MILLING TOOLS

GESAC

About GESAC

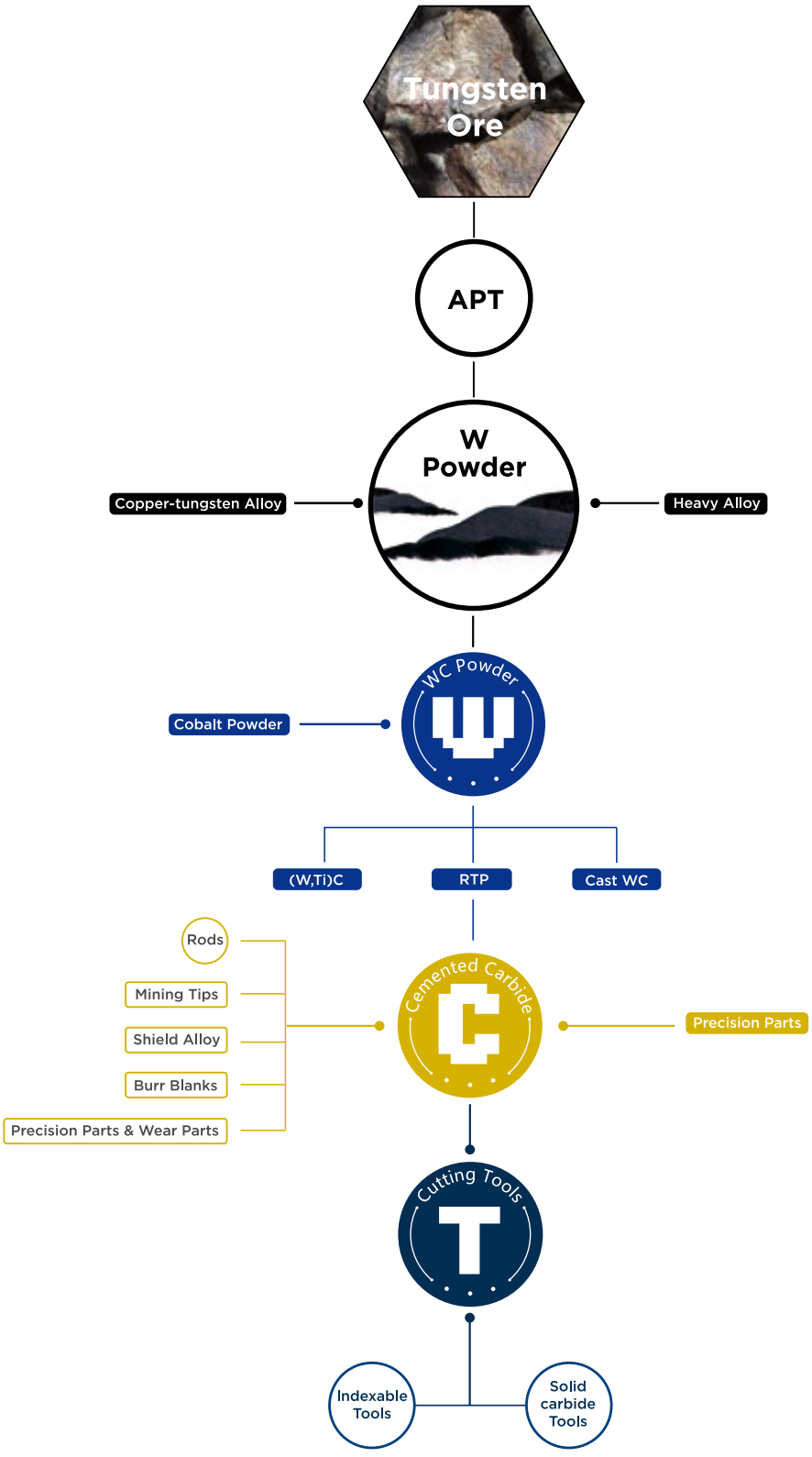
Xiamen Golden Egret Special Alloy Co., Ltd. (GESAC), founded in 1989, is a Sino-foreign joint venture with national high-tech, affiliated with XTC, which is one of six major rare earth groups in China. GESAC is committed to research & development, production and professional solutions providing of high-quality tungsten powder materials, cemented carbide, precision cutting tools and other tungsten products. Up to now, GESAC has become world-famous manufacturer and supplier of tungsten powder, cemented carbide and precision cutting tools products.

With the Integrated Product Development of complete tungsten industry chain, as well as a pragmatic and innovative management concept, GESAC has always maintained a strong momentum of development, providing the cost effective tungsten powder products and services for global users, offering the excellent products and perfect solutions for solving high hardness, high temperature resistance and wear resistance topics. Our brand "Golden Egret" has become one of the leading brand in the market, enjoying famous reputation in more than 40 countries and regions.

GESAC owns three production bases, three overseas sales branches and one R&D center. We undertook and completed several development programs independently, including the “National Science and Technology Support Programs”, the “National Torch Program Projects”, and the “National Key Projects” and so on. GESAC was awarded as "Key Enterprise for Strategic Emerging Industry ", “Innovative Enterprise" and "Enterprise with Advanced Technology ".

Product Chain

GESAC has a complete tungsten product chain from tungsten ore to tungsten powder, cemented carbide products and cutting tools.



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A

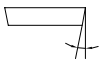
Indexable Milling

ISO Milling Indexable Inserts Identification System

Symbol	Shape	Comer Angle	Figure
H	Hexagon	120°	
O	Octagon	135°	
P	Pentagon	108°	
S	Square	90°	
T	Triangle	60°	
C	Rhombic	80°	
D		55°	
E		75°	
F		50°	
M		86°	
V		35°	
W	Trigon	80°	
L	Rectangle	90°	
A	Parellelogram	85°	
B		82°	
K		55°	
R	Round	——	

①Shape Symbol

Symbol	Relief Angle
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
O	Others



②Relief Angle Symbol

Symbol	Tolerance (mm)			Tolerance(inch)		
	Corner Height (m)	Thickness (s)	I.C.Size (Ød)	Corner Height (m)	Thickness (s)	I.C.Size (Ød)
A	±0.005	±0.025	±0.025	±0.0002	±0.001	±0.001
F	±0.005	±0.025	±0.013	±0.0002	±0.001	±0.0005
C	±0.013	±0.025	±0.025	±0.0005	±0.001	±0.001
H	±0.013	±0.025	±0.013	±0.0005	±0.001	±0.0005
E	±0.025	±0.025	±0.025	±0.001	±0.001	±0.001
G	±0.025	±0.13	±0.025	±0.001	±0.005	±0.001
J	±0.005	±0.025	±0.05~ ±0.13	±0.0002	±0.001	±0.002~ ±0.005
K	±0.013	±0.025	±0.05~ ±0.13	±0.0005	±0.001	±0.002~ ±0.005
L	±0.025	±0.025	±0.05~ ±0.13	±0.001	±0.001	±0.002~ ±0.005
M	±0.08~ ±0.18	±0.13	±0.05~ ±0.13	±0.003~ ±0.007	±0.005	±0.002~ ±0.005
N	±0.08~ ±0.18	±0.025	±0.05~ ±0.13	±0.003~ ±0.007	±0.001	±0.002~ ±0.005
U	±0.13~ ±0.38	±0.13	±0.08~ ±0.25	±0.005~ ±0.015	±0.005	±0.003~ ±0.01

③Tolerance Symbol

①	②	③	④	⑤
S	N	E	U	12
R	D	E	T	12

④Chipbreaker /Hole Symbol				
Symbol	Hole	Hole Shape	Chipbreaker	Shape
N	Without	—	Without	
R			Single-sided	
F			Double-sided	
A	With	With Hole	Without	
M			Single-sided	
G			Double-sided	
W		With hole and one countersink 40°~60°	Without	
T			Single-sided	
Q		With hole and two countersinks 40°~60°	Without	
U			Double-sided	
B		With hole and one countersink 70°~90°	Without	
H			Single-sided	
C		With hole and two countersinks 70°~90°	Without	
J			Double-sided	
X	—	—	—	

⑤Cutting Edge Length Symbol(ISO)(mm)

R		S		C		W		T		D		V		K		I.C.Size (mm)
Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	
		03	3.97	03	4.0			06	6.9	4	4.8					3.97
		04	4.76	04	4.8			08	8.2	5	5.8					4.76
05	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5
		05	5.56	05	5.6	03	3.8	09	9.6	6	6.8					5.56
06	6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6
		06	6.35	06	6.5	04	4.3	11	11	7	7.8	11	11.2			6.35
		07	7.94	08	8.1	05	5.4	13	13.8	9	9.7					7.94
08	8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8
09	9.525	09	9.525	09	9.7	06	6.5	16	16.5	11	11.6	16	16.6	16	19.7	9.525
10	10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10
12	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	12
12	12.7	12	12.7	12	12.9	08	8.7	22	22	15	15.5	22	22.1			12.7
15	15.875	15	15.875	16	16.1	10	10.9	27	27.5	19	19.4					15.875
16	16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	16
19	19.05	19	19.05	19	19.3	13	13	33	33	23	23.3					19.05
20	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	20
		22	22.225	22	22.6			38	38.5	27	27.1					22.225
25	25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	25
25	25.4	25	25.4	25	25.8			44	44	31	31					25.4
31	31.75	31	31.75	32	32.2			55	55	38	38.8					31.75
31	32	--	--	--	--	--	--	--	--	--	--	--	--	--	--	32

Insert Shape:H,O,P,S,T,C,E,M,W,R									
I.C.Size (mm)	Tolerance of I.C.Size(Ød) (mm)		Tolerance of Corner Height(m)(mm)		I.C.Size (inch)	Tolerance of I.C.Size(Ød) (mm)		Tolerance of Corner Height(m)(mm)	
	ClassJ,K, L,M,N	Class U	ClassJ,K, L,M,N	Class U		ClassJ,K, L,M,N	Class U	ClassJ,K, L,M,N	Class U
6.35	±0.05	±0.08	±0.08	±0.13	0.250	±0.002	±0.003	±0.003	±0.005
9.525					0.375				
12.7	±0.08	±0.13	±0.13	±0.2	0.500	±0.003	±0.005	±0.005	±0.008
15.875	±0.1	±0.18	±0.15	±0.27	0.625	±0.004	±0.007	±0.006	±0.011
19.05					0.750				
25.4	±0.13	±0.25	±0.18	±0.38	1.000	±0.005	±0.010	±0.007	±0.015
31.75	±0.15	±0.25	±0.2	±0.38	1.250	±0.006	±0.010	±0.008	±0.015
32					1.260				

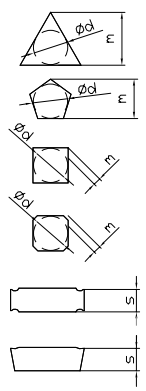
Insert Shape: D					
Inscribed Circle Size		Tolerance of I.C.Size		Tolerance of Corner Height	
mm	in	mm	in	mm	in
6.35	0.250	±0.05	±0.002	±0.11	±0.004
9.525	0.375	±0.05	±0.002	±0.11	±0.004
12.7	0.500	±0.08	±0.003	±0.15	±0.006
15.875	0.625	±0.10	±0.004	±0.18	±0.007
19.05	0.750	±0.10	±0.004	±0.18	±0.007

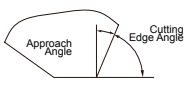
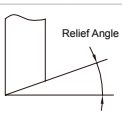
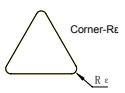
Insert Shape: V					
Inscribed Circle Size		Tolerance of I.C.Size		Tolerance of Corner Height	
mm	in	mm	in	mm	in
6.35	0.250	±0.05	±0.002	±0.15	±0.006
9.525	0.375	±0.05	±0.002	±0.15	±0.006
12.7	0.500	±0.08	±0.003	±0.20	±0.008
15.875	0.625	±0.10	±0.004	±0.27	±0.011
19.05	0.750	±0.10	±0.004	±0.27	±0.011

Symbol	Thickness (mm)
01	1.59
T1	1.98
02	2.38
T2	2.78
03	3.18
T3	3.97
04	4.76
05	5.56
06	6.35
07	7.94
09	9.52
⑥Thickness Symbol	

⑥	⑦	⑧	⑨	⑩
06	AN	E	N -	GM
04	M0	T	-	MM

D.Theoretical diameter of inscribed circle
s. insert thickness
m.see Fig.

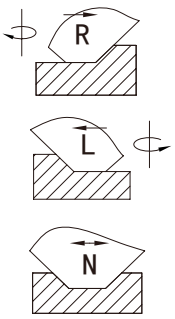


⑦Wiper Angle or Nose Radius						
I					II	
						
Symbol	Approach Angle	Cutting Edge Angle	Symbol	Relief Angle of Wiper	Symbol	Corner-Rε(mm)
A	45°	45°	D	15°	00	0.03
D	30°	60°	E	20°	02	0.2
E	15°	75°	F	25°	04	0.4
F	5°	85°	G	30°	08	0.8
P	0°	90°	P	11°	12	1.2
Z	Others		Z	Others	16	1.6
Wiper					20	2.0
					24	2.4
WA	Linear		 A		28	2.8
WB	Largearc-shaped		 B		32	3.2
WC	Convexarc-shaped		 C		Nose Radius for Insert	
WZ	Others				00 Inch Size M0 Metric Size	

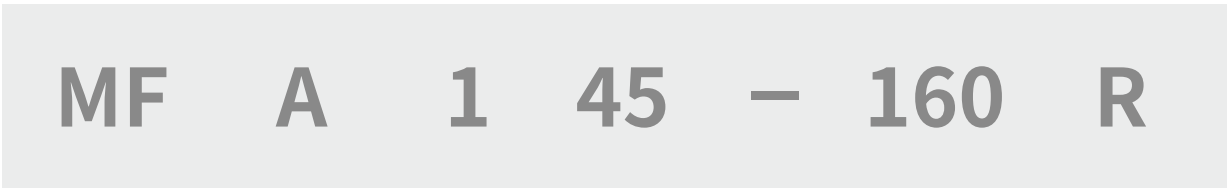
⑧Major cutting edge		
Symbol	Description	Shape
F	Sharp Edge	
E	R-Honed	
T	Chamfer	
S	Chamfer and R-Honed	

⑩Chipbreaker Symbol	
Symbol	Machining Condition
PL	Light Cutting for Steel
PM	Medium Cutting for Steel
PR	Rough Cutting for Steel
KM	Medium Cutting for Cast Iron
KR	Rough Cutting for Cast Iron
MM	Medium Cutting for Stainless Steel
Detailed Reference : Designation System for Milling Chipbreaker	

⑨Direction	
Symbol	Hand
R	Right
L	Left
N	Neutral



Milling Toos Identification System



①Milling Tool Type		
Face Milling	MF	General Face Milling
	MV	Tangential Face Milling
Shoulder Milling	ME	General Shoulder Milling
	MH	Helical Milling
Profile Milling	MP	Rough Profile Milling
	MB	Ball nose Milling
Slot Milling	MS	Side and Face Milling
Others	MK	High Feed Milling
	MC	Chamfer Milling
	MX	Special Milling

②Series Number

③Serial Number	
1	First
2	Second

④Lead Angle	
45	45 = 45°

⑤Cutting Diameters	
160	160 = 160mm

⑥Cutting Direction	
R	Right Hand
L	Left Hand

09 C 40 (T) S E 13 (M)

⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭

⑦No. of teeth	
09	9齿

⑧Type of Coupling	
A	A type
B	B type
C	C type
D	D type
M	Threaded Interface
P	Straight Shank
W	Weldon Shank
BT	BT type

⑨Coupling Size	
40	40 = 40mm

⑩Neck type	
T	Cone neck

⑪ Insert Shape	
V	35°Rhombic
D	55°Rhombic
C	80°Rhombic
S	Square
T	Triangle
R	Round
L	Rectangle

⑫Insert Clearance Angle	
N	0°
B	5°
C	7°
P	11°
D	15°
E	20°
F	25°

⑬Cutting Edge Length	
12	12 = 12mm

⑭Body Length	
S	Short
M	Normal
L	Long

Indexable Milling Cutter Series

Milling Series

ODKT

Single face general face milling cutter with 43°
ODK(M)T insert+MFA143 milling cutter

- Single face positive insert with eight edges, high efficiency
- Various chipbreaker design, suitable on high efficiency miiling of various woorkpiece

SEET

Single face general face milling with 45°
SEE(M)T insert+MFA145 milling cutter

- Single face positive insert with four edge, various breaker design, light cutting
- Suitable on high efficiency milling of various workpiece

SNEU

Double face general application milling45°/75°/88°
SNE(M)U insert+MFB145/245&MFB275/288 milling cutter

- Double face negative eight edge insert design, good strength, stable processing
- Suitable on processing of general workpiece from roughing to semi finishing

Indexable Milling Cutter Series

Face milling series

HNEX

Double face twelve general application face millingHNE(M)X
HNEX insert+MFB160/MFB260 cutter

- Double face negative insert design with twelve edges, high efficiency and strength, good performance on cast iron
- Mainly used on cast iron processing from roughing to semi finishing

LNMT

Vertical butterfly cutter
LNE(M)T insert+MVA190/MVA290 cutter

- Special vertical structure design, high strength, suitable on heave load milling with high efficiency
- Mainly used on roughing milling of general workpiece

Indexable Milling Cutter Series

Shoulder milling series

APMT

General face milling cutter
APMT insert+MEA190 cutter

- Miiling of general application workpiece
- Suitable on processing with big cutting depth, high efficiency

APKT

Single face curve shoulder milling
APKT insert+MEB190/MHB190 milling cutter

- Suitable on face milling and shoulder milling of general workpiece
- Suitable on thin wall part processing, could satisfy high precision shoulder milling demand
- Widely used on general machinery, mould and automotive industry

ANKX

Double face curve shoulder milling

- Suitable on face milling, shoulder milling, slot milling and profile milling of general workpiece
- Suitable on heavy load and high efficiency processing
- Widely used on general machinery, mould, aerospace and automotive industry

Indexable Milling Cutter Series

Shoulder milling series

WNGU

High economicy general shoulder milling cutter

- Negative double face design , improve strength and ensure sharpness
- Suitable on general application of face milling, should milling and slot milling
- Widely used on general machinery, mould, aerospace and automotive industry

SDKT

Single face four edge shoulder millir

- Four curve edge, light cutting
- Suitable on general application of face milling, should milling and slot milling
- Widely used on general machinery, mould, aerospace and automotive industry

Indexable Milling Cutter Series

Profile series

RD/RP/RC

General application profile milling
RD/RP/RC insert+MPA100/MPB100 cutter

- High economicy and efficiency, suitable on profile roughing of mould industry
- Various breaker, cover from ligh to heavy load processing
- Anti-rotation design, stable processing
- Economy type and high precision type for choice

QTD

Finishing ballnose cutter
QTD insert+MBA100 cutter

- R shapr design, has corresponding edge in case of straight wall processing
- Special edge design, high strength
- Low vibration, high speed, could run on deep cavity processing

Indexable Milling Cutter Series

High feed series

UD/UP

3 edge high feed milling
UD/UP insert+MKA110 cutter

- Three kinds size to match different breaker, satisfy processing of most industry
- Suitable on various milling, mainly used on face milling and cavity processing
- Big breaker design and special screw design, ensure high stability processing, good heat resistance

SDMT

Four edge high feed milling
SDMT insert+MKB113 cutter

- Four effective cutting edge, high economicy
- Closed type breaker design, improve rigidity, stable processing in case of heavy load

Indexable Milling Cutter Series

Slot milling

CNEU

Medium breaker width three face slot milling
CNEU insert+MSA cutter

- Positive cuuting performance, light cutting
- Suitable on slotting of automotive industry

SNEX

Medium breaker width three face slot milling
SNEX insert+MSA cutter

- Two choice,match both left and right hand
- Suiatble on three face slotting of automotive and aerospace industry

Indexable Milling Cutter Series

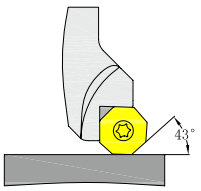
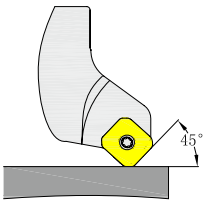
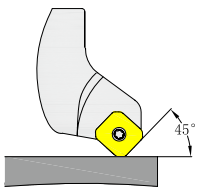
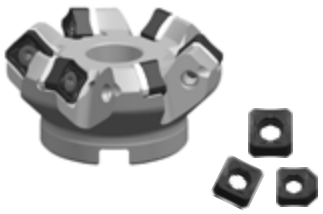
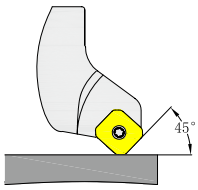
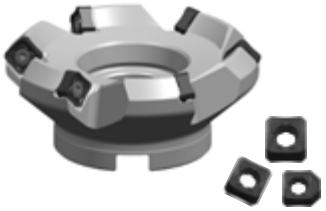
Chamfer Series

SPMT

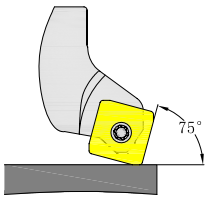
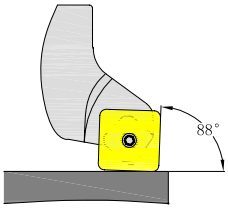
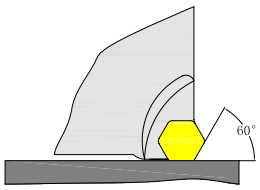
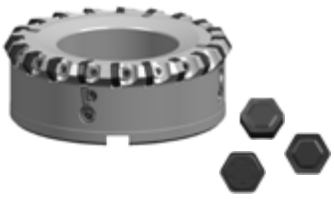
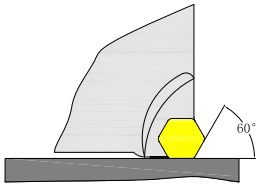
Chamfer
SPMT insert+MCA130/145/160 cutter

- Four edge, could run on positive and negative chamfering
- Two kindsinsert specification，IC:09/12

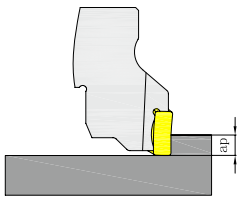
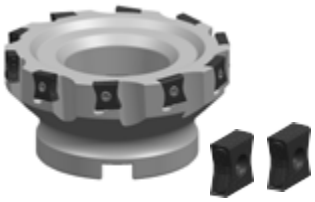
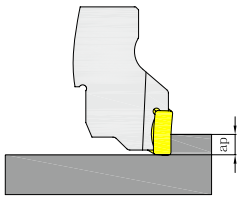
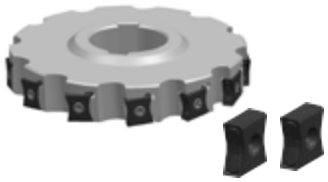
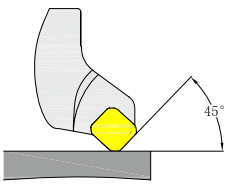
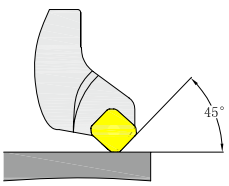
Indexable Milling Product Content

Type	Approach angle	Insert	Cutter	Shape	Profile
face miiling	 OD06:ap_{max}=4.0mm	OD*T P032	MFA143 (Φ40-Φ200)		Smoothly cutting with universal property, specially suit for efficiency face milling for connection face of mechanical components with different material
	 SE13:ap_{max}=4.0mm	SE*T P036	MFA145 (Φ50-Φ125)		Smoothly cutting with universal property, specially suit for efficiency face milling for connection face of mechanical components with different material
	 SN12:ap_{max}=3.0mm	SN*U P041	MFB145 (Φ50-Φ315)		Smoothly cutting with universal property, specially suit for efficiency face milling for connection face of mechanical components with different material
	 SN12:ap_{max}=3.0mm		MFB245 (Φ50-Φ315)		

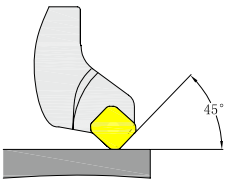
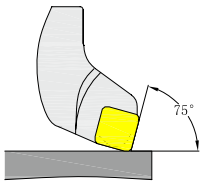
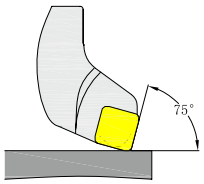
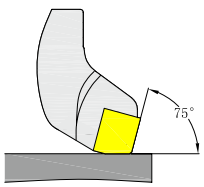
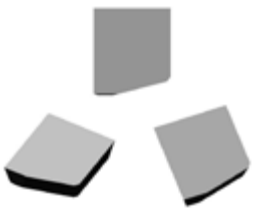
Indexable Milling Product Content

Type	Approach angle	Insert	Cutter	Shape	Profile
face miiling	 SN12:ap_{max}=5.0mm	SN*U	MFB275 (Φ50-Φ315)		Smoothly cutting with universal property, specially suit for efficiency face milling for connection face of mechanical components with different material
	 SN12:ap_{max}=7.0mm	P041	MFB288 (Φ50-Φ315)		
	 HN09:ap_{max}=8.0mm	HN*X	MFB160 (Φ125-Φ315)		Efficiency and economically face milling specially for cast iron
	 HN09:ap_{max}=8.0mm	P050	MFB260 (Φ80-Φ315)		

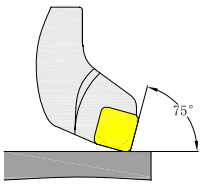
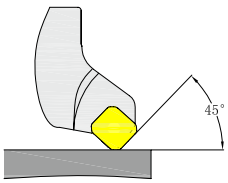
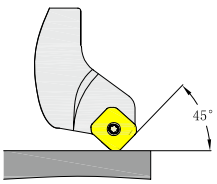
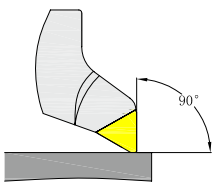
Indexable Milling Product Content

Type	Approach angle	Insert	Cutter	Shape	Profile
face miiling	 LN11:ap_{max}=5.0mm LN15:ap_{max}=7.0mm	LN*T P054	MVA190 (Φ40-Φ315)		Verital cutter, suitable on high strength milling of medium and heave load
	 LN15:ap_{max}=7.0mm		MVA290 (Φ80-Φ250)		
	 SB12:ap_{max}=5.0mm	SBEX P062	-		Smoothly cutting with universal property, specially suit for efficiency face milling for connection face of mechanical components with different material
	 SE12:ap_{max}=5.0mm SE15:ap_{max}=6.5mm	SEEN SEMN SEEX P062	-		

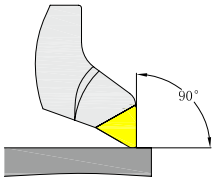
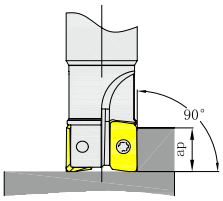
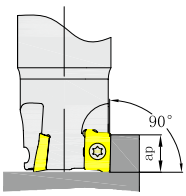
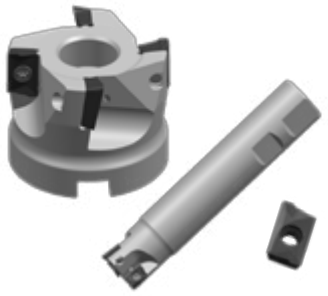
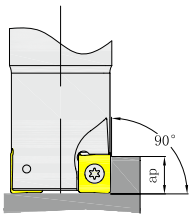
Indexable Milling Product Content

Type	Approach angle	Insert	Cutter	Shape	Profile
face miiling	 SE12:ap_{max}=5.0mm	SEEN-R P063	-		Smoothly cutting with universal property, specially suit for efficiency face milling for connection face of mechanical components with different material
	 SP15:ap_{max}=6.5mm SP19:ap_{max}=8.0mm SP25:ap_{max}=10.0mm	SPEN P063	-		
	 SP12:ap_{max}=9.5mm SP15:ap_{max}=11.5mm SP19:ap_{max}=14.0mm	SPKN P064	-		
	 SP15:ap_{max}=11.5mm	SPEN-W P064	-		

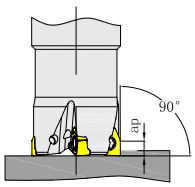
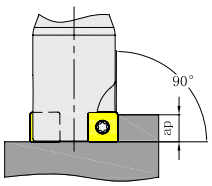
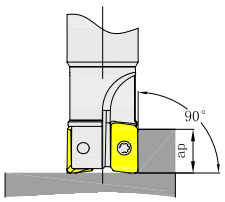
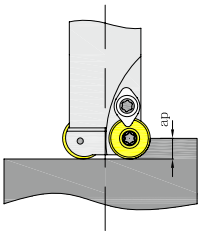
Indexable Milling Product Content

Type	Approach angle	Insert	Cutter	Shape	Profile
face miiling	 SP12:ap_{max}=9.5mm	SPER P065	-		Smoothly cutting with universal property, specially suit for efficiency face milling for connection face of mechanical components with different material
	 SP15:ap_{max}=6.5mm	SPNR P065	-		
	 SP09:ap_{max}=3.5mm SP12:ap_{max}=5.0mm SP15:ap_{max}=6.5mm	SPCW P066	-		
	 TP16:ap_{max}=22.0mm TP22:ap_{max}=30.0mm	TPER TPKR TPKN P067	-		

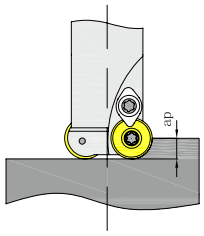
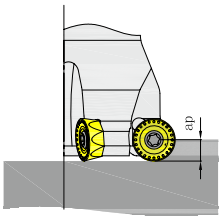
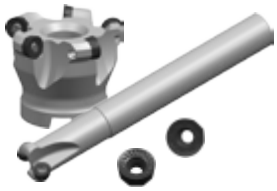
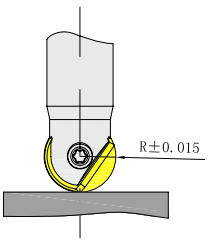
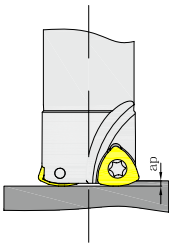
Indexable Milling Product Content

Type	Approach angle	Insert	Cutter	Shape	Profile
face miiling	 TP22:ap_{max}=30.0mm	TPNR P068	-		Smoothly cutting with universal property, specially suit for efficiency face milling for connection face of mechanical components with different material
Shoulder milling	 AP11:ap_{max}=9.0mm AP16:ap_{max}=14.0mm	APM(G)T P069	MEA190 (Φ16-Φ250)		Suitable for the cutting of steel、cast iron and stainless steel, mainly used for shoulder milling, face milling, pocket milling,slot milling etc.
	 AP11:ap_{max}=9.0mm AP16:ap_{max}=14.0mm	APK(E)T P074	MEB/MHB190 (Φ16-Φ200)		Curve edge, light cutting,suitable for the cutting of steel、cast iron and stainless steel, mainly used for shoulder milling, face milling, pocket milling,slot milling etc.
	 AN12:ap_{max}=9.0mm AN16:ap_{max}=14.0mm	ANKX P081	MEC/MHC190 (Φ32-Φ200)		Double face negative insert, high economy, suitable for the cutting of steel、cast iron and stainless steel, mainly used for shoulder milling, face milling, pocket milling,slot milling etc.

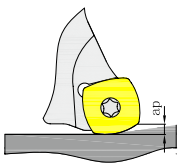
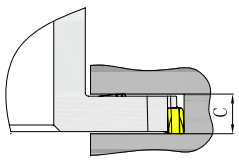
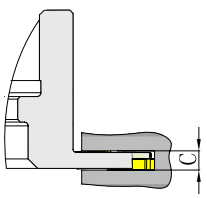
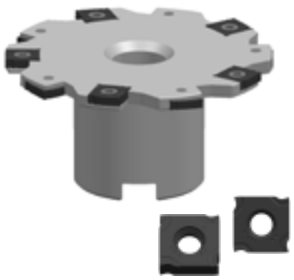
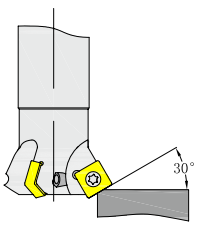
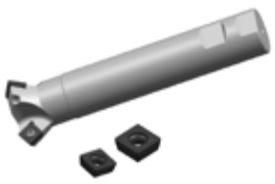
Indexable Milling Product Content

Type	Approach angle	Insert	Cutter	Shape	Profile
Shoulder milling	 WNGU04:ap_{max}=4.0mm WNGU08:ap_{max}=7.5mm	WNGU P087	MEE190 (Φ20-Φ200)		Double face negative insert, high economy, suitable for the cutting of steel、cast iron and stainless steel, mainly used for shoulder milling, face milling, pocket milling,slot milling etc.
	 SD14:ap_{max}=9.0mm	SDKT P092	MES190 (Φ40-Φ315)		Four curve edge, light cutting, suitable for the cutting of steel、cast iron and stainless steel, mainly used for shoulder milling, face milling, pocket milling,slot milling etc.
	 XP16:ap_{max}=14.0mm	XPHT P097	-		suitable for the cutting of steel、cast iron and stainless steel, mainly used for shoulder milling, face milling, pocket milling,slot milling etc.
Profile milling	 RD05:ap_{max}=2.5mm RD07:ap_{max}=3.5mm RD08:ap_{max}=4.0mm RD10:ap_{max}=5.0mm RD12:ap_{max}=6.0mm RD16:ap_{max}=8.0mm	RD P098	MPA100 (Φ10-Φ125)		suitable for the cutting of steel、cast iron and stainless steel, mainly used for shoulder milling, face milling, pocket milling,slot milling etc.

