,369 | 1,581 | 24,936 | 1,346 | 35,827 | 2,149 | 22,070 | 1,059 | 20,636 | 867 |
| | | 10 | 0.025 | 23,328 | 1,257 | 18,371 | 990 | 17,350 | 935 | 24,494 | 1,320 | 15,309 | 734 | 14,288 | 599 |
| | | 15 | 0.016 | 18,144 | 761 | 16,330 | 685 | 15,422 | 600 | 21,773 | 913 | 13,608 | 489 | 12,701 | 381 |
| | | 20 | 0.01 | 13,608 | 571 | 12,247 | 514 | 11,567 | 450 | 16,330 | 685 | 10,206 | 367 | 9,526 | 285 |
| 1.5 | 0.1 | 4 | 0.042 | 24,930 | 1,614 | 22,453 | 1,453 | 20,957 | 1,240 | 29,938 | 1,938 | 18,711 | 968 | 17,364 | 795 |
| | | 6 | 0.04 | 23,885 | 1,543 | 21,401 | 1,382 | 20,255 | 1,199 | 28,662 | 1,851 | 17,961 | 930 | 16,624 | 761 |
| | | 8 | 0.036 | 22,680 | 1,467 | 20,412 | 1,320 | 19,278 | 1,141 | 27,216 | 1,760 | 17,010 | 881 | 15,876 | 726 |
| | | 12 | 0.036 | 18,144 | 1,174 | 16,330 | 1,057 | 15,422 | 913 | 21,773 | 1,409 | 13,608 | 705 | 12,701 | 581 |
| | | 15 | 0.023 | 14,112 | 812 | 12,701 | 731 | 11,995 | 604 | 16,934 | 974 | 10,584 | 533 | 9,878 | 426 |
| | | 20 | 0.018 | 14,112 | 734 | 12,701 | 660 | 11,995 | 552 | 16,934 | 880 | 10,584 | 486 | 9,878 | 385 |
| | 0.2 | 4 | 0.07 | 24,930 | 1,614 | 22,453 | 1,453 | 20,957 | 1,240 | 29,938 | 1,938 | 18,711 | 968 | 17,364 | 795 |
| | | 6 | 0.065 | 23,885 | 1,543 | 21,401 | 1,382 | 20,255 | 1,199 | 28,662 | 1,851 | 17,961 | 930 | 16,624 | 761 |
| | | 8 | 0.06 | 22,680 | 1,467 | 20,412 | 1,320 | 19,278 | 1,141 | 27,216 | 1,760 | 17,010 | 881 | 15,876 | 726 |
| | | 12 | 0.06 | 18,144 | 1,174 | 16,330 | 1,057 | 15,422 | 913 | 21,773 | 1,409 | 13,608 | 705 | 12,701 | 581 |
| | | 15 | 0.038 | 14,112 | 812 | 12,701 | 731 | 11,995 | 604 | 16,934 | 974 | 10,584 | 533 | 9,878 | 426 |
| | | 20 | 0.03 | 14,112 | 734 | 12,701 | 660 | 11,995 | 552 | 16,934 | 880 | 10,584 | 486 | 9,878 | 385 |
| | 0.3 | 4 | 0.07 | 24,930 | 1,614 | 22,453 | 1,453 | 20,957 | 1,240 | 29,938 | 1,938 | 18,711 | 968 | 17,364 | 795 |
| | | 6 | 0.065 | 23,885 | 1,543 | 21,401 | 1,382 | 20,255 | 1,199 | 28,662 | 1,851 | 17,961 | 930 | 16,624 | 761 |
| | | 8 | 0.06 | 22,680 | 1,467 | 20,412 | 1,320 | 19,278 | 1,141 | 27,216 | 1,760 | 17,010 | 881 | 15,876 | 726 |
| | | 12 | 0.06 | 18,144 | 1,174 | 16,330 | 1,057 | 15,422 | 913 | 21,773 | 1,409 | 13,608 | 705 | 12,701 | 581 |
| | | 15 | 0.038 | 14,112 | 812 | 12,701 | 731 | 11,995 | 604 | 16,934 | 974 | 10,584 | 533 | 9,878 | 426 |
| | | 20 | 0.03 | 14,112 | 734 | 12,701 | 660 | 11,995 | 552 | 16,934 | 880 | 10,584 | 486 | 9,878 | 385 |
| | 0.5 | 4 | 0.085 | 24,930 | 1,614 | 22,453 | 1,453 | 20,957 | 1,240 | 29,938 | 1,938 | 18,711 | 968 | 17,364 | 795 |
| | | 6 | 0.08 | 23,885 | 1,543 | 21,401 | 1,382 | 20,255 | 1,199 | 28,662 | 1,851 | 17,961 | 930 | 16,624 | 761 |
| | | 8 | 0.07 | 22,680 | 1,467 | 20,412 | 1,320 | 19,278 | 1,141 | 27,216 | 1,760 | 17,010 | 881 | 15,876 | 726 |
| | | 12 | 0.065 | 18,144 | 1,174 | 16,330 | 1,057 | 15,422 | 913 | 21,773 | 1,409 | 13,608 | 705 | 12,701 | 581 |
| | | 15 | 0.045 | 14,112 | 812 | 12,701 | 731 | 11,995 | 604 | 16,934 | 974 | 10,584 | 533 | 9,878 | 426 |
| | | 20 | 0.035 | 14,112 | 734 | 12,701 | 660 | 11,995 | 552 | 16,934 | 880 | 10,584 | 486 | 9,878 | 385 |

【Note】Please refer to P517

# Recommended Cutting Data（General type）

SPM200-RN2
2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| Mill Dia. (mm) | r (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 1.75 | 0.1 | 5 | 0.04 | 23,885 | 1,543 | 21,401 | 1,382 | 20,255 | 1,199 | 28,662 | 1,851 | 17,961 | 930 | 16,624 | 761 |
| | | 10 | 0.036 | 18,144 | 1,174 | 16,330 | 1,057 | 15,422 | 913 | 21,773 | 1,409 | 13,608 | 705 | 12,701 | 581 |
| | | 15 | 0.023 | 14,112 | 812 | 12,701 | 731 | 11,995 | 604 | 16,934 | 974 | 10,584 | 533 | 9,878 | 426 |
| | | 20 | 0.018 | 14,112 | 734 | 12,701 | 660 | 11,995 | 552 | 16,934 | 880 | 10,584 | 486 | 9,878 | 385 |
| | 0.2 | 5 | 0.065 | 23,885 | 1,543 | 21,401 | 1,382 | 20,255 | 1,199 | 28,662 | 1,851 | 17,961 | 930 | 16,624 | 761 |
| | | 10 | 0.06 | 18,144 | 1,174 | 16,330 | 1,057 | 15,422 | 913 | 21,773 | 1,409 | 13,608 | 705 | 12,701 | 581 |
| | | 15 | 0.038 | 14,112 | 812 | 12,701 | 731 | 11,995 | 604 | 16,934 | 974 | 10,584 | 533 | 9,878 | 426 |
| | | 20 | 0.03 | 14,112 | 734 | 12,701 | 660 | 11,995 | 552 | 16,934 | 880 | 10,584 | 486 | 9,878 | 385 |
| | 0.3 | 5 | 0.065 | 23,885 | 1,543 | 21,401 | 1,382 | 20,255 | 1,199 | 28,662 | 1,851 | 17,961 | 930 | 16,624 | 761 |
| | | 10 | 0.06 | 18,144 | 1,174 | 16,330 | 1,057 | 15,422 | 913 | 21,773 | 1,409 | 13,608 | 705 | 12,701 | 581 |
| | | 15 | 0.038 | 14,112 | 812 | 12,701 | 731 | 11,995 | 604 | 16,934 | 974 | 10,584 | 533 | 9,878 | 426 |
| | | 20 | 0.03 | 14,112 | 734 | 12,701 | 660 | 11,995 | 552 | 16,934 | 880 | 10,584 | 486 | 9,878 | 385 |
| 2 | 0.1 | 4 | 0.08 | 21,783 | 2,448 | 19,634 | 2,207 | 18,487 | 2,077 | 25,796 | 2,899 | 16,337 | 1,467 | 15,334 | 1,205 |
| | | 6 | 0.07 | 20,790 | 2,336 | 18,711 | 2,102 | 17,672 | 1,985 | 24,948 | 2,803 | 15,593 | 1,401 | 14,553 | 1,144 |
| | | 8 | 0.055 | 18,900 | 2,123 | 17,010 | 1,911 | 16,065 | 1,805 | 22,680 | 2,547 | 14,175 | 1,274 | 13,230 | 1,040 |
| | | 12 | 0.03 | 15,309 | 1,548 | 13,778 | 1,393 | 13,013 | 1,316 | 18,371 | 1,857 | 11,482 | 1,031 | 10,716 | 842 |
| | | 16 | 0.03 | 13,608 | 1,375 | 12,247 | 1,238 | 11,567 | 1,169 | 16,330 | 1,651 | 10,206 | 917 | 9,526 | 749 |
| | | 20 | 0.025 | 11,907 | 1,203 | 10,716 | 1,084 | 10,121 | 1,023 | 14,288 | 1,445 | 8,931 | 721 | 8,335 | 588 |
| | | 25 | 0.015 | 11,907 | 1,203 | 10,716 | 1,084 | 10,121 | 1,023 | 14,288 | 1,445 | 8,931 | 721 | 8,335 | 588 |
| | | 30 | 0.01 | 11,312 | 1,144 | 10,181 | 1,029 | 9,615 | 972 | 13,574 | 1,373 | 8,483 | 685 | 7,918 | 559 |
| | 0.2 | 4 | 0.1 | 21,783 | 2,448 | 19,634 | 2,207 | 18,487 | 2,077 | 25,796 | 2,899 | 16,337 | 1,467 | 15,334 | 1,205 |
| | | 6 | 0.08 | 20,790 | 2,336 | 18,711 | 2,102 | 17,672 | 1,985 | 24,948 | 2,803 | 15,593 | 1,401 | 14,553 | 1,144 |
| | | 8 | 0.07 | 18,900 | 2,123 | 17,010 | 1,911 | 16,065 | 1,805 | 22,680 | 2,547 | 14,175 | 1,274 | 13,230 | 1,040 |
| | | 12 | 0.04 | 15,309 | 1,548 | 13,778 | 1,393 | 13,013 | 1,316 | 18,371 | 1,857 | 11,482 | 1,031 | 10,716 | 842 |
| | | 16 | 0.04 | 13,608 | 1,375 | 12,247 | 1,238 | 11,567 | 1,169 | 16,330 | 1,651 | 10,206 | 917 | 9,526 | 749 |
| | | 20 | 0.035 | 11,907 | 1,203 | 10,716 | 1,084 | 10,121 | 1,023 | 14,288 | 1,445 | 8,931 | 721 | 8,335 | 588 |
| | | 25 | 0.025 | 11,907 | 1,203 | 10,716 | 1,084 | 10,121 | 1,023 | 14,288 | 1,445 | 8,931 | 721 | 8,335 | 588 |
| | | 30 | 0.017 | 11,312 | 1,144 | 10,181 | 1,029 | 9,615 | 972 | 13,574 | 1,373 | 8,483 | 685 | 7,918 | 559 |
| | 0.3 | 4 | 0.13 | 21,783 | 2,448 | 19,634 | 2,207 | 18,487 | 2,077 | 25,796 | 2,899 | 16,337 | 1,467 | 15,334 | 1,205 |
| | | 6 | 0.11 | 20,790 | 2,336 | 18,711 | 2,102 | 17,672 | 1,985 | 24,948 | 2,803 | 15,593 | 1,401 | 14,553 | 1,144 |
| | | 8 | 0.09 | 18,900 | 2,123 | 17,010 | 1,911 | 16,065 | 1,805 | 22,680 | 2,547 | 14,175 | 1,274 | 13,230 | 1,040 |
| | | 12 | 0.06 | 15,309 | 1,548 | 13,778 | 1,393 | 13,013 | 1,316 | 18,371 | 1,857 | 11,482 | 1,031 | 10,716 | 842 |

【Note】Please refer to P517

# Recommended Cutting Data（General type）

SPM200-RN2

2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| Mill Dia. (mm) | r (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 2 | 0.3 | 16 | 0.06 | 13,608 | 1,375 | 12,247 | 1,238 | 11,567 | 1,169 | 16,330 | 1,651 | 10,206 | 917 | 9,526 | 749 |
| | | 20 | 0.037 | 11,907 | 1,203 | 10,716 | 1,084 | 10,121 | 1,023 | 14,288 | 1,445 | 8,931 | 721 | 8,335 | 588 |
| | | 25 | 0.03 | 11,907 | 1,203 | 10,716 | 1,084 | 10,121 | 1,023 | 14,288 | 1,445 | 8,931 | 721 | 8,335 | 588 |
| | | 30 | 0.021 | 11,312 | 1,144 | 10,181 | 1,029 | 9,615 | 972 | 13,574 | 1,373 | 8,483 | 685 | 7,918 | 559 |
| | 0.5 | 6 | 0.17 | 20,790 | 2,336 | 18,711 | 2,102 | 17,672 | 1,985 | 24,948 | 2,803 | 15,593 | 1,401 | 14,553 | 1,144 |
| | | 8 | 0.14 | 18,900 | 2,123 | 17,010 | 1,911 | 16,065 | 1,805 | 22,680 | 2,547 | 14,175 | 1,274 | 13,230 | 1,040 |
| | | 12 | 0.08 | 15,309 | 1,548 | 13,778 | 1,393 | 13,013 | 1,316 | 18,371 | 1,857 | 11,482 | 1,031 | 10,716 | 842 |
| | | 16 | 0.08 | 13,608 | 1,375 | 12,247 | 1,238 | 11,567 | 1,169 | 16,330 | 1,651 | 10,206 | 917 | 9,526 | 749 |
| | | 20 | 0.05 | 11,907 | 1,203 | 10,716 | 1,084 | 10,121 | 1,023 | 14,288 | 1,445 | 8,931 | 721 | 8,335 | 588 |
| | | 25 | 0.05 | 11,907 | 1,203 | 10,716 | 1,084 | 10,121 | 1,023 | 14,288 | 1,445 | 8,931 | 721 | 8,335 | 588 |
| | | 30 | 0.03 | 11,312 | 1,144 | 10,181 | 1,029 | 9,615 | 972 | 13,574 | 1,373 | 8,483 | 685 | 7,918 | 559 |
| | 0.8 | 6 | 0.22 | 20,790 | 2,336 | 18,711 | 2,102 | 17,672 | 1,985 | 24,948 | 2,803 | 15,593 | 1,401 | 14,553 | 1,144 |
| | | 8 | 0.2 | 18,900 | 2,123 | 17,010 | 1,911 | 16,065 | 1,805 | 22,680 | 2,547 | 14,175 | 1,274 | 13,230 | 1,040 |
| | | 12 | 0.13 | 15,309 | 1,548 | 13,778 | 1,393 | 13,013 | 1,316 | 18,371 | 1,857 | 11,482 | 1,031 | 10,716 | 842 |
| | | 16 | 0.1 | 13,608 | 1,375 | 12,247 | 1,238 | 11,567 | 1,169 | 16,330 | 1,651 | 10,206 | 917 | 9,526 | 749 |
| | | 20 | 0.06 | 11,907 | 1,203 | 10,716 | 1,084 | 10,121 | 1,023 | 14,288 | 1,445 | 8,931 | 721 | 8,335 | 588 |
| | | 25 | 0.057 | 11,907 | 1,203 | 10,716 | 1,084 | 10,121 | 1,023 | 14,288 | 1,445 | 8,931 | 721 | 8,335 | 588 |
| | | 30 | 0.045 | 11,312 | 1,144 | 10,181 | 1,029 | 9,615 | 972 | 13,574 | 1,373 | 8,483 | 685 | 7,918 | 559 |
| 2.5 | 0.1 | 10 | 0.05 | 15,309 | 1,548 | 13,778 | 1,393 | 13,013 | 1,316 | 18,371 | 2,064 | 11,482 | 1,031 | 10,716 | 842 |
| | | 20 | 0.03 | 11,907 | 1,203 | 10,716 | 1,084 | 10,121 | 1,023 | 14,288 | 1,605 | 8,931 | 721 | 8,335 | 588 |
| | | 30 | 0.015 | 11,312 | 1,144 | 10,181 | 1,029 | 9,615 | 972 | 13,574 | 1,373 | 8,483 | 685 | 7,918 | 559 |
| | 0.2 | 10 | 0.07 | 15,309 | 1,548 | 13,778 | 1,393 | 13,013 | 1,316 | 18,371 | 2,064 | 11,482 | 1,031 | 10,716 | 842 |
| | | 20 | 0.04 | 11,907 | 1,203 | 10,716 | 1,084 | 10,121 | 1,023 | 14,288 | 1,605 | 8,931 | 721 | 8,335 | 588 |
| | | 30 | 0.025 | 11,312 | 1,144 | 10,181 | 1,029 | 9,615 | 972 | 13,574 | 1,373 | 8,483 | 685 | 7,918 | 559 |
| | 0.3 | 10 | 0.09 | 15,309 | 1,548 | 13,778 | 1,393 | 13,013 | 1,316 | 18,371 | 2,064 | 11,482 | 1,031 | 10,716 | 842 |
| | | 20 | 0.06 | 11,907 | 1,203 | 10,716 | 1,084 | 10,121 | 1,023 | 14,288 | 1,605 | 8,931 | 721 | 8,335 | 588 |
| | | 30 | 0.03 | 11,312 | 1,144 | 10,181 | 1,029 | 9,615 | 972 | 13,574 | 1,373 | 8,483 | 685 | 7,918 | 559 |
| | 0.5 | 10 | 0.12 | 15,309 | 1,548 | 13,778 | 1,393 | 13,013 | 1,316 | 18,371 | 2,064 | 11,482 | 1,031 | 10,716 | 842 |
| | | 20 | 0.08 | 11,907 | 1,203 | 10,716 | 1,084 | 10,121 | 1,023 | 14,288 | 1,605 | 8,931 | 721 | 8,335 | 588 |
| | | 30 | 0.05 | 11,312 | 1,144 | 10,181 | 1,029 | 9,615 | 972 | 13,574 | 1,373 | 8,483 | 685 | 7,918 | 559 |
| 3 | 0.1 | 6 | 0.08 | 14,400 | 2,021 | 12,960 | 1,820 | 12,240 | 1,718 | 17,280 | 2,426 | 10,800 | 1,213 | 10,080 | 991 |
| | | 8 | 0.07 | 14,400 | 2,021 | 12,960 | 1,820 | 12,240 | 1,718 | 17,280 | 2,426 | 10,800 | 1,213 | 10,080 | 991 |

【Note】Please refer to P517

# Recommended Cutting Data（General type）

SPM200-RN2

2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| Mill Dia. (mm) | r (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 3 | 0.1 | 12 | 0.05 | 14,400 | 2,021 | 12,960 | 1,820 | 12,240 | 1,718 | 17,280 | 2,426 | 10,800 | 1,213 | 10,080 | 991 |
| | | 16 | 0.035 | 14,400 | 2,021 | 12,960 | 1,820 | 12,240 | 1,718 | 17,280 | 2,426 | 10,800 | 1,213 | 10,080 | 991 |
| | | 18 | 0.035 | 12,898 | 1,811 | 11,464 | 1,609 | 10,987 | 1,543 | 15,287 | 2,146 | 9,554 | 1,074 | 9,076 | 893 |
| | | 20 | 0.035 | 11,664 | 1,638 | 10,498 | 1,474 | 9,914 | 1,392 | 13,997 | 1,966 | 8,748 | 983 | 8,165 | 803 |
| | | 30 | 0.027 | 9,072 | 1,143 | 8,165 | 1,029 | 7,711 | 971 | 10,886 | 1,372 | 6,804 | 694 | 6,350 | 559 |
| | | 35 | 0.02 | 9,072 | 1,143 | 8,165 | 1,029 | 7,711 | 971 | 10,886 | 1,372 | 6,804 | 694 | 6,350 | 559 |
| | 0.2 | 6 | 0.1 | 14,400 | 2,021 | 12,960 | 1,820 | 12,240 | 1,718 | 17,280 | 2,426 | 10,800 | 1,213 | 10,080 | 991 |
| | | 8 | 0.09 | 14,400 | 2,021 | 12,960 | 1,820 | 12,240 | 1,718 | 17,280 | 2,426 | 10,800 | 1,213 | 10,080 | 991 |
| | | 12 | 0.07 | 14,400 | 2,021 | 12,960 | 1,820 | 12,240 | 1,718 | 17,280 | 2,426 | 10,800 | 1,213 | 10,080 | 991 |
| | | 16 | 0.05 | 14,400 | 2,021 | 12,960 | 1,820 | 12,240 | 1,718 | 17,280 | 2,426 | 10,800 | 1,213 | 10,080 | 991 |
| | | 18 | 0.05 | 12,898 | 1,811 | 11,464 | 1,609 | 10,987 | 1,543 | 15,287 | 2,146 | 9,554 | 1,074 | 9,076 | 893 |
| | | 20 | 0.05 | 11,664 | 1,638 | 10,498 | 1,474 | 9,914 | 1,392 | 13,997 | 1,966 | 8,748 | 983 | 8,165 | 803 |
| | | 30 | 0.04 | 9,072 | 1,143 | 8,165 | 1,029 | 7,711 | 971 | 10,886 | 1,372 | 6,804 | 694 | 6,350 | 559 |
| | | 35 | 0.035 | 9,072 | 1,143 | 8,165 | 1,029 | 7,711 | 971 | 10,886 | 1,372 | 6,804 | 694 | 6,350 | 559 |
| | 0.3 | 6 | 0.145 | 14,400 | 2,021 | 12,960 | 1,820 | 12,240 | 1,718 | 17,280 | 2,426 | 10,800 | 1,213 | 10,080 | 991 |
| | | 8 | 0.13 | 14,400 | 2,021 | 12,960 | 1,820 | 12,240 | 1,718 | 17,280 | 2,426 | 10,800 | 1,213 | 10,080 | 991 |
| | | 12 | 0.1 | 14,400 | 2,021 | 12,960 | 1,820 | 12,240 | 1,718 | 17,280 | 2,426 | 10,800 | 1,213 | 10,080 | 991 |
| | | 16 | 0.075 | 14,400 | 2,021 | 12,960 | 1,820 | 12,240 | 1,718 | 17,280 | 2,426 | 10,800 | 1,213 | 10,080 | 991 |
| | | 18 | 0.075 | 12,898 | 1,811 | 11,464 | 1,609 | 10,987 | 1,543 | 15,287 | 2,146 | 9,554 | 1,074 | 9,076 | 893 |
| | | 20 | 0.075 | 11,664 | 1,638 | 10,498 | 1,474 | 9,914 | 1,392 | 13,997 | 1,966 | 8,748 | 983 | 8,165 | 803 |
| | | 30 | 0.06 | 9,072 | 1,143 | 8,165 | 1,029 | 7,711 | 971 | 10,886 | 1,372 | 6,804 | 694 | 6,350 | 559 |
| | | 35 | 0.05 | 9,072 | 1,143 | 8,165 | 1,029 | 7,711 | 971 | 10,886 | 1,372 | 6,804 | 694 | 6,350 | 559 |
| | 0.5 | 8 | 0.18 | 14,400 | 2,021 | 12,960 | 1,820 | 12,240 | 1,718 | 17,280 | 2,426 | 10,800 | 1,213 | 10,080 | 991 |
| | | 12 | 0.13 | 14,400 | 2,021 | 12,960 | 1,820 | 12,240 | 1,718 | 17,280 | 2,426 | 10,800 | 1,213 | 10,080 | 991 |
| | | 16 | 0.1 | 14,400 | 2,021 | 12,960 | 1,820 | 12,240 | 1,718 | 17,280 | 2,426 | 10,800 | 1,213 | 10,080 | 991 |
| | | 18 | 0.1 | 12,898 | 1,811 | 11,464 | 1,609 | 12,240 | 1,718 | 15,287 | 2,146 | 9,554 | 1,074 | 9,076 | 893 |
| | | 20 | 0.1 | 11,664 | 1,638 | 10,498 | 1,474 | 9,914 | 1,392 | 13,997 | 1,966 | 8,748 | 983 | 8,165 | 803 |
| | | 30 | 0.08 | 9,072 | 1,143 | 8,165 | 1,029 | 7,711 | 971 | 10,886 | 1,372 | 6,804 | 694 | 6,350 | 559 |
| | | 35 | 0.065 | 9,072 | 1,143 | 8,165 | 1,029 | 7,711 | 971 | 10,886 | 1,372 | 6,804 | 694 | 6,350 | 559 |
| | 1 | 8 | 0.2 | 14,400 | 2,021 | 12,960 | 1,820 | 12,240 | 1,718 | 17,280 | 2,426 | 10,800 | 1,213 | 10,080 | 991 |
| | | 12 | 0.15 | 14,400 | 2,021 | 12,960 | 1,820 | 12,240 | 1,718 | 17,280 | 2,426 | 10,800 | 1,213 | 10,080 | 991 |
| | | 16 | 0.12 | 14,400 | 2,021 | 12,960 | 1,820 | 12,240 | 1,718 | 17,280 | 2,426 | 10,800 | 1,213 | 10,080 | 991 |

