

MILLING TOOLS

SOLID CARBIDE ENDMILLS





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Solid Carbide Endmills — B

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B

SOLID CARBIDE ENDMILLS





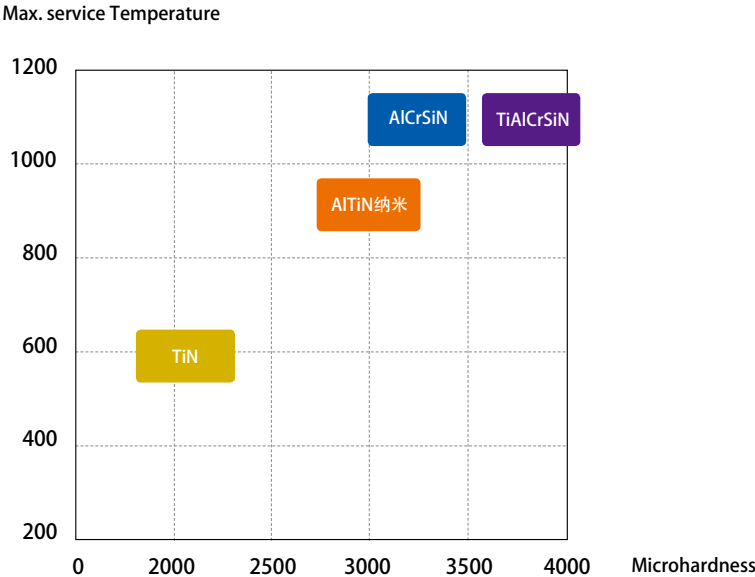
WINTECH Coating

Coating Characteristic

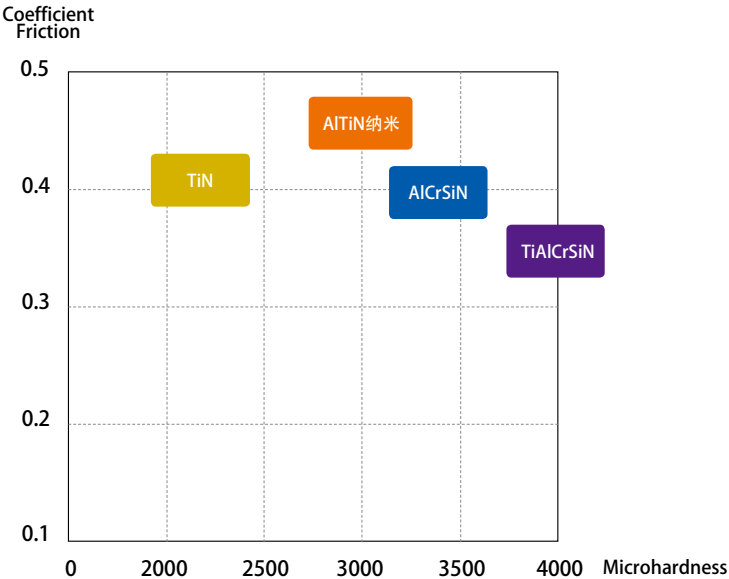
Coatings	Microhardness (HV0.05)	Coefficient Friction	Max. service Temperature (°C)	Characteristic and Application
AlCrN	3200	0.45	1100	High oxidation resistance, extremely good of high temperature abrasion resistance, suitable for ordinary steel, low hardness of die steel or titanium alloy dry milling.
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.



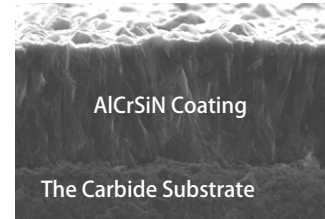
Microhardness and Max. Service Temperature



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

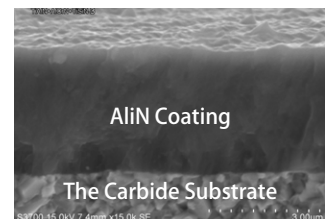
- Micro hardness up to 4000HV, with good wear resistance.
- Special transition layer design to ensure the high bonding strength between high hardness coating and substrate, adhesion of up to 100N.
- Nano composite coating design, have super strong oxidation resistance, oxidation starts at temperatures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



SEM Photograph of Coating

Nano Coating AlTiN

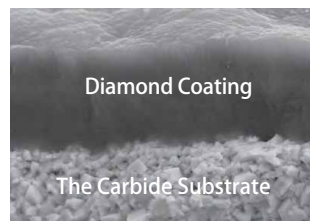
- High aluminum content provides excellent hot hardness and oxidation resistance.
- Special method optimizes the structure of coating, significantly improve stability, reducing the number of surface droplet.



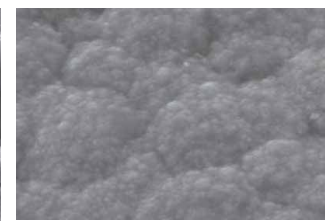
SEM Photograph of Coating

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.



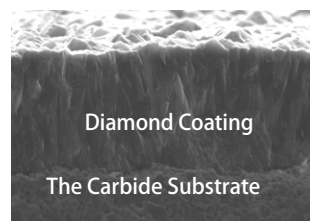
SEM Photograph of Coating



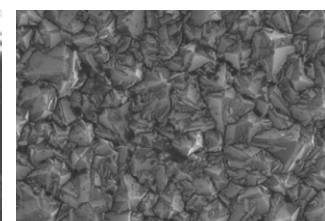
Surface Morphology

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		ISO Standard Shank h5
		ISO Standard Shank h6
Coating		AlCrN Coating
		AlCrSiN Coating
		AlTiN Coating
		Nano Coating AlTiN
		AlCrN/TiSiN Coating
		Nano Coating AlTiN/TiSiN
		TiAlCrSiN Coating
		Normal Diamond Coating
		Ultra-Fine Grain Diamond Coating
	Cutting Condition	
		For Slotting
		For Profile Milling
Helix		-20° Helix
		20° Helix
		-20° Helix



	Mark	Description
Helix		28° Helix
		30° Helix
		35° Helix
		Variable Helix
		40° Helix
		45° Helix
		Variable Helix
		Variable Helix
		Variable Helix
		3639, 2830, 1540
No. of Flutes		1 Flute Endmills
		2 Flute Endmills
		3 Flute Endmills
		4 Flute Endmills
		5 Flute Endmills
		6 Flute Endmills
		12 Flute Endmills

	Mark	Description
Endteeth Type		Square End
		Corner Radius
		Ballnose
		Square End with Chamfer
		Chamfer
Workpiece Material		Steels
		Stainless Steels
		Cast Iron
		Non-ferrous Materials
		Heat-resistant Super Alloys, Titanium Alloys
		High Hardened Materials

Solid Carbide Endmills Identification System



UP210 -

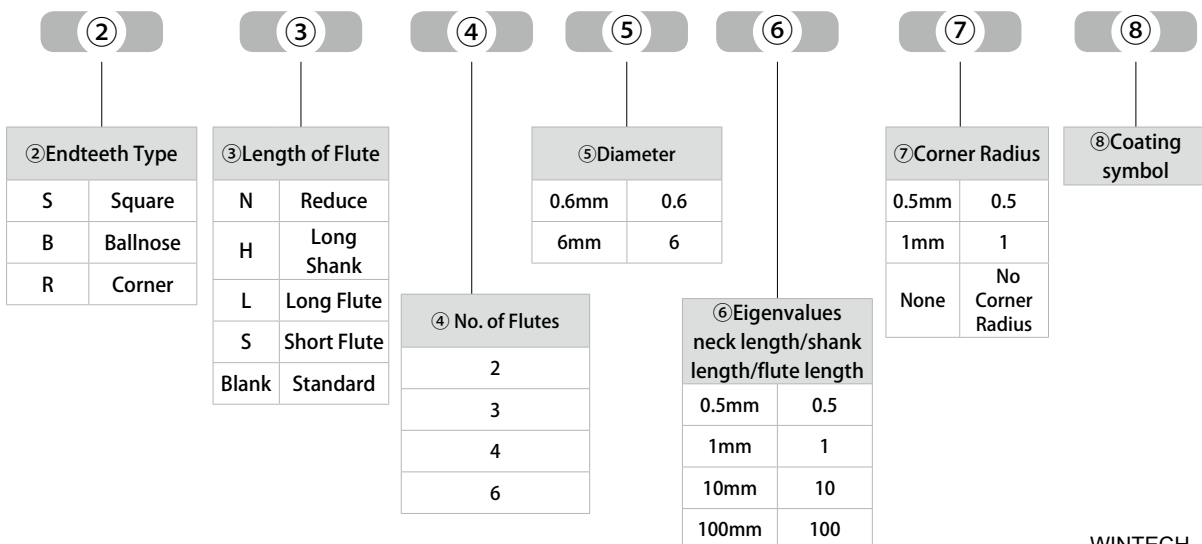
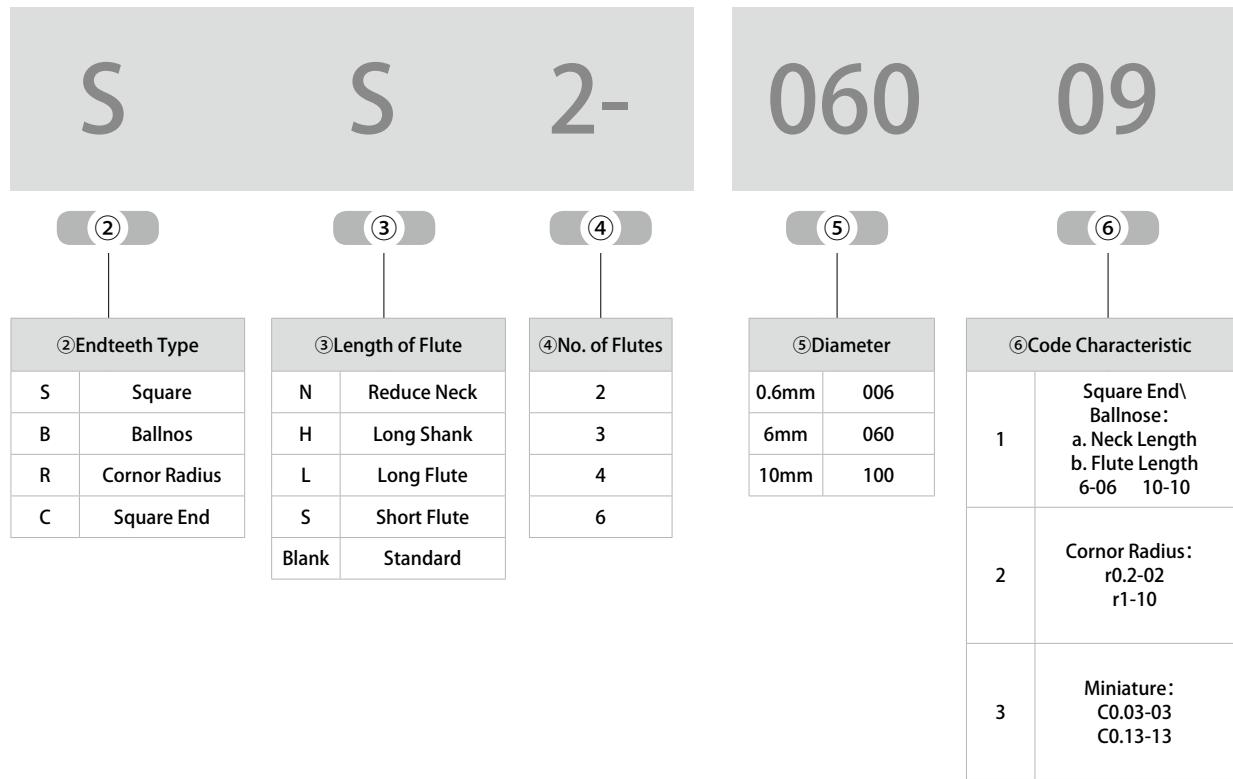
①

Workpiece	①Code of Series	Series Description
Steel, Cast Iron	UP210	Suitable for Steels&Cast Iron($\leq 48\text{HRC}$)
	SP210	Suitable for High Efficiency Machining of Steels & Cast Iron($\leq 48\text{HRC}$)
	UPN210	Suitable for Roughing of Steels & Cast Iron($\leq 48\text{HRC}$)
	UPR210	Suitable for Roughing of Steels & Cast Iron($\leq 48\text{HRC}$)
	UPR300	 Suitable for Roughing of Steels & Cast Iron($\leq 48\text{HRC}$)
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	UA160	Suitable for General Machining of Aluminium Alloy
	SA210	Suitable for high efficiency machining of aerospace Aluminium 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)

SPM200 -

①

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



Application Summary Of Solid Carbide Endmills

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

Series Introduction

▼ UP210 Endmills for General Purpose

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



▲ 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.

▼ 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



Series Introduction

▼ UPR210 Waveform Endmill

- Suitable for roughing machining of steels & cast iron ($\leq 48\text{HRC}$), 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 (a_p), big cutting width (a_e) of steels & cast iron ($\leq 48\text{HRC}$), 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 ($< 280\text{HB}$).
- 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 ($< 280\text{HB}$)
- 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.



▲ 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



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

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

▼ 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 new high hard coating significantly lengthens the tool life.
- Special tool type design and high precise quality control ensure excellent machining for hardened steels material.



▼ 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.



▼ 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.



Series Introduction



▲ 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 (\leq 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















































































▲ 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

Endmill Catalog (by series)

Suitable Material	No. of Flutes	Endteeth Type	Coating	Description	Type	Diameter Range	Dimension Page	Cutting Parameters Page
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UP210

Stainless Steel Cast Iron				2Flute, Stub Length 	UP210-SS2	D1 ~ D20	158	369
				2 Flute, Standard Length 	UP210-S2	D1 ~ D20	159	369
				2Flute, with Long Flute Length 	UP210-SL2	D2 ~ D20	161	369
				2Flute, with Long Shank Length 	UP210-SH2	D2 ~ D20	162	369
				3Flute, Standard Length 	UP210-S3	D2 ~ D25	163	369
				4Flute, Stub Length 	UP210-SS4	D1 ~ D20	164	370
				4Flute, Standard Length 	UP210-S4	D1 ~ D20	165	370
				4Flute, with Long Flute Length 	UP210-SL4	D1 ~ D20	168	370
				4 Flute, with Long Shank Length 	UP210-SH4	D2 ~ D20	170	370
				4 Flute, acute angle 	UP210-SC4	D4 ~ D20	172	370
				4 Flute, 45° Helix 	UP210-S4A	D4 ~ D20	173	370
				6 Flute, Standard Length 	UP210-S6	D6 ~ D20	174	370
				2 Flute, Corner Radius 	UP210-R2	D1 ~ D20	175	369
				2 Flute Corner Radius, with Long Shank Length 	UP210-RH2	D4 ~ D20	178	369
				4 Flute, Corner Radius 	UP210-R4	D1 ~ D20	180	370
				2 Flute Corner Radius, with Long Shank Length 	UP210-RH4	D3 ~ D20	183	370
				4 Flute, 45° Helix 	UP210-R4A	D4 ~ D20	185	370
				2 Flute, Ballnose 	UP210-B2	D0.8 ~ D20	187	372
				2 Flute Ballnose, with Long Shank Length 	UP210-BH2	D2 ~ D20	189	372

 most suitable  suitable

Cutting Parameters Page											
P		M	K	N			S	H			
1 2 3 4	5 6	1 2 3	1 2 3	1 2 3	4	5	1 2 3	4	1	2	3 4
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	Endteeth Type	Coating	Description	Type	Diameter Range	Dimension Page	Cutting Parameters Page	
UP210									
				4 Flute, Ballnose		UP210-B4	D2 ~ D20	191	372
				4 Flute, 60° Chamfer Endmils NEW		UP210-L60	D4 ~ D20	193	373
				4 Flute, 90° Chamfer Endmils NEW		UP210-L90	D4 ~ D20	194	373
				4 Flute, 120° Chamfer Endmils NEW		UP210-L120	D4 ~ D20	195	373
SP210									
				3 Flute, with Variable Helix		SP210-S3	D2.5 ~ D20	196	373
				3 Flute, Variable Helix with Chamfer		SP210-C3	D6 ~ D16	197	373
Stainless Steel Cast Iron				4 Flute, with Variable Helix		SP210-S4	D2 ~ D20	198	374
				4 Flute, Variable Helix with Chamfer		SP210-C4	D3 ~ D20	199	374
				4 Flute, Variable Helix with Chamfer and with Reduced Neck		SP210-CN4	D3 ~ D20	201	374
				4 Flutes Corner Radius, with Variable Helix		SP210-R4	D3 ~ D16	202	374
				4 Flute Corner Radius, with Long Shank Length NEW		SP210-RH4	D4 ~ D12	204	374
				2 Flute, Ballnose		SP210-B2	D1 ~ D12	205	375
				2 Flute Ballnose, with Long Shank Length		SP210-BH2	D4 ~ D12	206	375
	UPN210								
				4 Flute, with Roughing Geometry		UPN210-S4	D6 ~ D20	207	377

most suitable suitable
































































Cutting Parameters Page											
P		M	K	N			S	H			
1 2 3 4	5 6	1 2 3	1 2 3	1 2 3	4	5	1 2 3	4	1	2	3 4
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	Endteeth Type	Coating	Description	Type	Diameter Range	Dimension Page	Cutting Parameters Page	
UPR210									
Stainless Steel Cast Iron				4 Flute Square, with Roughing Geometry 		UPR210-S4	D6 ~ D20	208	376
	UPR300								
				3/4 Flute Square, with Roughing Geometry 		UPR300-S3/S4	D6 ~ D20	209	378
SPM200									
Stainless Steel Cast Iron Copper Alloys Hardened Steel				2 Flute, Standard Length Endmills of Micro Diameter for Deep Machining 	SPM200-SN2	D0.1 ~ D6	324	398	
				2 Flute, Corner Radius Endmills of Micro Diameter for Deep Machining 	SPM200-RN2	D0.2 ~ D6	330	408	
				4 Flute, Corner Radius Endmills of Micro Diameter for Deep Machining 	SPM200-RN4 	SPM200-RN4	D1 ~ D6	346	430
				2 Flute, Ballnose Endmills of Micro Diameter for Deep Machining 	SPM200-BN2	D0.1 ~ D6	350	435	
US200									
Stainless steel				2 Flute, Standard Length 	US200-S2	D0.5 ~ D20	210	380	
				4 Flute, Stub Length 	US200-SS4	D2 ~ D20	212	381	
				4 Flute, Standard Length 	US200-S4	D1 ~ D20	213	381	
				4 Flute, with Long Shank Length 	US200-SN4	D2 ~ D20	214	381	
				2 Flute, Corner Radius 	US200-R2	D3 ~ D16	215	380	
				3 Flute, Corner Radius 	US200-R3	D2 ~ D20	217	380	
				4 Flute, Corner Radius 	US200-R4	D2 ~ D20	219	381	
				2 Flute, Standard Length 	US200-B2	D1 ~ D20	221	381	
				4 Flute, Standard Length 	US200-B4	D1 ~ D20	222	381	

 most suitable  suitable

Cutting Parameters Page											
P		M	K	N			S		H		
1 2 3 4	5 6	1 2 3	1 2 3	1 2 3	4	5	1 2 3	4	1	2	3 4
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)





























Suitable Material	No. of Flutes	Endteeth Type	Coating	Description	Type	Diameter Range	Dimension Page	Cutting Parameters Page	
US300									
Stainless Steel				4Flute, Stub Length 	US300-SS4	D1 ~ D4	223	382	
				4Flute, Standard Length 	US300-S4	D1 ~ D12	224	382	
SS200									
				4 Flute, Stub Length, Variable Helix with Chamfer 	SS200-CS4	D2 ~ D12	225	382	
				4 Flute, Variable Helix with Chamfer 	SS200-C4	D2 ~ D12	226	382	
UA160									
Aluminium Alloys				2 Flute, Standard Length 	UA160-S2	D1 ~ D12	227	383	
				3Flute, Standard Length 	UA160-S3	D2 ~ D12	228	384	
				4Flute, Standard Length 	UA160-S4	D4 ~ D12	229	384	
SA210									
				3 Flute Corner Radius, with Reduced Neck 	SA210-BW	D12 ~ D25	230	385	
				3 Flute Corner Radius, with Reduced Neck 	SA210-HF	D8 ~ D20	231	385	
SAM200									
Copper Alloys Aluminium Alloys				Flute, Standard Length  NEW Endmills of Micro Diameter for Deep Machining	SAM200-SN2	D0.1 ~ D6	358	446	
				Flute, Ballnose  NEW	SAM200-BN2	D0.1 ~ D6	360	448	



 most suitable  suitable

Cutting Parameters Page											
P		M	K	N			S	H			
1 2 3 4	5 6	1 2 3	1 2 3	1 2 3	4	5	1 2 3	4	1	2	3 4
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	
ST210									
Titanium Alloys				4 Flute, Standard Length		ST210-S4	D2 ~ D20	232	386
				Unequal Flute Spacing		ST210-R4	D2 ~ D20	233	386
				4 Flute, Corner Radius with Reduced Neck Unequal Flute Spacing		ST210-RN4	D12 ~ D25	235	386
				5 Flute, Long Flute length with Corner Radius Unequal Flute Spacing		ST210-RL5	D16 ~ D25	236	387
				4 Flute, Ballnose Unequal Flute Spacing		ST210-B4	D2 ~ D20	237	387
ST300									
				4 Flute, Corner Radius with Reduced Neck Unequal Flute Spacing, Internal Coolant		ST300-RN4	D12 ~ D20	238	388
				5 Flute, Corner Radius with Reduced Neck Unequal Flute Spacing, Internal Coolant		ST300-RN5	D16 ~ D25	239	389





































































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Cutting Parameters Page											
P		M	K	N			S	H			
1 2 3 4	5 6	1 2 3	1 2 3	1 2 3	4	5	1 2 3	4	1	2	3 4
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 Flute, Standard Length NEW 	SH260-S2-H	D1 ~ D12	240	390	
				2 Flute, Standard End With Reduced Nec NEW 	SH260-SN2-H	D1 ~ D6	241	390	
				4 Flute, Standard Length NEW 	SH260-S4-H	D1 ~ D20	243	391	
				4 Flute, with Long Shank Length NEW 	SH260-SH4-H	D1 ~ D20	245	391	
				4 Flute, Standard End With Reduced Nec NEW 	SH260-SN4-H	D1 ~ D12	247	391	
				4 Flute, Long Flute Length NEW 	SH260-SL4-H	D1 ~ D16	249	391	
				6 Flute, Standard Length NEW 	SH260-S6-H	D6 ~ D20	250	391	
				6 Flute, with Long Shank Length NEW 	SH260-SH6-H	D6 ~ D20	251	391	
				6 Flute, Long Flute Length NEW 	SH260-SL6-H	D6 ~ D20	252	391	
				2 Flute, Corner Radius NEW 	SH260-R2-H	D1 ~ D6	253	390	
				2 Flute Corner Radius, with Reduced Neck NEW 	SH260-RN2-H	D1 ~ D6	254	390	
				4 Flute, Corner Radius NEW 	SH260-R4-H	D1 ~ D12	256	391	
				4 Flute Corner Radius, with Long Shank Length NEW 	SH260-RH4-H	D2.5 ~ D12	259	391	
				4 Flute Corner Radius, with Long Shank Length NEW 	SH260-RN4-H	D1 ~ D12	261	391	
				2 Flute, Ballnose NEW 	SH260-B2-H	D1 ~ D16	263	392	
				2 Flute Ballnose, with Long Shank Length NEW 	SH260-BH2-H	D2 ~ D12	264	392	
				2 Flute Ballnose, Miniature Sizes with Neck NEW 	SH260-BN2-H	D1 ~ D12	266	392	

 most suitable  suitable







Cutting Parameters Page											
P		M	K	N			S		H		
1 2 3 4	5 6	1 2 3	1 2 3	1 2 3	4	5	1 2 3	4	1	2	3 4
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
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SH300-H













































Hardened Steel				2 Flute, Standard Length 	SH300-S2-H	D1 ~ D12	268	393
				2 Flute, with Reduced Neck Diameter 	SH300-SN2-H	D1 ~ D6	269	393
				4 Flute, Stub Length 	SH300-SS4-H	D1~D16	270	393
				4 Flute, Standard Length 	SH300-S4-H	D1~D20	272	393
				4 Flute, with Long Shank Length 	SH300-SH4-H	D1~D20	274	393
				4 Flute, Long Flute Length 	SH300-SL4-H	D1 ~ D20	276	393
				4 Flute, with Reduced Neck 	SH300-SN4-H	D1 ~ D20	278	393
				6 Flute, Standard Length 	SH300-S6-H	D6~D20	282	394
				6 Flute, Long Shank Length 	SH300-SH6-H	D6~D20	283	394
				6 Flute, Long Flute Length 	SH300-SL6-H	D6~D20	284	394
				2 Flute, Corner Radius 	SH300-R2-H	D1~D12	285	393
				2 Flute Corner Radius, with Long Shank Length 	SH300-RN2-H	D1~D6	287	393
				4 Flute, Corner Radius 	SH300-R4-H	D1~D20	288	393
				4 Flute Corner Radius, with Long Shank Length 	SH300-RH4-H	D1 ~ D20	292	393
				4 Flute Corner Radius, with Reduced Neck 	SH300-RN4-H	D1~D12	295	393
				6 Flute, Corner Radius 	SH300-R6-H	D6~D20	301	394
				6 Flute Corner Radius, with Long Shank Length 	SH300-RH6-H	D6~D20	303	394



 most suitable  suitable

Cutting Parameters Page											
P		M	K	N			S	H			
1 2 3 4	5 6	1 2 3	1 2 3	1 2 3	4	5	1 2 3	4	1	2	3 4
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)












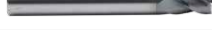
























Workpiece Material	No. of Flutes	Endteeth Type	Coating	Description	Type	Diameter Range	Dimension Page	Cutting Parameters Page		
SH300-H										
Hardened Steel				2 Flute, Ballnose 	SH300-B2-H	D0.6 ~ D12	305	394		
				2 Flute Ballnose, with Long Shank length 	SH300-BH2-H	D0.6 ~ D12	307	394		
				2 Flute Ballnose, with Reduced Neck 	SH300-BN2-H	D0.6 ~ D12	309	394		
				4 Flute, Ballnose 	SH300-B4-H	D2 ~ D12	313	395		
				4 Flute Ballnose, with Long Shank Length 	SH300-BH4-H	D2~D12	314	395		
				4 Flute Ballnose, with Reduced Neck 	SH300-BN4-H	D2~D12	315	395		
	FH200-H									
					4 Flute, Corner Radius 	FH200-R4-H	D1 ~ D12	316	396	
					4 Flute Corner Radius, with Reduced Neck 	FH200-RN4-H	D8 ~ D12	318	396	
					6 Flute, Corner Radius 	FH200-R6-H	D6~D20	320	396	
				6 Flute Corner Radius, with Long Shank Length 	FH200-RH6-H	D6~D20	321	396		
				6 Flute Corner Radius, with reduced neck 	FH200-RN6-H	D6~D20	322	396		



 most suitable  suitable

Cutting Parameters Page											
P		M	K	N			S	H			
1 2 3 4	5 6	1 2 3	1 2 3	1 2 3	4	5	1 2 3	4	1	2	3 4
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						
	AlCrSiN	2 Flute, Stub Length 	UP210-SS2	D1 ~ D16	158	369
	AlCrSiN	2 Flute, Standard Length 	UP210-S2	D1 ~ D20	159	369
	AlCrSiN	2 Flute, Long Flute Length 	UP210-SL2	D2 ~ D20	161	369
	AlCrSiN	2 Flute, with Long Shank Length 	UP210-SH2	D2 ~ D20	162	369
	AlCrSiN	3 Flute, Standard Length 	UP210-S3	D2 ~ D25	163	369
	AlCrSiN	4 Flute, Stub Length 	UP210-SS4	D1 ~ D20	164	370
	AlCrSiN	4 Flute, Standard Length 	UP210-S4	D1 ~ D20	165	370
	AlCrSiN	4 Flute, Long Flute Length 	UP210-SL4	D1 ~ D20	168	370
	AlCrSiN	4 Flute, with Long Shank Length 	UP210-SH4	D2 ~ D20	170	370
	AlCrSiN	4 Flute, acute angle  NEW	UP210-SC4	D4 ~ D20	172	370
	AlCrSiN	4 Flute, 45° Helix  NEW	UP210-S4A	D4 ~ D20	173	370
	AlCrSiN	6 Flute, Standard Length 	UP210-S6	D6 ~ D20	174	370
	AlCrSiN	3 Flute, with Variable Helix 	SP210-S3	D2.5 ~ D20	196	373
	AlCrSiN	3 Flute, with Variable Helix with Chamfer 	SP210-C3	D6 ~ D20	197	373
	AlCrSiN	4 Flute, with Variable Helix 	SP210-S4	D2 ~ D20	198	374
	AlCrSiN	4 Flute, Variable Helix with Chamfer 	SP210-C4	D3 ~ D25	199	374
	AlCrSiN	4 Flute, Variable Helix with Chamfer and with Reduced Neck 	SP210-CN4	D3 ~ D20	201	374
	AlCrSiN	4 Flute Square End, with Roughing Geometry 	UPN210-S4	D6 ~ D20	207	377

 most suitable  suitable

Endmill Catalog (by flute)