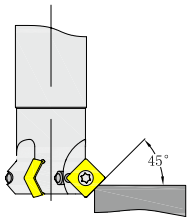
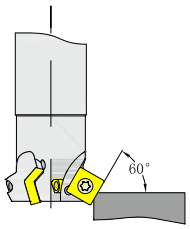
Indexable Milling Product Content

Type	Approach angle	Insert	Cutter	Shape	Profile
Profile milling	 RP08:ap_{max}=4.0mm RP10:ap_{max}=5.0mm RP12:ap_{max}=6.0mm RP16:ap_{max}=8.0mm	RP P103	MPB100 (Φ16-Φ125)		suitable for the cutting of steel、cast iron and stainless steel, mainly used on generator, aerospace industry
	 RC10:ap_{max}=5.0mm RC12:ap_{max}=6.0mm RC16:ap_{max}=8.0mm RC20:ap_{max}=10.0mm	RC P108	MPC100 (Φ20-Φ125)		
		QTD P116	MBA100 (Φ12-Φ32)		Suileble on steel and cast iron cases, and mainly used on profile and cavity milling
HIgh feed milling	 UD08:ap_{max}=1.0mm UD12:ap_{max}=1.5mm UP17:ap_{max}=2.0mm	UD/UP P121	MKA110 (Φ20-Φ100)		Suileble on steel stainless and cast iron cases, mainly used on face milling, cavity milling and slot milling

Indexable Milling Product Content

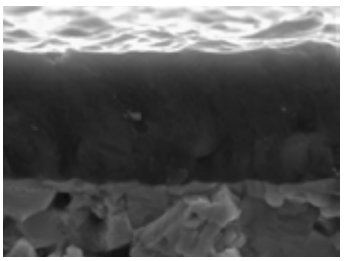
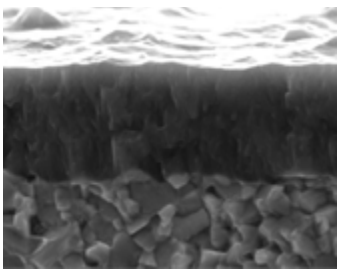
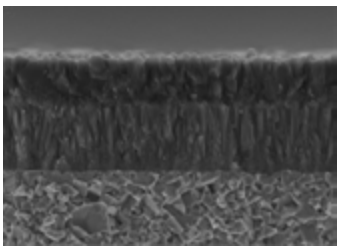
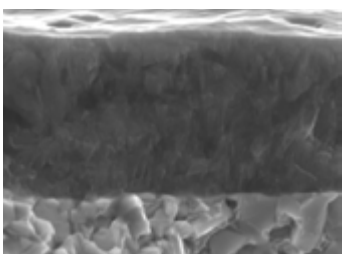
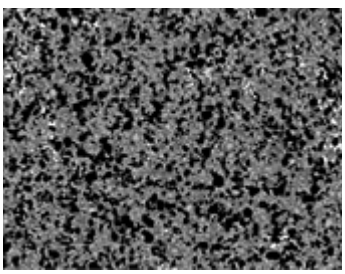
Type	Approach angle	Insert	Cutter	Shape	Profile
High feed milling	 SD12:ap_{max}=2.0mm SD15:ap_{max}=3.0mm	SDMT P128	MKB113 (Φ32-Φ125)		Suileble on steel stainless and cast iron cases, mainly used on face milling and big cavity milling
Slot milling	 C_{max}=13.0mm C_{min}=10.0mm	CNEU P135	MSA110-113 (Φ80-Φ160)		Suitable on steel and cast iron cases, mainly used on automotive solting
	 C_{max}=8.0mm C_{min}=4.0mm	SNEX P139	MSA104-108 (Φ100)		Suitable on steel and cast iron cases, and mainly used on automotive and aerospace sloting
Chamfer milling	 SP09:ap_{max}=3.0mm SP12:ap_{max}=4.5mm	SPMT P142	MCA130 (Φ25-Φ32)		Suitable on chamfer processing of steel and stainless

Indexable Milling Product Content

Type	Approach angle	Insert	Cutter	Shape	Profile
Chamfer milling	 SP09:ap_{max}=5.0mm SP12:ap_{max}=7.0mm	SPMT P142	MCA145 (Φ25-Φ32)		Suitable on chamfer processing of steel and stainless
	 SP09:ap_{max}=6.0mm SP12:ap_{max}=8.0mm		MCA160 (Φ25-Φ36)		

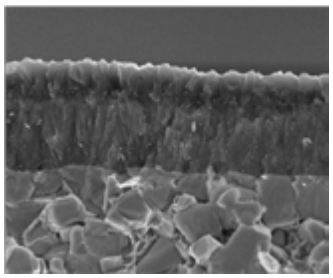
Milling Grade

Grade for P

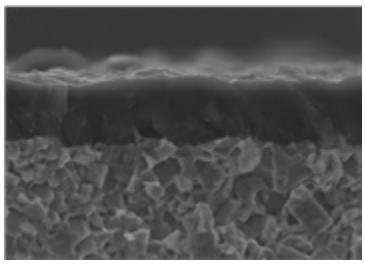
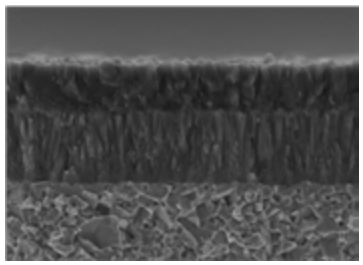
Grade	Application	Coating Structure	Advantages
GA4230	Medium load general application		Upgrade TiAIN coating with good heat resisatnce and oxidation resistance, combined carbide substrate with high heat and wear resiatance, ensure stable processing
GA4225	Medium load general application		Nano-structure AlCrN coating and micro carbide substarte, suiatable on steel and cast iron processing of in case of medium and low speed
GP2115	Semi finishing		MT-TiCN+Al2O3 coating with micro carbide substrate, has good rigidness and wear resistance, ensure stable processing, suitable on high-speed steel processing from finishing to semi finihsing
GP4225	Semi finishing, roughing		Upgrade AlCrN+TiN coating and micro carbide substrate, has good wear resistance, suitable on steel processing of finishing to light roughing
GP01TM	Finishing, semi finishing		Non coating cermet grade, has goog rigidness ,wear resisatnce and fracture resistance, suitable on various workpiece milling, first choice of steel milling

Milling Grade

Grade for M

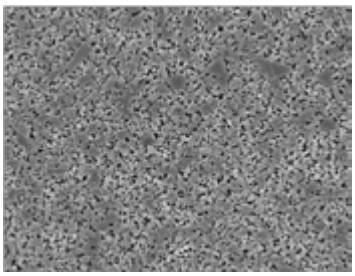
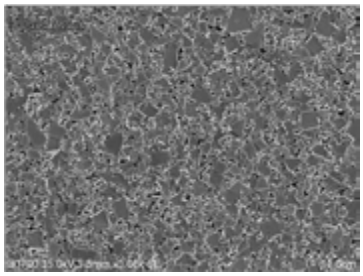
Grade	Application	Coating Structure	Advantages
GM2140	Roughing		MT-TiCN+AL2O3 coating with high strength carbide substrate, has good wear resiatance, rigidness and heat stability, suitable for semi finishing to roughing of stainless and high temperature alloy

Grade for K

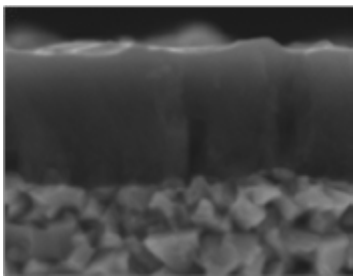
Grade	Application	Coating Structure	Advantages
GK4125	Semi finishing, roughing		AiALN coating with micro carbide substarte, has good wear resiatnce and rigidness, suitable on medium to roughing of gray cast iron and nodular cast iron
GK2115	Semi finishing		MT-TiCN+Al2O3 coating with micro carbide substarte, has good wear resiatnce and rigidness, ensure stable processing, suitable on medium and high speed cast iron processing in case of finishing to semi finishing

Milling Grade

Grade for N

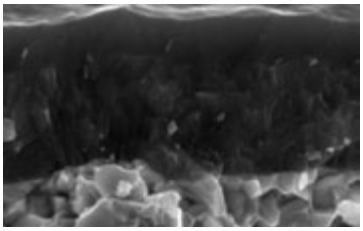
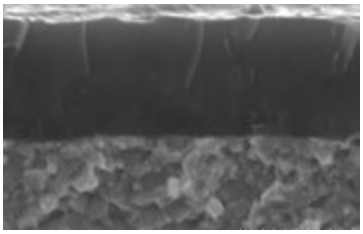
Grade	Application	Coating Structure	Advantages
GA0115	Semi finishing		Non coating grade with micro carbide substarte, suitable on Al processing with sharp edge and steel processing
GN9125	Semi finishing, roughing		Non coating grade with micro carbide substarte, good wear resistance and rigidness, suitable on semi finishing to roughing processing of copper and Aluminium

Grade for S

Grade	Application	Coating Structure	Advantages
GS4130	Semi finishing, roughing		TiALN coating with micro carbide substarte, has good wear resiatnce and rigidness, suitable on semi finishing to roughing processing of Ti and high temperature alloy

Milling Grade

Grade for H

Grade	Application	Coating Structure	Advantages
GH4125	Finishing, semi finishing		New TiAlCrSiNcoating with micro carbide substarte, has good oxidation resistane and hot hardness performance. Suitable on high harden processing from finishing to semi finishing
GH4115	Finishing, semi finishing		New AlCrSiN coating with micro carbide substarte, has good wear resiatne and rigidness, suitable on finishing to semi finishing of common steel and mould steel

As for introduction of indexable milling frade

Workpiece Material	ISO	Coated		Uncoated	Cermet
		CVD	PVD		
P Steel	P01	GP2115			GP01TM
	P10		GA4225		
	P20		GP4225		
	P30		GA4230		
	P40				
	P50				
M Stainless Steel	M01				
	M10				
	M20		GA4225		
	M30	GM2140	GA4230		
	M40		GS4130		
	M50				
K Cast Iron	K01				
	K10	GK2115		GK0115	
	K20		GK4125		
	K30				
	K40				
N Nonferrous Metal	N01				
	N10			GA0115	
	N20				
	N30			GN9125	
	N40				
S HRSA	S01				
	S10		GA4230		
	S20	GM2140			
	S30		GS4130		
	S40				
H Hardened Material	H01				
	H10		GH4115		
	H20		NEW GH4125		
	H30		NEW		

Pitch Type

Choosing proper cutting tool teeth number is extremely important for balancing efficiency and precision in milling application. Under the same cutting speed Vc& feed per teeth fz, increase the number of cutting edges can effectively increase producing efficiency, even though also increase the cutting force at the same time. Machine Power is an influence factor for cutting tool teeth number choosing. GEASC provides three type pitch for different application.

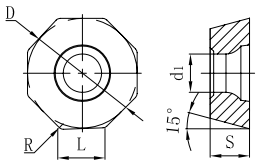
MFB145-080

Shape			
	Coarse pitch	Close pitch	Extra Close pitch
NO. of Teeth	Z_c=5	Z_c=7	Z_c=8
Application	he coarse-pitch cutterhas superior rigidity,suitable for unstable working condition. Mainly used in high feeding, large cutting depth(ap).Big size chip. First priority for carbon steel and stainless steel machining	The close-pitch cutter has the best balance of rigidity and efficiency, most suitable for general purpose cutting of various material. Most suitable for medium feeding and medium cutting depth (ap). Medium size chip. Also suitable for hardened steel and heat-resistance alloy.	The close-pitch cutter has the best balance of rigidity and efficiency, most suitable for general purpose cutting of various material. Most suitable for medium feeding and medium cutting depth (ap). Medium size chip. Also suitable for hardened steel and heat-resistance alloy.

Face milling

OD*T

Common milling



Ordering Code		Dimension(mm)					Coated										Uncoated	Cermet
		L	D	S	d1	R	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	ODKT060508-GL	6.5	15.875	5.56	5.56	0.8	○	●	○	○	○	○	○	○				
	ODKT060508-GM	6.5	15.875	5.56	5.56	0.8	○	●	○	○	○	●	●	○				
	ODMT060508-GM	6.5	15.875	5.56	5.56	0.8	○	●	○	○	○	○	○	○				
	ODKT060508-GH	6.5	15.875	5.56	5.56	0.8	●	○	○	○	○	○	○	○				
	ODMT060508-GH	6.5	15.875	5.56	5.56	0.8	○	○	○	○								
	ODKT060508-AL	6.5	15.875	5.56	5.56	0.8											●	
	ODKW060508-WB	6.5	15.875	5.56	5.56	0.8	○	○	○	○	○	○	○					

●Standard stock ○need reservation

OD*T Series Breaker

General workpiece light cutting	General workpiece medium cutting	General workpiece heavy cutting	Aluminium general processing	Wiped insert
				
GL	GM	GH	AL	WB
				
Big rake angle, narrow edge width, suitable on light processing with low cutting force	Big rake angle, light cutting, could reach high stability processing。	Big breaker width, high strength edge, good performance on roughing	Big rake angle, sharp edge, light cutting, good chipping, polishing treatment	Wiped edge design, improve surface quality

Face milling

MFA143

Arbor

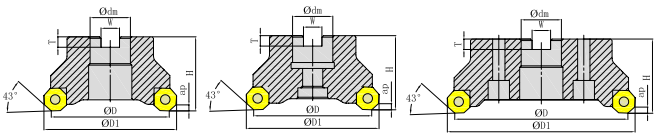
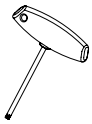


Fig1 Fig2 Fig3

Ordering Code	Dia-meter	Teeth	Dimension(mm)						Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD	$ΦD_1$	Φdm	H	W	T					
MFA143040R03A16OD06	40	3	40	50	16	40	8.4	5.6	4	OD**0605	×	Fig1	●
MFA143050R04A22OD06	50	4	50	60	22	40	10.4	6.3	4	OD**0605	×	Fig1	●
MFA143063R05A22OD06	63	5	63	72	22	40	10.4	6.3	4	OD**0605	×	Fig1	●
MFA143080R06B27OD06	80	6	80	90	27	50	12.4	7	4	OD**0605	×	Fig2	●
MFA143100R07B32OD06	100	7	100	110	32	50	14.4	8	4	OD**0605	×	Fig2	●
MFA143125R08B40OD06	125	8	125	135	40	63	16.4	9	4	OD**0605	×	Fig2	●
MFA143160R10C40OD06	160	10	160	170	40	63	16.4	9	4	OD**0605	×	Fig3	●
MFA143200R12C60OD06	200	12	200	210	60	63	25.7	14	4	OD**0605	×	Fig3	●

●Standard stock ○need reservation

Spare Parts

Part name		Screw	Wrench
Common insert / Shape			
OD**0605	Specification	SI60M5X10.8-07209	TT20T
	Code	PSI60M050108-07209S	PTT20TQ

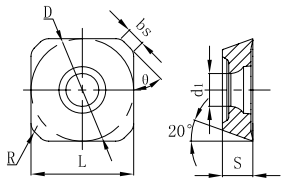
Recommended Cutting Data

Workpiece		Hardness	Grade	Cutting speed	Feed/edge		
				Vc（m/min）	Light cutting (L)	Medium cutting（M）	Heavy cutting (H)
P	Common steel	⩽ HB180	GA4225 GA4230 GP4225 GP2115	220 (180-300)	0.2 (0.1-0.3)	0.25 (0.1-0.4)	0.3 (0.2-0.5)
	Carbon steel, alloy steel	HB180-280	GA4225 GA4230 GP4225 GP2115	200 (150-280)	0.2 (0.1-0.3)	0.25 (0.1-0.4)	0.3 (0.2-0.5)
	Carbon steel, alloy steel	HB280-350	GA4225 GA4230 GP4225 GP2115	150 (120-250)	0.2 (0.1-0.3)	0.25 (0.1-0.4)	0.3 (0.2-0.5)
M	Stainless(ferrite, martensite)	⩽ HB275	GM2140	160 (100-250)	0.15 (0.1-0.3)	0.2 (0.1-0.3)	0.25 (0.2-0.4)
K	Cast iron, nodular cast iron	⩽ HB350	GK4125 GK2115	180 (120-250)	0.2 (0.1-0.3)	0.25 (0.1-0.4)	0.3 (0.2-0.5)
N	Non ferrous metal	HB60-210	GN9125	⩾ 300	0.15 (0.1-0.2)	0.2 (0.1-0.3)	0.25 (0.2-0.6)
S	Heat resistance, Ti alloy	HRC25-35	GS4130	40 (30-60)	0.15 (0.1-0.2)	0.2 (0.1-0.3)	-

Face milling

SE*T

Common face milling



Ordering Code		Dimension(mm)						Coated									Uncoated	Cermet
		L	D	S	d_1	θ	bs	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	SEET1204AFEN-PL	12.7	12.7	4.76	5.5	45°	2.5	●	●	○		●	○		○				●
	SEET13T3AGEN-PL	13.4	13.4	3.97	4.4	45°	1.7	●	●	○	○	●			○				
	SEET13T3AGEN-PM	13.4	13.4	3.97	4.4	45°	1.2	●	●	○	○	○	○		○				●
	SEMT13T3AGEN-PM	13.4	13.4	3.97	4.4	45°	1.2	●	○	○	○	○	○						
	SEET13T3AGSN-PH	13.4	13.4	3.97	4.4	45°	1.3	○	●	○	○	○	○		○				
	SEMT13T3AGSN-PH	13.4	13.4	3.97	4.4	45°	1.3	○	○	○	○	○	○						
	SEET13T3AGSN-KM	13.4	13.4	3.97	4.4	45°	1.3	●	○	○			●	○					
	SEET13T3AGSN-KH	13.4	13.4	3.97	4.4	45°	1.3	●	○	○			●	○					
	SEET13T3AGFN-AL	13.4	13.4	3.97	4.4	45°	2.2											○	
	SEET13T3AGEN-WB	13.4	13.4	4.76	3.97	45°	2.37	○	●	○		○	○	○	○				

●Standard stock ○need reservation

SE*T Series Breaker

General workpiece light cutting	General workpiece mediumt cutting	General workpiece heavy cutting	Cast iron medium cutting	Cast iron heavy cutting	Aluminium general cutting	Wiped insert
						
PL	PM	PH	KM	KH	AL	WB
						
Big rake angle and narrow width design, suitable on light cutting of low cutting force and low feed	Big rake angle design, light cutting, stable processing	High strength edge, good performanc e on continuous cutting and black surface removal processing	Cast iron grade, could satisfy most cast iron mesium cutting	Cast iron heavy load breaker, good performanc e on continuous cutting and black surface removal processing	B ig rake angle design, light cutting,polishing, good chipping	Bid radius wiped edge, improve surface quality

Face milling

MFA145

Arbor

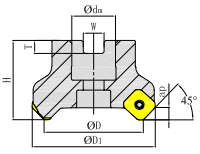


Fig1

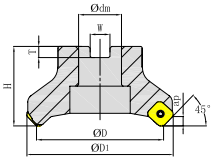


Fig2

Sparse tooth type

Ordering Code	Dia-meter	Teeth	Dimension(mm)						Apmax	Gauge Insert	shim	Coolant	Shape	Stock
			ΦD	ΦD1	Φdm	H	W	T						
MFA145050R03A22SE13	50	3	50	63	22	40	10.4	6.3	4	SE*T13T3	×	×	Fig1	○
MFA145063R04A22SE13	63	4	63	76	22	40	10.4	6.3	4	SE*T13T3	×	×	Fig1	●

●Standard stock ○need reservation

Close tooth type

Ordering Code	Dia-meter	Teeth	Dimension(mm)						Apmax	Gauge Insert	shim	Coolant	Shape	Stock
			ΦD	ΦD1	Φdm	H	W	T						
MFA145050R04A22SE13	50	4	50	63	22	40	10.4	6.3	4	SE*T13T3	×	×	Fig1	●
MFA145063R05A22SE13	63	5	63	76	22	40	10.4	6.3	4	SE*T13T3	×	×	Fig1	●
MFA145080R06B27SE13	80	6	80	93	27	50	12.4	7	4	SE*T13T3	√	×	Fig2	●
MFA145100R07B32SE13	100	7	100	113	32	50	14.4	8.3	4	SE*T13T3	√	×	Fig2	●
MFA145125R08B40SE13	125	8	125	138	40	50	16.4	8.3	4	SE*T13T3	√	×	Fig2	●

●Standard stock ○need reservation

Face Milling

MFA145

Cylinder straight shank type

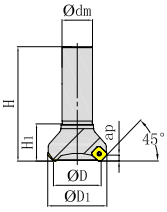


Fig3

Sparse tooth type

Ordering Code	Dia-meter	Teeth	Dimension(mm)					Apmax	Gauge Insert	shim	Coolant	Shape	Stock
			ΦD	ΦD1	Φdm	H	H1						
MFA145050R03P32SE13	50	3	50	63	32	120	39	4	SE*T13T3	×	×	Fig3	○
MFA145063R04P32SE13	63	4	63	76	32	120	39	4	SE*T13T3	×	×	Fig3	○

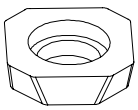
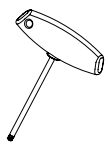
●Standard stock ○need reservation

Close tooth type

Ordering Code	Dia-meter	Teeth	Dimension(mm)					Apmax	Gauge Insert	shim	Coolant	Shape	Stock
			ΦD	ΦD1	Φdm	H	H1						
MFA145050R04P32SE13	50	4	50	63	32	120	39	4	SE*T13T3	×	×	Fig3	○
MFA145063R05P32SE13	63	5	63	76	32	120	39	4	SE*T13T3	×	×	Fig3	○

●Standard stock ○need reservation

Spare part chart

Name		Shim	Screw for shim	Shim screw Wrench	Insert shim	Insert screw wrench	
Insert \ Shape							
SE*T13T3	Specification	--	--	TH35L	SI60M3.5X8.0-05410	TT15P	TT15T
	Order code	--	--	PTH35LB	PSI60M035080-05410B	PTT15PB	PTT15TB
SE*T13T3	Specification	DSE1300S	SSAM5X7.0	TH35L	SI60M3.5X11.6-05410	TT15P	TT15T
	Order code	H0K30DSE1300S	PSSAM050070B	PTH35LB	PSI60M035116-05410B	PTT15PB	PTT15TB

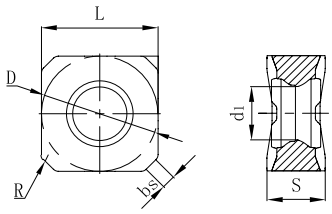
Recommended cutting data

Workpiece		Hardness	Grade	Cutting speed	Feed/Teeth		
				Vc（m/min）	Light cutting（L）	Medium cutting（M）	Heavy cutting（H）
P	Soft stee (SS400、S10C)	⩽ HB180	GA4225 GA4230 GP4225 GP2115	250 (210-350)	0.15 (0.1-0.2)	0.2 (0.1-0.3)	0.3 (0.2-0.4)
P	Carbon stell, alloy steel (S45C、SCM440)	HB180-280	GA4225 GA4230 GP4225 GP2115	220 (170-270)	0.15 (0.1-0.2)	0.2 (0.1-0.3)	0.3 (0.2-0.4)
P	Carbon stell, alloy steel (S45C、SCM440)	HB280-350	GA4225 GA4230 GP4225 GP2115	140 (100-180)	0.15 (0.1-0.2)	0.2 (0.1-0.3)	0.3 (0.2-0.4)
M	Stainless (SUS304)	⩽ HB275	GM2140	180 (130-250)	0.15 (0.1-0.2)	0.2 (0.1-0.3)	0.3 (0.2-0.4)
K	Cast iron, nodular cast iron (FC250、FCD400)	⩽ HB350	GK2115 GK4125	180 (130-250)	0.15 (0.1-0.2)	0.2 (0.1-0.3)	0.3 (0.2-0.4)
N	Aluminium	HB60-210	GN9125	⩾ 300	0.15 (0.1-0.2)	0.2 (0.1-0.3)	0.3 (0.2-0.4)
S	Heat resiatance alloy	HRC25-35	GS4130	40 (20-50)	0.15 (0.1-0.2)	0.2 (0.1-0.3)	--

Face milling

SN*U

Common face milling insert



	Ordering Code	Dimension(mm)						Coating grade										Uncoated	Cermet
		L	D	S	bs	d1	R	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	SNEU1206ANEN-GL	12.7	12.7	6.35	2.2	6.0	0.8	○	●	○	○	○	○	●	○				
	SNEU1206ANFN-NL	12.7	12.7	6.35	2.2	6.0	0.8											●	
	SNEU1206ANEN-GM	12.7	12.7	6.35	2.2	6.0	0.8	●	●	○	○	○	●	●	●				
	SNMU1206ANEN-GM	12.7	12.7	6.35	2.2	6.0	0.8	●	○	○	○	○	○	○	●				
	SNEU1206ANSN-GH	12.7	12.7	6.35	2.2	6.0	0.8	○	●	○	○	○	●	●					
	SNMU1206ANSN-GH	12.7	12.7	6.35	2.2	6.0	0.8	○	●	○	○	○	○	○					
	SNEU1206ANEN-GW	12.7	12.7	6.35	5.6	6.0	0.8	○	○	○	○	○	○	○	○				
	SNEU1206ENEN-GM	12.7	12.7	6.35	1.4	6.0	0.8	○	●	○	○	○	●	○	○				
	SNMU1206ENEN-GM	12.7	12.7	6.35	1.4	6.0	0.8		●				○						
	SNEU1206ZNEN-GM	12.7	12.7	6.35	1.1	6.0	0.8	○	●	○	○	○	●	●	○				
	SNMU1206ZNEN-GM	12.7	12.7	6.35	1.1	6.0	0.8		●				○	○					
	SNEU120612-GM	12.7	12.7	6.35	--	6.0	1.2	○	●	○	○	○	●	○					
	SNMU120612-GM	12.7	12.7	6.35	--	6.0	1.2	○	○	○	○	○	○	○					
	SNMU120616-GM	12.7	12.7	6.35	--	6.0	1.6						○	○					

●Standard stock ○need reservation

SN*U Series breaker

General workpiece light cutting	General workpiece medium cutting	General workpiece medium cutting	General workpiece heavy cutting	Wiped edge
				
GL	GM	GH	NL	GW
				
Big rake angle and narrow width design, suitable for light processing of low cutting force and low efficiency	Big reka ange design, light cutting, could reach stable processing in most cases	High strength edge, good performance on continuous and black surface removal processing	Big rake angle,sharp edge, light cutting, polishing treatment, good chipping	Big radius wiped edge, inprove surface quality

Face milling

MFB145

Arbor(with Shim)

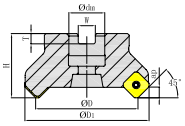


Fig1

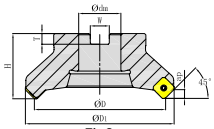


Fig2

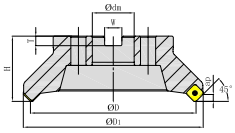


Fig3

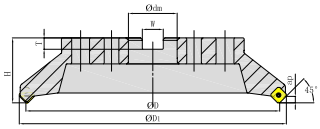


Fig4

Sparse tooth type

Ordering Code	Dia-meter	Teeth	Dimension(mm)						Apmax	Gauge Insert	shim	Coolant	Shape	Stock
			ΦD	ΦD1	Φdm	H	W	T						
MFB145050R03A22SN12	50	3	50	66	22	40	10.4	6.3	3	SN*U1206AN*N	√	√	Fig1	○
MFB145063R04A22SN12	63	4	63	79	22	40	10.4	6.3	3	SN*U1206AN*N	√	√	Fig1	●
MFB145080R05A27SN12	80	5	80	96	27	50	12.4	7.0	3	SN*U1206AN*N	√	√	Fig1	●
MFB145100R06B32SN12	100	6	100	116	32	50	14.4	8.0	3	SN*U1206AN*N	√	×	Fig2	●
MFB145125R07B40SN12	125	7	125	141	40	63	16.4	9.0	3	SN*U1206AN*N	√	×	Fig2	●
MFB145160R08C40SN12	160	8	160	176	40	63	16.4	9.0	3	SN*U1206AN*N	√	×	Fig3	●
MFB145200R10C60SN12	200	10	200	216	60	63	25.7	14	3	SN*U1206AN*N	√	×	Fig3	●
MFB145250R12C60SN12	250	12	250	266	60	63	25.7	14	3	SN*U1206AN*N	√	×	Fig3	○
MFB145315R15D60SN12	315	15	315	331	60	80	25.7	14	3	SN*U1206AN*N	√	×	Fig4	○

●Standard stock ○need reservation

Close tooth type

Ordering Code	Dia-meter	Teeth	Dimension(mm)						Ap-max	Gauge Insert	shim	Coolant	Shape	Stock
			ΦD	ΦD1	Φdm	H	W	T						
MFB145050R04A22SN12	50	4	50	66	22	40	10.4	6.3	3	SN*U1206AN*N	√	√	Fig1	●
MFB145063R05A22SN12	63	5	63	79	22	40	10.4	6.3	3	SN*U1206AN*N	√	√	Fig1	●
MFB145080R07A27SN12	80	7	80	96	27	50	12.4	7.0	3	SN*U1206AN*N	√	√	Fig1	●
MFB145100R08B32SN12	100	8	100	116	32	50	14.4	8.0	3	SN*U1206AN*N	√	×	Fig2	●
MFB145125R10B40SN12	125	10	125	141	40	63	16.4	9.0	3	SN*U1206AN*N	√	×	Fig2	●
MFB145160R12C40SN12	160	12	160	176	40	63	16.4	9.0	3	SN*U1206AN*N	√	×	Fig3	●
MFB145200R14C60SN12	200	14	200	216	60	63	25.7	14	3	SN*U1206AN*N	√	×	Fig3	○
MFB145250R16C60SN12	250	16	250	266	60	63	25.7	14	3	SN*U1206AN*N	√	×	Fig3	○
MFB145315R20D60SN12	315	20	315	331	60	80	25.7	14	3	SN*U1206AN*N	√	×	Fig4	○

●Standard stock ○need reservation

Face milling

MFB145

Arbor(with Shim)

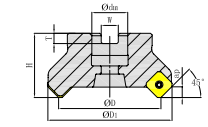


Fig1

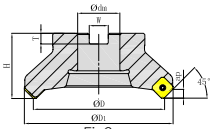


Fig2

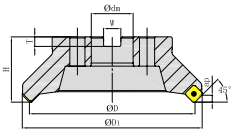


Fig3

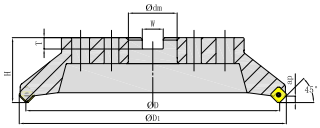


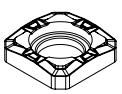
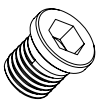
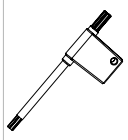
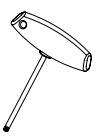
Fig4

Super dense tooth type

Ordering Code	Dia-meter	Teeth	Dimension(mm)						Apmax	Gauge Insert	shim	Coolant	Shape	Stock
			ΦD	ΦD1	Φdm	H	W	T						
MFB145050R05A22SN12	50	5	50	66	22	40	10.4	6.3	3	SN*U1206AN*N	√	√	Fig1	●
MFB145063R06A22SN12	63	6	63	79	22	40	10.4	6.3	3	SN*U1206AN*N	√	√	Fig1	●
MFB145080R08A27SN12	80	8	80	96	27	50	12.4	7.0	3	SN*U1206AN*N	√	√	Fig1	●
MFB145100R10B32SN12	100	10	100	116	32	50	14.4	8.0	3	SN*U1206AN*N	√	×	Fig2	●
MFB145125R12B40SN12	125	12	125	141	40	63	16.4	9.0	3	SN*U1206AN*N	√	×	Fig2	○
MFB145160R15C40SN12	160	15	160	176	40	63	16.4	9.0	3	SN*U1206AN*N	√	×	Fig3	○
MFB145200R18C60SN12	200	18	200	216	60	63	25.7	14	3	SN*U1206AN*N	√	×	Fig3	○
MFB145250R21C60SN12	250	21	250	266	60	63	25.7	14	3	SN*U1206AN*N	√	×	Fig3	○
MFB145315R24D60SN12	315	24	315	331	60	80	25.7	14	3	SN*U1206AN*N	√	×	Fig4	○

●Standard stock ○need reservation

Spare part chart

Part Name		Shim	Screw for shim	Shim screw Wrench	Insert shim	Insert screw wrench	
Shape / Insert							
SN*U1206AN*N	Specifi-cation	DSN1206M	SSAM6X7.5	TH40L	SI60M4X15.8-07108	TT15P	TT15T
	Order code	H0K30SSN12	PSSAM060075B	PTH40LB	PSI60M040158-07108B	PTT15PB	PTT15TB

Face milling

MFB245

Arbor(without shim)

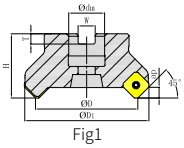


Fig1

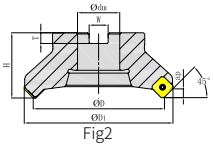


Fig2

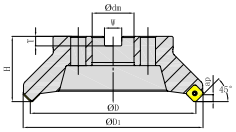


Fig3

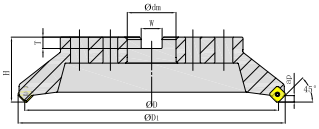


Fig4

Sparse tooth type

Ordering Code	Dia-meter	Teeth	Dimension(mm)						Apmax	Gauge Insert	shim	Coolant	Shape	Stock
			ΦD	ΦD1	Φdm	H	W	T						
MFB245050R03A22SN12	50	3	50	66	22	40	10.4	6.3	3	SN*U1206AN*N	×	√	Fig1	●
MFB245063R04A22SN12	63	4	63	79	22	40	10.4	6.3	3	SN*U1206AN*N	×	√	Fig1	●
MFB245080R05A27SN12	80	5	80	96	27	50	12.4	7.0	3	SN*U1206AN*N	×	√	Fig1	●
MFB245080L05A27SN12	80	5	80	96	27	50	12.4	7.0	3	SN*U1206AN*N	×	√	Fig1	●
MFB245100R06B32SN12	100	6	100	116	32	50	14.4	8.0	3	SN*U1206AN*N	×	×	Fig2	●
MFB245100L06B32SN12	100	6	100	116	32	50	14.4	8.0	3	SN*U1206AN*N	×	×	Fig2	●
MFB245125R07B40SN12	125	7	125	141	40	63	16.4	9.0	3	SN*U1206AN*N	×	×	Fig2	●
MFB245160R08C40SN12	160	8	160	176	40	63	16.4	9.0	3	SN*U1206AN*N	×	×	Fig3	●
MFB245200R10C60SN12	200	10	200	216	60	63	25.7	14	3	SN*U1206AN*N	×	×	Fig3	●
MFB245250R12C60SN12	250	12	250	266	60	63	25.7	14	3	SN*U1206AN*N	×	×	Fig3	●
MFB245315R15D60SN12	315	15	315	331	60	80	25.7	14	3	SN*U1206AN*N	×	×	Fig4	○

●Standard stock ○need reservation

Dense tooth type

Ordering Code	Dia-meter	Teeth	Dimension(mm)						Apmax	Gauge Insert	shim	Coolant	Shape	Stock
			ΦD	ΦD1	Φdm	H	W	T						
MFB245050R04A22SN12	50	4	50	66	22	40	10.4	6.3	3	SN*U1206AN*N	×	√	Fig1	●
MFB245063R05A22SN12	63	5	63	79	22	40	10.4	6.3	3	SN*U1206AN*N	×	√	Fig1	●
MFB245080R07A27SN12	80	7	80	96	27	50	12.4	7.0	3	SN*U1206AN*N	×	√	Fig1	●
MFB245100R08B32SN12	100	8	100	116	32	50	14.4	8.0	3	SN*U1206AN*N	×	×	Fig2	●
MFB245100L08B32SN12	100	8	100	116	32	50	14.4	8.0	3	SN*U1206AN*N	×	×	Fig2	●
MFB245125R10B40SN12	125	10	125	141	40	63	16.4	9.0	3	SN*U1206AN*N	×	×	Fig2	●
MFB245125L10B40SN12	125	10	125	141	40	63	16.4	9.0	3	SN*U1206AN*N	×	×	Fig2	○
MFB245160R12C40SN12	160	12	160	176	40	63	16.4	9.0	3	SN*U1206AN*N	×	×	Fig3	●
MFB245200R14C60SN12	200	14	200	216	60	63	25.7	14	3	SN*U1206AN*N	×	×	Fig3	○
MFB245200L14C60SN12	200	14	200	216	60	63	25.7	14	3	SN*U1206AN*N	×	×	Fig3	○
MFB245250R16C60SN12	250	16	250	266	60	63	25.7	14	3	SN*U1206AN*N	×	×	Fig3	○
MFB245315R20D60SN12	315	20	315	331	60	80	25.7	14	3	SN*U1206AN*N	×	×	Fig4	○

●Standard stock ○need reservation

Face milling

MFB245

Arbor(without shim)

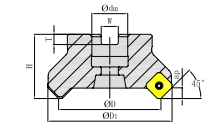


Fig1

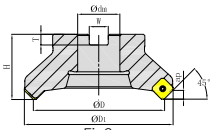


Fig2

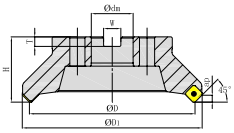


Fig3

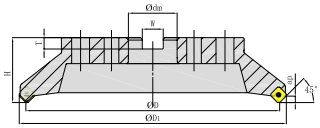


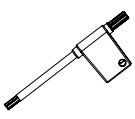
Fig4

Super dense type

Ordering Code	Dia-meter	Teeth	Dimension(mm)						Apmax	Gauge Insert	shim	Coolant	Shape	Stock
			ΦD	$ΦD_1$	Φdm	H	W	T						
MFB245050R05A22SN12	50	5	50	66	22	40	10.4	6.3	3	SN*U1206AN*N	×	√	Fig1	●
MFB245063R06A22SN12	63	6	63	79	22	40	10.4	6.3	3	SN*U1206AN*N	×	√	Fig1	●
MFB245080R08A27SN12	80	8	80	96	27	50	12.4	7.0	3	SN*U1206AN*N	×	√	Fig1	●
MFB245100R10B32SN12	100	10	100	116	32	50	14.4	8.0	3	SN*U1206AN*N	×	×	Fig2	●
MFB245125R12B40SN12	125	12	125	141	40	63	16.4	9.0	3	SN*U1206AN*N	×	×	Fig2	●
MFB245160R15C40SN12	160	15	160	176	40	63	16.4	9.0	3	SN*U1206AN*N	×	×	Fig3	●
MFB245200R18C60SN12	200	18	200	216	60	63	25.7	14	3	SN*U1206AN*N	×	×	Fig3	○
MFB245250R21C60SN12	250	21	250	266	60	63	25.7	14	3	SN*U1206AN*N	×	×	Fig3	○
MFB245315R24D60SN12	315	24	315	331	60	80	25.7	14	3	SN*U1206AN*N	×	×	Fig4	○

●Standard stock ○need reservation

Spare Part Chart

Part name		Insert screw	Insert screw wrench	
Insert \ Shape				
SN*U1206AN*N	Specifi-cation	SI60M5X14-07010	TT20P	TT20T
	Order code	PSI60M050140-07010B	PTT20PB	PTT20TB

Face milling

MFB275

Arbor(without shim)

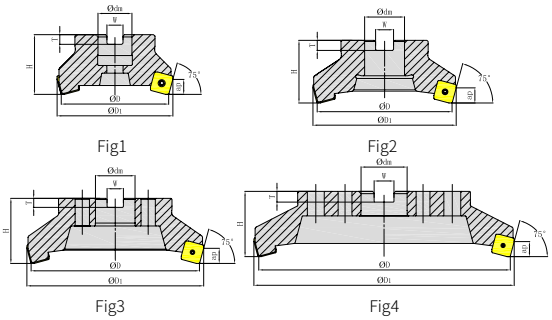


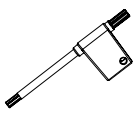
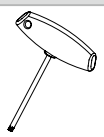
Fig1 Fig2 Fig3 Fig4

Dense tooth type

Ordering Code	Dia-meter	Teeth	Dimension(mm)						Apmax	Gauge Insert	shim	Coolant	Shape	Stock
			ΦD	ΦD1	Φdm	H	W	T						
MFB275050R04A22SN12	50	4	50	66	22	40	10.4	6.3	5	SN*U1206ENEN	×	√	Fig1	●
MFB275063R05A22SN12	63	5	63	79	22	40	10.4	6.3	5	SN*U1206ENEN	×	√	Fig1	●
MFB275063R06A22SN12	63	6	63	79	22	40	10.4	6.3	5	SN*U1206ENEN	×	√	Fig1	○
MFB275080R07A27SN12	80	7	80	96	27	50	12.4	7.0	5	SN*U1206ENEN	×	√	Fig1	●
MFB275100R08B32SN12	100	8	100	116	32	50	14.4	8.0	5	SN*U1206ENEN	×	×	Fig2	○
MFB275125R10B40SN12	125	10	125	141	40	63	16.4	9.0	5	SN*U1206ENEN	×	×	Fig2	●
MFB275160R12C40SN12	160	12	160	176	40	63	16.4	9.0	5	SN*U1206ENEN	×	×	Fig3	○
MFB275200R14C60SN12	200	14	200	216	60	63	25.7	14	5	SN*U1206ENEN	×	×	Fig3	○
MFB275250R16C60SN12	250	16	250	266	60	63	25.7	14	5	SN*U1206ENEN	×	×	Fig3	○
MFB275315R20D60SN12	315	20	315	331	60	80	25.7	14	5	SN*U1206ENEN	×	×	Fig4	○