【Note】Please refer to P517

# Recommended Cutting Data（General type）

SPM200-RN2

2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| Mill Dia. (mm) | r (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 3 | 1 | 18 | 0.11 | 12,898 | 1,811 | 11,464 | 1,609 | 12,240 | 1,718 | 15,287 | 2,146 | 9,554 | 1,074 | 9,076 | 893 |
| | | 20 | 0.11 | 11,664 | 1,638 | 10,498 | 1,474 | 9,914 | 1,392 | 13,997 | 1,966 | 8,748 | 983 | 8,165 | 803 |
| | | 30 | 0.09 | 9,072 | 1,143 | 8,165 | 1,029 | 7,711 | 971 | 10,886 | 1,372 | 6,804 | 694 | 6,350 | 559 |
| | | 35 | 0.075 | 9,072 | 1,143 | 8,165 | 1,029 | 7,711 | 971 | 10,886 | 1,372 | 6,804 | 694 | 6,350 | 559 |
| 4 | 0.1 | 8 | 0.08 | 12,420 | 2,160 | 11,178 | 1,944 | 10,557 | 1,836 | 14,904 | 2,592 | 9,315 | 1,296 | 8,694 | 1,058 |
| | | 12 | 0.065 | 12,420 | 2,160 | 11,178 | 1,944 | 10,557 | 1,836 | 14,904 | 2,592 | 9,315 | 1,296 | 8,694 | 1,058 |
| | | 16 | 0.06 | 10,301 | 1,791 | 9,064 | 1,576 | 8,652 | 1,504 | 12,360 | 2,149 | 7,416 | 1,031 | 7,004 | 852 |
| | | 20 | 0.055 | 10,301 | 1,791 | 9,064 | 1,576 | 8,652 | 1,504 | 12,360 | 2,149 | 7,416 | 1,031 | 7,004 | 852 |
| | | 30 | 0.045 | 8,239 | 1,290 | 7,415 | 1,161 | 7,003 | 1,096 | 9,887 | 1,547 | 6,179 | 774 | 5,767 | 632 |
| | | 35 | 0.04 | 8,239 | 1,290 | 7,415 | 1,161 | 7,003 | 1,096 | 9,887 | 1,547 | 6,179 | 774 | 5,767 | 632 |
| | | 45 | 0.03 | 6,592 | 825 | 5,933 | 743 | 5,603 | 702 | 7,910 | 990 | 4,945 | 499 | 4,614 | 401 |
| | 0.2 | 8 | 0.16 | 12,420 | 2,160 | 11,178 | 1,944 | 10,557 | 1,836 | 14,904 | 2,592 | 9,315 | 1,296 | 8,694 | 1,058 |
| | | 12 | 0.14 | 12,420 | 2,160 | 11,178 | 1,944 | 10,557 | 1,836 | 14,904 | 2,592 | 9,315 | 1,296 | 8,694 | 1,058 |
| | | 16 | 0.13 | 10,301 | 1,791 | 9,064 | 1,576 | 8,652 | 1,504 | 12,360 | 2,149 | 7,416 | 1,031 | 7,004 | 852 |
| | | 20 | 0.11 | 10,301 | 1,791 | 9,064 | 1,576 | 8,652 | 1,504 | 12,360 | 2,149 | 7,416 | 1,031 | 7,004 | 852 |
| | | 30 | 0.1 | 8,239 | 1,290 | 7,415 | 1,161 | 7,003 | 1,096 | 9,887 | 1,547 | 6,179 | 774 | 5,767 | 632 |
| | | 35 | 0.08 | 8,239 | 1,290 | 7,415 | 1,161 | 7,003 | 1,096 | 9,887 | 1,547 | 6,179 | 774 | 5,767 | 632 |
| | | 45 | 0.06 | 6,592 | 825 | 5,933 | 743 | 5,603 | 702 | 7,910 | 990 | 4,945 | 499 | 4,614 | 401 |
| | 0.3 | 8 | 0.24 | 12,420 | 2,160 | 11,178 | 1,944 | 10,557 | 1,836 | 14,904 | 2,592 | 9,315 | 1,296 | 8,694 | 1,058 |
| | | 12 | 0.22 | 12,420 | 2,160 | 11,178 | 1,944 | 10,557 | 1,836 | 14,904 | 2,592 | 9,315 | 1,296 | 8,694 | 1,058 |
| | | 16 | 0.2 | 10,301 | 1,791 | 9,064 | 1,576 | 8,652 | 1,504 | 12,360 | 2,149 | 7,416 | 1,031 | 7,004 | 852 |
| | | 20 | 0.18 | 10,301 | 1,791 | 9,064 | 1,576 | 8,652 | 1,504 | 12,360 | 2,149 | 7,416 | 1,031 | 7,004 | 852 |
| | | 30 | 0.16 | 8,239 | 1,290 | 7,415 | 1,161 | 7,003 | 1,096 | 9,887 | 1,547 | 6,179 | 774 | 5,767 | 632 |
| | | 35 | 0.14 | 8,239 | 1,290 | 7,415 | 1,161 | 7,003 | 1,096 | 9,887 | 1,547 | 6,179 | 774 | 5,767 | 632 |
| | | 45 | 0.12 | 6,592 | 825 | 5,933 | 743 | 5,603 | 702 | 7,910 | 990 | 4,945 | 499 | 4,614 | 401 |
| | 0.5 | 12 | 0.35 | 12,420 | 2,160 | 11,178 | 1,944 | 10,557 | 1,836 | 14,904 | 2,592 | 9,315 | 1,296 | 8,694 | 1,058 |
| | | 16 | 0.25 | 10,301 | 1,791 | 9,064 | 1,576 | 8,652 | 1,504 | 12,360 | 2,149 | 7,416 | 1,031 | 7,004 | 852 |
| | | 20 | 0.2 | 10,301 | 1,791 | 9,064 | 1,576 | 8,652 | 1,504 | 12,360 | 2,149 | 7,416 | 1,031 | 7,004 | 852 |
| | | 30 | 0.15 | 8,239 | 1,290 | 7,415 | 1,161 | 7,003 | 1,096 | 9,887 | 1,547 | 6,179 | 774 | 5,767 | 632 |
| | | 35 | 0.1 | 8,239 | 1,290 | 7,415 | 1,161 | 7,003 | 1,096 | 9,887 | 1,547 | 6,179 | 774 | 5,767 | 632 |
| | | 45 | 0.05 | 6,592 | 825 | 5,933 | 743 | 5,603 | 702 | 7,910 | 990 | 4,945 | 499 | 4,614 | 401 |

【Note】Please refer to P517

# Recommended Cutting Data（General type）

SPM200-RN2

2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| Mill Dia. (mm) | r (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 4 | 1 | 12 | 0.4 | 12,420 | 2,160 | 11,178 | 1,944 | 10,557 | 1,836 | 14,904 | 2,592 | 9,315 | 1,296 | 8,694 | 1,058 |
| | | 16 | 0.29 | 10,301 | 1,791 | 9,064 | 1,576 | 8,652 | 1,504 | 12,360 | 2,149 | 7,416 | 1,031 | 7,004 | 852 |
| | | 20 | 0.23 | 10,301 | 1,791 | 9,064 | 1,576 | 8,652 | 1,504 | 12,360 | 2,149 | 7,416 | 1,031 | 7,004 | 852 |
| | | 30 | 0.17 | 8,239 | 1,290 | 7,415 | 1,161 | 7,003 | 1,096 | 9,887 | 1,547 | 6,179 | 774 | 5,767 | 632 |
| | | 35 | 0.12 | 8,239 | 1,290 | 7,415 | 1,161 | 7,003 | 1,096 | 9,887 | 1,547 | 6,179 | 774 | 5,767 | 632 |
| | | 45 | 0.06 | 6,592 | 825 | 5,933 | 743 | 5,603 | 702 | 7,910 | 990 | 4,945 | 499 | 4,614 | 401 |
| 5 | 0.1 | 20 | 0.08 | 9,885 | 2,149 | 8,896 | 1,934 | 8,402 | 1,826 | 11,861 | 2,579 | 7,413 | 1,290 | 6,919 | 1,053 |
| | | 40 | 0.06 | 8,901 | 1,733 | 8,011 | 1,561 | 7,566 | 1,473 | 10,681 | 2,081 | 6,676 | 1,040 | 6,231 | 850 |
| | 0.2 | 20 | 0.16 | 9,885 | 2,149 | 8,896 | 1,934 | 8,402 | 1,826 | 11,861 | 2,579 | 7,413 | 1,290 | 6,919 | 1,053 |
| | | 40 | 0.13 | 8,901 | 1,733 | 8,011 | 1,561 | 7,566 | 1,473 | 10,681 | 2,081 | 6,676 | 1,040 | 6,231 | 850 |
| | 0.3 | 20 | 0.24 | 9,885 | 2,149 | 8,896 | 1,934 | 8,402 | 1,826 | 11,861 | 2,579 | 7,413 | 1,290 | 6,919 | 1,053 |
| | | 40 | 0.2 | 8,901 | 1,733 | 8,011 | 1,561 | 7,566 | 1,473 | 10,681 | 2,081 | 6,676 | 1,040 | 6,231 | 850 |
| | 0.5 | 20 | 0.35 | 9,885 | 2,149 | 8,896 | 1,934 | 8,402 | 1,826 | 11,861 | 2,579 | 7,413 | 1,290 | 6,919 | 1,053 |
| | | 40 | 0.135 | 8,901 | 1,733 | 8,011 | 1,561 | 7,566 | 1,473 | 10,681 | 2,081 | 6,676 | 1,040 | 6,231 | 850 |
| | 1 | 20 | 0.4 | 9,885 | 2,149 | 8,896 | 1,934 | 8,402 | 1,826 | 11,861 | 2,579 | 7,413 | 1,290 | 6,919 | 1,053 |
| | | 40 | 0.15 | 8,901 | 1,733 | 8,011 | 1,561 | 7,566 | 1,473 | 10,681 | 2,081 | 6,676 | 1,040 | 6,231 | 850 |
| 6 | 0.1 | 12 | 0.08 | 8,239 | 2,149 | 7,415 | 1,934 | 7,003 | 1,827 | 9,887 | 2,579 | 6,179 | 1,290 | 5,767 | 1,053 |
| | | 18 | 0.065 | 8,239 | 2,149 | 7,415 | 1,934 | 7,003 | 1,827 | 9,887 | 2,579 | 6,179 | 1,290 | 5,767 | 1,053 |
| | | 24 | 0.06 | 8,239 | 2,149 | 7,415 | 1,934 | 7,003 | 1,827 | 9,887 | 2,579 | 6,179 | 1,290 | 5,767 | 1,053 |
| | | 35 | 0.05 | 7,411 | 1,740 | 6,670 | 1,566 | 6,299 | 1,479 | 8,893 | 2,088 | 5,558 | 1,044 | 5,188 | 852 |
| | | 55 | 0.04 | 5,765 | 1,354 | 5,189 | 1,219 | 4,901 | 1,150 | 6,918 | 1,625 | 4,325 | 812 | 4,036 | 663 |
| | 0.2 | 12 | 0.16 | 8,239 | 2,149 | 7,415 | 1,934 | 7,003 | 1,827 | 9,887 | 2,579 | 6,179 | 1,290 | 5,767 | 1,053 |
| | | 18 | 0.14 | 8,239 | 2,149 | 7,415 | 1,934 | 7,003 | 1,827 | 9,887 | 2,579 | 6,179 | 1,290 | 5,767 | 1,053 |
| | | 24 | 0.13 | 8,239 | 2,149 | 7,415 | 1,934 | 7,003 | 1,827 | 9,887 | 2,579 | 6,179 | 1,290 | 5,767 | 1,053 |
| | | 35 | 0.11 | 7,411 | 1,740 | 6,670 | 1,566 | 6,299 | 1,479 | 8,893 | 2,088 | 5,558 | 1,044 | 5,188 | 852 |
| | | 55 | 0.08 | 5,765 | 1,354 | 5,189 | 1,219 | 4,901 | 1,150 | 6,918 | 1,625 | 4,325 | 812 | 4,036 | 663 |
| | 0.3 | 12 | 0.24 | 8,239 | 2,149 | 7,415 | 1,934 | 7,003 | 1,827 | 9,887 | 2,579 | 6,179 | 1,290 | 5,767 | 1,053 |
| | | 18 | 0.22 | 8,239 | 2,149 | 7,415 | 1,934 | 7,003 | 1,827 | 9,887 | 2,579 | 6,179 | 1,290 | 5,767 | 1,053 |
| | | 24 | 0.2 | 8,239 | 2,149 | 7,415 | 1,934 | 7,003 | 1,827 | 9,887 | 2,579 | 6,179 | 1,290 | 5,767 | 1,053 |
| | | 35 | 0.18 | 7,411 | 1,740 | 6,670 | 1,566 | 6,299 | 1,479 | 8,893 | 2,088 | 5,558 | 1,044 | 5,188 | 852 |
| | | 55 | 0.14 | 5,765 | 1,354 | 5,189 | 1,219 | 4,901 | 1,150 | 6,918 | 1,625 | 4,325 | 812 | 4,036 | 663 |

【Note】Please refer to P517

# Recommended Cutting Data（General type）

SPM200-RN2

2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| Mill Dia. (mm) | r (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 6 | 0.5 | 18 | 0.35 | 8,239 | 2,149 | 7,415 | 1,934 | 7,003 | 1,827 | 9,887 | 2,579 | 6,179 | 1,290 | 5,767 | 1,053 |
| | | 24 | 0.29 | 8,239 | 2,149 | 7,415 | 1,934 | 7,003 | 1,827 | 9,887 | 2,579 | 6,179 | 1,290 | 5,767 | 1,053 |
| | | 35 | 0.24 | 7,411 | 1,740 | 6,670 | 1,566 | 6,299 | 1,479 | 8,893 | 2,088 | 5,558 | 1,044 | 5,188 | 852 |
| | | 55 | 0.165 | 5,765 | 1,354 | 5,189 | 1,219 | 4,901 | 1,150 | 6,918 | 1,625 | 4,325 | 812 | 4,036 | 663 |
| | 1 | 18 | 0.4 | 8,239 | 2,149 | 7,415 | 1,934 | 7,003 | 1,827 | 9,887 | 2,579 | 6,179 | 1,290 | 5,767 | 1,053 |
| | | 24 | 0.35 | 8,239 | 2,149 | 7,415 | 1,934 | 7,003 | 1,827 | 9,887 | 2,579 | 6,179 | 1,290 | 5,767 | 1,053 |
| | | 35 | 0.28 | 7,411 | 1,740 | 6,670 | 1,566 | 6,299 | 1,479 | 8,893 | 2,088 | 5,558 | 1,044 | 5,188 | 852 |
| | | 55 | 0.2 | 5,765 | 1,354 | 5,189 | 1,219 | 4,901 | 1,150 | 6,918 | 1,625 | 4,325 | 812 | 4,036 | 663 |

【Note】
1. For different materials, adjust the cutting depth (ap) according to the cutting depth factors in the above table. E.g. for hardened steels (45～55HRC), ap*0.65.
2. Use the appropriate coolant such as air cooling or emulsion for the work material and machining shape.
3. In actual machining, the condition should be adjusted according to the machining shape, purpose and the machine type.
4. If the rpm of the machine is low, lower the feed rate also to put the rpm and feed rate in the same ratio.

# Recommended Cutting Data（High Precision）

SPM200-RN2

2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| Mill Dia. (mm) | r (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 0.2 | 0.02 | 0.5 | 0.016 | 45,000 | 232 | 45,000 | 207 | 45,000 | 185 | 45,000 | 276 | 45,000 | 162 | 45,000 | 144 |
| | | 1 | 0.011 | 45,000 | 232 | 45,000 | 207 | 45,000 | 185 | 45,000 | 276 | 45,000 | 162 | 45,000 | 144 |
| | | 2 | 0.007 | 37,800 | 182 | 34,020 | 163 | 33,030 | 158 | 45,000 | 221 | 33,030 | 146 | 33,030 | 132 |
| | 0.05 | 0.5 | 0.02 | 45,000 | 232 | 45,000 | 207 | 45,000 | 185 | 45,000 | 276 | 45,000 | 162 | 45,000 | 144 |
| | | 1 | 0.014 | 45,000 | 232 | 45,000 | 207 | 45,000 | 185 | 45,000 | 276 | 45,000 | 162 | 45,000 | 144 |
| | | 1.5 | 0.008 | 45,000 | 216 | 43,740 | 201 | 41,310 | 182 | 45,000 | 248 | 41,310 | 153 | 41,310 | 138 |
| | | 2 | 0.008 | 37,800 | 182 | 34,020 | 163 | 33,030 | 158 | 45,000 | 221 | 33,030 | 146 | 33,030 | 132 |
| 0.3 | 0.02 | 1 | 0.016 | 45,000 | 527 | 45,000 | 464 | 45,000 | 410 | 45,000 | 626 | 45,000 | 302 | 45,000 | 288 |
| | | 2 | 0.011 | 40,500 | 477 | 40,500 | 414 | 40,500 | 378 | 40,500 | 558 | 40,500 | 270 | 40,500 | 261 |
| | | 3 | 0.007 | 31,500 | 371 | 31,500 | 322 | 31,500 | 293 | 36,000 | 454 | 27,000 | 180 | 27,000 | 175 |
| | 0.05 | 1 | 0.021 | 45,000 | 527 | 45,000 | 464 | 45,000 | 410 | 45,000 | 626 | 45,000 | 302 | 45,000 | 288 |
| | | 1.5 | 0.016 | 45,000 | 527 | 40,500 | 464 | 40,500 | 410 | 45,000 | 626 | 40,500 | 302 | 40,500 | 288 |
| | | 2 | 0.012 | 40,500 | 477 | 40,500 | 414 | 40,500 | 378 | 40,500 | 558 | 40,500 | 270 | 40,500 | 261 |
| | | 2.5 | 0.01 | 36,000 | 424 | 36,000 | 368 | 36,000 | 336 | 36,000 | 496 | 36,000 | 240 | 36,000 | 232 |
| | | 3 | 0.008 | 31,500 | 371 | 31,500 | 322 | 31,500 | 293 | 36,000 | 454 | 27,000 | 180 | 27,000 | 175 |
| 0.4 | 0.02 | 1 | 0.016 | 45,000 | 522 | 45,000 | 466 | 45,000 | 415 | 45,000 | 622 | 36,000 | 288 | 32,400 | 243 |
| | | 2 | 0.013 | 40,500 | 468 | 40,500 | 423 | 40,500 | 369 | 40,500 | 558 | 32,400 | 261 | 30,600 | 216 |
| | | 3 | 0.01 | 36,000 | 369 | 36,000 | 333 | 36,000 | 297 | 36,000 | 432 | 29,520 | 216 | 23,040 | 180 |
| | | 4 | 0.007 | 27,000 | 288 | 27,000 | 252 | 27,000 | 225 | 27,000 | 333 | 19,440 | 144 | 17,280 | 135 |
| | 0.05 | 1 | 0.025 | 45,000 | 522 | 45,000 | 466 | 45,000 | 415 | 45,000 | 622 | 36,000 | 288 | 32,400 | 243 |
| | | 1.5 | 0.02 | 45,000 | 522 | 45,000 | 466 | 45,000 | 415 | 45,000 | 622 | 36,000 | 288 | 32,400 | 243 |
| | | 2 | 0.016 | 40,500 | 468 | 40,500 | 423 | 40,500 | 369 | 40,500 | 558 | 32,400 | 261 | 30,600 | 216 |
| | | 2.5 | 0.015 | 36,450 | 432 | 36,450 | 360 | 36,450 | 333 | 36,450 | 504 | 30,060 | 243 | 27,540 | 198 |
| | | 3 | 0.014 | 36,000 | 369 | 36,000 | 333 | 36,000 | 297 | 36,000 | 432 | 29,520 | 216 | 23,040 | 180 |
| | | 3.5 | 0.012 | 32,400 | 342 | 32,400 | 288 | 32,400 | 270 | 32,400 | 378 | 26,460 | 180 | 20,628 | 162 |
| | | 4 | 0.008 | 27,000 | 288 | 27,000 | 252 | 27,000 | 225 | 27,000 | 333 | 19,440 | 144 | 17,280 | 135 |
| | 0.1 | 1 | 0.033 | 45,000 | 522 | 45,000 | 466 | 45,000 | 415 | 45,000 | 622 | 36,000 | 288 | 32,400 | 243 |
| | | 2 | 0.028 | 40,500 | 468 | 40,500 | 423 | 40,500 | 369 | 40,500 | 558 | 32,400 | 261 | 30,600 | 216 |
| | | 3 | 0.016 | 36,000 | 369 | 36,000 | 333 | 36,000 | 297 | 36,000 | 432 | 29,520 | 216 | 23,040 | 180 |
| | | 4 | 0.01 | 27,000 | 288 | 27,000 | 252 | 27,000 | 225 | 27,000 | 333 | 19,440 | 144 | 17,280 | 135 |
| 0.5 | 0.02 | 1 | 0.016 | 45,000 | 808 | 45,000 | 680 | 36,000 | 418 | 45,000 | 963 | 27,000 | 340 | 25,200 | 284 |
| | | 2 | 0.013 | 45,000 | 808 | 45,000 | 680 | 36,000 | 418 | 45,000 | 963 | 27,000 | 340 | 25,200 | 284 |

【Note】Please refer to P528

# Recommended Cutting Data（High Precision）

SPM200-RN2

2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| Mill Dia. (mm) | r (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 0.5 | 0.02 | 3 | 0.01 | 40,500 | 729 | 40,500 | 616 | 32,400 | 373 | 40,500 | 864 | 24,300 | 284 | 22,050 | 235 |
| | | 4 | 0.008 | 36,000 | 648 | 36,000 | 543 | 28,800 | 340 | 36,000 | 765 | 21,600 | 251 | 18,000 | 211 |
| | | 6 | 0.006 | 25,920 | 432 | 21,600 | 342 | 17,460 | 234 | 27,000 | 513 | 16,200 | 225 | 13,500 | 180 |
| | 0.05 | 1 | 0.03 | 45,000 | 808 | 45,000 | 680 | 36,000 | 418 | 45,000 | 963 | 27,000 | 340 | 25,200 | 284 |
| | | 2 | 0.023 | 45,000 | 808 | 45,000 | 680 | 36,000 | 418 | 45,000 | 963 | 27,000 | 340 | 25,200 | 284 |
| | | 3 | 0.017 | 40,500 | 729 | 40,500 | 616 | 32,400 | 373 | 40,500 | 864 | 24,300 | 284 | 22,050 | 235 |
| | | 4 | 0.017 | 36,000 | 648 | 36,000 | 543 | 28,800 | 340 | 36,000 | 765 | 21,600 | 251 | 18,000 | 211 |
| | | 5 | 0.011 | 25,920 | 486 | 21,600 | 342 | 17,460 | 252 | 27,000 | 576 | 16,200 | 225 | 13,500 | 180 |
| | | 6 | 0.008 | 25,920 | 432 | 21,600 | 342 | 17,460 | 234 | 27,000 | 513 | 16,200 | 225 | 13,500 | 180 |
| | 0.1 | 1 | 0.035 | 45,000 | 808 | 45,000 | 680 | 36,000 | 418 | 45,000 | 963 | 27,000 | 340 | 25,200 | 284 |
| | | 2 | 0.03 | 45,000 | 808 | 45,000 | 680 | 36,000 | 418 | 45,000 | 963 | 27,000 | 340 | 25,200 | 284 |
| | | 3 | 0.02 | 40,500 | 729 | 40,500 | 616 | 32,400 | 373 | 40,500 | 864 | 24,300 | 284 | 22,050 | 235 |
| | | 4 | 0.02 | 36,000 | 648 | 36,000 | 543 | 28,800 | 340 | 36,000 | 765 | 21,600 | 251 | 18,000 | 211 |
| | | 5 | 0.013 | 25,920 | 486 | 21,600 | 342 | 17,460 | 252 | 27,000 | 576 | 16,200 | 225 | 13,500 | 180 |
| | | 6 | 0.013 | 25,920 | 432 | 21,600 | 342 | 17,460 | 234 | 27,000 | 513 | 16,200 | 225 | 13,500 | 180 |
| 0.6 | 0.02 | 2 | 0.016 | 45,000 | 1,043 | 42,120 | 828 | 34,047 | 540 | 45,000 | 1,242 | 25,380 | 351 | 20,700 | 288 |
| | | 4 | 0.013 | 36,000 | 747 | 31,050 | 558 | 25,020 | 396 | 36,000 | 882 | 21,240 | 252 | 18,900 | 207 |
| | | 6 | 0.01 | 21,600 | 441 | 18,000 | 324 | 16,200 | 270 | 27,000 | 522 | 16,020 | 216 | 13,500 | 189 |
| | 0.05 | 2 | 0.028 | 45,000 | 1,043 | 42,120 | 828 | 34,047 | 540 | 45,000 | 1,242 | 25,380 | 351 | 20,700 | 288 |
| | | 4 | 0.019 | 36,000 | 747 | 31,050 | 558 | 25,020 | 396 | 36,000 | 882 | 21,240 | 252 | 18,900 | 207 |
| | | 6 | 0.012 | 21,600 | 441 | 18,000 | 324 | 16,200 | 270 | 27,000 | 522 | 16,020 | 216 | 13,500 | 189 |
| | | 8 | 0.01 | 21,600 | 419 | 18,000 | 308 | 16,200 | 257 | 27,000 | 496 | 16,020 | 205 | 13,500 | 180 |
| | | 10 | 0.007 | 21,600 | 406 | 18,000 | 298 | 16,200 | 248 | 27,000 | 481 | 16,020 | 199 | 13,500 | 174 |
| | 0.1 | 2 | 0.035 | 45,000 | 1,043 | 42,120 | 828 | 34,047 | 540 | 45,000 | 1,242 | 25,380 | 351 | 20,700 | 288 |
| | | 4 | 0.024 | 36,000 | 747 | 31,050 | 558 | 25,020 | 396 | 36,000 | 882 | 21,240 | 252 | 18,900 | 207 |
| | | 6 | 0.015 | 21,600 | 441 | 18,000 | 324 | 16,200 | 270 | 27,000 | 522 | 16,020 | 216 | 13,500 | 189 |
| | | 8 | 0.013 | 21,600 | 419 | 18,000 | 308 | 16,200 | 257 | 27,000 | 496 | 16,020 | 205 | 13,500 | 180 |
| | | 10 | 0.009 | 21,600 | 406 | 18,000 | 298 | 16,200 | 248 | 27,000 | 481 | 16,020 | 199 | 13,500 | 174 |
| 0.7 | 0.05 | 4 | 0.024 | 36,000 | 747 | 31,050 | 558 | 25,020 | 396 | 36,000 | 882 | 21,240 | 252 | 18,900 | 207 |
| | | 6 | 0.015 | 21,600 | 441 | 18,000 | 324 | 16,200 | 270 | 27,000 | 522 | 16,020 | 216 | 13,500 | 189 |
| | 0.1 | 4 | 0.029 | 36,000 | 747 | 31,050 | 558 | 25,020 | 396 | 36,000 | 882 | 21,240 | 252 | 18,900 | 207 |
| | | 6 | 0.018 | 21,600 | 441 | 18,000 | 324 | 16,200 | 270 | 27,000 | 522 | 16,020 | 216 | 13,500 | 189 |