No. of Flutes	Coating	Description	Type	Diameter Range	Dimension Page	Cutting Parameters Page
Square						
	AICrSiN	4 Flute Square End, with Roughing Geometry 		UPR210-S4	D6 ~ D20	208 376
	AICrSiN	3/4 Flute Square End, with Roughing Geometry 		UPR300-S3/S4	D6 ~ D20	209 378
	AICrSiN	2 Flute, Standard Length Endmills of Micro Diameter for Deep Machining		SPM200-SN2	D0.1 ~ D6	324 398
	AlTiN	2 Flute, Standard Length		US200-S2	D0.5 ~ D20	210 380
	AlTiN	4 Flute, Stub Length		US200-SS4	D2 ~ D20	212 381
	AlTiN	4 Flute, Standard Length		US200-S4	D1 ~ D20	213 381
	AlTiN	4 Flute, with Reduced Neck		US200-SN4	D2 ~ D12	214 381
	AlTiN	4 Flute, Stub Length		US200-SS4	D1 ~ D12	223 382
	AlTiN	4 Flute, Standard Length		US300-S4	D2 ~ D20	224 382
	AICrSiN	4 Flute, Stub Length, Variable Helix with Chamfer		SS200-CS4	D2 ~ D12	225 382
	AICrSiN	4 Flute, Variable Helix with Chamfer		SS200-C4	D2 ~ D12	226 382
		2 Flute, Standard Length		UA160-S2	D1 ~ D10	227 383
		3 Flute, Standard Length		UA160-S3	D2 ~ D20	228 384
		4 Flute, Standard Length		UA160-S4	D4 ~ D20	229 384
	TiAlCrSiN	2 Flute, Standard Length Endmills of Micro Diameter for Deep Machining 		SAM200-SN2	D0.1 ~ D6	358 446
	AICrN	4 Flute, Standard Length Unequal Flute Spacing		ST210-S4	D2 ~ D20	232 386
	TiAlCrSiN	2 Flute, Standard Length 		SH260-S2-H	D1 ~ D12	240 390
	TiAlCrSiN	2 Flute Square End, Miniature Sizes with Neck 		SH260-SN2-H	D1 ~ D6	241 390
	TiAlCrSiN	4 Flute, Standard Length 		SH260-S4-H	D1 ~ D20	243 391


















 most suitable  suitable

Workpiece Material											
P		M	K	N			S		H		
1 2 3 4	5 6	1 2 3	1 2 3	1 2 3	4	5	1 2 3	4	1	2	3 4
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
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Square

	TiAlC/SiN	4 Flute, with Long Shank Length NEW		SH260-SH4-H	D1 ~ D20	245	391
	TiAlC/SiN	4 Flute, with Reduced Neck NEW		SH260-SN4-H	D1 ~ D12	247	391
	TiAlC/SiN	4 Flute, Long Flute Length NEW		SH260-SL4-H	D1 ~ D16	249	391
	TiAlC/SiN	6 Flute, Standard Length NEW		SH260-S6-H	D6 ~ D20	250	391
	TiAlC/SiN	6 Flute, Long Shank Length NEW		SH260-SH6-H	D6 ~ D20	251	391
	TiAlC/SiN	6 Flute, Long Flute Length NEW		SH260-SL6-H	D6 ~ D20	252	391
	TiAlC/SiN	2 Flute, Standard Length		SH300-S2-H	D1 ~ D12	268	393
	TiAlC/SiN	2 Flute, with Reduced Neck Diameter		SH300-SN2-H	D1 ~ D6	269	393
	TiAlC/SiN	4 Flute, Stub Length		SH300-SS4-H	D1 ~ D16	270	393
	TiAlC/SiN	4 Flute, Standard Length		SH300-S4-H	D1 ~ D20	272	393
	TiAlC/SiN	4 Flute, with Long Shank Length		SH300-SH4-H	D1 ~ D20	274	393
	TiAlC/SiN	4 Flute, Long Flute Length		SH300-SL4-H	D1 ~ D20	276	393
	TiAlC/SiN	4 Flute, with Reduced Neck		SH300-SN4-H	D1 ~ D20	278	393
	TiAlC/SiN	6 Flute, Standard Length		SH300-S6-H	D6 ~ D20	282	394
	TiAlC/SiN	6 Flute, Long Shank Length		SH300-SH6-H	D6 ~ D20	283	394
	TiAlC/SiN	6 Flute, Long Flute Length		SH300-SL6-H	D6 ~ D20	284	394

Corner Radius

	AlCr/SiN	2 Flute, Corner Radius		UP210-R2	D1 ~ D20	175	396
	AlCr/SiN	2 Flute Corner Radius, with Long Shank Length		UP210-RH2	D4 ~ D20	178	396







































 most suitable  suitable



Workpiece Material											
P		M	K	N			S		H		
1 2 3 4	5 6	1 2 3	1 2 3	1 2 3	4	5	1 2 3	4	1	2	3 4
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
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Corner Radius

	AlCrSiN	4 Flute, Corner Radius		UP210-R4	D1 ~ D20	180	370
	AlCrSiN	4 Flute Corner Radius, with Long Shank Length		UP210-RH4	D3 ~ D20	183	370
	AlCrSiN	4 Flute, 45° Helix NEW		UP210-R4A	D4 ~ D20	185	370
	AlCrSiN	4 Flutes Corner Radius, with Variable Helix		SP210-R4	D3 ~ D16	202	374
	AlCrSiN	4 Flute Corner Radius, with Long Shank Length NEW		SP210-RH4	D4 ~ D12	204	374
	AlCrSiN	2 Flute, Corner Radius Endmills of Micro Diameter for Deep Machining		SPM200-RN2	D0.2 ~ D6	330	408
	AlCrSiN	4 Flute, Corner Radius Endmills of Micro Diameter for Deep Machining NEW		SPM200-RN4	D1 ~ D6	346	430
	AlTiN	2 Flute, Corner Radius		US200-R2	D3 ~ D16	215	380
	AlTiN	3 Flute, Corner Radius		US200-R3	D2 ~ D20	217	380
	AlTiN	4 Flute, Corner Radius		US200-R4	D2 ~ D20	219	381
		2 Flute Corner Radius, with Reduced Neck		SA210-BW	D12 ~ D25	230	385
		3 Flute Corner Radius, with Reduced Neck		SA210-HF	D8 ~ D20	231	385
	AlCrN	4 Flute, Corner Radius Unequal Flute Spacing		ST210-R4	D2 ~ D20	233	386
	AlCrN	4 Flute, Corner Radius with Reduced Neck Unequal Flute Spacing		ST210-RN4	D12 ~ D25	235	386
	AlCrN	5 Flute, Long Flute length with Corner Radius Unequal Flute Spacing		ST210-RL5	D16 ~ D25	236	387
	AlCrN	4 Flute, Corner Radius with Reduced Neck Unequal Flute Spacing, Internal Coolant		ST300-RN4	D12 ~ D20	238	388
	AlCrN	5 Flute, Corner Radius with Reduced Neck Unequal Flute Spacing, Internal Coolant		ST300-RN5	D16 ~ D25	239	389
	TiAlCrSiN	2 Flute, Corner Radius NEW		SH260-R2-H	D1 ~ D6	253	390
	TiAlCrSiN	2 Flute, Corner Radius With Reduced Neck NEW		SH260-RN2-H	D1 ~ D6	254	390

 most suitable
  suitable


































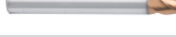



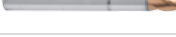
Endmill Catalog (by flute)



No. of Flute	Coating	Description	Type	Diameter Range	Dimension Page	Cutting Parameters Page
Corner Radius						
	TiAlC/SiN	4 Flute, Corner Radius NEW		SH260-R4-H	D1 ~ D12	256 391
	TiAlC/SiN	4 Flute Corner Radius, with Long Shank Length NEW		SH260-RH4-H	D2.5 ~ D12	259 391
	TiAlC/SiN	4 Flute Corner Radius, with Reduced Neck NEW		SH260-RN4-H	D1 ~ D12	261 391
	TiAlC/SiN	2 Flute, Corner Radius		SH300-R2-H	D1 ~ D12	285 393
	TiAlC/SiN	2 Flute Corner Radius, with Reduced Neck		SH300-RN2-H	D1 ~ D6	287 393
	TiAlC/SiN	4 Flute, Corner Radius		SH300-R4-H	D1 ~ D20	288 393
	TiAlC/SiN	4 Flute Corner Radius, with Long Shank Length		SH300-RH4-H	D1 ~ D20	292 393
	TiAlC/SiN	4 Flute Corner Radius, with Reduced Neck		SH300-RN4-H	D1 ~ D12	295 393
	TiAlC/SiN	6 Flute, Corner Radius		SH300-R6-H	D6 ~ D20	301 394
	TiAlC/SiN	6 Flute Corner Radius, with Long Shank Length		SH300-RH6-H	D6 ~ D20	303 394
	TiAlC/SiN	4 Flute, Corner Radius		FH200-R4-H	D1 ~ D12	316 396
	TiAlC/SiN	4 Flute Corner Radius, with Reduced Neck		FH200-RN4-H	D8 ~ D12	318 396
	TiAlC/SiN	6 Flute, Corner Radius		FH200-R6-H	D6 ~ D20	320 396
	TiAlC/SiN	6 Flute Corner Radius, with long shank length		FH200-RH6-H	D6 ~ D20	321 396
	TiAlC/SiN	6 Flute Corner Radius, with reduced neck		FH200-RN6-H	D6 ~ D20	322 396

 most suitable  suitable

Workpiece Material											
P		M	K	N			S	H			
1 2 3 4	5 6	1 2 3	1 2 3	1 2 3	4	5	1 2 3	4	1	2	3 4
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
	○	○							○	○	○
	○	○							○	○	○
	○	○							○	○	○
		○							○	○	○
		○							○	○	○
		○							○	○	○
		○							○	○	○
		○							○	○	○
		○							○	○	○
		○							○	○	○
		○							○	○	○
		○							○	○	○
		○							○	○	○
		○							○	○	○
		○							○	○	○
		○							○	○	○
		○							○	○	○
		○							○	○	○
		○							○	○	○
		○							○	○	○
		○							○	○	○
		○							○	○	○
		○							○	○	○
		○							○	○	○
		○							○	○	○













Endmill Catalog (by flute)

No. of Flutes	Coating	Description	Type	Diameter Range	Dimension Page	Cutting Parameters Page
Ballnose						
	AlCrSiN	2 Flute, Ballnose		UP210-B2	D0.8 ~ D20	187 372
	AlCrSiN	2 Flute Ballnose, with Long Shank Length		UP210-BH2	D2 ~ D20	189 372
	AlCrSiN	4 Flute, Ballnose		UP210-B4	D2 ~ D20	191 372
	AlCrSiN	2 Flute, Ballnose		SP210-B2	D1 ~ D12	205 375
	AlCrSiN	2 Flute Ballnose, with Long Shank length		SP210-BH2	D4 ~ D12	206 375
	AlCrSiN	2 Flute, Ballnose Endmills of Micro Diameter for Deep Machining		SPM200-BN2	D0.1 ~ D6	350 435
	AlTiN	2 Flute, Ballnose		US200-B2	D1 ~ D20	221 381
	AlTiN	4 Flute, Ballnose		US200-B4	D2 ~ D12	222 381
	TiAlCrSiN	2 Flute, Ballnose Endmills of Micro Diameter for Deep Machining NEW		SAM200-BN2	D0.1 ~ D6	360 448
	AlCrN	4 Flute, Ballnose Unequal Flute Spacing		ST210-B4	D2 ~ D20	237 387
	TiAlCrSiN	2 Flute, Ballnose NEW		SH260-B2-H	D1 ~ D16	263 392
	TiAlCrSiN	2 Flute Ballnose, with Long Shank length NEW		SH260-BH2-H	D2 ~ D12	264 392
	TiAlCrSiN	2 Flute Ballnose, with Reduced Neck NEW		SH260-BN2-H	D1 ~ D12	266 392
	TiAlCrSiN	2 Flute, Ballnose		SH300-B2-H	D0.6 ~ D12	305 394
	TiAlCrSiN	2 Flute Ballnose, with Long Shank length		SH300-BH2-H	D0.6 ~ D12	307 394
	TiAlCrSiN	2 Flute, Ballnose, With Reduced Neck		SH300-BN2-H	D0.6 ~ D12	309 394
	TiAlCrSiN	4 Flute, Ballnose		SH300-B4-H	D2 ~ D12	313 395
	TiAlCrSiN	4 Flute Ballnose, with Long Shank Length		SH300-BH4-H	D2 ~ D12	314 395
	TiAlCrSiN	4 Flute Ballnose, with Reduced Neck		SH300-BN4-H	D2 ~ D12	315 395

 most suitable  suitable

Workpiece Material											
P		M	K	N			S		H		
1 2 3 4	5 6	1 2 3	1 2 3	1 2 3	4	5	1 2 3	4	1	2	3 4
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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	○								○	○	○

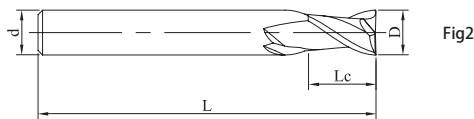
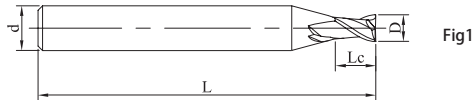
Endmill Catalog (by flute)

No.of Flutes	Coating	Description	Type	Diameter Range	Dimension Page	Cutting Parameters Page
Other						
		4 Flute, 60° Chamfer Endmils 		UP210-L60	D4 ~ D20	193 373
		4 Flute, 90° Chamfer Endmils 		UP210-L90	D4 ~ D20	194 373
		4 Flute, 120° Chamfer Endmils 		UP210-L120	D4 ~ D20	195 373

Workpiece Material											
P		M	K	N			S		H		
1 2 3 4	5 6	1 2 3	1 2 3	1 2 3	4	5	1 2 3	4	1	2	3 4
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



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)

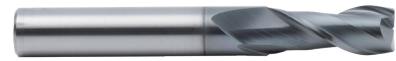
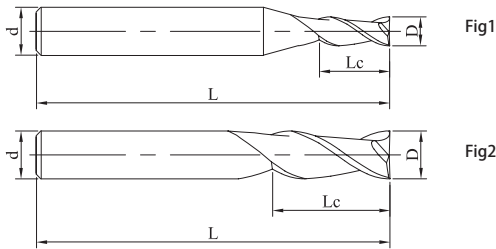
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC以下)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P369

UP210-S2

2 Flute, Standard Length



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)

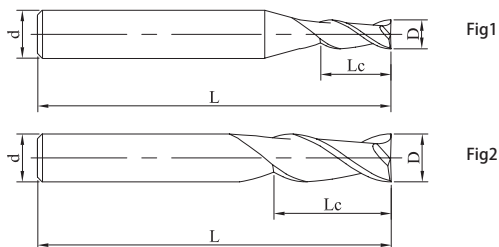
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC以下)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P369

UP210-S2

2 Flute, Standard Length



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC以下)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P369

UP210-SL2

2 Flute, Long Flute Length

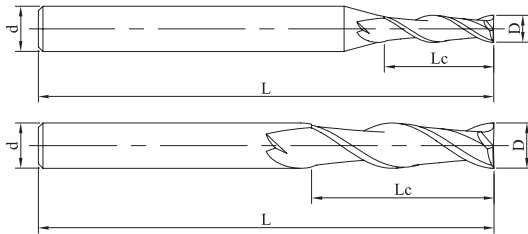


Fig1

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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC以下)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P369

UP210-SH2

2 Flute, with Long Shank Length

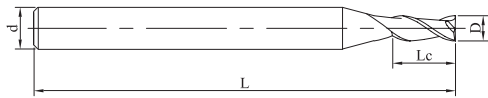


Fig1

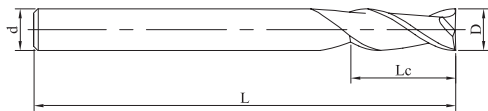


Fig2



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)

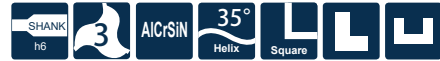
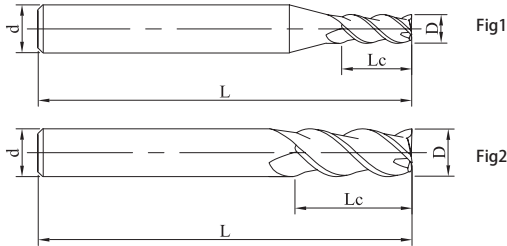
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC以下)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P369

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)

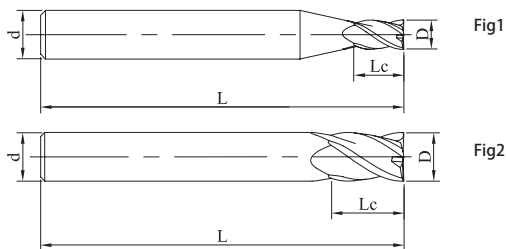
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC以下)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P369

UP210-SS4

4 Flute, Stub Length



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)

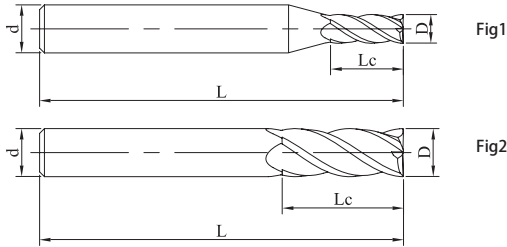
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC以下)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P370

UP210-S4

4 Flute, Standard Length



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)

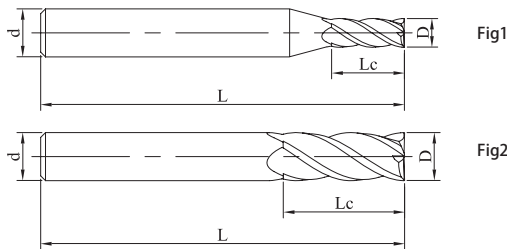
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC以下)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P370

UP210-S4

4 Flute, Standard Length



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC以下)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P370

UP210-S4

4 Flute, Standard Length

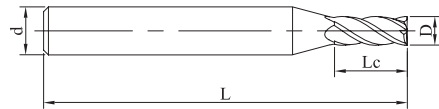


Fig1

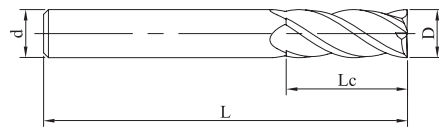


Fig2



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC以下)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P370

UP210-SL4

4 Flute, Long Flute Length

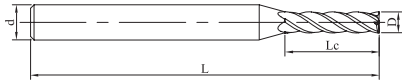


Fig1

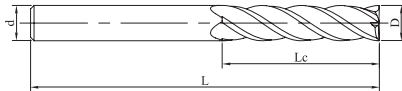


Fig2



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC以下)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P370

UP210-SL4

4 Flute, Long Flute Length

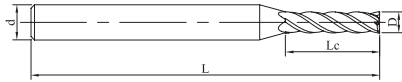


Fig1

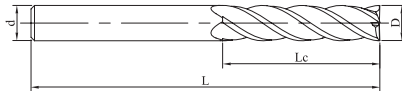


Fig2



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)

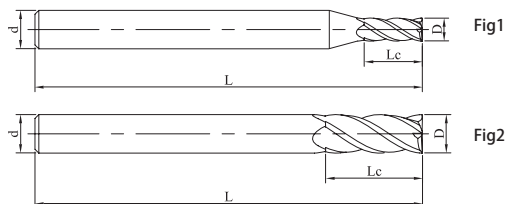
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC以下)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P370

UP210-SH4

4 Flute, with Long Shank Length



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)

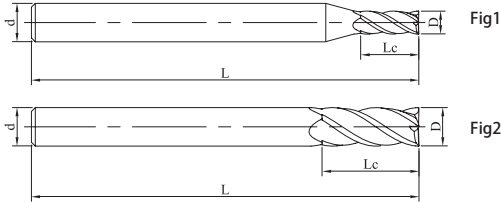
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC以下)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P370

UP210-SH4

4 Flute, with Long Shank Length



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC以下)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P370

UP210-SC4

4 Flute, acute angle

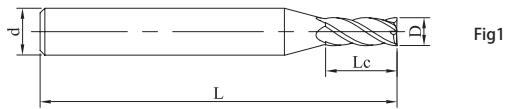


Fig1

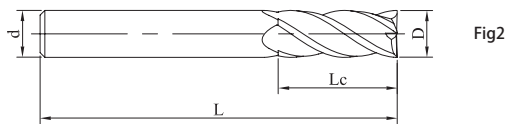


Fig2



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC以下)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P370

UP210-S4A

4 flute, 45° helix angle

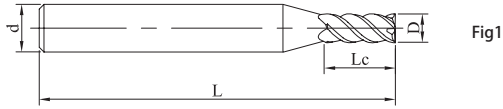


Fig1

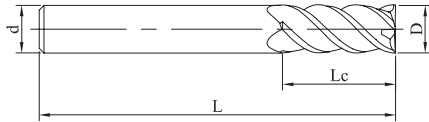


Fig2



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC以下)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P370

UP210-S6

6 Flute, Standard Length

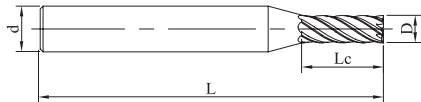


Fig1

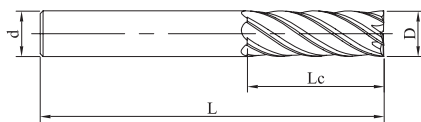


Fig2



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)

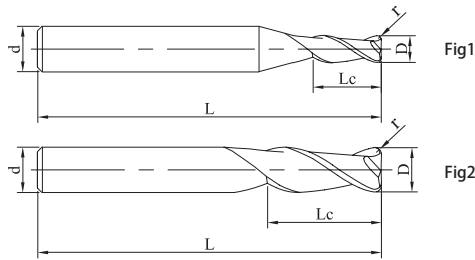
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC以下)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P370

UP210-R2

2 Flute Corner Radius



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)

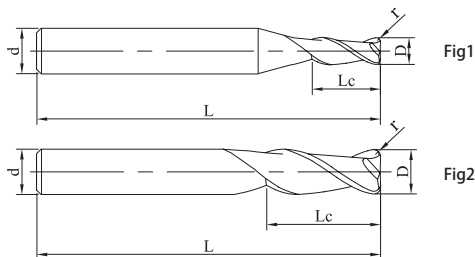
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, AlloySteel (<35HRC)	Alloy Steel, ToolSteel (48HRC以下)	StainlessSteel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P369

UP210-R2

2 Flute Corner Radius



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)

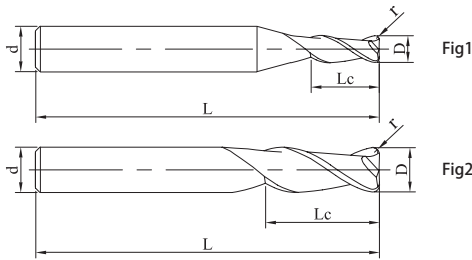
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC以下)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P369

UP210-R2

2 Flute Corner Radius



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)

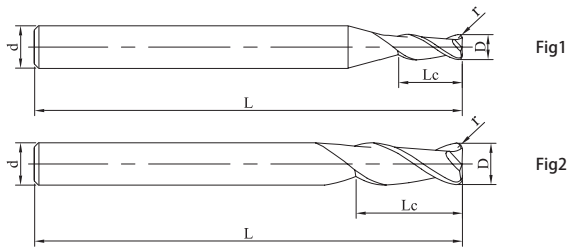
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC以下)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P369

UP210-RH2

2 Flute Corner Radius, with Long Shank Length



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)

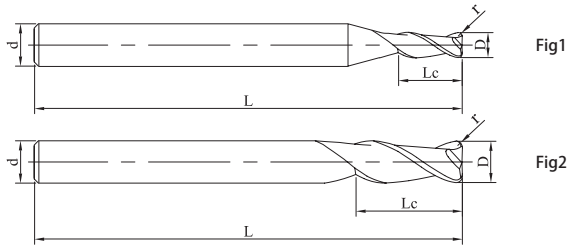
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC以下)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P369

UP210-RH2

2 Flute Corner Radius, with Long Shank Length



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)

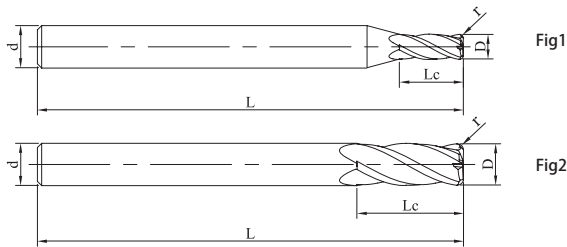
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC以下)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P369

UP210-R4

4 Flute Corner Radius



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 Order

D	Tol
D ≤ 12	0 -0.02
D > 12	0 -0.03

unit (mm)

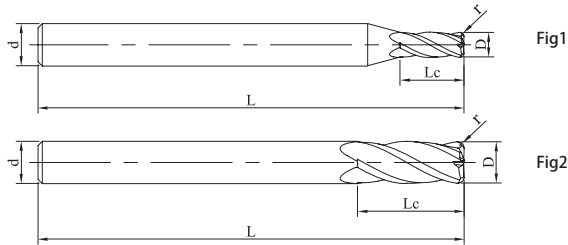
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P370

UP210-R4

4 Flute Corner Radius



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 Order

D	Tol
D ≤ 12	0 -0.02
D > 12	0 -0.03

unit (mm)

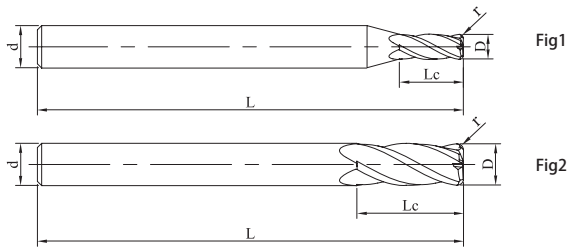
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, AlloySteel (<35HRC)	Alloy Steel, ToolSteel (48HRC)	StainlessSteel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P370

UP210-R4

4 Flute Corner Radius



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)

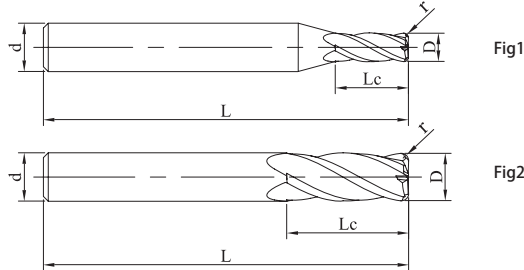
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P370

UP210-RH4

4 Flute Corner Radius, with Long Shank Length



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)

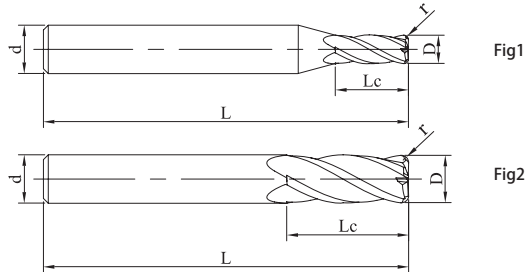
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P370