●Standard stock ○need reservation

Spare Part Chart

Part name		Insert screw	Insert screw wrench	
Insert \ Shape				
SN*U1206ENEN	Specifi-cation	SI60M5X14-07010	TT20P	TT20T
	Order code	PSI60M050140-07010B	PTT20PB	PTT20TB

Face milling

MFB288

Arbor(without shim)

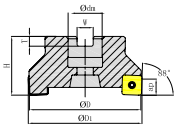


Fig1

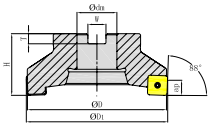


Fig2

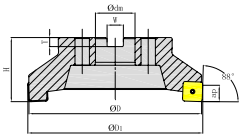


Fig3

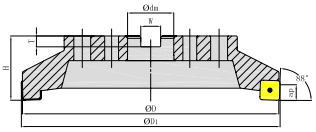


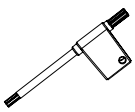
Fig4

Dense tooth type

Ordering Code	Dia-meter	Teeth	Dimension(mm)						Apmax	Gauge Insert	shim	Coolant	Shape	Stock
			ΦD	ΦD_1	Φdm	H	W	T						
MFB288050R04A22SN12	50	4	50	66	22	40	10.4	6.3	7	SN*U1206ZNEN	×	√	Fig1	●
MFB288063R05A22SN12	63	5	63	79	22	40	10.4	6.3	7	SN*U1206ZNEN	×	√	Fig1	●
MFB288063L05A22SN12	63	5	63	79	22	40	10.4	6.3	7	SN*U1206ZNEN	×	√	Fig1	●
MFB288080R07A27SN12	80	7	80	96	27	50	12.4	7.0	7	SN*U1206ZNEN	×	√	Fig1	●
MFB288080L07A27SN12	80	7	80	96	27	50	12.4	7.0	7	SN*U1206ZNEN	×	√	Fig1	●
MFB288100R08B32SN12	100	8	100	116	32	50	14.4	8.0	7	SN*U1206ZNEN	×	×	Fig2	●
MFB288125R10B40SN12	125	10	125	141	40	63	16.4	9.0	7	SN*U1206ZNEN	×	×	Fig2	●
MFB288160R12C40SN12	160	12	160	176	40	63	16.4	9.0	7	SN*U1206ZNEN	×	×	Fig3	●
MFB288200R14C60SN12	200	14	200	216	60	63	25.7	14	7	SN*U1206ZNEN	×	×	Fig3	●
MFB288250R16C60SN12	250	16	250	266	60	63	25.7	14	7	SN*U1206ZNEN	×	×	Fig3	○
MFB288315R20D60SN12	315	20	315	331	60	80	25.7	14	7	SN*U1206ZNEN	×	×	Fig4	○

●Standard stock ○need reservation

Spare Part Chart

Part name		Insert screw	Insert screw wrench	
Insert \ Shape				
SN*U1206ZNEN	Specifi-cation	SI60M5X14-07010	TT20P	TT20T
	Order code	PSI60M050140-07010B	PTT20PB	PTT20TB

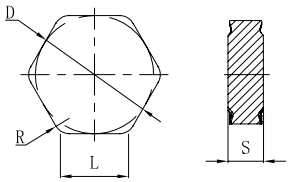
Recommended cutting data

Workpiece		Hardness	Grade	Cutting speed	Feed/Teeth		
				Vc（m/min）	Light cutting (L)	Medium cutting（M）	Heavy cutting (H)
P	Soft stee (SS400、S10C)	⩽ HB180	GA4225 GA4230 GP4225 GP2115	250 (210-350)	0.15 (0.1-0.2)	0.2 (0.1-0.3)	0.3 (0.2-0.4)
P	Carbon stell, alloy steel (S45C、SCM440)	HB180-280	GA4225 GA4230 GP4225 GP2115	220 (170-270)	0.15 (0.1-0.2)	0.2 (0.1-0.3)	0.3 (0.2-0.4)
P	Carbon stell, alloy steel (S45C、SCM440)	HB280-350	GA4225 GA4230 GP4225 GP2115	140 (100-180)	0.15 (0.1-0.2)	0.2 (0.1-0.3)	0.3 (0.2-0.4)
M	Stainless (SUS304)	⩽ HB275	GM2140	180 (130-250)	0.15 (0.1-0.2)	0.2 (0.1-0.3)	0.3 (0.2-0.4)
K	Cast iron, nodular cast iron (FC250、FCD400)	⩽ HB350	GK4125 GK2115	180 (130-250)	0.15 (0.1-0.2)	0.2 (0.1-0.3)	0.3 (0.2-0.4)
N	Aluminium	⩽ HB260	GN9125	800 (300-1000)	0.15 (0.1-0.2)	0.2 (0.1-0.3)	--
S	Heat resiatance alloy	⩽ HRC35	GM2140 GA4230 GS4130	40 (20-50)	0.15 (0.1-0.2)	0.2 (0.05-0.15)	--

Face milling

HN*X

Common face milling insert



Ordering Code		Dimension(mm)					Coated										Uncoated	Cermet
		L	D	S	d_1	R	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	HNEX090520-KF	9.5	16.2	5.56	-	2.0						●	●					
	HNEX090510-KF	9.5	16.2	5.56	-	1.0						●	●					
	HNEX090520-KM	9.5	16.2	5.56	-	2.0						●	●					
	HNMX090520-KM	9.5	16.2	5.56	-	2.0						○	○					
	HNEX090516-KR	9.5	16.2	5.56	-	1.6						●	●					
	HNMX090516-KR	9.5	16.2	5.56	-	1.6						○	○					
	HNEX090530-KR	9.5	16.2	5.56	-	3.0						●	●					
	HNEX090502-WC	9.5	15.875	5.56	-	0.2						●	●					

●Standard stock ○need reservation

HN*X series slot

Cast iron light cutting	Cast iron medium cutting	Cast iron heavy cutting	Wiped insert
			
KF	KM	KR	WC
			
Light cutting breaker, big rake angle, small arris width, small breaker width	Medium cutting breaker, sector design, unique arris-width design	Heavy load cutting breaker, big breaker width and unique rake face design	Specialized wiped insert, matching adjustable holder could reach high surface quality and stability

Face milling

MFB160

Arbor

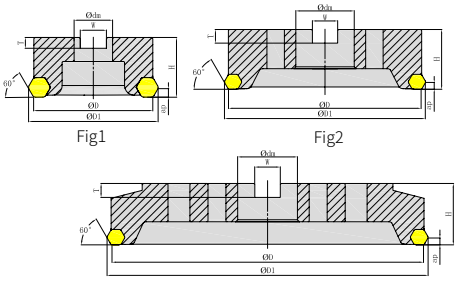


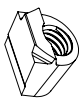
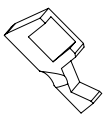
Fig1 Fig2 Fig3

Dense tooth typw

Ordering Code	Dia-meter	Teeth	Dimension(mm)						Apmax	Gauge Insert	shim	Coolant	Shape	Stock
			ΦD	$ΦD_1$	Φdm	H	W	T						
MFB160125R15B40HN09	125	15	125	135	40	63	16.4	9	8	HN*X0905	×	√	Fig1	●
MFB160160R20C40HN09	160	20	160	170	40	63	16.4	9	8	HN*X0905	×	√	Fig2	●
MFB160200R25C60HN09	200	25	200	210	60	63	25.7	14	8	HN*X0905	×	√	Fig2	●
MFB160250R30C60HN09	250	30	250	260	60	80	25.7	14	8	HN*X0905	×	√	Fig2	○
MFB160315R40D60HN09	315	40	315	325	60	80	25.7	14	8	HN*X0905	×	√	Fig3	○

●Standard stock ○need reservation

Spare Part Chart

Part name		Adjusted wedge	Clamp wedge	Clamp double head screw	Adjusted double head screw	Adjustable clamp	Wrench	Wrench
Shape / Insert								
HN*X0905	Specifi-cation	CWA1	CWA2	SDAM6X20	SDAM8X24.5	-	TH30L	TH40L
	Order code	PCWA01B	PCWA02B	PSDAM060200B	PSDAM080245B	PAMFB1601RAB	PTH30LB	PTH40LB

Face milling

MFB260

Arbor

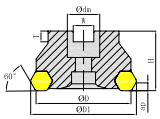


Fig1

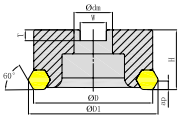


Fig2

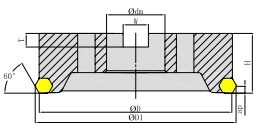


Fig3

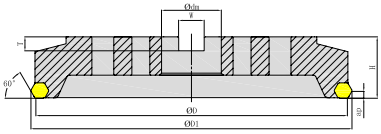


Fig4

Dense tooth typw

Ordering Code	Dia-meter	Teeth	Dimension(mm)						Apmax	Gauge Insert	shim	Coolant	Shape	Stock
			ΦD	ΦD1	Φdm	H	W	T						
MFB260080R08A27HN09	80	8	80	90	27	50	1.24	7	8	HN*X0905	×	×	Fig1	●
MFB260100R10B32HN09	100	10	100	110	32	50	14.4	8	8	HN*X0905	×	×	Fig2	●
MFB260125R15B40HN09	125	15	125	135	40	63	16.4	9	8	HN*X0905	×	×	Fig2	●
MFB260160R20C40HN09	160	20	160	170	40	63	16.4	9	8	HN*X0905	×	×	Fig3	○
MFB260200R25C60HN09	200	25	200	210	60	63	25.7	14	8	HN*X0905	×	×	Fig3	○
MFB260250R30C60HN09	250	30	250	260	60	80	25.7	14	8	HN*X0905	×	×	Fig3	○
MFB260315R40D60HN09	315	40	315	325	60	80	25.7	14	8	HN*X0905	×	×	Fig4	○

●Standard stock ○need reservation

Spare Part Chart

Part name	Clamp wedge	Clamp double head screw	Wrench
Shape / Insert			
HN*X0905	CWA1	SDAM6X20	TH30L
	PCWA01B	PSDAM060200B	PTH30LB

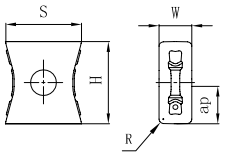
Recommend cutting data

Workpiece		Hardness	Grade	Cutting speed	Feed/edge		
				Vc (m/min)	Light cutting (KF)	Medium cutting (KM)	Heavy cutting (KR)
K	Cast iron, nodular cast iron	⩽ HB350	GK4125 GK2115	280 (180-400)	0.15 (0.1-0.2)	0.2 (0.1-0.3)	0.3 (0.2-0.4)

Face milling

LN*T

Vertical Heavy load Milling Insert



Ordering Code		Dimension(mm)					Coated										Uncoated	Cermet
		H	W	ap	S	R	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	LNET110608-GL	11.2	6	5	11	0.8		●	○	○	○	○	○					
	LNET150608-GL	15.0	6	7	13.9	0.8		●	●	○	○	●	●					
	LNMT110608-GM	11.2	6	5	11	0.8		●	●	○	○	●	●	○				
	LNMT150608-MM	15.0	6	7	13.9	0.8		●	●	○	○	●	●	○				
	LNMT110608-GH	11.2	6	5	11	0.8		●	○	○	○	○	○					
	LNMT150608-GH	15.0	6	7	13.9	0.8		●	●	○	○	●						
	LNET1106PNTN-W	11.3	6	5	11	-						●						
	LNET1506PNTN-W	15.2	6	7	13.9	-						●						

●Standard stock ○need reservation

LLN*T series slot

General workpiece light cutting	General workpiece medium cutting	General workpiece heavy cutting	Wiped insert
			
GL	GM/MM	GH	W
			
Light cutting with low cutting force, better processing quality	High stability processing in most cases	High strangeth edge, continuous cutting, good performance on black surface removal case	High precision wiped insert, improve surface quality

Face Milling

MVA190

Arbor

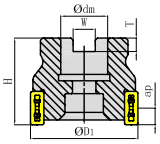


Fig1

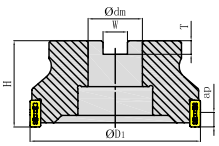


Fig2

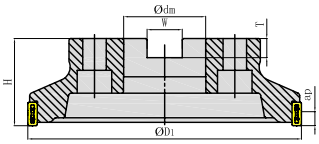


Fig3

Sparse tooth type

Ordering Code	Dia-meter	Teeth	Dimension(mm)					Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD1	Φdm	H	W	T					
MVA190040R04A16LN11	40	4	40	16	40	8.4	5.6	5	LN*T1106	×	Fig1	●
MVA190040L04A16LN11	40	4	40	16	40	8.4	5.6	5	LN*T1106	×	Fig1	○
MVA190050R05A22LN11	50	5	50	22	40	10.4	6.3	5	LN*T1106	×	Fig1	●
MVA190050L05A22LN11	50	5	50	22	40	10.4	6.3	5	LN*T1106	×	Fig1	○
MVA190063R06A22LN11	63	6	63	22	40	10.4	6.3	5	LN*T1106	×	Fig1	○
MVA190063L06A22LN11	63	6	63	22	40	10.4	6.3	5	LN*T1106	×	Fig1	○
MVA190080R08B27LN11	80	8	80	27	50	12.4	7.0	5	LN*T1106	×	Fig2	○
MVA190080L08B27LN11	80	8	80	27	50	12.4	7.0	5	LN*T1106	×	Fig2	○
MVA190100R09B32LN11	100	9	100	32	50	14.4	8.0	5	LN*T1106	×	Fig2	○
MVA190100L09B32LN11	100	9	100	32	50	14.4	8.0	5	LN*T1106	×	Fig2	○
MVA190125R10B40LN11	125	10	125	40	63	16.4	9.0	5	LN*T1106	×	Fig2	○
MVA190125L10B40LN11	125	10	125	40	63	16.4	9.0	5	LN*T1106	×	Fig2	○
MVA190160R12C40LN11	160	12	160	40	63	16.4	9.0	5	LN*T1106	×	Fig3	○
MVA190160L12C40LN11	160	12	160	40	63	16.4	9.0	5	LN*T1106	×	Fig3	○
MVA190200R16C60LN11	200	16	200	60	63	25.7	14	5	LN*T1106	×	Fig3	○
MVA190200L16C60LN11	200	16	200	60	63	25.7	14	5	LN*T1106	×	Fig3	○

●Standard stock ○need reservation

Face Milling

MVA190

Arbor

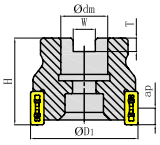


Fig1

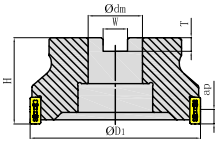


Fig2

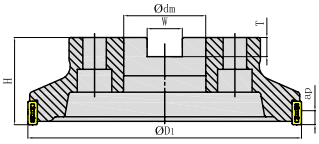


Fig3

Dense tooth type

Ordering Code	Dia-meter	Teeth	Dimension(mm)					Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD1	Φdm	H	W	T					
MVA190040R05A16LN11	40	5	40	16	40	8.4	5.6	5	LN*T1106	×	Fig1	○
MVA190040L05A16LN11	40	5	40	16	40	8.4	5.6	5	LN*T1106	×	Fig1	○
MVA190050R07A22LN11	50	7	50	22	40	10.4	6.3	5	LN*T1106	×	Fig1	○
MVA190050L07A22LN11	50	7	50	22	40	10.4	6.3	5	LN*T1106	×	Fig1	○
MVA190063R09A22LN11	63	9	63	22	40	10.4	6.3	5	LN*T1106	×	Fig1	○
MVA190063L09A22LN11	63	9	63	22	40	10.4	6.3	5	LN*T1106	×	Fig1	●
MVA190080R11B27LN11	80	11	80	27	50	12.4	7.0	5	LN*T1106	×	Fig2	○
MVA190080L11B27LN11	80	11	80	27	50	12.4	7.0	5	LN*T1106	×	Fig2	○
MVA190100R14B32LN11	100	14	100	32	50	14.4	8.0	5	LN*T1106	×	Fig2	○
MVA190100L14B32LN11	100	14	100	32	50	14.4	8.0	5	LN*T1106	×	Fig2	○
MVA190125R18B40LN11	125	18	125	40	63	16.4	9.0	5	LN*T1106	×	Fig2	○
MVA190125L18B40LN11	125	18	125	40	63	16.4	9.0	5	LN*T1106	×	Fig2	○
MVA190160R23C40LN11	160	23	160	40	63	16.4	9.0	5	LN*T1106	×	Fig3	○
MVA190160L23C40LN11	160	23	160	40	63	16.4	9.0	5	LN*T1106	×	Fig3	○
MVA190200R28C60LN11	200	28	200	60	63	25.7	14	5	LN*T1106	×	Fig3	○
MVA190200L28C60LN11	200	28	200	60	63	25.7	14	5	LN*T1106	×	Fig3	○

●Standard stock ○need reservation

Face Milling

MVA190

Arbor

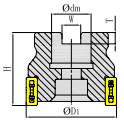


Fig1

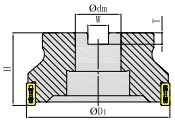


Fig2

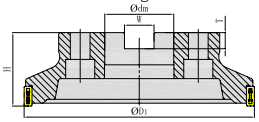


Fig3

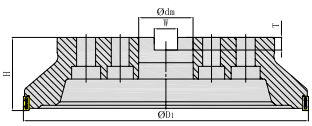


Fig4

Sparse tooth type

Ordering Code	Dia-meter	Teeth	Dimension(mm)					Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD1	Φdm	H	W	T					
MVA190050R04A22LN15	50	4	50	22	40	10.4	6.3	7	LN*T1506	×	Fig1	○
MVA190050L04A22LN15	50	4	50	22	40	10.4	6.3	7	LN*T1506	×	Fig1	●
MVA190063R05A22LN15	63	5	63	22	40	10.4	6.3	7	LN*T1506	×	Fig1	●
MVA190063L05A22LN15	63	5	63	22	40	10.4	6.3	7	LN*T1506	×	Fig1	○
MVA190080R06B27LN15	80	6	80	27	50	12.4	7.0	7	LN*T1506	×	Fig2	○
MVA190080L06B27LN15	80	6	80	27	50	12.4	7.0	7	LN*T1506	×	Fig2	○
MVA190100R08B32LN15	100	8	100	32	50	14.4	8.0	7	LN*T1506	×	Fig2	●
MVA190100L08B32LN15	100	8	100	32	50	14.4	8.0	7	LN*T1506	×	Fig2	●
MVA190125R10B40LN15	125	10	125	40	63	16.4	9.0	7	LN*T1506	×	Fig2	●
MVA190125L10B40LN15	125	10	125	40	63	16.4	9.0	7	LN*T1506	×	Fig2	○
MVA190160R12C40LN15	160	12	160	40	63	16.4	9.0	7	LN*T1506	×	Fig3	●
MVA190160L12C40LN15	160	12	160	40	63	16.4	9.0	7	LN*T1506	×	Fig3	○
MVA190200R12C60LN15	200	12	200	60	63	25.7	14	7	LN*T1506	×	Fig3	○
MVA190200L12C60LN15	200	12	200	60	63	25.7	14	7	LN*T1506	×	Fig3	○
MVA190200R15C60LN15	200	15	200	60	63	25.7	14	7	LN*T1506	×	Fig3	○
MVA190200L15C60LN15	200	15	200	60	63	25.7	14	7	LN*T1506	×	Fig3	○
MVA190250R15C60LN15	250	15	250	60	63	25.7	14	7	LN*T1506	×	Fig3	○
MVA190250L15C60LN15	250	15	250	60	63	25.7	14	7	LN*T1506	×	Fig3	○
MVA190250R20C60LN15	250	20	250	60	63	25.7	14	7	LN*T1506	×	Fig3	○
MVA190250L20C60LN15	250	20	250	60	63	25.7	14	7	LN*T1506	×	Fig3	○
MVA190315R18D60LN15	315	18	315	60	80	25.7	14	7	LN*T1506	×	Fig4	○
MVA190315L18D60LN15	315	18	315	60	80	25.7	14	7	LN*T1506	×	Fig4	○
MVA190315R25D60LN15	315	25	315	60	80	25.7	14	7	LN*T1506	×	Fig4	○
MVA190315L25D60LN15	315	25	315	60	80	25.7	14	7	LN*T1506	×	Fig4	○

●Standard stock ○need reservation

Face Milling

MVA190

Arbor

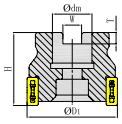


Fig1

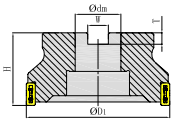


Fig2

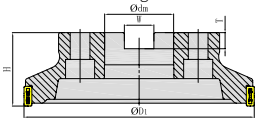


Fig3

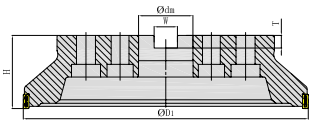


Fig4

Dense tooth type

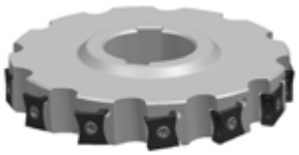
Ordering Code	Dia-meter	Teeth	Dimension(mm)					Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD1	Φdm	H	W	T					
MVA190050R05A22LN15	50	5	50	22	40	10.4	6.3	7	LN*T1506	×	Fig1	○
MVA190050L05A22LN15	50	5	50	22	40	10.4	6.3	7	LN*T1506	×	Fig1	○
MVA190063R06A22LN15	63	6	63	22	40	10.4	6.3	7	LN*T1506	×	Fig1	●
MVA190063L06A22LN15	63	6	63	22	40	10.4	6.3	7	LN*T1506	×	Fig1	○
MVA190080R08B27LN15	80	8	80	27	50	12.4	7.0	7	LN*T1506	×	Fig2	●
MVA190080L08B27LN15	80	8	80	27	50	12.4	7.0	7	LN*T1506	×	Fig2	●
MVA190100R10B32LN15	100	10	100	32	50	14.4	8.0	7	LN*T1506	×	Fig2	●
MVA190100L10B32LN15	100	10	100	32	50	14.4	8.0	7	LN*T1506	×	Fig2	○
MVA190125R12B40LN15	125	12	125	40	63	16.4	9.0	7	LN*T1506	×	Fig2	○
MVA190125L12B40LN15	125	12	125	40	63	16.4	9.0	7	LN*T1506	×	Fig2	○
MVA190160R15C40LN15	160	15	160	40	63	16.4	9.0	7	LN*T1506	×	Fig3	○
MVA190160L15C40LN15	160	15	160	40	63	16.4	9.0	7	LN*T1506	×	Fig3	○
MVA190200R20C60LN15	200	20	200	60	63	25.7	14	7	LN*T1506	×	Fig3	○
MVA190200L20C60LN15	200	20	200	60	63	25.7	14	7	LN*T1506	×	Fig3	○
MVA190250R25C60LN15	250	25	250	60	63	25.7	14	7	LN*T1506	×	Fig3	○
MVA190250L25C60LN15	250	25	250	60	63	25.7	14	7	LN*T1506	×	Fig3	○
MVA190315R30D60LN15	315	30	315	60	80	25.7	14	7	LN*T1506	×	Fig4	○
MVA190315L30D60LN15	315	30	315	60	80	25.7	14	7	LN*T1506	×	Fig4	○

●Standard stock ○need reservation

Face Millling

MVA290

Disc



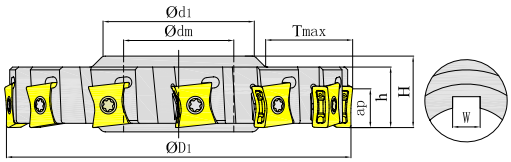
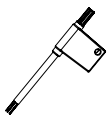


Fig5

Ordering Code	Dia-meter	Teeth	Dimension(mm)							Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD1	Tmax	Φdm	Φd1	W	H	h					
MVA290080R08K27LN15	80	8	80	18	27	41	7	24	22	14	LN*T1506	×	Fig5	○
MVA290080L08K27LN15	80	8	80	18	27	41	7	24	22	14	LN*T1506	×	Fig5	○
MVA290100R10K32LN15	100	10	100	23	32	47	8	26	22	14	LN*T1506	×	Fig5	○
MVA290100L10K32LN15	100	10	100	23	32	47	8	26	22	14	LN*T1506	×	Fig5	○
MVA290125R12K40LN15	125	12	125	32	40	55	10	26	22	14	LN*T1506	×	Fig5	●
MVA290125L12K40LN15	125	12	125	32	40	55	10	26	22	14	LN*T1506	×	Fig5	●
MVA290160R15K40LN15	160	15	160	49	40	55	10	26	22	14	LN*T1506	×	Fig5	○
MVA290160L15K40LN15	160	15	160	49	40	55	10	26	22	14	LN*T1506	×	Fig5	○
MVA290200R20K50LN15	200	20	200	63	50	68	12	28	24	14	LN*T1506	×	Fig5	○
MVA290200L20K50LN15	200	20	200	63	50	68	12	28	24	14	LN*T1506	×	Fig5	○
MVA290250R25K60LN15	250	25	250	80	60	84	14	28	24	14	LN*T1506	×	Fig5	●
MVA290250L25K60LN15	250	25	250	80	60	84	14	28	24	14	LN*T1506	×	Fig5	○

● Standard stock ○ need reservation

Spare part chart

Partname		Insert screw	Insert screw wrench	
Insert \ Shape				
LN*T11	Specification	SI60M3.5X9.5-04809IB	TI10P	TI10T
	Order code	PSI60M035095-04809IB	PTI10PB	PTI10TB
LN*T15	Specification	SI60M4X11-05708IB	TI15P	TI15T
	Order code	PSI60M040110-05708IB	PTI15PB	PTI15TB

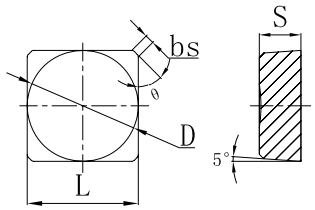
Recommended cutting data

Workpiece		Hardness	Grade	Cutting speed	feed/edge（fz）		
					Light cutting (L)	Medium cutting（M）	Heavy cutting (H)
				Vc（m/min）	(ap ⩽ 1.5mm)	(1.5mm ⩽ ap ⩽ 3mm)	(ap ⩾ 5mm)
P	Soft steel	⩽ HB180	GA4225 GA4230 GP4225 GP2115	220 (100-350)	0.3 (0.2-0.4)	0.2 (0.12-0.3)	0.15 (0.1-0.25)
P	Carbon steel, alloy steel	HB180-280	GA4225 GA4230 GP4225 GP2115	180 (120-250)	0.3 (0.2-0.4)	0.2 (0.12-0.3)	0.15 (0.1-0.25)
P	Carbon steel, alloy steel	HB280-350	GA4225 GA4230 GP4225 GP2115	150 (100-230)	0.3 (0.2-0.4)	0.2 (0.12-0.3)	0.15 (0.1-0.25)
M	Stainless steel	⩽ HB275	GM2140	180 (120-250)	0.3 (0.2-0.4)	0.2 (0.12-0.3)	0.15 (0.1-0.25)
K	Grey cast iron	HB160-250	GK4125 GK2115	220 (120-350)	0.3 (0.2-0.4)	0.2 (0.12-0.3)	0.15 (0.1-0.25)
K	Nodular cast iron,vermicular graphite cast iron	HB180-260	GK4125 GK2115	150 (100-280)	0.3 (0.2-0.4)	0.2 (0.12-0.3)	0.15 (0.1-0.25)

Face Millling

SBEX

ISO Milling insert

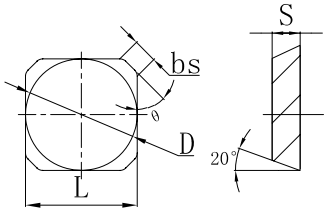


Ordering Code		Dimension(mm)					Coated										Uncoated	Cermet
		L	D	S	θ	bs	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	SBEX1204ZZ-1	12.7	12.7	4.76	45°	0.8		○	○			○	○					

● Standard stock ○ need reservation

SEEN/SEMN/SEEX

ISO Milling insert



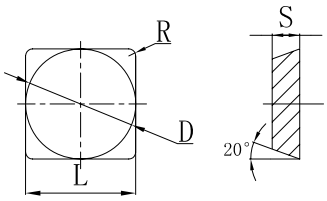
Ordering Code		Dimension(mm)					Coated										Uncoated	Cermet
		L	D	S	θ	bs	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	SEEN1203AFTN	12.7	12.7	3.18	45°	2.3		○	○			○	○					○
	SEEN1204AFTN	12.7	12.7	4.76	45°	2.4		○	○			○	○					
	SEEN1504AFTN	15.875	15.875	4.76	45°	2.4		○	○			○	○					
	SEMN1204AFTN	12.7	12.7	4.76	45°	2.4		○	○			○	○					○
	SEEX1203AFTN	12.7	12.7	3.18	45°	3.0		○	○			○	○					

● Standard stock ○ need reservation

Face milling

SEEN-R

ISO Milling insert

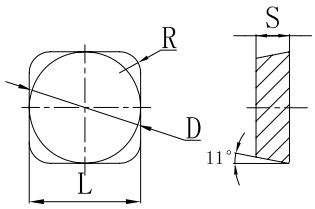


Ordering Code		Dimension(mm)				Coated									Uncoated	Cermet
		L	D	S	R	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	SEEN120302	12.7	12.7	3.18	0.2		○	○			○	○					
	SEEN120304	12.7	12.7	3.18	0.4		○	○			○	○					
	SEEN120308	12.7	12.7	3.18	0.8		○	○			○	○					

● Standard stock ○ need reservation

SPEN

ISO Milling insert



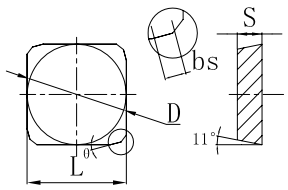
Ordering Code		Dimension(mm)				Coated									Uncoated	Cermet
		L	D	S	R	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	SPEN150420T	15.875	15.875	4.76	2.0		○	○			○	○					
	SPEN150430T	15.875	15.875	4.76	3.0		○	○			○	○					
	SPEN190424T	19.05	19.05	4.76	2.4		○	○			○	○					
	SPEN250730T	25.4	25.4	7.94	3.0		○	○			○	○					
	SPEN250750T	25.4	25.4	7.94	5.0		○	○			○	○					
	SPEN250730-WC	25.4	25.4	7.94	3.0		○	○			○	○					
	SPEN190424-WC	19.05	19.05	4.76	2.4		○	○			○	○					

● Standard stock ○ need reservation

Face Millling

SPKN

ISO Milling insert

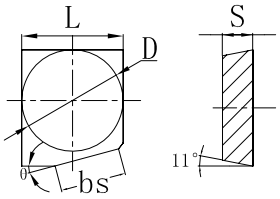


Ordering Code		Dimension(mm)					Coated										Uncoated	Cermet
		L	D	S	θ	bs	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	SPKN1203EDL	12.7	12.7	3.18	15°	1.4		○	○			○	○					
	SPKN1203EDR	12.7	12.7	3.18	15°	1.4		○	○			○	○					
	SPKN1203EDTL	12.7	12.7	3.18	15°	1.4		○	○			○	○					
	SPKN1203EDTR	12.7	12.7	3.18	15°	1.4		○	○			○	○					
	SPKN1504EDL	15.875	15.875	4.76	15°	1.4		○	○			○	○					
	SPKN1504EDR	15.875	15.875	4.76	15°	1.4		○	○			○	○					
	SPKN1504EDTL	15.875	15.875	4.76	15°	1.4		○	○			○	○					
	SPKN1504EDTR	15.875	15.875	4.76	15°	1.4		○	○			○	○					
	SPKN1905EDL	19.05	19.05	5.56	15°	2.7		○	○			○	○					
	SPKN1905EDR	19.05	19.05	5.56	15°	2.7		○	○			○	○					
	SPKN1905EDTL	19.05	19.05	5.56	15°	2.7		○	○			○	○					
	SPKN1905EDTR	19.05	19.05	5.56	15°	2.7		○	○			○	○					

● Standard stock ○ need reservation

SPEN-W

ISO Milling insert



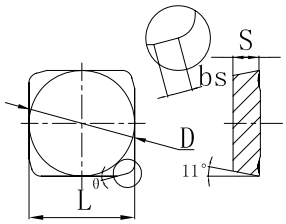
Ordering Code		Dimension(mm)					Coated										Uncoated	Cermet
		L	D	S	θ	bs	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	SPEN1504EDL-W	15.875	15.875	4.76	15°	10.2		○	○			○	○					
	SPEN1504EDR-W	15.875	15.875	4.76	15°	10.2		○	○			○	○					

● Standard stock ○ need reservation

Face Millling

SPER

ISO Milling insert

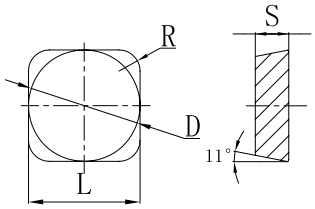


Ordering Code		Dimension(mm)					Coated										Uncoated	Cermet
		L	D	S	θ	bs	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	SPER1203EDTL-MR	12.7	12.7	3.18	15°	1.3		○	○									
	SPER1203EDTR-MR	12.7	12.7	3.18	15°	1.3		○	○									
	SPER1204EDTR-MR	12.7	12.7	4.76	15°	1.3		○	○									

● Standard stock ○ need reservation

SPNR

ISO Milling insert



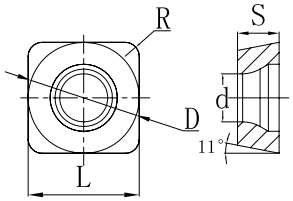
Ordering Code		Dimension(mm)				Coated										Uncoated	Cermet
		L	D	S	R	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	SPNR150424T	12.7	12.7	4.76	2.4		○	○			○	○					

● Standard stock ○ need reservation

Face Millling

SPCW

ISO Milling insert



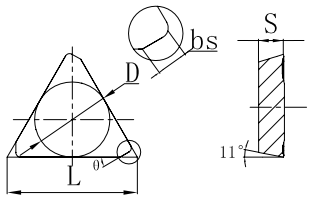
Ordering Code		Dimension (mm)					Coated										Uncoated	Cermet
		L	D	S	d	R	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	SPCW090308	9.525	9.525	3.18	4.4	0.8		○	○			○	○					
	SPCW120412	12.7	12.7	4.76	5.5	1.2		○	○			○	○					
	SPCW120416	12.7	12.7	4.76	5.5	1.6		○	○			○	○					
	SPCW150516	15.875	15.875	5.56	5.5	1.6		○	○			○	○					

● Standard stock ○ need reservation

Face Millling

TPER/TPKR/TPKN

ISO Milling insert



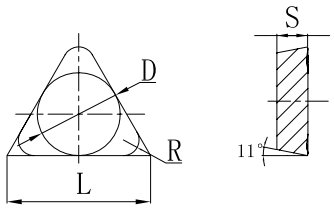
Ordering Code		Dimension(mm)					Coated									Uncoated	Cermet
		L	D	S	θ	bs	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	TPER1603PDTL-MR	16.5	9.525	3.18	30°	1.3		○	○									
	TPER1603PDTR-MR	16.5	9.525	3.18	30°	1.3		○	○									
	TPKR1603PPTR	16.5	9.525	3.18	30°	1.3		○	○									
	TPKN1603PDL	16	16	3.18	30°	1.3		○	○			○	○					
	TPKN1603PDR	16	16	3.18	30°	1.3		○	○			○	○					
	TPKN1603PDTL	16	16	3.18	30°	1.3		○	○			○	○					
	TPKN1603PDTR	16	16	3.18	30°	1.3		○	○			○	○					
	TPKN2204PDL	22	22	4.76	30°	1.4		○	○			○	○					
	TPKN2204PDR	22	22	4.76	30°	1.4		○	○			○	○					
	TPKN2204PDTL	22	22	4.76	30°	1.4		○	○			○	○					
	TPKN2204PDTR	22	22	4.76	30°	1.4		○	○			○	○					

● Standard stock ○ need reservation

Face Millling

TPNR

ISO Milling insert



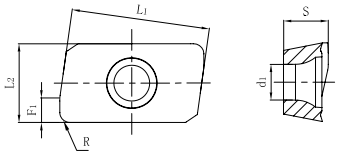
Ordering Code		Dimension(mm)				Coated									Uncoated	Cermet
		L	D	GN9125	GP01TM	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	TPNR220424T	22	12.7	4.76	2.4		○	○									

● Standard stock ○ need reservation

Shoulder Milling

APMT/APGT

General application shoulder milling insert



	Ordering Code	Dimension(mm)						Coated										Uncoated	Cermet
		L1	L2	S	F1	d1	R	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	APMT1135PDER-PL	10.83	6.16	3.5	1.92	2.8	0.8	●	●	●		○	○		●				
	APMT1604PDER-PL	16.26	9.26	4.76	2	4.6	0.8	●	●	●			○		○				
	APMT1135PDER-PM	10.83	6.16	3.5	1.92	2.8	0.8	●	●	●	○	●	●	○	●		○		
	APMT1604PDER-PM	16.26	9.26	4.76	2	4.6	0.8	●	●	●	○	●	●	●	●		●		
	APMT113504R-PM	10.83	6.16	3.5	1.92	2.8	0.4		●										
	APMT160416R-PM	16.26	9.26	4.76	2	4.6	1.6		●										
	APMT113508-GM	10.83	6.16	3.5	1.92	2.8	0.8		○										
	APMT160410-GM	16.26	9.26	4.76	2	4.6	1.0		●				○						
	APMT1135PDER-PR	10.83	6.16	3.5	1.87	2.8	0.8	●	●	●	○	●	●		○		○		
	APMT1604PDER-PR	16.26	9.26	4.76	2.2	4.6	0.8	●	●	●	○	●	●	●	●		○		
	APGT1135PDFR-AL	10.83	6.16	3.5	1.92	2.8	0.8											●	
	APGT1604PDFR-AL	16.26	9.26	4.76	2.2	4.6	0.8											●	