【Note】Please refer to P528

# Recommended Cutting Data（High Precision）

SPM200-RN2

2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| Mill Dia. (mm) | r (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 0.8 | 0.02 | 4 | 0.016 | 43,200 | 992 | 32,400 | 675 | 25,200 | 466 | 45,000 | 1,181 | 18,000 | 288 | 18,000 | 259 |
| | | 6 | 0.013 | 34,830 | 720 | 23,400 | 477 | 22,500 | 415 | 36,000 | 855 | 16,200 | 259 | 16,200 | 230 |
| | 0.05 | 4 | 0.026 | 43,200 | 992 | 32,400 | 675 | 25,200 | 466 | 45,000 | 1,181 | 18,000 | 288 | 18,000 | 259 |
| | | 6 | 0.015 | 34,830 | 720 | 23,400 | 477 | 22,500 | 415 | 36,000 | 855 | 16,200 | 259 | 16,200 | 230 |
| | | 8 | 0.012 | 26,123 | 540 | 18,720 | 382 | 18,000 | 332 | 27,000 | 642 | 14,580 | 233 | 14,580 | 207 |
| | | 12 | 0.01 | 26,123 | 513 | 18,720 | 363 | 18,000 | 315 | 27,000 | 609 | 14,580 | 221 | 14,580 | 197 |
| | 0.1 | 4 | 0.032 | 43,200 | 992 | 32,400 | 675 | 25,200 | 466 | 45,000 | 1,181 | 18,000 | 288 | 18,000 | 259 |
| | | 6 | 0.019 | 34,830 | 720 | 23,400 | 477 | 22,500 | 415 | 36,000 | 855 | 16,200 | 259 | 16,200 | 230 |
| | | 8 | 0.015 | 26,123 | 540 | 18,720 | 382 | 18,000 | 332 | 27,000 | 642 | 14,580 | 233 | 14,580 | 207 |
| | | 12 | 0.012 | 26,123 | 513 | 18,720 | 363 | 18,000 | 315 | 27,000 | 609 | 14,580 | 221 | 14,580 | 197 |
| | 0.2 | 4 | 0.056 | 43,200 | 992 | 32,400 | 675 | 25,200 | 466 | 45,000 | 1,181 | 18,000 | 288 | 18,000 | 259 |
| | | 6 | 0.032 | 34,830 | 720 | 23,400 | 477 | 22,500 | 415 | 36,000 | 855 | 16,200 | 259 | 16,200 | 230 |
| | | 8 | 0.018 | 26,123 | 540 | 18,720 | 382 | 18,000 | 332 | 27,000 | 642 | 14,580 | 233 | 14,580 | 207 |
| | | 12 | 0.015 | 26,123 | 513 | 18,720 | 363 | 18,000 | 315 | 27,000 | 609 | 14,580 | 221 | 14,580 | 197 |
| 1 | 0.02 | 2 | 0.016 | 32,101 | 1,412 | 28,868 | 1,270 | 27,265 | 1,091 | 38,408 | 1,689 | 24,057 | 866 | 22,453 | 718 |
| | | 4 | 0.013 | 29,160 | 1,223 | 26,244 | 1,101 | 24,786 | 935 | 34,992 | 1,467 | 21,870 | 734 | 20,412 | 599 |
| | | 6 | 0.01 | 23,620 | 891 | 21,258 | 802 | 20,076 | 758 | 28,344 | 1,070 | 17,715 | 594 | 16,534 | 485 |
| | | 8 | 0.008 | 20,995 | 792 | 18,896 | 713 | 17,846 | 673 | 25,195 | 950 | 15,746 | 528 | 14,697 | 431 |
| | | 10 | 0.006 | 18,371 | 693 | 16,534 | 624 | 15,615 | 590 | 19,596 | 832 | 13,778 | 463 | 12,859 | 377 |
| | | 12 | 0.005 | 16,330 | 548 | 14,697 | 493 | 13,880 | 408 | 19,596 | 657 | 12,247 | 359 | 11,431 | 288 |
| | 0.05 | 2 | 0.046 | 32,101 | 1,412 | 28,868 | 1,270 | 27,229 | 1,089 | 38,408 | 1,689 | 24,057 | 866 | 22,453 | 718 |
| | | 3 | 0.035 | 30,618 | 1,316 | 27,556 | 1,185 | 27,265 | 1,091 | 36,716 | 1,579 | 22,964 | 780 | 21,433 | 643 |
| | | 4 | 0.027 | 29,160 | 1,223 | 26,244 | 1,101 | 26,025 | 1,015 | 34,992 | 1,467 | 21,870 | 734 | 20,412 | 599 |
| | | 5 | 0.021 | 25,981 | 1,039 | 23,384 | 935 | 24,786 | 935 | 31,242 | 1,249 | 19,486 | 654 | 18,187 | 535 |
| | | 6 | 0.017 | 23,620 | 891 | 21,258 | 802 | 22,084 | 835 | 28,344 | 1,070 | 17,715 | 594 | 16,534 | 485 |
| | | 8 | 0.016 | 20,995 | 792 | 18,896 | 713 | 17,846 | 673 | 25,195 | 950 | 15,746 | 528 | 14,697 | 431 |
| | | 10 | 0.011 | 18,371 | 693 | 16,534 | 624 | 15,615 | 590 | 22,045 | 832 | 13,778 | 463 | 12,859 | 377 |
| | | 12 | 0.01 | 16,330 | 548 | 14,697 | 493 | 13,880 | 408 | 19,596 | 657 | 12,247 | 359 | 11,431 | 288 |
| | | 16 | 0.006 | 16,330 | 480 | 14,697 | 431 | 13,880 | 378 | 19,596 | 575 | 12,247 | 308 | 11,431 | 239 |
| | | 20 | 0.004 | 12,247 | 359 | 11,022 | 323 | 10,410 | 284 | 14,697 | 431 | 9,185 | 231 | 8,573 | 180 |
| | 0.1 | 2 | 0.065 | 32,101 | 1,412 | 28,868 | 1,270 | 27,265 | 1,091 | 38,408 | 1,689 | 24,057 | 866 | 22,453 | 718 |
| | | 3 | 0.05 | 30,618 | 1,316 | 27,556 | 1,185 | 26,025 | 1,015 | 36,716 | 1,579 | 22,964 | 780 | 21,433 | 643 |

【Note】Please refer to P528

# Recommended Cutting Data（High Precision）

SPM200-RN2

## 2 Flute, Corner Radius
## Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| Mill Dia. (mm) | r (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 1 | 0.1 | 4 | 0.038 | 29,160 | 1,223 | 26,244 | 1,101 | 24,786 | 935 | 34,992 | 1,467 | 21,870 | 734 | 20,412 | 599 |
| | | 5 | 0.03 | 25,981 | 1,039 | 23,384 | 935 | 22,084 | 835 | 31,242 | 1,249 | 19,486 | 654 | 18,187 | 535 |
| | | 6 | 0.024 | 23,620 | 891 | 21,258 | 802 | 20,076 | 758 | 28,344 | 1,070 | 17,715 | 594 | 16,534 | 485 |
| | | 8 | 0.024 | 20,995 | 792 | 18,896 | 713 | 17,846 | 673 | 25,195 | 950 | 15,746 | 528 | 14,697 | 431 |
| | | 10 | 0.015 | 18,371 | 693 | 16,534 | 624 | 15,615 | 590 | 22,045 | 832 | 13,778 | 463 | 12,859 | 377 |
| | | 12 | 0.015 | 16,330 | 548 | 14,697 | 493 | 13,880 | 408 | 19,596 | 657 | 12,247 | 359 | 11,431 | 288 |
| | | 16 | 0.009 | 16,330 | 480 | 14,697 | 431 | 13,880 | 378 | 19,596 | 575 | 12,247 | 308 | 11,431 | 239 |
| | | 20 | 0.006 | 12,247 | 359 | 11,022 | 323 | 10,410 | 284 | 14,697 | 431 | 9,185 | 231 | 8,573 | 180 |
| | 0.2 | 2 | 0.11 | 32,101 | 1,412 | 28,868 | 1,270 | 27,265 | 1,091 | 38,408 | 1,689 | 24,057 | 866 | 22,453 | 718 |
| | | 3 | 0.09 | 30,618 | 1,316 | 27,556 | 1,185 | 26,025 | 1,015 | 36,716 | 1,579 | 22,964 | 780 | 21,433 | 643 |
| | | 4 | 0.07 | 29,160 | 1,223 | 26,244 | 1,101 | 24,786 | 935 | 34,992 | 1,467 | 21,870 | 734 | 20,412 | 599 |
| | | 5 | 0.05 | 25,981 | 1,039 | 23,384 | 935 | 22,084 | 835 | 31,242 | 1,249 | 19,486 | 654 | 18,187 | 535 |
| | | 6 | 0.04 | 23,620 | 891 | 21,258 | 802 | 20,076 | 758 | 28,344 | 1,070 | 17,715 | 594 | 16,534 | 485 |
| | | 8 | 0.04 | 20,995 | 792 | 18,896 | 713 | 17,846 | 673 | 25,195 | 950 | 15,746 | 528 | 14,697 | 431 |
| | | 10 | 0.025 | 18,371 | 693 | 16,534 | 624 | 15,615 | 590 | 22,045 | 832 | 13,778 | 463 | 12,859 | 377 |
| | | 12 | 0.025 | 16,330 | 548 | 14,697 | 493 | 13,880 | 408 | 19,596 | 657 | 12,247 | 359 | 11,431 | 288 |
| | | 16 | 0.015 | 16,330 | 480 | 14,697 | 431 | 13,880 | 378 | 19,596 | 575 | 12,247 | 308 | 11,431 | 239 |
| | | 20 | 0.01 | 12,247 | 359 | 11,022 | 323 | 10,410 | 284 | 14,697 | 431 | 9,185 | 231 | 8,573 | 180 |
| | 0.3 | 2 | 0.11 | 32,101 | 1,412 | 28,868 | 1,270 | 27,265 | 1,091 | 38,408 | 1,689 | 24,057 | 866 | 22,453 | 718 |
| | | 3 | 0.09 | 30,618 | 1,316 | 27,556 | 1,185 | 26,025 | 1,015 | 36,716 | 1,579 | 22,964 | 780 | 21,433 | 643 |
| | | 4 | 0.07 | 29,160 | 1,223 | 26,244 | 1,101 | 24,786 | 935 | 34,992 | 1,467 | 21,870 | 734 | 20,412 | 599 |
| | | 5 | 0.05 | 25,981 | 1,039 | 23,384 | 935 | 22,084 | 835 | 31,242 | 1,249 | 19,486 | 654 | 18,187 | 535 |
| | | 6 | 0.04 | 23,620 | 891 | 21,258 | 802 | 20,076 | 758 | 28,344 | 1,070 | 17,715 | 594 | 16,534 | 485 |
| | | 8 | 0.04 | 20,995 | 792 | 18,896 | 713 | 17,846 | 673 | 25,195 | 950 | 15,746 | 528 | 14,697 | 431 |
| | | 10 | 0.025 | 18,371 | 693 | 16,534 | 624 | 15,615 | 590 | 22,045 | 832 | 13,778 | 463 | 12,859 | 377 |
| | | 12 | 0.025 | 16,330 | 548 | 14,697 | 493 | 13,880 | 408 | 19,596 | 657 | 12,247 | 359 | 11,431 | 288 |
| | | 16 | 0.015 | 16,330 | 480 | 14,697 | 431 | 13,880 | 378 | 19,596 | 575 | 12,247 | 308 | 11,431 | 239 |
| | | 20 | 0.01 | 12,247 | 359 | 11,022 | 323 | 10,410 | 284 | 14,697 | 431 | 9,185 | 231 | 8,573 | 180 |
| 1.25 | 0.1 | 5 | 0.03 | 25,981 | 1,039 | 23,384 | 935 | 22,084 | 835 | 31,242 | 1,249 | 19,486 | 654 | 18,187 | 535 |
| | | 10 | 0.015 | 18,371 | 693 | 16,534 | 624 | 15,615 | 590 | 22,045 | 832 | 13,778 | 463 | 12,859 | 377 |
| | | 15 | 0.01 | 16,330 | 480 | 14,697 | 493 | 13,880 | 408 | 19,596 | 575 | 12,247 | 308 | 11,431 | 239 |
| | | 20 | 0.006 | 12,247 | 359 | 11,022 | 323 | 10,410 | 284 | 14,697 | 431 | 9,185 | 231 | 8,573 | 180 |

【Note】Please refer to P528

# Recommended Cutting Data（High Precision）

## SPM200-RN2

## 2 Flute, Corner Radius
## Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| Mill Dia. (mm) | r (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 1.25 | 0.2 | 5 | 0.05 | 25,981 | 1,039 | 23,384 | 935 | 22,084 | 835 | 31,242 | 1,249 | 19,486 | 654 | 18,187 | 535 |
| | | 10 | 0.025 | 18,371 | 693 | 16,534 | 624 | 15,615 | 590 | 22,045 | 832 | 13,778 | 463 | 12,859 | 377 |
| | | 15 | 0.016 | 16,330 | 480 | 14,697 | 493 | 13,880 | 408 | 19,596 | 575 | 12,247 | 308 | 11,431 | 239 |
| | | 20 | 0.01 | 12,247 | 359 | 11,022 | 323 | 10,410 | 284 | 14,697 | 431 | 9,185 | 231 | 8,573 | 180 |
| | 0.3 | 5 | 0.05 | 25,981 | 1,039 | 23,384 | 935 | 22,084 | 835 | 31,242 | 1,249 | 19,486 | 654 | 18,187 | 535 |
| | | 10 | 0.025 | 18,371 | 693 | 16,534 | 624 | 15,615 | 590 | 22,045 | 832 | 13,778 | 463 | 12,859 | 377 |
| | | 15 | 0.016 | 16,330 | 480 | 14,697 | 493 | 13,880 | 408 | 19,596 | 575 | 12,247 | 308 | 11,431 | 239 |
| | | 20 | 0.01 | 12,247 | 359 | 11,022 | 323 | 10,410 | 284 | 14,697 | 431 | 9,185 | 231 | 8,573 | 180 |
| 1.5 | 0.1 | 4 | 0.042 | 22,437 | 1,017 | 20,208 | 915 | 18,860 | 852 | 26,944 | 1,220 | 16,840 | 677 | 15,628 | 550 |
| | | 6 | 0.04 | 21,401 | 967 | 19,299 | 872 | 18,344 | 829 | 25,605 | 1,157 | 16,051 | 644 | 14,904 | 524 |
| | | 8 | 0.036 | 20,412 | 924 | 18,371 | 832 | 17,350 | 786 | 24,494 | 1,110 | 15,309 | 617 | 14,288 | 503 |
| | | 12 | 0.036 | 16,330 | 740 | 14,697 | 666 | 13,880 | 628 | 19,596 | 887 | 12,247 | 493 | 11,431 | 402 |
| | | 15 | 0.023 | 12,701 | 511 | 11,431 | 460 | 10,796 | 381 | 15,241 | 614 | 9,526 | 336 | 8,890 | 268 |
| | | 20 | 0.018 | 12,701 | 511 | 11,431 | 460 | 10,796 | 381 | 15,241 | 614 | 9,526 | 336 | 8,890 | 268 |
| | 0.2 | 4 | 0.07 | 22,437 | 1,017 | 20,208 | 915 | 18,860 | 781 | 26,944 | 1,220 | 16,840 | 610 | 15,628 | 500 |
| | | 6 | 0.065 | 21,401 | 967 | 19,299 | 872 | 18,344 | 829 | 25,605 | 1,157 | 16,051 | 644 | 14,904 | 524 |
| | | 8 | 0.06 | 20,412 | 924 | 18,371 | 832 | 17,350 | 786 | 24,494 | 1,110 | 15,309 | 617 | 14,288 | 503 |
| | | 12 | 0.06 | 16,330 | 740 | 14,697 | 666 | 13,880 | 628 | 19,596 | 887 | 12,247 | 493 | 11,431 | 402 |
| | | 15 | 0.038 | 12,701 | 511 | 11,431 | 460 | 10,796 | 381 | 15,241 | 614 | 9,526 | 336 | 8,890 | 268 |
| | | 20 | 0.03 | 12,701 | 511 | 11,431 | 460 | 10,796 | 381 | 15,241 | 614 | 9,526 | 336 | 8,890 | 268 |
| | 0.3 | 4 | 0.07 | 22,437 | 1,017 | 20,208 | 915 | 18,860 | 781 | 26,944 | 1,220 | 16,840 | 610 | 15,628 | 500 |
| | | 6 | 0.065 | 21,401 | 967 | 19,299 | 872 | 18,344 | 829 | 25,605 | 1,157 | 16,051 | 644 | 14,904 | 524 |
| | | 8 | 0.06 | 20,412 | 924 | 18,371 | 832 | 17,350 | 786 | 24,494 | 1,110 | 15,309 | 617 | 14,288 | 503 |
| | | 12 | 0.06 | 16,330 | 740 | 14,697 | 666 | 13,880 | 628 | 19,596 | 887 | 12,247 | 493 | 11,431 | 402 |
| | | 15 | 0.038 | 12,701 | 511 | 11,431 | 460 | 10,796 | 381 | 15,241 | 614 | 9,526 | 336 | 8,890 | 268 |
| | | 20 | 0.03 | 12,701 | 511 | 11,431 | 460 | 10,796 | 381 | 15,241 | 614 | 9,526 | 336 | 8,890 | 268 |
| | 0.5 | 4 | 0.085 | 22,437 | 1,017 | 20,208 | 915 | 18,860 | 781 | 26,944 | 1,220 | 16,840 | 610 | 15,628 | 500 |
| | | 6 | 0.08 | 21,401 | 967 | 19,299 | 872 | 18,344 | 829 | 25,605 | 1,157 | 16,051 | 644 | 14,904 | 524 |
| | | 8 | 0.07 | 20,412 | 924 | 18,371 | 832 | 17,350 | 786 | 24,494 | 1,110 | 15,309 | 617 | 14,288 | 503 |
| | | 12 | 0.065 | 16,330 | 740 | 14,697 | 666 | 13,880 | 628 | 19,596 | 887 | 12,247 | 493 | 11,431 | 402 |
| | | 15 | 0.045 | 12,701 | 511 | 11,431 | 460 | 10,796 | 381 | 15,241 | 614 | 9,526 | 336 | 8,890 | 268 |
| | | 20 | 0.035 | 12,701 | 511 | 11,431 | 460 | 10,796 | 381 | 15,241 | 614 | 9,526 | 336 | 8,890 | 268 |

【Note】Please refer to P528

# Recommended Cutting Data（High Precision）

SPM200-RN2
2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| Mill Dia. (mm) | r (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 1.75 | 0.1 | 5 | 0.04 | 22,437 | 1,017 | 20,208 | 915 | 18,860 | 781 | 26,944 | 1,220 | 16,840 | 610 | 15,628 | 500 |
| | | 10 | 0.036 | 20,412 | 924 | 18,371 | 832 | 17,350 | 786 | 24,494 | 1,110 | 15,309 | 617 | 14,288 | 503 |
| | | 15 | 0.023 | 12,701 | 511 | 11,431 | 460 | 10,796 | 381 | 15,241 | 614 | 9,526 | 336 | 8,890 | 268 |
| | | 20 | 0.018 | 12,701 | 511 | 11,431 | 460 | 10,796 | 381 | 15,241 | 614 | 9,526 | 336 | 8,890 | 268 |
| | 0.2 | 5 | 0.065 | 22,437 | 1,017 | 20,208 | 915 | 18,860 | 781 | 26,944 | 1,220 | 16,840 | 610 | 15,628 | 500 |
| | | 10 | 0.06 | 20,412 | 924 | 18,371 | 832 | 17,350 | 786 | 24,494 | 1,110 | 15,309 | 617 | 14,288 | 503 |
| | | 15 | 0.038 | 12,701 | 511 | 11,431 | 460 | 10,796 | 381 | 15,241 | 614 | 9,526 | 336 | 8,890 | 268 |
| | | 20 | 0.03 | 12,701 | 511 | 11,431 | 460 | 10,796 | 381 | 15,241 | 614 | 9,526 | 336 | 8,890 | 268 |
| | 0.3 | 5 | 0.065 | 22,437 | 1,017 | 20,208 | 915 | 18,860 | 781 | 26,944 | 1,220 | 16,840 | 610 | 15,628 | 500 |
| | | 10 | 0.06 | 20,412 | 924 | 18,371 | 832 | 17,350 | 786 | 24,494 | 1,110 | 15,309 | 617 | 14,288 | 503 |
| | | 15 | 0.038 | 12,701 | 511 | 11,431 | 460 | 10,796 | 381 | 15,241 | 614 | 9,526 | 336 | 8,890 | 268 |
| | | 20 | 0.03 | 12,701 | 511 | 11,431 | 460 | 10,796 | 381 | 15,241 | 614 | 9,526 | 336 | 8,890 | 268 |
| 2 | 0.1 | 4 | 0.08 | 19,777 | 1,554 | 17,771 | 1,396 | 16,624 | 1,306 | 23,503 | 1,847 | 14,761 | 930 | 13,757 | 756 |
| | | 6 | 0.07 | 18,711 | 1,472 | 16,840 | 1,324 | 15,905 | 1,250 | 22,453 | 1,766 | 14,034 | 883 | 13,098 | 721 |
| | | 8 | 0.055 | 17,010 | 1,337 | 15,309 | 1,203 | 14,459 | 1,137 | 20,412 | 1,605 | 12,758 | 803 | 11,907 | 655 |
| | | 12 | 0.03 | 13,778 | 975 | 12,400 | 878 | 11,712 | 829 | 16,534 | 1,170 | 10,334 | 650 | 9,644 | 531 |
| | | 16 | 0.03 | 12,247 | 867 | 11,022 | 780 | 10,410 | 736 | 14,697 | 1,040 | 9,185 | 578 | 8,573 | 472 |
| | | 20 | 0.025 | 10,716 | 759 | 9,644 | 682 | 9,109 | 644 | 12,859 | 910 | 8,037 | 506 | 7,502 | 413 |
| | | 25 | 0.015 | 10,716 | 681 | 9,644 | 613 | 9,109 | 579 | 12,859 | 817 | 8,037 | 455 | 7,502 | 370 |
| | | 30 | 0.01 | 10,181 | 647 | 9,162 | 582 | 8,654 | 550 | 12,217 | 777 | 7,636 | 432 | 7,126 | 352 |
| | 0.2 | 4 | 0.1 | 19,777 | 1,554 | 17,771 | 1,396 | 16,624 | 1,306 | 23,503 | 1,847 | 14,761 | 930 | 13,757 | 756 |
| | | 6 | 0.08 | 18,711 | 1,472 | 16,840 | 1,324 | 15,905 | 1,250 | 22,453 | 1,766 | 14,034 | 883 | 13,098 | 721 |
| | | 8 | 0.07 | 17,010 | 1,337 | 15,309 | 1,203 | 14,459 | 1,137 | 20,412 | 1,605 | 12,758 | 803 | 11,907 | 655 |
| | | 12 | 0.04 | 13,778 | 975 | 12,400 | 878 | 11,712 | 829 | 16,534 | 1,170 | 10,334 | 650 | 9,644 | 531 |
| | | 16 | 0.04 | 12,247 | 867 | 11,022 | 780 | 10,410 | 736 | 14,697 | 1,040 | 9,185 | 578 | 8,573 | 472 |
| | | 20 | 0.035 | 10,716 | 759 | 9,644 | 682 | 9,109 | 644 | 12,859 | 910 | 8,037 | 506 | 7,502 | 413 |
| | | 25 | 0.025 | 10,716 | 681 | 9,644 | 613 | 9,109 | 579 | 12,859 | 817 | 8,037 | 455 | 7,502 | 370 |
| | | 30 | 0.017 | 10,181 | 647 | 9,162 | 582 | 8,654 | 550 | 12,217 | 777 | 7,636 | 432 | 7,126 | 352 |
| | 0.3 | 4 | 0.13 | 19,777 | 1,554 | 17,771 | 1,396 | 16,624 | 1,306 | 23,503 | 1,847 | 14,761 | 930 | 13,757 | 756 |
| | | 6 | 0.11 | 18,711 | 1,472 | 16,840 | 1,324 | 15,905 | 1,250 | 22,453 | 1,766 | 14,034 | 883 | 13,098 | 721 |
| | | 8 | 0.09 | 17,010 | 1,337 | 15,309 | 1,203 | 14,459 | 1,137 | 20,412 | 1,605 | 12,758 | 803 | 11,907 | 655 |
| | | 12 | 0.06 | 13,778 | 975 | 12,400 | 878 | 11,712 | 829 | 16,534 | 1,300 | 10,334 | 650 | 9,644 | 531 |

【Note】Please refer to P528

# Recommended Cutting Data（High Precision）

SPM200-RN2

2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| Mill Dia. (mm) | r (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 2 | 0.3 | 16 | 0.06 | 12,247 | 867 | 11,022 | 780 | 10,410 | 736 | 14,697 | 1,156 | 9,185 | 578 | 8,573 | 472 |
| | | 20 | 0.037 | 10,716 | 759 | 9,644 | 682 | 9,109 | 644 | 12,859 | 1,011 | 8,037 | 506 | 7,502 | 413 |
| | | 25 | 0.03 | 10,716 | 681 | 9,644 | 613 | 9,109 | 579 | 12,859 | 817 | 8,037 | 455 | 7,502 | 370 |
| | | 30 | 0.021 | 10,181 | 647 | 9,162 | 582 | 8,654 | 550 | 12,217 | 777 | 7,636 | 432 | 7,126 | 352 |
| | 0.5 | 6 | 0.17 | 18,711 | 1,472 | 16,840 | 1,324 | 15,905 | 1,250 | 22,453 | 1,766 | 14,034 | 883 | 13,098 | 721 |
| | | 8 | 0.14 | 17,010 | 1,337 | 15,309 | 1,203 | 14,459 | 1,137 | 20,412 | 1,605 | 12,758 | 803 | 11,907 | 655 |
| | | 12 | 0.08 | 13,778 | 975 | 12,400 | 878 | 11,712 | 921 | 16,534 | 1,300 | 10,334 | 650 | 9,644 | 531 |
| | | 16 | 0.08 | 12,247 | 867 | 11,022 | 780 | 10,410 | 736 | 14,697 | 1,156 | 9,185 | 578 | 8,573 | 472 |
| | | 20 | 0.05 | 10,716 | 759 | 9,644 | 682 | 9,109 | 644 | 12,859 | 1,011 | 8,037 | 506 | 7,502 | 413 |
| | | 25 | 0.05 | 10,716 | 681 | 9,644 | 613 | 9,109 | 579 | 12,859 | 817 | 8,037 | 455 | 7,502 | 370 |
| | | 30 | 0.03 | 10,181 | 647 | 9,162 | 582 | 8,654 | 550 | 12,217 | 777 | 7,636 | 432 | 7,126 | 352 |
| | 0.8 | 6 | 0.22 | 18,711 | 1,472 | 16,840 | 1,324 | 15,905 | 1,250 | 22,453 | 1,766 | 14,034 | 883 | 13,098 | 721 |
| | | 8 | 0.2 | 17,010 | 1,337 | 15,309 | 1,203 | 14,459 | 1,137 | 20,412 | 1,605 | 12,758 | 803 | 11,907 | 655 |
| | | 12 | 0.13 | 13,778 | 975 | 12,400 | 878 | 11,712 | 829 | 16,534 | 1,300 | 10,334 | 650 | 9,644 | 531 |
| | | 16 | 0.1 | 12,247 | 867 | 11,022 | 780 | 10,410 | 736 | 14,697 | 1,156 | 9,185 | 578 | 8,573 | 472 |
| | | 20 | 0.06 | 10,716 | 759 | 9,644 | 682 | 9,109 | 644 | 12,859 | 1,011 | 8,037 | 506 | 7,502 | 413 |
| | | 25 | 0.057 | 10,716 | 681 | 9,644 | 613 | 9,109 | 579 | 12,859 | 817 | 8,037 | 455 | 7,502 | 370 |
| | | 30 | 0.045 | 10,181 | 647 | 9,162 | 582 | 8,654 | 550 | 12,217 | 777 | 7,636 | 432 | 7,126 | 352 |
| 2.5 | 0.1 | 10 | 0.055 | 17,010 | 1,337 | 15,309 | 1,203 | 14,459 | 1,137 | 20,412 | 1,605 | 12,758 | 803 | 11,907 | 655 |
| | | 20 | 0.03 | 12,247 | 867 | 11,022 | 780 | 10,410 | 736 | 14,697 | 1,156 | 9,185 | 578 | 8,573 | 472 |
| | | 30 | 0.015 | 10,716 | 681 | 9,644 | 613 | 9,109 | 579 | 12,859 | 907 | 8,037 | 455 | 7,502 | 370 |
| | 0.2 | 10 | 0.07 | 17,010 | 1,337 | 15,309 | 1,203 | 14,459 | 1,137 | 20,412 | 1,605 | 12,758 | 803 | 11,907 | 655 |
| | | 20 | 0.04 | 12,247 | 867 | 11,022 | 780 | 10,410 | 736 | 14,697 | 1,156 | 9,185 | 578 | 8,573 | 472 |
| | | 30 | 0.025 | 10,716 | 681 | 9,644 | 613 | 9,109 | 579 | 12,859 | 907 | 8,037 | 455 | 7,502 | 370 |
| | 0.3 | 10 | 0.09 | 17,010 | 1,337 | 15,309 | 1,203 | 14,459 | 1,137 | 20,412 | 1,605 | 12,758 | 803 | 11,907 | 655 |
| | | 20 | 0.06 | 12,247 | 867 | 11,022 | 780 | 10,410 | 736 | 14,697 | 1,156 | 9,185 | 578 | 8,573 | 472 |
| | | 30 | 0.03 | 10,716 | 681 | 9,644 | 613 | 9,109 | 579 | 12,859 | 907 | 8,037 | 455 | 7,502 | 370 |
| | 0.5 | 10 | 0.14 | 17,010 | 1,337 | 15,309 | 1,203 | 14,459 | 1,137 | 20,412 | 1,605 | 12,758 | 803 | 11,907 | 655 |
| | | 20 | 0.08 | 12,247 | 867 | 11,022 | 780 | 10,410 | 736 | 14,697 | 1,156 | 9,185 | 578 | 8,573 | 472 |
| | | 30 | 0.05 | 10,716 | 681 | 9,644 | 613 | 9,109 | 579 | 12,859 | 907 | 8,037 | 455 | 7,502 | 370 |
| 3 | 0.1 | 6 | 0.08 | 12,960 | 1,274 | 11,664 | 1,147 | 11,016 | 1,083 | 15,552 | 1,528 | 9,720 | 764 | 9,072 | 624 |
| | | 8 | 0.07 | 12,960 | 1,274 | 11,664 | 1,147 | 11,016 | 1,083 | 15,552 | 1,528 | 9,720 | 764 | 9,072 | 624 |