UP210-RH4

4 Flute Corner Radius, with Long Shank Length



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P370

UP210-R4A

4 Flute, Corner Radius-45° Helix

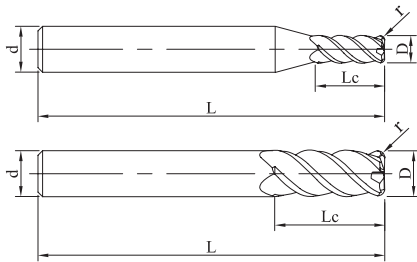


Fig1

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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P370

UP210-R4A

4 Flute, Corner Radius-45° Helix

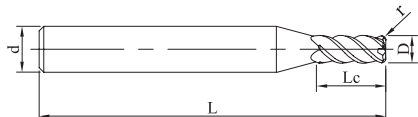


Fig1

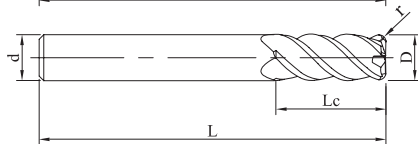


Fig2



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P370

UP210-B2

2 Flute, Ballnose

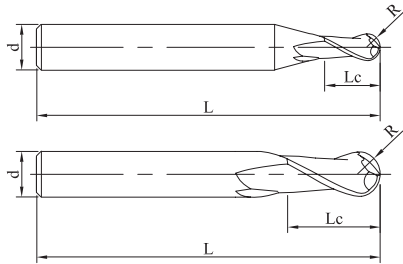


Fig1

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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P372

UP210-B2

2 Flute, Ballnose

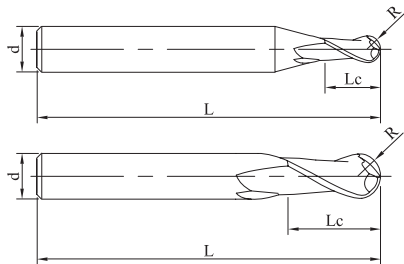


Fig1

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)

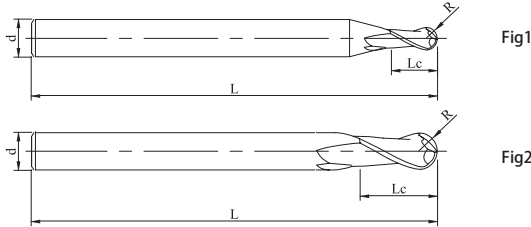
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P372

UP210-BH2

2 Flute Ballnose, with Long Shank Length



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)

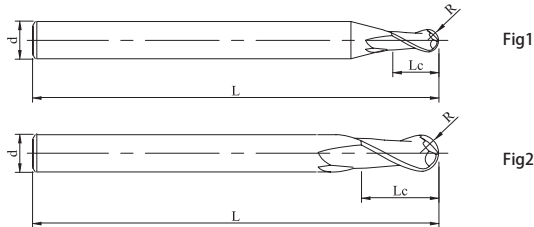
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P372

UP210-BH2

2 Flute Ballnose, with Long Shank Length



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)

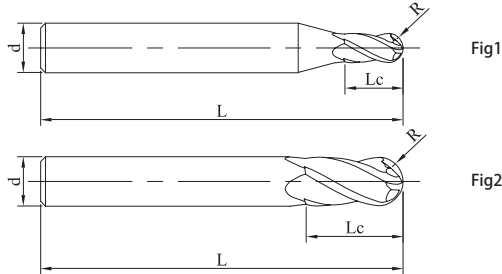
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P372

UP210-B4

4 Flute, Ballnose



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)

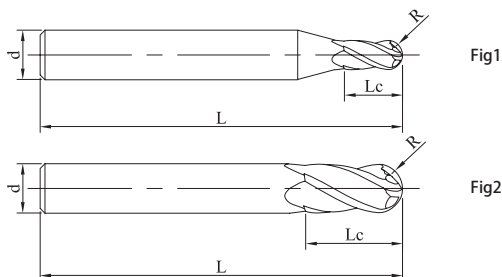
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, AlloySteel (<35HRC)	Alloy Steel, ToolSteel (48HRC)	StainlessSteel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P372

UP210-B4

4 Flute, Ballnose



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	$\begin{matrix} 0 \\ -0.01 \end{matrix}$
1.5 < R < 3	$\begin{matrix} 0 \\ -0.015 \end{matrix}$
R ≥ 3	$\begin{matrix} 0 \\ -0.02 \end{matrix}$

unit (mm)

Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P372

UP210-L60

4 Flute, 60° Chamfer Endmills

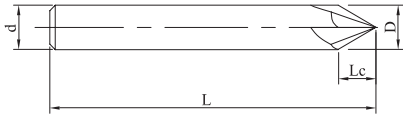


Fig1



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 ※ P372

UP210-L90

4 Flute, 90° Chamfer Endmills

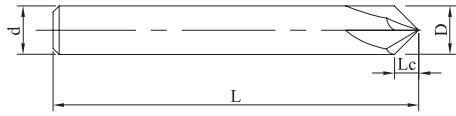


Fig1



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○	○	○	

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P373

UP210-L120

4 Flute, 120° Chamfer Endmills

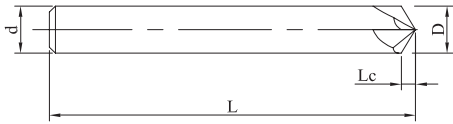


Fig1



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)

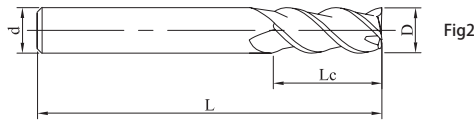
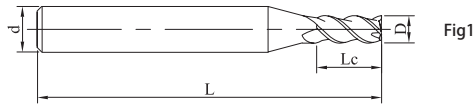
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○	○	○	

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P373

SP210-S3

3 Flute, with Variable Helix



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)

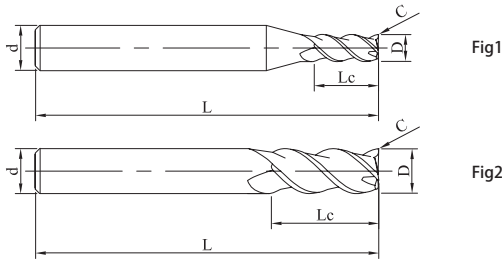
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P373

SP210-C3

3 Flute, Variable Helix with Chamfer



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)

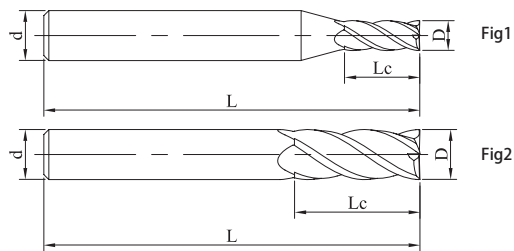
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P373

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)

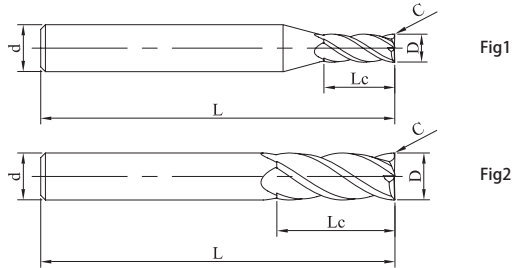
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P374

SP210-C4

4 Flute, Variable Helix with Chamfer and with Reduced Neck



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)

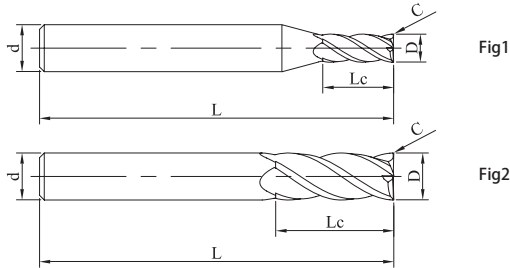
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P374

SP210-C4

4 Flute, Variable Helix with Chamfer and with Reduced Neck



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)

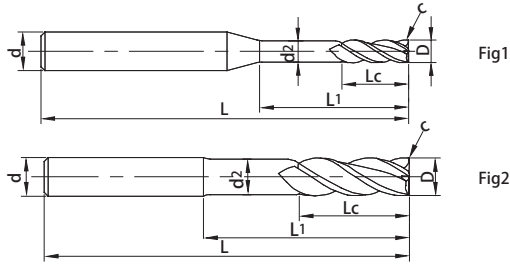
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P374

SP210-CN4

4 Flute, Variable Helix with Chamfer and with Reduced Neck



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P374

SP210-R4

4 Flute, with Variable Helix

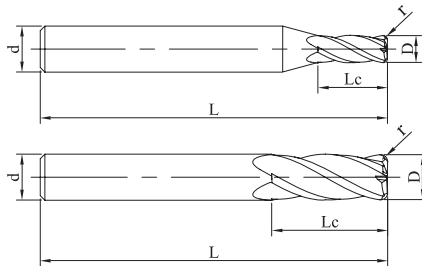


Fig1

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)

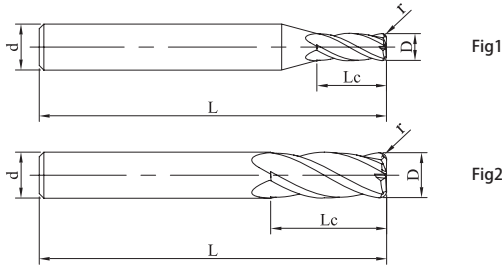
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P374

SP210-R4

4 Flute, with Variable Helix



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)

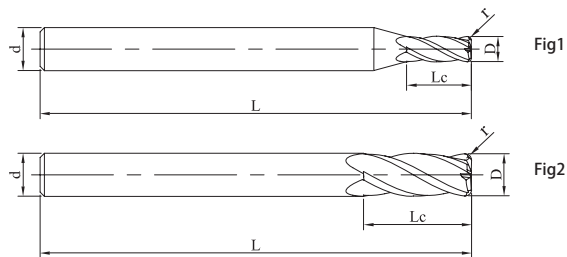
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, AlloySteel (<35HRC)	Alloy Steel, ToolSteel (48HRC)	StainlessSteel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P374

SP210-RH4

4 Flute, with Long Shank Length, Variable Helix



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P374

SP210-B2

2 Flute, Ballnose

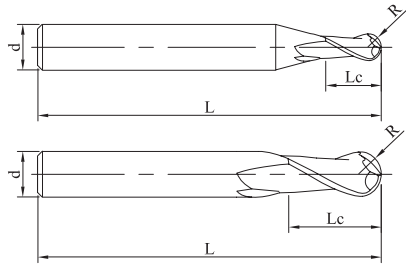


Fig1

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)

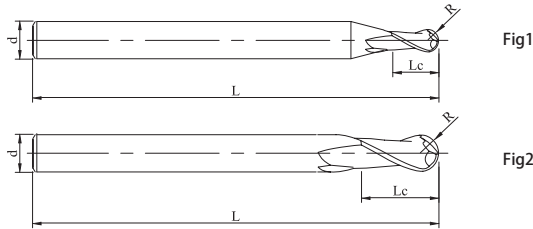
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P375

SP210-BH2

2 Flute Ballnose, with Long Shank length



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	$\begin{matrix} 0 \\ -0.01 \end{matrix}$
1.5 < R < 3	$\begin{matrix} 0 \\ -0.015 \end{matrix}$
R ≥ 3	$\begin{matrix} 0 \\ -0.02 \end{matrix}$

unit (mm)

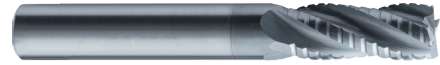
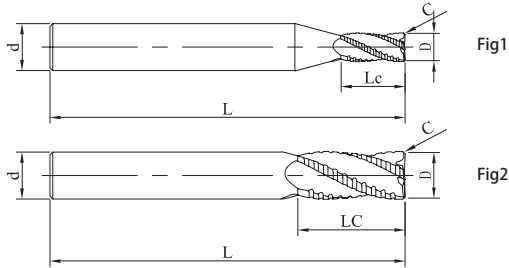
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○			

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P375

UPN210-S4

4 Flute, with Roughing Geometry



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)

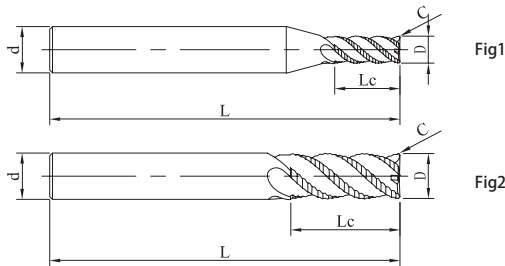
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○	○	○	

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P377

UPR210-S4

4 Flute, with Roughing Geometry



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)

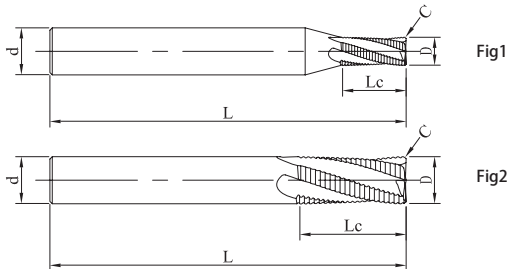
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○	○	○	

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P376

UPR300-S3/S4

3/4 Flute, with Roughing Geometry



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Hardened Steels (45-55HRC)	Hardened Steels (>55HRC)
○	○	○	○	○	

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P388

US200-S2

2 Flute, Standard Length

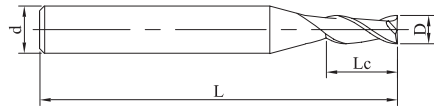


Fig1

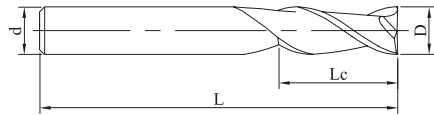


Fig2



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 ※ P380

US200-S2

2 Flute, Standard Length

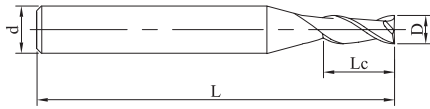


Fig1

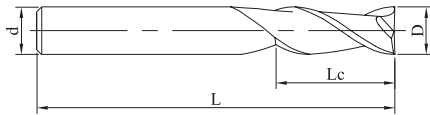


Fig2



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Heat-resistant Alloys	Titanium Alloys
○	○	○	○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P380

US200-SS4

4 Flute, Stub Length

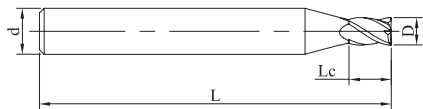


Fig1

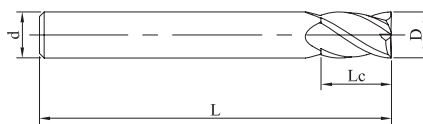


Fig2



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 ※ P381

US200-S4

4 Flute, Standard Length

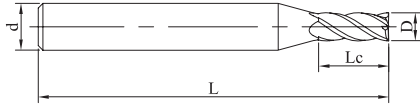


Fig1

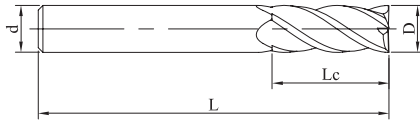


Fig2



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Heat-resistant Alloys	Titanium Alloys
○	○	○	○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P381

US200-SN4

4 Flute, with Reduced Neck Diameter

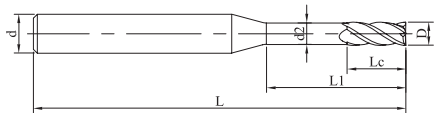


Fig1

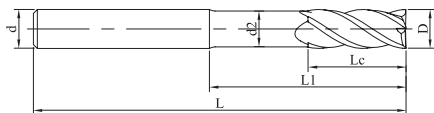


Fig2



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)

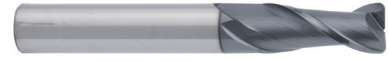
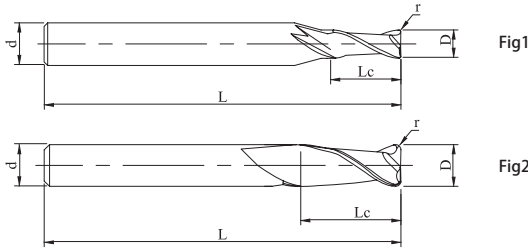
Workpiece Material					
P		M	K	S	
1234	5	123	123	123	4
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Heat-resistant Alloys	Titanium Alloys
○	○	○	○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P381

US200-R2

2 Flute, Corner Radius



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○	○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P380

US200-R2

2 Flute, Corner Radius

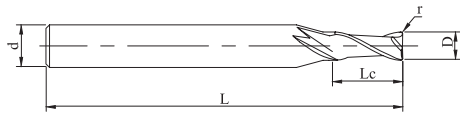


Fig1

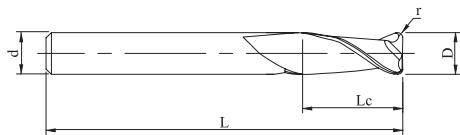


Fig2



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○	○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P380

US200-R3

3 Flute, Corner Radius

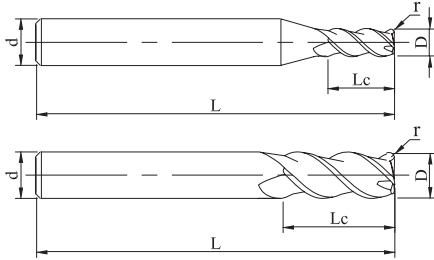


Fig1

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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○	○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P380

US200-R3

3 Flute, Corner Radius

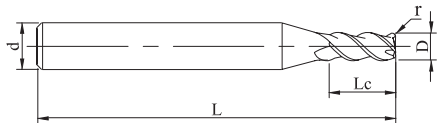


Fig1

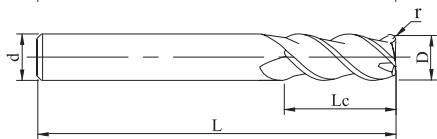
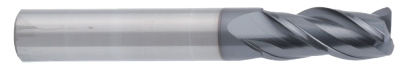


Fig2



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○	○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P380

US200-R4/RS4

4 Flute, Corner Radius/Corner Radius with Stub length

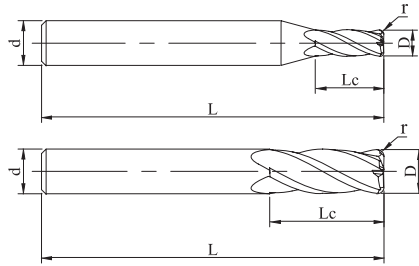


Fig1

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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○	○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P381

US200-R4

4 Flute, Corner Radius

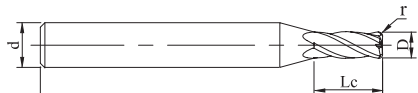


Fig1

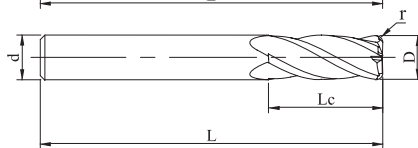
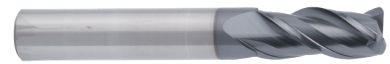


Fig2



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
○	○	○	○	○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P381

US200-B2

2 Flute,Ballnose

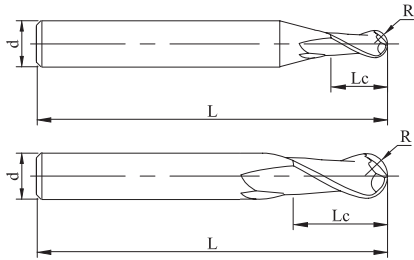


Fig1

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 ※ P381

US200-B4

4 Flute, Ballnose

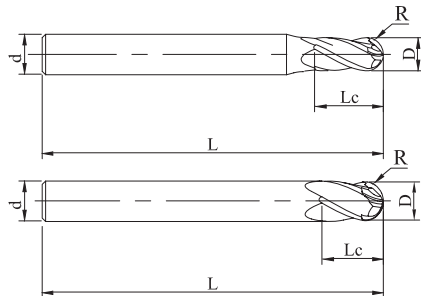


Fig1

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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Heat-resistant Alloys	Titanium Alloys
○	○	○	○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P381

US300-SS4

4 Flute, Stub Length

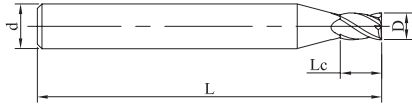


Fig1

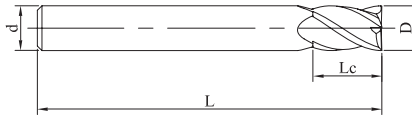


Fig2



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Heat-resistant Alloys	Titanium Alloys
○	○	○	○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P382

US300-S4

4 Flute, Standard Length

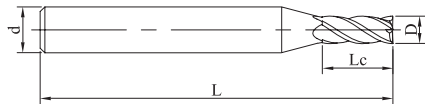


Fig1

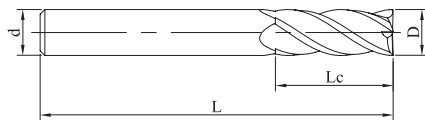


Fig2



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Heat-resistant Alloys	Titanium Alloys
○	○	○	○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P382

SS200-CS4

4 Flute, Stub Length with variable Helix

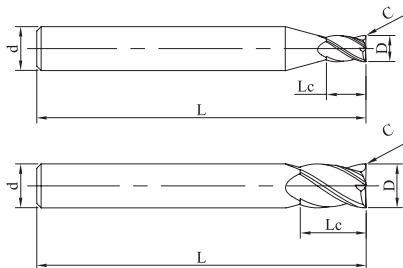


Fig1

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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Heat-resistant Alloys	Titanium Alloys
○	○	○	○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P382

SS200-C4

4 Flute, Stub Length with variable Helix

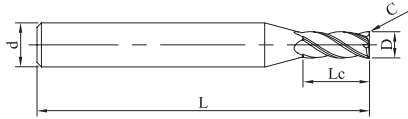


Fig1

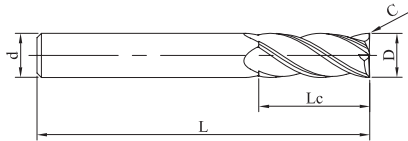


Fig2



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 ※ P382

UA160-S2

2 Flute, Standard Length

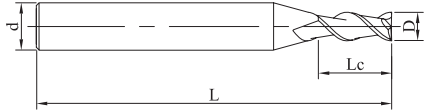


Fig1

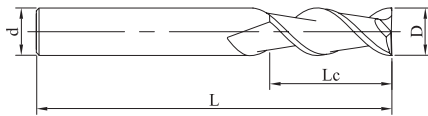


Fig2



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 ※ P383

UA160-S3

3 Flute, Standard Length

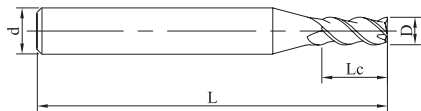


Fig1

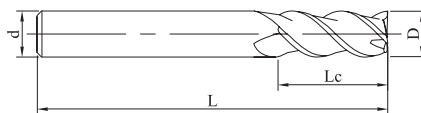


Fig2



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 ※ P384

UA160-S4

4Flute, Standard Length

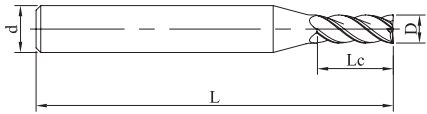


Fig1

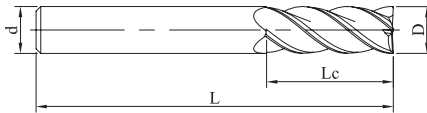
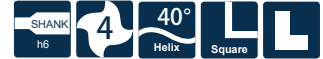


Fig2



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)

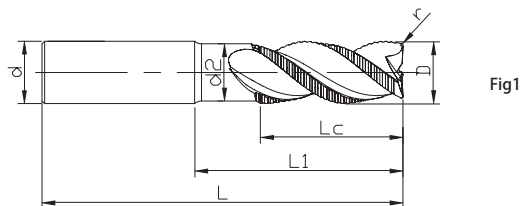
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
				○	○	

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P384

SA210-BW

3 Flute Corner Radius, with Long Shank Length



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)

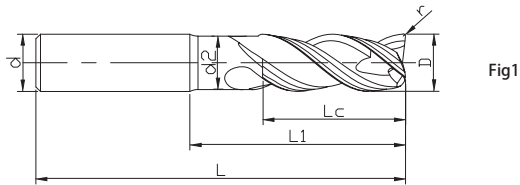
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
				○	○	

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P385

SA210-HF

3 Flute Corner Radius, with Long Shank Length



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
				○	○	

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P385

ST210-S4

4 Flute with Unequal Tooth Pitch

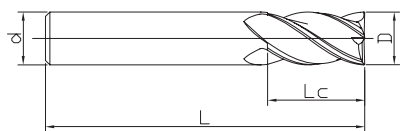


Fig1

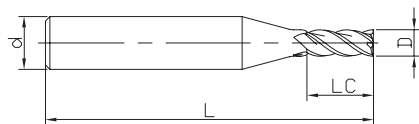


Fig2



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 ※ P386

ST210-R4

4 Flute with Unequal Tooth Pitch, Corner Radius

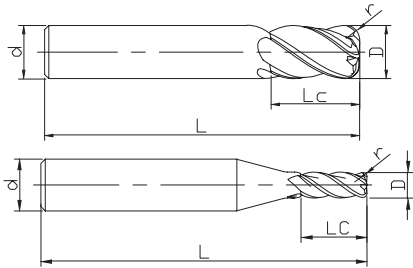
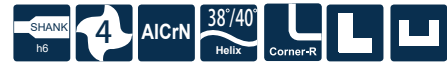


Fig1

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 ※ P386

ST210-R4

4 Flute with Unequal Tooth Pitch, Corner Radius

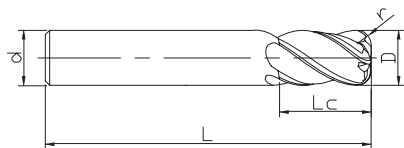


Fig1



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

Recommended Cutting Data ※ P386

ST210-RN4

4 Flute with Unequal Tooth Pitch and Reduced Neck, Corner Radius

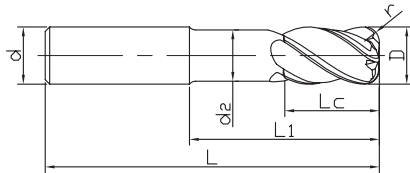


Fig1



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)

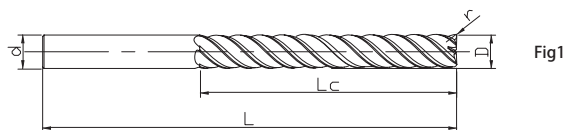
Workpiece Material				
P		M	S	
1 2 3 4	5	1 2 3	1 2 3	4
Carbon Steel, AlloySteel (<35HRC)	Alloy Steel, ToolSteel (48HRC)	StainlessSteel	Heat-resistant Alloys	Titanium Alloys
○	○	○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P386

ST210-RL5

5 Flute with Unequal Tooth Pitch and Long Flute, Corner Radius



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 ※ P387

ST210-B4

4 Flute with Unequal Tooth Pitch, Ballnose

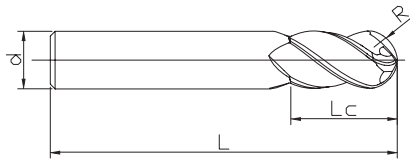


Fig1



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 ※ P387

ST300-RN4

4 Flute with Unequal Tooth Pitch and Reduced Neck, Internal Coolant, Corner Radius

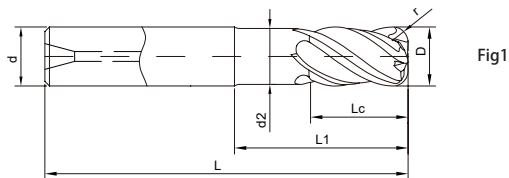


Fig1



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	$\begin{matrix} 0 \\ -0.03 \end{matrix}$
D > 12	$\begin{matrix} 0 \\ -0.04 \end{matrix}$

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 $\alpha + \beta$	TB β
○	○	○	○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P388