● Standard stock ○ need reservation

APMT/APGT Series Breaker

General workpiece light cutting	workpiece medium cutting	General workpiece heavy cutting	General workpiece heavy cutting
			
PL	PM	PR	AL
			
Light cutting of low cutting force, good processing quality	High stability in most cases	Suitable on roughing, good edge strength	Suitable on Al processing, sharp edge with polishing

Shoulder Milling

MEA190

Arbor

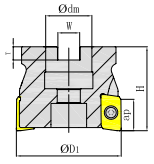


Fig1

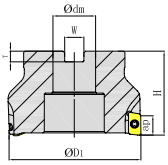


Fig2

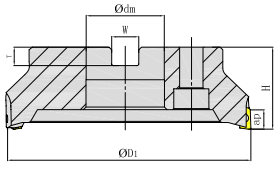


Fig3

Ordering Code	Dia-meter	Teeth	Dimension(mm)					Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD1	Φdm	H	W	T					
MEA190040R05A16AP11	40	5	40	16	40	10.4	6.3	09	APMT1135	×	Fig1	●
MEA190050R06A22AP11	50	6	50	22	50	10.4	6.3	09	APMT1135	×	Fig1	●
MEA190050R04A22AP16	50	4	50	22	50	10.4	6.3	14	APMT1604	×	Fig1	●
MEA190063R05A22AP16	63	5	63	22	50	10.4	6.3	14	APMT1604	×	Fig1	●
MEA190080R06A27AP16	80	6	80	27	50	12.4	7	14	APMT1604	×	Fig1	●
MEA190100R07B32AP16	100	7	100	32	63	14.4	8	14	APMT1604	×	Fig2	●
MEA190125R08B40AP16	125	8	125	40	63	16.4	9	14	APMT1604	×	Fig2	○
MEA190160R10C40AP16	160	10	160	40	63	25.7	14	14	APMT1604	×	Fig3	○
MEA190200R12C60AP16	200	12	200	60	63	25.7	14	14	APMT1604	×	Fig3	○
MEA190250R14C60AP16	250	14	250	60	63	25.7	14	14	APMT1604	×	Fig3	○

● Standard stock ○ need reservation

Face Millling

MEA190

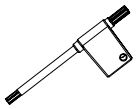
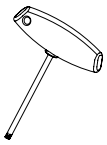
Straight shank

Fig4

Ordering Code	Dia-meter	Teeth	Dimension(mm)				Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD1	Φdm	L	L1					
MEA190016R02P16AP11	16	2	16	16	120	40	9	APMT1135	×	Fig4	●
MEA190016R02P16AP11L	16	2	16	16	170	40	9	APMT1135	×	Fig4	●
MEA190020R02P20AP11	20	2	20	20	120	50	9	APMT1135	×	Fig4	●
MEA190020R03P20AP11	20	3	20	20	120	50	9	APMT1135	×	Fig4	●
MEA190025R03P25AP11	25	3	25	25	160	50	9	APMT1135	×	Fig4	●
MEA190025R04P25AP11	25	4	25	25	160	50	9	APMT1135	×	Fig4	●
MEA190025R02P25AP16	25	2	25	25	160	50	14	APMT1604	×	Fig4	●
MEA190032R04P32AP11	32	4	32	32	160	80	9	APMT1135	×	Fig4	●
MEA190032R03P32AP16	32	3	32	32	160	80	14	APMT1604	×	Fig4	●

● Standard stock ○ need reservation

Spare part chart

Partname		Insert screw	Insert screw wrench	
Insert \ Shape				
APMT1135	Specification	SI60M2.5X6.5-03509	TT07P	TT07T
	Order code	PSI60M025065-03509S	PTT07PQ	PTT07TQ
APMT1604	Specification	SI60M4X8.9-05313	TT15P	TT15T
	Order code	PSI60M040089-05313S	PTT15PQ	PTT15TQ

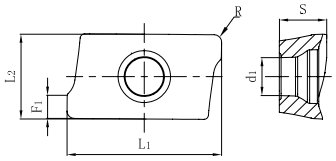
Recommended cutting data

Workpiece		Hardness	Grade	Cutting speed	feed/edge（fz）		
					Light cutting (L)	Medium cutting (M)	Heavy cutting（H）
				Vc（m/min）	PL/AL	PM/AL	PR/AL
P	Soft steel	⩽ HB180	GA4225 GA4230 GP4225 GP2115	180 (150-220)	0.1 (0.05-0.15)	0.15 (0.1-0.2)	0.2 (0.1-0.25)
	Carbon steel, alloy steel	HB180-350	GA4225 GA4230 GP4225 GP2115	150 (120-200)	0.1 (0.05-0.15)	0.15 (0.1-0.2)	0.2 (0.1-0.25)
	Pre harden steel	HRC35-45	GA4225 GA4230 GP4225 GP2115	150 (120-200)	0.1 (0.05-0.15)	0.15 (0.1-0.2)	0.2 (0.1-0.25)
M	Stainless (ferrite, martensite)	⩽ HB270	GM2140 GS4130	140 (100-160)	0.12 (0.1-0.2)	0.15 (0.1-0.2)	0.2 (0.1-0.3)
K	Grey cast iron	⩽ HB280	GK4125 GK2115	180 (150-220)	0.1 (0.05-0.15)	0.15 (0.1-0.2)	0.2 (0.1-0.25)
	Nodular cast iron,vermicular graphite cast iron	⩽ HB350	GK4125 GK2115	120 (100-180)	0.1 (0.05-0.15)	0.15 (0.1-0.2)	0.2 (0.1-0.25)
N	Copper Alloys	⩽ HB260	GN9125	500 (200-900)	0.1 (0.05-0.15)	0.15 (0.1-0.2)	0.2 (0.1-0.25)
S	Heat resistance alloy, Ti alloy	HRC25-35	GA4230 GM2140 GS4130	60 (50-100)	0.1 (0.05-0.15)	0.1 (0.05-0.15)	0.15 (0.1-0.2)
H	quenched steel	HRC48-55	GH4115 GH4125	80 (60-120)	0.08 (0.05-0.15)	0.10 (0.08-0.15)	0.12 (0.08-0.20)

Shoulder Milling

APKT/APET

Single face curved shoulder milling



Ordering Code		Dimension(mm)						Coated										Uncoated	Cermet
		L1	L2	S	F1	d1	R	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	APKT113504R-GL	11.31	7	3.5	2	3.21	0.4	●	●	○	○	●	○	○	○				
	APKT113508R-GL	11.31	7	3.5	2	3.21	0.8	●	●	○	○	●	○	○	○				
	APKT113504R-GM	11.31	7	3.5	2	3.21	0.4	●	●	○	○	●	●	●	○		○		
	APKT113508R-GM	11.31	7	3.5	2	3.21	0.8	●	●	○	○	●	●	●	●		○		
	APKT113532R-GM	10.16	7	3.44	3.6	3.21	3.2	○	●	○	○	○	○	○	○				
	APKT160408R-GM	16.96	9.4	5.2	2.57	4.21	0.8	●	●	○	○	●	●	●	●		○		
	APKT160412R-GM	16.96	9.4	5.2	2.57	4.21	1.2	○	●	○	○	○	○	○	○				
	APKT160416R-GM	16.96	9.4	5.2	2.57	4.21	1.6	○	○	○	○	○	○	○	○				
	APKT160432R-GM	15	9.4	5.2	2.57	4.21	3.2	○	●	○	○	○	○	○	○				
	APKT113516R-GH	11.31	7	3.5	2	3.21	1.6	○	●	○	○		●	○	○		○		
	APKT160416R-GH	16.96	9.4	5.2	2.57	4.21	1.6	○	●	○	○		●	○			○		
	APET113504R-NL	11.39	7	3.8	1.92	2	0.4											○	
	APET160408R-NL	15.41	9.44	4.92	2.64	4.21	0.8											○	

● Standard stock ○ need reservation

APKT/APET Series Breaker

General workpiece light cutting	General workpiece medium cutting	General workpiece heavy cutting	Genenal application for aluminium
			
GL	GM	GH	NL
			
Light cutting of low cutting force, good processing quality	High stability in most cases	Suitable on roughing, good edge strength	Suitable on Al processing, sharp edge with polishing

Shoulder Milling

MEB190

Arbor

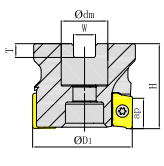


Fig1

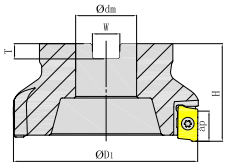


Fig2

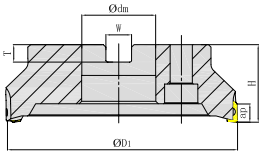


Fig3

Ordering Code	Dia-meter	Teeth	Dimension(mm)					Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD1	Φdm	H	W	T					
MEB190040R05A16AP11	40	5	40	16	40	8.4	5.6	09	APKT1135	×	Fig1	●
MEB190050R07A22AP11	50	7	50	22	40	10.4	6.3	09	APKT1135	√	Fig1	●
MEB190100R11B32AP11	100	11	100	32	63	14.4	8	09	APKT1135	√	Fig1	○
MEB190125R11B40AP11	125	11	125	40	50	16.4	9	09	APKT1135	√	Fig1	○
MEB190050R04A22AP16	50	4	50	22	40	10.4	6.3	14	APKT1604	√	Fig1	●
MEB190063R05A22AP16	63	5	63	22	40	10.4	6.3	14	APKT1604	√	Fig1	●
MEB190080R07A27AP16	80	7	80	27	50	12.4	7	14	APKT1604	√	Fig1	●
MEB190100R08A32AP16	100	8	100	32	63	14.4	8	14	APKT1604	√	Fig1	●
MEB190125R06B40AP16	125	6	125	10	63	16.4	9	14	APKT1604	×	Fig2	●
MEB190125R09B40AP16	125	9	125	10	63	16.4	9	14	APKT1604	×	Fig2	●
MEB190160R10C40AP16	160	10	160	10	63	16.4	9	14	APKT1604	×	Fig3	○
MEB190200R12C60AP16	200	12	200	60	63	25.7	13	14	APKT1604	×	Fig3	○

● Standard stock ○ need reservation

Shoulder Milling

MEB190

Side clamp type

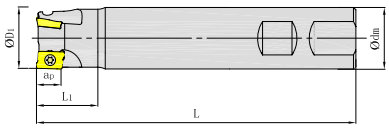


Fig4

Ordering Code	Dia-meter	Teeth	Dimension(mm)				Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD1	Φdm	L	L1					
MEB190016R02W16AP11	16	2	16	16	130	25	9	APKT1135	×	Fig4	●
MEB190016R02W16AP11L	16	2	16	16	200	82	9	APKT1135	×	Fig4	●
MEB190020R02W20AP11	20	2	20	20	130	25	9	APKT1135	×	Fig4	●
MEB190020R03W20AP11	20	3	20	20	130	25	9	APKT1135	√	Fig4	●
MEB190020R03W20AP11L	20	3	20	20	200	82	9	APKT1135	√	Fig4	●
MEB190025R03W25AP11	25	3	25	25	130	30	9	APKT1135	√	Fig4	●
MEB190025R04W25AP11	25	4	25	25	130	30	9	APKT1135	√	Fig4	●
MEB190025R02W25AP16	25	2	25	25	130	45	14	APKT1604	√	Fig4	●
MEB190025R02W25AP16L	25	2	25	25	200	89	14	APKT1604	√	Fig4	●
MEB190032R04W32AP11	32	4	32	32	130	45	9	APKT1135	√	Fig4	●
MEB190032R04W32AP11L	32	4	32	32	200	45	9	APKT1135	√	Fig4	●
MEB190032R03W32AP16	32	3	32	32	130	45	14	APKT1604	√	Fig4	●
MEB190032R03W32AP16L	32	3	32	32	200	54	14	APKT1604	√	Fig4	●

● Standard stock ○ need reservation

Face Millling

MHB190

Corn milling cutter body— Side clamp type

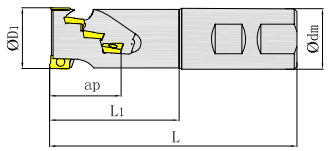


Fig5

Ordering Code	Dia-meter	Teeth	Dimension(mm)				Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD1	Φdm	L	L1					
MHB190032R02W32AP11	32	2/8	32	32	130	65	39.9	APKT1135	√	Fig5	●
MHB190040R03W32AP11	40	3/12	40	32	130	66	39.9	APKT1135	√	Fig5	●

● Standard stock ○ need reservation

Face Millling

MHB190

Corn milling cutter body—Arbor

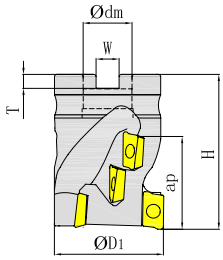
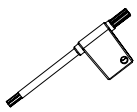
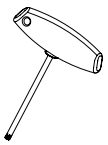


Fig6

Ordering Code	Dia-meter	Teeth	Dimension(mm)					Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD1	Φdm	H	W	T					
MHB190050R04A22AP11	50	4/16	50	22	70	10.4	6.3	39.9	APKT1135	×	Fig6	●
MHB190063R05A27AP11	63	5/20	63	27	70	12.4	6.3	39.9	APKT1135	√	Fig6	●
MHB190050R03A22AP16	50	3/9	50	22	70	10.4	6.3	43	APKT1604	√	Fig6	●
MHB190063R04A27AP16	63	4/16	63	27	85	12.4	6.3	57	APKT1604	√	Fig6	●
MHB190080R05A32AP16	80	5/20	80	32	85	14.4	7	57	APKT1604	√	Fig6	●

● Standard stock ○ need reservation

Spare part chart

Partname		Insert screw	Insert screw wrench	
Insert \ Shape				
APKT1135	Specification	SI60M3.0X7.2-04210	TT09P	--
	Order code	PSI60M030072-04210S	PTT09PQ	--
APKT1604	Specification	SI60M3.5X8-05314	TT15P	TT15T
	Order code	PSI60M035080-05314S	PTT15PQ	PTT15TQ

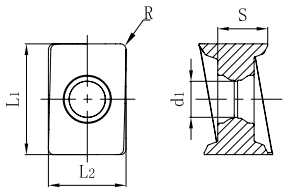
Recommended cutting data

Workpiece		Hardness	Grade	Cutting speed	feed/edge（fz）		
					Light cutting (L)	Medium cutting (M)	Heavy cutting（H）
				Vc（m/min）	GL/NL	GM/NL	GH/NL
P	Soft steel	⩽ HB180	GA4225 GA4230 GP4225 GP2115	180 (150-220)	0.1 (0.05-0.15)	0.15 (0.1-0.2)	0.2 (0.1-0.25)
	Carbon steel, alloy steel	HB180-350	GA4225 GA4230 GP4225 GP2115	150 (120-200)	0.1 (0.05-0.15)	0.15 (0.1-0.2)	0.2 (0.1-0.25)
	Pre harden steel	HRC35-45	GA4225 GA4230 GP4225 GP2115	150 (120-200)	0.1 (0.05-0.15)	0.15 (0.1-0.2)	0.2 (0.1-0.25)
M	Stainless (ferrite, martensite)	⩽ HB270	GM2140 GS4130	140 (100-160)	0.12 (0.1-0.2)	0.15 (0.1-0.2)	0.2 (0.1-0.3)
K	Grey cast iron	⩽ HB280	GK4125 GK2115	180 (150-220)	0.1 (0.05-0.15)	0.15 (0.1-0.2)	0.2 (0.1-0.25)
	Nodular cast iron,vermicular graphite cast iron	⩽ HB350	GK4125 GK2115	120 (100-180)	0.1 (0.05-0.15)	0.15 (0.1-0.2)	0.2 (0.1-0.25)
N	Copper Alloys	⩽ HB260	GN9125	500 (200-900)	0.1 (0.05-0.15)	0.15 (0.1-0.2)	0.2 (0.1-0.25)
S	Heat resistance alloy, Ti alloy	HRC25-35	GA4230 GM2140 GS4130	60 (50-100)	0.1 (0.05-0.15)	0.1 (0.05-0.15)	0.15 (0.1-0.2)
H	Quenched steel	HRC48-55	GH4115 GH4125	80 (60-120)	0.08 (0.05-0.15)	0.10 (0.08-0.15)	0.12 (0.08-0.20)

Shoulder Milling

ANKX

ANKX four curved edge shoulder Milling insert



Ordering Code		Dimension (mm)					Coated										Uncoated	Cermet
		L1	L2	S	d1	R	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	ANKX120704R-GL	12	10	8	4.6	0.4	●	●	○	○	○	●	●	○				
	ANKX160708R-GL	16	11.2	7.9	5.2	0.8	●	●	○	○	○	●	●	○				
	ANKX120708R-GM	12	10	8	4.6	0.8	●	●	○	○	○	●	●	○		○		
	ANKX160708R-GM	16	11.2	7.9	5.2	0.8	●	●	○	○	○	●	●	○		○		
	ANKX160716R-GM	16	11.2	7.9	5.2	1.6	○	●	○	○	○	●	●	○		○		
	ANKX160716R-GH	16	11.2	7.9	5.2	1.6	○	●	○	○		●	●	○		○		

● Standard stock ○ need reservation

ANKX Series Breaker

General workpiece light cutting	General workpiece medium cutting	General workpiece heavy cutting
		
GL	GM	GH
		
Light cutting of low cutting force, good processing quality	High stability in most cases	Suitable on roughing, good edge strength

Shoulder Milling

MEC190

Arbor

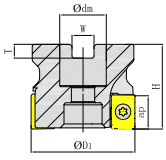


Fig1

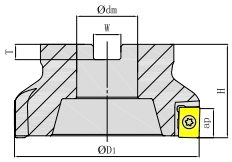


Fig2

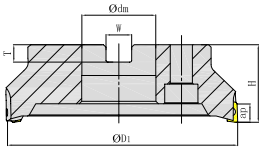


Fig3

Ordering Code	Dia-meter	Teeth	Dimension(mm)					Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD1	Φdm	H	W	T					
MEC190050R04A22AN12	50	4	50	22	40	10.4	6.3	09	ANKX1207	×	Fig1	●
MEC190063R05A22AN12	63	5	63	22	40	10.4	6.3	09	ANKX1207	√	Fig1	●
MEC190050R04A22AN16	50	4	50	22	40	10.4	6.3	14	ANKX1607	√	Fig1	●
MEC190063R05A22AN16	63	5	63	22	40	10.4	6.3	14	ANKX1607	√	Fig1	●
MEC190080R05A27AN16	80	5	80	27	50	12.4	7	14	ANKX1607	√	Fig1	●
MEC190080R06A27AN16	80	6	80	27	50	12.4	7	14	ANKX1607	√	Fig1	●
MEC190100R07B32AN16	100	7	100	32	50	14.4	8	14	ANKX1607	×	Fig2	●
MEC190100R08B32AN16	100	8	100	32	50	14.4	8	14	ANKX1607	×	Fig2	●
MEC190125R10B40AN16	125	10	125	40	63	16.4	9	14	ANKX1607	×	Fig2	●
MEC190160R12C40AN16	160	12	160	40	63	16.4	9	14	ANKX1607	×	Fig3	○
MEC190200R14C60AN16	200	14	200	60	63	25.7	14	14	ANKX1607	×	Fig3	○

● Standard stock ○ need reservation

Shoulder Milling

MEC190

Side clamp

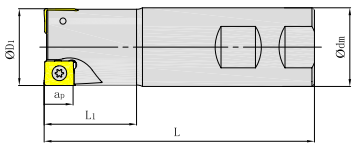


Fig4

Ordering Code	Dia-meter	Teeth	Dimension(mm)				Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD1	Φdm	L	L1					
MEC190032R02W32AN12	32	2	32	32	130	40	9	ANKX1207	×	Fig4	●
MEC190040R03W32AN12	40	3	40	32	130	40	9	ANKX1207	√	Fig4	○
MEC190032R02W32AN16	32	2	32	32	130	40	14	ANKX1607	×	Fig4	●
MEC190032R02W32AN16L	32	2	32	32	200	50	14	ANKX1607	×	Fig4	●
MEC190032R03W32AN16	32	3	32	32	130	40	14	ANKX1607	×	Fig4	●
MEC190032R03W32AN16L	32	3	32	32	200	50	14	ANKX1607	×	Fig4	●
MEC190040R03W32AN16	40	3	40	32	130	50	14	ANKX1607	√	Fig4	●

● Standard stock ○ need reservation

Shoulder Milling

MHC190

Corn milling cutter body—Side clamp

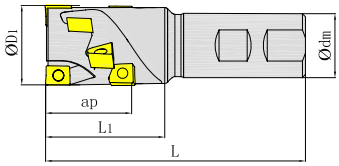


Fig5

Ordering Code	Dia-meter	Teeth	Dimension(mm)				Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD1	Φdm	L	L1					
MHC190040R02W32AN12	40	2/8	40	32	130	66	43	ANKX1207	√	Fig5	●

● Standard stock ○ need reservation

MHC190

Corn milling cutter body—Arbor

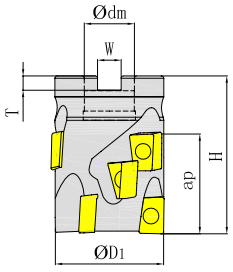
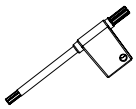
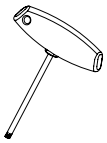


Fig6

Ordering Code	Dia-meter	Teeth	Dimension(mm)					Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD1	Φdm	H	W	T					
MHC190050R03A22AN12	50	3/12	50	22	70	10.4	6.3	43	ANKX1207	√	Fig6	●
MHC190063R04A27AN12	63	4/16	63	27	70	12.4	6.3	43	ANKX1207	√	Fig6	●
MHC190050R03A22AN16	50	3/9	50	22	70	10.4	6.3	43	ANKX1607	√	Fig6	●
MHC190063R04A27AN16	63	4/12	63	27	85	12.4	6.3	57	ANKX1607	√	Fig6	●
MHC190080R05A32AN16	80	5/15	80	32	85	14.4	7	57	ANKX1607	√	Fig6	●

● Standard stock ○ need reservation

Spare Part Chart

Partname		Insert Screw	Insert Screw Wrench	
Shape / Insert				
ANKX1207	Specification	SI60M3.5X12-05314	TT15P	--
	Order code	PSI60M035120-05314S	PTT15PQ	--
ANKX1607	Specification	SI60M4.5X12-06412	TT20P	TT20T
	Order code	PSI60M045120-06412S	PTT20PQ	PTT20TQ

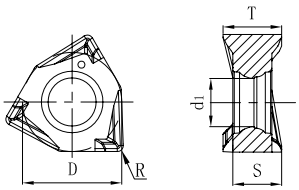
Recommended cutting data

Workpiece		Hardness	Grade	Cutting speed	Feed/edge (fz)		
					Light cutting (L)	Medium cutting (M)	Heavy cutting (H)
				Vc (m/min)	GL	GM	GH
P	Soft Steel	⩽ HB180	GA4225 GA4230 GP4225 GP2115	180 (150-220)	0.1 (0.05-0.15)	0.15 (0.1-0.2)	0.2 (0.1-0.25)
	Carbon steel, alloy steel	HB180-350	GA4225 GA4230 GP4225 GP2115	150 (120-200)	0.1 (0.05-0.15)	0.15 (0.1-0.2)	0.2 (0.1-0.25)
	Pre harden steel	HRC35-45	GA4225 GA4230 GP4225 GP2115	150 (120-200)	0.1 (0.05-0.15)	0.15 (0.1-0.2)	0.2 (0.1-0.25)
M	Stainless (ferrite, martensite)	⩽ HB270	GM2140 GS4130	140 (100-160)	0.12 (0.1-0.2)	0.15 (0.1-0.2)	0.2 (0.1-0.3)
	Stainless (Austenite, diphasic)	⩽ HB270	GM2140	120 (100-160)	0.12 (0.1-0.2)	0.15 (0.1-0.2)	0.2 (0.1-0.3)
K	Grey cast iron	⩽ HB280	GK4125 GK2115	180 (150-220)	0.1 (0.05-0.15)	0.14 (0.1-0.2)	0.2 (0.1-0.25)
	Nodular cast iron,vermicular graphite cast iron	⩽ HB350	GK4125 GK2115	120 (100-180)	0.1 (0.05-0.15)	0.14 (0.1-0.2)	0.2 (0.1-0.25)
S	Heat resistance alloy, Ti alloy	HRC25-35	GA4230 GM2140 GS4130	60 (50-100)	0.1 (0.05-0.15)	0.1 (0.05-0.15)	0.15 (0.1-0.2)
H	Quenched steel	HRC48-55	GH4115 GH4125	80 (60-120)	0.08 (0.05-0.15)	0.14 (0.1-0.2))	0.12 (0.08-0.20)

Shoulder Milling

WNGU

Double face six edge shoulder milling



Ordering Code		Dimension (mm)					Coated										Uncoated	Cermet
		D	d_1	S	T	R	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	WNGU040304-GM	6.7	3.25	3.3	3.96	0.4		●	●	○	○	●	●	○				
	WNGU040308-GM	6.7	3.25	3.3	3.96	0.8		●	●	○	○	●	●	○				
	WNGU080608-GM	12.48	4.6	6.45	7.9	0.8		●		○	○	●		○				
	WNGU080608-GH	12.48	4.6	6.45	7.9	0.8		●	●	○	○	●	●	○				

● Standard stock ○ need reservation

WNGU Series Breaker

General workpiece medium cutting	General workpiece heavy cutting
	
GM	GH
	
High stability in most cases	Suitable on roughing, good edge strength

Shoulder Milling

MEE190

Arbor

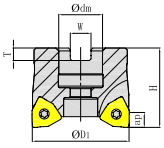


Fig1

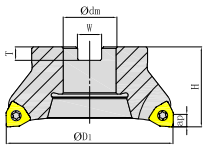


Fig2

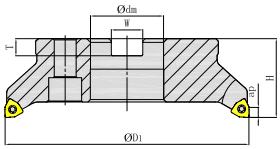


Fig3

Ordering Code	Dia-meter	Teeth	Dimension(mm)					Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD1	Φdm	H	W	T					
MEE190050R04A22WN08	50	4	50	22	40	10.4	6.3	7.5	WNGU0806	×	Fig1	●
MEE190050R05A22WN08	50	5	50	22	40	10.4	6.3	7.5	WNGU0806	×	Fig1	●
MEE190063R06A22WN08	63	6	63	22	40	10.4	6.3	7.5	WNGU0806	×	Fig1	●
MEE190080R07A27WN08	80	7	80	27	50	12.4	7	7.5	WNGU0806	×	Fig1	●
MEE190100R08B32WN08	100	8	100	32	50	14.4	8	7.5	WNGU0806	×	Fig2	●
MEE190125R07B40WN08	125	7	125	40	63	16.4	9	7.5	WNGU0806	×	Fig2	●
MEE190125R11B40WN08	125	11	125	40	63	16.4	9	7.5	WNGU0806	×	Fig2	●
MEE190160R12C40WN08	160	12	160	40	63	16.4	9	7.5	WNGU0806	×	Fig3	●
MEE190200R16C60WN08	200	16	200	60	63	25.7	14	7.5	WNGU0806	×	Fig3	●

● Standard stock ○ need reservation

Shoulder Milling

MEE190

Cylindrical straight shank

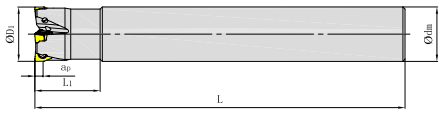
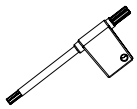
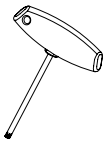


Fig4

Ordering Code	Dia-meter	Teeth	Dimension(mm)				Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD1	Φdm	L	L1					
MEE190020R03P20WN04	20	3	20	20	150	30	4	WNGU0403	√	Fig4	●
MEE190025R04P25WN04	25	4	25	25	170	30	4	WNGU0403	√	Fig4	●
MEE190032R05P32WN04	32	5	32	32	195	30	4	WNGU0403	√	Fig4	●
MEE190035R05P32WN04	35	5	35	32	195	30	4	WNGU0403	√	Fig4	●
MEE190040R06P32WN04	40	6	40	32	195	30	4	WNGU0403	√	Fig4	●
MEE190040R03P32WN08	40	3	40	32	160	60	7.5	WNGU0806	×	Fig4	●

● Standard stock ○ need reservation

Spare Part Chart

Partname		Insert Screw	Insert Screw Wrench	
Insert \ Shape				
WNGU0403	Specification	SI60M2.5X6.5-03610I	TT08P	--
	Order code	PSI60M025065-03610IS	PTT08PB	--
WNGU0806	Specification	SI60M4.0X11-05510I	TT15P	TT15T
	Order code	PSI60M040110-05510IS	PTT15PB	PTT15TB

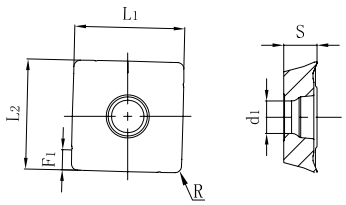
Recommended Cutting Data

Workpiece		Hardness	Grade	Cutting speed	Feed/edge (fz)	
					Medium cutting (M)	Heavy cutting (H)
				Vc (m/min)	GM	GH
P	Soft Steel	⩽ HB180	GA4225 GA4230 GP4225 GP2115	180 (150-220)	0.15 (0.1-0.2)	0.2 (0.1-0.25)
P	Carbon steel, alloy steel	HB180-350	GA4225 GA4230 GP4225 GP2115	150 (120-200)	0.15 (0.1-0.2)	0.2 (0.1-0.25)
P	Pre harden steel	HRC35-45	GA4225 GA4230 GP4225 GP2115	150 (120-200)	0.15 (0.1-0.2)	0.2 (0.1-0.25)
M	Stainless (ferrite, martensite)	⩽ HB270	GA4225 GA4230 GM2140	140 (100-160)	0.15 (0.1-0.2)	0.2 (0.1-0.3)
M	Stainless (Austenite, diphasic)	⩽ HB270	GA4225 GA4230 GM2140	120 (100-160)	0.15 (0.1-0.2)	0.2 (0.1-0.3)
K	Grey cast iron	⩽ HB280	GA4230 GK4125 GK2115	180 (150-220)	0.15 (0.1-0.2)	0.2 (0.1-0.25)
K	Nodular cast iron,vermicular graphite cast iron	⩽ HB350	GA4230 GK4125 GK2115	120 (100-180)	0.15 (0.1-0.2)	0.2 (0.1-0.25)
S	Heat resistance alloy, Ti alloy	HRC25-35	GA4230 GM2140 GS4130	60 (50-100)	0.1 (0.05-0.15)	0.1 (0.05-0.15)

Shoulder Milling

SDKT

Single face four edge shoulder milling



Order Code		Dimension(mm)						Coated										Uncoated	Cermet
		L1	L2	S	F1	d1	R	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	SDKT14T3PEER-GL	13.92	13.92	3.96	2.5	4.1	0.8	●	●	○	●	●	●	●	●		○		
	SDKT14T3PEER-GM	13.92	13.92	3.96	2.5	4.1	0.8		●	○	●	●		●	●		○		
	SDKT14T3PEER-GH	13.92	13.92	3.96	2.5	4.1	0.8		●	○	○	○	○	○	○		○		

● Standard stock ○ need reservation

SDKT Series Breaker

General workpiece light cutting	General workpiece medium cutting	General workpiece heavy cutting
		
GL	GM	GH
		
Light cutting of low cutting force, good processing quality	High stability in most cases	Suitable on roughing, good edge strength

Shoulder Milling

MES190

Arbor

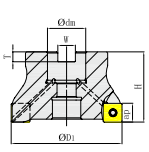


Fig1

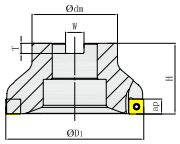


Fig2

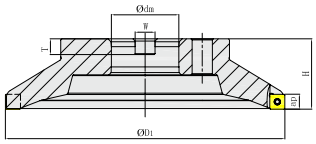


Fig3

Ordering Code	Dia-meter	Teeth	Dimension(mm)					Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD1	Φdm	H	W	T					
MES190050R04A22SD14	50	4	50	22	40	10.4	6.3	10	SDKT14	√	Fig1	●
MES190050R05A22SD14	50	5	50	22	40	10.4	6.3	10	SDKT14	√	Fig1	●
MES190063R05A22SD14	63	5	63	22	40	10.4	6.3	10	SDKT14	√	Fig1	●
MES190063R06A22SD14	63	6	63	22	40	10.4	6.3	10	SDKT14	√	Fig1	●
MES190080R06A27SD14	80	6	80	27	50	12.4	7	10	SDKT14	√	Fig1	●
MES190080R08A27SD14	80	8	80	27	50	12.4	7	10	SDKT14	√	Fig1	●
MES190100R07B32SD14	100	7	100	32	50	14.4	8	10	SDKT14	×	Fig2	●
MES190100R08B32SD14	100	8	100	32	50	14.4	8	10	SDKT14	×	Fig2	●
MES190125R08B40SD14	125	8	125	40	63	16.4	9	10	SDKT14	×	Fig3	●
MES190125R10B40SD14	125	10	125	40	63	16.4	9	10	SDKT14	×	Fig3	●
MES190160R08C40SD14	160	8	160	40	63	16.4	9	10	SDKT14	×	Fig3	○
MES190160R12C40SD14	160	12	160	40	63	16.4	9	10	SDKT14	×	Fig3	●
MES190200R10C60SD14	200	10	200	60	63	25.7	14	10	SDKT14	×	Fig3	○
MES190200R16C60SD14	200	16	200	60	63	25.7	14	10	SDKT14	×	Fig3	●
MES190250R12C60SD14	250	12	250	60	63	25.7	14	10	SDKT14	×	Fig3	○
MES190250R18C60SD14	250	18	250	60	63	25.7	14	10	SDKT14	×	Fig3	○
MES190315R15D60SD14	315	15	315	60	80	25.7	14	10	SDKT14	×	Fig3	○
MES190315R24D60SD14	315	24	315	60	80	25.7	14	10	SDKT14	×	Fig3	○

● Standard stock ○ need reservation

Shoulder Milling

MES190

Cylindrical straight shank /Side clamp

Fig4

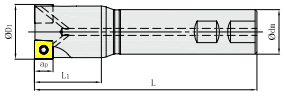
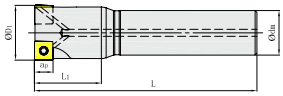


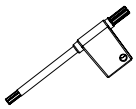
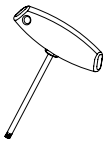
Fig5



Ordering Code	Dia	Teeth	Dimension(mm)				Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD1	Φdm	L	L1					
MES190040R03P20SD14	40	03	40	20	120	40	10	SDKT14	√	Fig4	●
MES190040R03W32SD14	40	03	40	32	160	40	10	SDKT14	√	Fig5	●
MES190040R04W32SD14	40	04	40	32	120	40	10	SDKT14	√	Fig5	●
MES190050R04W32SD14	50	04	50	32	120	50	10	SDKT14	√	Fig5	●
MES190050R05W32SD14	50	05	50	32	160	50	10	SDKT14	√	Fig5	●

● Standard stock ○ need reservation

Spare Part Chart

Partname		Insert Screw	Insert Screw Wrench	
Shape / Insert				
SDKT14*	Specification	SI60M3.5X10-05018I	TI15P	TI15T
	Order code	PSI60M035100-05018IS	TI15PB	TI15TB

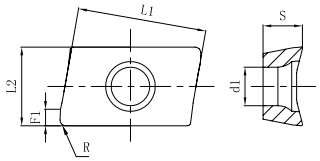
Recommended Cutting Data

Workpiece		Hardness	Grade	Cutting speed	Feed/edge (fz)		
					Light cutting (L)	Medium cutting (M)	Heavy cutting (H)
				Vc (m/min)	GL	GM	GH
P	Soft Steel	⩽ HB180	GA4225 GA4230 GP4225	180 (150-220)	0.1 (0.05-0.15)	0.15 (0.1-0.2)	0.2 (0.1-0.25)
	Carbon steel, alloy steel	HB180-350	GA4225 GA4230 GP4225	150 (120-200)	0.1 (0.05-0.15)	0.15 (0.1-0.2)	0.2 (0.1-0.25)
	Pre harden steel	HRC35-45	GA4225 GA4230 GP4225	150 (120-200)	0.1 (0.05-0.15)	0.15 (0.1-0.2)	0.2 (0.1-0.25)
M	Stainless (ferrite, martensite)	⩽ HB270	GA4225 GA4230 GM2140	140 (100-160)	0.12 (0.1-0.2)	0.15 (0.1-0.2)	0.2 (0.1-0.3)
	Stainless (Austenite, diphasic)	⩽ HB270	GA4225 GA4230 GM2140	120 (100-160)	0.12 (0.1-0.2)	0.15 (0.1-0.2)	0.2 (0.1-0.3)
K	Grey cast iron	⩽ HB280	GA4230 GK4125 GK2115	180 (150-220)	0.1 (0.05-0.15)	0.15 (0.1-0.2)	0.2 (0.1-0.25)
	Nodular cast iron,vermicular graphite cast iron	⩽ HB350	GA4230 GK4125 GK2115	120 (100-180)	0.1 (0.05-0.15)	0.15 (0.1-0.2)	0.2 (0.1-0.25)
S	Heat resistance alloy, Ti alloy	HRC25-35	GA4230 GM2140 GS4130	60 (50-100)	0.1 (0.05-0.15)	0.1 (0.05-0.15)	0.15 (0.1-0.2)
H	Quenched steel	HRC48-55	GA4230	80 (60-120)	0.08 (0.05-0.15)	0.10 (0.08-0.15)	0.12 (0.08-0.20)