【Note】Please refer to P528

# Recommended Cutting Data（High Precision）

SPM200-RN2

2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| Mill Dia. (mm) | r (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 3 | 0.1 | 12 | 0.05 | 12,960 | 1,274 | 11,664 | 1,147 | 11,016 | 1,083 | 15,552 | 1,528 | 9,720 | 764 | 9,072 | 624 |
| | | 16 | 0.035 | 12,960 | 1,274 | 11,664 | 1,147 | 11,016 | 1,083 | 15,552 | 1,528 | 9,720 | 764 | 9,072 | 624 |
| | | 18 | 0.035 | 11,656 | 1,144 | 10,509 | 1,034 | 9,841 | 966 | 13,948 | 1,369 | 8,789 | 690 | 8,121 | 558 |
| | | 20 | 0.035 | 10,498 | 1,031 | 9,448 | 929 | 8,923 | 877 | 12,597 | 1,238 | 7,873 | 618 | 7,349 | 505 |
| | | 30 | 0.027 | 8,165 | 721 | 7,349 | 649 | 6,940 | 613 | 9,797 | 866 | 6,124 | 432 | 5,715 | 354 |
| | | 35 | 0.02 | 8,165 | 721 | 7,349 | 649 | 6,940 | 613 | 9,797 | 866 | 6,124 | 432 | 5,715 | 354 |
| | 0.2 | 6 | 0.1 | 12,960 | 1,274 | 11,664 | 1,147 | 11,016 | 1,083 | 15,552 | 1,528 | 9,720 | 764 | 9,072 | 624 |
| | | 8 | 0.09 | 12,960 | 1,274 | 11,664 | 1,147 | 11,016 | 1,083 | 15,552 | 1,528 | 9,720 | 764 | 9,072 | 624 |
| | | 12 | 0.07 | 12,960 | 1,274 | 11,664 | 1,147 | 11,016 | 1,083 | 15,552 | 1,528 | 9,720 | 764 | 9,072 | 624 |
| | | 16 | 0.05 | 12,960 | 1,274 | 11,664 | 1,147 | 11,016 | 1,083 | 15,552 | 1,528 | 9,720 | 764 | 9,072 | 624 |
| | | 18 | 0.05 | 11,656 | 1,144 | 10,509 | 1,034 | 9,841 | 966 | 13,948 | 1,369 | 8,789 | 690 | 8,121 | 558 |
| | | 20 | 0.05 | 10,498 | 1,031 | 9,448 | 929 | 8,923 | 877 | 12,597 | 1,238 | 7,873 | 618 | 7,349 | 505 |
| | | 30 | 0.04 | 8,165 | 721 | 7,349 | 649 | 6,940 | 613 | 9,797 | 866 | 6,124 | 432 | 5,715 | 354 |
| | | 35 | 0.035 | 8,165 | 721 | 7,349 | 649 | 6,940 | 613 | 9,797 | 866 | 6,124 | 432 | 5,715 | 354 |
| | 0.3 | 6 | 0.145 | 12,960 | 1,274 | 11,664 | 1,147 | 11,016 | 1,083 | 15,552 | 1,528 | 9,720 | 764 | 9,072 | 624 |
| | | 8 | 0.13 | 12,960 | 1,274 | 11,664 | 1,147 | 11,016 | 1,083 | 15,552 | 1,528 | 9,720 | 764 | 9,072 | 624 |
| | | 12 | 0.1 | 12,960 | 1,274 | 11,664 | 1,147 | 11,016 | 1,083 | 15,552 | 1,528 | 9,720 | 764 | 9,072 | 624 |
| | | 16 | 0.075 | 12,960 | 1,274 | 11,664 | 1,147 | 11,016 | 1,083 | 15,552 | 1,528 | 9,720 | 764 | 9,072 | 624 |
| | | 18 | 0.075 | 11,656 | 1,144 | 10,509 | 1,034 | 9,841 | 966 | 13,948 | 1,369 | 8,789 | 690 | 8,121 | 558 |
| | | 20 | 0.075 | 10,498 | 1,031 | 9,448 | 929 | 8,923 | 877 | 12,597 | 1,238 | 7,873 | 618 | 7,349 | 505 |
| | | 30 | 0.06 | 8,165 | 721 | 7,349 | 649 | 6,940 | 613 | 9,797 | 866 | 6,124 | 432 | 5,715 | 354 |
| | | 35 | 0.05 | 8,165 | 721 | 7,349 | 649 | 6,940 | 613 | 9,797 | 866 | 6,124 | 432 | 5,715 | 354 |
| | 0.5 | 8 | 0.18 | 12,960 | 1,274 | 11,664 | 1,147 | 11,016 | 1,083 | 15,552 | 1,528 | 9,720 | 764 | 9,072 | 624 |
| | | 12 | 0.13 | 12,960 | 1,274 | 11,664 | 1,147 | 11,016 | 1,083 | 15,552 | 1,528 | 9,720 | 764 | 9,072 | 624 |
| | | 16 | 0.1 | 12,960 | 1,274 | 11,664 | 1,147 | 11,016 | 1,083 | 15,552 | 1,528 | 9,720 | 764 | 9,072 | 624 |
| | | 18 | 0.1 | 11,656 | 1,144 | 10,509 | 1,034 | 9,841 | 966 | 13,948 | 1,369 | 8,789 | 690 | 8,121 | 558 |
| | | 20 | 0.1 | 10,498 | 1,031 | 9,448 | 929 | 8,923 | 877 | 12,597 | 1,238 | 7,873 | 618 | 7,349 | 505 |
| | | 30 | 0.08 | 8,165 | 721 | 7,349 | 649 | 6,940 | 613 | 9,797 | 866 | 6,124 | 432 | 5,715 | 354 |
| | | 35 | 0.065 | 8,165 | 721 | 7,349 | 649 | 6,940 | 613 | 9,797 | 866 | 6,124 | 432 | 5,715 | 354 |
| | 1 | 8 | 0.2 | 12,960 | 1,274 | 11,664 | 1,147 | 11,016 | 1,083 | 15,552 | 1,528 | 9,720 | 764 | 9,072 | 624 |
| | | 12 | 0.15 | 12,960 | 1,274 | 11,664 | 1,147 | 11,016 | 1,083 | 15,552 | 1,528 | 9,720 | 764 | 9,072 | 624 |
| | | 16 | 0.12 | 12,960 | 1,274 | 11,664 | 1,147 | 11,016 | 1,083 | 15,552 | 1,528 | 9,720 | 764 | 9,072 | 624 |

【Note】Please refer to P528

# Recommended Cutting Data（High Precision）

SPM200-RN2

2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| Mill Dia. (mm) | r (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 3 | 1 | 18 | 0.11 | 11,656 | 1,144 | 10,509 | 1,034 | 9,841 | 966 | 13,948 | 1,369 | 8,789 | 690 | 8,121 | 558 |
| | | 20 | 0.11 | 10,498 | 1,031 | 9,448 | 929 | 8,923 | 877 | 12,597 | 1,238 | 7,873 | 618 | 7,349 | 505 |
| | | 30 | 0.09 | 8,165 | 721 | 7,349 | 649 | 6,940 | 613 | 9,797 | 866 | 6,124 | 432 | 5,715 | 354 |
| | | 35 | 0.075 | 8,165 | 721 | 7,349 | 649 | 6,940 | 613 | 9,797 | 866 | 6,124 | 432 | 5,715 | 354 |
| 4 | 0.1 | 8 | 0.08 | 10,092 | 1,755 | 9,082 | 1,580 | 8,578 | 1,492 | 12,110 | 2,106 | 7,569 | 1,053 | 7,064 | 860 |
| | | 12 | 0.065 | 10,092 | 1,755 | 9,082 | 1,580 | 8,578 | 1,492 | 12,110 | 2,106 | 7,569 | 1,053 | 7,064 | 860 |
| | | 16 | 0.06 | 9,230 | 1,605 | 8,240 | 1,433 | 7,827 | 1,361 | 11,124 | 1,934 | 6,839 | 951 | 6,016 | 733 |
| | | 20 | 0.055 | 9,230 | 1,605 | 8,240 | 1,433 | 7,827 | 1,361 | 11,124 | 1,934 | 6,839 | 951 | 6,016 | 733 |
| | | 30 | 0.045 | 9,230 | 1,605 | 8,240 | 1,433 | 6,180 | 968 | 11,124 | 1,934 | 4,942 | 619 | 4,612 | 505 |
| | | 35 | 0.04 | 9,230 | 1,605 | 8,240 | 1,433 | 6,180 | 968 | 11,124 | 1,934 | 4,942 | 619 | 4,612 | 505 |
| | | 45 | 0.03 | 7,416 | 968 | 6,592 | 860 | 5,026 | 655 | 8,899 | 1,160 | 4,450 | 464 | 3,707 | 322 |
| | 0.2 | 8 | 0.16 | 10,092 | 1,755 | 9,082 | 1,580 | 8,578 | 1,492 | 12,110 | 2,106 | 7,569 | 1,053 | 7,064 | 860 |
| | | 12 | 0.14 | 10,092 | 1,755 | 9,082 | 1,580 | 8,578 | 1,492 | 12,110 | 2,106 | 7,569 | 1,053 | 7,064 | 860 |
| | | 16 | 0.13 | 9,230 | 1,605 | 8,240 | 1,433 | 7,827 | 1,361 | 11,124 | 1,934 | 6,839 | 951 | 6,016 | 733 |
| | | 20 | 0.11 | 9,230 | 1,605 | 8,240 | 1,433 | 7,827 | 1,361 | 11,124 | 1,934 | 6,839 | 951 | 6,016 | 733 |
| | | 30 | 0.1 | 9,230 | 1,605 | 8,240 | 1,433 | 6,180 | 968 | 11,124 | 1,934 | 4,942 | 619 | 4,612 | 505 |
| | | 35 | 0.08 | 9,230 | 1,605 | 8,240 | 1,433 | 6,180 | 968 | 11,124 | 1,934 | 4,942 | 619 | 4,612 | 505 |
| | | 45 | 0.06 | 7,416 | 968 | 6,592 | 860 | 5,026 | 655 | 8,899 | 1,160 | 4,450 | 464 | 3,707 | 322 |
| | 0.3 | 8 | 0.24 | 10,092 | 1,755 | 9,082 | 1,580 | 8,578 | 1,492 | 12,110 | 2,106 | 7,569 | 1,053 | 7,064 | 860 |
| | | 12 | 0.22 | 10,092 | 1,755 | 9,082 | 1,580 | 8,578 | 1,492 | 12,110 | 2,106 | 7,569 | 1,053 | 7,064 | 860 |
| | | 16 | 0.2 | 9,230 | 1,605 | 8,240 | 1,433 | 7,827 | 1,361 | 11,124 | 1,934 | 6,839 | 951 | 6,016 | 733 |
| | | 20 | 0.18 | 9,230 | 1,605 | 8,240 | 1,433 | 7,827 | 1,361 | 11,124 | 1,934 | 6,839 | 951 | 6,016 | 733 |
| | | 30 | 0.16 | 9,230 | 1,605 | 8,240 | 1,433 | 6,180 | 968 | 11,124 | 1,934 | 4,942 | 619 | 4,612 | 505 |
| | | 35 | 0.14 | 9,230 | 1,605 | 8,240 | 1,433 | 6,180 | 968 | 11,124 | 1,934 | 4,942 | 619 | 4,612 | 505 |
| | | 45 | 0.12 | 7,416 | 968 | 6,592 | 860 | 5,026 | 655 | 8,899 | 1,160 | 4,450 | 464 | 3,707 | 322 |
| | 0.5 | 12 | 0.35 | 10,092 | 1,755 | 9,082 | 1,580 | 8,578 | 1,492 | 12,110 | 2,106 | 7,569 | 1,053 | 7,064 | 860 |
| | | 16 | 0.25 | 9,230 | 1,605 | 8,240 | 1,433 | 7,827 | 1,361 | 11,124 | 1,934 | 6,839 | 951 | 6,016 | 733 |
| | | 20 | 0.2 | 9,230 | 1,605 | 8,240 | 1,433 | 7,827 | 1,361 | 11,124 | 1,934 | 6,839 | 951 | 6,016 | 733 |
| | | 30 | 0.15 | 9,230 | 1,605 | 8,240 | 1,433 | 6,180 | 968 | 11,124 | 1,934 | 4,942 | 619 | 4,612 | 505 |
| | | 35 | 0.1 | 9,230 | 1,605 | 8,240 | 1,433 | 6,180 | 968 | 11,124 | 1,934 | 4,942 | 619 | 4,612 | 505 |
| | | 45 | 0.05 | 7,416 | 968 | 6,592 | 860 | 5,026 | 655 | 8,899 | 1,160 | 4,450 | 464 | 3,707 | 322 |
| | 1 | 12 | 0.4 | 10,092 | 1,755 | 9,082 | 1,580 | 8,578 | 1,492 | 12,110 | 2,106 | 7,569 | 1,053 | 7,064 | 860 |

【Note】Please refer to P528

# Recommended Cutting Data（High Precision）

SPM200-RN2

## 2 Flute, Corner Radius
## Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| Mill Dia. (mm) | r (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 4 | 1 | 16 | 0.29 | 9,230 | 1,605 | 8,240 | 1,433 | 7,827 | 1,361 | 11,124 | 1,934 | 6,839 | 951 | 6,016 | 733 |
| | | 20 | 0.23 | 9,230 | 1,605 | 8,240 | 1,433 | 7,827 | 1,361 | 11,124 | 1,934 | 6,839 | 951 | 6,016 | 733 |
| | | 30 | 0.17 | 9,230 | 1,605 | 8,240 | 1,433 | 6,180 | 968 | 11,124 | 1,934 | 4,942 | 619 | 4,612 | 505 |
| | | 35 | 0.12 | 9,230 | 1,605 | 8,240 | 1,433 | 6,180 | 968 | 11,124 | 1,934 | 4,942 | 619 | 4,612 | 505 |
| | | 45 | 0.06 | 7,416 | 968 | 6,592 | 860 | 5,026 | 655 | 8,899 | 1,160 | 4,450 | 464 | 3,707 | 322 |
| 5 | 0.1 | 20 | 0.08 | 8,239 | 1,791 | 7,415 | 1,612 | 7,003 | 1,523 | 9,887 | 2,149 | 6,179 | 1,075 | 5,767 | 878 |
| | | 40 | 0.06 | 5,931 | 1,156 | 5,338 | 1,040 | 5,042 | 982 | 7,116 | 1,386 | 4,449 | 693 | 4,152 | 566 |
| | 0.2 | 20 | 0.16 | 8,239 | 1,791 | 7,415 | 1,612 | 7,003 | 1,523 | 9,887 | 2,149 | 6,179 | 1,075 | 5,767 | 878 |
| | | 40 | 0.13 | 5,931 | 1,156 | 5,338 | 1,040 | 5,042 | 982 | 7,116 | 1,386 | 4,449 | 693 | 4,152 | 566 |
| | 0.3 | 20 | 0.24 | 8,239 | 1,791 | 7,415 | 1,612 | 7,003 | 1,523 | 9,887 | 2,149 | 6,179 | 1,075 | 5,767 | 878 |
| | | 40 | 0.2 | 5,931 | 1,156 | 5,338 | 1,040 | 5,042 | 982 | 7,116 | 1,386 | 4,449 | 693 | 4,152 | 566 |
| | 0.5 | 20 | 0.35 | 8,239 | 1,791 | 7,415 | 1,612 | 7,003 | 1,523 | 9,887 | 2,149 | 6,179 | 1,075 | 5,767 | 878 |
| | | 40 | 0.135 | 5,931 | 1,156 | 5,338 | 1,040 | 5,042 | 982 | 7,116 | 1,386 | 4,449 | 693 | 4,152 | 566 |
| | 1 | 20 | 0.4 | 8,239 | 1,791 | 7,415 | 1,612 | 7,003 | 1,523 | 9,887 | 2,149 | 6,179 | 1,075 | 5,767 | 878 |
| | | 40 | 0.15 | 5,931 | 1,156 | 5,338 | 1,040 | 5,042 | 982 | 7,116 | 1,386 | 4,449 | 693 | 4,152 | 566 |
| 6 | 0.1 | 12 | 0.08 | 6,867 | 1,792 | 6,181 | 1,612 | 5,837 | 1,523 | 8,240 | 2,150 | 5,150 | 1,075 | 4,808 | 878 |
| | | 18 | 0.065 | 6,867 | 1,792 | 6,181 | 1,612 | 5,837 | 1,523 | 8,240 | 2,150 | 5,150 | 1,075 | 4,808 | 878 |
| | | 24 | 0.06 | 6,867 | 1,792 | 6,181 | 1,612 | 5,837 | 1,523 | 8,240 | 2,150 | 5,150 | 1,075 | 4,808 | 878 |
| | | 35 | 0.05 | 5,837 | 1,371 | 5,253 | 1,234 | 4,962 | 1,165 | 7,005 | 1,644 | 4,379 | 823 | 4,086 | 671 |
| | | 55 | 0.04 | 4,942 | 945 | 4,449 | 851 | 4,201 | 803 | 5,931 | 1,134 | 3,706 | 561 | 3,460 | 457 |
| | 0.2 | 12 | 0.16 | 6,867 | 1,792 | 6,181 | 1,612 | 5,837 | 1,523 | 8,240 | 2,150 | 5,150 | 1,075 | 4,808 | 878 |
| | | 18 | 0.14 | 6,867 | 1,792 | 6,181 | 1,612 | 5,837 | 1,523 | 8,240 | 2,150 | 5,150 | 1,075 | 4,808 | 878 |
| | | 24 | 0.13 | 6,867 | 1,792 | 6,181 | 1,612 | 5,837 | 1,523 | 8,240 | 2,150 | 5,150 | 1,075 | 4,808 | 878 |
| | | 35 | 0.11 | 5,837 | 1,371 | 5,253 | 1,234 | 4,962 | 1,165 | 7,005 | 1,644 | 4,379 | 823 | 4,086 | 671 |
| | | 55 | 0.08 | 4,942 | 945 | 4,449 | 851 | 4,201 | 803 | 5,931 | 1,134 | 3,706 | 561 | 3,460 | 457 |
| | 0.3 | 12 | 0.24 | 6,867 | 1,792 | 6,181 | 1,612 | 5,837 | 1,523 | 8,240 | 2,150 | 5,150 | 1,075 | 4,808 | 878 |
| | | 18 | 0.22 | 6,867 | 1,792 | 6,181 | 1,612 | 5,837 | 1,523 | 8,240 | 2,150 | 5,150 | 1,075 | 4,808 | 878 |
| | | 24 | 0.2 | 6,867 | 1,792 | 6,181 | 1,612 | 5,837 | 1,523 | 8,240 | 2,150 | 5,150 | 1,075 | 4,808 | 878 |
| | | 35 | 0.18 | 5,837 | 1,371 | 5,253 | 1,234 | 4,962 | 1,165 | 7,005 | 1,644 | 4,379 | 823 | 4,086 | 671 |
| | | 55 | 0.14 | 4,942 | 945 | 4,449 | 851 | 4,201 | 803 | 5,931 | 1,134 | 3,706 | 561 | 3,460 | 457 |
| | 0.5 | 18 | 0.35 | 6,867 | 1,792 | 6,181 | 1,612 | 5,837 | 1,523 | 8,240 | 2,150 | 5,150 | 1,075 | 4,808 | 878 |
| | | 24 | 0.29 | 6,867 | 1,792 | 6,181 | 1,612 | 5,837 | 1,523 | 8,240 | 2,150 | 5,150 | 1,075 | 4,808 | 878 |

【Note】Please refer to P528

# Recommended Cutting Data（High Precision）

SPM200-RN2
2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| Mill Dia. (mm) | r (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 6 | 0.5 | 35 | 0.24 | 5,837 | 1,371 | 5,253 | 1,234 | 4,962 | 1,165 | 7,005 | 1,644 | 4,379 | 823 | 4,086 | 671 |
| | | 55 | 0.165 | 4,942 | 945 | 4,449 | 851 | 4,201 | 803 | 5,931 | 1,134 | 3,706 | 561 | 3,460 | 457 |
| | 1 | 18 | 0.4 | 6,867 | 1,792 | 6,181 | 1,612 | 5,837 | 1,523 | 8,240 | 2,150 | 5,150 | 1,075 | 4,808 | 878 |
| | | 24 | 0.35 | 6,867 | 1,792 | 6,181 | 1,612 | 5,837 | 1,523 | 8,240 | 2,150 | 5,150 | 1,075 | 4,808 | 878 |
| | | 35 | 0.28 | 5,837 | 1,371 | 5,253 | 1,234 | 4,962 | 1,165 | 7,005 | 1,644 | 4,379 | 823 | 4,086 | 671 |
| | | 55 | 0.2 | 4,942 | 945 | 4,449 | 851 | 4,201 | 803 | 5,931 | 1,134 | 3,706 | 561 | 3,460 | 457 |

【Note】
1. For different materials, adjust the cutting depth (ap) according to the cutting depth factors in the above table. E.g. for hardened steels (45～55HRC), ap*0.65.
2. Use the appropriate coolant such as air cooling or emulsion for the work material and machining shape.
3. In actual machining, the condition should be adjusted according to the machining shape, purpose and the machine type.
4. If the rpm of the machine is low, lower the feed rate also to put the rpm and feed rate in the same ratio.

# Recommended Cutting Data（High Precision）

SPM200-RN4

4 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| Mill Dia. (mm) | r (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 1 | 0.05 | 4 | 0.012 | 31,120 | 1,952 | 28,008 | 1,757 | 26,608 | 1,669 | 38,900 | 2,440 | 23,947 | 1,230 | 22,749 | 1,000 |
| | | 6 | 0.01 | 25,200 | 1,424 | 22,680 | 1,282 | 21,546 | 1,218 | 31,500 | 1,780 | 19,391 | 990 | 18,422 | 810 |
| | | 8 | 0.008 | 22,400 | 1,264 | 20,160 | 1,138 | 19,152 | 1,081 | 28,000 | 1,580 | 17,237 | 880 | 16,375 | 720 |
| | | 10 | 0.005 | 19,600 | 1,112 | 17,640 | 1,001 | 16,758 | 951 | 24,500 | 1,390 | 15,082 | 770 | 14,328 | 630 |
| | | 12 | 0.004 | 17,440 | 880 | 15,696 | 792 | 14,911 | 752 | 21,800 | 1,100 | 13,420 | 600 | 12,749 | 480 |
| | | 16 | 0.003 | 17,440 | 768 | 15,696 | 691 | 14,911 | 657 | 21,800 | 960 | 13,420 | 510 | 12,749 | 400 |
| | | 20 | 0.002 | 13,040 | 576 | 11,736 | 518 | 11,149 | 492 | 16,300 | 720 | 10,034 | 385 | 9,533 | 300 |
| | 0.1 | 4 | 0.02 | 31,120 | 1,952 | 28,008 | 1,757 | 26,608 | 1,669 | 38,900 | 2,440 | 23,947 | 1,230 | 22,749 | 1,000 |
| | | 6 | 0.018 | 25,200 | 1,424 | 22,680 | 1,282 | 21,546 | 1,218 | 31,500 | 1,780 | 19,391 | 990 | 18,422 | 810 |
| | | 8 | 0.014 | 22,400 | 1,264 | 20,160 | 1,138 | 19,152 | 1,081 | 28,000 | 1,580 | 17,237 | 880 | 16,375 | 720 |
| | | 10 | 0.01 | 19,600 | 1,112 | 17,640 | 1,001 | 16,758 | 951 | 24,500 | 1,390 | 15,082 | 770 | 14,328 | 630 |
| | | 12 | 0.008 | 17,440 | 880 | 15,696 | 792 | 14,911 | 752 | 21,800 | 1,100 | 13,420 | 600 | 12,749 | 480 |
| | | 16 | 0.006 | 17,440 | 768 | 15,696 | 691 | 14,911 | 657 | 21,800 | 960 | 13,420 | 510 | 12,749 | 400 |
| | | 20 | 0.004 | 13,040 | 576 | 11,736 | 518 | 11,149 | 492 | 16,300 | 720 | 10,034 | 385 | 9,533 | 300 |
| 1.5 | 0.05 | 4 | 0.02 | 23,920 | 1,624 | 21,528 | 1,462 | 20,452 | 1,389 | 29,900 | 2,030 | 18,406 | 1,020 | 17,486 | 830 |
| | | 8 | 0.014 | 21,760 | 1,480 | 19,584 | 1,332 | 18,605 | 1,265 | 27,200 | 1,850 | 16,744 | 1,030 | 15,907 | 840 |
| | | 12 | 0.007 | 17,440 | 1,184 | 15,696 | 1,066 | 14,911 | 1,012 | 21,800 | 1,480 | 13,420 | 820 | 12,749 | 670 |
| | | 15 | 0.006 | 13,520 | 816 | 12,168 | 734 | 11,560 | 698 | 16,900 | 1,020 | 10,404 | 560 | 9,883 | 450 |
| | | 20 | 0.004 | 13,520 | 816 | 12,168 | 734 | 11,560 | 698 | 16,900 | 1,020 | 10,404 | 560 | 9,883 | 450 |
| | 0.1 | 4 | 0.027 | 23,920 | 1,624 | 21,528 | 1,462 | 20,452 | 1,389 | 29,900 | 2,030 | 18,406 | 1,020 | 17,486 | 830 |
| | | 8 | 0.02 | 21,760 | 1,480 | 19,584 | 1,332 | 18,605 | 1,265 | 27,200 | 1,850 | 16,744 | 1,030 | 15,907 | 840 |
| | | 12 | 0.017 | 17,440 | 1,184 | 15,696 | 1,066 | 14,911 | 1,012 | 21,800 | 1,480 | 13,420 | 820 | 12,749 | 670 |
| | | 15 | 0.014 | 13,520 | 816 | 12,168 | 734 | 11,560 | 698 | 16,900 | 1,020 | 10,404 | 560 | 9,883 | 450 |
| | | 20 | 0.01 | 13,520 | 816 | 12,168 | 734 | 11,560 | 698 | 16,900 | 1,020 | 10,404 | 560 | 9,883 | 450 |
| 2 | 0.05 | 4 | 0.035 | 20,800 | 2,450 | 18,700 | 2,210 | 17,700 | 2,080 | 24,900 | 2,940 | 15,600 | 1,470 | 14,600 | 1,200 |
| | | 6 | 0.03 | 20,800 | 2,450 | 18,700 | 2,210 | 17,700 | 2,080 | 24,900 | 2,940 | 15,600 | 1,470 | 14,600 | 1,200 |
| | | 8 | 0.025 | 18,900 | 2,230 | 17,000 | 2,010 | 16,100 | 1,890 | 22,700 | 2,670 | 14,200 | 1,340 | 13,200 | 1,090 |
| | | 12 | 0.02 | 15,300 | 1,620 | 13,800 | 1,460 | 13,000 | 1,380 | 18,400 | 1,950 | 11,500 | 1,080 | 10,700 | 890 |
| | | 16 | 0.015 | 13,600 | 1,440 | 12,200 | 1,300 | 11,600 | 1,230 | 16,300 | 1,730 | 10,200 | 960 | 9,500 | 790 |
| | | 20 | 0.01 | 11,900 | 1,260 | 10,700 | 1,140 | 10,100 | 1,070 | 14,300 | 1,520 | 8,900 | 840 | 8,300 | 690 |