ST300-RN5

5 Flute with Unequal Tooth Pitch and Reduced Neck, Internal Coolant, Corner Radius

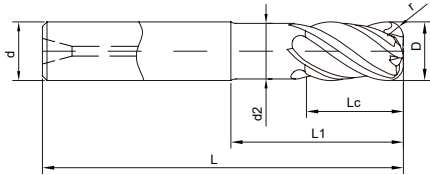


Fig1



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	Stainless Steel	TA α	TC α + β	TB β
○	○	○	○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P389

SH260-S2-H

NEW

2 Flute, Standard Length

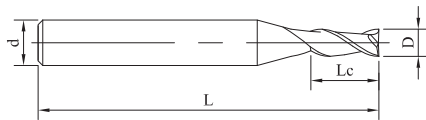


Fig1

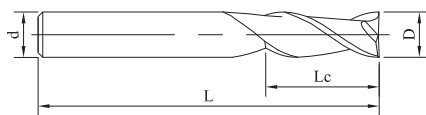


Fig2



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, Alloy Steel (< 35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
○	○		○	○	○

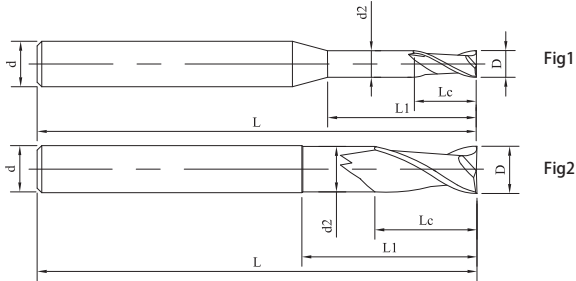
○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P390

SH260-SN2-H

NEW

2 Flute, Reduced Neck



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
○	○		○	○	○

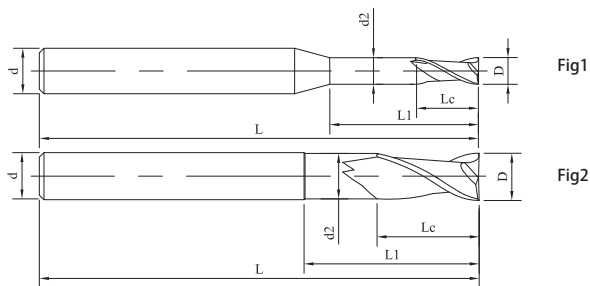
○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P390

SH260-SN2-H

NEW

2 Flute, Reduced Neck



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
Carbon Steel, Alloy Steel (< 35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
○	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P390

SH260-S4-H

NEW

4 Flute, Standard Length

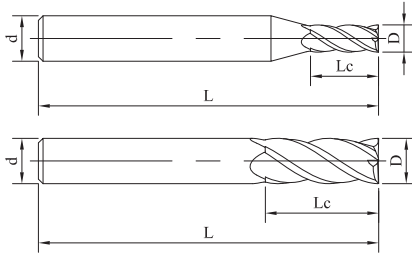


Fig1

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
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
○	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P391

SH260-S4-H

NEW

4 Flute, Standard Length

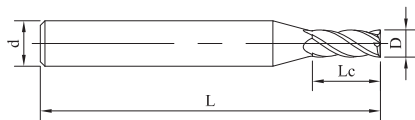


Fig1

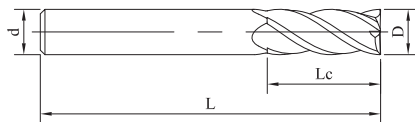


Fig2



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, Alloy Steel (< 35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
○	○		○	○	○

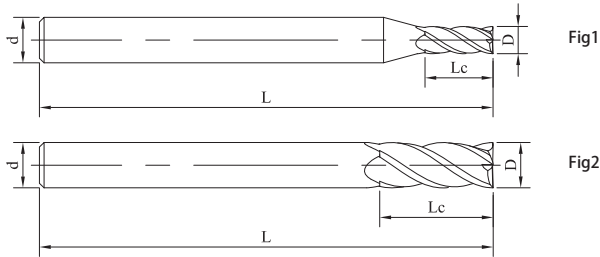
○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P391

SH260-SH4-H

NEW

4 Flute, Long Shank



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
○	○		○	○	○

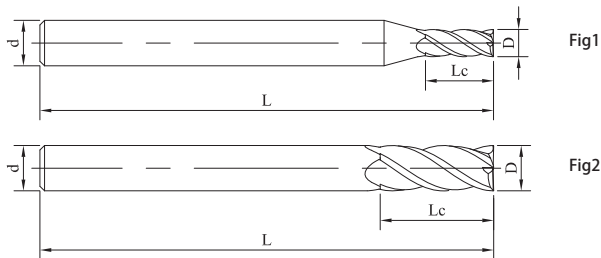
○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P391

SH260-SH4-H

NEW

4 Flute, Long Shank



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
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
○	○	○	○	○	○

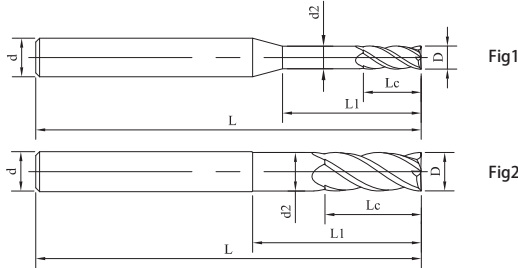
○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P391

SH260-SN4-H

NEW

4 Flute, Reduced Neck



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
○	○		○	○	○

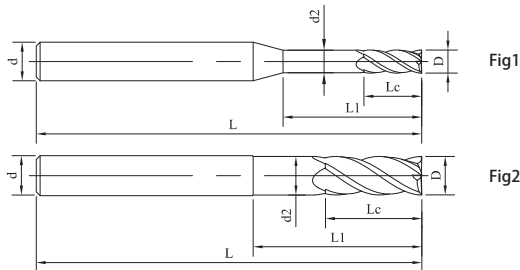
○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P391

SH260-SN4-H

NEW

4 Flute, Reduced Neck



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, Alloy Steel (< 35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
○	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P391

SH260-SL4-H NEW

4 Flute, Long Flute

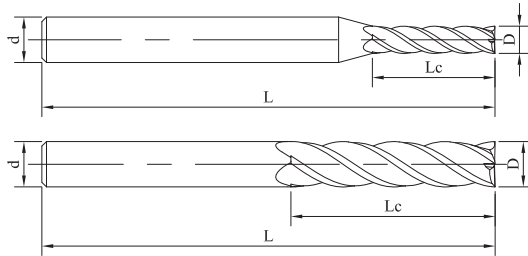


Fig1

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)

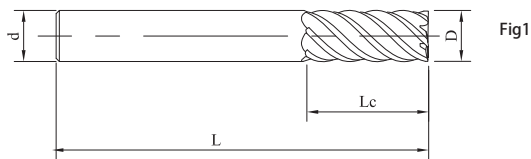
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
○	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P391

SH260-S6-H NEW

6 Flute, Standard Length



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)

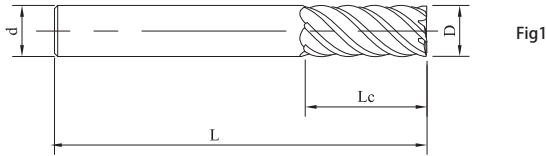
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (< 35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
○	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P391

SH260-SH6-H NEW

6 Flute, Long Shank



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
Carbon Steel, Alloy Steel (< 35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
○	○	○	○	○	○

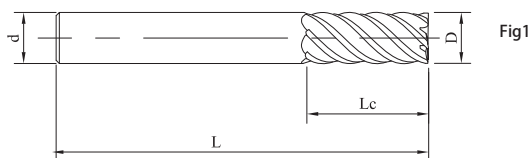
○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P391

SH260-SL6-H

NEW

6 Flute, Long Flute



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, Alloy Steel (< 35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
○	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P391

SH260-R2-H

NEW

2 Flute, Corner Radius

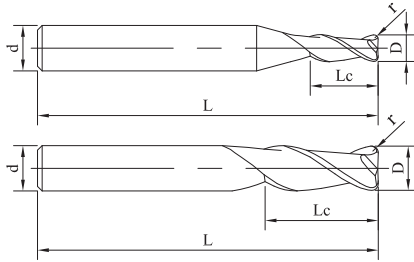


Fig1

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)

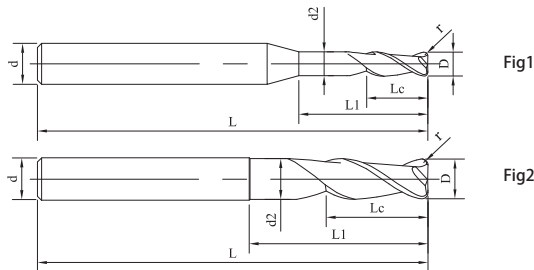
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
○	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P391

SH260-RN2-H NEW

2 Flute with Reduced Neck, Corner Radius



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)

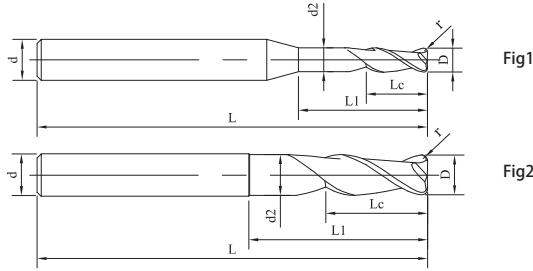
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (< 35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
○	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P390

SH260-RN2-H NEW

2 Flute with Reduced Neck, Corner Radius



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
○	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P390

SH260-R4-H

NEW

4 Flute, Corner Radius

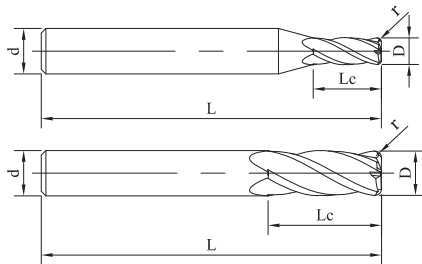


Fig1

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, Alloy Steel (< 35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
○	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P391

SH260-R4-H

NEW

4 Flute, Corner Radius

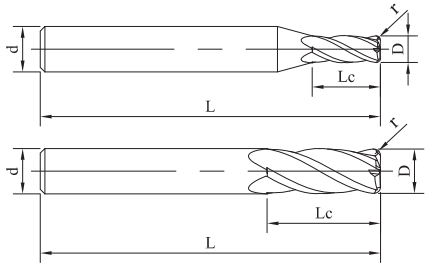


Fig1

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
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
○	○	○	○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P391

SH260-R4-H

NEW

4 Flute, Corner Radius

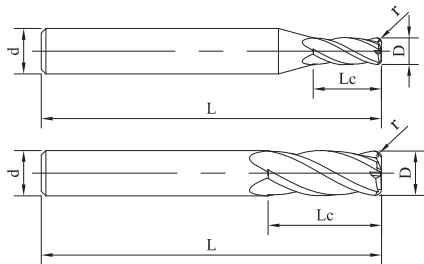


Fig1

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)

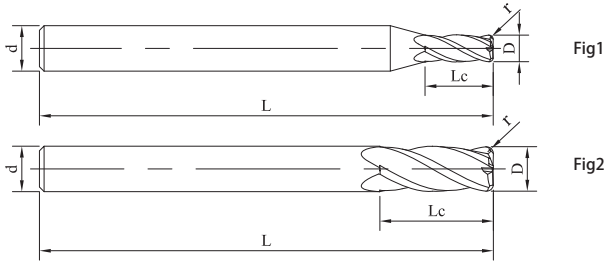
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (< 35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
○	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P391

SH260-RH4-H NEW

4 Flute with Long Shank, Corner Radius



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)

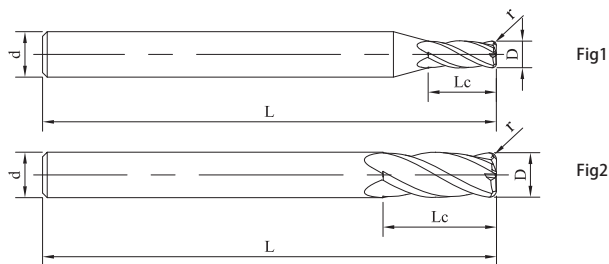
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
○	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P391

SH260-RH4-H NEW

4 Flute with Long Shank, Corner Radius



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)

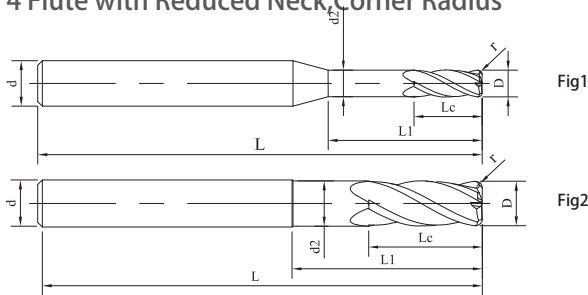
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (< 35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
○	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P391

SH260-RN4-H NEW

4 Flute with Reduced Neck Corner Radius



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)

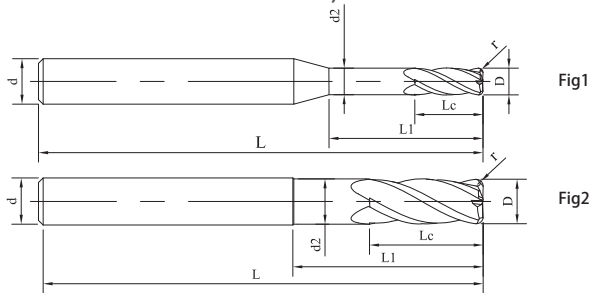
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
○	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P391

SH260-RN4-H NEW

4 Flute with Reduced Neck, Corner Radius



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, Alloy Steel (< 35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
○	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P391

SH260-B2-H

NEW

2 Flute, Ballnose

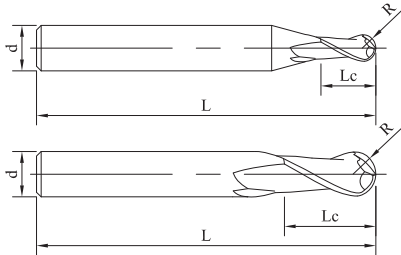


Fig1

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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
○	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P392

SH260-BH2-H

NEW

2 Flute Long Shank, Ballnose

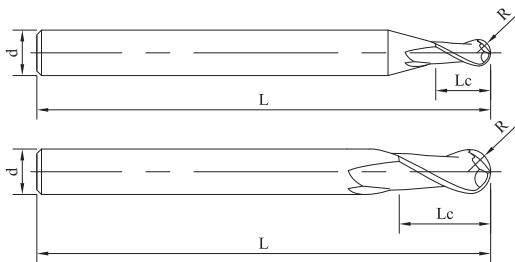


Fig1

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 ※ P392

SH260-BH2-H

NEW

2 Flute Long Shank, Ballnose

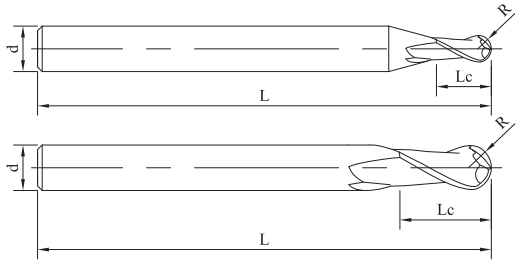


Fig1

Fig2



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
○	○		○	○	○

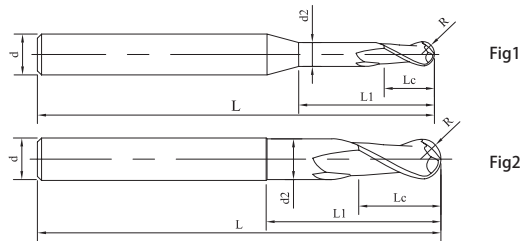
○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P392

SH260-BN2-H

NEW

2 Flute with Reduced Neck, 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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
○	○		○	○	○

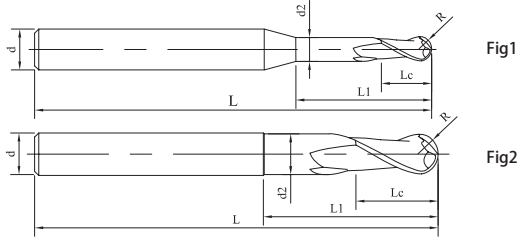
○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P392

SH260-BN2-H

NEW

2 Flute with Reduced Neck, 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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
○	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P392

SH300-S2-H

2 Flute, Standard Length

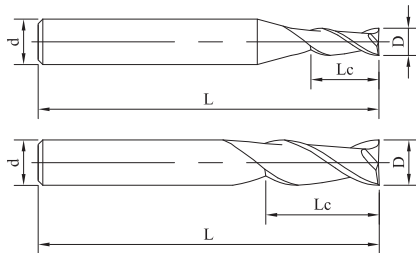


Fig1

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)

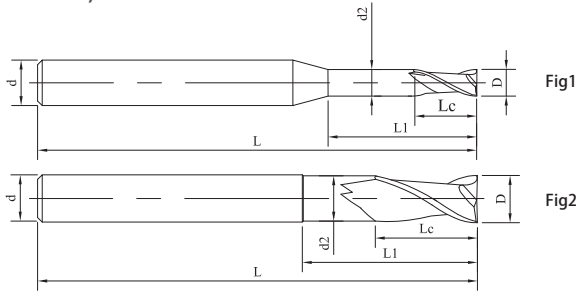
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (< 35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
○	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P392

SH300-SN2-H

2 Flute, Reduced Neck



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
○	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P392

SH300-SS4-H

4 Flute, Stub Length

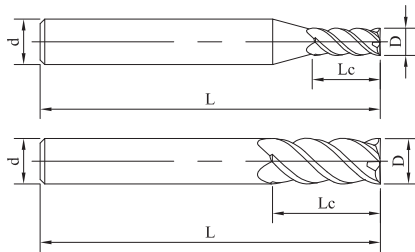


Fig1

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
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 ※ P393

SH300-SS4-H

4 Flute, Stub Length

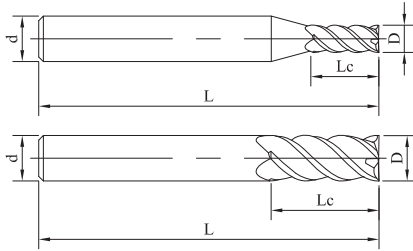


Fig1

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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
○	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P393

SH300-S4-H

4 Flute, Standard Length

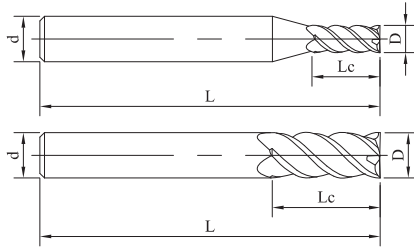


Fig1

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, Alloy Steel (< 35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P393

SH300-S4-H

4 Flute, Standard Length

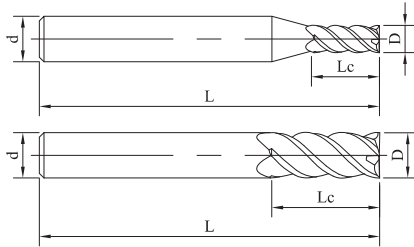


Fig1

Fig2



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P393

SH300-SH4-H

4 Flute, Long Shank

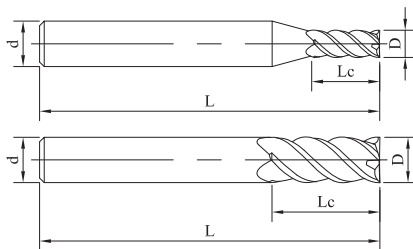


Fig1

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
Carbon Steel, Alloy Steel (< 35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P393

SH300-SH4-H

4 Flute, Long Shank

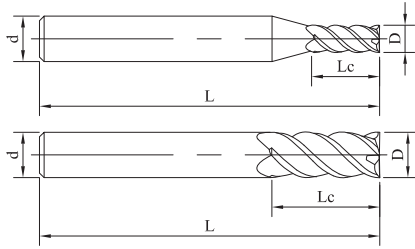


Fig1

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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P393

SH300-SL4-H

4 Flute, Long Flute

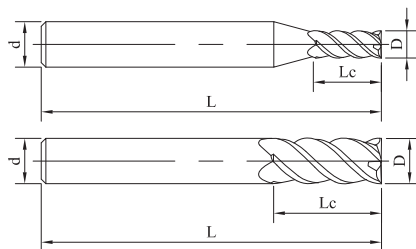


Fig1

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
Carbon Steel, Alloy Steel (< 35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P393

SH300-SL4-H

4 Flute, Long Flute

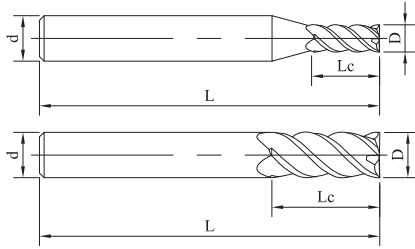


Fig2



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)

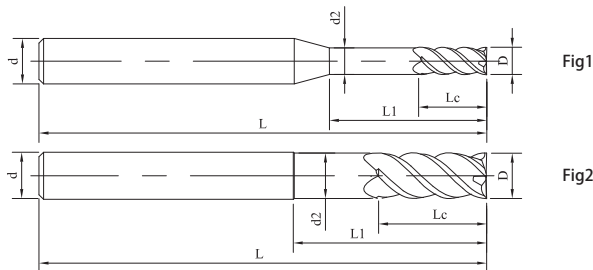
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P393

SH300-SN4-H

4 Flute, Reduced Neck



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)

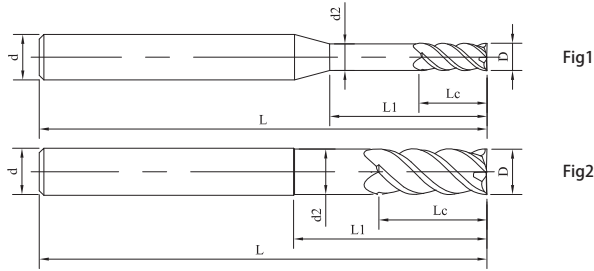
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (< 35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P393

SH300-SN4-H

4 Flute, Reduced Neck



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)

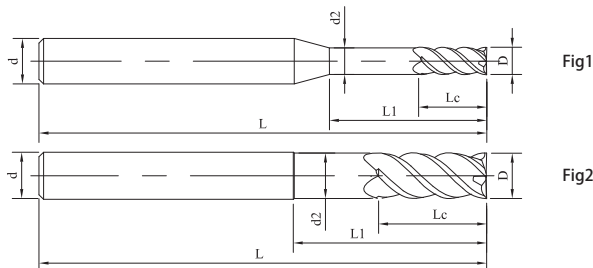
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P393

SH300-SN4-H

4 Flute, Reduced Neck



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)

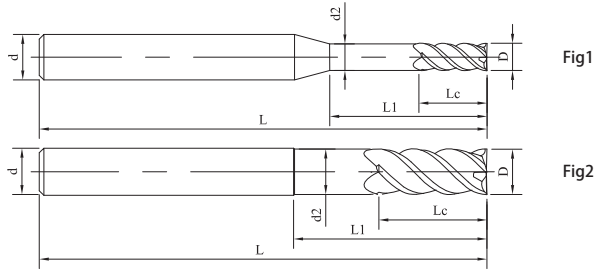
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (< 35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P393

SH300-SN4-H

4 Flute, Reduced Neck



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P393

SH300-S6-H

6 Flute, Standard Length

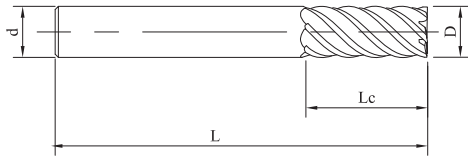


Fig1



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)

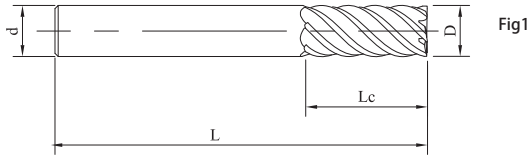
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (< 35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P394

SH300-SH6-H

6 Flute, Long Shank



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
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P394

SH300-SL6-H

6 Flute, Long Flute

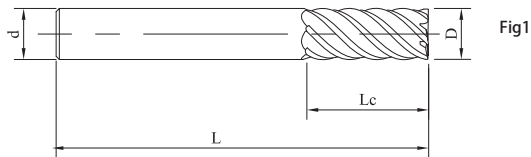


Fig1



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	$\begin{matrix} 0 \\ -0.015 \end{matrix}$
D > 12	$\begin{matrix} 0 \\ -0.02 \end{matrix}$

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 ※ P394

SH300-R2-H

2 Flute, Corner Radius

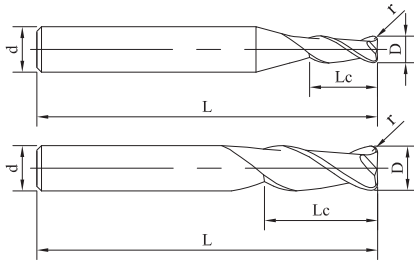


Fig1

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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P393

SH300-R2-H

2 Flute, Corner Radius

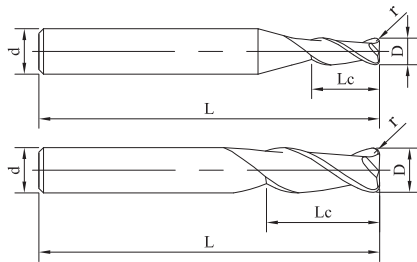


Fig1

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)

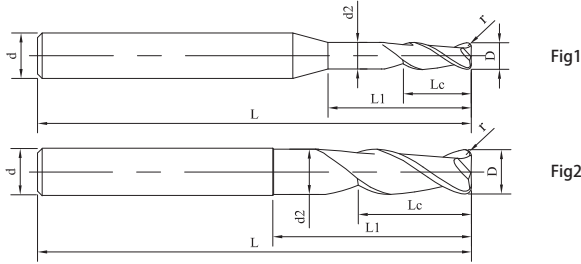
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, AlloySteel (< 35HRC)	Alloy Steel, ToolSteel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P393

SH300-RN2-H

2 Flute with Reduced Neck, Corner Radius



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P393

SH300-R4-H

4 Flute, Corner Radius

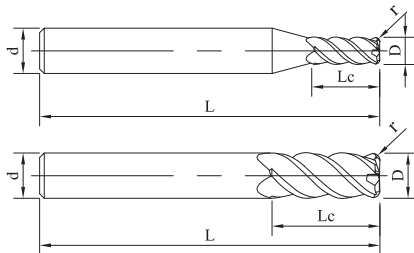


Fig1

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)

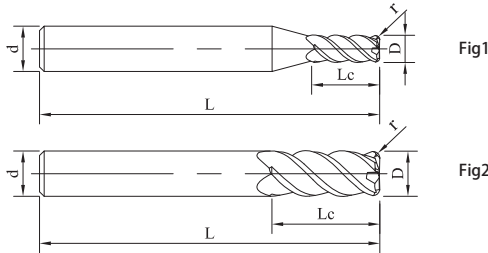
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (< 35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P393

SH300-R4-H

4 Flute, Corner Radius



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
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P393

SH300-R4-H

4 Flute, Corner Radius

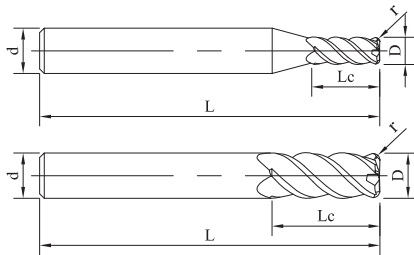


Fig1

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, Alloy Steel (< 35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P393

SH300-R4-H

4 Flute, Corner Radius

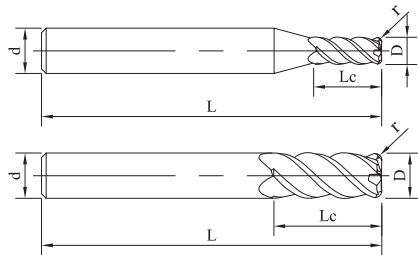


Fig1

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)

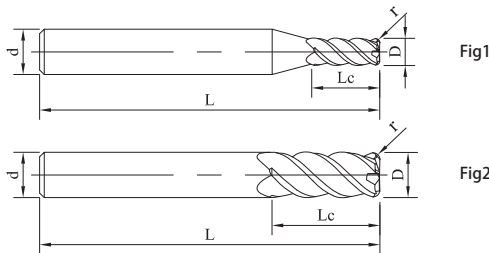
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P393