Shoulder Milling

XPHT

General application shoulder milling insert



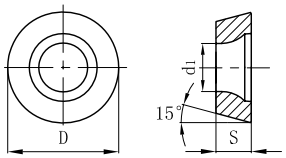
Ordering Code		Dimension(mm)						Coated										Uncoated	Cermet
		L_1	L_2	S	F_1	d_1	R	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	XPHT160808T	15.6	9.53	4.76	2	4.65	0.8						○						
	XPHT160412T	15.6	9.53	4.76	2	4.65	1.2						○						

● Standard stock ○ need reservation

Profile Milling

RD

Profile Milling Bade



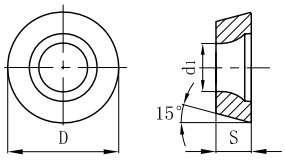
Ordering Code		Dimension(mm)			Coated										Uncoated	Cermet
		D	S	d_1	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	RDET0803M0-BL	8	3.18	2.94	○	○	○					○				
	RDET10T3M0-BL	10	3.97	4.4	○	●	○					○				
	RDET1204M0-BL	12	4.76	4.4	○	●	○					○				
	RDET1604M0-BL	16	4.76	5.5	○	●	○					○				
	RDET0802M0-GM	8	2.38	2.94	●	○	○					○				
	RDET0803M0-GM	8	3.18	2.94	○	○	○					○				
	RDET10T3M0-GM	10	3.97	4.4	●	●	○		○			○				
	RDET1204M0-GM	12	4.76	4.4	●	●	○		○			○				
	RDET1604M0-GM	16	4.76	5.5	○	●	●					○				
	RDET1204M0T-MM	12	4.76	4.4	○	○	●					○				
	RDEW0501M0	5	1.51	2.2	●	●	○			○		○				
	RDEW0702M0	7	2.38	2.8	●	●	●					○				
	RDEW1003M0	10	3.18	4.4	○	○	○									
	RDEW0702M0T	7	2.38	2.8	○	●	○			○						
	RDEW0803M0T	8	3.18	2.94	●	○	●									
	RDEW10T3M0T	10	3.97	4.4	●	●	●									
	RDEW1204M0T	12	4.76	4.4	●	●	●			○	○					
	RDEW1604M0T	16	4.76	5	○	●	●			○	○					
	RDEW12T3M0T-BM	12	3.97	4.4	○	○	○									
	RDEW1204M0T-BM	12	4.76	4.4	○	●	○									

● Standard stock ○ need reservation

Profile Milling

RD

Profile Milling Bade



Ordering Code		Dimension(mm)			Coated										Uncoated	Cermet
		D	S	d_1	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	RDMT10T3M0-GM	10	3.97	4.4	●	●	●	○	○	○	○	●		○		●
	RDMT1204M0-GM	12	4.76	4.4	●	●	●	●	○	●	○	○		●		●
	RDMW1204M0T-BM	12	4.76	4.4	●	●	●	●		○	○			○		●
	RDMW1605M0T-BM	16	5.56	5.5	●	●	●			○						
	RDMW10T3M0T	10	3.97	4.4	●	●	●	○		○	○			○		●
	RDMW1604M0T	16	4.76	5.5	●	●	○	○		○	○					●

● Standard stock ○ need reservation

RD Series Breaker

General workpiece light cutting	General workpiece medium cutting	General workpiece heavy cutting	
			
BL	GM	None	
			
Big rake angle design, sharp edge	Suitable edge width and rake angle design, has good strength and sharpness	Flat design, better edge strength	

Profile Milling

MPA100

Arbor

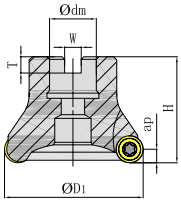


Fig1

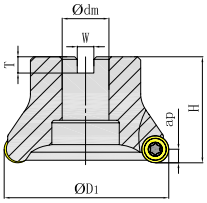


Fig2

Ordering Code	Dia-meter	Teeth	Dimension(mm)					Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD1	Φdm	H	W	T					
MPA100040R05A16RD08	40	5	40	16	40	8.4	6.3	4	RD**0803	×	Fig1	●
MPA100050R04A22RD10	50	4	50	22	50	10.4	6.3	5	RD**10T3	×	Fig1	●
MPA100050R04A22RD12	50	4	50	22	50	10.4	6.3	6	RD**1204	×	Fig1	●
MPA100050R05A22RD12	50	5	50	22	50	10.4	6.3	6	RD**1204	×	Fig1	●
MPA100063R05A22RD12	63	5	63	22	50	10.4	6.3	6	RD**1204	×	Fig1	●
MPA100063R04A22RD16	63	4	63	22	40	10.4	6.3	8	RD**1604	×	Fig1	●
MPA100080R05A27RD16	80	5	80	27	50	12.4	7	8	RD**1604	×	Fig1	●
MPA100100R06B32RD16	100	6	100	32	50	14.4	9	8	RD**1604	×	Fig2	●
MPA100125R07B40RD16	125	7	125	40	63	16.4	9	8	RD**1604	×	Fig2	○

● Standard stock ○ need reservation

Profile Milling

MPA100

Cylindrical straight shank

Fig3

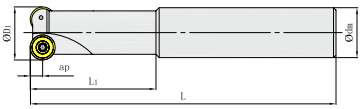
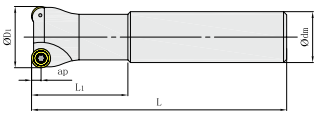


Fig4



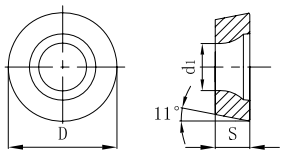
Ordering Code	Dia-meter	Teeth	Dimension(mm)				Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD1	Φdm	L	L1					
MPA100010R02P16RD05	10	2	10	16	120	40	2.5	RD**0501	×	Fig3	●
MPA100012R02P16RD05	12	2	12	16	120	40	2.5	RD**0501	×	Fig3	●
MPA100016R02P16RD07	16	2	16	16	160	60	3.5	RD**0702	×	Fig3	●
MPA100017R02P16RD08	17	2	17	16	160	60	4	RD**0803	×	Fig4	○
MPA100020R02P20RD08	20	2	20	20	160	60	4	RD**0803	×	Fig3	●
MPA100020R02P20RD10	20	2	20	20	160	50	5	RD**10T3	×	Fig3	●
MPA100025R02P20RD10	25	2	25	20	160	50	5	RD**10T3	×	Fig4	●
MPA100032R02P32RD12	32	2	32	32	200	80	6	RD**1204	×	Fig3	○
MPA100032R03P32RD12S	32	3	32	32	160	50	6	RD**1204	×	Fig3	○
MPA100032R02P32RD16	32	3	32	32	200	80	8	RD**1604	×	Fig3	○
MPA100035R02P32RD16	35	2	35	32	200	80	8	RD**1604	×	Fig4	○

● Standard stock ○ need reservation

Profile Milling

RP

Profile Milling Bade



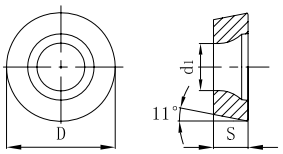
Ordering Code		Dimension(mm)			Coated										Uncoated	Cermet
		D	S	d1	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	RPET1003M0-GL	10	3.18	4.4	○	○	○					○				
	RPET1204M0-GL	12	4.76	4.4	○	○	○					○				
	RPET08T2M0-GM	8	2.78	2.94	●	○	●					○				
	RPET1003M0T-GM	10	3.18	4.4	○	○	○		○			○				
	RPET1204M0-GM	12	4.76	4.4	●	○	○		○			○				
	RPET1204M0T-GM	12	4.76	4.4	○	●	○		○	○		○				
	RPET1606M0T-GM	16	6.35	5.5	○	●	○					●				
	RPET1606M0-SM	16	6.35	5.5		○	○		○	○		○				
	RPET1606M0T-GH	16	6.35	5.5	○	●	○									
	RPEW08T2M0	8	2.78	2.94	○	○	○									
	RPEW1003M0	10	3.18	4.4	○	●	○									
	RPEW10T3M0	10	3.97	4.4	○		○									
	RPEW1003M0T	10	3.18	4.4	●	●	●									
	RPEW1204M0T	12	4.76	4.4	○	○	○									

● Standard stock ○ need reservation

Profile Milling

RP

Profile Milling Bade



Ordering Code		Dimension(mm)			Coated										Uncoated	Cermet
		D	S	d1	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	RPMT10T3M0-GM	10	3.97	4.4	●	●	●					●				
	RPMT1003M0T-GM	10	3.18	4.4	●	●	○	●	●	○	○	●				●
	RPMT1204M0-GM	12	4.76	4.4	●	●	●	○	○	●	○	●	○	○		●
	RPMW1003M0T	10	3.18	4.4	●	●	●	○		○	○		○			●
	RPMW1204M0T	12	4.76	4.4	●	●	●	○		○			○			●

● Standard stock ○ need reservation

RP Series Breaker

General workpiece light cutting	General workpiece medium cutting	General workpiece heavy cutting	
			
GL	GM	GH	None
			
Big rake angle, sharper edge	Suitable edge width and rake design, has good strength and sharpness	Small rake angle, flat design, high edge strength	

Profile Milling

MPB100

Arbor

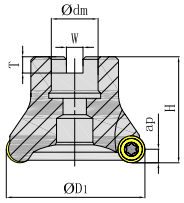


Fig1

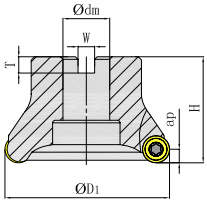


Fig2

Ordering Code	Dia-meter	Teeth	Dimension(mm)					Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD1	Φdm	H	W	T					
MPB100040R05A16RP08	40	5	40	16	40	8.4	6.3	4	RP**08T2	×	Fig1	○
MPB100040R04A16RP10	40	4	40	16	40	8.4	6.3	5	RP**1003	×	Fig1	○
MPB100050R04A22RP10	50	4	50	22	50	10.4	6.3	5	RP**1003	×	Fig1	○
MPB100050R04A22RP12	50	4	50	22	50	10.4	6.3	6	RP**1204	×	Fig1	●
MPB100063R05A22RP12	63	5	63	22	50	10.4	6.3	6	RP**1204	×	Fig1	●
MPB100063R04A22RP16	63	4	63	22	40	10.4	6.3	8	RP**1606	×	Fig1	○
MPB100080R06A27RP16	80	6	80	27	50	12.4	7	8	RP**1606	×	Fig2	○
MPB100100R07B32RP16	100	7	100	32	50	14.4	8	8	RP**1606	×	Fig2	●
MPB100125R08B40RP16	125	8	125	40	63	16.4	9	8	RP**1606	×	Fig2	●

● Standard stock ○ need reservation

Profile Milling

MPB100

Cylindrical straight shank

Fig3

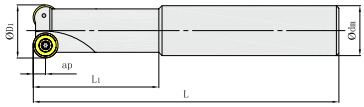
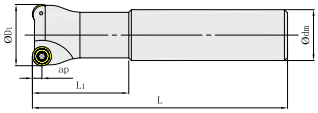


Fig4



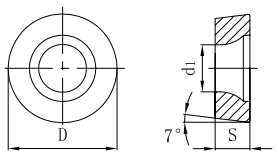
Ordering Code	Dia-meter	Teeth	Dimension(mm)				Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD1	Φdm	L	L1					
MPB100016R02P16RP08S	16	2	16	16	120	40	4	RP**08T2	×	Fig3	○
MPB100016R02P16RP08	16	2	16	16	160	60	4	RP**08T2	×	Fig3	○
MPB100020R02P20RP08	20	2	20	20	160	60	4	RP**08T2	×	Fig3	○
MPB100025R03P25RP08	25	3	25	25	160	60	4	RP**08T2	×	Fig3	○
MPB100020R02P20RP10	20	2	20	20	160	50	5	RP**1003	×	Fig3	○
MPB100025R02P20RP10	25	2	25	20	160	50	5	RP**1003	×	Fig4	●
MPB100025R02P20RP10L	25	2	25	20	200	50	5	RP**1003	×	Fig4	○
MPB100025R02P25RP12	25	2	25	25	160	50	6	RP**1204	×	Fig3	●
MPB100032R02P25RP12	32	2	32	25	160	50	6	RP**1204	×	Fig4	●
MPB100032R02P25RP12L	32	2	32	25	200	60	6	RP**1204	×	Fig4	●
MPB100032R03P25RP12	32	3	32	25	160	50	6	RP**1204	×	Fig4	○
MPB100040R02P32RP16	40	2	40	32	200	80	8	RP**1606	×	Fig.4	○

● Standard stock ○ need reservation

Profile Milling

RC

Profile Milling Bade



Ordering Code		Dimension(mm)			Coated										Uncoated	Cermet
		D	S	d1	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	RCET10T3M0-EM	10	3.97	4.4	●	○		○			○	●				●
	RCET1204M0-EM	12	4.76	4	○	●			○		○	○				●
	RCET1606M0-EM	16	6.35	5.5	○	○		○	●	○	○	○				
	RCET2006M0-EM	20	6.35	6.5		●					○					
	RCET1204M0-MM	12	4.76	4	●	○			○	○		○				●
	RCET1204M0-KM	12	4.76	4	○											
	RCET1606M0-KM	16	6.35	5.5	○											
	RCET1204M0T-EH	12	4.76	4.4		○			○	○						
	RCET1606M0T-EH	16	6.35	5.5		●			●	●	○	○				
	RCET2006M0T-EH	20	6.35	6.5		○										
	RCET1606M0T-KH	16	6.35	5.5	○	○										

● Standard stock ○ need reservation

RC Series Breaker

General workpiece medium cutting		General workpiece heavy cutting	
			
EM	MM	EH	KH
			
Double rake angle design, has good strength and sharpness		Small rake angle and chamfer design, higher edge strength	

Profile Milling

MPC100

Arbor

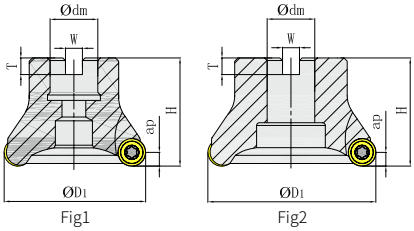


Fig1 Fig2

Ordering Code	Dia-meter	Teeth	Dimension(mm)					Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD1	Φdm	H	W	T					
MPC100050R04A22RC12	50	4	50	22	50	10.4	6.3	6	RC**1204	×	Fig1	○
MPC100050R05A22RC12	50	5	50	22	50	10.4	6.3	6	RC**1204	×	Fig1	●
MPC100063R04A22RC12	63	4	63	22	50	10.4	6.3	6	RC**1204	×	Fig1	○
MPC100063R05A22RC12	63	5	63	22	50	10.4	6.3	6	RC**1204	×	Fig1	○
MPC100063R06A22RC12	63	6	63	22	50	10.4	6.3	6	RC**1204	×	Fig1	○
MPC100080R06A27RC12	80	6	80	27	50	12.4	7	6	RC**1204	×	Fig1	○
MPC100063R04A22RC16	63	4	63	22	50	10.4	6.3	8	RC**1606	×	Fig1	●
MPC100063R05A22RC16	63	5	63	22	50	10.4	6.3	8	RC**1606	×	Fig1	○
MPC100080R05A27RC16	80	5	80	27	50	12.4	7	8	RC**1606	×	Fig1	○
MPC100080R06A27RC16	80	6	80	27	50	12.4	7	8	RC**1606	×	Fig1	●
MPC100100R06B32RC16	100	6	100	32	50	14.4	8	8	RC**1606	×	Fig2	○
MPC100100R06B32RC20	100	6	100	32	50	14.4	8	10	RC**2006	×	Fig2	●
MPC100125R07B40RC20	125	7	125	40	63	14.4	8	10	RC**2006	×	Fig2	○
MPC100100R06B32RC20	100	6	100	32	50	14.4	8	10	RC**2006	×	Fig2	○
MPC100125R07B32RC20	125	7	125	32	63	14.4	8	10	RC**2006	×	Fig2	○
MPC100160R08B40RC20	160	8	160	40	63	14.4	8	10	RC**2006	×	Fig2	○

● Standard stock ○ need reservation

Profile Milling

MPC100

Cylindrical straight shank

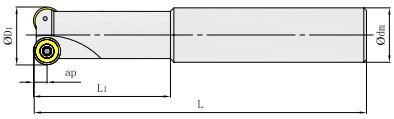
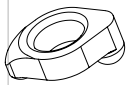
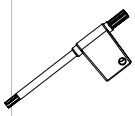
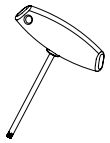


Fig3

Ordering Code	Dia-meter	Teeth	Dimension(mm)				Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD1	Φdm	L	L1					
MPC100020R02P20RC10	20	2	20	20	160	50	5	RC**10T3	×	Fig3	○
MPC100025R02P20RC10	25	2	25	20	160	50	5	RC**10T3	×	Fig3	○
MPC100032R02P25RC12	32	2	32	25	200	50	6	RC**1204	×	Fig3	○
MPC100040R03P32RC12	40	3	40	32	200	50	6	RC**1204	×	Fig3	●

● Standard stock ○ need reservation

Spare Part Chart

Partname		Insert Screw	Wrench	Insert Screw	Insert Screw Wrench	
Shape / Insert						
RD**05	Specification	--	--	SI60M2X3.7-02806	TT06P	--
	Order code	--	--	PSI60M020037-02806S	PTT06PQ	--
RD**07	Specification	--	--	SI60M2.5X5-03509	TT08P	
	Order code	--	--	PSI60M025050-03509S	PTT08PQ	
RD**08 RP**08	Specification	--	--	SI60M2.5X6.5-03509	TT08P	--
	Order code	--	--	PSI60M025065-03509S	PTT08PQ	--
RD**10 RP**10	Specification	SI60M3.5X10-05510	CAX1	SI60M4X8.9-05313	TT15P	--
	Order code	PSI60M035100-05510S	PCAX01RQ	PSI60M040089-05313S	PTT15PQ	--
RC**10	Specification	--	--	SI60M4X8.9-05313	TT15P	--
	Order code	--	--	PSI60M040089-05313S	PTT15PQ	--
RD**12 RP**12	Specification	SI60M3.5X12-05314	CAX2	SI60M4X8.9-05313	TT15P	--
	Order code	PSI60M035120-05314S	PCAX02RQ	PSI60M040089-05313S	PTT15PQ	--
RC**12	Specification	--	--	SI60M3.5X8-05314	TT15P	--
	Order code	--	--	PSI60M035080-05314S	PTT15PQ	--
RD**16 RP**16/RC**16	Specification	--	--	SI60M5X10.8-07209	TT20P	TT20T
	Order code	--	--	PSI60M050108-07209S	PTT20PQ	PTT20TQ
RC**20	Specification	--	--	SI60M6X16-08509	--	TT25T
	Order code	--	--	PSI60M060160-08509S	--	PTT25TQ

Recommended Cutting Data

Workpiece		Hardness	Grade	Cutting speed	Screw Specification (IC)	Feed/edge (fz)		
						Light cutting (L)	Medium cutting (M)	Heavy cutting (H)
				Vc (m/min)		GL/BL	GM/MM/EM	GH/KH/T
P	Soft Steel	⩽ HB180	GP2115 GA4225 GP4225 GA4230	180 (150-220)	05	0.08 (0.05-0.15)	0.10 (0.08-0.15)	0.12 (0.08-0.20)
					07 08	0.08 (0.05-0.15)	0.12 (0.08-0.18)	0.15 (0.10-0.25)
					10 12	0.15 (0.10-0.25)	0.20 (0.15-0.30)	0.25 (0.20-0.35)
					16	0.18 (0.10-0.25)	0.25 (0.15-0.35)	0.30 (0.20-0.45)
					20	0.20 (0.12-0.25)	0.30 (0.15-0.40)	0.35 (0.20-0.45)
	Carbon steel, alloy steel	HB180-350	GP2115 GA4225 GP4225 GA4230	160 (140-200)	05	0.08 (0.05-0.15)	0.10 (0.08-0.15)	0.12 (0.08-0.20)
					07 08	0.08 (0.05-0.15)	0.12 (0.08-0.18)	0.15 (0.10-0.25)
					10 12	0.15 (0.10-0.25)	0.20 (0.15-0.30)	0.25 (0.20-0.35)
					16	0.18 (0.10-0.25)	0.25 (0.15-0.35)	0.30 (0.20-0.45)
					20	0.20 (0.12-0.25)	0.30 (0.15-0.40)	0.35 (0.20-0.45)
	Pre harden steel	HRC35-45	GP2115 GA4225 GP4225 GA4230	120 (100-160)	05	0.08 (0.05-0.15)	0.10 (0.08-0.15)	0.12 (0.08-0.20)
					07 08	0.08 (0.05-0.15)	0.12 (0.08-0.18)	0.15 (0.10-0.25)
					10 12	0.15 (0.10-0.25)	0.20 (0.15-0.30)	0.25 (0.20-0.35)
					16	0.18 (0.10-0.25)	0.25 (0.15-0.35)	0.30 (0.20-0.45)
					20	0.20 (0.12-0.25)	0.30 (0.15-0.40)	0.35 (0.20-0.45)
M	Stainless (ferrite, martensite)	⩽ HB270	GM2140	140 (120-180)	05	0.08 (0.05-0.15)	0.10 (0.08-0.15)	0.12 (0.08-0.20)
					07 08	0.08 (0.05-0.15)	0.12 (0.08-0.18)	0.15 (0.10-0.25)
					10 12	0.15 (0.10-0.25)	0.20 (0.15-0.30)	0.25 (0.20-0.35)
					16	0.18 (0.10-0.25)	0.25 (0.15-0.35)	0.35 (0.20-0.45)
					20	0.20 (0.12-0.25)	0.30 (0.15-0.40)	0.35 (0.20-0.45)
	Stainless (Austenite, diphasic)	⩽ HB270	GM2140	120 (100-160)	05	0.08 (0.05-0.15)	0.10 (0.08-0.15)	0.12 (0.08-0.20)
					07 08	0.08 (0.05-0.15)	0.12 (0.08-0.18)	0.15 (0.10-0.25)
					10 12	0.15 (0.10-0.25)	0.20 (0.15-0.30)	0.25 (0.20-0.35)
					16	0.18 (0.10-0.25)	0.25 (0.15-0.35)	0.35 (0.20-0.45)
					20	0.20 (0.12-0.25)	0.30 (0.15-0.40)	0.35 (0.20-0.45)

Recommended Cutting Data

Workpiece		Hardness	Grade	Cutting speed	Screw Specification (IC)	Feed/edge（fz）		
						Light cutting (L)	Medium cutting (M)	Heavy cutting (H)
				Vc（m/min）		GL/BL	GM/MM/EM	GH/KH/T
K	Grey cast iron	⩽ HB280	GK2115 GK4125	180 (150-220)	05	0.08 (0.05-0.15)	0.15 (0.08-0.15)	0.12 (0.08-0.20)
					07 08	0.08 (0.05-0.15)	0.12 (0.08-0.18)	0.15 (0.10-0.25)
					10 12	0.15 (0.10-0.25)	0.20 (0.15-0.30)	0.25 (0.20-0.35)
					16	0.18 (0.10-0.25)	0.25 (0.15-0.35)	0.30 (0.20-0.45)
					20	0.20 (0.12-0.25)	0.30 (0.15-0.40)	0.35 (0.20-0.45)
	Nodular cast iron,vermicular graphite cast iron	⩽ HB350	GK2115 GK4125	120 (100-180)	05	0.08 (0.05-0.15)	0.15 (0.08-0.15)	0.12 (0.08-0.20)
					07 08	0.08 (0.05-0.15)	0.12 (0.08-0.18)	0.15 (0.10-0.25)
					10 12	0.15 (0.10-0.25)	0.20 (0.15-0.30)	0.25 (0.20-0.35)
					16	0.18 (0.10-0.25)	0.25 (0.15-0.35)	0.30 (0.20-0.45)
					20	0.20 (0.12-0.25)	0.30 (0.15-0.40)	0.35 (0.20-0.45)
H	Quenched steel	HRC48-55	GH4125 GH4115	80 (60-120)	08	0.08 (0.05-0.15)	0.10 (0.08-0.15)	0.12 (0.08-0.20)
					10 12	0.15 (0.10-0.25)	0.20 (0.15-0.30)	0.25 (0.20-0.35)
					16	0.18 (0.10-0.25)	0.22 (0.15-0.35)	0.28 (0.20-0.40)
					20	0.20 (0.15-0.30)	0.25 (0.15-0.35)	0.30 (0.20-0.40)

- RPM(min-1)=(1000*cutting speed)/(3.14*cutter diameter)
- Machine feed(mm/min)=feed per tooth * flute No.* RPM

RD/RP/RC recommend cutting feed and cutting depth

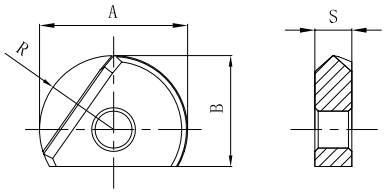
Screw Specification (IC)	Application	cutting depth（mm）							
		0.1	0.5	1	1.5	2	2.5	3	4
05	Medium cutting (M)	0.35 (0.22-0.63)	0.17 (0.08-0.26)	0.12 (0.06-0.21)	0.1 (0.05-0.17)	-	-	-	-
	Heavy cutting (H)	0.45 (0.29-0.95)	0.2 (0.12-0.38)	0.16 (0.09-0.28)	0.14 (0.07-0.25)	-	-	-	-
07 08	Medium cutting (M)	0.59 (0.23-0.90)	0.27 (0.10-0.41)	0.20 (0.08-0.30)	0.17 (0.06-0.26)	0.15 (0.03-0.23)	-	-	-
	Heavy cutting (H)	0.68 (0.32-1.13)	0.31 (0.14-0.52)	0.23 (0.11-0.38)	0.19 (0.09-0.32)	0.17 (0.08-0.29)	-	-	-
10	Light cutting (L)	0.75 (0.25-0.90)	0.34 (0.11-0.41)	0.25 (0.08-0.30)	0.21 (0.07-0.25)	0.19 (0.06-0.23)	0.17 (0.05-0.21)	-	-
	Medium cutting (M)	0.90 (0.25-1.26)	0.41 (0.11-0.57)	0.30 (0.08-0.42)	0.25 (0.07-0.35)	0.23 (0.06-0.31)	0.21 (0.05-0.28)	-	-
	Heavy cutting (H)	1.01 (0.35-1.51)	0.46 (0.16-0.69)	0.33 (0.12-0.50)	0.28 (0.10-0.42)	0.25 (0.09-0.38)	0.23 (0.08-0.35)	-	-
12	Light cutting (L)	0.83 (0.28-1.10)	0.38 (0.13-0.50)	0.27 (0.09-0.36)	0.23 (0.08-0.30)	0.20 (0.07-0.27)	0.18 (0.06-0.25)	0.17 (0.06-0.23)	-
	Medium cutting (M)	0.99 (0.28-1.38)	0.45 (0.13-0.63)	0.33 (0.09-0.45)	0.27 (0.08-0.38)	0.24 (0.07-0.34)	0.22 (0.06-0.31)	0.21 (0.06-0.29)	-
	Heavy cutting (H)	1.10 (0.39-1.65)	0.50 (0.18-0.75)	0.36 (0.13-0.54)	0.30 (0.11-0.45)	0.27 (0.09-0.40)	0.25 (0.08-0.37)	0.23 (0.08-0.35)	-
16	Light cutting (L)	1.14 (0.32-1.59)	0.52 (0.14-0.72)	0.37 (0.10-0.52)	0.31 (0.09-0.43)	0.27 (0.08-0.38)	0.25 (0.07-0.35)	0.23 (0.06-0.32)	0.21 (0.06-0.29)
	Medium cutting (M)	1.27 (0.32-1.90)	0.57 (0.14-0.86)	0.41 (0.10-0.62)	0.34 (0.09-0.51)	0.30 (0.08-0.45)	0.28 (0.07-0.41)	0.26 (0.06-0.38)	0.23 (0.06-0.35)
	Heavy cutting (H)	1.59 (0.44-2.54)	0.72 (0.20-1.15)	0.52 (0.14-0.83)	0.43 (0.12-0.69)	0.38 (0.11-0.60)	0.35 (0.10-0.54)	0.32 (0.09-0.51)	0.29 (0.08-0.46)

Remark: During round Insert application, in general, the ap should less than 25%IC. Otherwise, we suggest to us Kr=45 SNUE/SEET series insert.

Profile Milling

QTD

Ballnose Milling insert

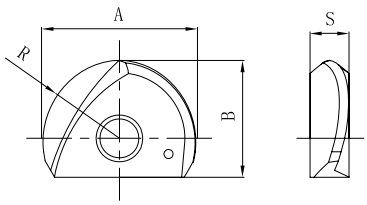


Ordering Code		Dimension(mm)				Coated									Uncoated	Cermet
		R	A	B	S	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	QTD1203	6	12	10	3	●	○				○			●	●		
	QTD1604	8	16	12	4	●	○				●			●	●		
	QTD2005	10	20	15	5	●	○				●			●	●		
	QTD2506	12.5	25	18.5	6	●	○				○			●	●		
	QTD3007	15	30	22.5	7	●	○				○			●	●		
	QTD3207	16	32	23.5	7	●	○				○			●	●		

● Standard stock ○ need reservation

QTD-S-T

Curve Flute Ballnose Milling Insert



Ordering Code		Dimension(mm)				Coated									Uncoated	Cermet
		R	A	B	S	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	QTD1203-S-T	6	12	10	3									●	○		
	QTD1604-S-T	8	16	12	4									●	○		
	QTD2005-S-T	10	20	15	5									●	○		
	QTD2506-S-T	12.5	25	18.5	6									●	○		
	QTD3007-S-T	15	30	22.5	7									●	○		
	QTD3207-S-T	16	32	23.5	7									●	○		

● Standard stock ○ need reservation

Profile Milling

MBA100

Straight shank

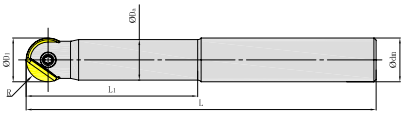


Fig1

Ordering Code	Dia-meter	Teeth	Dimension(mm)						Gauge Insert	Coolant	Shape	Stock
			ΦD1	Φdm	ΦDa	L	L1	R				
MBA100012R01P12QT12S	12	1	12	12	10.5	90	30	6	QTD1203	×	Fig1	●
MBA100012R01P12QT12	12	1	12	12	10.5	120	60	6	QTD1203	×	Fig1	●
MBA100012R01P12QT12L	12	1	12	12	10.5	150	90	6	QTD1203	x	Fig1	●
MBA100016R01P16QT16S	16	1	16	16	14.5	100	35	8	QTD1604	x	Fig1	●
MBA100016R01P16QT16	16	1	16	16	14.5	135	70	8	QTD1604	x	Fig1	●
MBA100016R01P16QT16L	16	1	16	16	14.5	170	100	8	QTD1604	x	Fig1	●
MBA100020R01P20QT20S	20	1	20	20	18.5	110	45	10	QTD2005	x	Fig1	●
MBA100020R01P20QT20	20	1	20	20	18.5	160	80	10	QTD2005	x	Fig1	●
MBA100020R01P20QT20L	20	1	20	20	18.5	210	135	10	QTD2005	x	Fig1	●
MBA100025R01P25QT25S	25	1	25	25	23	125	50	12.5	QTD2506	x	Fig1	●
MBA100025R01P25QT25	25	1	25	25	23	180	100	12.5	QTD2506	x	Fig1	●
MBA100025R01P25QT25L	25	1	25	25	23	235	150	12.5	QTD2506	x	Fig1	●
MBA100030R01P32QT30S	30/32	1	30/32	32	28.5	150	60	15/16	QTD3007 QTD3207	x	Fig1	●
MBA100030R01P32QT30	30/32	1	30/32	32	28.5	200	120	15/16	QTD3007 QTD3207	x	Fig1	●
MBA100030R01P32QT30L	30/32	1	30/32	32	28.5	270	180	15/16	QTD3007 QTD3207	x	Fig1	●

● Standard stock ○ need reservation

Profile Milling

MBA100

Cone Neck

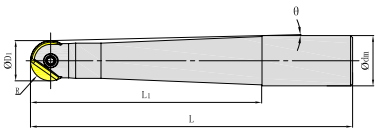


Fig2

Ordering Code	Dia-meter	Teeth	Dimension(mm)						Gauge Insert	Coolant	Shape	Stock
			ΦD1	Φdm	L	L1	R	Θ				
MBA100012R01P16TQT12L	12	1	12	16	145	85	6	1.5°	QTD1203	x	Fig2	●
MBA100016R01P20TQT16L	16	1	16	20	166	100	8	1°	QTD1604	x	Fig2	●
MBA100020R01P25TQT20L	20	1	20	25	191	115	10	1.5°	QTD2005	x	Fig2	●
MBA100025R01P32TQT25L	25	1	25	32	215	135	12.5	1.5°	QTD2506	x	Fig2	●
MBA100030R01P32TQT30L	30/32	1	30/32	32	240	160	15/16	0.5°	QTD3007 QTD3207	x	Fig2	●

● Standard stock ○ need reservation

Profile Milling

MBA100

Indexable type

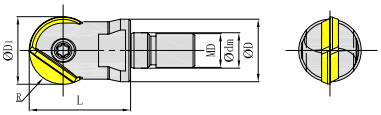
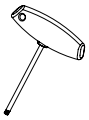


Fig3

Ordering Code	Dia-meter	Teeth	Dimension(mm)						Gauge Insert	Coolant	Shape	Stock
			ΦD1	ΦD	Φdm	L	R	MD				
MBA100012R01M06QT12	12	1	12	11.5	6.5	20	6	M6	QTD1203	x	Fig3	●
MBA100016R01M08QT16	16	1	16	15	8.5	23	8	M8	QTD1604	x	Fig3	●
MBA100020R01M10QT20	20	1	20	18.5	10.5	30	10	M10	QTD2005	x	Fig3	●
MBA100025R01M12QT25	25	1	25	24	12.5	35	12.5	M12	QTD2506	x	Fig3	●
MBA100030R01M16QT30	30/32	1	30/32	29	17	43	15/16	M16	QTD3007 QTD3207	x	Fig3	●

● Standard stock ○ need reservation

Spare Part Chart

Partname		Insert Screw	Insert Screw Wrench
Insert \ Shape			
QTD1203	Specification	SBM3.5X9.5	TT10T
	Order code	PSBM035095Q	PTT10TQ
QTD1604	Specification	SBM4.0X13.5	TT15T
	Order code	PSBM040135Q	PTT15TQ
QTD2005	Specification	SBM5.0X16.5	TT20T
	Order code	PSBM050165Q	PTT20TQ
QTD2506	Specification	SBM6.0X20	TT20T
	Order code	PSBM060200Q	PTT20TQ
QTD3007	Specification	SBM8.0X25	TT30T
	Order code	PSBM080250Q	PTT30TQ
QTD3207	Specification	SBM8.0X25	TT30T
	Order code	PSBM080250Q	PTT30TQ

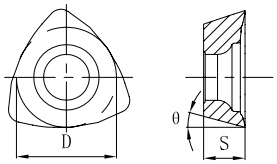
Recommended Cutting Data

Workpiece		Hardness	Grade	Cutting speed	Feed/edge（fz）						Biggest cutting depth ap (mm)	ae (mm)
					Diameter：ΦD（mm）							
				Vc（m/min）	12	16	20	25	30	32		
P	Soft Steel	⩽ HB180	GA4225 GA4230	400 (350-450)	0.3-0.6	0.3-0.6	0.5-0.8	0.5-0.8	0.7-1.0	0.7-1.0	0.3-0.6	D/40
	Carbon steel, alloy steel	HB180-350	GA4225 GA4230	350 (300-400)	0.3-0.6	0.3-0.6	0.5-0.8	0.5-0.8	0.7-1.0	0.7-1.0	0.3-0.6	D/40
	Pre harden steel	HRC35-45	GA4225 GA4230	350 (300-400)	0.3-0.6	0.3-0.6	0.5-0.8	0.5-0.8	0.7-1.0	0.7-1.0	0.3-0.6	D/40
K	Grey cast iron	⩽ HB280	GK4125 GH4125 GH4115	350 (300-400)	0.2-0.5	0.2-0.5	0.4-0.7	0.4-0.7	0.7-1.0	0.7-1.0	0.3-0.6	D/50
	Nodular cast iron, vermicular graphite cast iron	⩽ HB350	GK4125 GH4125 GH4115	450 (400-500)	0.1-0.4	0.1-0.4	0.3-0.6	0.3-0.6	0.5-0.8	0.5-0.8	0.2-0.5	D/40
H	Quenched steel	HRC48-55	GH4125 GH4115	150 (100-200)	0.1-0.4	0.1-0.4	0.2-0.5	0.2-0.5	0.2-0.5	0.2-0.5	0.1-0.3	D/50