【Note】Please refer to P533

# Recommended Cutting Data（High Precision）

SPM200-RN4
4 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| Mill Dia. (mm) | r (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 2 | 0.1 | 4 | 0.042 | 20,800 | 2,450 | 18,700 | 2,210 | 17,700 | 2,080 | 24,900 | 2,940 | 15,600 | 1,470 | 14,600 | 1,200 |
| | | 6 | 0.042 | 20,800 | 2,450 | 18,700 | 2,210 | 17,700 | 2,080 | 24,900 | 2,940 | 15,600 | 1,470 | 14,600 | 1,200 |
| | | 8 | 0.036 | 18,900 | 2,230 | 17,000 | 2,010 | 16,100 | 1,890 | 22,700 | 2,670 | 14,200 | 1,340 | 13,200 | 1,090 |
| | | 12 | 0.036 | 15,300 | 1,620 | 13,800 | 1,460 | 13,000 | 1,380 | 18,400 | 1,950 | 11,500 | 1,080 | 10,700 | 890 |
| | | 16 | 0.023 | 13,600 | 1,440 | 12,200 | 1,300 | 11,600 | 1,230 | 16,300 | 1,730 | 10,200 | 960 | 9,500 | 790 |
| | | 20 | 0.018 | 11,900 | 1,260 | 10,700 | 1,140 | 10,100 | 1,070 | 14,300 | 1,520 | 8,900 | 840 | 8,300 | 690 |
| | 0.2 | 4 | 0.08 | 20,800 | 2,450 | 18,700 | 2,210 | 17,700 | 2,080 | 24,900 | 2,940 | 15,600 | 1,470 | 14,600 | 1,200 |
| | | 6 | 0.08 | 20,800 | 2,450 | 18,700 | 2,210 | 17,700 | 2,080 | 24,900 | 2,940 | 15,600 | 1,470 | 14,600 | 1,200 |
| | | 8 | 0.07 | 18,900 | 2,230 | 17,000 | 2,010 | 16,100 | 1,890 | 22,700 | 2,670 | 14,200 | 1,340 | 13,200 | 1,090 |
| | | 12 | 0.04 | 15,300 | 1,620 | 13,800 | 1,460 | 13,000 | 1,380 | 18,400 | 1,950 | 11,500 | 1,080 | 10,700 | 890 |
| | | 16 | 0.04 | 13,600 | 1,440 | 12,200 | 1,300 | 11,600 | 1,230 | 16,300 | 1,730 | 10,200 | 960 | 9,500 | 790 |
| | | 20 | 0.035 | 11,900 | 1,260 | 10,700 | 1,140 | 10,100 | 1,070 | 14,300 | 1,520 | 8,900 | 840 | 8,300 | 690 |
| | | 25 | 0.025 | 11,900 | 1,260 | 10,700 | 1,140 | 10,100 | 1,070 | 14,300 | 1,520 | 8,900 | 840 | 8,300 | 690 |
| | | 30 | 0.017 | 11,300 | 1,200 | 10,200 | 1,080 | 9,600 | 1,020 | 13,600 | 1,440 | 8,500 | 800 | 7,900 | 650 |
| | 0.3 | 4 | 0.11 | 20,800 | 2,450 | 18,700 | 2,210 | 17,700 | 2,080 | 24,900 | 2,940 | 15,600 | 1,470 | 14,600 | 1,200 |
| | | 8 | 0.09 | 18,900 | 2,350 | 17,000 | 2,100 | 16,100 | 1,950 | 22,700 | 2,850 | 14,200 | 1,490 | 13,200 | 1,210 |
| | | 12 | 0.06 | 15,300 | 1,810 | 13,800 | 1,620 | 13,000 | 1,530 | 18,400 | 2,170 | 11,500 | 1,200 | 10,700 | 980 |
| | | 16 | 0.06 | 13,600 | 1,610 | 12,200 | 1,440 | 11,600 | 1,360 | 16,300 | 1,930 | 10,200 | 1,070 | 9,500 | 870 |
| | | 20 | 0.037 | 11,900 | 1,400 | 10,700 | 1,260 | 10,100 | 1,190 | 14,300 | 1,680 | 8,900 | 940 | 8,300 | 770 |
| | 0.5 | 4 | 0.17 | 20,800 | 2450 | 18,700 | 2210 | 17,700 | 2,080 | 24,900 | 2940 | 15,600 | 1,470 | 14,600 | 1,200 |
| | | 6 | 0.17 | 20,800 | 2450 | 18,700 | 2210 | 17,700 | 2,080 | 24,900 | 2940 | 15,600 | 1,470 | 14,600 | 1,200 |
| | | 8 | 0.14 | 18,900 | 2350 | 17,000 | 2100 | 16,100 | 1,950 | 22,700 | 2850 | 14,200 | 1,490 | 13,200 | 1,210 |
| | | 12 | 0.08 | 15,300 | 1810 | 13,800 | 1620 | 13,000 | 1,530 | 18,400 | 2170 | 11,500 | 1,200 | 10,700 | 980 |
| | | 16 | 0.08 | 13,600 | 1610 | 12,200 | 1440 | 11,600 | 1,360 | 16,300 | 1930 | 10,200 | 1,070 | 9,500 | 870 |
| | | 20 | 0.05 | 11,900 | 1400 | 10,700 | 1260 | 10,100 | 1,190 | 14,300 | 1680 | 8,900 | 940 | 8,300 | 770 |
| | | 25 | 0.05 | 11,900 | 1400 | 10,700 | 1260 | 10,100 | 1,190 | 14,300 | 1680 | 8,900 | 940 | 8,300 | 770 |
| | | 30 | 0.03 | 11,300 | 1330 | 10,200 | 1200 | 9,600 | 1,130 | 13,600 | 1600 | 8,500 | 850 | 7,900 | 730 |
| 2.5 | 0.1 | 8 | 0.047 | 18,900 | 2480 | 17,000 | 2230 | 16,100 | 2,100 | 22,700 | 2970 | 14,200 | 1,490 | 13,200 | 1,210 |
| | | 16 | 0.037 | 13,600 | 1610 | 12,200 | 1440 | 11,600 | 1,360 | 16,300 | 1930 | 10,200 | 1,070 | 9,500 | 870 |
| | | 20 | 0.025 | 11,900 | 1400 | 10,700 | 1260 | 10,100 | 1,190 | 14,300 | 1680 | 8,900 | 940 | 8,300 | 770 |

【Note】Please refer to P533

# Recommended Cutting Data（High Precision）

SPM200-RN4

4 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| Mill Dia. (mm) | r (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 2.5 | 0.2 | 8 | 0.08 | 16,200 | 2140 | 14,600 | 1920 | 13,800 | 1,820 | 19,400 | 2570 | 12,200 | 1,280 | 11300 | 1,100 |
| | | 16 | 0.045 | 14,100 | 1770 | 12,700 | 1600 | 12,000 | 1,510 | 16,900 | 2130 | 10,600 | 1,110 | 9,900 | 960 |
| | | 20 | 0.042 | 11,800 | 1410 | 10,600 | 1270 | 10,000 | 1,200 | 14,100 | 1750 | 8,800 | 930 | 8,200 | 790 |
| | 0.3 | 12 | 0.09 | 14,800 | 1960 | 13,300 | 1760 | 12,500 | 1,660 | 17,700 | 2350 | 11,100 | 1,230 | 10,300 | 1,010 |
| | | 20 | 0.052 | 11,800 | 1560 | 10600 | 1400 | 10,000 | 1330 | 14,100 | 1870 | 8,800 | 1,040 | 8,200 | 850 |
| | 0.5 | 12 | 0.1 | 14,800 | 1,960 | 13,300 | 1,760 | 12,500 | 1,660 | 17,700 | 2,350 | 11,100 | 1,230 | 10,300 | 1,010 |
| | | 20 | 0.07 | 11,800 | 1,560 | 10,600 | 1,400 | 10,000 | 1,330 | 14,100 | 1,870 | 8,800 | 1,040 | 8,200 | 850 |
| 3 | 0.1 | 8 | 0.055 | 14,400 | 2,120 | 13,000 | 1,910 | 12,200 | 1,800 | 17,300 | 2,550 | 10,800 | 1,270 | 10,100 | 1,040 |
| | | 16 | 0.035 | 14,400 | 2,120 | 13,000 | 1,910 | 12,200 | 1,800 | 17,300 | 2,550 | 10,800 | 1,270 | 10,100 | 1,040 |
| | | 25 | 0.022 | 11,700 | 1,720 | 10,500 | 1,550 | 9,900 | 1,460 | 14,000 | 2,060 | 8,700 | 1,150 | 8,200 | 940 |
| | | 30 | 0.014 | 9,100 | 1,720 | 8,200 | 1,550 | 7,700 | 1,460 | 10,900 | 2,060 | 6,800 | 1,150 | 6,400 | 940 |
| | 0.2 | 8 | 0.09 | 14,400 | 2,120 | 13,000 | 1,910 | 12,200 | 1,800 | 17,300 | 2,550 | 10,800 | 1,270 | 10,100 | 1,040 |
| | | 12 | 0.07 | 14,400 | 2,120 | 13,000 | 1,910 | 12,200 | 1,800 | 17,300 | 2,550 | 10,800 | 1,270 | 10,100 | 1,040 |
| | | 16 | 0.05 | 14,400 | 2,120 | 13,000 | 1,910 | 12,200 | 1,800 | 17,300 | 2,550 | 10,800 | 1,270 | 10,100 | 1,040 |
| | | 20 | 0.05 | 11,700 | 1,720 | 10,500 | 1,550 | 9,900 | 1,460 | 14,000 | 2,060 | 8,700 | 1,150 | 8,200 | 940 |
| | | 25 | 0.045 | 11,700 | 1,720 | 10,500 | 1,550 | 9,900 | 1,460 | 14,000 | 2,060 | 8,700 | 1,150 | 8,200 | 940 |
| | | 30 | 0.04 | 9,100 | 1,720 | 8,200 | 1,550 | 7,700 | 1,460 | 10,900 | 2,060 | 6,800 | 1,150 | 6,400 | 940 |
| | 0.3 | 8 | 0.13 | 14,400 | 2,360 | 13,000 | 2,120 | 12,200 | 2,010 | 17,300 | 2,830 | 10,800 | 1,410 | 10,100 | 1,160 |
| | | 16 | 0.075 | 14,400 | 2,360 | 13,000 | 2,120 | 12,200 | 2,010 | 17,300 | 2,830 | 10,800 | 1,410 | 10,100 | 1,160 |
| | | 20 | 0.075 | 11,700 | 1,910 | 10,500 | 1,720 | 9,900 | 1,620 | 14,000 | 2,290 | 8,700 | 1,270 | 8,200 | 1,040 |
| | | 25 | 0.067 | 11,700 | 1,910 | 10,500 | 1,720 | 9,900 | 1,620 | 14,000 | 2,290 | 8,700 | 1,270 | 8,200 | 1,040 |
| | | 30 | 0.06 | 9,100 | 1,910 | 8,200 | 1,720 | 7,700 | 1,620 | 10,900 | 2,290 | 6,800 | 1,270 | 6,400 | 1,040 |
| | 0.5 | 8 | 0.18 | 14,400 | 2,360 | 13,000 | 2,120 | 12,200 | 2,010 | 17,300 | 2,830 | 10,800 | 1,410 | 10,100 | 1,160 |
| | | 12 | 0.13 | 14,400 | 2,360 | 13,000 | 2,120 | 12,200 | 2,010 | 17,300 | 2,830 | 10,800 | 1,410 | 10,100 | 1,160 |
| | | 16 | 0.1 | 14,400 | 2,360 | 13,000 | 2,120 | 12,200 | 2,010 | 17,300 | 2,830 | 10,800 | 1,410 | 10,100 | 1,160 |
| | | 20 | 0.1 | 11,700 | 1,910 | 10,500 | 1,720 | 9,900 | 1,620 | 14,000 | 2,290 | 8,700 | 1,270 | 8,200 | 1,040 |
| | | 25 | 0.09 | 11,700 | 1,910 | 10,500 | 1,720 | 9,900 | 1,620 | 14,000 | 2,290 | 8,700 | 1,270 | 8,200 | 1,040 |
| | | 30 | 0.08 | 9,100 | 1,910 | 8,200 | 1,720 | 7,700 | 1,620 | 10,900 | 2,290 | 6,800 | 1,270 | 6,400 | 1,040 |
| | | 35 | 0.065 | 9,100 | 1,910 | 8,200 | 1,720 | 7,700 | 1,620 | 10,900 | 2,290 | 6,800 | 1,270 | 6,400 | 1,040 |

【Note】Please refer to P533

# Recommended Cutting Data（High Precision）

SPM200-RN4
4 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| Mill Dia. (mm) | r (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 4 | 0.1 | 12 | 0.065 | 10,400 | 2,790 | 9,300 | 2,520 | 8,800 | 2,240 | 12,400 | 3,350 | 7,800 | 1,750 | 7,200 | 1,300 |
| | | 20 | 0.055 | 10,400 | 2,790 | 9,300 | 2,520 | 8,800 | 2,240 | 12,400 | 3,350 | 7,800 | 1,750 | 7,200 | 1,300 |
| | | 30 | 0.045 | 9,300 | 2,520 | 8,400 | 2,010 | 7,900 | 1,830 | 11,200 | 3,020 | 7000 | 1,470 | 6500 | 1,170 |
| | | 40 | 0.03 | 9,300 | 2,520 | 8,400 | 2,010 | 7,900 | 1,830 | 11,200 | 3,020 | 7000 | 1,470 | 6,500 | 1,170 |
| | 0.2 | 12 | 0.13 | 10,400 | 2,790 | 9,300 | 2,520 | 8,800 | 2,240 | 12,400 | 3,350 | 7,800 | 1,750 | 7,200 | 1,300 |
| | | 20 | 0.1 | 10,400 | 2,790 | 9,300 | 2,520 | 8,800 | 2,240 | 12,400 | 3,350 | 7,800 | 1,750 | 7,200 | 1,300 |
| | | 30 | 0.08 | 9,300 | 2,520 | 8,400 | 2,010 | 7,900 | 1,830 | 11,200 | 3,020 | 7000 | 1,470 | 6500 | 1,170 |
| | | 40 | 0.06 | 9,300 | 2,520 | 8,400 | 2,010 | 7,900 | 1,830 | 11,200 | 3,020 | 7000 | 1,470 | 6,500 | 1,170 |
| | 0.3 | 12 | 0.17 | 10,400 | 2,790 | 9,300 | 2,520 | 8,800 | 2,380 | 12,400 | 3,350 | 7,800 | 1,860 | 7,200 | 1,410 |
| | | 20 | 0.13 | 10,400 | 2,790 | 9,300 | 2,520 | 8,800 | 2,380 | 12,400 | 3,350 | 7,800 | 1,860 | 7,200 | 1,410 |
| | | 30 | 0.1 | 9,300 | 2,520 | 8,400 | 2,260 | 7,900 | 1,900 | 11,200 | 3,020 | 7,000 | 1,570 | 6,500 | 1,170 |
| | | 40 | 0.08 | 9,300 | 2,520 | 8,400 | 2,260 | 7,900 | 1,900 | 11,200 | 3,020 | 7,000 | 1,570 | 6,500 | 1,170 |
| | 0.5 | 12 | 0.24 | 10,400 | 2,790 | 9,300 | 2,520 | 8,800 | 2,380 | 12,400 | 3,350 | 7,800 | 1,860 | 7,200 | 1,410 |
| | | 20 | 0.2 | 10,400 | 2,790 | 9,300 | 2,520 | 8,800 | 2,380 | 12,400 | 3,350 | 7,800 | 1,860 | 7,200 | 1,410 |
| | | 30 | 0.17 | 9,300 | 2,520 | 8,400 | 2,260 | 7,900 | 1,900 | 11,200 | 3,020 | 7,000 | 1,570 | 6,500 | 1,170 |
| | | 40 | 0.1 | 9,300 | 2,520 | 8,400 | 2,260 | 7,900 | 1,900 | 11,200 | 3,020 | 7,000 | 1,570 | 6,500 | 1,170 |
| 5 | 0.1 | 20 | 0.07 | 8,100 | 2,190 | 7,300 | 1,970 | 6,900 | 1,760 | 9,700 | 2,620 | 6,100 | 1,370 | 5,700 | 1,020 |
| | | 40 | 0.035 | 7,300 | 1,970 | 6,600 | 1,570 | 6,200 | 1,430 | 8,700 | 2,360 | 5,500 | 1,150 | 5,100 | 920 |
| | 0.2 | 20 | 0.15 | 8,100 | 2,190 | 7,300 | 1,970 | 6,900 | 1,760 | 9,700 | 2,620 | 6,100 | 1,370 | 5,700 | 1,020 |
| | | 40 | 0.08 | 7,300 | 1,970 | 6,600 | 1,570 | 6,200 | 1,430 | 8,700 | 2,360 | 5,500 | 1,150 | 5,100 | 920 |
| | 0.3 | 20 | 0.21 | 8,100 | 2,190 | 7,300 | 1,970 | 6,900 | 1,860 | 9,700 | 2,620 | 6,100 | 1,460 | 5,700 | 1,110 |
| | | 40 | 0.1 | 7,300 | 1,970 | 6,600 | 1,770 | 6,200 | 1,490 | 8,700 | 2,360 | 5,500 | 1,230 | 5,100 | 920 |
| | 0.5 | 20 | 0.28 | 8,100 | 2,190 | 7,300 | 1,970 | 6,900 | 1,860 | 9,700 | 2,620 | 6,100 | 1,460 | 5,700 | 1,110 |
| | | 40 | 0.14 | 7,300 | 1,970 | 6,600 | 1,770 | 6,200 | 1,490 | 8,700 | 2,360 | 5,500 | 1,230 | 5,100 | 920 |
| | 1 | 20 | 0.35 | 8,100 | 2,190 | 7,300 | 1,970 | 6,900 | 1,860 | 9,700 | 2,620 | 6,100 | 1,460 | 5,700 | 1,110 |
| | | 40 | 0.18 | 7,300 | 1,970 | 6,600 | 1,770 | 6,200 | 1,490 | 8,700 | 2,360 | 5,500 | 1,230 | 5,100 | 920 |

【Note】Please refer to P533

# Recommended Cutting Data（High Precision）

SPM200-RN4
4 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| Mill Dia. (mm) | r (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 6 | 0.2 | 30 | 0.15 | 7,200 | 1,940 | 6,500 | 1,750 | 6,100 | 1,560 | 8,600 | 2,330 | 5,400 | 1,220 | 5,000 | 910 |
| | | 54 | 0.1 | 6,500 | 1,750 | 5,800 | 1,400 | 5,500 | 1,270 | 7,800 | 2,100 | 4,900 | 1,020 | 4,500 | 820 |
| | | 72 | 0.07 | 6,500 | 1,750 | 5,800 | 1,400 | 5,500 | 1,270 | 7,800 | 2,100 | 4,900 | 1,020 | 4,500 | 820 |
| | 0.3 | 30 | 0.25 | 7,200 | 1,940 | 6,500 | 1,750 | 6,100 | 1,560 | 8,600 | 2,330 | 5,400 | 1,300 | 5,000 | 980 |
| | | 54 | 0.18 | 6,500 | 1,750 | 5,800 | 1,570 | 5,500 | 1,270 | 7,800 | 2,100 | 4,900 | 1,090 | 4,500 | 820 |
| | | 72 | 0.1 | 6,500 | 1,750 | 5,800 | 1,570 | 5,500 | 1,270 | 7,800 | 2,100 | 4,900 | 1,090 | 4,500 | 820 |
| | 0.5 | 30 | 0.35 | 7,200 | 1,940 | 6,500 | 1,750 | 6,100 | 1,650 | 8,600 | 2,330 | 5,400 | 1,300 | 5,000 | 980 |
| | | 54 | 0.25 | 6,500 | 1,750 | 5,800 | 1,570 | 5,500 | 1,320 | 7,800 | 2,100 | 4,900 | 1,090 | 4,500 | 820 |
| | | 72 | 0.15 | 6,500 | 1,750 | 5,800 | 1,570 | 5,500 | 1,320 | 7,800 | 2,100 | 4,900 | 1,090 | 4,500 | 820 |
| | 1 | 30 | 0.55 | 7,200 | 1,940 | 6,500 | 1,750 | 6,100 | 1,650 | 8,600 | 2,330 | 5,400 | 1,300 | 5,000 | 980 |
| | | 54 | 0.4 | 6,500 | 1,750 | 5,800 | 1,570 | 5,500 | 1,320 | 7,800 | 2,100 | 4,900 | 1,090 | 4,500 | 820 |
| | | 72 | 0.22 | 6,500 | 1,750 | 5,800 | 1,570 | 5,500 | 1,320 | 7,800 | 2,100 | 4,900 | 1,090 | 4,500 | 820 |

【Note】
1. For different materials, adjust the cutting depth (ap) according to the cutting depth factors in the above table. E.g. for hardened steels (45～55HRC), ap*0.65.
2. Use the appropriate coolant such as air cooling or emulsion for the work material and machining shape.
3. In actual machining, the condition should be adjusted according to the machining shape, purpose and the machine type.
4. If the rpm of the machine is low, lower the feed rate also to put the rpm and feed rate in the same ratio.

# Recommended Cutting Data（General type）

SPM200-BN2
2 Flute, Ballnose
Endmills of Micro Diameter for Deep Machining

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| R (mm) | Mill Dia. (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 0.05 | 0.1 | 0.2 | 0.008 | 50,000 | 250 | 50,000 | 250 | 50,000 | 225 | 50,000 | 300 | 50,000 | 200 | 50,000 | 188 |
| | | 0.3 | 0.006 | 50,000 | 250 | 50,000 | 250 | 50,000 | 225 | 50,000 | 300 | 50,000 | 200 | 50,000 | 188 |
| | | 0.5 | 0.004 | 50,000 | 250 | 50,000 | 250 | 50,000 | 225 | 50,000 | 300 | 50,000 | 200 | 50,000 | 188 |
| 0.1 | 0.2 | 0.5 | 0.02 | 45,000 | 315 | 45,000 | 315 | 45,000 | 293 | 45,000 | 378 | 40,950 | 246 | 37,800 | 189 |
| | | 0.75 | 0.017 | 45,000 | 315 | 45,000 | 315 | 45,000 | 293 | 45,000 | 378 | 40,950 | 246 | 37,800 | 189 |
| | | 1 | 0.014 | 45,000 | 315 | 45,000 | 315 | 45,000 | 293 | 45,000 | 378 | 40,950 | 246 | 37,800 | 189 |
| | | 1.25 | 0.011 | 45,000 | 284 | 43,740 | 275 | 41,310 | 242 | 45,000 | 340 | 36,450 | 197 | 34,020 | 153 |
| | | 1.5 | 0.008 | 45,000 | 284 | 43,740 | 275 | 41,310 | 242 | 45,000 | 340 | 36,450 | 197 | 34,020 | 153 |
| | | 2 | 0.008 | 45,000 | 284 | 43,740 | 275 | 41,310 | 242 | 45,000 | 340 | 36,450 | 197 | 34,020 | 153 |
| | | 2.5 | 0.006 | 43,200 | 242 | 38,880 | 218 | 36,720 | 191 | 43,200 | 291 | 32,400 | 156 | 30,240 | 121 |
| | | 3 | 0.004 | 43,200 | 242 | 38,880 | 218 | 36,720 | 191 | 43,200 | 291 | 32,400 | 156 | 30,240 | 121 |
| 0.15 | 0.3 | 0.5 | 0.027 | 45,000 | 450 | 45,000 | 450 | 45,000 | 405 | 45,000 | 540 | 40,500 | 345 | 37,800 | 302 |
| | | 0.75 | 0.024 | 45,000 | 450 | 45,000 | 450 | 45,000 | 405 | 45,000 | 540 | 40,500 | 345 | 37,800 | 302 |
| | | 1 | 0.021 | 45,000 | 450 | 45,000 | 450 | 45,000 | 405 | 45,000 | 540 | 40,500 | 345 | 37,800 | 302 |
| | | 1.25 | 0.019 | 45,000 | 450 | 45,000 | 450 | 45,000 | 405 | 45,000 | 540 | 40,500 | 345 | 37,800 | 302 |
| | | 1.5 | 0.016 | 45,000 | 450 | 45,000 | 450 | 45,000 | 405 | 45,000 | 540 | 40,500 | 345 | 37,800 | 302 |
| | | 2 | 0.012 | 45,000 | 405 | 43,740 | 393 | 41,310 | 335 | 45,000 | 486 | 36,450 | 279 | 34,020 | 245 |
| | | 2.5 | 0.01 | 45,000 | 405 | 43,740 | 393 | 41,310 | 335 | 45,000 | 486 | 36,450 | 279 | 34,020 | 245 |
| | | 3 | 0.008 | 45,000 | 405 | 43,740 | 393 | 41,310 | 335 | 45,000 | 486 | 36,450 | 279 | 34,020 | 245 |
| 0.2 | 0.4 | 0.75 | 0.043 | 45,000 | 756 | 45,000 | 755 | 45,000 | 693 | 45,000 | 870 | 42,120 | 590 | 39,312 | 551 |
| | | 1 | 0.04 | 45,000 | 756 | 45,000 | 755 | 45,000 | 693 | 45,000 | 870 | 42,120 | 590 | 39,312 | 551 |
| | | 1.5 | 0.034 | 45,000 | 648 | 45,000 | 647 | 45,000 | 594 | 45,000 | 746 | 42,120 | 421 | 39,312 | 393 |
| | | 2 | 0.028 | 45,000 | 540 | 45,000 | 540 | 45,000 | 495 | 45,000 | 622 | 42,120 | 421 | 39,312 | 393 |
| | | 2.5 | 0.022 | 38,880 | 420 | 34,992 | 378 | 33,048 | 328 | 45,000 | 504 | 29,160 | 263 | 32,659 | 245 |
| | | 3 | 0.016 | 38,880 | 420 | 34,992 | 378 | 33,048 | 328 | 45,000 | 504 | 29,160 | 263 | 32,659 | 245 |
| | | 3.5 | 0.012 | 38,880 | 420 | 34,992 | 378 | 33,048 | 328 | 45,000 | 504 | 29,160 | 263 | 32,659 | 245 |
| | | 4 | 0.01 | 38,880 | 420 | 34,992 | 378 | 33,048 | 328 | 45,000 | 504 | 29,160 | 263 | 32,659 | 245 |
| | | 4.5 | 0.008 | 34,560 | 353 | 31,104 | 318 | 29,376 | 275 | 41,472 | 423 | 25,920 | 221 | 24,192 | 205 |
| 0.25 | 0.5 | 1 | 0.045 | 45,000 | 1,350 | 42,120 | 1,264 | 39,780 | 1,074 | 45,000 | 1,350 | 35,100 | 948 | 32,760 | 669 |
| | | 1.5 | 0.04 | 45,000 | 1,350 | 42,120 | 1,264 | 39,780 | 1,074 | 45,000 | 1,350 | 35,100 | 948 | 32,760 | 613 |
| | | 2 | 0.035 | 45,000 | 1,080 | 42,120 | 1,011 | 39,780 | 860 | 45,000 | 1,080 | 35,100 | 758 | 32,760 | 613 |
| | | 2.5 | 0.033 | 45,000 | 900 | 37,908 | 682 | 35,802 | 581 | 45,000 | 973 | 31,590 | 511 | 29,484 | 452 |