SH300-RH4-H

4 Flute with Long Shank, Corner Radius



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)

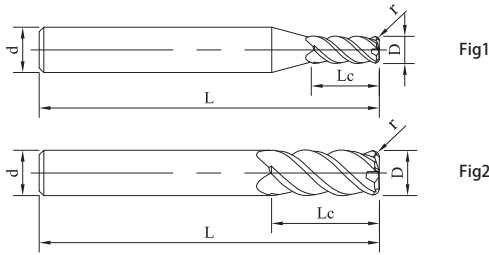
Workpiece Material					
P			H		
1	2	3	4	5	6
Carbon Steel, Alloy Steel (< 35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P393

SH300-RH4-H

4 Flute with Long Shank, Corner Radius



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)

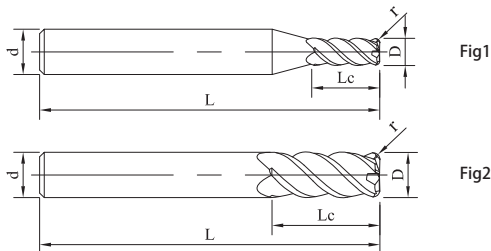
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P393

SH300-RH4-H

4 Flute with Long Shank, Corner Radius



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)

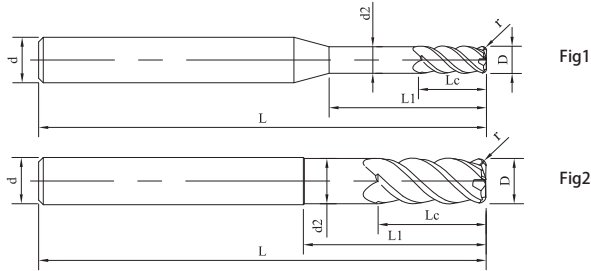
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (< 35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P393

SH300-RN4-H

4 Flute with Reduced Neck, Corner Radius



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)

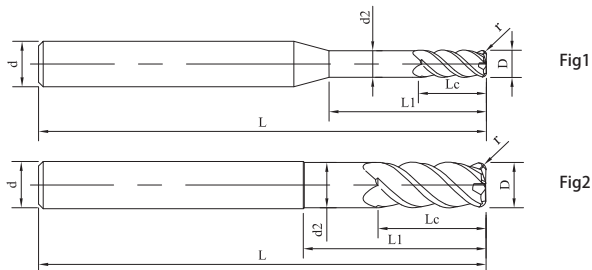
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P393

SH300-RN4-H

4 Flute with Reduced Neck, Corner Radius



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)

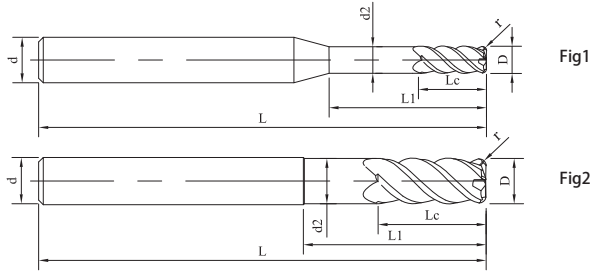
Workpiece Material								
P			H					
1	2	3	4	5	6			
Carbon Steel, Alloy Steel (<35HRC)				Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
				○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P393

SH300-RN4-H

4 Flute with Reduced Neck, Corner Radius



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)

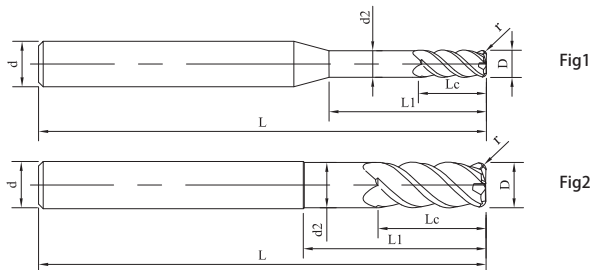
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P393

SH300-RN4-H

4 Flute with Reduced Neck, Corner Radius



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)

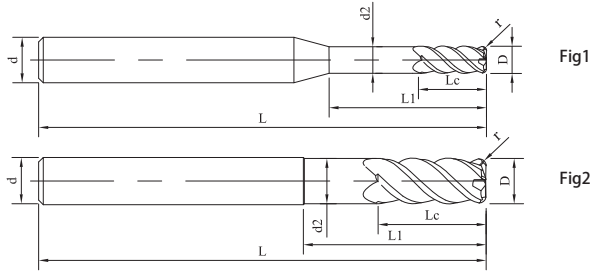
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (< 35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P393

SH300-RN4-H

4 Flute with Reduced Neck, Corner Radius



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)

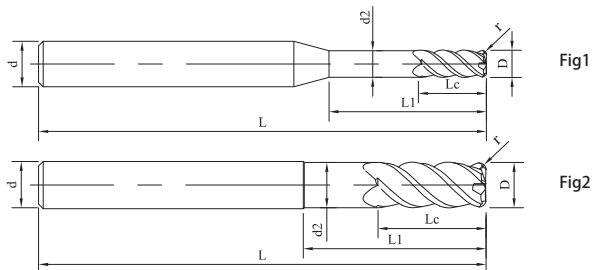
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P393

SH300-RN4-H

4 Flute with Reduced Neck, Corner Radius



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
Carbon Steel, Alloy Steel (< 35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P393

SH300-R6-H

6 Flute, Corner Radius

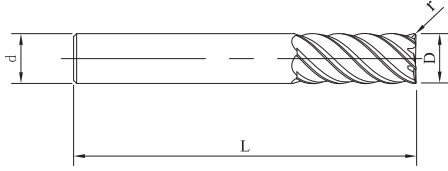


Fig1



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P394

SH300-R6-H

6 Flute, Corner Radius

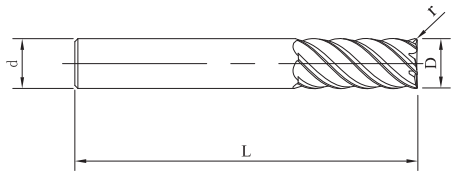


Fig1



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, Alloy Steel (< 35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P394

SH300-RH6-H

6 Flute with Long Shank, Corner Radius

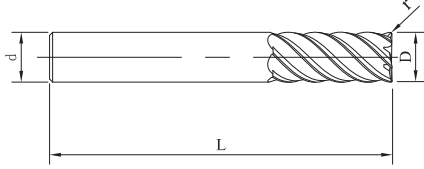


Fig1



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)

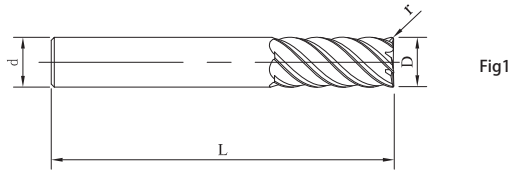
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P394

SH300-RH6-H

6 Flute with Long Shank, Corner Radius



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, Alloy Steel (< 35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P394

SH300-B2-H

2 Flute, Ballnose

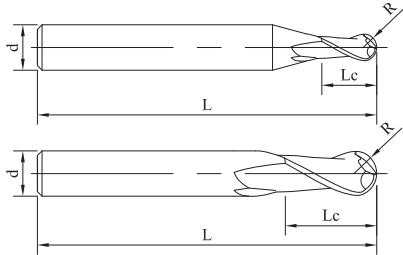


Fig1

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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P394

SH300-B2-H

2 Flute, Ballnose

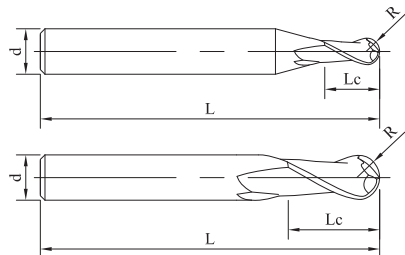


Fig1

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)

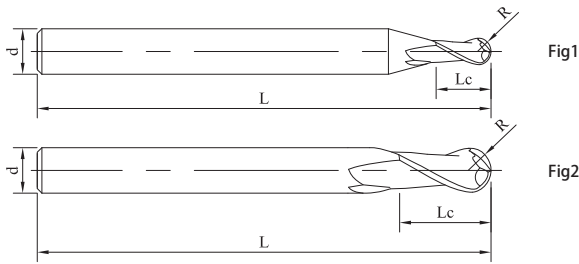
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, AlloySteel (<35HRC)	Alloy Steel, ToolSteel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P394

SH300-BH2-H

2 Flute with Long Shank, Ballnose



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)

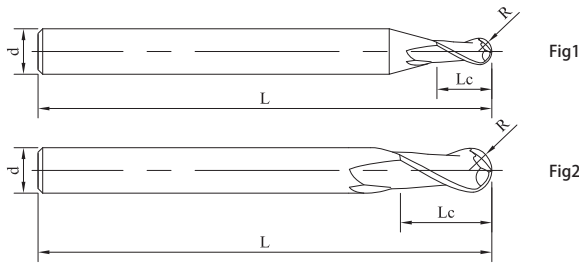
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P394

SH300-BH2-H

2 Flute with Long Shank, Ballnose



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)

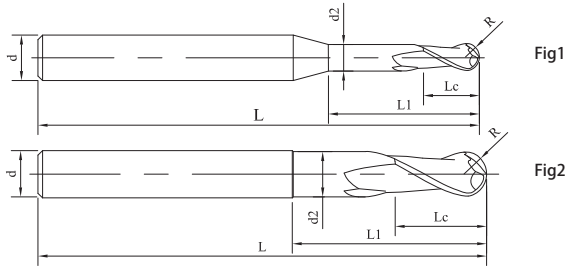
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P394

SH300-BN2-H

2 Flute, Ballnose



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)

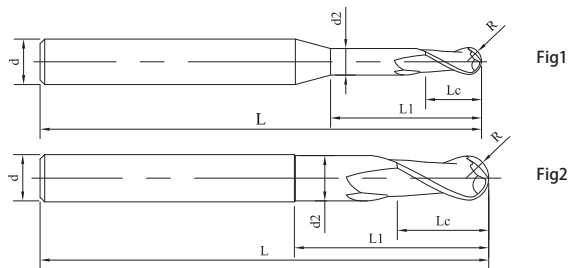
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P394

SH300-BN2-H

2 Flute with Reduced Neck, Ballnose



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)

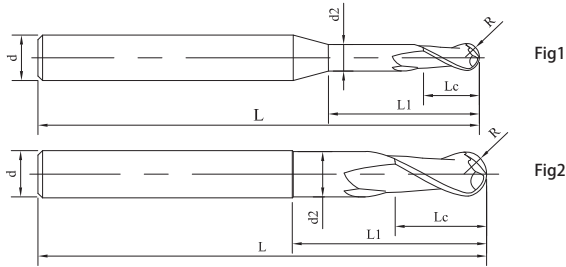
Workpiece Material					
P			H		
1	2	3	4	5	6
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P394

SH300-BN2-H

2 Flute with Reduced Neck, Ballnose



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)

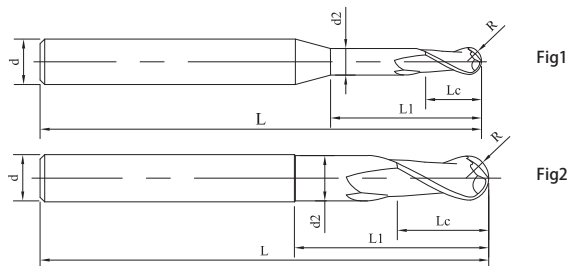
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P394

SH300-BN2-H

2 Flute with Reduced Neck, 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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P394

SH300-B4-H

4 Flute, Ballnose

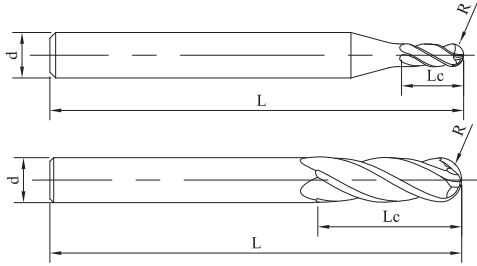


Fig1

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)

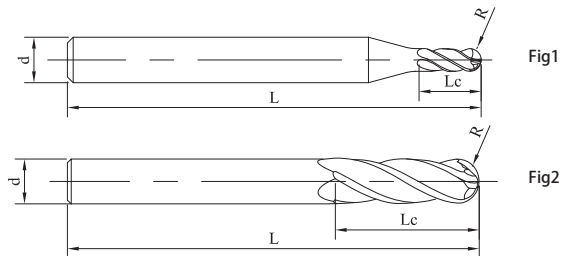
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P394

SH300-BH4-H

4 Flute with Long Shank, Ballnose



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)

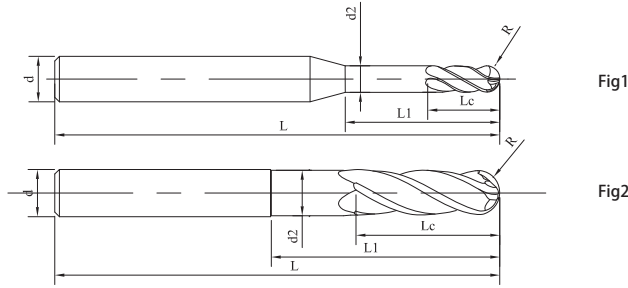
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P395

SH300-BN4-H

4 Flute with Reduced Neck, Ballnose



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)

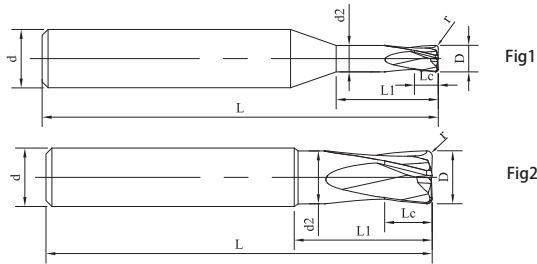
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P395

FH200-R4-H

4 Flute, Corner Radius



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)

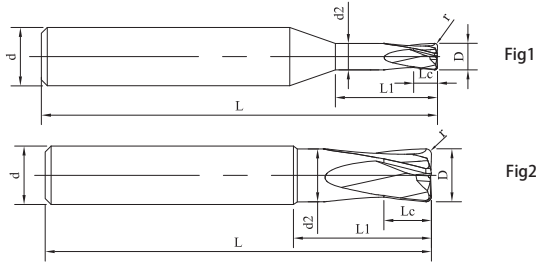
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (< 35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P396

FH200-R4-H

4 Flute, Corner Radius



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)

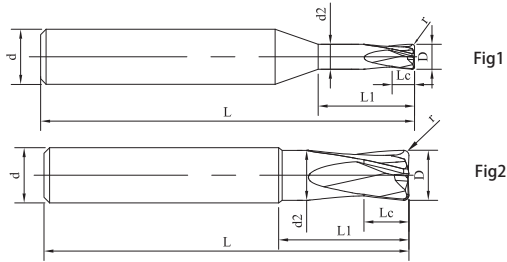
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P396

FH200-RN4-H

4 Flute with Reduced Neck, Corner Radius



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)

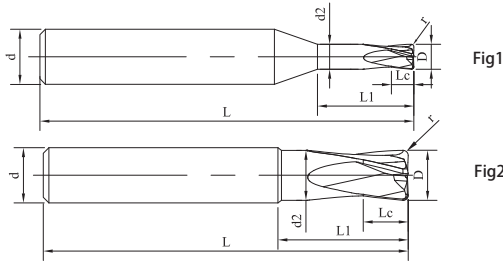
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, Alloy Steel (< 35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P396

FH200-RN4-H

4 Flute with Reduced Neck, Corner Radius



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, Alloy Steel (<35HRC)	Alloy Steel, Tool Steel (48HRC)	PH, Ferrite, Martensite Steel (< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel (> 60HRC)
	○		○	○	○

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P396

FH200-R6-H

6 Flute, Corner Radius

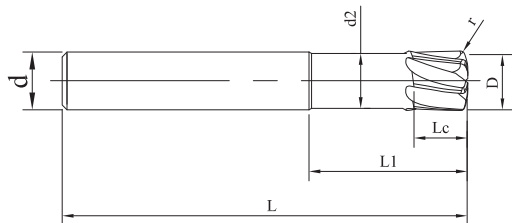


Fig1



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 -0.038

unit (mm)

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

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P396

FH200-RH6-H

6 Flute with Long Shank, Corner Radius

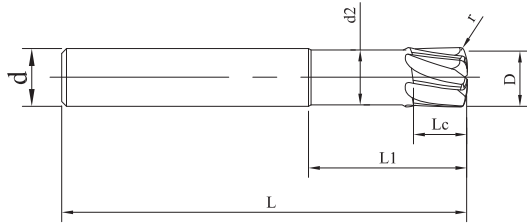


Fig1



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 -0.038

unit (mm)

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

○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P396

FH200-RN6-H

6 Flute with Reduced Neck, Corner Radius

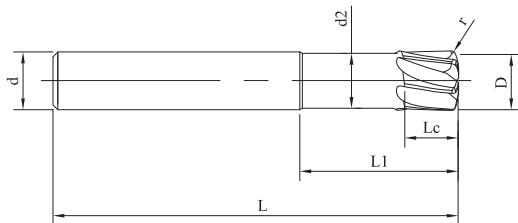


Fig1



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 -0.038

unit (mm)

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

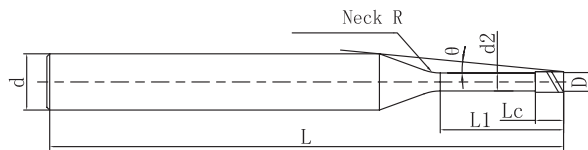
○ Most Suitable ○ Suitable

Recommended Cutting Data ※ P396



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							0.52	0.55	0.58	0.60	0.65	●
SPM200-SN2-0.1-1-V		1							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							1.04	1.08	1.12	1.16	1.26	○
SPM200-SN2-0.2-1.5-V		1.5							1.56	1.62	1.67	1.74	1.88	●
SPM200-SN2-0.2-2-V		2							2.08	2.15	2.23	2.31	2.50	●
SPM200-SN2-0.2-3-V	3	3.11	3.22	3.34	3.46	3.74	○	10.65						
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							1.59	1.67	1.74	1.81	1.95	●
SPM200-SN2-0.3-2-V		2							2.12	2.21	2.29	2.38	2.57	●
SPM200-SN2-0.3-2.5-V		2.5							2.64	2.75	2.85	2.96	3.20	●
SPM200-SN2-0.3-3-V		3							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							1.59	1.67	1.74	1.81	1.95	●
SPM200-SN2-0.4-2-V		2							2.12	2.21	2.29	2.38	2.57	●
SPM200-SN2-0.4-2.5-V		2.5							2.64	2.75	2.85	2.96	3.20	○
SPM200-SN2-0.4-3-V		3							3.16	3.28	3.40	3.53	3.82	○
SPM200-SN2-0.4-3.5-V		3.5							3.68	3.82	3.96	4.11	4.44	●
SPM200-SN2-0.4-4-V		4							4.20	4.35	4.51	4.68	5.06	●
SPM200-SN2-0.4-5-V		5							4.72	4.88	5.06	5.24	5.63	○
SPM200-SN2-0.4-6-V		6							5.24	5.42	5.62	5.83	6.30	○
SPM200-SN2-0.4-8-V		8							6.27	6.49	6.73	6.98	7.55	●
SPM200-SN2-0.4-10-V	10	6.94	7.34	7.63	7.94	10.03	●							
		6.12	10.41	10.77	11.16	11.58	12.52	●						

● Stock ○ Available upon Order

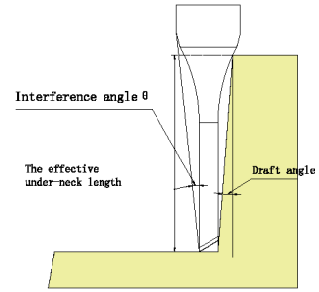
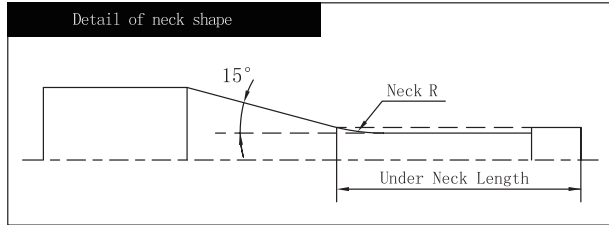
Cutting Parameters ※ P497

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)

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
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

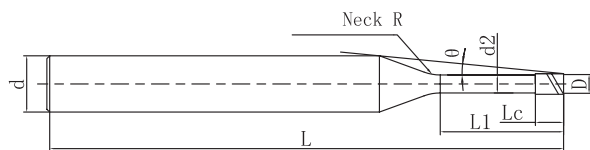
D	Tol
0.1 ≤ D ≤ 0.5	0 -0.007
0.6 ≤ D ≤ 0.9	0 -0.01
1.0 ≤ D ≤ 6.0	0 -0.015

Cutting Parameters ※ P497

(mm)

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
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

● Stock ○ Available upon Order

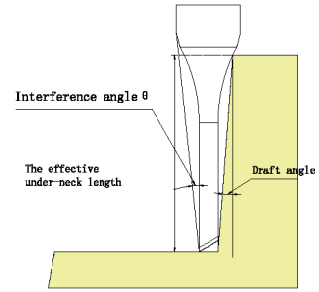
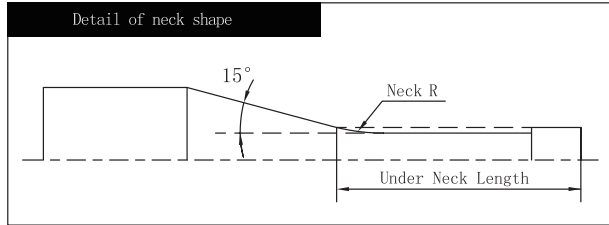
D	Tol
0.1 ≤ D ≤ 0.5	0 -0.007
0.6 ≤ D ≤ 0.9	0 -0.01
1.0 ≤ D ≤ 6.0	0 -0.015

(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			5.20			10.51	10.88	11.27	11.69	12.64	●	
SPM200-SN2-1.2-12-V		12			4.61			12.58	13.02	13.49	13.99	15.13	●	
SPM200-SN2-1.2-16-V		16			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			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			6.60			6.33	6.57	6.81	7.07	7.64	●	
SPM200-SN2-1.5-8-V		8			5.58			8.41	8.71	9.03	9.37	10.13	●	
SPM200-SN2-1.5-10-V		10			4.83			10.48	10.85	11.24	11.67	12.61	○	
SPM200-SN2-1.5-12-V		12			4.26			12.55	12.99	13.46	13.97	15.10	●	
SPM200-SN2-1.5-14-V		14			3.81			14.62	15.13	15.68	16.26	17.58	○	
SPM200-SN2-1.5-16-V		16			3.44			16.69	17.27	17.89	18.56	20.07	●	
SPM200-SN2-1.5-18-V		18			3.14			18.76	19.41	20.11	20.86	22.56	●	
SPM200-SN2-1.5-20-V		20			2.89			20.82	21.55	22.33	23.16	-	○	
SPM200-SN2-1.5-25-V		25			2.41			25.99	26.9	27.87	28.91	-	●	
SPM200-SN2-1.5-30-V	30	2.06	31.16	32.25	33.41	34.66	-	●						
SPM200-SN2-1.5-35-V	35	1.80	36.33	37.59	38.95	-	-	●						
SPM200-SN2-1.5-40-V	40	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			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			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

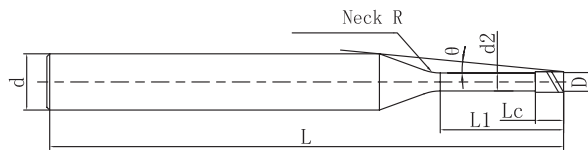
D	Tol
0.1 ≤ D ≤ 0.5	0 -0.007
0.6 ≤ D ≤ 0.9	0 -0.01
1.0 ≤ D ≤ 6.0	0 -0.015

(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

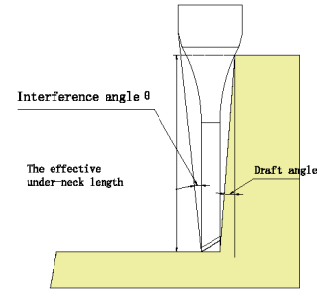
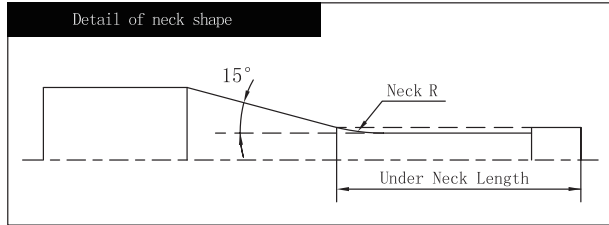
D	Tol
0.1 ≤ D ≤ 0.5	0 -0.007
0.6 ≤ D ≤ 0.9	0 -0.01
1.0 ≤ D ≤ 6.0	0 -0.015

(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			2.41			31.07	32.15	33.31	34.56	-	●	
SPM200-SN2-3-40-V		40			1.89			41.40	42.85	44.39	-	-	●	
SPM200-SN2-3-50-V		50			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			2.90			16.58	17.16	17.78	18.44	-	●	
SPM200-SN2-4-20-V		20			2.41			20.71	21.43	22.21	23.04	-	●	
SPM200-SN2-4-25-V		25			2.00			25.88	26.78	27.75	-	-	○	
SPM200-SN2-4-30-V		30			1.70			31.05	32.13	33.29	-	-	●	
SPM200-SN2-4-35-V		35			1.48			36.22	37.48	-	-	-	●	
SPM200-SN2-4-40-V		40			1.31			41.39	42.83	-	-	-	○	
SPM200-SN2-4-50-V		50			1.07			51.72	53.52	-	-	-	○	
SPM200-SN2-5-20-V		5			20			7.5	4.85	70	6	4	1.31	20.71
SPM200-SN2-5-25-V	25		1.07	25.87	26.78	-	-			-			●	
SPM200-SN2-5-30-V	30		0.90	31.04	-	-	-			-			○	
SPM200-SN2-5-40-V	40		0.69	41.38	-	-	-			-			●	
SPM200-SN2-5-50-V	50		0.56	51.72	-	-	-			-			○	
SPM200-SN2-6-20-V	6	20	9	5.85	70	6	-	-	-	-	-	-	-	●
SPM200-SN2-6-30-V		30			-			-	-	-	-	-	○	
SPM200-SN2-6-40-V		40			-			-	-	-	-	-	●	
SPM200-SN2-6-50-V		50			-			-	-	-	-	-	○	

● Stock ○ Available upon Order

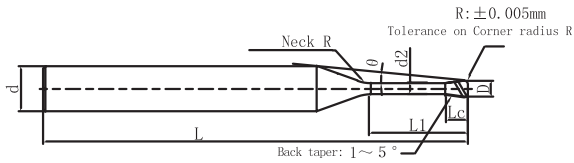
D	Tol
0.1 ≤ D ≤ 0.5	0 -0.007
0.6 ≤ D ≤ 0.9	0 -0.01
1.0 ≤ D ≤ 6.0	0 -0.015

(mm)

Cutting Parameters ※ P497

SPM200-RN2

2 Flute with Extended Neck, Corner Radius



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

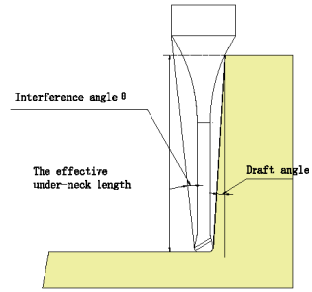
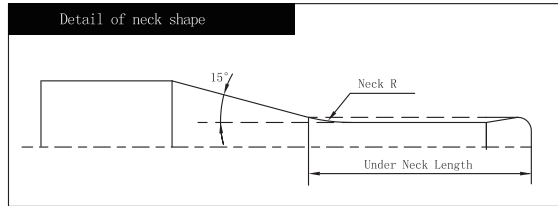
R	Tol
R	±0.005

(mm)