High Feed Milling

UD/UP

3 Edges High Feed Milling



Ordering Code		Dimension(mm)			Coated										Uncoated	Cermet
		D	S	θ	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	UDET080308-MM	6.8	3.18	15	●	●	○	○	●	○	○	○				
	UDET12T312-MM	9.6	3.97	15	●	●	○	○	○	○	○	○				
	UPET170520-PM	13	5.56	11	●	●	●	●	●	●	●	○				
	UDMT080308T-MH	6.8	3.18	15	●	●	○	●	○	○	○	○				
	UDMT12T312T-MH	9.6	3.97	15	●	●	○	○	○	○	○	○				
	UDMW12T312T	9.6	3.97	15	●	●	○	○	○	○	○	○				

● Standard stock ○ need reservation

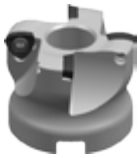
UD/UP Series Geometry

Medium Cutting for General Material		Rough Cutting for General Material	
			
MM	PM	MH	None
			
Bigger rake angle makes cutting edge more sharply	Chamfered cutting edge with rake angle,it is suitable for medium cutting	Smaller rake angle makes stong cutting edge	Flat insert design makes strongest cutting edge

High Feed Milling

MKA110

Arbor



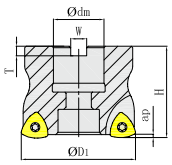


Fig1

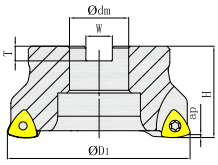


Fig2

Ordering Code	Dia-meter	Teeth	Dimension (mm)					Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD1	Φdm	H	W	T					
MKA110040R05A16UD08	40	5	40	16	40	8.4	5.6	1	UD**0803	x	Fig1	●
MKA110050R06A22UD08	50	6	50	22	40	10.4	6.3	1	UD**0803	x	Fig1	●
MKA110050R04A22UD12	50	4	50	22	40	10.4	6.3	1.5	UD**12T3	x	Fig1	●
MKA110063R05A22UD12	63	5	63	22	40	10.4	6.3	1.5	UD**12T3	x	Fig1	●
MKA110063R04A22UP17	63	4	63	22	40	10.4	6.3	2	UP**1705	x	Fig1	●
MKA110063R05A22UP17	63	5	50	22	40	10.4	6.3	2	UP**1705	√	Fig1	●
MKA110080R05A27UP17	80	5	80	27	50	12.4	7	2	UP**1705	x	Fig1	●
MKA110080R06A27UP17	80	6	80	27	50	12.4	7	2	UP**1705	x	Fig1	●
MKA110100R06B32UP17	100	6	100	32	50	14.4	8	2	UP**1705	x	Fig2	●

● Standard stock ○ need reservation

High Feed Milling

MKA110

Cylindrical straight shank

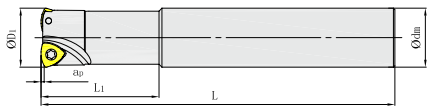


Fig3

Ordering Code	Dia-meter	Teeth	Dimension(mm)				Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD1	Φdm	L	L1					
MKA110020R02P20UD08S	20	2	20	20	120	40	1	UD**0803	x	Fig3	●
MKA110020R02P20UD08	20	2	20	20	160	50	1	UD**0803	x	Fig3	●
MKA110025R02P25UD08S	25	2	25	20	120	40	1	UD**0803	x	Fig3	●
MKA110025R02P25UD08	25	2	25	25	160	50	1	UD**0803	x	Fig3	●
MKA110025R03P25UD08	25	3	25	25	160	40	1	UD**0803	x	Fig3	●
MKA110035R05P32UD08	35	5	35	32	200	50	1	UD**0803	x	Fig3	●
MKA110025R02P25UD12	25	2	25	25	160	50	1.5	UD**12T3	x	Fig3	●
MKA110030R03P32UD12	30	3	30	32	200	50	1.5	UD**12T3	x	Fig3	●
MKA110032R03P32UD12	32	3	32	32	200	50	1.5	UD**12T3	x	Fig3	●
MKA110035R03P32UD12	35	3	35	32	200	50	1.5	UD**12T3	x	Fig3	●

● Standard stock ○ need reservation

High Feed Milling

MKA110

Replaceable Cutter

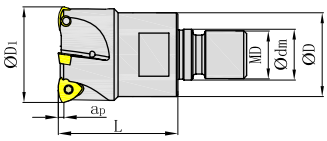
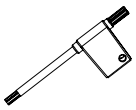
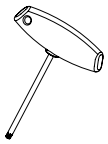


Fig4

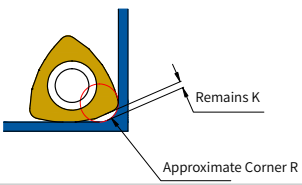
Order Code	Dia-meter	Teeth	Dimension(mm)					Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD1	ΦD	Φdm	L	MD					
MKA110020R02M10UD08	20	2	20	18	10.5	30	M10	1	UD**0803	√	Fig4	●
MKA110025R03M12UD08	25	3	25	23	12.5	35	M12	1	UD**0803	√	Fig4	●
MKA110032R03M16UD08	32	3	32	28	17	40	M16	1	UD**0803	√	Fig4	○
MKA110032R04M16UD08	32	4	32	28	17	40	M16	1	UD**0803	√	Fig4	●
MKA110035R05M16UD08	35	5	35	29	17	40	M16	1	UD**0803	√	Fig4	●
MKA110025R02M12UD12	25	2	25	23	12.5	35	M12	1.5	UD**12T3	√	Fig4	●
MKA110032R03M16UD12	32	3	32	28	17	40	M16	1.5	UD**12T3	√	Fig4	●
MKA110035R03M16UD12	35	3	35	29	17	40	M16	1.5	UD**12T3	√	Fig4	●

● Standard stock ○ need reservation

Spare Part Chart

Partname		Insert Screw	Insert Screw Wrench	
Insert \ Shape				
UD*T0803	Specification	SI60M2.5X6.3-03510	TT08P	--
	Order code	PSI60M025063-03510B	PTT08PB	--
UD*T12T3	Specification	SI60M4X11-05609	TT15P	TT15T
	Order code	PSI60M040110-05609B	PTT15PB	PTT15TB
UPET1705	Specification	SI60M5X10.8-07214	TT20P	TT20T
	Order code	PSI60M050108-07214B	PTT20PQ	PTT20TB

Parameters for Programing Calculations

Insert	Approximate Corner R(mm)	Remains K(mm)	
UD**0803	1.8	0.58	
UD**12T3	2.8	0.86	
UP**1705	3.5	1.02	

Recommended Cutting Data

Workpiece		Hardness	Grade	Cutting speed	Feed/edge (fz)	
				Vc (m/min)	Medium cutting (M)	Heavy cutting (H)
P	Mild Steel	⩽ HB200	GA4225 GP4225 GA4230	180 (150-200)	1.2 (0.8-1.5)	1.5 (1.0-2.0)
	Carbon steel, alloy steel	⩽ HRC35	GA4225 GA4230 GP2115	150 (120-180)	1.2 (0.8-1.5)	1.5 (1.0-2.0)
	Carbon Steel ,Alloy Steel	HRC35-45	GA4230	120 (90-140)	1.0 (0.6-1.2)	1.2 (0.8-1.5)
M	Stainless (ferrite, martensite)	⩽ HRC35	GM2140 GA4230	120 (90-140)	0.8 (0.6-1.0)	1.0 (0.8-1.2)
K	Cast Iron ,Nodular Cast Iron	⩽ HB350	GK2115 GK4125	180 (150-200)	1.2 (0.8-1.5)	1.5 (1.0-2.0)
S	Heat resistance alloy, Ti alloy	⩽ HRC35	GM2140 GA4230 GS4130	40 (30-60)	0.3 (0.15-0.4)	0.4 (0.2-0.6)

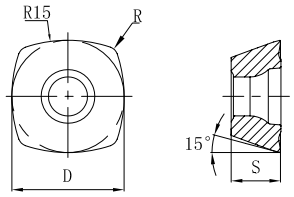
The Relationship of Recommended Feed and Depth of UD/UP inserts

Insert Size	ap (mm)					
	0.5	1	1.5	2	2.5	3
08	0.8 (0.6-1.2)	0.5 (0.4-0.8)	-	-	-	-
12	1.5 (1.0-2.0)	1.2 (0.8-1.5)	0.8 (0.6-1.2)	-	-	-
17	2 (1.8-2.5)	1.5 (1.0-2.0)	1.2 (0.8-1.5)	0.8 (0.6-1.2)	-	-

High Feed Milling

SDMT

4 Edges High Feed Milling



Ordering Code		Dimension（mm）			Coated										Uncoated	Cermet
		D	S	R	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	SDMT120512-GM	12.7	5.56	1.2	●	●	○	○	●	●	●	●				
	SDMT150512-GM	15.875	5.56	1.2	●	●	○	○	○	○		○				
	SDMT120512-GH	12.7	5.56	1.2	●	●	○	○	○	●		○				
	SDMT150512-GH	15.875	5.56	1.2	●	●	○	○	○	○		○				

● Standard stock ○ need reservation

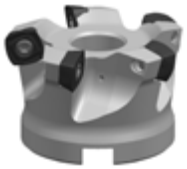
SDMT Series Geometry

Medium Cutting for General Material	Rough Cutting for General Material
	
GM	GH
	
Chamfered cutting edge with rake angle,it is suitable for medium cutting	Cutting force with special rake angle,it is suitable for heavy cutting

High Feed Milling

MKB113

Arbor



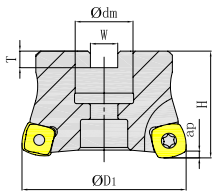


Fig1

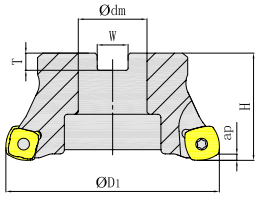


Fig2

Ordering Code	Dia-meter	Teeth	Dimension(mm)					Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD1	Φdm	H	W	T					
MKB113050R04A22SD12	50	4	50	22	40	10.4	6.3	2	SDMT1205	×	Fig1	●
MKB113052R05A22SD12	52	5	52	22	40	10.4	6.3	2	SDMT1205	×	Fig1	○
MKB113063R04A22SD12	63	4	63	22	40	10.4	6.3	2	SDMT1205	×	Fig1	●
MKB113063R05A22SD12	63	5	63	22	40	10.4	6.3	2	SDMT1205	√	Fig1	●
MKB113063R04A22SD15	63	4	63	22	40	10.4	6.3	3	SDMT1505	×	Fig1	●
MKB113080R06A27SD12	80	6	80	27	50	12.4	7	2	SDMT1205	√	Fig1	●
MKB113080R05A27SD15	80	5	80	27	50	12.4	7	3	SDMT1505	×	Fig1	●
MKB113100R06A32SD15	100	6	100	32	50	14.4	8	3	SDMT1505	√	Fig1	○
MKB113100R06B32SD12	100	6	100	32	50	14.4	8	2	SDMT1205	×	Fig2	●
MKB113100R07B32SD12	100	7	100	32	50	14.4	8	2	SDMT1205	×	Fig2	●
MKB113100R06B32SD15	100	6	100	32	50	14.4	8	3	SDMT1505	×	Fig2	●
MKB113125R07B40SD15	125	7	125	40	63	16.4	9	3	SDMT1505	×	Fig2	●

● Standard stock ○ need reservation

High Feed Milling

MKB113

Cylindrical straight shank

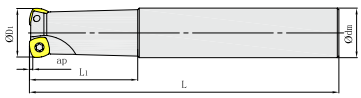


Fig3

Ordering Code	Dia-meter	Teeth	Dimension(mm)				Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD1	Φdm	L	L1					
MKB113032R02P32SD12S	32	2	32	32	160	70	2	SDMT1205	×	Fig3	●
MKB113032R02P32SD12	32	2	32	32	200	70	2	SDMT1205	√	Fig3	●
MKB113035R03P32SD12	35	3	35	32	200	70	2	SDMT1205	×	Fig3	●
MKB113040R03P32SD12	40	3	40	32	200	70	2	SDMT1205	√	Fig3	●

● Standard stock ○ need reservation

High Feed Milling

MKB113

Replaceable Cutter

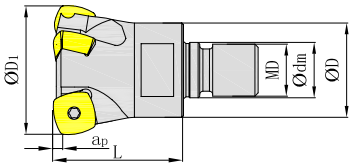
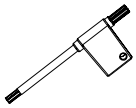
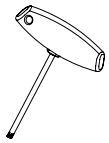


Fig4

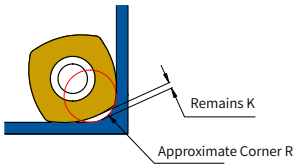
Ordering Code	Dia-meter	Teeth	Dimension(mm)					Apmax	Gauge Insert	Coolant	Shape	Stock
			ΦD1	ΦD	Φdm	L	MD					
MKB113032R02M16SD12	32	2	32	28	17	40	M16	2	SDMT1205	√	Fig4	●
MKB113032R03M16SD12	32	3	32	28	17	40	M16	2	SDMT1205	√	Fig4	○
MKB113035R03M16SD12	35	3	35	29	17	40	M16	2	SDMT1205	√	Fig4	●
MKB113040R03M16SD12	40	3	40	29	17	43	M16	2	SDMT1205	√	Fig4	●

● Standard stock ○ need reservation

Spare Part Chart

Partname		Insert Screw	Insert Screw Wrench	
Insert \ Shape				
SDMT120512	Specification	SI60M4X11.1-05520I	TI15P	TI15T
	Order code	PSI60M040111-05520IQ	PTI15PQ	PTI15TQ
SDMT150512	Specification	SI60M5X10.8-07222I	TI20P	TI20T
	Order code	PSI60M050108-07222IQ	PTI20PQ	PTI20TQ

Parameters for Programing Calculations

Insert	Approximate Corner R(mm)	Remains K(mm)	
SD**1205	4.0	0.85	
SD**1505	5.0	1.05	

Recommended Cutting Data

Workpiece		Hardness	Grade	Cutting speed	Feed/edge（fz）	
				Vc（m/min）	Medium cutting (M)	Heavy cutting (H)
P	Mild Steel	⩽ HB200	GA4225 GP4225 GA4230	180 (150-200)	1.2 (0.8-1.5)	1.5 (1.0-2.0)
	Carbon steel, alloy steel	⩽ HRC35	GA4225 GA4230 GP2115	150 (120-180)	1.2 (0.8-1.5)	1.5 (1.0-2.0)
	Carbon steel, alloy steel	HRC35-45	GA4230	120 (90-140)	1.0 (0.6-1.2)	1.2 (0.8-1.5)
M	Stainless（ferrite, martensite）	⩽ HRC35	GM2140 GA4230	120 (90-140)	0.8 (0.6-1.0)	1.0 (0.8-1.2)
K	Cast Iron ,Nodular Cast Iron	⩽ HB350	GK2115 GK4125	180 (150-200)	1.2 (0.8-1.5)	1.5 (1.0-2.0)
S	Heat resistance alloy, Ti alloy	⩽ HRC35	GM2140 GS4130 GA4230	40 (30-60)	0.3 (0.15-0.4)	0.4 (0.2-0.6)

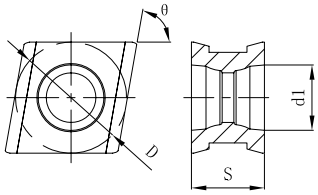
The Relationship of Recommended Feed and Depth of SDMT inserts

Insert	ap（mm）					
	0.5	1	1.5	2	2.5	3
12	1.8 (1.5-2.0)	1.5 (1.0-1.8)	1.0 (0.6-1.5)	0.8 (0.4-1.0)	-	-
15	2.0 (1.8-3.0)	1.8 (1.5-2.0)	1.5 (1.0-1.8)	1.0 (0.6-1.5)	0.8 (0.4-1.0)	0.6 (0.4-0.8)

Side and Face Milling

CNEU

Medium Slot Width Side and Face Milling Inserts



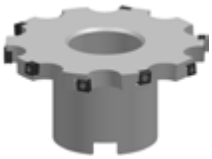
Ordering Code		Dimension(mm)				Coated										Uncoated	Cermet
		D	θ	S	d_1	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	CNEU070508-PM	7.6	80	5	3.4	○	○	○		○	●						
	CNEU070508-KM	7.6	80	5	3.4	○	●	○		○	●	○					

● Standard stock ○ need reservation

Side and Face Milling

MSA(110~113)

Arbor



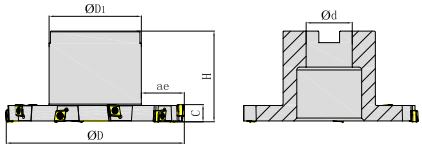


Fig1

Ordering Code	Dia-meter	Teeth	Dimension(mm)						Gauge Insert	Coolant	Shape	Stock
			ΦD	C	Φd	ae	H	$ΦD_1$				
MSA110080R06B27CN07	80	6	80	10	27	14	50	48	CNEU0705	x	Fig1	●
MSA110100R08B32CN07	100	8	100	10	32	19	50	58	CNEU0705	x	Fig1	●
MSA110125R10B32CN07	125	10	125	10	32	29.5	63	64	CNEU0705	x	Fig1	●
MSA110160R12B40CN07	160	12	160	10	40	43	63	70	CNEU0705	x	Fig1	●
MSA111080R06B27CN07	80	6	80	11	27	14	50	48	CNEU0705	x	Fig1	○
MSA111100R08B32CN07	100	8	100	11	32	19	50	58	CNEU0705	x	Fig1	○
MSA111125R10B32CN07	125	10	125	11	32	29.5	63	64	CNEU0705	x	Fig1	●
MSA111160R12B40CN07	160	12	160	11	40	43	63	70	CNEU0705	x	Fig1	○
MSA112080R06B27CN07	80	6	80	12	27	14	50	48	CNEU0705	x	Fig1	●
MSA112100R08B32CN07	100	8	100	12	32	19	50	58	CNEU0705	x	Fig1	○
MSA112125R10B32CN07	125	10	125	12	32	29.5	63	64	CNEU0705	x	Fig1	●
MSA112160R12B40CN07	160	12	160	12	40	43	63	70	CNEU0705	x	Fig1	●
MSA113080R06B27CN07	80	6	80	13	27	14	50	48	CNEU0705	x	Fig1	●
MSA113100R08B32CN07	100	8	100	13	32	19	50	58	CNEU0705	x	Fig1	●
MSA113125R10B32CN07	125	10	125	13	32	29.5	63	64	CNEU0705	x	Fig1	●
MSA113160R12B40CN07	160	12	160	13	40	43	63	70	CNEU0705	x	Fig1	●

● Standard stock ○ need reservation

Side and Face Milling

MSA(110~113)

Shell

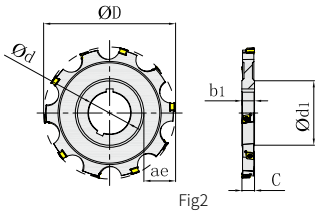
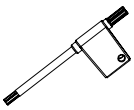


Fig2

Ordering Code	Dia-meter	Teeth	Dimension(mm)						Gauge Insert	Coolant	Shape	Stock
			ΦD	C	Φd	ae	b_1	$Φd_1$				
MSA110080R06K27CN07	80	6	80	10	27	19	10	40	CNEU0705	x	Fig2	○
MSA110100R08K27CN07	100	8	100	10	27	26	10	46	CNEU0705	x	Fig2	●
MSA110125R10K40CN07	125	10	125	10	40	34	10	55	CNEU0705	x	Fig2	●
MSA110160R12K40CN07	160	12	160	10	40	51	10	55	CNEU0705	x	Fig2	○
MSA111080R06K27CN07	80	6	80	11	27	19	11	40	CNEU0705	x	Fig2	○
MSA111100R08K27CN07	100	8	100	11	27	26	11	46	CNEU0705	x	Fig2	○
MSA111125R10K40CN07	125	10	125	11	40	34	11	55	CNEU0705	x	Fig2	○
MSA111160R12K40CN07	160	12	160	11	40	51	11	55	CNEU0705	x	Fig2	●
MSA112080R06K27CN07	80	6	80	12	27	19	12	40	CNEU0705	x	Fig2	○
MSA112100R08K27CN07	100	8	100	12	27	26	12	46	CNEU0705	x	Fig2	●
MSA112125R10K40CN07	125	10	125	12	40	34	12	55	CNEU0705	x	Fig2	●
MSA112160R12K40CN07	160	12	160	12	40	51	12	55	CNEU0705	x	Fig2	○
MSA113080R06K27CN07	80	6	80	13	27	19	13	40	CNEU0705	x	Fig2	○
MSA113100R08K27CN07	100	8	100	13	27	26	13	46	CNEU0705	x	Fig2	○
MSA113125R10K40CN07	125	10	125	13	40	34	13	55	CNEU0705	x	Fig2	●
MSA113160R12K40CN07	160	12	160	13	40	51	13	55	CNEU0705	x	Fig2	●

● Standard stock ○ need reservation

Spare Part Chart

Partname		Insert Screw	Insert Screw Wrench
Insert \ Shape			
CN*U0705	Specification	SI60M3X9-04205	TT09P
	Order code	PSI60M030090-04205S	PTT09PQ

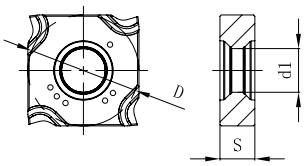
Recommended Cutting Data

Workpiece		Hardness	Grade	Cutting speed	Feed/edge（fz）
				Vc（m/min）	Medium cutting (M)
P	Mild Steel	⩽ HB200	GA4225 GA4230 GP4225	180 (200-220)	0.1 (0.05-0.15)
P	Carbon steel, alloy steel	⩽ HRC35	GA4225 GA4230 GP4225	160 (140-180)	0.08 (0.05-0.12)
P	Carbon steel, alloy steel	HRC35-45	GA4225 GA4230 GP4225	140 (120-160)	0.08 (0.05-0.12)
M	Stainless（ferrite, martensite）	⩽ HRC35	GA4230 GM2140	120 (90-140)	0.06 (0.08-0.10)
K	Cast Iron ,Nodular Cast Iron	⩽ HB350	GK4125 GK2115	200 (180-220)	0.1 (0.02-0.15)

Side and Face Milling

SNEX

Narrow Slot Width Side and Face Milling Inserts



Ordering Code		Dimension(mm)			Coated										Uncoated	Cermet
		D	S	d1	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	SNEX1202-GM	12.7	2.3	5.2	○	●	○			○						
	SNEX1203-GM	12.7	3	5.2	○	●	○			○						
	SNEX12T3-GM	12.7	3.5	5	○	●	○			○						
	SNEX1204-GM	12.7	4	5	○	●	○			●						
	SNEX12T4-GM	12.7	4.5	5	○	●	○			●						

● Standard stock ○ need reservation

Side and Face Milling

MSA(104~108)

Arbor

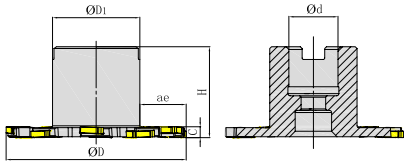
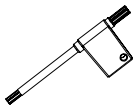


Fig1

Ordering Code	Dia-meter	Teeth	Dimension(mm)						Gauge Insert	Coolant	Shape	Stock
			ΦD	C	Φd	ae	H	ΦD1				
MSA104100R10A27SN12	100	10	100	4	27	23	50	48	SNEX1202	x	Fig1	●
MSA105100R10A27SN12	100	10	100	5	27	23	50	48	SNEX1203	x	Fig1	●
MSA106100R10A27SN12	100	10	100	6	27	23	50	48	SNEX12T3	x	Fig1	●
MSA107100R10A27SN12	100	10	100	7	27	23	50	48	SNEX1204	x	Fig1	○
MSA108100R10A27SN12	100	10	100	8	27	23	50	48	SNEX12T4	x	Fig1	●

● Standard stock ○ need reservation

Spare Part Chart

Partname		Insert Screw	Insert Screw Wrench
Insert / Shape			
SNEX1202	Specification	SI90M4X3.2-06003I	TI08P
	Order code	PSI90M040032-06003IQ	PTI08PQ
SNEX1203	Specification	SI90M4X4.2-06003I	TI08P
	Order code	PSI90M040042-06003IQ	PTI08PQ
SNEX12T3	Specification	SI90M4X5.1-06003I	TI08P
	Order code	PSI90M040051-06003IQ	PTI08PQ
SNEX1204	Specification	SI90M4X6.1-06003I	TI08P
	Order code	PSI90M040061-06003IQ	PTI08PQ
SNEX12T4	Specification	SI90M4X7.1-06003I	TI08P
	Order code	PSI90M040071-06003IQ	PTI08PQ

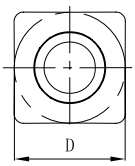
Recommended Cutting Data

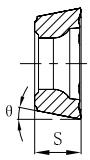
Workpiece		Hardness	Grade	Cutting speed	Feed/edge(fz)
				Vc（m/min）	Medium cutting（M）
P	Mild Steel	⩽ HB200	GA4225 GA4230 GP4225	180 (100-250)	0.1 (0.08-0.25)
	Carbon steel, alloy steel	⩽ HRC35	GA4225 GA4230 GP4225	150 (80-250)	0.1 (0.08-0.25)
	Carbon steel, alloy steel	HRC35-45	GA4225 GA4230 GP4225	120 (80-250)	0.1 (0.08-0.25)
M	Stainless（ferrite, martensite)	⩽ HRC35	GA4230	120 (80-250)	0.1 (0.05-0.15)
K	Cast Iron ,Nodular Cast Iron	⩽ HB350	GK4125	140 (80-250)	0.1 (0.05-0.15)

Chamfer Milling

SPMT

Chamfer Milling Inserts





Ordering Code		Dimension（mm）			Coated										Uncoated	Cermet
		D	S	θ	GA4225	GA4230	GP4225	GP2115	GM2140	GK4125	GK2115	GS4130	GH4115	GH4125	GN9125	GP01TM
	SPMT09T308-CM	9.53	3.97	11	●	●	○	○	○	●		○				
	SPMT120408-CM	12.7	4.76	11	●	●	○	○	○	●						

● Standard stock ○ need reservation

Chamfer Milling

MCA130

Side clamp

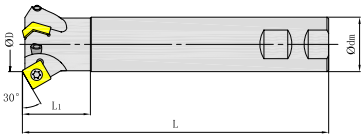


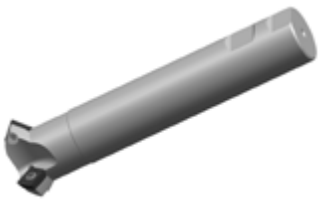
Fig1

Ordering Code	Dia-meter	Teeth	Dimension(mm)					Ap	Gauge Insert	Coolant	Shape	Stock
			ΦD	Φdm	CH	L	L_1					
MCA130025R02W25SP09	25	2	25	25	30	120	40	3	SPMT09T308-CM	x	Fig1	●
MCA130032R03W32SP12	32	3	32	32	30	180	40	4.5	SPMT120408-CM	x	Fig1	●

● Standard stock ○ need reservation

MCA145

Side clamp



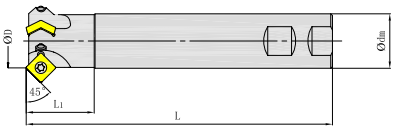


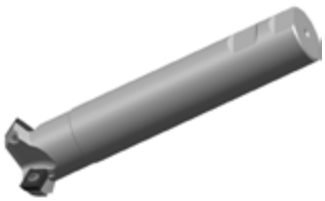
Fig2

Ordering Code	Dia-meter	Teeth	Dimension(mm)					Ap	Gauge Insert	Coolant	Shape	Stock
			ΦD	Φdm	CH	L	L_1					
MCA145025R02W25SP09	25	2	25	25	45	120	40	5	SPMT09T308-CM	x	Fig2	●
MCA145032R03W32SP12	32	3	32	32	45	180	40	7	SPMT120408-CM	x	Fig2	●

● Standard stock ○ need reservation

MCA160

Side clamp



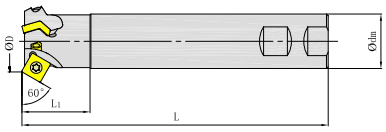
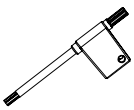


Fig3

Ordering Code	Dia	Teeth	Dimension(mm)					Ap	Gauge Insert	Coolant	Shape	Stock
			ΦD	Φdm	CH	L	L_1					
MCA160025R02W25SP09	25	2	25	25	60	120	40	6	SPMT09T308-CM	x	Fig3	●
MCA160036R03W32SP12	36	3	36	32	60	180	40	8	SPMT120408-CM	x	Fig3	●

● Standard stock ○ need reservation

Spare Part Chart

Partname		Insert Screw	Insert Screw Wrench
Insert / Shape			
SPMT09T3	Specification	SI60M4X8.9-05313	TT20P
	Order code	PSI60M040089-05313S	PTT20PQ
SPMT1204	Specification	SI60M5X10.8-07209	TT20P
	Order code	PSI60M050108-07209S	PTT20PQ

Recommended Cutting Data

Workpiece		Hardness	Grade	Cutting speed Vc（m/min）	Feed/edge（fz） Medium cutting（M）
P	Mild Steel	⩽ HB200	GA4225 GA4230	180 (150-200)	0.25 (0.1-0.4)
P	Carbon steel, alloy steel	⩽ HRC35	GA4225 GA4230	150 (120-180)	0.3 (0.1-0.4)
P	Carbon steel, alloy steel	HRC35-45	GA4225 GA4230	120 (80-150)	0.3 (0.1-0.4)
M	Stainless（ferrite, martensite）	⩽ HRC35	GM2140	120 (80-160)	0.3 (0.1-0.4)
K	Cast Iron ,Nodular Cast Iron	⩽ HB350	GK4125	130 (90-160)	0.3 (0.1-0.4)

B

SOLID CARBIDE ENDMILLS

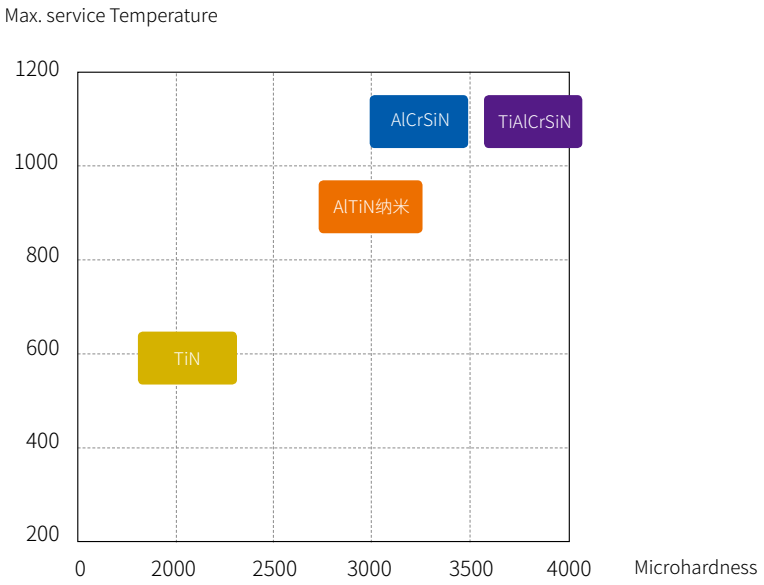
GESAC Coating

Coating Characteristic

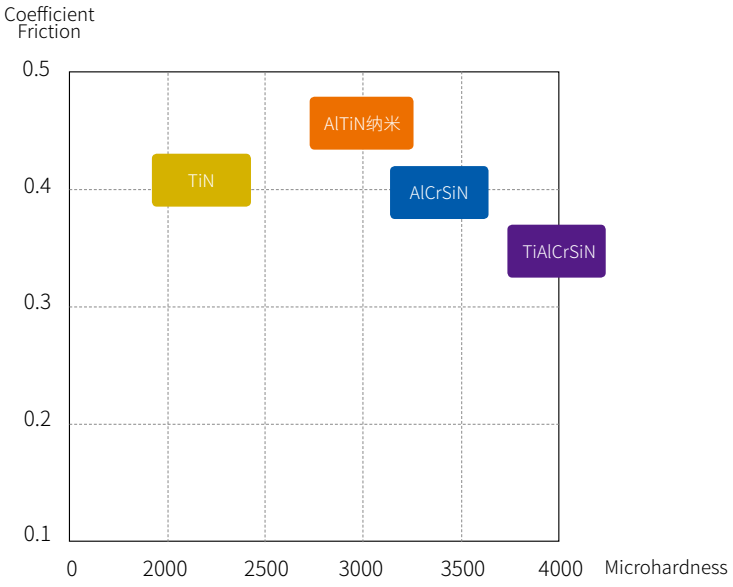
Coatings	Microhardness (HV0.05)	Coefficient Friction	Max. service Temperature (°C)	Characteristic and Application
AlCrN	3200	0.45	1100	High oxidation resistance, extremely good of high temperature abrasion resistance, suitable for ordinary steel, low hardness of die steel or titanium alloy dry milling.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

Position of Main PVD Nano-structure Coating

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



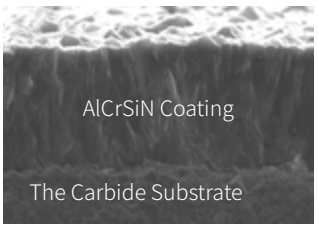
Microhardness and Max. Service Temperature



Microhardness and Coefficient of Friction

Universal High Performance Coating AlCrSiN

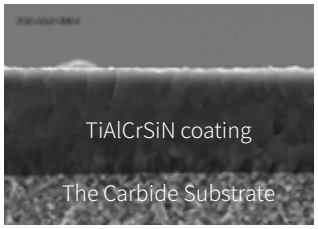
● Productivity increase due to significantly higher cutting speed and feed for application in a wide range of materials.
Significantly enhance productivity.
● Particular design of structure brings good balance between toughness, thermo-shock stability and residual stress.



SEM Photograph of Coating

High Hardness Coating TiAlCrSiN

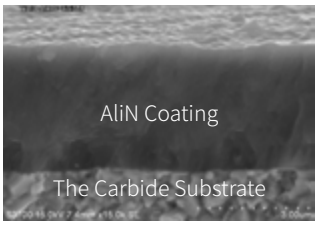
● Micro hardness up to 4000HV, with good wear resistance.
● Special transition layer design to ensure the high bonding strength between high hardness coating and substrate, adhesion of up to 100N.
● Nano composite coating design, have super strong oxidation resistance, oxidation starts at temperatures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



SEM Photograph of Coating

Nano Coating AlTiN

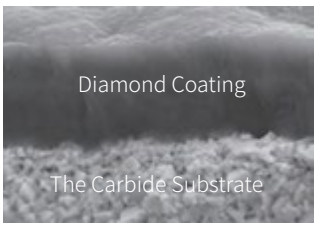
● High aluminum content provides excellent hot hardness and oxidation resistance.
● Special method optimizes the structure of coating, significantly improve stability, reducing the number of surface droplet.