【Note】Please refer to P544

# Recommended Cutting Data（General type）

## SPM200-BN2

### 2 Flute, Ballnose
### Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| R (mm | Mill Dia. (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 0.25 | 0.5 | 3 | 0.03 | 42,120 | 758 | 37,908 | 682 | 35,802 | 581 | 45,000 | 810 | 31,590 | 511 | 22,680 | 347 |
| | | 4 | 0.02 | 32,400 | 583 | 29,160 | 525 | 27,540 | 446 | 38,880 | 700 | 29,160 | 472 | 22,680 | 347 |
| | | 5 | 0.018 | 32,400 | 583 | 29,160 | 525 | 27,540 | 446 | 38,880 | 700 | 29,160 | 472 | 22,680 | 347 |
| | | 5.5 | 0.015 | 28,800 | 490 | 25,920 | 441 | 24,480 | 374 | 34,560 | 588 | 21,600 | 330 | 20,160 | 292 |
| | | 6 | 0.013 | 28,800 | 490 | 25,920 | 441 | 24,480 | 374 | 34,560 | 588 | 21,600 | 330 | 20,160 | 292 |
| | | 8 | 0.008 | 28,800 | 490 | 25,920 | 441 | 24,480 | 374 | 34,560 | 588 | 21,600 | 330 | 20,160 | 292 |
| 0.3 | 0.6 | 1 | 0.075 | 45,000 | 2,025 | 45,000 | 2,025 | 45,000 | 1,755 | 45,000 | 2,025 | 43,200 | 1,555 | 40,320 | 1,210 |
| | | 2 | 0.063 | 45,000 | 2,025 | 45,000 | 2,025 | 45,000 | 1,755 | 45,000 | 2,025 | 43,200 | 1,555 | 40,320 | 1,210 |
| | | 2.5 | 0.046 | 45,000 | 1,620 | 45,000 | 1,620 | 45,000 | 1,404 | 45,000 | 1,620 | 43,200 | 1,244 | 40,320 | 887 |
| | | 3 | 0.041 | 45,000 | 1,620 | 45,000 | 1,620 | 45,000 | 1,404 | 45,000 | 1,620 | 43,200 | 1,244 | 40,320 | 887 |
| | | 3.5 | 0.035 | 45,000 | 1,539 | 45,000 | 1,538 | 44,064 | 1,307 | 45,000 | 1,539 | 38,880 | 1,065 | 36,288 | 759 |
| | | 4 | 0.026 | 45,000 | 1,539 | 45,000 | 1,538 | 44,064 | 1,307 | 45,000 | 1,539 | 38,880 | 1,065 | 36,288 | 689 |
| | | 4.5 | 0.022 | 45,000 | 1,215 | 43,740 | 1,182 | 41,310 | 967 | 45,000 | 1,215 | 36,450 | 788 | 34,020 | 613 |
| | | 5 | 0.02 | 42,120 | 1,138 | 37,908 | 1,024 | 35,802 | 838 | 45,000 | 1,215 | 31,590 | 682 | 29,484 | 531 |
| | | 5.5 | 0.017 | 42,120 | 1,138 | 37,908 | 1,024 | 35,802 | 838 | 45,000 | 1,215 | 31,590 | 682 | 29,484 | 531 |
| | | 6 | 0.015 | 42,120 | 1,138 | 37,908 | 1,024 | 35,802 | 838 | 45,000 | 1,215 | 31,590 | 682 | 29,484 | 531 |
| | | 7 | 0.015 | 28,800 | 734 | 25,920 | 793 | 24,480 | 541 | 34,560 | 881 | 21,600 | 441 | 20,160 | 446 |
| | | 8 | 0.015 | 28,800 | 734 | 25,920 | 661 | 24,480 | 541 | 34,560 | 881 | 21,600 | 441 | 20,160 | 343 |
| | | 9 | 0.012 | 28,800 | 734 | 25,920 | 661 | 24,480 | 541 | 34,560 | 881 | 21,600 | 441 | 20,160 | 343 |
| | | 10 | 0.009 | 25,200 | 643 | 22,680 | 579 | 21,420 | 473 | 30,240 | 771 | 18,900 | 385 | 17,640 | 300 |
| | | 12 | 0.007 | 21,600 | 518 | 19,440 | 466 | 18,360 | 382 | 25,920 | 622 | 16,200 | 311 | 15,120 | 242 |
| 0.35 | 0.7 | 2 | 0.092 | 45,000 | 2,228 | 45,000 | 2,228 | 45,000 | 1,940 | 45,000 | 2,228 | 43,200 | 1,739 | 37,800 | 1,069 |
| | | 4 | 0.041 | 45,000 | 1,692 | 45,000 | 1,692 | 44,064 | 1,443 | 45,000 | 1,692 | 38,880 | 1,189 | 34,020 | 761 |
| | | 6 | 0.027 | 42,120 | 1,251 | 37,908 | 1,126 | 35,802 | 925 | 45,000 | 1,337 | 31,590 | 763 | 27,216 | 577 |
| | | 8 | 0.02 | 28,800 | 760 | 25,920 | 684 | 24,480 | 563 | 34,560 | 912 | 21,600 | 464 | 20,160 | 380 |
| 0.4 | 0.8 | 2 | 0.12 | 45,000 | 2,430 | 45,000 | 2,430 | 45,000 | 2,160 | 45,000 | 2,430 | 43,200 | 2,333 | 40,320 | 1,694 |
| | | 4 | 0.078 | 45,000 | 2,430 | 45,000 | 2,430 | 45,000 | 2,160 | 45,000 | 2,430 | 43,200 | 2,333 | 40,320 | 1,694 |
| | | 5 | 0.059 | 45,000 | 2,186 | 45,000 | 2,188 | 44,064 | 1,903 | 45,000 | 2,188 | 38,880 | 1,911 | 36,288 | 1,372 |
| | | 6 | 0.042 | 45,000 | 2,040 | 40,824 | 1,852 | 38,556 | 1,554 | 45,000 | 2,042 | 34,020 | 1,286 | 31,752 | 1,121 |
| | | 8 | 0.02 | 37,440 | 1,213 | 33,696 | 1,092 | 31,824 | 916 | 44,928 | 1,455 | 28,080 | 758 | 26,208 | 660 |
| | | 10 | 0.02 | 28,800 | 881 | 25,920 | 793 | 24,480 | 666 | 34,560 | 1,058 | 21,600 | 551 | 20,160 | 480 |
| 0.45 | 0.9 | 2 | 0.135 | 45,000 | 2,877 | 45,000 | 2,877 | 45,000 | 2,539 | 45,000 | 2,877 | 41,040 | 2,170 | 38,304 | 1,924 |

【Note】Please refer to P544

# Recommended Cutting Data（General type）

SPM200-BN2

## 2 Flute, Ballnose
## Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| R (mm | Mill Dia. (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 0.45 | 0.9 | 4 | 0.081 | 45,000 | 2,494 | 45,000 | 2,494 | 43,605 | 2,132 | 45,000 | 2,494 | 38,475 | 1,763 | 35,910 | 1,563 |
| | | 6 | 0.05 | 43,092 | 1,818 | 38,783 | 1,636 | 36,628 | 1,364 | 45,000 | 2,072 | 32,319 | 1,128 | 30,164 | 1,000 |
| | | 8 | 0.036 | 32,832 | 1,259 | 29,549 | 1,133 | 27,907 | 944 | 39,398 | 1,511 | 24,624 | 781 | 22,982 | 693 |
| 0.5 | 1 | 2 | 0.2 | 45,000 | 3,375 | 43,740 | 3,281 | 41,310 | 2,788 | 45,000 | 3,375 | 38,880 | 2,450 | 34,020 | 2,041 |
| | | 3 | 0.2 | 45,000 | 3,375 | 43,740 | 3,281 | 41,310 | 2,788 | 45,000 | 3,375 | 38,880 | 2,450 | 34,020 | 2,041 |
| | | 4 | 0.14 | 45,000 | 3,375 | 43,740 | 3,281 | 41,310 | 2,788 | 45,000 | 3,375 | 38,880 | 2,450 | 34,020 | 2,041 |
| | | 5 | 0.09 | 42,120 | 2,948 | 37,908 | 2,653 | 35,802 | 2,336 | 45,000 | 3,150 | 38,880 | 2,286 | 29,484 | 1,652 |
| | | 6 | 0.06 | 37,908 | 2,389 | 36,742 | 2,302 | 34,700 | 2,087 | 45,000 | 2,836 | 34,992 | 2,118 | 26,536 | 1,241 |
| | | 7 | 0.06 | 34,992 | 1,575 | 31,493 | 1,417 | 29,743 | 1,204 | 41,990 | 1,890 | 28,431 | 1,191 | 24,494 | 955 |
| | | 8 | 0.06 | 34,992 | 1,575 | 31,493 | 1,417 | 29,743 | 1,204 | 41,990 | 1,890 | 28,431 | 1,191 | 24,494 | 881 |
| | | 9 | 0.045 | 34,992 | 1,575 | 31,493 | 1,417 | 29,743 | 1,204 | 41,990 | 1,890 | 28,431 | 1,191 | 24,494 | 881 |
| | | 10 | 0.038 | 34,992 | 1,575 | 31,493 | 1,417 | 29,743 | 1,204 | 41,990 | 1,890 | 28,431 | 1,191 | 24,494 | 881 |
| | | 12 | 0.025 | 25,920 | 1,102 | 23,328 | 992 | 22,032 | 842 | 31,104 | 1,322 | 19,440 | 694 | 18,144 | 617 |
| | | 13 | 0.023 | 25,920 | 1,102 | 23,328 | 992 | 22,032 | 842 | 31,104 | 1,322 | 19,440 | 694 | 18,144 | 617 |
| | | 14 | 0.02 | 25,920 | 1,102 | 23,328 | 992 | 22,032 | 842 | 31,104 | 1,322 | 19,440 | 694 | 18,144 | 617 |
| | | 16 | 0.015 | 25,920 | 1,102 | 23,328 | 992 | 22,032 | 842 | 31,104 | 1,322 | 19,440 | 694 | 18,144 | 617 |
| | | 18 | 0.012 | 22,680 | 907 | 20,412 | 816 | 19,278 | 694 | 27,216 | 1,089 | 17,010 | 572 | 15,876 | 508 |
| | | 20 | 0.01 | 19,440 | 778 | 17,496 | 700 | 16,524 | 595 | 23,328 | 933 | 14,580 | 490 | 13,608 | 436 |
| 0.55 | 1.1 | 2 | 0.2 | 45,000 | 3,532 | 40,824 | 3,204 | 38,556 | 2,634 | 45,000 | 3,532 | 34,020 | 2,207 | 31,752 | 1,958 |
| | | 4 | 0.14 | 45,000 | 3,532 | 40,824 | 3,204 | 38,556 | 2,634 | 45,000 | 3,532 | 34,020 | 2,207 | 31,752 | 1,958 |
| | | 6 | 0.06 | 35,802 | 2,075 | 32,222 | 1,868 | 30,432 | 1,535 | 42,962 | 2,490 | 26,852 | 1,287 | 25,061 | 1,141 |
| | | 8 | 0.06 | 35,802 | 2,075 | 32,222 | 1,556 | 28,091 | 1,181 | 42,962 | 2,075 | 24,786 | 990 | 23,134 | 878 |
| | | 10 | 0.038 | 35,802 | 1,597 | 32,222 | 1,556 | 28,091 | 1,181 | 42,962 | 2,075 | 24,786 | 990 | 23,134 | 878 |
| 0.6 | 1.2 | 4 | 0.16 | 41,539 | 3,369 | 37,384 | 2,934 | 35,307 | 2,445 | 45,000 | 3,532 | 33,231 | 2,300 | 29,076 | 1,674 |
| | | 8 | 0.06 | 33,696 | 1,928 | 30,326 | 1,893 | 28,642 | 1,862 | 40,435 | 2,313 | 27,216 | 1,856 | 23,587 | 943 |
| | | 10 | 0.053 | 31,104 | 1,537 | 27,994 | 1,310 | 26,438 | 1,190 | 37,325 | 1,746 | 24,300 | 962 | 21,773 | 784 |
| | | 12 | 0.045 | 31,104 | 1,456 | 27,994 | 1,310 | 26,438 | 1,190 | 37,325 | 1,746 | 23,328 | 923 | 21,773 | 784 |
| 0.7 | 1.4 | 8 | 0.11 | 29,484 | 2,123 | 26,536 | 1,911 | 25,061 | 1,625 | 35,381 | 2,547 | 22,113 | 1,380 | 20,639 | 1,238 |
| | | 12 | 0.053 | 27,216 | 1,470 | 24,494 | 1,323 | 23,134 | 1,124 | 32,659 | 1,764 | 20,412 | 956 | 19,051 | 858 |
| | | 16 | 0.035 | 20,160 | 1,028 | 18,144 | 925 | 17,136 | 787 | 24,192 | 1,234 | 15,120 | 669 | 14,112 | 599 |
| 0.75 | 1.5 | 4 | 0.2 | 37,800 | 3,742 | 34,020 | 3,368 | 32,130 | 2,892 | 45,000 | 4,456 | 28,350 | 2,297 | 26,460 | 1,985 |
| | | 6 | 0.2 | 37,800 | 3,742 | 34,020 | 3,368 | 32,130 | 2,892 | 45,000 | 4,456 | 28,350 | 2,297 | 26,460 | 1,985 |
| | | 8 | 0.09 | 29,484 | 2,364 | 26,536 | 1,891 | 25,061 | 1,625 | 35,381 | 2,522 | 22,113 | 1,291 | 20,639 | 1,115 |

【Note】Please refer to P544

# Recommended Cutting Data（General type）

SPM200-BN2

2 Flute, Ballnose
Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| R (mm | Mill Dia. (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 0.75 | 1.5 | 10 | 0.09 | 27,216 | 1,940 | 24,494 | 1,746 | 23,134 | 1,499 | 32,659 | 2,327 | 20,412 | 1,191 | 19,051 | 1,029 |
| | | 12 | 0.09 | 27,216 | 1,616 | 24,494 | 1,454 | 23,134 | 1,249 | 32,659 | 1,940 | 20,412 | 993 | 19,051 | 858 |
| | | 14 | 0.075 | 27,216 | 1,616 | 21,773 | 1,221 | 20,563 | 1,049 | 29,030 | 1,629 | 18,144 | 833 | 16,934 | 719 |
| | | 16 | 0.038 | 20,160 | 1,131 | 18,144 | 1,018 | 17,136 | 874 | 24,192 | 1,357 | 15,120 | 694 | 14,112 | 599 |
| | | 18 | 0.038 | 20,160 | 1,131 | 18,144 | 1,018 | 17,136 | 874 | 24,192 | 1,357 | 15,120 | 694 | 14,112 | 599 |
| | | 20 | 0.038 | 20,160 | 1,131 | 18,144 | 1,018 | 17,136 | 874 | 24,192 | 1,357 | 15,120 | 694 | 14,112 | 599 |
| 0.8 | 1.6 | 8 | 0.22 | 32,760 | 2,752 | 29,484 | 2,477 | 27,846 | 2,244 | 39,312 | 3,302 | 24,570 | 1,916 | 21,294 | 1,431 |
| | | 12 | 0.098 | 29,484 | 2,600 | 26,536 | 2,341 | 25,061 | 1,958 | 35,381 | 3,120 | 22,113 | 1,672 | 19,165 | 1,160 |
| | | 16 | 0.06 | 25,272 | 1,592 | 22,745 | 1,433 | 21,481 | 1,199 | 30,326 | 1,911 | 18,954 | 1,024 | 17,690 | 892 |
| | | 20 | 0.04 | 18,720 | 1,114 | 16,848 | 1,003 | 15,912 | 839 | 22,464 | 1,337 | 14,040 | 716 | 13,104 | 624 |
| 0.9 | 1.8 | 8 | 0.26 | 30,420 | 2,921 | 27,378 | 2,628 | 25,857 | 2,172 | 36,504 | 3,505 | 22,815 | 1,807 | 21,294 | 1,534 |
| | | 12 | 0.105 | 25,272 | 1,820 | 22,745 | 1,637 | 21,481 | 1,354 | 30,326 | 2,183 | 18,954 | 1,125 | 17,690 | 956 |
| | | 16 | 0.068 | 25,272 | 1,820 | 22,745 | 1,637 | 21,481 | 1,354 | 30,326 | 2,183 | 18,954 | 1,125 | 17,690 | 956 |
| | | 20 | 0.045 | 18,720 | 1,273 | 16,848 | 1,146 | 15,912 | 947 | 22,464 | 1,527 | 14,040 | 788 | 13,104 | 669 |
| 1 | 2 | 3 | 0.4 | 28,350 | 4,253 | 25,515 | 3,828 | 24,098 | 3,254 | 34,020 | 5,103 | 21,263 | 2,744 | 19,845 | 2,381 |
| | | 4 | 0.4 | 28,350 | 4,253 | 25,515 | 3,828 | 24,098 | 3,254 | 34,020 | 5,103 | 21,263 | 2,744 | 19,845 | 2,381 |
| | | 6 | 0.4 | 28,350 | 3,828 | 25,515 | 3,444 | 24,098 | 2,892 | 34,020 | 4,593 | 21,263 | 2,424 | 19,845 | 2,143 |
| | | 8 | 0.28 | 28,350 | 3,828 | 25,515 | 3,444 | 24,098 | 2,892 | 34,020 | 4,593 | 21,263 | 2,424 | 19,845 | 2,143 |
| | | 10 | 0.21 | 26,460 | 3,175 | 23,814 | 2,858 | 22,491 | 2,429 | 31,752 | 3,811 | 19,845 | 2,024 | 17,199 | 1,321 |
| | | 12 | 0.12 | 23,814 | 2,858 | 21,433 | 2,572 | 20,242 | 2,187 | 28,577 | 3,428 | 17,861 | 1,846 | 15,479 | 1,189 |
| | | 13 | 0.12 | 23,814 | 2,858 | 21,433 | 2,572 | 20,242 | 2,187 | 28,577 | 3,428 | 17,861 | 1,822 | 14,288 | 914 |
| | | 14 | 0.12 | 23,814 | 2,477 | 21,433 | 2,229 | 20,242 | 1,895 | 28,577 | 2,971 | 16,585 | 1,466 | 14,288 | 914 |
| | | 16 | 0.12 | 22,113 | 1,592 | 19,902 | 1,434 | 18,797 | 1,218 | 26,536 | 1,911 | 16,585 | 1,320 | 14,288 | 823 |
| | | 18 | 0.09 | 20,412 | 1,470 | 18,371 | 1,323 | 17,350 | 1,124 | 24,494 | 1,764 | 16,585 | 1,219 | 14,288 | 823 |
| | | 20 | 0.075 | 20,412 | 1,470 | 18,371 | 1,323 | 17,350 | 1,124 | 24,494 | 1,764 | 16,585 | 1,015 | 14,288 | 823 |
| | | 22 | 0.05 | 16,065 | 1,093 | 14,459 | 983 | 13,656 | 836 | 19,278 | 1,311 | 12,049 | 697 | 13,495 | 734 |
| | | 25 | 0.05 | 15,120 | 1,028 | 13,608 | 925 | 12,852 | 787 | 18,144 | 1,234 | 11,340 | 655 | 12,701 | 691 |
| | | 30 | 0.03 | 15,120 | 1,028 | 13,608 | 925 | 12,852 | 787 | 18,144 | 1,234 | 11,340 | 655 | 12,701 | 691 |
| | | 35 | 0.025 | 13,230 | 847 | 11,907 | 762 | 11,246 | 648 | 15,876 | 1,016 | 9,923 | 540 | 9,261 | 474 |
| | | 40 | 0.022 | 11,340 | 725 | 10,206 | 653 | 9,639 | 555 | 13,608 | 871 | 8,505 | 463 | 7,938 | 407 |
| 1.25 | 2.5 | 6 | 0.5 | 24,975 | 4,557 | 22,478 | 4,100 | 21,229 | 3,417 | 29,970 | 5,468 | 18,732 | 2,779 | 17,483 | 2,278 |
| | | 10 | 0.34 | 24,975 | 4,557 | 22,478 | 4,100 | 21,229 | 3,417 | 29,970 | 5,468 | 18,732 | 2,779 | 17,483 | 2,278 |
| | | 15 | 0.15 | 19,481 | 2,558 | 17,533 | 2,302 | 16,558 | 1,919 | 23,377 | 3,070 | 14,611 | 1,821 | 13,637 | 1,279 |

【Note】Please refer to P544

# Recommended Cutting Data（General type）

SPM200-BN2

2 Flute, Ballnose
Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| R (mm | Mill Dia. (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 1.25 | 2.5 | 20 | 0.12 | 17,982 | 1,967 | 16,184 | 1,771 | 15,285 | 1,476 | 21,578 | 2,362 | 14,611 | 1,301 | 12,587 | 984 |
| | | 25 | 0.098 | 17,982 | 1,770 | 16,184 | 1,593 | 15,285 | 1,328 | 21,578 | 2,124 | 13,487 | 1,080 | 12,587 | 885 |
| | | 30 | 0.055 | 13,320 | 1,377 | 11,988 | 1,239 | 11,322 | 1,033 | 15,984 | 1,652 | 9,990 | 840 | 9,324 | 689 |
| 1.5 | 3 | 8 | 0.6 | 21,600 | 4,860 | 19,440 | 4,374 | 18,360 | 3,690 | 25,920 | 5,832 | 16,200 | 3,062 | 15,120 | 2,722 |
| | | 10 | 0.42 | 21,600 | 4,860 | 19,440 | 4,374 | 18,360 | 3,690 | 25,920 | 5,832 | 16,200 | 3,062 | 15,120 | 2,722 |
| | | 13 | 0.315 | 20,160 | 3,629 | 18,144 | 3,266 | 17,136 | 2,755 | 24,192 | 4,354 | 15,120 | 2,286 | 14,112 | 2,032 |
| | | 16 | 0.315 | 20,160 | 3,266 | 18,144 | 2,939 | 17,136 | 2,480 | 24,192 | 3,920 | 15,120 | 2,057 | 13,104 | 1,699 |
| | | 20 | 0.18 | 16,848 | 2,274 | 15,163 | 2,048 | 14,321 | 1,727 | 20,218 | 2,730 | 12,636 | 1,434 | 10,886 | 1,176 |
| | | 25 | 0.12 | 16,848 | 2,274 | 15,163 | 2,048 | 14,321 | 1,727 | 20,218 | 2,730 | 12,636 | 1,434 | 10,886 | 1,176 |
| | | 30 | 0.12 | 15,552 | 2,100 | 13,997 | 1,890 | 13,219 | 1,594 | 18,662 | 2,520 | 11,664 | 1,323 | 10,886 | 1,176 |
| | | 35 | 0.08 | 11,520 | 1,469 | 10,368 | 1,322 | 9,792 | 1,115 | 13,824 | 1,762 | 8,640 | 925 | 9,677 | 987 |
| 1.75 | 3.5 | 15 | 0.36 | 16,088 | 3,299 | 14,479 | 2,969 | 13,675 | 2,475 | 19,305 | 3,959 | 12,065 | 2,012 | 11,262 | 1,650 |
| | | 25 | 0.21 | 13,365 | 2,052 | 12,029 | 1,847 | 11,361 | 1,539 | 16,038 | 2,462 | 10,024 | 1,252 | 9,356 | 1,026 |
| | | 35 | 0.09 | 13,365 | 2,052 | 12,029 | 1,847 | 11,361 | 1,539 | 16,038 | 2,462 | 10,024 | 1,252 | 9,356 | 1,026 |
| | | 45 | 0.09 | 9,900 | 1,438 | 8,910 | 1,294 | 8,415 | 1,079 | 11,880 | 1,726 | 7,425 | 878 | 6,930 | 719 |
| 2 | 4 | 10 | 0.6 | 15,525 | 4,658 | 13,973 | 4,192 | 13,197 | 3,564 | 18,630 | 5,589 | 11,644 | 2,969 | 10,868 | 2,608 |
| | | 13 | 0.48 | 15,525 | 4,658 | 13,973 | 4,192 | 13,197 | 3,564 | 18,630 | 5,589 | 11,644 | 2,969 | 10,868 | 2,608 |
| | | 16 | 0.42 | 15,525 | 4,658 | 13,973 | 4,192 | 13,197 | 3,564 | 18,630 | 5,589 | 11,644 | 2,969 | 10,868 | 2,608 |
| | | 20 | 0.42 | 13,455 | 3,229 | 12,110 | 2,906 | 11,437 | 2,471 | 16,146 | 3,875 | 10,092 | 2,058 | 9,419 | 1,808 |
| | | 25 | 0.24 | 12,110 | 2,615 | 10,899 | 2,354 | 10,293 | 2,001 | 14,531 | 3,139 | 9,083 | 1,946 | 8,477 | 1,464 |
| | | 30 | 0.16 | 11,178 | 2,012 | 10,060 | 1,811 | 9,502 | 1,539 | 13,414 | 2,415 | 8,384 | 1,283 | 7,825 | 1,127 |
| | | 35 | 0.1 | 11,178 | 2,012 | 10,060 | 1,811 | 9,502 | 1,539 | 13,414 | 2,415 | 8,384 | 1,283 | 7,825 | 1,127 |
| | | 40 | 0.1 | 11,178 | 2,012 | 10,060 | 1,811 | 9,502 | 1,539 | 13,414 | 2,415 | 8,384 | 1,283 | 7,825 | 1,127 |
| | | 45 | 0.1 | 8,280 | 1,408 | 7,452 | 1,267 | 7,038 | 1,076 | 9,936 | 1,689 | 6,210 | 897 | 5,796 | 788 |
| | | 50 | 0.1 | 8,280 | 1,408 | 7,452 | 1,267 | 7,038 | 1,076 | 9,936 | 1,689 | 6,210 | 897 | 5,796 | 788 |
| 2.5 | 5 | 20 | 0.525 | 11,340 | 4,082 | 10,206 | 3,674 | 9,639 | 2,892 | 13,608 | 4,899 | 8,505 | 2,552 | 7,938 | 2,143 |
| | | 25 | 0.525 | 10,530 | 3,285 | 9,477 | 3,412 | 8,951 | 2,686 | 12,636 | 4,549 | 7,898 | 2,370 | 7,371 | 1,990 |
| | | 30 | 0.3 | 9,477 | 2,502 | 8,529 | 3,072 | 8,056 | 2,417 | 11,372 | 4,094 | 7,108 | 2,132 | 6,634 | 1,792 |
| | | 40 | 0.2 | 8,748 | 1,890 | 7,873 | 1,701 | 7,436 | 1,338 | 10,498 | 2,268 | 6,561 | 1,182 | 6,124 | 993 |
| 3 | 6 | 12 | 0.6 | 12,150 | 5,103 | 10,935 | 4,593 | 10,328 | 3,828 | 14,580 | 6,124 | 9,113 | 3,113 | 8,505 | 2,552 |
| | | 20 | 0.5 | 11,475 | 4,476 | 10,328 | 4,028 | 9,754 | 3,356 | 13,770 | 5,370 | 8,607 | 2,730 | 8,033 | 2,237 |
| | | 30 | 0.42 | 9,360 | 2,696 | 8,424 | 2,426 | 7,956 | 1,910 | 11,232 | 3,235 | 7,020 | 1,825 | 6,552 | 1,415 |
| | | 50 | 0.15 | 7,776 | 2,015 | 6,998 | 1,814 | 6,610 | 1,428 | 9,331 | 2,418 | 5,832 | 1,260 | 5,443 | 1,058 |