Cutting Parameters ※ P507

SPM200-RN2

2 Flute with Extended Neck, Corner Radius



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							4.20	4.35	4.51	4.67	5.05	○
SPM200-RN2-0.4-1-0.1-V		0.1	1							1.06	1.11	1.16	1.21	1.31	●
SPM200-RN2-0.4-2-0.1-V			2							2.11	2.20	2.28	2.37	2.55	●
SPM200-RN2-0.4-3-0.1-V			3							3.16	3.28	3.39	3.52	3.79	●
SPM200-RN2-0.4-4-0.1-V			4							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							2.11	2.21	2.29	2.38	2.57	●
SPM200-RN2-0.5-3-0.02-V			3							3.16	3.28	3.40	3.53	3.81	●
SPM200-RN2-0.5-4-0.02-V			4							4.20	4.35	4.51	4.68	5.06	○
SPM200-RN2-0.5-6-0.02-V			6							6.27	6.49	6.73	6.98	7.54	●
SPM200-RN2-0.5-1-0.05-V			0.05							1	1.06	1.12	1.17	1.22	1.32
SPM200-RN2-0.5-2-0.05-V		2		2.11	2.21	2.29	2.37	2.56	○						
SPM200-RN2-0.5-3-0.05-V		3		3.16	3.28	3.40	3.52	3.81	●						
SPM200-RN2-0.5-4-0.05-V		4		4.20	4.35	4.51	4.67	5.05	○						
SPM200-RN2-0.5-5-0.05-V		5		5.24	5.42	5.61	5.82	6.29	●						
SPM200-RN2-0.5-6-0.05-V		6		6.27	6.49	6.72	6.97	7.53	●						
SPM200-RN2-0.5-1-0.1-V		0.1	1	1.06	1.11	1.16	1.21	1.31	●						
SPM200-RN2-0.5-2-0.1-V			2	2.11	2.20	2.28	2.37	2.55	●						
SPM200-RN2-0.5-3-0.1-V			3	3.16	3.28	3.39	3.52	3.79	○						
SPM200-RN2-0.5-4-0.1-V			4	4.20	4.35	4.50	4.67	5.04	●						
SPM200-RN2-0.5-5-0.1-V			5	5.24	5.42	5.61	5.82	6.28	●						
SPM200-RN2-0.5-6-0.1-V			6	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

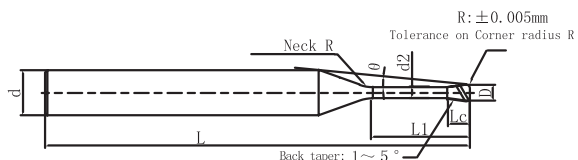
R	Tol
R	±0.005

(mm)

Cutting Parameters ※ P507

SPM200-RN2

2 Flute with Extended Neck, Corner Radius



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						7.51	6.37	6.63	6.87	7.12	7.70	○
SPM200-RN2-0.8-4-0.05-V		0.05	4						8.99	4.27	4.47	4.65	4.82	5.21	●
SPM200-RN2-0.8-6-0.05-V			6						7.52	6.37	6.63	6.86	7.12	7.69	●
SPM200-RN2-0.8-8-0.05-V			8						6.47	8.45	8.76	9.08	9.42	10.18	○
SPM200-RN2-0.8-12-0.05-V			12						5.05	12.61	13.04	13.51	14.02	15.15	○
SPM200-RN2-0.8-4-0.1-V			0.1						4	9.03	4.26	4.47	4.64	4.81	5.19
SPM200-RN2-0.8-6-0.1-V		6							7.55	6.37	6.62	6.86	7.11	7.68	●

● Stock ○ Available upon Order

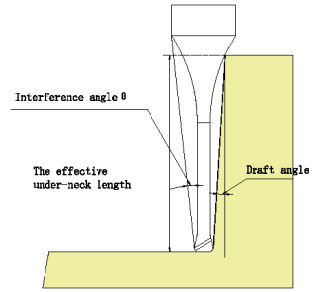
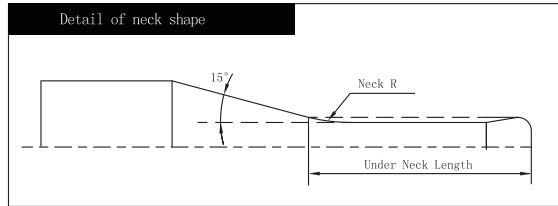
R	Tol
R	±0.005

(mm)

Cutting Parameters ※ P507

SPM200-RN2

2 Flute with Extended Neck, Corner Radius



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	0.1	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

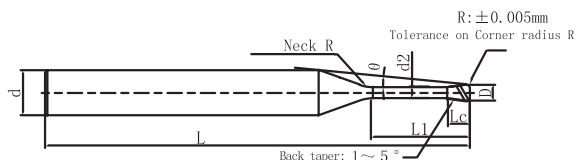
R	Tol
R	±0.005

(mm)

Cutting Parameters ※ P507

SPM200-RN2

2 Flute with Extended Neck, Corner Radius



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			0.8	0.96	50	4	4	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	0.8	0.96	50	4	4	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

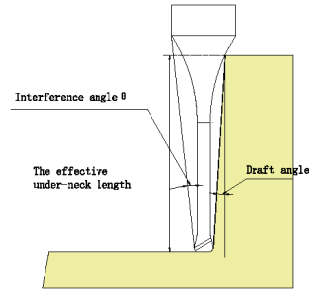
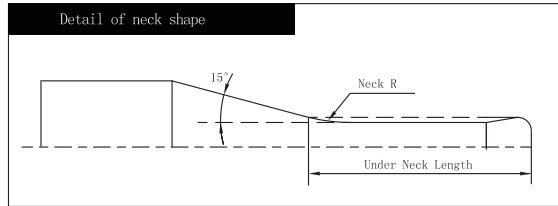
R	Tol
R	±0.005

(mm)

Cutting Parameters ※ P507

SPM200-RN2

2 Flute with Extended Neck, Corner Radius



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			12.60				13.03	13.49	13.98	15.09	○		
SPM200-RN2-1-16-0.3-V			16			16.73				17.30	17.92	18.58	20.06	●		
SPM200-RN2-1-20-0.3-V			20			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			10.50				10.87	11.26	11.68	12.62	○		
SPM200-RN2-1.25-15-0.1-V			15			15.68				16.22	16.80	17.43	18.83	●		
SPM200-RN2-1.25-20-0.1-V			20			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			6.66				6.32	6.57	6.80	7.05	7.62	○	
SPM200-RN2-1.5-8-0.1-V			8			5.62				8.41	8.71	9.02	9.35	10.10	●	
SPM200-RN2-1.5-12-0.1-V			12			4.28				12.55	12.98	13.45	13.95	15.07	●	
SPM200-RN2-1.5-15-0.1-V		15	3.63			15.65				16.19	16.77	17.40	18.80	○		
SPM200-RN2-1.5-20-0.1-V		20	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

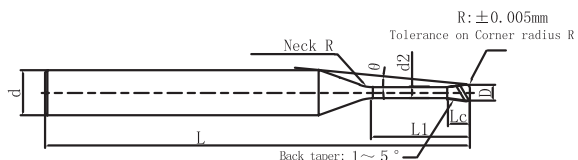
R	Tol
R	±0.005

(mm)

Cutting Parameters ※ P507

SPM200-RN2

2 Flute with Extended Neck, Corner Radius



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

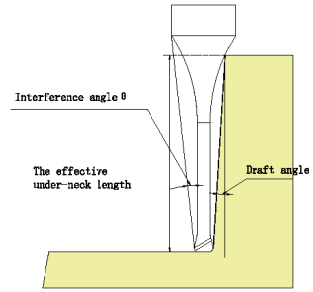
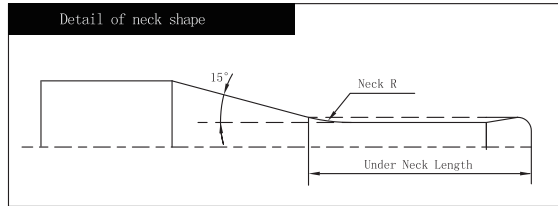
R	Tol
R	±0.005

(mm)

Cutting Parameters ※ P507

SPM200-RN2

2 Flute with Extended Neck, Corner Radius



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			4.59			10.45	10.81	11.19	11.60	12.51	○	
SPM200-RN2-1.75-15-0.3-V			15			3.39			15.62	16.16	16.73	17.35	18.73	●	
SPM200-RN2-1.75-20-0.3-V			20			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			5.86			6.29	6.53	6.76	7.01	7.57	●	
SPM200-RN2-2-8-0.1-V			8			4.87			8.37	8.66	8.97	9.31	10.05	○	
SPM200-RN2-2-12-0.1-V			12			3.64			12.51	12.94	13.41	13.91	15.03	●	
SPM200-RN2-2-16-0.1-V			16			2.90			16.65	17.22	17.84	18.51	-	●	
SPM200-RN2-2-20-0.1-V			20			2.42			20.78	21.50	22.27	23.11	-	○	
SPM200-RN2-2-25-0.1-V			25			2.00			25.95	26.85	27.82	-	-	●	
SPM200-RN2-2-30-0.1-V			30			1.70			31.12	32.20	33.36	-	-	○	
SPM200-RN2-2-4-0.2-V		0.2	4	1.6	1.92	50	4	4	7.46	4.20	4.37	4.53	4.69	5.06	●
SPM200-RN2-2-6-0.2-V			6			5.93			6.29	6.52	6.75	6.99	7.54	●	
SPM200-RN2-2-8-0.2-V			8			4.91			8.37	8.66	8.96	9.29	10.03	○	
SPM200-RN2-2-12-0.2-V			12			3.66			12.51	12.94	13.40	13.89	15.00	●	
SPM200-RN2-2-16-0.2-V			16			2.92			16.64	17.22	17.83	18.49	-	●	
SPM200-RN2-2-20-0.2-V			20			2.43			20.78	21.49	22.26	23.09	-	○	
SPM200-RN2-2-25-0.2-V			25			2.00			25.95	26.84	27.80	-	-	●	
SPM200-RN2-2-30-0.2-V			30			1.71			31.11	32.19	33.35	-	-	○	
SPM200-RN2-2-4-0.3-V	0.3	4	1.6	1.92	50	4	4	7.56	4.20	4.37	4.52	4.68	5.03	●	
SPM200-RN2-2-6-0.3-V		6			5.99			6.28	6.51	6.74	6.98	7.52	●		
SPM200-RN2-2-8-0.3-V		8			4.96			8.36	8.65	8.95	9.28	10.01	○		
SPM200-RN2-2-12-0.3-V		12			3.69			12.50	12.93	13.39	13.88	14.98	●		

● Stock ○ Available upon Order

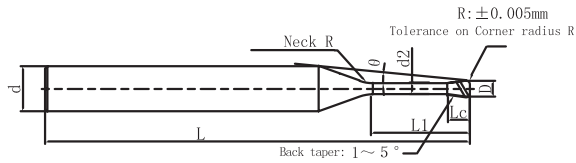
R	Tol
R	±0.005

(mm)

Cutting Parameters ※ P507

SPM200-RN2

2 Flute with Extended Neck, Corner Radius



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

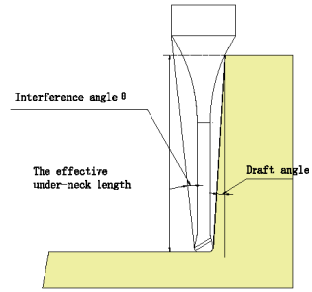
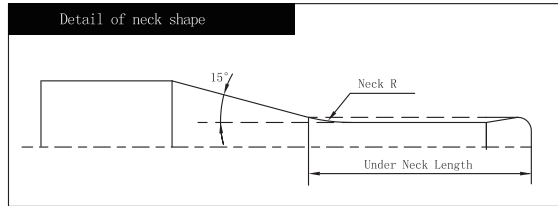
R	Tol
R	±0.005

(mm)

Cutting Parameters ※ P507

SPM200-RN2

2 Flute with Extended Neck, Corner Radius



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

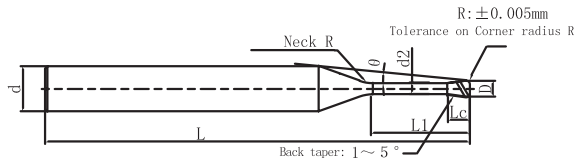
R	Tol
R	±0.005

(mm)

Cutting Parameters ※ P507

SPM200-RN2

2 Flute with Extended Neck, Corner Radius



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			75			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

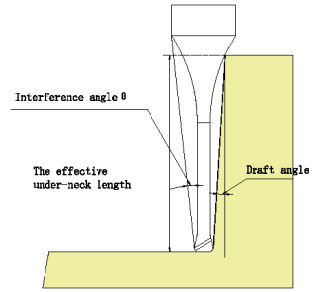
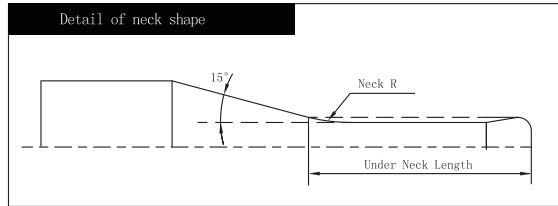
R	Tol
R	±0.005

(mm)

Cutting Parameters ※ P507

SPM200-RN2

2 Flute with Extended Neck, Corner Radius



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		0.3	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		0.5	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		0.5	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		0.5	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	1	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

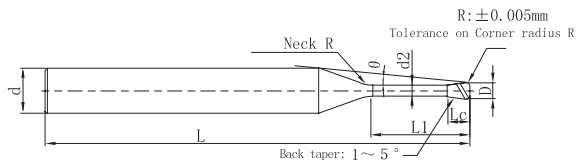
R	Tol
R	±0.005

(mm)

Cutting Parameters ※ P507

SPM200-RN2

2 Flute with Extended Neck, Corner Radius



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

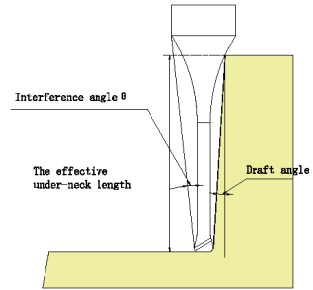
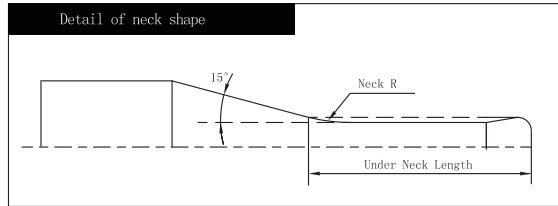
R	Tol
R	±0.005

(mm)

Cutting Parameters ※ P507

SPM200-RN2

2 Flute with Extended Neck, Corner Radius



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			12			50			-	-	-	-	-	●	
SPM200-RN2-6-18-0.3-V		18	60			-			-	-	-	-	●		
SPM200-RN2-6-24-0.3-V		0.3	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

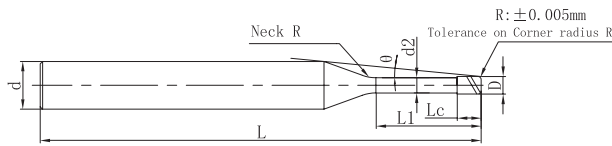
R	Tol
R	±0.005

(mm)

Cutting Parameters ※ P507

SPM200-RN4 NEW

4 Flute with Extended Neck, Corner Radius



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

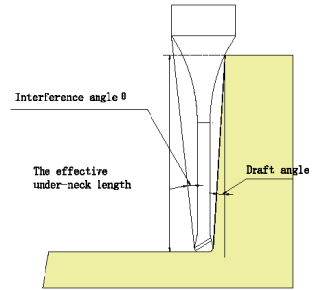
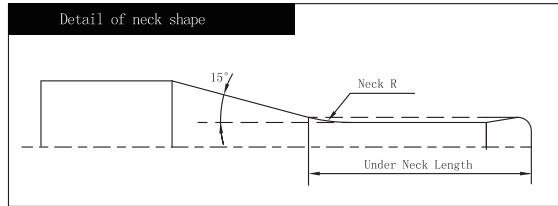
R	Tol
R	±0.005
D	0 -0.01

(mm)

Cutting Parameters ※ P529

SPM200-RN4 NEW

4 Flute with Extended Neck, Corner Radius



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

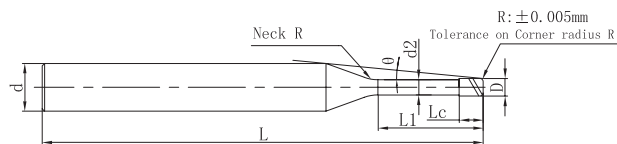
R	Tol
R	±0.005
D	0 -0.01

(mm)

Cutting Parameters ※ P529

SPM200-RN4 NEW

4 Flute with Extended Neck, Corner Radius



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	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	4	4	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	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

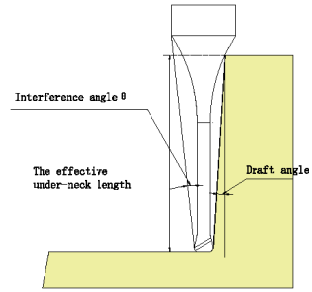
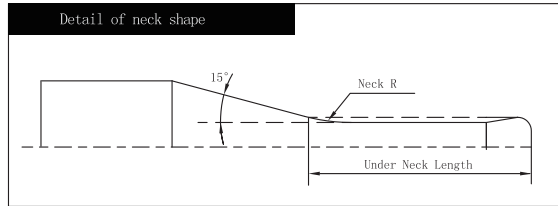
R	Tol
R	±0.005
D	0 -0.01

(mm)

Cutting Parameters ※ P529

SPM200-RN4 NEW

4 Flute with Extended Neck, Corner Radius



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

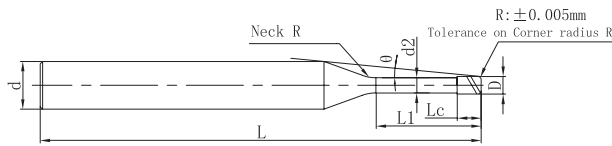
R	Tol
R	±0.005
D	0 -0.01

(mm)

Cutting Parameters ※ P529

SPM200-RN4 NEW

4 Flute with Extended Neck, Corner Radius



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	6	4	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	6	4	-	-	-	-	-	-	●
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

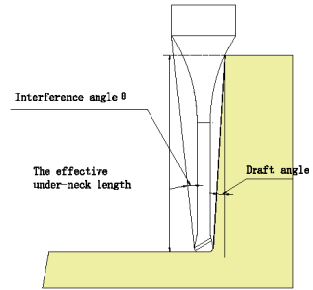
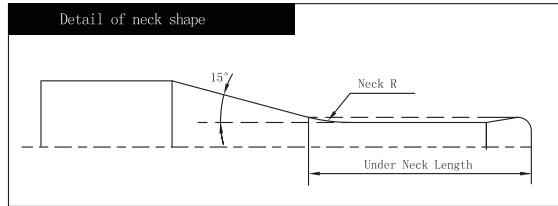
R	Tol
R	±0.005
D	0 -0.01

(mm)

Cutting Parameters ※ P529

SPM200-RN4 NEW

4 Flute with Extended Neck, Corner Radius



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			-			-	-	-	-	○		
SPM200-RN4-6-72-0.5-V			72			-			-	-	-	-	○		
SPM200-RN4-6-30-1-V		1	30			-			-	-	-	-	●		
SPM200-RN4-6-54-1-V			54			-			-	-	-	-	○		
SPM200-RN4-6-72-1-V			72			-			-	-	-	-	○		

● Stock ○ Available upon Order

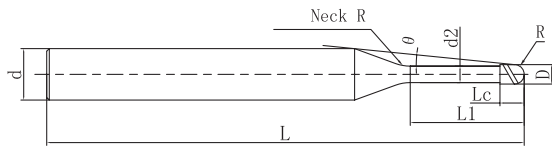
R	Tol
R	±0.005
D	0 -0.01

(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			14.48						0.31	0.33	0.34	0.36	0.39	●	
SPM200-BN2-0.1-0.5-V			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			13.77						0.78	0.8	0.83	0.86	0.92	●	
SPM200-BN2-0.2-1-V			13.36						1.04	1.07	1.11	1.15	1.23	●	
SPM200-BN2-0.2-1.25-V			12.97						1.3	1.34	1.39	1.43	1.54	●	
SPM200-BN2-0.2-1.5-V			12.6						1.56	1.61	1.66	1.72	1.85	●	
SPM200-BN2-0.2-2-V			11.92						2.07	2.14	2.22	2.3	2.48	●	
SPM200-BN2-0.2-2.5-V			11.31						2.59	2.68	2.77	2.87	3.1	●	
SPM200-BN2-0.2-3-V	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			13.72						0.79	0.83	0.87	0.91	0.98	○	
SPM200-BN2-0.3-1-V			13.3						1.05	1.11	1.16	1.2	1.29	●	
SPM200-BN2-0.3-1.25-V			12.9						1.32	1.38	1.44	1.5	1.61	○	
SPM200-BN2-0.3-1.5-V			12.53						1.58	1.66	1.72	1.78	1.92	○	
SPM200-BN2-0.3-2-V			11.84						2.11	2.2	2.28	2.36	2.54	○	
SPM200-BN2-0.3-2.5-V			11.22						2.63	2.74	2.83	2.93	3.16	●	
SPM200-BN2-0.3-3-V	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			13.34						1.05	1.1	1.15	1.19	1.28	●	
SPM200-BN2-0.4-1.5-V			12.55						1.58	1.65	1.72	1.78	1.9	●	
SPM200-BN2-0.4-2-V			11.84						2.11	2.19	2.27	2.35	2.53	●	
SPM200-BN2-0.4-2.5-V			11.2						2.63	2.73	2.83	2.93	3.15	●	

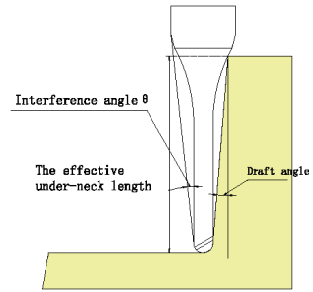
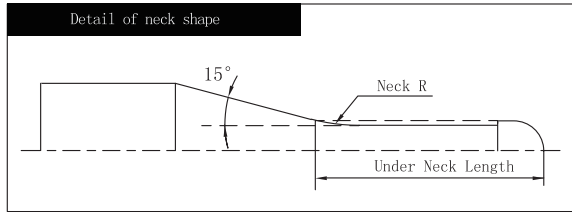
● Stock ○ Available upon Order

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							3.67	3.8	3.94	4.08	4.39	○
SPM200-BN2-0.4-4-V			4							4.19	4.34	4.49	4.65	5.01	○
SPM200-BN2-0.4-4.5-V			4.5							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							1.58	1.65	1.71	1.77	1.89	○
SPM200-BN2-0.5-2-V			2							2.1	2.19	2.27	2.34	2.51	●
SPM200-BN2-0.5-2.5-V			2.5							2.63	2.73	2.82	2.92	3.14	○
SPM200-BN2-0.5-3-V			3							3.15	3.27	3.38	3.49	3.76	●
SPM200-BN2-0.5-4-V			4							4.19	4.34	4.48	4.64	5	○
SPM200-BN2-0.5-5-V			5							5.23	5.41	5.59	5.79	6.24	●
SPM200-BN2-0.5-5.5-V			5.5							5.75	5.94	6.15	6.37	6.86	●
SPM200-BN2-0.5-6-V			6							6.27	6.48	6.7	6.94	7.49	●
SPM200-BN2-0.5-8-V			8							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							2.15	2.28	2.39	2.5	2.7	●
SPM200-BN2-0.6-2.5-V			2.5							2.68	2.84	2.97	3.09	3.32	○
SPM200-BN2-0.6-3-V			3							3.22	3.39	3.54	3.67	3.95	●
SPM200-BN2-0.6-3.5-V			3.5							3.75	3.94	4.1	4.25	4.57	●
SPM200-BN2-0.6-4-V			4							4.28	4.48	4.66	4.82	5.19	●
SPM200-BN2-0.6-4.5-V			4.5							4.81	5.03	5.21	5.4	5.81	○
SPM200-BN2-0.6-5-V			5							5.33	5.57	5.77	5.97	6.43	●
SPM200-BN2-0.6-5.5-V			5.5							5.86	6.11	6.32	6.55	7.05	○
SPM200-BN2-0.6-6-V			6							6.38	6.64	6.87	7.12	7.67	●

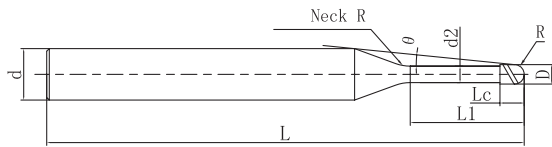
● Stock ○ Available upon Order

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	●

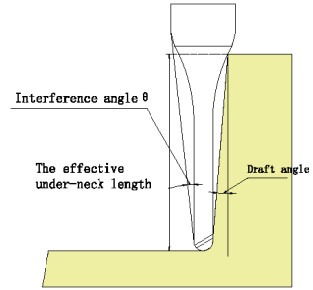
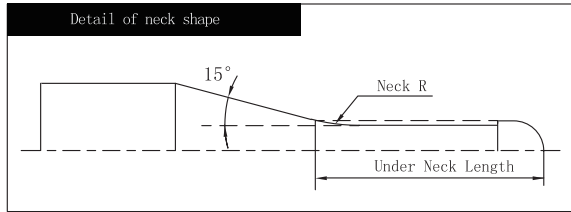
● Stock ○ Available upon Order

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						6.25	8.41	8.7	8.99	9.3	10.01	○
SPM200-BN2-1.2-10-V			10						5.41	10.49	10.84	11.21	11.6	12.5	●
SPM200-BN2-1.2-12-V			12						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	●

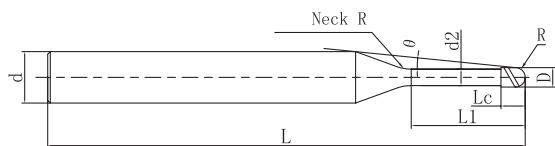
● Stock ○ Available upon Order

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	●

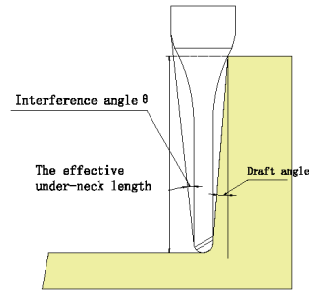
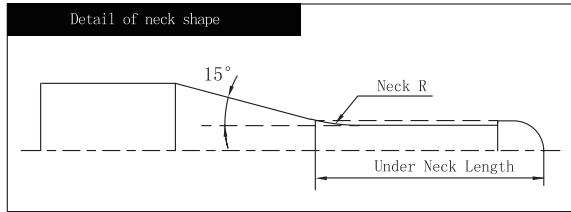
● Stock ○ Available upon Order

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	-	-	●

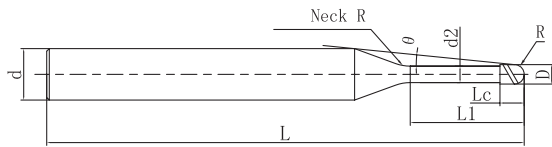
● Stock ○ Available upon Order

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	90	6	4	4.86	10.31	10.6	10.91	11.24	11.99	○
SPM200-BN2-4-13-V			3.88						13.41	13.81	14.23	14.69	15.72	●	
SPM200-BN2-4-16-V			3.23						16.51	17.02	17.56	18.14	19.45	●	
SPM200-BN2-4-20-V			2.63						20.65	21.3	21.99	22.74	-	○	
SPM200-BN2-4-25-V			2.14						25.81	26.64	27.53	28.49	-	●	
SPM200-BN2-4-30-V			1.81						30.98	31.99	33.08	-	-	○	
SPM200-BN2-4-35-V			1.56						36.15	37.34	38.62	-	-	●	
SPM200-BN2-4-40-V			1.38						41.32	42.69	-	-	-	●	
SPM200-BN2-4-45-V			1.23						46.49	48.04	-	-	-	●	
SPM200-BN2-4-50-V			1.11						51.66	53.39	-	-	-	●	
SPM200-BN2-5-20-V	5	2.5	20	4	4.85	90	6	4	1.48	20.62	21.25	-	-	-	○
SPM200-BN2-5-25-V			1.18						25.79	26.6	-	-	-	●	
SPM200-BN2-5-30-V			0.98						30.96	-	-	-	-	○	
SPM200-BN2-5-40-V			0.73						41.29	-	-	-	-	●	
SPM200-BN2-6-12-V	6	3	12	6	5.85	90	6	-	-	-	-	-	-	-	●
SPM200-BN2-6-20-V			-						-	-	-	-	-	○	
SPM200-BN2-6-30-V			-						-	-	-	-	-	●	
SPM200-BN2-6-50-V			-						-	-	-	-	-	○	