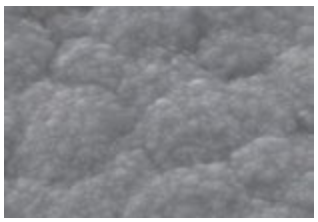
SEM Photograph of Coating

Ultra-Fine Grain Diamond Coating

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

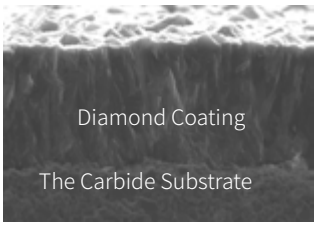


SEM Photograph of Coating

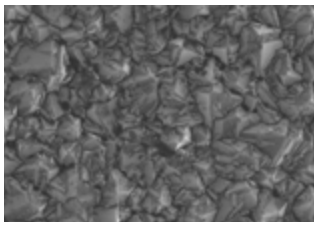

Surface Morphology

Normal diamond coating

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



SEM Photograph of Coating


Surface Morphology

Guidelines to Icons

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

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

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

Solid Carbide Endmills Identification System

UP210 -

①

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

S	S	2-	060	09
②	③	④	⑤	⑥

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

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

④No. of Flutes
2
3
4
6

⑤Diameter	
0.6mm	006
6mm	060
10mm	100

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

Solid Carbide Endmills Identification System

SPM200 -

①

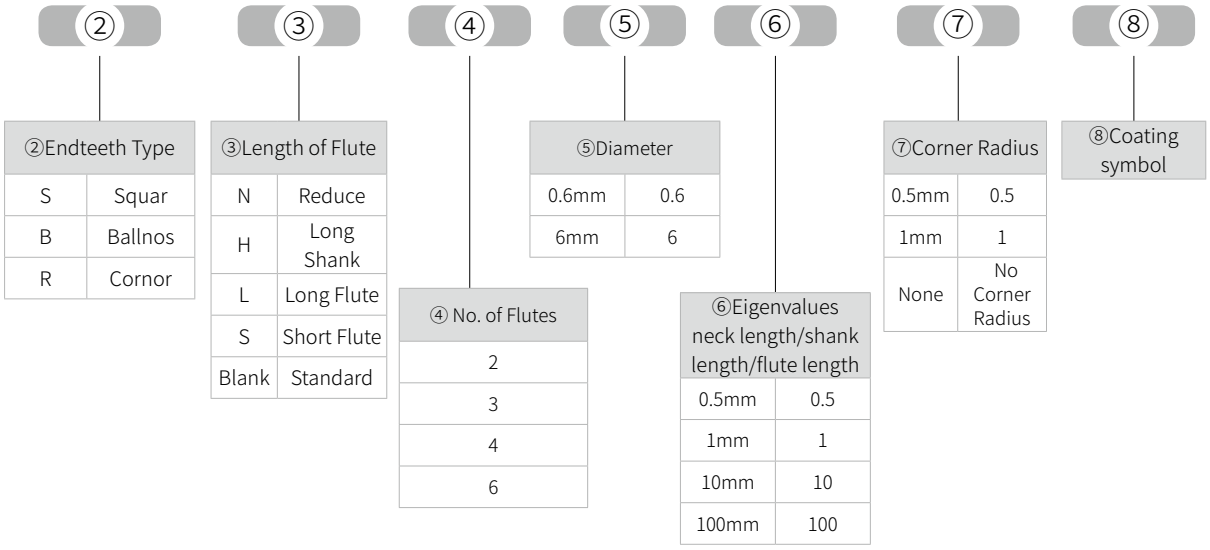
Workpiece	①Code of Series	Series Description
Steel, Cast Iron, Copper Alloy ,High Hardened Material	SPM200	Suitable for micro diameter of deep machining（≤55HRC）
Copper Alloy,Aluminium Alloy	SAM200	NEW Suitable for micro diameter of copper alloy
High Hardened Material	SH260-H	NEW Suitable for General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

SG200-M -

①

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

R N 2-1-4-0.1-V



②Endteeth Type	
S	Squar
B	Ballnos
R	Cornor

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

④ No. of Flutes
2
3
4
6

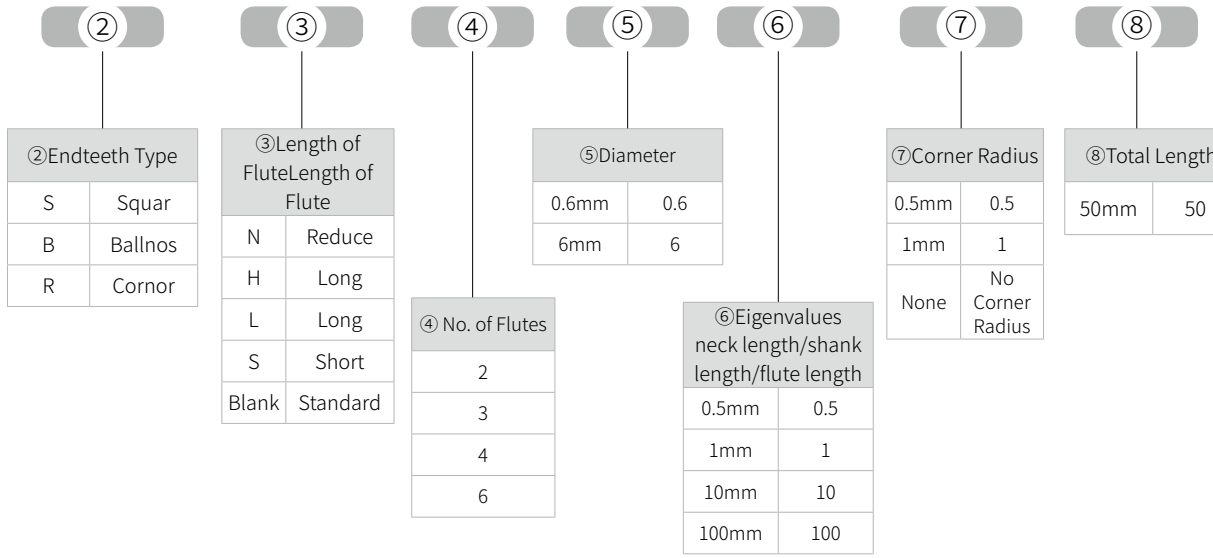
⑤Diameter	
0.6mm	0.6
6mm	6

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

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

⑧Coating symbol

R N 4-1-4-0.1-50



②Endteeth Type	
S	Squar
B	Ballnos
R	Cornor

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

④ No. of Flutes
2
3
4
6

⑤Diameter	
0.6mm	0.6
6mm	6

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

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

⑧Total Length	
50mm	50

Application Summary Of Solid Carbide Endmills

ISO Material Group	MC GESAC		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		UPR100 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		UPR100 UPN210 UPR210 NEW UPR300 NEW	SP210			SPM200
	3	High-alloy Cast Iron (35-45HRC)							
N	1 2	rought Aluminium Alloys/ Cast Aluminium Alloys (Si≤12%)	UA100	UA160		SA210 NEW	SA310	SAM200 NEW	SPM200
	3	Cast Aluminium Alloys（Si >12%)							
	4	Copper Alloys（<200HB)	UA100	UA160				SAM200 NEW	
	5	Graphite、Composite Material	SD200				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(≤48HRC).
- High performance AlCr series coating with high temperature resistance and high wear resistance.
- Adapt to oil mist, water, oil, air cooling and other cooling conditions.

SP210 Endmills for High Efficiency Efficient Machining

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

UPR100 Endmills for Roughness application

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

UPN210 Endmills for Rough Application

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

Series Introduction

UPR210 Waveform Endmill

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

UPR 300 Waveform Endmills

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

US200 Endmills for General Machining of Stainless Steel

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

US300 Endmill for General Machining of Stainless Steel

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

Series Introduction

▲ SS200 Endmill for High Efficiency Milling of Stainless Steel

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

▼ UA100 Endmills for General Machining of Aluminum Alloy

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

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

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

Series Introduction

SA100 Endmill for High Efficiency Milling of Aluminum Alloy

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

SA210 high efficiency Aluminum Endmill

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

SA300 Endmills for High efficient Machining of Aerospace Aluminium Alloys

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

Series Introduction

SG 200 Endmills for Machining of Graphite

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

SG200-M Endmill for Graphite Mold

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

SD200 High performance Endmill for composite material

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

Series Introduction

SN200 Endmills for High Efficient Machining of Heat Resistant Alloys

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

ST210 Endmills for High Performance Machining of Titanium Alloys

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

SH260-H Endmills General-Purpose for Hardened Steels

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

Series Introduction

SH300-H Endmills Special for Hardened Steels

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

FH200-H Endmills Special for Hardened Steels with High Feed

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

SAM 200 Endmills of Micro Diameter for Deep Machining

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

SPM200 Endmills of Micro Diameter for Deep Machining

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

Endmill Catalog（by series）

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

◎ most suitable ○ suitable

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

◎ most suitable ○ suitable

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

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

◎ most suitable ○ suitable

	Cutting Parameters Page											
	P		M	K	N			S		H		
	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
Stainless Steel	**US300**							
	4	Square	TiAlN	4Flute, Stub Length 	US300-SS4	D1 ~ D4	264	472
	4	Square	TiAlN	4Flute, Standard Length 	US300-S4	D1 ~ D12	265	472
	SS200							
	4	Chamfer	AlCrSiN	4 Flute, Stub Length，Variable Helix with Chamfer 	SS200-CS4	D2 ~ D12	266	472
	4	Chamfer	AlCrSiN	4 Flute, Variable Helix with Chamfer 	SS200-C4	D2 ~ D12	267	473
Aluminium Alloys	**UA100**							
	2	Square		2 Flute, Standard Length 	UA100-S2	D1 ~ D12	268	473
	2	Square		2Flute, with Long Flute Length 	UA100-SL2	D2 ~ D12	270	473
	2	Square		2Flute, with Long Shank Length 	UA100-SH2	D2 ~ D12	271	473
	3	Square		3Flute, Standard Length 	UA100-S3	D2 ~ D20	272	474
	3	Square		3Flute, with Long Flute Length 	UA100-SL3	D2 ~ D20	274	474
	3	Square		3Flute, with Long Shank Length 	UA100-SH3	D2 ~ D20	275	474
	2	Corner-R		2Flute, Corner Radius 	UA100-R2	D1 ~ D20	276	473
	2	Corner-R		2Flute Corner Radius, with Long Shank Length 	UA100-RH2	D6 ~ D20	279	473
	3	Corner-R		3Flute, Corner Radius 	UA100-R3	D2 ~ D20	281	474
	3	Corner-R		3Flute Corner Radius, with Long Shank Length 	UA100-RH3	D6 ~ D20	284	474
	2	Ballnose		2 Flute, Ballnose 	UA100-B2	D1 ~ D20	286	475

◎ most suitable ○ suitable

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

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

◎ most suitable ○ suitable

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

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

◎ most suitable ○ suitable

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

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

◎ most suitable ○ suitable

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

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

◎ most suitable ○ suitable

	Cutting Parameters Page											
	P		M	K		N		S		H		
	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	Square	TiAlCrSiN	2 Flute, Standard Length	SH300-S2-H	D1 ～ D12	356	492
	2	Square	TiAlCrSiN	2 Flute, with Reduced Neck Diameter	SH300-SN2-H	D1 ～ D6	357	492
	4	Square	TiAlCrSiN	4 Flute, Stub Length	SH300-SS4-H	D1～D16	358	492
	4	Square	TiAlCrSiN	4 Flute, Standard Length	SH300-S4-H	D1～D20	360	492
	4	Square	TiAlCrSiN	4 Flute, with Long Shank Length	SH300-SH4-H	D1～D20	362	492
	4	Square	TiAlCrSiN	4 Flute, Long Flute Length	SH300-SL4-H	D1 ～ D20	364	492
	4	Square	TiAlCrSiN	4 Flute, with Reduced Neck	SH300-SN4-H	D1 ～ D20	366	492
	6	Square	TiAlCrSiN	6 Flute, Standard Length	SH300-S6-H	D6～D20	370	493
	6	Square	TiAlCrSiN	6 Flute, Long Shank Length	SH300-SH6-H	D6～D20	371	493
	6	Square	TiAlCrSiN	6 Flute, Long Flute Length	SH300-SL6-H	D6～D20	372	493
	2	Corner-R	TiAlCrSiN	2 Flute, Corner Radius	SH300-R2-H	D1～D12	373	492
	2	Corner-R	TiAlCrSiN	2 Flute Corner Radius, with Long Shank Length	SH300-RN2-H	D1～D6	375	492
	4	Corner-R	TiAlCrSiN	4 Flute, Corner Radius	SH300-R4-H	D1～D20	376	492
	4	Corner-R	TiAlCrSiN	4 Flute Corner Radius, with Long Shank Length	SH300-RH4-H	D1 ～ D20	380	492
	4	Corner-R	TiAlCrSiN	4 Flute Corner Radius, with Reduced Neck	SH300-RN4-H	D1～D12	383	492
	6	Corner-R	TiAlCrSiN	6 Flute, Corner Radius	SH300-R6-H	D6～D20	389	493
	6	Corner-R	TiAlCrSiN	6 Flute Corner Radius, with Long Shank Length	SH300-RH6-H	D6～D20	391	493

◎ most suitable ○ suitable

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

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

◎ most suitable ○ suitable

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

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

◎ most suitable ○ suitable

	Workpiece Material											
	P		M	K	N			S		H		
	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						
4	AlCrSiN	4 Flute Square End, with Roughing Geometry NEW 	UPR210-S4	D6 ~ D20	249	466
4	AlCrSiN	3/4 Flute Square End, with Roughing Geometry NEW 	UPR300-S3/S4	D6 ~ D20	250	468
2	AlCrSiN	2 Flute, Standard Length Endmills of Micro Diameter for Deep Machining 	SPM200-SN2	D0.1 ~ D6	412	497
2	AlTiN	2 Flute, Standard Length 	US200-S2	D0.5 ~ D20	251	470
4	AlTiN	4 Flute, Stub Length 	US200-SS4	D2 ~ D20	253	471
4	AlTiN	4 Flute, Standard Length 	US200-S4	D1 ~ D20	254	471
4	AlTiN	4 Flute, with Reduced Neck 	US200-SN4	D2 ~ D12	255	471
4	AlTiN	4 Flute, Stub Length 	US200-SS4	D1 ~ D12	264	472
4	AlTiN	4 Flute, Standard Length 	US300-S4	D2 ~ D20	265	472
4	AlCrSiN	4 Flute, Stub Length, Variable Helix with Chamfer 	SS200-CS4	D2 ~ D12	266	472
4	AlCrSiN	4 Flute, Variable Helix with Chamfer 	SS200-C4	D2 ~ D12	267	472
2		2 Flute, Standard Length 	UA100-S2	D1 ~ D12	268	473
2		2 Flute, Long Flute Length 	UA100-SL2	D2 ~ D12	270	473
2		2 Flute, with Long Shank Length 	UA100-SH2	D2 ~ D12	271	473
3		3 Flute, Standard Length 	UA100-S3	D2 ~ D20	272	474
3		3 Flute, Long Flute Length 	UA100-SL3	D2 ~ D20	274	474
3		3 Flute, with Long Shank Length 	UA100-SH3	D2 ~ D20	275	474
2		2 Flute, Standard Length 	UA160-S2	D1 ~ D10	287	476
3		3 Flute, Standard Length 	UA160-S3	D2 ~ D20	288	476

◎ most suitable ○ suitable

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

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

◎ most suitable ○ suitable

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

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

◎ most suitable ○ suitable

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

Corner Radius

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

◎ most suitable ○ suitable

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

Endmill Catalog（by flute)

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

◎ most suitable ○ suitable

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

Endmill Catalog（by flute)

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

◎ most suitable ○ suitable

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

Endmill Catalog（by flute）

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

◎ most suitable ○ suitable

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

UP210-SS2

2 Flute, Stub Length

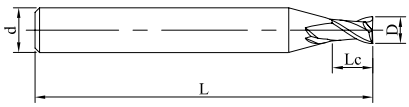


Fig1

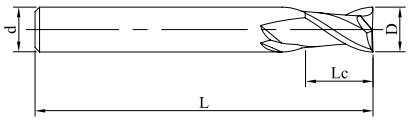


Fig2

See page 149 for guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P457

UP210-S2

2 Flute, Standard Length

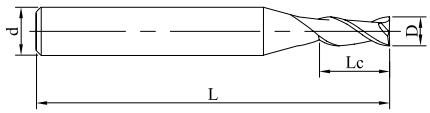


Fig1

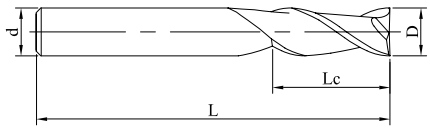


Fig2

See page 8 for guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P457

UP210-S2

2 Flute, Standard Length

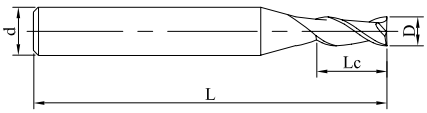


Fig1

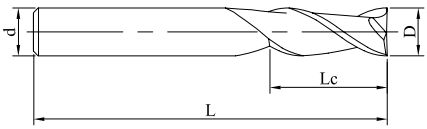


Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

D	Tol
D≤12	0 -0.02
D>12	0 -0.03

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P457

UP210-SL2

2 Flute, Long Flute Length

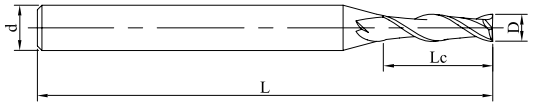


Fig1

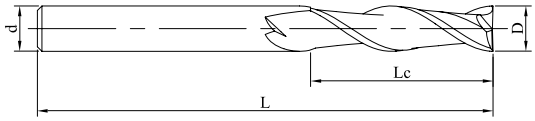


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
D≤12	0 -0.02
D>12	0 -0.03

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P457

UP210-SH2

2 Flute, with Long Shank Length

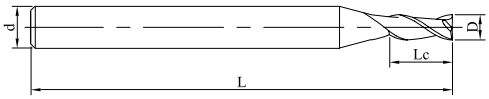


Fig1

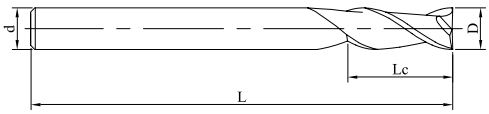


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

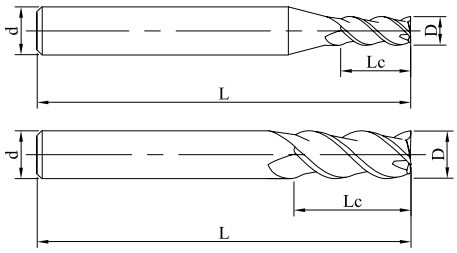
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, AlloySteel (<35HRC)	Alloy Steel,ToolSteel (48HRC以下)	StainlessSteel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
◎	◎	○	◎			

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P457

UP210-S3

3 Flute, Standard Length



See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
D≤12	0 -0.02
D>12	0 -0.03

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P457

UP210-SS4

4 Flute, Stub Length

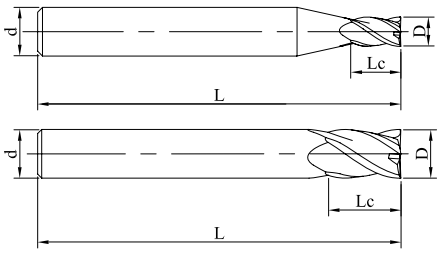


Fig1

Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

UP210-S4

4 Flute, Standard Length

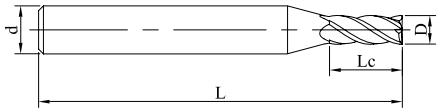


Fig1

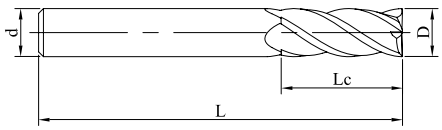


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

UP210-S4

4 Flute, Standard Length

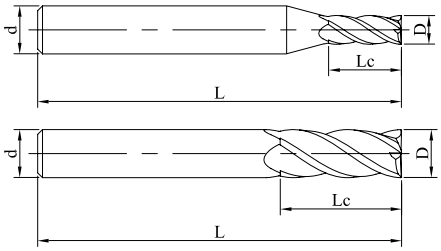


Fig1

Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

UP210-S4

4 Flute, Standard Length

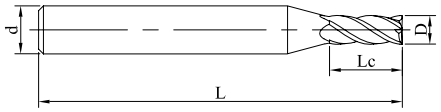


Fig1

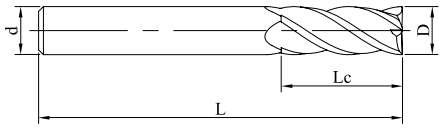


Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

UP210-SL4

4 Flute, Long Flute Length

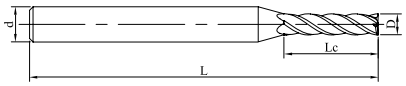


Fig1

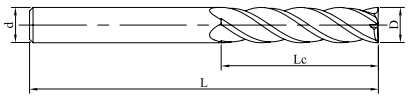


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

UP210-SL4

4 Flute, Long Flute Length

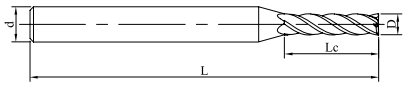


Fig1

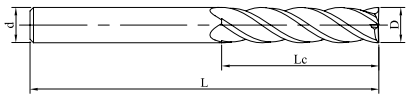


Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

UP210-SH4

4 Flute, with Long Shank Length

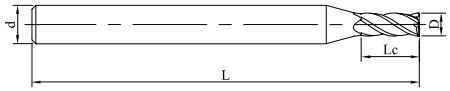


Fig1

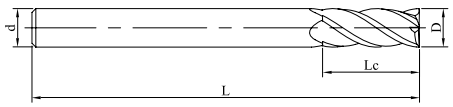


Fig2

SHANK | 4 | AlCrSiN | 35° Helix | Square | L

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

UP210-SH4

4 Flute, with Long Shank Length

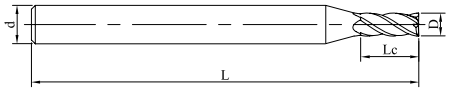


Fig1

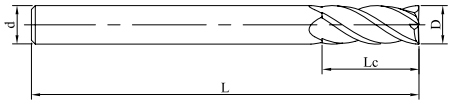


Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

D	Tol
D≤12	0 -0.02
D>12	0 -0.03

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

UP210-SC4

4 Flute, acute angle

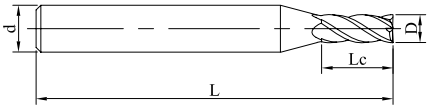


Fig1

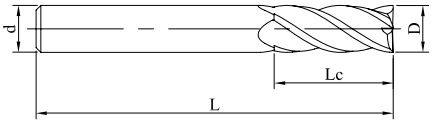


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
D≤12	0 -0.02
D>12	0 -0.03

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

UP210-S4A

4 flute, 45° helix angle

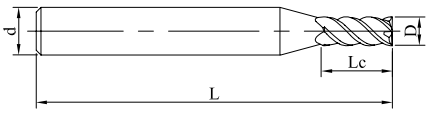


Fig1

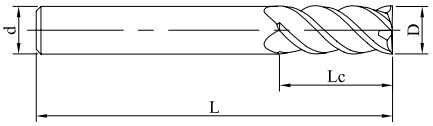


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
D≤12	0 -0.02
D>12	0 -0.03

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

UP210-S6

6 Flute, Standard Length

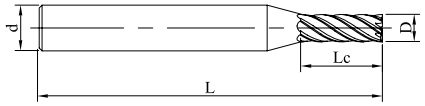


Fig1

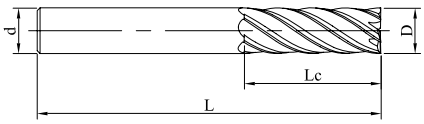


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

UP210-R2

2 Flute Corner Radius

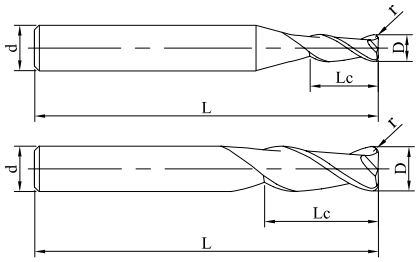


Fig1

Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

UP210-R2

2 Flute Corner Radius

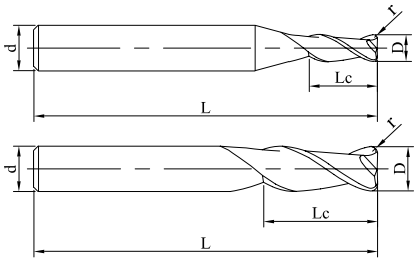


Fig1

Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P457

UP210-R2

2 Flute Corner Radius

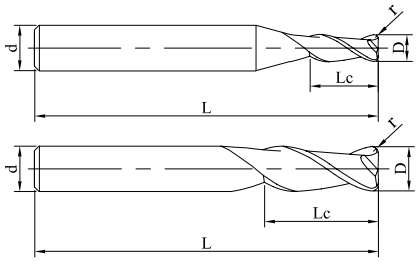


Fig1

Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P457

UP210-RH2

2 Flute Corner Radius, with Long Shank Length

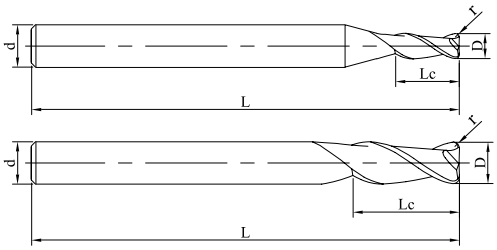


Fig1

Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P457

UP210-RH2

2 Flute Corner Radius, with Long Shank Length

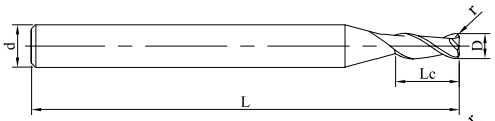


Fig1

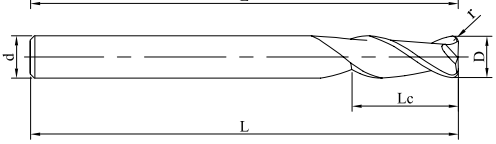


Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P457

UP210-R4

4 Flute Corner Radius

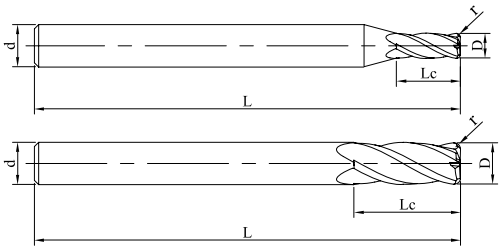


Fig1

Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Orde

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

UP210-R4

4 Flute Corner Radius

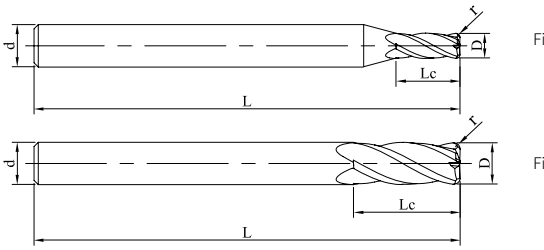


Fig1

Fig2

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

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Orde

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

UP210-R4

4 Flute Corner Radius

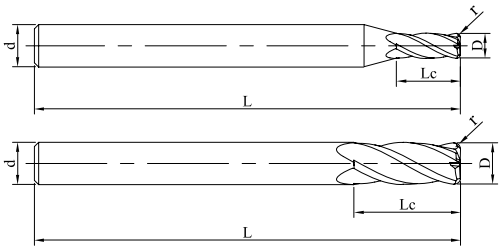


Fig1

Fig2

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

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

UP210-RH4

4 Flute Corner Radius, with Long Shank Length

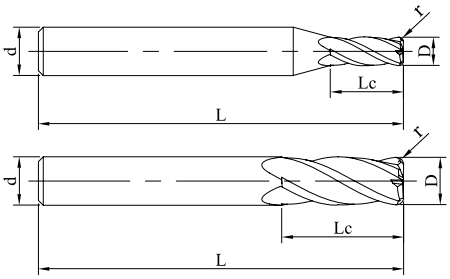


Fig1

Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

UP210-RH4

4 Flute Corner Radius, with Long Shank Length

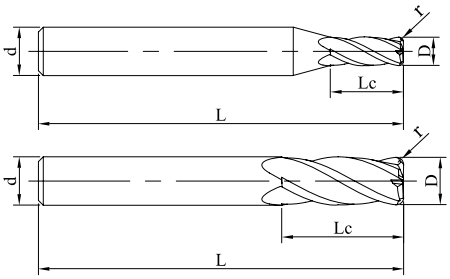


Fig1

Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

D	Tol
D≤12	0 -0.02
D>12	0 -0.03

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

UP210-R4A

4 Flute, Corner Radius-45°Helix

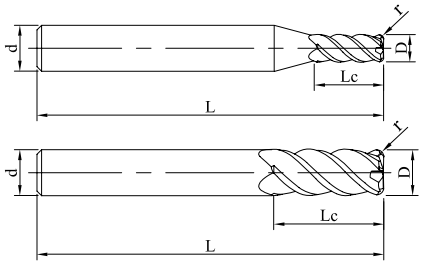


Fig1

Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

UP210-R4A

4 Flute, Corner Radius-45°Helix

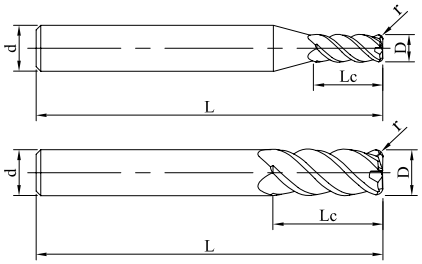


Fig1

Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P458

UP210-B2

2 Flute, Ballnose

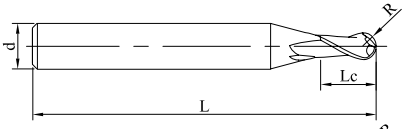


Fig1

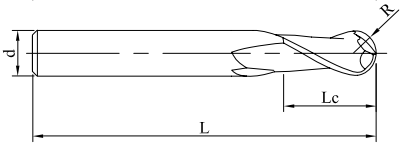


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P460

UP210-B2

2 Flute, Ballnose

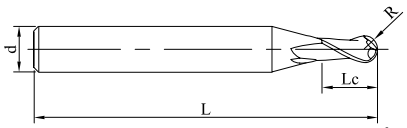


Fig1

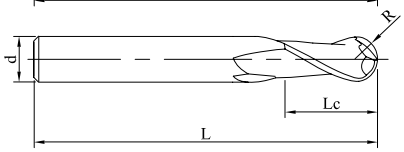


Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit(mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P460

UP210-BH2

2 Flute Ballnose, with Long Shank Length

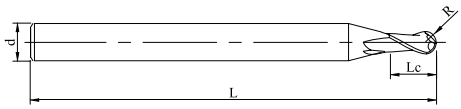


Fig1

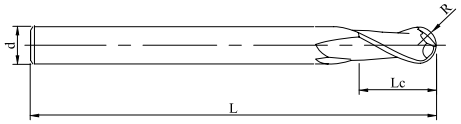


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P460

UP210-BH2

2 Flute Ballnose, with Long Shank Length

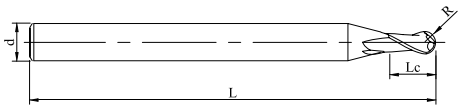


Fig1

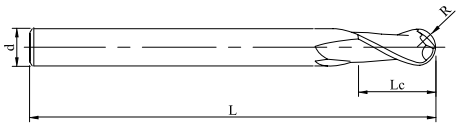


Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P460

UP210-B4

4 Flute, Ballnose

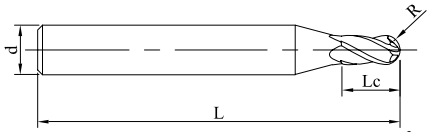


Fig1

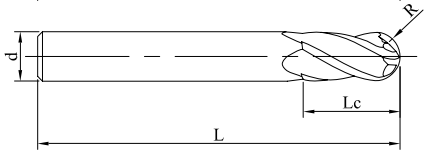


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P460

UP210-B4

4 Flute, Ballnose

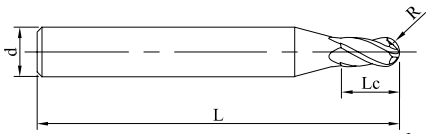


Fig1

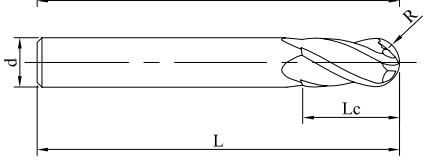


Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

R	Tol
R⩽1.5	$^{0}_{-0.01}$
1.5<R<3	$^{0}_{-0.015}$
R⩾3	$^{0}_{-0.02}$

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P460

UP210-L60

4 Flute, 90° Chamfer Endmils

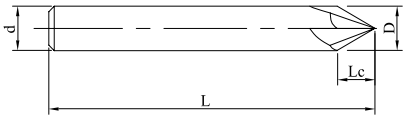


Fig1

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
D≤12	0 -0.02
D>12	0 -0.03

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P461

UP210-L90

4 Flute, 90° Chamfer Endmils

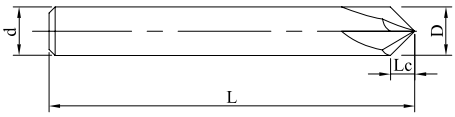


Fig1

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P461

UP210-L120

4 Flute, 120° Chamfer Endmils

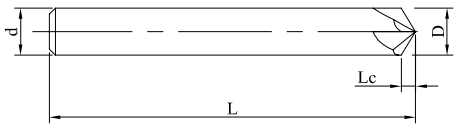


Fig1

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P461

SP210-S3

3 Flute, with Variable Helix

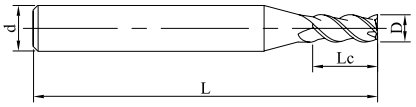


Fig1

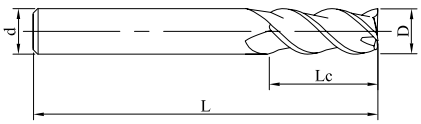


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P461

SP210-C3

3 Flute, Variable Helix with Chamfer

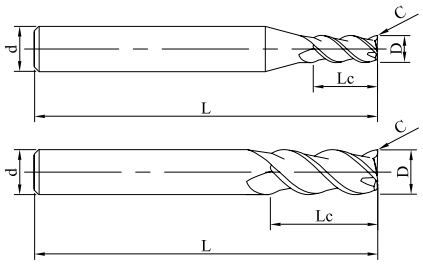


Fig1

Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

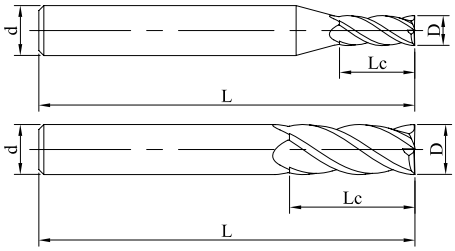
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, AlloySteel (<35HRC)	Alloy Steel,ToolSteel (48HRC)	StainlessSteel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
◎	◎	○	◎			