【Note】Please refer to P544

# Recommended Cutting Data（High Precision）

SPM200-BN2

2 Flute, Ballnose
Endmills of Micro Diameter for Deep Machining

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| R (mm | Mill Dia. (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 0.05 | 0.1 | 0.2 | 0.004 | 50,000 | 250 | 50,000 | 250 | 50,000 | 225 | 50,000 | 300 | 50,000 | 200 | 50,000 | 188 |
| | | 0.3 | 0.003 | 50,000 | 250 | 50,000 | 250 | 50,000 | 225 | 50,000 | 300 | 50,000 | 200 | 50,000 | 188 |
| | | 0.5 | 0.002 | 50,000 | 250 | 50,000 | 250 | 50,000 | 225 | 50,000 | 300 | 50,000 | 200 | 50,000 | 188 |
| 0.1 | 0.2 | 0.5 | 0.015 | 45,000 | 315 | 45,000 | 315 | 45,000 | 293 | 45,000 | 378 | 40,950 | 246 | 37,800 | 189 |
| | | 0.75 | 0.013 | 45,000 | 315 | 45,000 | 315 | 45,000 | 293 | 45,000 | 378 | 40,950 | 246 | 37,800 | 189 |
| | | 1 | 0.011 | 45,000 | 315 | 45,000 | 315 | 45,000 | 293 | 45,000 | 378 | 40,950 | 246 | 37,800 | 189 |
| | | 1.25 | 0.008 | 45,000 | 284 | 43,740 | 275 | 41,310 | 242 | 45,000 | 340 | 36,450 | 197 | 34,020 | 153 |
| | | 1.5 | 0.007 | 45,000 | 284 | 43,740 | 275 | 41,310 | 242 | 45,000 | 340 | 36,450 | 197 | 34,020 | 153 |
| | | 2 | 0.006 | 45,000 | 284 | 43,740 | 275 | 41,310 | 242 | 45,000 | 340 | 36,450 | 197 | 34,020 | 153 |
| | | 2.5 | 0.005 | 43,200 | 242 | 38,880 | 218 | 36,720 | 191 | 43,200 | 291 | 32,400 | 156 | 30,240 | 121 |
| | | 3 | 0.003 | 43,200 | 242 | 38,880 | 218 | 36,720 | 191 | 43,200 | 291 | 32,400 | 156 | 30,240 | 121 |
| 0.15 | 0.3 | 0.5 | 0.02 | 45,000 | 450 | 45,000 | 450 | 45,000 | 405 | 45,000 | 540 | 40,500 | 345 | 37,800 | 302 |
| | | 0.75 | 0.018 | 45,000 | 450 | 45,000 | 450 | 45,000 | 405 | 45,000 | 540 | 40,500 | 345 | 37,800 | 302 |
| | | 1 | 0.016 | 45,000 | 450 | 45,000 | 450 | 45,000 | 405 | 45,000 | 540 | 40,500 | 345 | 37,800 | 302 |
| | | 1.25 | 0.014 | 45,000 | 450 | 45,000 | 450 | 45,000 | 405 | 45,000 | 540 | 40,500 | 345 | 37,800 | 302 |
| | | 1.5 | 0.012 | 45,000 | 450 | 45,000 | 450 | 45,000 | 405 | 45,000 | 540 | 40,500 | 345 | 37,800 | 302 |
| | | 2 | 0.009 | 45,000 | 405 | 43,740 | 393 | 41,310 | 335 | 45,000 | 486 | 36,450 | 279 | 34,020 | 245 |
| | | 2.5 | 0.008 | 45,000 | 405 | 43,740 | 393 | 41,310 | 335 | 45,000 | 486 | 36,450 | 279 | 34,020 | 245 |
| | | 3 | 0.006 | 45,000 | 405 | 43,740 | 393 | 41,310 | 335 | 45,000 | 486 | 36,450 | 279 | 34,020 | 245 |
| 0.2 | 0.4 | 0.75 | 0.043 | 43,200 | 518 | 38,880 | 466 | 36,720 | 404 | 45,000 | 622 | 32,400 | 324 | 30,240 | 302 |
| | | 1 | 0.04 | 43,200 | 518 | 38,880 | 466 | 36,720 | 404 | 45,000 | 622 | 32,400 | 324 | 30,240 | 302 |
| | | 1.5 | 0.034 | 43,200 | 518 | 38,880 | 466 | 36,720 | 404 | 45,000 | 622 | 32,400 | 324 | 30,240 | 302 |
| | | 2 | 0.028 | 43,200 | 518 | 38,880 | 466 | 36,720 | 404 | 45,000 | 622 | 32,400 | 324 | 30,240 | 302 |
| | | 2.5 | 0.016 | 38,880 | 420 | 34,992 | 378 | 33,048 | 328 | 45,000 | 504 | 29,160 | 263 | 27,216 | 245 |
| | | 3 | 0.011 | 38,880 | 420 | 34,992 | 378 | 33,048 | 328 | 45,000 | 504 | 29,160 | 263 | 27,216 | 245 |
| | | 3.5 | 0.008 | 38,880 | 420 | 34,992 | 378 | 33,048 | 328 | 45,000 | 504 | 29,160 | 263 | 27,216 | 245 |
| | | 4 | 0.005 | 38,880 | 420 | 34,992 | 378 | 33,048 | 328 | 45,000 | 504 | 29,160 | 263 | 27,216 | 245 |
| | | 4.5 | 0.004 | 34,560 | 353 | 31,104 | 318 | 29,376 | 275 | 41,472 | 423 | 25,920 | 221 | 24,192 | 205 |
| 0.25 | 0.5 | 1 | 0.045 | 36,000 | 720 | 32,400 | 648 | 30,600 | 551 | 43,200 | 864 | 27,000 | 486 | 25,200 | 428 |
| | | 1.5 | 0.04 | 36,000 | 720 | 32,400 | 648 | 30,600 | 551 | 43,200 | 864 | 27,000 | 486 | 25,200 | 428 |
| | | 2 | 0.035 | 36,000 | 720 | 32,400 | 648 | 30,600 | 551 | 43,200 | 864 | 27,000 | 486 | 25,200 | 428 |
| | | 2.5 | 0.033 | 36,000 | 720 | 29,160 | 525 | 27,540 | 446 | 38,880 | 700 | 24,300 | 393 | 22,680 | 347 |

【Note】Please refer to P544

# Recommended Cutting Data（High Precision）

SPM200-BN2

2 Flute, Ballnose
Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| R (mm | Mill Dia. (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 0.25 | 0.5 | 3 | 0.03 | 32,400 | 583 | 29,160 | 525 | 27,540 | 446 | 38,880 | 700 | 24,300 | 393 | 22,680 | 347 |
| | | 4 | 0.02 | 32,400 | 583 | 29,160 | 525 | 27,540 | 446 | 38,880 | 700 | 24,300 | 393 | 22,680 | 347 |
| | | 5 | 0.018 | 32,400 | 583 | 29,160 | 525 | 27,540 | 446 | 38,880 | 700 | 24,300 | 393 | 22,680 | 347 |
| | | 5.5 | 0.008 | 28,800 | 490 | 25,920 | 441 | 24,480 | 374 | 34,560 | 588 | 21,600 | 330 | 20,160 | 292 |
| | | 6 | 0.007 | 28,800 | 490 | 25,920 | 441 | 24,480 | 374 | 34,560 | 588 | 21,600 | 330 | 20,160 | 292 |
| | | 8 | 0.004 | 28,800 | 490 | 25,920 | 441 | 24,480 | 374 | 34,560 | 588 | 21,600 | 330 | 20,160 | 292 |
| 0.3 | 0.6 | 1 | 0.05 | 36,000 | 1,080 | 32,400 | 972 | 30,600 | 796 | 43,200 | 1,296 | 27,000 | 648 | 25,200 | 504 |
| | | 2 | 0.042 | 36,000 | 1,080 | 32,400 | 972 | 30,600 | 796 | 43,200 | 1,296 | 27,000 | 648 | 25,200 | 504 |
| | | 2.5 | 0.038 | 36,000 | 1,080 | 32,400 | 972 | 30,600 | 796 | 43,200 | 1,296 | 27,000 | 648 | 25,200 | 504 |
| | | 3 | 0.034 | 36,000 | 1,080 | 32,400 | 972 | 30,600 | 796 | 43,200 | 1,296 | 27,000 | 648 | 25,200 | 504 |
| | | 3.5 | 0.029 | 32,400 | 923 | 29,160 | 831 | 27,540 | 680 | 38,880 | 1,108 | 24,300 | 554 | 22,680 | 431 |
| | | 4 | 0.024 | 32,400 | 923 | 29,160 | 831 | 27,540 | 680 | 38,880 | 1,108 | 24,300 | 554 | 22,680 | 431 |
| | | 4.5 | 0.022 | 32,400 | 875 | 29,160 | 788 | 27,540 | 644 | 38,880 | 1,049 | 24,300 | 525 | 22,680 | 409 |
| | | 5 | 0.02 | 32,400 | 875 | 29,160 | 788 | 27,540 | 644 | 38,880 | 1,049 | 24,300 | 525 | 22,680 | 409 |
| | | 5.5 | 0.017 | 32,400 | 875 | 29,160 | 788 | 27,540 | 644 | 38,880 | 1,049 | 24,300 | 525 | 22,680 | 409 |
| | | 6 | 0.015 | 32,400 | 875 | 29,160 | 788 | 27,540 | 644 | 38,880 | 1,049 | 24,300 | 525 | 22,680 | 409 |
| | | 7 | 0.008 | 28,800 | 734 | 25,920 | 661 | 24,480 | 541 | 34,560 | 881 | 21,600 | 441 | 20,160 | 343 |
| | | 8 | 0.008 | 28,800 | 734 | 25,920 | 661 | 24,480 | 541 | 34,560 | 881 | 21,600 | 441 | 20,160 | 343 |
| | | 9 | 0.006 | 28,800 | 734 | 25,920 | 661 | 24,480 | 541 | 34,560 | 881 | 21,600 | 441 | 20,160 | 343 |
| | | 10 | 0.005 | 25,200 | 643 | 22,680 | 579 | 21,420 | 473 | 30,240 | 771 | 18,900 | 385 | 17,640 | 300 |
| | | 12 | 0.004 | 21,600 | 518 | 19,440 | 466 | 18,360 | 382 | 25,920 | 622 | 16,200 | 311 | 15,120 | 242 |
| 0.35 | 0.7 | 2 | 0.061 | 36,000 | 1,188 | 32,400 | 1,069 | 30,600 | 879 | 43,200 | 1,426 | 27,000 | 725 | 25,200 | 594 |
| | | 4 | 0.034 | 32,400 | 1,015 | 29,160 | 914 | 27,540 | 752 | 38,880 | 1,219 | 24,300 | 619 | 22,680 | 508 |
| | | 6 | 0.027 | 32,400 | 962 | 29,160 | 866 | 27,540 | 712 | 38,880 | 1,155 | 24,300 | 587 | 22,680 | 482 |
| | | 8 | 0.01 | 28,800 | 760 | 25,920 | 684 | 24,480 | 563 | 34,560 | 912 | 21,600 | 464 | 20,160 | 380 |
| 0.4 | 0.8 | 2 | 0.08 | 36,000 | 1,296 | 32,400 | 1,166 | 30,600 | 979 | 43,200 | 1,555 | 27,000 | 810 | 25,200 | 706 |
| | | 4 | 0.056 | 36,000 | 1,296 | 32,400 | 1,166 | 30,600 | 979 | 43,200 | 1,555 | 27,000 | 810 | 25,200 | 706 |
| | | 5 | 0.045 | 32,400 | 1,049 | 29,160 | 945 | 27,540 | 793 | 38,880 | 1,260 | 24,300 | 656 | 22,680 | 572 |
| | | 6 | 0.032 | 32,400 | 1,049 | 29,160 | 945 | 27,540 | 793 | 38,880 | 1,260 | 24,300 | 656 | 22,680 | 572 |
| | | 8 | 0.02 | 28,800 | 933 | 25,920 | 840 | 24,480 | 705 | 34,560 | 1,120 | 21,600 | 583 | 20,160 | 508 |
| | | 10 | 0.01 | 28,800 | 881 | 25,920 | 793 | 24,480 | 666 | 34,560 | 1,058 | 21,600 | 551 | 20,160 | 480 |
| 0.45 | 0.9 | 2 | 0.09 | 34,200 | 1,458 | 30,780 | 1,312 | 29,070 | 1,094 | 41,040 | 1,750 | 25,650 | 904 | 23,940 | 802 |

【Note】Please refer to P544

# Recommended Cutting Data（High Precision）

SPM200-BN2

2 Flute, Ballnose
Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| R (mm | Mill Dia. (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 0.45 | 0.9 | 4 | 0.058 | 34,200 | 1,458 | 30,780 | 1,312 | 29,070 | 1,094 | 41,040 | 1,750 | 25,650 | 904 | 23,940 | 802 |
| | | 6 | 0.042 | 30,780 | 1,181 | 27,702 | 1,063 | 26,163 | 886 | 36,936 | 1,417 | 23,085 | 732 | 21,546 | 650 |
| | | 8 | 0.03 | 27,360 | 1,049 | 24,624 | 944 | 23,256 | 788 | 32,832 | 1,259 | 20,520 | 651 | 19,152 | 577 |
| 0.5 | 1 | 2 | 0.1 | 32,400 | 1,620 | 29,160 | 1,458 | 27,540 | 1,239 | 38,880 | 1,944 | 24,300 | 1,021 | 22,680 | 907 |
| | | 3 | 0.1 | 32,400 | 1,620 | 29,160 | 1,458 | 27,540 | 1,239 | 38,880 | 1,944 | 24,300 | 1,021 | 22,680 | 907 |
| | | 4 | 0.07 | 32,400 | 1,620 | 29,160 | 1,458 | 27,540 | 1,239 | 38,880 | 1,944 | 24,300 | 1,021 | 22,680 | 907 |
| | | 5 | 0.06 | 32,400 | 1,620 | 29,160 | 1,458 | 27,540 | 1,239 | 38,880 | 1,944 | 24,300 | 1,021 | 22,680 | 907 |
| | | 6 | 0.04 | 29,160 | 1,312 | 26,244 | 1,181 | 24,786 | 1,004 | 34,992 | 1,575 | 21,870 | 827 | 20,412 | 734 |
| | | 7 | 0.04 | 29,160 | 1,312 | 26,244 | 1,181 | 24,786 | 1,004 | 34,992 | 1,575 | 21,870 | 827 | 20,412 | 734 |
| | | 8 | 0.04 | 29,160 | 1,312 | 26,244 | 1,181 | 24,786 | 1,004 | 34,992 | 1,575 | 21,870 | 827 | 20,412 | 734 |
| | | 9 | 0.03 | 29,160 | 1,312 | 26,244 | 1,181 | 24,786 | 1,004 | 34,992 | 1,575 | 21,870 | 827 | 20,412 | 734 |
| | | 10 | 0.025 | 29,160 | 1,312 | 26,244 | 1,181 | 24,786 | 1,004 | 34,992 | 1,575 | 21,870 | 827 | 20,412 | 734 |
| | | 12 | 0.013 | 25,920 | 1,102 | 23,328 | 992 | 22,032 | 842 | 31,104 | 1,322 | 19,440 | 694 | 18,144 | 617 |
| | | 13 | 0.011 | 25,920 | 1,102 | 23,328 | 992 | 22,032 | 842 | 31,104 | 1,322 | 19,440 | 694 | 18,144 | 617 |
| | | 14 | 0.01 | 25,920 | 1,102 | 23,328 | 992 | 22,032 | 842 | 31,104 | 1,322 | 19,440 | 694 | 18,144 | 617 |
| | | 16 | 0.008 | 25,920 | 1,102 | 23,328 | 992 | 22,032 | 842 | 31,104 | 1,322 | 19,440 | 694 | 18,144 | 617 |
| | | 18 | 0.006 | 22,680 | 907 | 20,412 | 816 | 19,278 | 694 | 27,216 | 1,089 | 17,010 | 572 | 15,876 | 508 |
| | | 20 | 0.005 | 19,440 | 778 | 17,496 | 700 | 16,524 | 595 | 23,328 | 933 | 14,580 | 490 | 13,608 | 436 |
| 0.55 | 1.1 | 2 | 0.1 | 30,240 | 1,582 | 27,216 | 1,424 | 25,704 | 1,171 | 36,288 | 1,899 | 22,680 | 981 | 21,168 | 870 |
| | | 4 | 0.07 | 30,240 | 1,582 | 27,216 | 1,424 | 25,704 | 1,171 | 36,288 | 1,899 | 22,680 | 981 | 21,168 | 870 |
| | | 6 | 0.04 | 27,540 | 1,330 | 24,786 | 1,197 | 23,409 | 985 | 33,048 | 1,597 | 20,655 | 824 | 19,278 | 732 |
| | | 8 | 0.04 | 27,540 | 1,330 | 24,786 | 1,197 | 23,409 | 985 | 33,048 | 1,597 | 20,655 | 824 | 19,278 | 732 |
| | | 10 | 0.025 | 27,540 | 1,330 | 24,786 | 1,197 | 23,409 | 985 | 33,048 | 1,597 | 20,655 | 824 | 19,278 | 732 |
| 0.6 | 1.2 | 4 | 0.08 | 27,692 | 1,449 | 24,923 | 1,304 | 23,539 | 1,087 | 33,231 | 1,739 | 20,769 | 898 | 19,384 | 797 |
| | | 8 | 0.04 | 25,920 | 1,348 | 23,328 | 1,213 | 22,032 | 992 | 31,104 | 1,617 | 19,440 | 855 | 18,144 | 725 |
| | | 10 | 0.035 | 25,920 | 1,281 | 23,328 | 1,092 | 22,032 | 992 | 31,104 | 1,455 | 19,440 | 770 | 18,144 | 653 |
| | | 12 | 0.03 | 25,920 | 1,213 | 23,328 | 1,092 | 22,032 | 992 | 31,104 | 1,455 | 19,440 | 770 | 18,144 | 653 |
| 0.7 | 1.4 | 8 | 0.055 | 22,680 | 1,361 | 20,412 | 1,225 | 19,278 | 1,041 | 27,216 | 1,633 | 17,010 | 885 | 15,876 | 794 |
| | | 12 | 0.035 | 22,680 | 1,225 | 20,412 | 1,103 | 19,278 | 937 | 27,216 | 1,470 | 17,010 | 797 | 15,876 | 715 |
| | | 16 | 0.017 | 20,160 | 1,028 | 18,144 | 925 | 17,136 | 787 | 24,192 | 1,234 | 15,120 | 669 | 14,112 | 599 |
| 0.75 | 1.5 | 4 | 0.1 | 25,200 | 1,663 | 22,680 | 1,497 | 21,420 | 1,285 | 30,240 | 1,996 | 18,900 | 1,021 | 17,640 | 882 |
| | | 6 | 0.1 | 25,200 | 1,663 | 22,680 | 1,497 | 21,420 | 1,285 | 30,240 | 1,996 | 18,900 | 1,021 | 17,640 | 882 |

【Note】Please refer to P544

# Recommended Cutting Data（High Precision）

SPM200-BN2

2 Flute, Ballnose
Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| R (mm | Mill Dia. (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 0.75 | 1.5 | 8 | 0.06 | 22,680 | 1,347 | 20,412 | 1,212 | 19,278 | 1,041 | 27,216 | 1,616 | 17,010 | 827 | 15,876 | 715 |
| | | 10 | 0.06 | 22,680 | 1,347 | 20,412 | 1,212 | 19,278 | 1,041 | 27,216 | 1,616 | 17,010 | 827 | 15,876 | 715 |
| | | 12 | 0.06 | 22,680 | 1,347 | 20,412 | 1,212 | 19,278 | 1,041 | 27,216 | 1,616 | 17,010 | 827 | 15,876 | 715 |
| | | 14 | 0.05 | 22,680 | 1,347 | 18,144 | 1,018 | 17,136 | 874 | 24,192 | 1,357 | 15,120 | 694 | 14,112 | 599 |
| | | 16 | 0.019 | 20,160 | 1,131 | 18,144 | 1,018 | 17,136 | 874 | 24,192 | 1,357 | 15,120 | 694 | 14,112 | 599 |
| | | 18 | 0.019 | 20,160 | 1,131 | 18,144 | 1,018 | 17,136 | 874 | 24,192 | 1,357 | 15,120 | 694 | 14,112 | 599 |
| | | 20 | 0.019 | 20,160 | 1,131 | 18,144 | 1,018 | 17,136 | 874 | 24,192 | 1,357 | 15,120 | 694 | 14,112 | 599 |
| 0.8 | 1.6 | 8 | 0.11 | 23,400 | 1,638 | 21,060 | 1,474 | 19,890 | 1,233 | 28,080 | 1,966 | 17,550 | 1,053 | 16,380 | 917 |
| | | 12 | 0.065 | 21,060 | 1,327 | 18,954 | 1,194 | 17,901 | 999 | 25,272 | 1,592 | 15,795 | 853 | 14,742 | 743 |
| | | 16 | 0.04 | 21,060 | 1,327 | 18,954 | 1,194 | 17,901 | 999 | 25,272 | 1,592 | 15,795 | 853 | 14,742 | 743 |
| | | 20 | 0.02 | 18,720 | 1,114 | 16,848 | 1,003 | 15,912 | 839 | 22,464 | 1,337 | 14,040 | 716 | 13,104 | 624 |
| 0.9 | 1.8 | 8 | 0.13 | 23,400 | 1,872 | 21,060 | 1,685 | 19,890 | 1,392 | 28,080 | 2,246 | 17,550 | 1,158 | 16,380 | 983 |
| | | 12 | 0.07 | 21,060 | 1,517 | 18,954 | 1,364 | 17,901 | 1,128 | 25,272 | 1,820 | 15,795 | 938 | 14,742 | 797 |
| | | 16 | 0.045 | 21,060 | 1,517 | 18,954 | 1,364 | 17,901 | 1,128 | 25,272 | 1,820 | 15,795 | 938 | 14,742 | 797 |
| | | 20 | 0.022 | 18,720 | 1,273 | 16,848 | 1,146 | 15,912 | 947 | 22,464 | 1,527 | 14,040 | 788 | 13,104 | 669 |
| 1 | 2 | 3 | 0.2 | 18,900 | 1,890 | 17,010 | 1,701 | 16,065 | 1,446 | 22,680 | 2,268 | 14,175 | 1,220 | 13,230 | 1,058 |
| | | 4 | 0.2 | 18,900 | 1,890 | 17,010 | 1,701 | 16,065 | 1,446 | 22,680 | 2,268 | 14,175 | 1,220 | 13,230 | 1,058 |
| | | 6 | 0.2 | 18,900 | 1,701 | 17,010 | 1,531 | 16,065 | 1,285 | 22,680 | 2,041 | 14,175 | 1,077 | 13,230 | 952 |
| | | 8 | 0.14 | 18,900 | 1,701 | 17,010 | 1,531 | 16,065 | 1,285 | 22,680 | 2,041 | 14,175 | 1,077 | 13,230 | 952 |
| | | 10 | 0.14 | 18,900 | 1,512 | 17,010 | 1,361 | 16,065 | 1,157 | 22,680 | 1,814 | 14,175 | 964 | 13,230 | 847 |
| | | 12 | 0.08 | 17,010 | 1,361 | 15,309 | 1,225 | 14,459 | 1,041 | 20,412 | 1,633 | 12,758 | 868 | 11,907 | 762 |
| | | 13 | 0.08 | 17,010 | 1,361 | 15,309 | 1,225 | 14,459 | 1,041 | 20,412 | 1,633 | 12,758 | 868 | 11,907 | 762 |
| | | 14 | 0.08 | 17,010 | 1,361 | 15,309 | 1,225 | 14,459 | 1,041 | 20,412 | 1,633 | 12,758 | 868 | 11,907 | 762 |
| | | 16 | 0.08 | 17,010 | 1,225 | 15,309 | 1,103 | 14,459 | 937 | 20,412 | 1,470 | 12,758 | 781 | 11,907 | 686 |
| | | 18 | 0.06 | 17,010 | 1,225 | 15,309 | 1,103 | 14,459 | 937 | 20,412 | 1,470 | 12,758 | 781 | 11,907 | 686 |
| | | 20 | 0.05 | 17,010 | 1,225 | 15,309 | 1,103 | 14,459 | 937 | 20,412 | 1,470 | 12,758 | 781 | 11,907 | 686 |
| | | 22 | 0.042 | 16,065 | 1,093 | 14,459 | 983 | 13,656 | 836 | 19,278 | 1,311 | 12,049 | 697 | 11,246 | 612 |
| | | 25 | 0.035 | 15,120 | 1,028 | 13,608 | 925 | 12,852 | 787 | 18,144 | 1,234 | 11,340 | 655 | 10,584 | 576 |
| | | 30 | 0.015 | 15,120 | 1,028 | 13,608 | 925 | 12,852 | 787 | 18,144 | 1,234 | 11,340 | 655 | 10,584 | 576 |
| | | 35 | 0.012 | 13,230 | 847 | 11,907 | 762 | 11,246 | 648 | 15,876 | 1,016 | 9,923 | 540 | 9,261 | 474 |
| | | 40 | 0.01 | 11,340 | 725 | 10,206 | 653 | 9,639 | 555 | 13,608 | 871 | 8,505 | 463 | 7,938 | 407 |
| 1.25 | 2.5 | 6 | 0.25 | 16,650 | 2,025 | 14,985 | 1,823 | 14,153 | 1,519 | 19,980 | 2,430 | 12,488 | 1,236 | 11,655 | 1,013 |