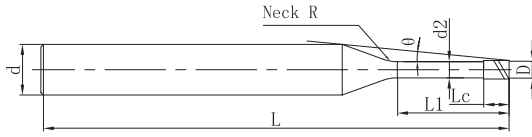
● Stock ○ Available upon Order

R	Tol
R ≤ 0.25	±0.003
R > 0.25	±0.005

Cutting Parameters ※ P534

SAM200-SN2 NEW

2 Flute with Extended Neck, Square



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

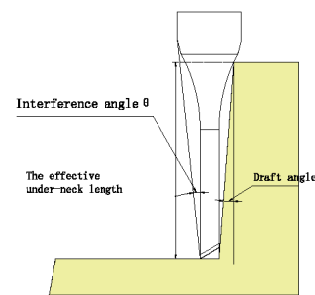
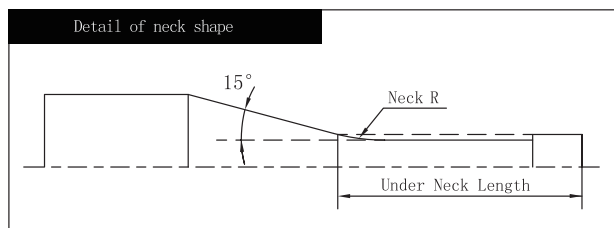
R	Tol
0.2 ≤ D ≤ 0.5	0 -0.007
0.6 ≤ D ≤ 0.9	0 -0.01
1.0 ≤ D ≤ 6.0	0 -0.015

(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
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

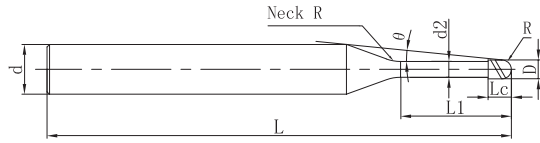
R	Tol
0.2 ≤ D ≤ 0.5	0 -0.007
0.6 ≤ D ≤ 0.9	0 -0.01
1.0 ≤ D ≤ 6.0	0 -0.015

(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			2						11.83	2.11	2.20	2.27	2.35	2.52	●
SAM200-BN2-0.5-4-H	0.5	0.25	4	0.4	0.47	50	4	2	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

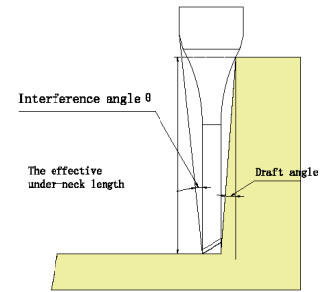
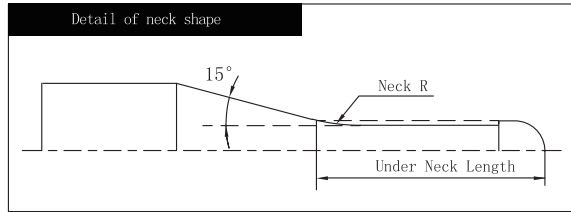
R	Tol
R ≤ 0.25	±0.003
R > 0.25	±0.005

(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

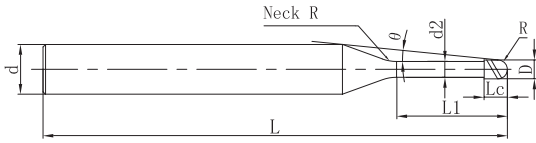
R	Tol
R ≤ 0.25	±0.003
R > 0.25	±0.005

(mm)

Cutting Parameters ※ P547

SAM200-BN2 NEW

2 Flute with Extended Neck, Ballnose



See page 149 for guidelines to icons

» Continue

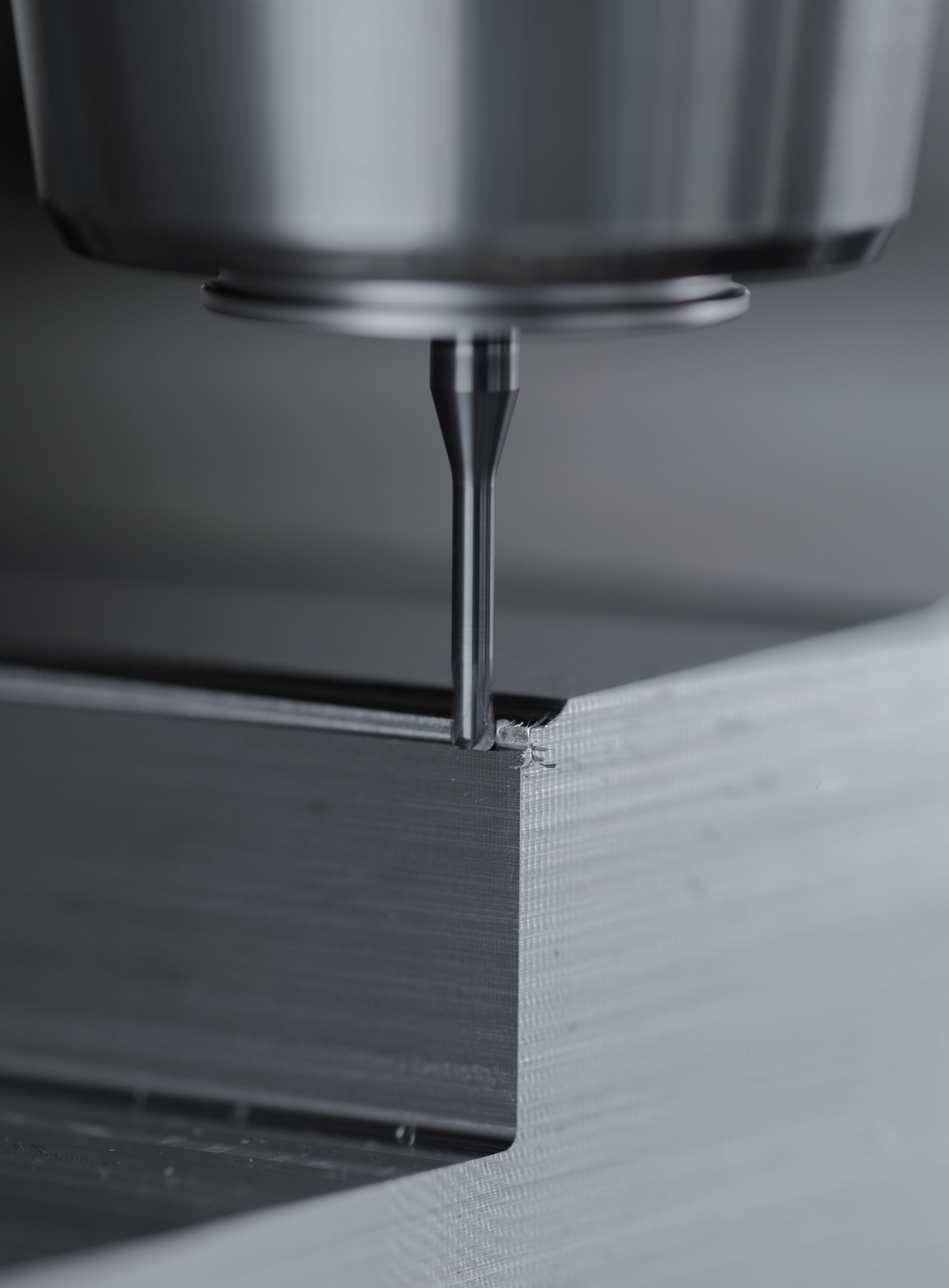
Ordering Code	Mill Dia.	R	Under Neck Length	Flute Length	Neck Dia.	Overall Length	Shank Dia.	Neck	Interference Angle	The effective under-neck length for the various draft angles					Stock	
										0.5°	1°	1.5°	2°	3°		
SAM200-BN2-4-10-H	4	2	10	3.2	3.86	55	6	4	4.85	10.31	10.60	10.91	11.25	12.00	●	
SAM200-BN2-4-12-H			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


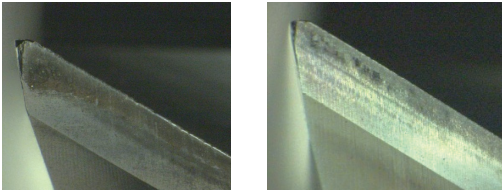
(mm)

Cutting Parameters ※ P547


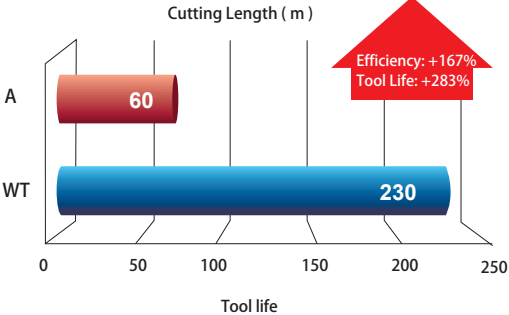


Case Study

UP210 Stamp die Machining

Model	UP210-SL4-12045	 <p>Workpiece</p> <p>Profiling</p>  <p>A</p> <p>WT</p> <p>Wear Condition after Cutting 1.5H</p>
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	

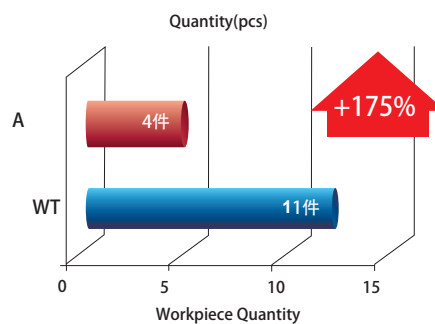
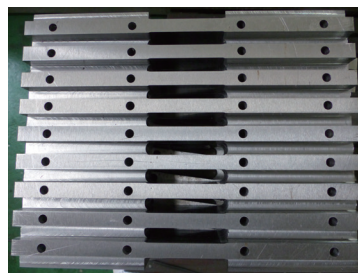
SP210 Type Block Contour Finishing

Model	SP210-S4-10025	  <p>Cutting Length (m)</p> <p>A 60</p> <p>WT 230</p> <p>Efficiency: +167%</p> <p>Tool Life: +283%</p> <p>0 50 100 150 200 250</p> <p>Tool life</p>
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

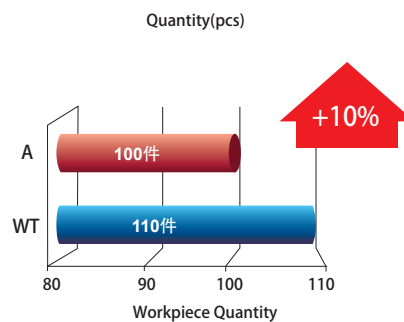
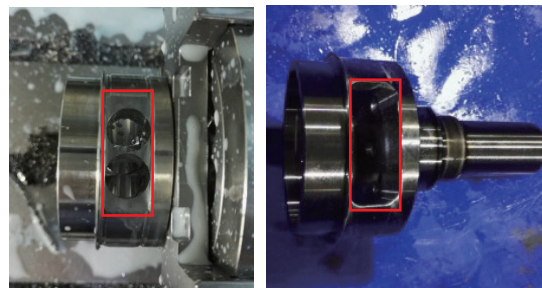
UPR210 Magnechuck machining

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



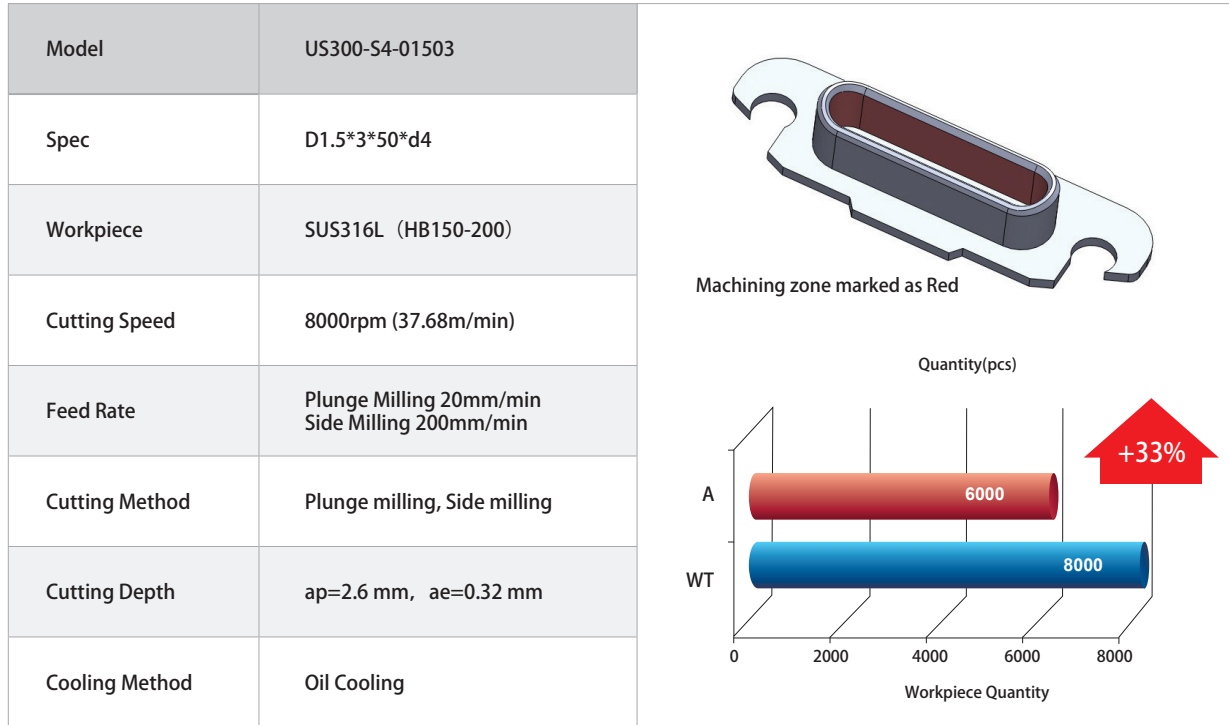
UPR300 Output Shaft side milling

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

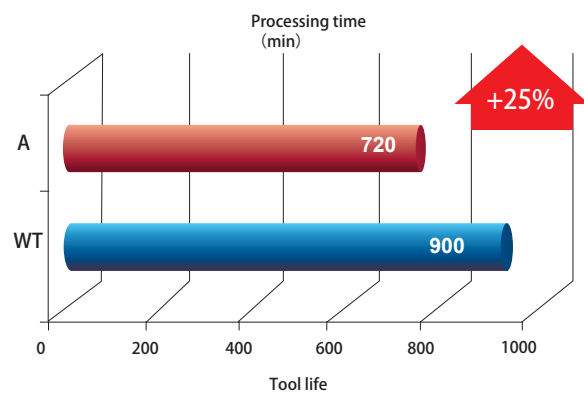
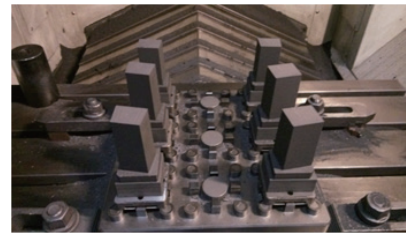
US300 Cellphone Charge Jack machining



Case Study

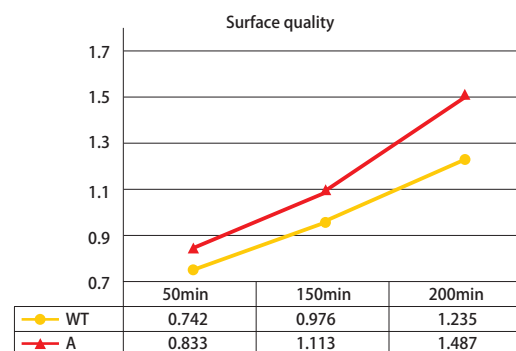
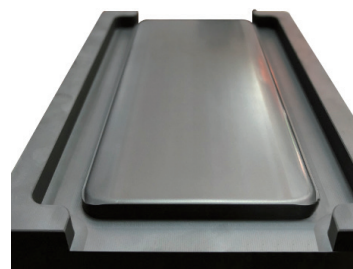
SG200 Graphite Electrode Machining

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




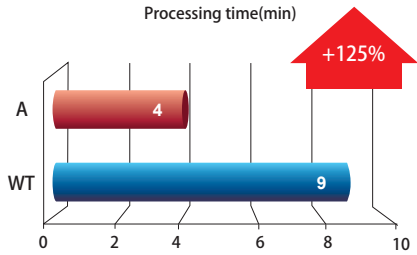
SG200 Graphite Mold Machining

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



Case Study

SH260-H Automobile die machining **NEW**

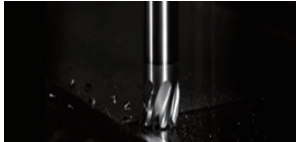


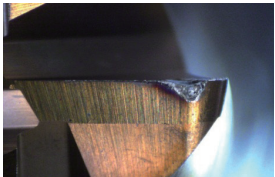
Model	SH260-B2-10-15-H	  <p>Processing time(min)</p> <p>A: 4</p> <p>WT: 9</p> <p>+125%</p>
Spec	R5*15*75*d10	
Workpiece	NAK80 (48-52HRC)	
Cutting Speed	4000RPM (126.6m/min)	
Feed Rate	2000mm/min (0.25mm/z)	
Cutting Method	Profile Milling	
Cutting Depth	ap=0.1mm	
Cooling Method	Air Cooling	

SH300-H Male die of automobile

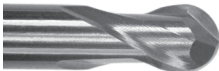

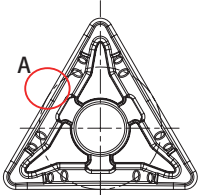
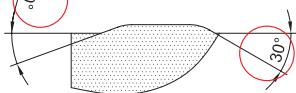
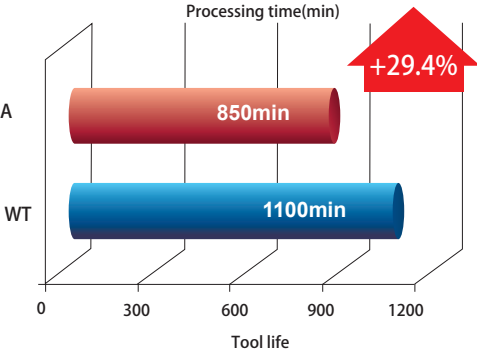
Model	SH300-BH2-06009E-H	    <p>after 9 hours continually profile milling</p> <p>Unit: um</p> <p>Roughness: Ra</p>  <p>Spot①</p> <p>Spot②</p> <p>Spot③</p>
Spec	R3*9*75*d6	
Workpiece	SKD11 (62HRC)	
Cutting Speed	10000RPM (188.4m/min)	
Feed Rate	1200mm/min (0.06mm/z)	
Cutting Method	Profile Milling	
Cutting Depth	ap=0.03mm, ae=0.05mm	
Cooling Method	Oil Cooling	

Case Study

FH200-H:SKD11 Rough Machining

Model	FH200-R6-12008-H	 <p>Machining Process</p>  <p>Chip Form</p>  <p>WT</p>  <p>A</p>
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	

SPM200 High Precision Copper-Tungsten Electrode Mold Finishing Machining

Model	SPM200-BN2-0.6-4-V	 <p>Cutting Tool</p>  <p>Workpiece</p>  <p>Size of Workpiece</p>  <p>Enlarged view of zone A</p>  <p>Processing time(min)</p> <p>A 850min</p> <p>WT 1100min</p> <p>+29.4%</p> <p>Tool life</p>
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. : $\pm 15'$, Surface Roughness: Ra<0.1 μ m	