【Note】Please refer to P544

# Recommended Cutting Data（High Precision）

SPM200-BN2

2 Flute, Ballnose
Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| R (mm | Mill Dia. (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 1.25 | 2.5 | 10 | 0.17 | 16,650 | 2,025 | 14,985 | 1,823 | 14,153 | 1,519 | 19,980 | 2,430 | 12,488 | 1,236 | 11,655 | 1,013 |
| | | 15 | 0.1 | 14,985 | 1,640 | 13,487 | 1,476 | 12,738 | 1,230 | 17,982 | 1,967 | 11,239 | 1,000 | 10,490 | 820 |
| | | 20 | 0.08 | 14,985 | 1,640 | 13,487 | 1,476 | 12,738 | 1,230 | 17,982 | 1,967 | 11,239 | 1,000 | 10,490 | 820 |
| | | 25 | 0.065 | 14,985 | 1,475 | 13,487 | 1,328 | 12,738 | 1,106 | 17,982 | 1,770 | 11,239 | 900 | 10,490 | 738 |
| | | 30 | 0.044 | 13,320 | 1,377 | 11,988 | 1,239 | 11,322 | 1,033 | 15,984 | 1,652 | 9,990 | 840 | 9,324 | 689 |
| 1.5 | 3 | 8 | 0.3 | 14,400 | 2,160 | 12,960 | 1,944 | 12,240 | 1,640 | 17,280 | 2,592 | 10,800 | 1,361 | 10,080 | 1,210 |
| | | 10 | 0.21 | 14,400 | 2,160 | 12,960 | 1,944 | 12,240 | 1,640 | 17,280 | 2,592 | 10,800 | 1,361 | 10,080 | 1,210 |
| | | 13 | 0.21 | 14,400 | 2,160 | 12,960 | 1,944 | 12,240 | 1,640 | 17,280 | 2,592 | 10,800 | 1,361 | 10,080 | 1,210 |
| | | 16 | 0.21 | 14,400 | 1,944 | 12,960 | 1,750 | 12,240 | 1,476 | 17,280 | 2,333 | 10,800 | 1,225 | 10,080 | 1,089 |
| | | 20 | 0.12 | 12,960 | 1,750 | 11,664 | 1,575 | 11,016 | 1,328 | 15,552 | 2,100 | 9,720 | 1,103 | 9,072 | 980 |
| | | 25 | 0.08 | 12,960 | 1,750 | 11,664 | 1,575 | 11,016 | 1,328 | 15,552 | 2,100 | 9,720 | 1,103 | 9,072 | 980 |
| | | 30 | 0.08 | 12,960 | 1,750 | 11,664 | 1,575 | 11,016 | 1,328 | 15,552 | 2,100 | 9,720 | 1,103 | 9,072 | 980 |
| | | 35 | 0.064 | 11,520 | 1,469 | 10,368 | 1,322 | 9,792 | 1,115 | 13,824 | 1,762 | 8,640 | 925 | 8,064 | 823 |
| 1.75 | 3.5 | 15 | 0.24 | 12,375 | 2,115 | 11,138 | 1,904 | 10,519 | 1,587 | 14,850 | 2,538 | 9,282 | 1,291 | 8,663 | 1,058 |
| | | 25 | 0.14 | 11,138 | 1,710 | 10,024 | 1,539 | 9,467 | 1,283 | 13,365 | 2,052 | 8,353 | 1,043 | 7,797 | 855 |
| | | 35 | 0.09 | 11,138 | 1,710 | 10,024 | 1,539 | 9,467 | 1,283 | 13,365 | 2,052 | 8,353 | 1,043 | 7,797 | 855 |
| | | 45 | 0.072 | 9,900 | 1,438 | 8,910 | 1,294 | 8,415 | 1,079 | 11,880 | 1,726 | 7,425 | 878 | 6,930 | 719 |
| 2 | 4 | 10 | 0.4 | 10,350 | 2,070 | 9,315 | 1,863 | 8,798 | 1,584 | 12,420 | 2,484 | 7,763 | 1,319 | 7,245 | 1,159 |
| | | 13 | 0.32 | 10,350 | 2,070 | 9,315 | 1,863 | 8,798 | 1,584 | 12,420 | 2,484 | 7,763 | 1,319 | 7,245 | 1,159 |
| | | 16 | 0.28 | 10,350 | 2,070 | 9,315 | 1,863 | 8,798 | 1,584 | 12,420 | 2,484 | 7,763 | 1,319 | 7,245 | 1,159 |
| | | 20 | 0.28 | 10,350 | 2,070 | 9,315 | 1,863 | 8,798 | 1,584 | 12,420 | 2,484 | 7,763 | 1,319 | 7,245 | 1,159 |
| | | 25 | 0.16 | 9,315 | 1,677 | 8,384 | 1,509 | 7,918 | 1,283 | 11,178 | 2,012 | 6,987 | 1,069 | 6,521 | 939 |
| | | 30 | 0.16 | 9,315 | 1,677 | 8,384 | 1,509 | 7,918 | 1,283 | 11,178 | 2,012 | 6,987 | 1,069 | 6,521 | 939 |
| | | 35 | 0.1 | 9,315 | 1,677 | 8,384 | 1,509 | 7,918 | 1,283 | 11,178 | 2,012 | 6,987 | 1,069 | 6,521 | 939 |
| | | 40 | 0.1 | 9,315 | 1,677 | 8,384 | 1,509 | 7,918 | 1,283 | 11,178 | 2,012 | 6,987 | 1,069 | 6,521 | 939 |
| | | 45 | 0.08 | 8,280 | 1,408 | 7,452 | 1,267 | 7,038 | 1,076 | 9,936 | 1,689 | 6,210 | 897 | 5,796 | 788 |
| | | 50 | 0.07 | 8,280 | 1,408 | 7,452 | 1,267 | 7,038 | 1,076 | 9,936 | 1,689 | 6,210 | 897 | 5,796 | 788 |
| 2.5 | 5 | 20 | 0.35 | 8,100 | 1,944 | 7,290 | 1,750 | 6,885 | 1,377 | 9,720 | 2,333 | 6,075 | 1,215 | 5,670 | 1,021 |
| | | 25 | 0.35 | 8,100 | 1,944 | 7,290 | 1,750 | 6,885 | 1,377 | 9,720 | 2,333 | 6,075 | 1,215 | 5,670 | 1,021 |
| | | 30 | 0.2 | 7,290 | 1,750 | 6,561 | 1,575 | 6,197 | 1,239 | 8,748 | 2,100 | 5,468 | 1,094 | 5,103 | 919 |
| | | 40 | 0.2 | 7,290 | 1,575 | 6,561 | 1,418 | 6,197 | 1,115 | 8,748 | 1,890 | 5,468 | 985 | 5,103 | 827 |

【Note】Please refer to P544

# Recommended Cutting Data（High Precision）

## SPM200-BN2

## 2 Flute, Ballnose
## Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | | P | | | | | | N | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Carbon Steel,Alloy Steel (180～250HB) | | Alloy Steels,Tool Steels(25～35HRC) | | PH,Ferrite,Martensite Steel (35～45HRC) | | Copper, Copper Alloys | | Hardened Steels (45～55HRC) | | Hardened Steels (55～65HRC) | |
| Ratio to standard depth of cut(ap) | | | | 1.00 | | 0.90 | | 0.80 | | 1.20 | | 0.65 | | 0.60 | |
| R (mm | Mill Dia. (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min | n r/min | Vf mm/min |
| 3 | 6 | 12 | 0.6 | 8,100 | 2,268 | 7,290 | 2,041 | 6,885 | 1,701 | 9,720 | 2,722 | 6,075 | 1,383 | 5,670 | 1,134 |
| | | 20 | 0.5 | 7,650 | 1,989 | 6,885 | 1,790 | 6,503 | 1,492 | 9,180 | 2,387 | 5,738 | 1,213 | 5,355 | 995 |
| | | 30 | 0.42 | 7,200 | 1,728 | 6,480 | 1,555 | 6,120 | 1,224 | 8,640 | 2,074 | 5,400 | 1,080 | 5,040 | 907 |
| | | 50 | 0.15 | 6,480 | 1,400 | 5,832 | 1,260 | 5,508 | 992 | 7,776 | 1,679 | 4,860 | 875 | 4,536 | 734 |

【Note】
1. For different materials, adjust the cutting depth (ap) according to the cutting depth factors in the above table. E.g. for hardened steels (45～55HRC), ap*0.5.
2. When performing cutting where cutting chips may cause clogging, such as for rib cutting, blind grooves, etc., cutting depth setting should be set by multiplying a cutting depth factor to calculate the cutting depth amount, and this amount should then be reduced to 80% of the calculated value.
3. Adjust by setting ae to (3 to 5)×(ap)×(cutting depth ratio). When performing finishing processing, calculate the theoretical cusp height and set accordingly.
4. Use the appropriate coolant such as air cooling or emulsion for the work material and machining shape.
5. In actual machining, the condition should be adjusted according to the machining shape, purpose and the machine type.

# Recommended Cutting Data

SAM200-SN2

2 Flute, Standard Length
Endmills of Micro Diameter for Deep Machining

| Workpiece Material | | | Copper，Aluminum alloy | |
|---|---|---|---|---|
| Mill Dia. (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min |
| 0.2 | 1 | 0.014 | 45,000 | 637 |
| 0.3 | 1.5 | 0.021 | 43,200 | 612 |
| 0.4 | 2 | 0.028 | 34,560 | 762 |
| 0.5 | 2 | 0.035 | 34,560 | 762 |
| | 4 | 0.02 | 31,104 | 627 |
| | 6 | 0.013 | 27,648 | 488 |
| | 8 | 0.008 | 27,648 | 418 |
| 0.6 | 2 | 0.042 | 34,560 | 1089 |
| | 4 | 0.024 | 31,104 | 896 |
| | 6 | 0.015 | 31,104 | 896 |
| | 8 | 0.015 | 27,648 | 697 |
| 0.8 | 4 | 0.056 | 34,560 | 1089 |
| | 6 | 0.032 | 31,104 | 896 |
| | 8 | 0.02 | 31,104 | 896 |
| | 10 | 0.012 | 27,648 | 697 |
| 1 | 4 | 0.07 | 31,104 | 1465 |
| | 6 | 0.04 | 27,994 | 1210 |
| | 8 | 0.04 | 27,994 | 1210 |
| | 10 | 0.025 | 27,994 | 1210 |
| | 12 | 0.025 | 24,883 | 941 |
| | 14 | 0.025 | 24,883 | 941 |
| 1.5 | 6 | 0.11 | 24,192 | 1257 |
| | 8 | 0.08 | 21,773 | 1034 |
| | 12 | 0.06 | 21,773 | 941 |
| | 16 | 0.038 | 19,354 | 732 |
| | 18 | 0.038 | 19,354 | 732 |
| 2 | 6 | 0.2 | 18,144 | 1257 |
| | 8 | 0.14 | 18,144 | 1257 |
| | 10 | 0.14 | 18,144 | 1257 |
| | 12 | 0.1 | 16,330 | 1034 |
| | 14 | 0.08 | 16,330 | 1034 |
| | 16 | 0.08 | 16,330 | 941 |
| | 24 | 0.05 | 14,515 | 732 |
| 2.5 | 10 | 0.18 | 15,552 | 1134 |
| | 20 | 0.1 | 13,997 | 1008 |

【Note】Please refer to P546

# Recommended Cutting Data

SAM200-SN2

## 2 Flute, Standard Length
## Endmills of Micro Diameter for Deep Machining

》Continuation

| Workpiece Material | | | Copper，Aluminum alloy | |
|---|---|---|---|---|
| Mill Dia. (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min |
| 3 | 10 | 0.25 | 13,824 | 1198 |
| | 12 | 0.21 | 13,824 | 1198 |
| | 20 | 0.12 | 12,442 | 896 |
| | 24 | 0.08 | 12,442 | 896 |
| | 36 | 0.06 | 11,059 | 850 |
| 4 | 16 | 0.28 | 10,350 | 2070 |
| | 25 | 0.16 | 9,315 | 1677 |
| | 32 | 0.1 | 8,223 | 1481 |
| | 48 | 0.06 | 7,106 | 1015 |
| 5 | 16 | 0.3 | 8,113 | 1622 |
| | 25 | 0.3 | 7,301 | 1459 |
| 6 | 20 | 0.5 | 6,676 | 1466 |
| | 30 | 0.4 | 6,070 | 1332 |

Remark
1.Please choose the suitable coolant liquid base on the material and shape of the work piece. Suggest the oil coolant and water coolant.
2.Please make the adjustment of the cutting condition base on the machining shape, target and the situation of the machine.
3.If the rotation speed(n) is lower than the data in the table, the feed rate(Vf) should be reduce with the same ratio.

# Recommended Cutting Data

SAM200-BN2

## 2 Flute, Ballnose
## Endmills of Micro Diameter for Deep Machining

| Workpiece Material | | | | Copper，Aluminum alloy | |
|---|---|---|---|---|---|
| R (mm) | Mill Dia. (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min |
| 0.1 | 0.2 | 1 | 0.014 | 45000 | 378 |
| 0.2 | 0.4 | 2 | 0.028 | 45000 | 622 |
| | | 3 | 0.016 | 45000 | 504 |
| | | 4 | 0.01 | 45000 | 504 |
| | | 5 | 0.008 | 41472 | 423 |
| 0.25 | 0.5 | 2 | 0.035 | 45000 | 1080 |
| | | 4 | 0.02 | 38800 | 700 |
| | | 6 | 0.016 | 34560 | 588 |
| 0.3 | 0.6 | 2 | 0.16 | 45000 | 3532 |
| | | 4 | 0.16 | 45000 | 3200 |
| | | 6 | 0.06 | 40435 | 2313 |
| | | 8 | 0.053 | 37325 | 1746 |
| 0.4 | 0.8 | 4 | 0.078 | 45000 | 2430 |
| | | 6 | 0.042 | 45000 | 2042 |
| | | 8 | 0.02 | 44928 | 1455 |
| | | 10 | 0.02 | 34560 | 1058 |
| 0.5 | 1 | 4 | 0.14 | 45000 | 3375 |
| | | 6 | 0.06 | 45000 | 2836 |
| | | 8 | 0.06 | 41990 | 1890 |
| | | 10 | 0.038 | 41990 | 1890 |
| | | 12 | 0.025 | 31104 | 1322 |
| 0.75 | 1.5 | 6 | 0.2 | 45000 | 4456 |
| | | 8 | 0.09 | 35381 | 2522 |
| | | 10 | 0.09 | 32659 | 2327 |
| | | 12 | 0.09 | 32659 | 1940 |
| | | 16 | 0.038 | 24192 | 1357 |
| | | 18 | 0.038 | 24192 | 1357 |
| 1 | 2 | 6 | 0.4 | 34020 | 4593 |
| | | 8 | 0.28 | 34020 | 4593 |
| | | 10 | 0.21 | 31752 | 3811 |
| | | 12 | 0.12 | 28577 | 3428 |
| | | 16 | 0.12 | 26536 | 1911 |
| | | 20 | 0.075 | 24494 | 1764 |
| | | 24 | 0.05 | 18144 | 1234 |

【Note】Please refer to P548

# Recommended Cutting Data

SAM200-BN2

## 2 Flute, Ballnose
## Endmills of Micro Diameter for Deep Machining

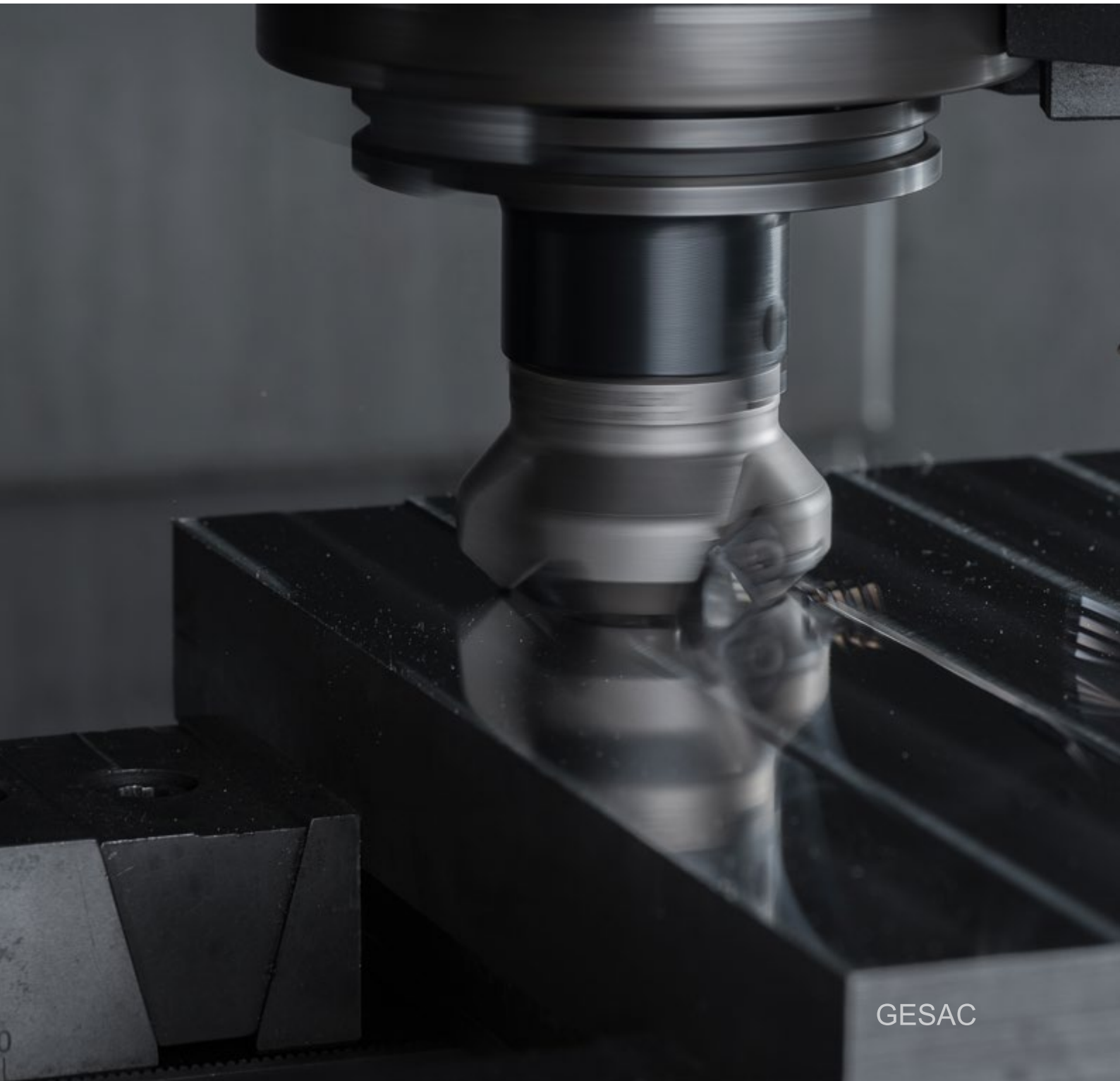
》Continuation

| Workpiece Material | | | | Copper，Aluminum alloy | |
|---|---|---|---|---|---|
| R (mm) | Mill Dia. (mm) | Under Neck Length (mm) | ap | n r/min | Vf mm/min |
| 1.5 | 3 | 8 | 0.6 | 25920 | 5832 |
| | | 10 | 0.42 | 25920 | 5832 |
| | | 12 | 0.315 | 24192 | 4354 |
| | | 16 | 0.315 | 24192 | 3920 |
| | | 20 | 0.18 | 20218 | 2730 |
| | | 25 | 0.12 | 20218 | 2730 |
| | | 30 | 0.12 | 18662 | 2520 |
| | | 36 | 0.08 | 13824 | 1762 |
| 2 | 4 | 10 | 0.6 | 18630 | 5589 |
| | | 12 | 0.48 | 18630 | 5589 |
| | | 16 | 0.42 | 18630 | 5589 |
| | | 20 | 0.42 | 16146 | 3875 |
| | | 25 | 0.24 | 14531 | 3139 |
| | | 32 | 0.16 | 13414 | 2415 |
| | | 35 | 0.1 | 13414 | 2415 |
| | | 48 | 0.1 | 9936 | 1689 |
| 2.5 | 5 | 16 | 0.53 | 13608 | 4899 |
| | | 20 | 0.53 | 12636 | 4549 |
| | | 25 | 0.3 | 11372 | 4094 |
| | | 40 | 0.2 | 10498 | 2268 |
| 3 | 6 | 12 | 0.6 | 14580 | 6124 |
| | | 20 | 0.5 | 13770 | 5370 |
| | | 30 | 0.42 | 11232 | 3235 |
| | | 50 | 0.15 | 9331 | 2418 |

Remark
1.Please choose the suitable coolant liquid base on the material and shape of the work piece. Suggest the oil coolant and water coolant.
2.Please make the adjustment of the cutting condition base on the machining shape, target and the situation of the machine.
3.If the rotation speed(n) is lower than the data in the table, the feed rate(Vf) should be reduce with the same ratio.

C

# Appendix



# Cutting Calculations and Definitions

| Parameter and Unit | | | |
|---|---|---|---|
| D Diameter | (mm) | Fn Feed per Revolution (mm/rev) | |
| ap Cutting Depth | (mm) | fz Feeding per Teeth (mm/tooth) | |
| ae Cutting Width | (mm) | Z Number of Teeth | |
| Vf Feed Rate | (mm/min) | n Spindle Speed (rev/min) | |
| Vc Cutting Speed | (m/min) | L Length (mm) | |
| Q Rate of Metal Removal | ($cm^3$/min) | Tc Processing Time (min) | |

| General Formula | |
|---|---|
| n Spindle Speed | $n = \frac{Vc * 1000}{\pi * D}$ (rev/min) |
| Vc Cutting Speed | $Vc = \frac{\pi * D * n}{1000}$ (m/min) |
| Vf Feed Rate | $V_f = f_z * z * n$ (mm/min) |
| fz Feed per Teeth | $f_z = \frac{V_f}{z * n}$ (mm) |
| Q Rate of Metal Removal | $Q = \frac{ae * ap * V_f}{1000}$ ($cm^3$/min) |
| Tc Processing Time | $T_c = \frac{L}{V_f}$ (min) |

# Workpiece Material Table

| ISO Material Group | MC | Workpiece Material | Content | Tensile Strength N/mm2 | Brinell Hardness HB | Rockwell Hardness HRC |
|---|---|---|---|---|---|---|
| P Steels | P1 | Low-carbon Steels，Long Chipping | C<0.25% | <530 | <125 | |
| | P2 | Low-carbon Steels，Short Chipping，Free-cutting Steels | C<0.25% | <530 | <125 | |
| | P3 | High-carbon Steels, Medium-carbon Steels | C>0.25% | >530 | <220 | <25 |
| | P4 | Alloy Steels，Tool Steels. | C>0.25% | 600-850 | <330 | <35 |
| | P5 | Alloy Steels，Tool Steels. | C>0.25% | 850-1400 | 340-450 | 35-48 |
| | P6 | Ferritic Stainless Steels，Martensitic Stainless Steels，PH Stainless Steels | C=(0-0.4)% | 600-900 | <330 | <35 |
| | P7 | High-strength Ferritic Stainless Steels，Martensitic Stainless Steels，PH Stainless Steels. | C=(0.1-0.6)% | 900-1350 | 330-450 | 35-48 |
| M Stainless Steels | M1 | Austenitic Stainless Steels | C=(0.05-0.15)% | <600 | 130-200 | |
| | M2 | High-Strength Austenitic Stainless Steels and Cast Stainless Steels | C=(0.05-0.15)% | 600-800 | 150-230 | <25 |
| | M3 | Duplex Stainless Steels | C=(0.05-0.20)% | <800 | 135-275 | <30 |
| K Cast Iron | K1 | Grey Cast Iron | | 125-500 | 120-290 | ＜ 32 |
| | K2 | Moderately Difficult Alloy Cast iron，Nodular Cast Iron. | | <600 | 130-260 | ＜ 28 |
| | K3 | Difficult High-alloy Cast Iron，Nodular Cast Iron | | >600 | 180-350 | ＜ 43 |
| N Non-ferrous Materials | N1 | Wrought Aluminium Alloys | | <520 | 60-90 | |
| | N2 | Cast Aluminium Alloys | Si<12% | <350 | 70-100 | |
| | N3 | Cast Aluminium Alloys | Si>12% | 200-320 | 60-120 | |
| | N4 | Copper，Copper Alloys | | 200-650 | 60-200 | |
| | N5 | Graphite，CFK，CFRP Graphite，Composite Materials | | 600-1500 | | |
| | N6 | GFK，CFK Aluminium-based Composite Materials (MMCs) | | <700 | <210 | |
| S Heat-resistant SuperAlloys、Titanium Alloys | S1 | Iron-based Heat-resistant Alloys | | 500-1200 | 160-260 | 25-48 |
| | S2 | Cobalt-based Heat-resistant Alloys | | 1000-1450 | 250-450 | 25-48 |
| | S3 | Nickel-based Heat-resistant Alloys | | 600-1700 | 160-450 | <48 |
| | S4 | Titanium and Titanium Alloys | | 900-1600 | 300-400 | 33-48 |
| H Hardened Materials | H1 | Hardened Steels | | | | 45-55 |
| | H2 | Hardened Steels | | | | 55-60 |
| | H3 | Hardened Steels | | | | 60-65 |
| | H4 | Hardened Steels | | | | >65 |

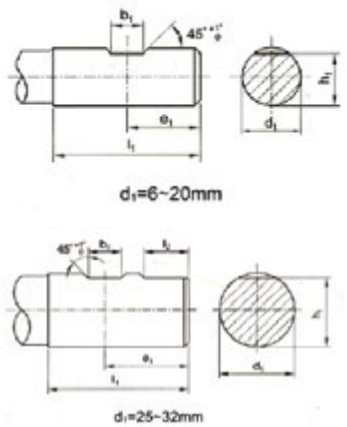
# The Structure of Shank-DIN Standard

## DIN 6535-HA



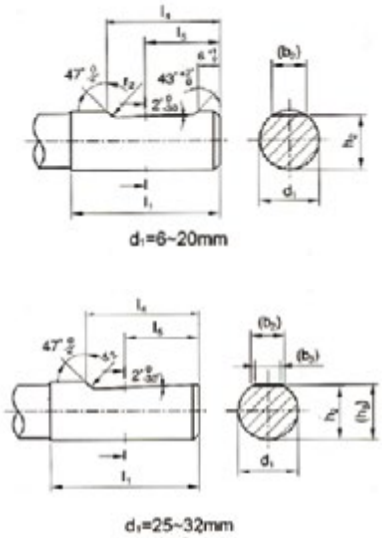
| $d_1h_6$ | 2 | 3 | 4 | 5 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 25 | 32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $l_1$ +2 0 | 28 | | | | 36 | | 40 | 45 | | 48 | | 50 | 56 | 60 |

## DIN 6535-HB




| $d_1$ $h_6$ | $b_1$ +0.05 0 | $e_1$ 0 -1 | $h_1$ $h_{11}$ | $l_1$ +2 0 | $l_2$ +1 0 |
|---|---|---|---|---|---|
| 6.0 | 4.2 | 18.0 | 5.1 | 36.0 | |
| 8.0 | 5.5 | | 6.9 | | |
| 10 | 7.0 | 20.0 | 8.5 | 40.0 | |
| 12 | 8.0 | 22.5 | 10.4 | 45.0 | |
| 14 | | | 12.7 | | |
| 16 | 10.0 | 24.0 | 14.2 | 48.0 | |
| 18 | | | 16.2 | | |
| 20 | 11.0 | 25.0 | 18.2 | 50.0 | |
| 25 | 12.0 | 32.0 | 23.0 | 56.0 | 17.0 |
| 32 | 14.0 | 36.0 | 30.0 | 60.0 | 19.0 |

## DIN 6535-HE




| $d_1$ | $(b_2)$ | $(b_3)$ | $(h_2)$ | $(h_3)$ | $l_1$ | $l_4$ | $l_5$ | $r_2$ |
|---|---|---|---|---|---|---|---|---|
| 6.0 | 4.3 | | 5.1 | | 36.0 | 25.0 | 18.0 | |
| 8.0 | 5.5 | | 6.9 | | | | | |
| 10 | 7.1 | | 8.5 | | 40.0 | 28.0 | 20.0 | 1.2 |
| 12 | 8.2 | | 10.4 | | 45.0 | 33.0 | 22.5 | |
| 14 | 8.1 | | 12.7 | | | | | |
| 16 | 10.1 | | 14.2 | | 48.0 | 36.0 | 24.0 | |
| 18 | 10.8 | | 16.2 | | | | | |
| 20 | 11.4 | | 18.2 | | 50.0 | 38.0 | 25.0 | 1.6 |
| 25 | 13.6 | 9.3 | 23.0 | 24.1 | 56.0 | 44.0 | 32.0 | |
| 32 | 15.5 | 9.9 | 30.0 | 31.2 | 60.0 | 48.0 | 35.0 | |