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)	$ap \leq 1.5D$	180	n	19110	14330	9550	7170	5730	4780	3580	2870
		$ae \leq 0.15D$		Vf	1070	1030	920	930	920	860	860	860
	Alloy Steel (35-48HRC)	$ap \leq 1D$	130	n	13800	10350	6900	5180	4140	3450	2590	2070
		$ae \leq 0.12D$		Vf	610	580	550	620	560	500	410	370
M	Stainless Steel	$ap \leq 1.5D$	130	n)	13800	10350	6900	5180	4140	3450	2590	2070
		$ae \leq 0.15D$		Vf)	690	660	590	650	610	590	490	460
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	$ap \leq 1.5D$	160	n	16990	12740	8490	6370	5100	4250	3190	2550
		$ae \leq 0.15D$		Vf	850	820	820	750	700	680	610	560
	High Alloy Cast Iron (35-45HRC)	$ap \leq 1D$	140	n	14860	11150	7430	5570	4460	3720	2790	2230
		$ae \leq 0.12D$		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)	$ap \leq 1.5D$	180	n	19110	14330	9550	7170	5730	4780	3580	2870
		$ae \leq 0.15D$		Vf	1610	1550	1380	1400	1380	1290	1290	1290
	Alloy Steel (35-48HRC)	$ap \leq 1D$	130	n	13800	10350	6900	5180	4140	3450	2590	2070
		$ae \leq 0.12D$		Vf	910	870	830	930	850	760	620	560
M	Stainless Steel	$ap \leq 1.5D$	130	n)	13800	10350	6900	5180	4140	3450	2590	2070
		$ae \leq 0.15D$		Vf)	1040	990	890	980	920	880	740	680
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	$ap \leq 1.5D$	160	n	16990	12740	8490	6370	5100	4250	3190	2550
		$ae \leq 0.15D$		Vf	1270	1220	1220	1130	1060	1020	910	840
	High Alloy Cast Iron (35-45HRC)	$ap \leq 1D$	140	n	14860	11150	7430	5570	4460	3720	2790	2230
		$ae \leq 0.12D$		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)	$ap \leq 0.8D$	80	n	8490	6370	4250	3190	2550	2120	1590	1270
				Vf	430	540	440	400	370	350	400	410
	Alloy Steel (35-48HRC)	$ap \leq 0.3D$	60	n	6370	4780	3190	2390	1910	1590	1190	960
				Vf	260	310	270	230	220	220	230	230
M	Stainless Steel	$ap \leq 0.3D$	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)	$ap \leq 0.5D$	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)	$ap \leq 0.3D$	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)	$ap \leq 0.8D$	80	n	8490	6370	4250	3190	2550	2120	1590	1270
				Vf	640	800	660	590	550	520	600	610
	Alloy Steel (35-48HRC)	$ap \leq 0.3D$	60	n	6370	4780	3190	2390	1910	1590	1190	960
				Vf	380	460	400	340	330	330	340	340
M	Stainless Steel	$ap \leq 0.3D$	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)	$ap \leq 0.5D$	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)	$ap \leq 0.3D$	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 $4 \cdot D$ (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)	$ap \leq 0.2D$	160	n	12740	10190	8490	7280	6370	5660	5100	4630	4250
		$ae \leq 0.3D$		Vf	1020	1020	1020	1020	1020	1020	1020	1020	1020
	Alloy Steel (35-48HRC)	$ap \leq 0.15D$	120	n	9550	7640	6370	5460	4780	4250	3820	3470	3190
		$ae \leq 0.15D$		Vf	610	640	660	630	620	610	610	610	610
M	Stainless Steel	$ap \leq 0.2D$	110	n	8760	7010	5840	5010	4380	3890	3500	3190	2920
		$ae \leq 0.2D$		Vf	610	630	640	630	630	620	630	640	640
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	$ap \leq 0.2D$	140	n	11150	8920	7430	6370	5570	4950	4460	4050	3720
		$ae \leq 0.2D$		Vf	780	800	820	800	800	790	800	810	820
	High Alloy Cast Iron (35-45HRC)	$ap \leq 0.1D$	120	n	9550	7640	6370	5460	4780	4250	3820	3470	3190
		$ae \leq 0.1D$		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)	$ap \leq 0.2D$	160	n	12740	10190	8490	7280	6370	5660	5100	4630	4250
		$ae \leq 0.3D$		Vf	2040	2040	2040	2040	2040	2040	2040	2040	2040
	Alloy Steel (35-48HRC)	$ap \leq 0.15D$	120	n	9550	7640	6370	5460	4780	4250	3820	3470	3190
		$ae \leq 0.15D$		Vf	1220	1280	1330	1270	1240	1220	1220	1210	1210
M	Stainless Steel	$ap \leq 0.2D$	110	n)	8760	7010	5840	5010	4380	3890	3500	3190	2920
		$ae \leq 0.2D$		Vf)	1230	1260	1290	1260	1260	1250	1260	1270	1290
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	$ap \leq 0.2D$	140	n	11150	8920	7430	6370	5570	4950	4460	4050	3720
		$ae \leq 0.2D$		Vf	1560	1610	1640	1610	1610	1590	1610	1620	1640
	High Alloy Cast Iron (35-45HRC)	$ap \leq 0.1D$	120	n	9550	7640	6370	5460	4780	4250	3820	3470	3190
		$ae \leq 0.1D$		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 $4 \cdot D$ (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)	$ap \leq 1.5D$	200	10350	21230	15920	10620	7960	6370	5310	3980	3190
		$ae \leq 0.15D$		414	2040	1960	1690	1670	1620	1590	1490	1480
	Alloy Steel (35-48HRC)	$ap \leq 1D$	150	7166	15920	11940	7960	5970	4780	3980	2990	2390
		$ae \leq 0.12D$		229	1290	1180	1080	1160	1050	930	760	680
M	Stainless Steel	$ap \leq 1.5D$	150	6369	15920	11940	7960	5970	4780	3980	2990	2390
		$ae \leq 0.15D$		204	1580	1330	1150	1220	1130	1080	900	820
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	$ap \leq 1.5D$	170	7962	18050	13540	9020	6770	5410	4510	3380	2710
		$ae \leq 0.15D$		318	1620	1500	1440	1300	1200	1150	1020	930
	High Alloy Cast Iron (35-45HRC)	$ap \leq 1D$	150	11943	15920	11940	7960	5970	4780	3980	2990	2390
		$ae \leq 0.12D$		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 $4 \cdot D$ (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)	$ap \leq 1.5D$	200	n	21230	15920	10620	7960	6370	5310	3980	3190
		$ae \leq 0.15D$		Vf	2720	2610	2250	2230	2170	2120	1990	1980
	Alloy Steel (35-48HRC)	$ap \leq 1D$	150	n	15920	11940	7960	5970	4780	3980	2990	2390
		$ae \leq 0.12D$		Vf	1720	1580	1430	1550	1400	1240	1020	910
M	Stainless Steel	$ap \leq 1.5D$	150	n)	15920	11940	7960	5970	4780	3980	2990	2390
		$ae \leq 0.15D$		Vf)	2100	1770	1530	1620	1510	1430	1190	1100
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	$ap \leq 1.5D$	170	n	18050	13540	9020	6770	5410	4510	3380	2710
		$ae \leq 0.15D$		Vf	2170	2000	1910	1730	1600	1530	1350	1250
	High Alloy Cast Iron (35-45HRC)	$ap \leq 1D$	150	n	15920	11940	7960	5970	4780	3980	2990	2390
		$ae \leq 0.12D$		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)	$ap \leq 1D$	80	n	8490	6370	4250	3190	2550	2120	1590	1270
				Vf	790	920	730	640	590	570	640	650
	Alloy Steel (35-48HRC)	$ap \leq 0.5D$	60	n	6370	4780	3190	2390	1910	1590	1190	960
				Vf	500	550	450	370	360	360	370	370
M	Stainless Steel	$ap \leq 0.3D$	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)	$ap \leq 0.8D$	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)	$ap \leq 0.5D$	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 $4 \cdot D$ (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)	$ap \leq 1D$	80	n	8490	6370	4250	3190	2550	2120	1590	1270
				Vf	1050	1220	970	850	790	760	850	870
M	Alloy Steel (35-48HRC)	$ap \leq 0.5D$	60	n	6370	4780	3190	2390	1910	1590	1190	960
				Vf	660	730	600	500	470	480	490	500
M	Stainless Steel	$ap \leq 0.3D$	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)	$ap \leq 0.8D$	55	n	5840	4380	2920	2190	1750	1460	1100	880
				Vf	560	600	560	480	460	450	410	370
K	High Alloy Cast Iron (35-45HRC)	$ap \leq 0.5D$	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)	$ap \leq 0.04D$	220	n	50000	35030	23360	17520	11680	8760	7010	5840
		$ae \leq 0.04D$		Vf	2800	2800	2800	2800	2800	2800	2800	2800
M	Alloy Steel (35-48HRC)	$ap \leq 0.02D$	180	n	50000	28660	19110	14330	9550	7170	5730	4780
		$ae \leq 0.02D$		Vf	1950	2010	1990	2010	2010	2010	2000	2000
M	Stainless Steel	$ap \leq 0.04D$	220	n)	50000	35030	23360	17520	11680	8760	7010	5840
		$ae \leq 0.04D$		Vf)	2520	2450	2570	2630	2570	2540	2520	2530
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	$ap \leq 0.04D$	220	n	50000	35030	23360	17520	11680	8760	7010	5840
		$ae \leq 0.04D$		Vf	2520	2450	2570	2630	2570	2540	2520	2530
K	High Alloy Cast Iron (35-45HRC)	$ap \leq 0.04D$	220	n	50000	35030	23360	17520	11680	8760	7010	5840
		$ae \leq 0.04D$		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 $4 \cdot D$ (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)	$ap \leq 1.5D$	140	n	7430	5570	4460	3720	2790	2230
		$ae \leq 0.3D$		Vf	1070	1070	1070	1070	1000	900
	Alloy Steel (35-48HRC)	$ap \leq 1D$	120	n	6370	4780	3820	3190	2390	1910
		$ae \leq 0.25D$		Vf	630	660	690	700	570	535
M	Stainless Steel	$ap \leq 1.5D$	110	n)	5840	4380	3500	2920	2190	1750
		$ae \leq 0.3D$		Vf)	580	610	630	640	525	490
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	$ap \leq 1.5D$	140	n	7430	5570	4460	3720	2790	2230
		$ae \leq 0.3D$		Vf	1070	1070	1070	1070	1000	900
	High Alloy Cast Iron (35-45HRC)	$ap \leq 1D$	120	n	6370	4780	3820	3190	2390	1910
		$ae \leq 0.25D$		Vf	630	660	690	700	570	535
H	Alloy Steel Hardened Steel (<55HRC)	$ap \leq 1D$	100	n	5300	3980	3190	2650	1990	1590
		$ae \leq 0.125D$		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 $4 \times D$ (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)	$ap \leq 1D$	120	n	6370	4780	3820	3190	2390	1910
				Vf	640	630	610	640	570	535
	Alloy Steel (35-48HRC)	$ap \leq 0.75D$	100	n	5310	4000	3190	2650	1990	1590
				Vf	430	400	450	425	360	320
M	Stainless Steel	$ap \leq 0.75D$	90	n)	4775	3580	2865	2385	1790	1432
				Vf)	382	160	190	210	200	190
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	$ap \leq 1D$	120	n	6370	4780	3820	3190	2390	1910
				Vf	640	630	610	640	570	535
	High Alloy Cast Iron (35-45HRC)	$ap \leq 0.75D$	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)	$ap \leq 1.5D$	130	n	6900	5180	4140	3450	2590	2070
		$ae \leq 0.3D$		Vf	990	990	990	990	930	830
	Alloy Steel (35-48HRC)	$ap \leq 1D$	110	n	5840	4380	3500	2920	2190	1750
		$ae \leq 0.25D$		Vf	580	610	630	640	525	490
M	Stainless Steel	$ap \leq 1.5D$	130	n)	6900	5180	4140	3450	2590	2070
		$ae \leq 0.3D$		Vf)	280	310	330	350	310	290
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	$ap \leq 1.5D$	130	n	6900	5180	4140	3450	2590	2070
		$ae \leq 0.3D$		Vf	990	990	990	990	930	830
	High Alloy Cast Iron (35-45HRC)	$ap \leq 1D$	110	n	5840	4380	3500	2920	2190	1750
		$ae \leq 0.25D$		Vf	580	610	630	640	525	490
H	Alloy Steel Hardened Steel (<55HRC)	$ap \leq 1D$	90	n	4780	3580	2870	2390	1790	1430
		$ae \leq 0.125D$		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)	$ap \leq 0.8D$	120	n	6370	4780	3820	3190	2390	1910
				Vf	640	630	610	640	570	535
	Alloy Steel (35-48HRC)	$ap \leq 0.5D$	100	n	5310	4000	3190	2650	1990	1590
				Vf	430	400	450	425	360	320
M	Stainless Steel	$ap \leq 0.8D$	100	n)	5310	3980	3190	2655	1990	1600
				Vf)	150	160	190	210	200	190
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	$ap \leq 0.8D$	120	n	6370	4780	3820	3190	2390	1910
				Vf	640	630	610	640	570	535
	High Alloy Cast Iron (35-45HRC)	$ap \leq 0.5D$	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)	$ap \leq 1.5D$	160	n	8490	6370	5090	4240	3180	2550
		$ae \leq 0.4D$		Vf	790	820	1040	1020	940	880
	Alloy Steel (35-48HRC)	$ap \leq 1.5D$	150	n	7960	5970	4770	3980	2980	2390
		$ae \leq 0.3D$		Vf	670	680	880	840	780	720
M	Stainless Steel	$ap \leq 1.5D$	115	n)	6100	4580	3660	3050	2290	1830
		$ae \leq 0.4D$		Vf)	570	590	750	730	680	630
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	$ap \leq 1.5D$	150	n	7960	5970	4770	3980	2980	2390
		$ae \leq 0.5D$		Vf	880	910	1170	1110	1030	930
	High Alloy Cast Iron (35-45HRC)	$ap \leq 1.5D$	130	n	6900	5170	4140	3450	2590	2070
		$ae \leq 0.4D$		Vf	520	530	680	660	610	570
H	Alloy Steel Hardened Steel (<55HRC)	$ap \leq 1.5D$	140	n	7430	5570	4460	3710	2790	2230
		$ae \leq 0.3D$		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)	$ap \leq 1D$	130	n	6900	5175	4140	3450	2590	2070
				Vf	510	530	680	660	610	570
	Alloy Steel (35-48HRC)	$ap \leq 0.75D$	120	n	6370	4780	3820	3185	2390	1910
				Vf	430	440	560	540	500	460
M	Stainless Steel	$ap \leq 0.75D$	90	n)	4780	3580	2870	2390	1790	1430
				Vf)	360	370	470	460	430	395
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	$ap \leq 1D$	120	n	6370	4780	3820	3185	2390	1910
				Vf	570	590	750	710	660	595
	High Alloy Cast Iron (35-45HRC)	$ap \leq 1D$	100	n	5310	3980	3185	2650	1990	1590
				Vf	320	325	420	410	375	350
H	Alloy Steel Hardened Steel (<55HRC)	$ap \leq 0.3D$	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 $4 \cdot D$ (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	$ap \leq 1D$	100 (80-120)	n	25000	15900	7960	5300	3980	3180	2650	1990	1590
		$ae \leq 0.1D$		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	$ap \leq 0.1D$	45 (35-55)	n	14330	7165	3580	2390	1790	1430	1195	895	715
		$ae \leq 1D$		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	$ap \leq 1D$	100 (80-120)	n	25000	15900	7960	5300	3980	3180	2650	1990	1590
		$ae \leq 0.1D$		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	$ap \leq 0.1D$	45 (35-55)	n	14330	7165	3580	2390	1790	1430	1195	895	715
		$ae \leq 1D$		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	$ap \leq 1D$	100 (80-120)	n	25000	15900	7960	5300	3980	3180	2650	1990	1590
	$ae \leq 0.1D$		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	$ap \leq 0.1D$	45 (35-55)	n	14330	7165	3580	2390	1790	1430	1195	895	715
	$ae \leq 1D$		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	$ap \leq 0.2D$	100 (80-120)	n	25000	15900	7960	5300	3980	3180	2650	1990	1590
	$ae \leq 0.2D$		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	$ap \leq 0.2D$	100 (80-120)	n	25000	15900	7960	5300	3980	3180	2650	1990	1590
	$ae \leq 0.2D$		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 $4 \cdot D$ (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	$ap \leq 1D$	100 (80-120)	n	20000	15900	7960	5300	3980	3180	2650
		$ae \leq 0.1D$		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	$ap \leq 0.3D$	45 (35-55)	n	14300	7160	3580	2390	1790	1400	1200
		$ae \leq 1D$		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	$ap \leq 1D$	80 (60-100)	n	15900	7960	5300	3980	3180	2650
		$ae \leq 0.5D$		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	$ap \leq 1D$	60 (50-70)	n	9550	4780	3180	2390	1900	1590
		$ae \leq 1D$		Vf	500	350	350	380	350	350

Recommended Cutting Data

UA160-S2

Side Milling : Aluminium A



N	Workpiece	Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12
					Wrought Aluminum Alloys	$ap \leq 1.5D$	150 (60-350)	n	19000	16000	12000
Cast Aluminum Alloys (Si \leq 12%)	$ae \leq 0.2D$	Vf	760	950	1300	1380		1500	1900	2600	
N	Copper Alloy (<HB200)	$ap \leq 1.5D$	150 (60-350)	n	19000	16000	12000	10600	10000	9500	9300
		$ae \leq 0.2D$		Vf	690	860	1180	1240	1340	1720	2340

UA160-S2

Slot Milling : Aluminium Alloys



N	Workpiece	Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12
					Wrought Aluminum Alloys	$ap \leq 0.5D$	150 (60-350)	n	16000	12800	10000
Cast Aluminum Alloys (Si \leq 12%)	$ae = 1D$	Vf	350	650	900	1100		1230	1280	1410	
N	Copper Alloy (<HB200)	$ap \leq 0.5D$	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



N	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



N	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



N	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

SA210-BW

Side Milling : Aluminium Alloys



Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	12	16	20	25
N	Aluminium Alloy	$ap \leq 0.75D$	950	n	20000	18000	16000	12000
		$ae \leq 1D$		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	$ap \leq 0.75D$	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	$ap \leq 0.2D$	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 $4^{\circ}D$ (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	$ap \leq 1.5D$	60 (40~100)	n (min-1)	9555	6370	4780	3820	3185	2390	1910	1590	1195	955
		$ae \leq 0.25D$		V_f (mm/min)	380	305	285	305	320	335	345	350	310	305
M	Stainless Steel	$ap \leq 1.5D$	80 (60~110)	n (min-1)	12740	8490	6370	5095	4245	3185	2545	2020	1590	1275
		$ae \leq 0.25D$		V_f (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	$ap \leq 1D$	40 (30~60)	n (min-1)	6370	4245	3185	2545	2120	1590	1270	1060	795	635
		$ae \leq 1D$		V_f (mm/min)	255	200	190	170	170	190	200	210	190	190
M	Stainless Steel	$ap \leq 1D$	60 (50~70)	n (min-1)	9555	6370	4775	3820	3185	2390	1910	1590	1195	955
		$ae \leq 1D$		V_f (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	$ap \leq 0.7 \cdot Lc$	50 (40-60)	n (min-1)	980	780	620
	$ae \leq 0.1D$		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	$ap \leq 0.2D$	70 (60~80)	n (min-1)	8000	6300	5580	4500	3715	2785	2230	1860	1390	1120
	$ae \leq 0.3D$		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	$ap \leq 1.5D$	100 (80-120)	n (min-1)	2650	1990	1590
		$ae \leq 0.2D$		Vf (mm/min)	740	635	605
	TC Titanium Alloys	$ap \leq 1.5D$	100 (80-120)	n (min-1)	2650	1990	1590
		$ae \leq 0.2D$		Vf (mm/min)	690	635	570
	TB Titanium Alloys	$ap \leq 1.5D$	80 (60-100)	n (min-1)	2120	1590	1270
		$ae \leq 0.2D$		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	$ap \leq 1D$	80 (60-100)	n (min-1)	2120	1590	1275
		$ae \leq 1D$		Vf (mm/min)	595	510	485
	TC Titanium Alloy	$ap \leq 1D$	80 (60-100)	n (min-1)	2120	1590	1275
		$ae \leq 1D$		Vf (mm/min)	550	510	460
	TB Titanium Alloy	$ap \leq 1D$	50 (40-60)	n (min-1)	1460	1095	875
		$ae \leq 1D$		Vf (mm/min)	380	350	315

1. Make sure workpiece and machine are suitable, use high quality collect chucks.
2. Please adjust the speed feed and cutting depth according to actual cutting conditions.
3. The milling condition are for an endmill where the tool overhang length is 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	$ap \leq 1.5D$	100 (80-120)	n (min-1)	1990	1590	1270
		$ae \leq 0.2D$		Vf (mm/min)	795	755	605
	TC Titanium Alloys	$ap \leq 1.5D$	100 (80-120)	n (min-1)	1990	1590	1270
		$ae \leq 0.2D$		Vf (mm/min)	795	715	570
	TB Titanium Alloys	$ap \leq 1.5D$	80 (60-100)	n (min-1)	1590	1270	1020
		$ae \leq 0.2D$		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	$ap \leq 1D$	80 (60-100)	n (min-1)	1590	1275	1020
		$ae \leq 1D$		Vf (mm/min)	635	605	485
	TC Titanium Alloy	$ap \leq 1D$	80 (60-100)	n (min-1)	1590	1275	1020
		$ae \leq 1D$		Vf (mm/min)	635	570	460
	TB Titanium Alloy	$ap \leq 1D$	50 (40-60)	n (min-1)	1095	875	700
		$ae \leq 1D$		Vf (mm/min)	435	395	315

1. Make sure workpiece and machine are suitable, use high quality collect chucks.
2. Please adjust the speed feed and cutting depth according to actual cutting conditions.
3. The milling condition are for an endmill where the tool overhang length is 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

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)	$ap \leq 1.2D$ $ae \leq 0.08D$	General Condition	n (min-1)	14000	7200	4800	3600	2900	2400	
			V_f (mm/min)	800	900	1000	1100	1050	1000	
		High Speed Condition	n (min-1)	20000	10000	7000	5200	4200	3600	
			V_f (mm/min)	1200	1400	1600	1800	1600	1500	
H Hardened Steel (45-55HRC)	$ap \leq 1.0D$ $ae \leq 0.04D$	General Condition	n (min-1)	12500	6400	4200	3200	2500	2100	
			V_f (mm/min)	500	600	700	800	700	640	
		High Speed Condition	n (min-1)	18000	9200	6100	4600	3600	3000	
			V_f (mm/min)	900	1150	1300	1400	1300	1200	
	Hardened Steel (55-60HRC)	$ap \leq 0.8D$ $ae \leq 0.02D$	General Condition	n (min-1)	11000	5600	3700	2800	2200	1900
				V_f (mm/min)	440	500	580	630	570	550
High Speed Condition	$ap \leq 0.8D$ $ae \leq 0.02D$	n (min-1)	15000	8000	5300	4000	3200	2700		
		V_f (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)	$ap \leq 1.5D$ $ae \leq 0.05D$	n (min-1)	6200	4800	4000	3200	2400	1600	
		V_f (mm/min)	1674	1584	1560	1440	1296	960	
H Hardened Steel (45-55HRC)	$ap \leq 1.5D$ $ae \leq 0.03D$	n (min-1)	4500	3600	3000	2400	1800	1200	
		V_f (mm/min)	1215	1188	1170	1080	972	720	
	Hardened Steel (55-60HRC)	$ap \leq 1.5D$ $ae \leq 0.02D$	n (min-1)	3100	2400	2000	1600	1200	800
			V_f (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) Hardened Steel (55-60HRC)	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
	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)	$ap \leq 1D$	100	n (min-1)	25400	15900	7960	5300	3980	3180	2650
		$ae \leq 0.02D$		Vf (mm/min)	500	570	560	530	480	480	430
	Alloy Steel Hardened Steel (55-60HRC)	$ap \leq 1D$	80	n (min-1)	19100	12700	6370	4250	3180	2550	2120
		$ae \leq 0.015D$		Vf (mm/min)	280	300	320	290	280	260	260
	Alloy Steel Hardened Steel (> 60HRC)	$ap \leq 1D$	60	n (min-1)	16000	9550	4780	3180	2390	1910	1590
		$ae \leq 0.01D$		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)	$ap \leq 1D$	150	n (min-1)	40000	24000	12000	8000	6000	4800	4000
		$ae \leq 0.02D$		Vf (mm/min)	1350	1440	2400	1760	1440	1248	1200
	Alloy Steel Hardened Steel (55-60HRC)	$ap \leq 1D$	120	n (min-1)	30000	18000	10350	6900	5175	4140	3450
		$ae \leq 0.015D$		Vf (mm/min)	1000	1080	2070	1518	1242	1076.4	1035
	Alloy Steel Hardened Steel (> 60HRC)	$ap \leq 1D$	100	n (min-1)	20000	14000	7960	5300	4000	3280	2600
		$ae \leq 0.01D$		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)	$ap \leq 1.5D$	120	n (min-1)	6200	4800	4000	3200	2800	2400	1600
		$ae \leq 0.03D$		V_f (mm/min)	1674	1584	1560	1440	1344	1296	960
	Alloy Steel Hardened Steel (55-60HRC)	$ap \leq 1.5D$	100	n (min-1)	4500	3600	3000	2400	2100	1800	1200
		$ae \leq 0.025D$		V_f (mm/min)	1215	1188	1170	1080	1020	972	720
	Alloy Steel Hardened Steel (> 60HRC)	$ap \leq 1.5D$	70	n (min-1)	3100	2400	2000	1600	1400	1200	800
		$ae \leq 0.02D$		V_f (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)	$ap \leq 0.02D$	150	n (min-1)	44000	23000	16000	10000	7400	5700	4500	3800
		$ae \leq 0.02D$		V_f (mm/min)	1100	1200	1770	1680	1500	1300	1100	1000
	Alloy Steel Hardened Steel (55-60HRC)	$ap \leq 0.015D$	120	n (min-1)	41000	21000	14000	9500	5100	4100	3500	2600
		$ae \leq 0.015D$		V_f (mm/min)	1000	1200	1480	1390	1300	1170	1000	800
	Alloy Steel Hardened Steel (> 60HRC)	$ap \leq 0.01D$	90	n (min-1)	40000	20000	13000	7000	5100	3900	3100	2600
		$ae \leq 0.01D$		V_f (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)	$ap \leq 0.08D$	130	n (min-1)	21000	10350	6900	5175	4140	3450
		$ae \leq 0.18D$		Vf (mm/min)	2520	2484	2484	2270	2150	2070
	Alloy Steel Hardened Steel (55-60HRC)	$ap \leq 0.06D$	100	n (min-1)	15120	7560	5040	3780	3020	2520
		$ae \leq 0.13D$		Vf (mm/min)	1210	1210	1310	1280	1200	1210
	Alloy Steel Hardened Steel (> 60HRC)	$ap \leq 0.04D$	80	n (min-1)	12740	6370	4250	3180	2550	2120
		$ae \leq 0.08D$		Vf (mm/min)	920	1020	980	890	920	850

SH300-B4/BH4/BN4-H

For Alloy Steels, Hardened Steel—Profiling Finishing



Workpiece	Cutting Depth (mm)	Vc m/min	Tool Diameter	Tool Diameter (mm)						
				2	4	6	8	10	12	
H	Alloy Steel Hardened Steel (< 55HRC)	$ap \leq 0.03D$	180	n (min-1)	29460	14700	9800	7360	5890	4900
		$ae \leq 0.02D$		Vf (mm/min)	2360	2640	2660	2650	2590	2700
	Alloy Steel Hardened Steel (55-60HRC)	$ap \leq 0.02D$	150	n (min-1)	23880	11940	7960	5970	4780	3980
		$ae \leq 0.02D$		Vf (mm/min)	1720	1760	1850	1860	1870	1910
	Alloy Steel Hardened Steel (> 60HRC)	$ap \leq 0.01D$	130	n (min-1)	20700	10350	6900	5180	4140	3450
		$ae \leq 0.01D$		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)	$ap \leq 0.03D$	150	n (min-1)	40000	24000	12000	8000	6500	5000	4500
		$ae \leq 0.5D$		V_f (mm/min)	2640	3120	3840	5760	5760	5800	5200
H	Alloy Steel Hardened Steel (45-55HRC)	$ap \leq 0.025D$	125	n (min-1)	33000	20000	10000	7000	5500	4000	3500
		$ae \leq 0.5D$		V_f (mm/min)	2200	2600	3200	4800	4800	4400	3800
	Alloy Steel Hardened Steel (55-65HRC)	$ap \leq 0.02D$	90	n (min-1)	23000	14000	7200	5000	3600	3000	2500
		$ae \leq 0.5D$		V_f (mm/min)	2000	2500	2800	3500	3300	3000	2600

1. Turning red is a normal phenomenon in 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 conditions.
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)	$ap \leq 0.035D$	60-90	n (min-1)	3200-4800	2400-3600	1900-2900	1600-2400	1200-1800	950-1450
		$ae \leq 0.5D$		V_f (mm/min)	2200-3000	2200-3000	2200-3000	2200-3000	2500-3500	2500-3500
H	Alloy Steel Hardened Steel (45-65HRC)	$ap \leq 0.035D$	60-90	n (min-1)	3200-4800	2400-3600	1900-2900	1600-2400	1200-1800	950-1450
		$ae \leq 0.5D$		V_f (mm/min)	1920-2880	1950-2920	1950-2950	1920-2880	2160-3240	2280-3480

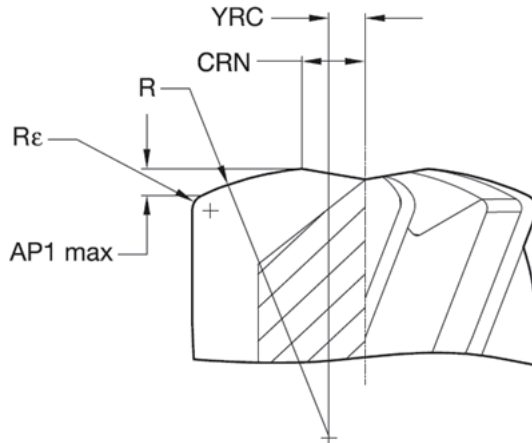
1. Turning red is a normal phenomenon in the process of processing, As long as the machine does not have obvious vibration or cutting tool without obvious damage, you can continue to use.
2. The knife type is not suitable for large depth and side milling.
3. Please adjust the speed, feed and cutting depth according to actual cutting conditions.
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 _ε	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.
 R_ε=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
0.3	3	0.003	32,400	340	29,160	306	27,540	231	38,880	409	24,300	174	22,680	140
	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
0.4	3	0.008	32,400	420	29,160	378	27,540	290	38,880	504	24,300	217	22,680	175
	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
0.5	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
	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
0.5	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
0.7	10	0.009	23,040	581	20,736	523	19,584	335	27,648	697	17,280	295	16,128	232
	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
0.8	10	0.018	23,040	581	20,736	523	19,584	335	27,648	697	17,280	295	16,128	232
	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
0.9	12	0.012	23,040	581	20,736	523	19,584	335	27,648	697	17,280	295	16,128	232
	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
1	12	0.023	23,040	581	20,736	523	19,584	335	27,648	697	17,280	295	16,128	232
	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), $ap \times 0.5$.
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
0.5	10	0.002	17,280	159	15,552	143	14,688	105	20,736	191	12,960	93	12,096	85
	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
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
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
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
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
3	50	0.01	9,072	304	8,165	274	7,711	183	10,886	338	6,804	154	6,350	124
	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
4	50	0.02	8,064	312	7,258	262	6,854	175	9,677	350	6,048	137	5,645	111
	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), $ap \times 0.5$.
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
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
0.1	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	
0.5	0.02	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

[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	
0.1		10	0.007	18,507	610	16,656	549	15,731	440	22,208	733	13,880	320	12,955	258	
		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	
0.7	0.05	10	0.009	18,507	610	16,656	549	15,731	440	22,208	733	13,880	320	12,955	258	
		4	0.024	27,994	1,032	25,195	929	23,794	713	33,593	1,238	20,995	532	19,596	429	
	0.1	6	0.015	21,773	803	19,596	723	18,507	554	26,127	963	16,330	414	15,241	334	
		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	
		4	0.024	27,994	1,032	25,195	929	23,794	713	33,593	1,238	20,995	532	19,596	429	

[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	
0.1	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
	0.3	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
		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
1.25	0.1	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	0.006	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	
	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	
	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
	0.3	35	0.035	9,072	1,143	8,165	1,029	7,711	971	10,886	1,372	6,804	694	6,350	559
		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
0.5	35	0.05	9,072	1,143	8,165	1,029	7,711	971	10,886	1,372	6,804	694	6,350	559	
	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	
1	35	0.065	9,072	1,143	8,165	1,029	7,711	971	10,886	1,372	6,804	694	6,350	559	
	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	
		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	
	0.2	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	
	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	
	0.5	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	
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	
0.2		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	
		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	
0.3		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】

- 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), $ap \times 0.65$.
- Use the appropriate coolant such as air cooling or emulsion for the work material and machining shape.
- In actual machining, the condition should be adjusted according to the machining shape, purpose and the machine type.
- 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
			4	0.008	27,000	288	27,000	252	27,000	225	27,000	333	19,440	144	17,280
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	
0.1		10	0.007	21,600	406	18,000	298	16,200	248	27,000	481	16,020	199	13,500	174	
		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	
0.7	0.05	10	0.009	21,600	406	18,000	298	16,200	248	27,000	481	16,020	199	13,500	174	
		4	0.024	36,000	747	31,050	558	25,020	396	36,000	882	21,240	252	18,900	207	
	0.1	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	
		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	
	0.1	12	0.01	26,123	513	18,720	363	18,000	315	27,000	609	14,580	221	14,580	197	
		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	
	0.2	12	0.012	26,123	513	18,720	363	18,000	315	27,000	609	14,580	221	14,580	197	
		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	
	1	0.02	12	0.015	26,123	513	18,720	363	18,000	315	27,000	609	14,580	221	14,580	197
			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	
0.05		12	0.005	16,330	548	14,697	493	13,880	408	19,596	657	12,247	359	11,431	288	
		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	
0.1		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
	0.3	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
		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
1.25	0.1	10	0.025	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
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
	0.3	45	0.06	7,416	968	6,592	860	5,026	655	8,899	1,160	4,450	464	3,707	322
		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
	0.5	45	0.12	7,416	968	6,592	860	5,026	655	8,899	1,160	4,450	464	3,707	322
		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
	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), $ap \times 0.65$.
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
	0.1	20	0.004	13,520	816	12,168	734	11,560	698	16,900	1,020	10,404	560	9,883	450
		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	
	0.3	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	
		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	
	0.5	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	
		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	
	2.5	0.1	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	
	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	11,300	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	10,600	1400	10,000	1,330	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
		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
		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	7,000	1,470	6,500	1,170
		40	0.03	9,300	2,520	8,400	2,010	7,900	1,830	11,200	3,020	7,000	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	7,000	1,470	6,500	1,170
		40	0.06	9,300	2,520	8,400	2,010	7,900	1,830	11,200	3,020	7,000	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), $ap \times 0.65$.
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
0.15	0.3	3	0.004	43,200	242	38,880	218	36,720	191	43,200	291	32,400	156	30,240	121
		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
0.2	0.4	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
		0.75	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
0.25	0.5	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
		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
0.25	0.5	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
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
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
		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
0.15	0.3	3	0.003	43,200	242	38,880	218	36,720	191	43,200	291	32,400	156	30,240	121
		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
0.2	0.4	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
		0.75	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
0.25	0.5	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
		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
0.25	0.5	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
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
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]

- 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), $ap \times 0.5$.
- 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.
- Adjust by setting ae to $(3 \text{ to } 5) \times (ap) \times (\text{cutting depth ratio})$. When performing finishing processing, calculate the theoretical cusp height and set accordingly.
- Use the appropriate coolant such as air cooling or emulsion for the work material and machining shape.
- 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

Mill Dia. (mm)	Workpiece Material		Copper, Aluminum alloy	
	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
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
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.