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P461

SP210-S4

4 Flute, with Variable Helix



SHANK h6 | 4 | AlCrSiN | 35°/38° Helix | Chamfer

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P462

SP210-C4

4 Flute, Variable Helix with Chamfer and with Reduced Neck

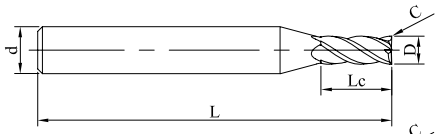


Fig1

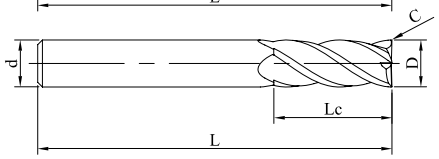


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P462

SP210-C4

4 Flute, Variable Helix with Chamfer and with Reduced Neck

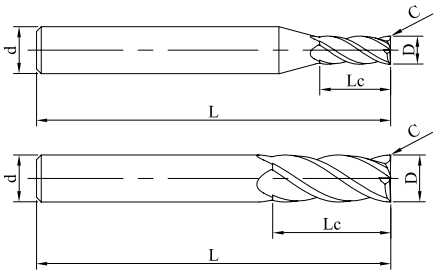


Fig1

Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P462

SP210-CN4

4 Flute, Variable Helix with Chamfer and with Reduced Neck

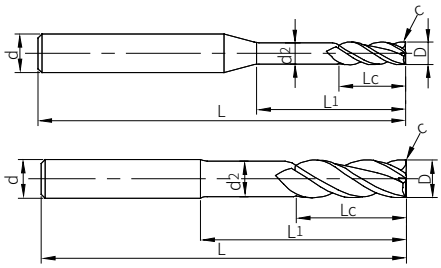


Fig1

Fig2

SHANK h6 | 4 | AlCrSiN | 35°/38° Helix | Chamfer

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P462

SP210-R4

4 Flute, with Variable Helix

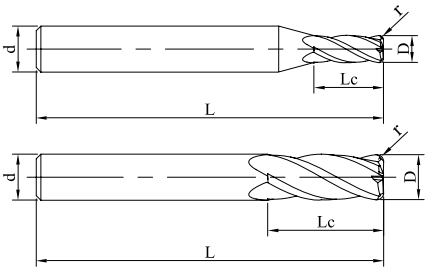


Fig1

Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
D≤12	0 -0.02
D>12	0 -0.03

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P462

SP210-R4

4刃 Flute, with Variable Helix

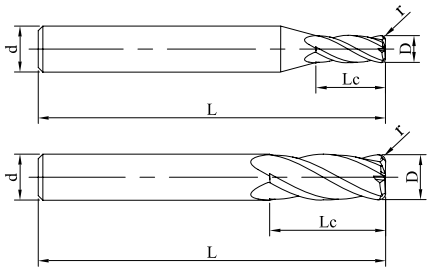


Fig1

Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P462

SP210-RH4

4 Flute, with Long Shank Length, Variable Helix

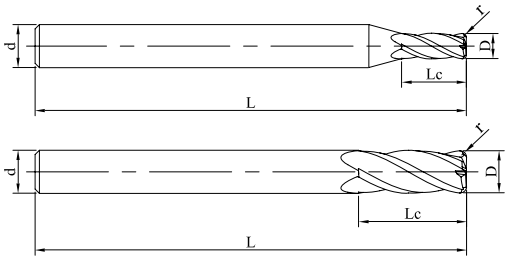


Fig1

Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P462

SP210-B2

2 Flute, Ballnose

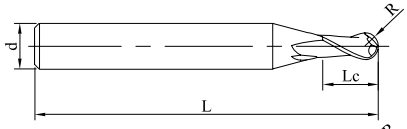


Fig1

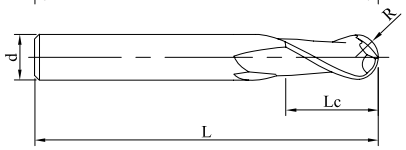


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P463

SP210-BH2

2 Flute Ballnose, with Long Shank length

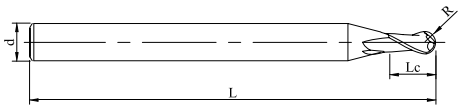


Fig1

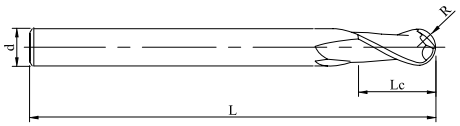


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P463

UPR100-S4

4 Flute, with Roughing Geometry

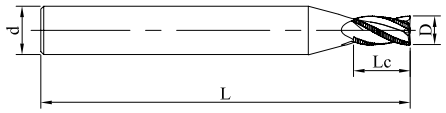


Fig1

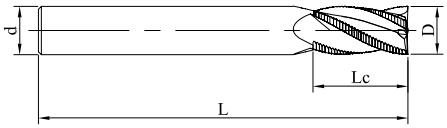


Fig2

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

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P464

UPN210-S4

4 Flute, with Roughing Geometry

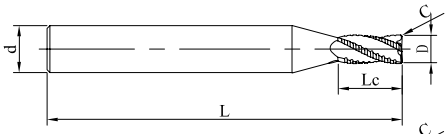


Fig1

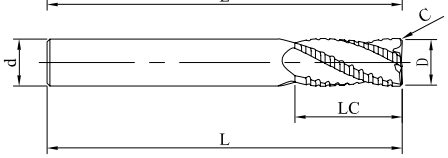


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P467

UPR210-S4

4 Flute, with Roughing Geometry

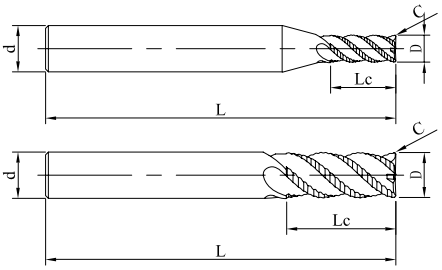


Fig1

Fig2

SHANK h6 | 4 | AlCrSiN | 45° Helix | Chamfer

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P466

UPR300-S3/S4

3/4 Flute, with Roughing Geometry

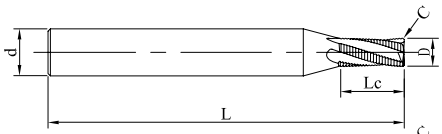


Fig1

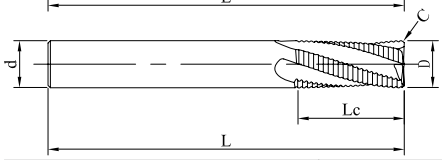


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P469

US200-S2

2 Flute, Standard Length

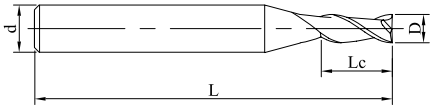


Fig1

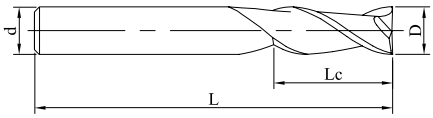


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
D≤12	0 -0.02
D>12	0 -0.03

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P470

US200-S2

2 Flute, Standard Length

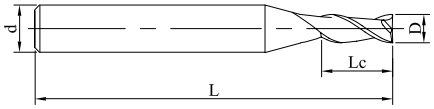


Fig1

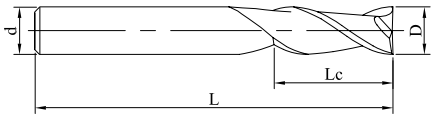


Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P470

US200-SS4

4 Flute, Stub Length

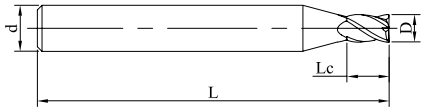


Fig1

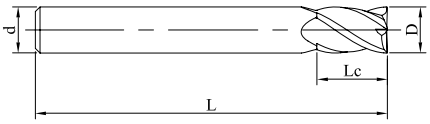


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P471

US200-S4

4 Flute, Standard Length

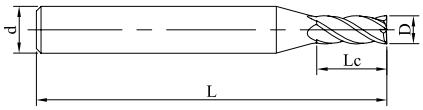


Fig1

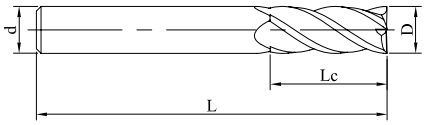


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P471

US200-SN4

4 Flute,with Reduced Neck Diameter

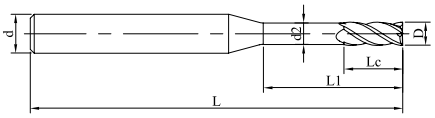


Fig1

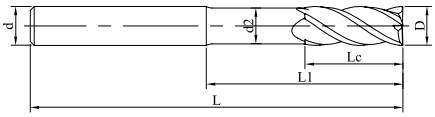


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
D≤12	0 -0.02
D>12	0 -0.03

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P471

US200-R2

2 Flute,Corner Radius

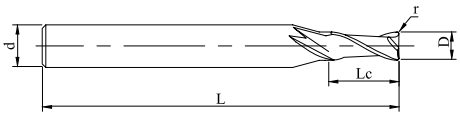


Fig1

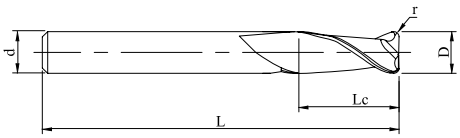


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P470

US200-R2

2 Flute,Corner Radius

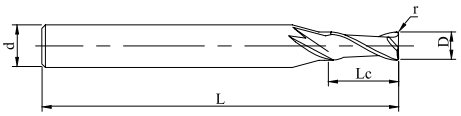


Fig1

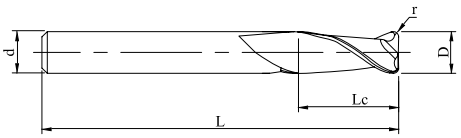


Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P470

US200-R3

3 Flute,Corner Radius

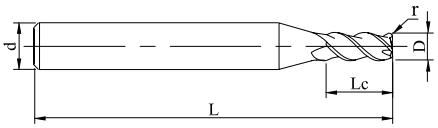


Fig1

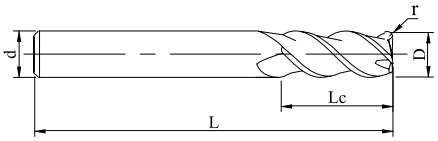


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P470

US200-R3

3 Flute,Corner Radius

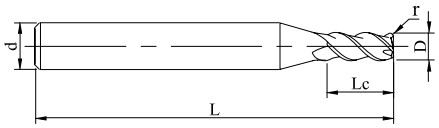


Fig1

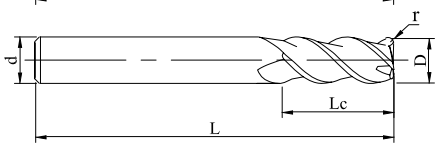


Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P470

US200-R4/RS4

4 Flute,Corner Radius/Corner Radius with Stub length

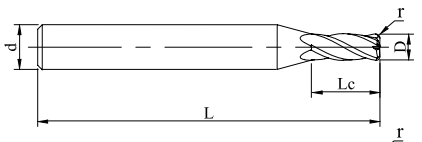


Fig1

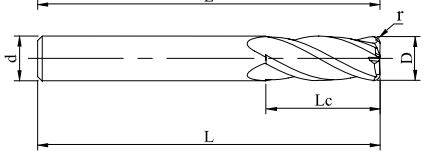


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P471

US200-R4

4 Flute,Corner Radius

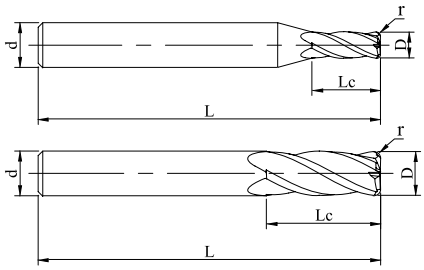


Fig1

Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P471

US200-B2

2 Flute,Ballnose

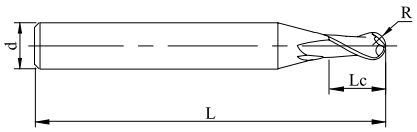


Fig1

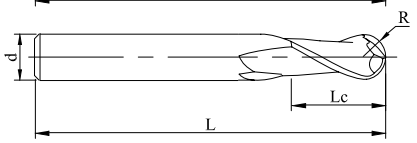


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

R	Tol
R<3	±0.015
R≥3	±0.02

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P471

US200-B4

4 Flute,Ballnose

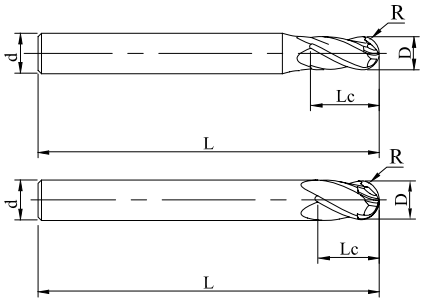


Fig1

Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

R	Tol
R<3	±0.015
R⩾3	±0.02

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P471

US300-SS4

4 Flute, Stub Length

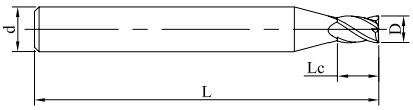


Fig1

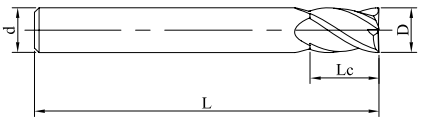


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
D≤12	$^{0}_{-0.02}$

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P472

US300-S4

4 Flute, Standard Length

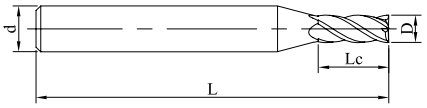


Fig1

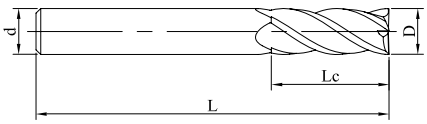


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
D≤12	0 -0.02
D>12	0 -0.03

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P472

SS200-CS4

4 Flute, Stub Length with variable Helix

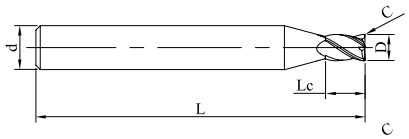


Fig1

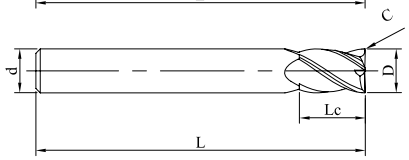


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
D≤12	0 -0.04

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P472

SS200-C4

4 Flute, Stub Length with variable Helix

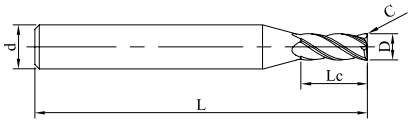


Fig1

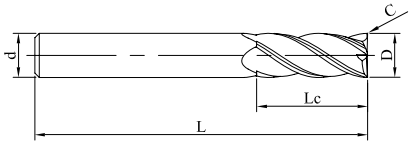


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P472

UA100-S2

2 Flute, Standard Length

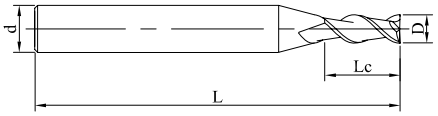


Fig1

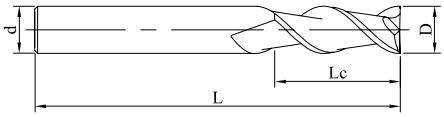


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P473

UA100-S2

2 Flute, Standard Length

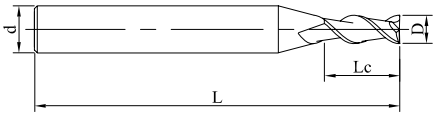


Fig1

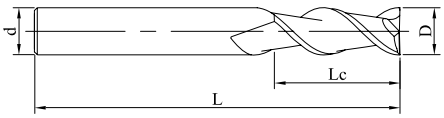
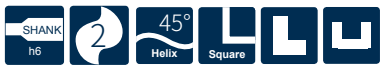


Fig2



See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

D	Tol
D≤12	0 -0.02
D>12	0 -0.03

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P473

UA100-SL2

2 Flute, Long Flute Length

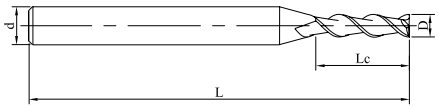


Fig1

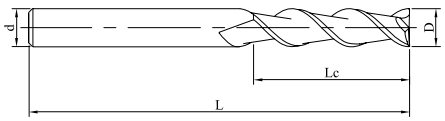


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P473

UA100-SH2

2 Flute, with Long Shank Length

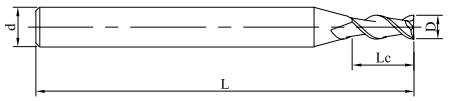


Fig1

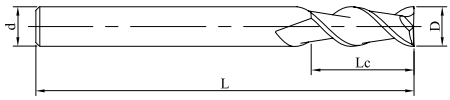


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P473

UA100-S3

3 Flute, Standard Length

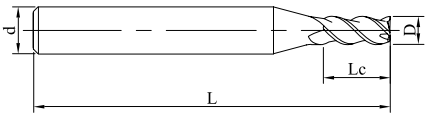


Fig1

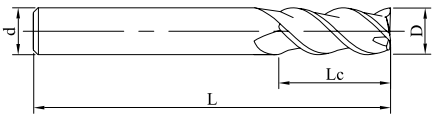


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P474

UA100-S3

3 Flute, Standard Length

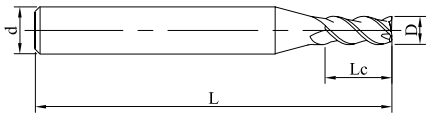


Fig1

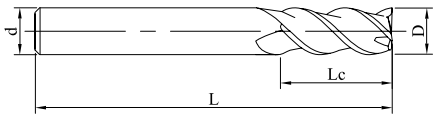


Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

D	Tol
D≤12	0 -0.02
D>12	0 -0.03

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P474

UA100-SL3

3 Flute, Long Flute Length

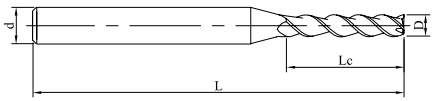


Fig1

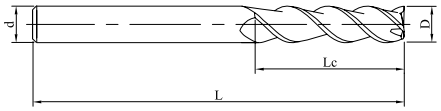


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
D≤12	0 -0.02
D>12	0 -0.03

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P474

UA100-SH3

3 Flute, with Long Shank Length

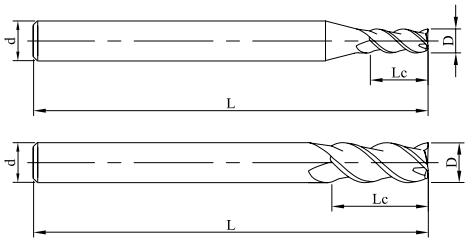


Fig1

Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
D≤12	0 -0.02
D>12	0 -0.03

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P474

UA100-R2

2 Flute, Corner Radius

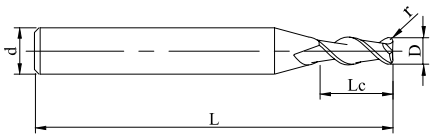


Fig1

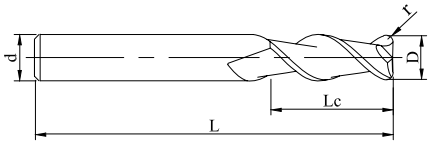


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P473

UA100-R2

2 Flute, Corner Radius

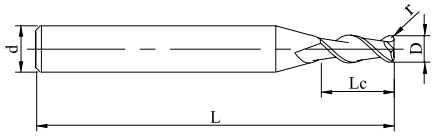


Fig1

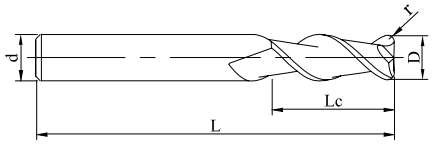
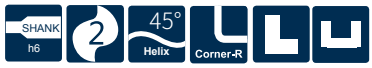


Fig2



See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P473

UA100-R2

2 Flute, Corner Radius

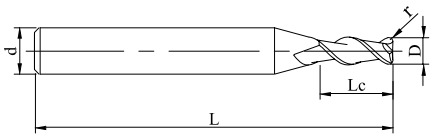


Fig1

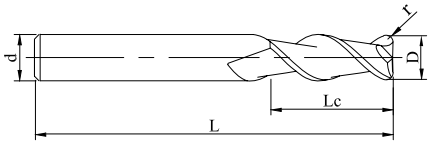


Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P473

UA100-RH2

2 Flute, Corner Radius, with Long Shank Length

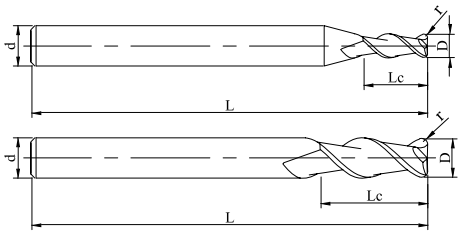


Fig1

Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit(mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P473

UA100-RH2

2 Flute, Corner Radius, with Long Shank Length

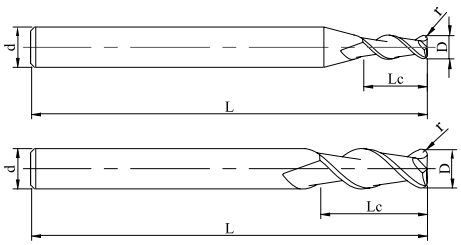
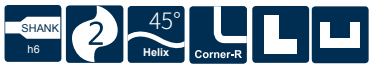


Fig1

Fig2



See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

D	Tol
D≤12	0 -0.02
D>12	0 -0.03

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P473

UA100-R3

3 Flute, Corner Radius

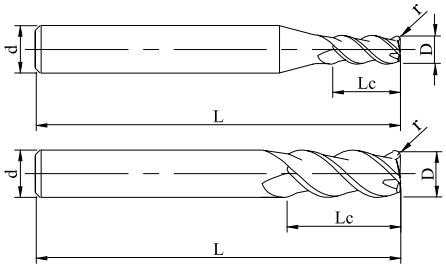


Fig1

Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P473

UA100-R3

3 Flute, Corner Radius

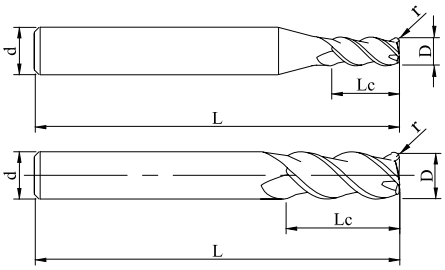


Fig1

Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P474

UA100-R3

3 Flute, Corner Radius

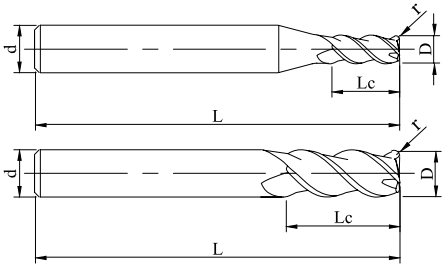


Fig1

Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

D	Tol
D≤12	0 -0.02
D>12	0 -0.03

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P474

UA100-RH3

3 Flute, Corner Radius, with Long Shank Length

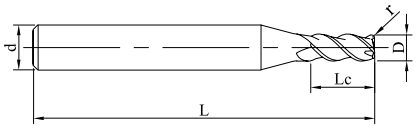


Fig1

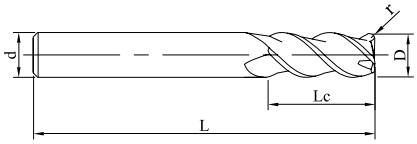


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
D≤12	0 -0.02
D>12	0 -0.03

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P475

UA100-RH3

3 Flute, Corner Radius, with Long Shank Length

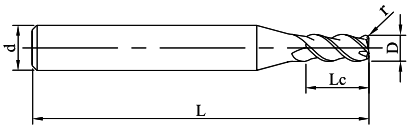


Fig1

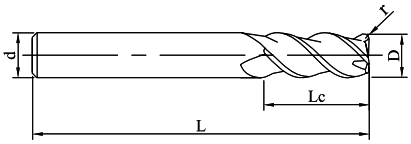
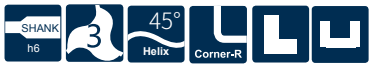


Fig2



See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

D	Tol
D≤12	0 -0.02
D>12	0 -0.03

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P475

UA100-B2

2 Flute,Ballnose

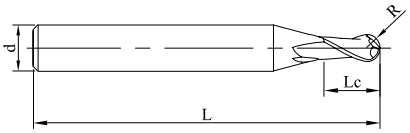


Fig1

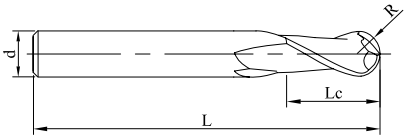


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

R	Tol
R<3	±0.015
R⩾3	±0.02

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P475

UA160-S2

2 Flute, Standard Length

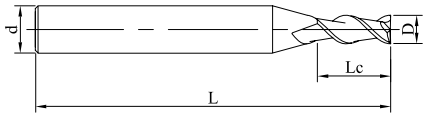


Fig1

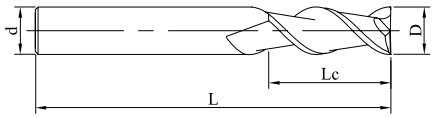
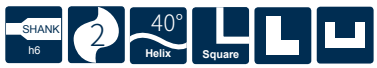


Fig2



See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P476

UA160-S3

3 Flute, Standard Length

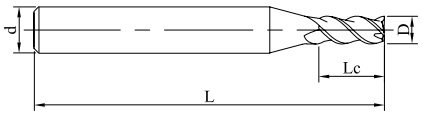


Fig1

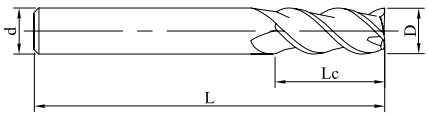


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P476

UA160-S4

4Flute, Standard Length

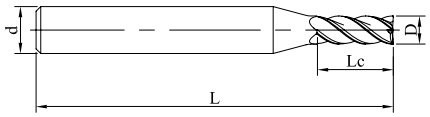


Fig1

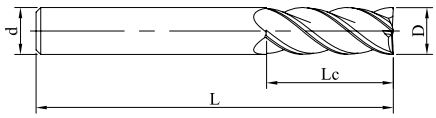


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P476

SA100-S3

3 Flute, Standard Length

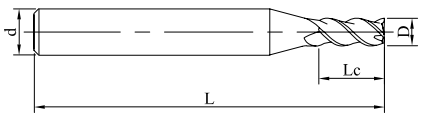


Fig1

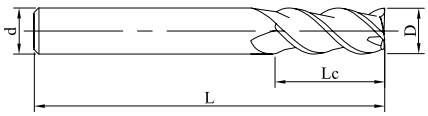


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P477

SA210-BW

3 Flute Corner Radius, with Long Shank Length

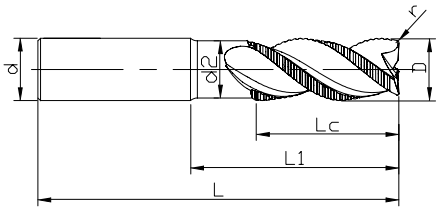
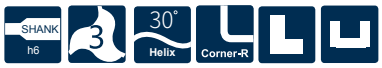


Fig1



See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
12≤D<16	0/-0.03
16≤D≤25	0/-0.04

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P478

SA210-HF

3 Flute Corner Radius, with Long Shank Length

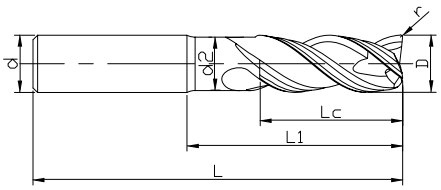


Fig1

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
12≤D<16	0/-0.03
16≤D≤25	0/-0.04

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P477

SA300-RN2

2 Flute Corner Radius, with Long Shank Length

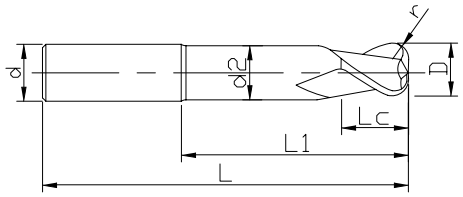


Fig1

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
12≤D<16	0/-0.03
16≤D≤25	0/-0.04

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P479

SA300-RN3

3 Flute Corner Radius, with Long Shank Length

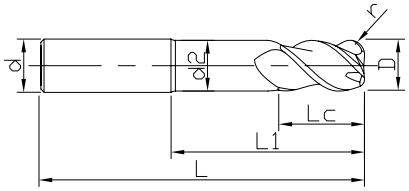


Fig1

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
12≤D<16	0/-0.03
16≤D≤25	0/-0.04

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P479

SG200-S2

2 Flute, Standard Length

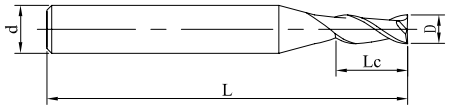


Fig1

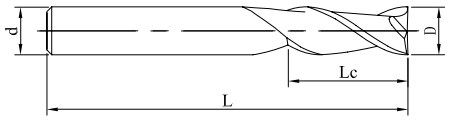


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P480

SG200-S2

2 Flute, Standard Length

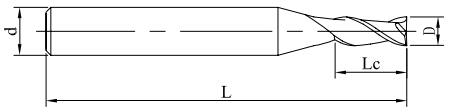


Fig1

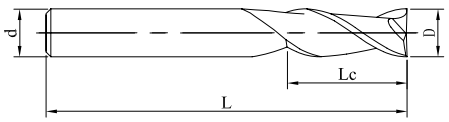


Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

D	Tol
D<6	0 -0.02
6≤D≤12	0 -0.03

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P480

SG200-SN2

2 Flute,with Reduced Neck Diameter

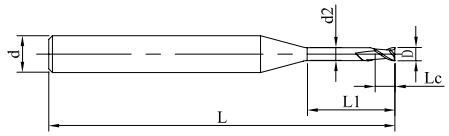


Fig1

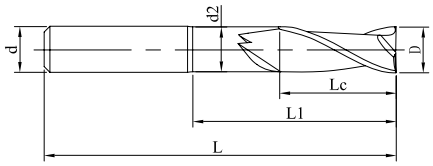


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P480

SG200-SN2

2 Flute,with Reduced Neck Diameter

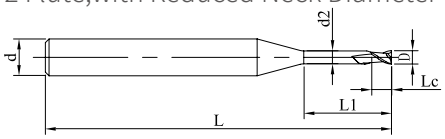


Fig1

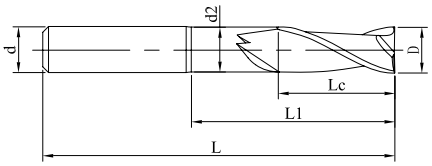


Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P480

SG200-S3

3 Flute, Standard Length

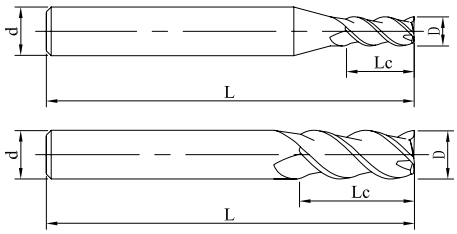


Fig1

Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P480

SG200-S3

3 Flute, Standard Length

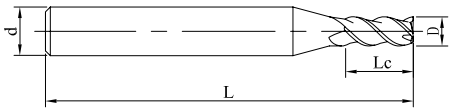


Fig1

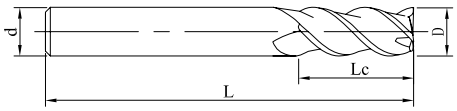


Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

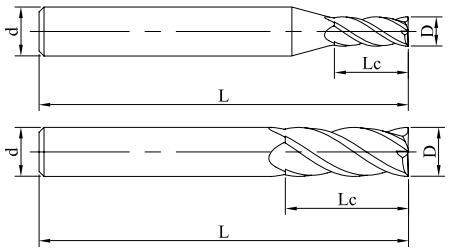
Workpiece Material						
P		M	K	N		
1234	5	123	123	123	4	5
Carbon Steel, AlloySteel (<35HRC)	Alloy Steel,ToolSteel (48HRC)	StainlessSteel	Cast Iron	Aluminium Alloys	Copper Alloys	Graphite
				○	○	◎

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P480

SG200-S4

4 Flute, Standard Length



See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P480

SG200-R2

2 Flute, Corner Radius

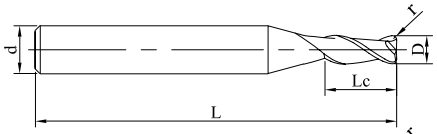


Fig1

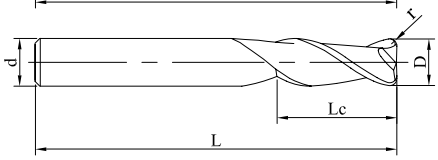


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P480

SG200-R2

2 Flute, Corner Radius

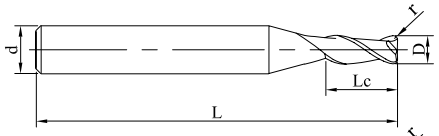


Fig1

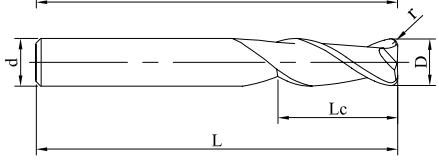


Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P480

SG200-RN2

2 Flute with Reduced Neck , Cornor Raidus

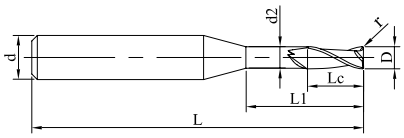


Fig1

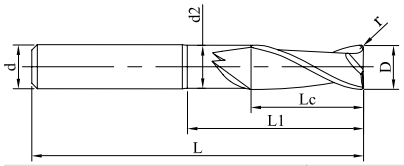


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
D<6	0 -0.02
6≤D≤12	0 -0.03

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P480

SG200-RN2

2 Flute with Reduced Neck , Cornor Raidus

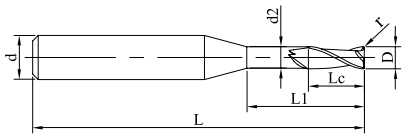


Fig1

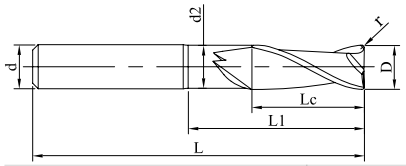


Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

D	Tol
D<6	0 -0.02
6≤D≤12	0 -0.03

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P480

SG200-R4

4 Flute, Corner Radius

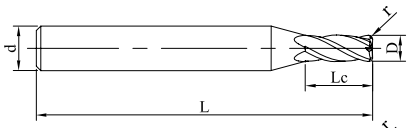


Fig1

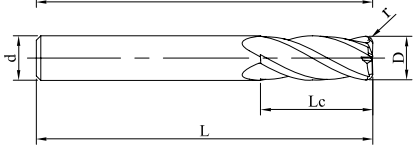


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P480

SG200-RN4

4 Flute with Reduced Neck , Cornor Raidus

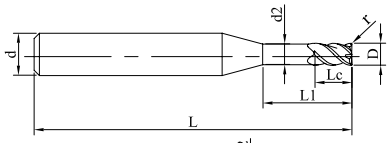


Fig1

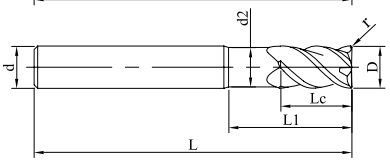


Fig2

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

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P480

SG200-RN4

4 Flute with Reduced Neck , Cornor Raidus

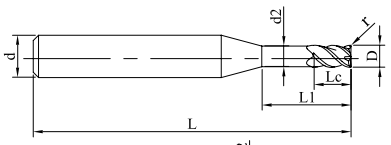


Fig1

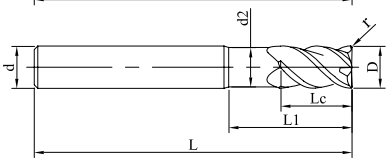


Fig2

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

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P480

SG200-B2

2 Flute,Ballnose

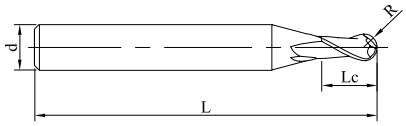


Fig1

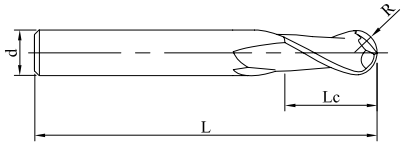


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
R<3	0 -0.02
3≤R≤6	0 -0.03

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P480

SG200-BN2

2 Flute with Reduced Neck, Ballnose

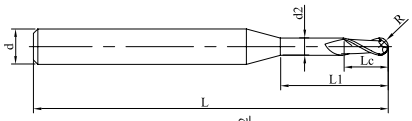


Fig1

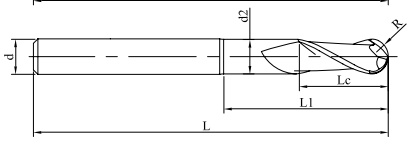


Fig2

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

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
R<3	0 -0.02
3≤R≤6	0 -0.03

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P481

SG200-BN2

2 Flute with Reduced Neck, Ballnose

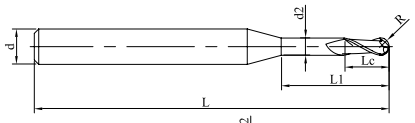


Fig1

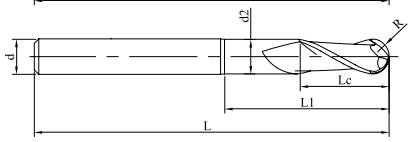


Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P481

SG200-M-RN4

4 Flute with Reduced Neck, Cornor Raidus

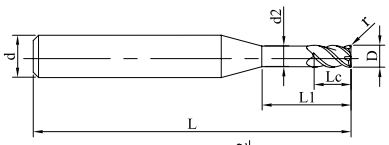


Fig1

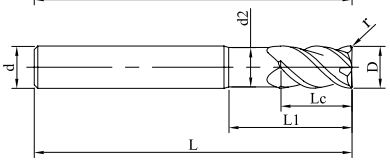


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
D⩽4	0 -0.010
D>4	0 -0.015

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P481

SG200-M-RN4

4 Flute with Reduced Neck, Cornor Raidus

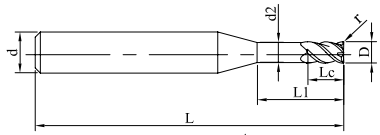


Fig1

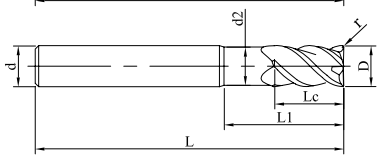


Fig2

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

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P481

SG200-M-B2

2 Flute,Ballnose

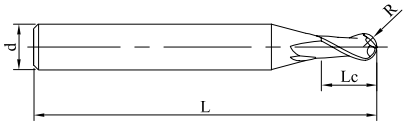


Fig1

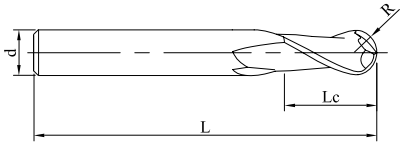


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
R≤0.4	±0.003
R>0.4	±0.005

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P481

SG200-M-BN2

2 Flute with Reduced Neck, Ballnose

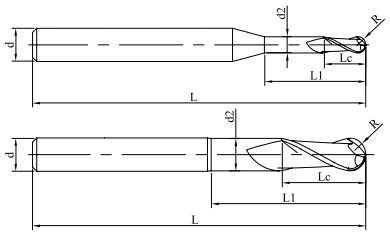


Fig1

Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
R≤0.4	±0.003
R>0.4	±0.005

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P481

ST210-S4

4 Flute with Unequal Tooth Pitch

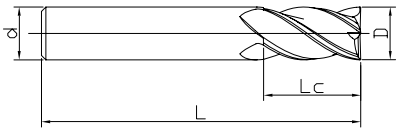


Fig1

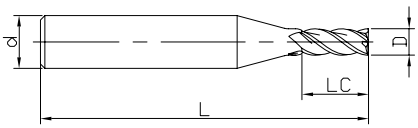


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P482

ST210-R4

4 Flute with Unequal Tooth Pitch,Cornor Raidus

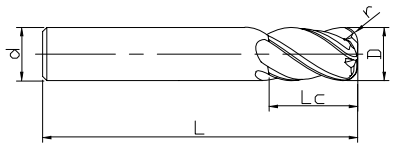


Fig1

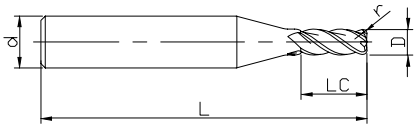


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P482

ST210-R4

4 Flute with Unequal Tooth Pitch,Cornor Raidus

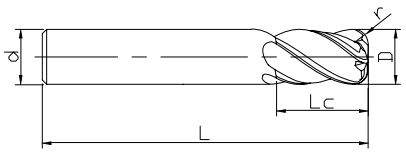


Fig1

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
D≤16	0 -0.03
D>16	0 -0.04

unit (mm)

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

◎ Most Suitable ○ Suitable

ST210-RN4

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

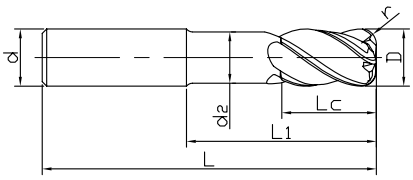


Fig1

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P482

ST210-RL5

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

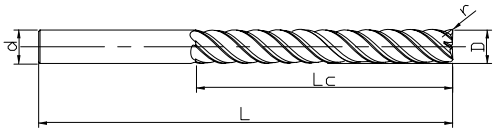


Fig1

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P483

ST210-B4

4 Flute with Unequal Tooth Pitch,Ballnose

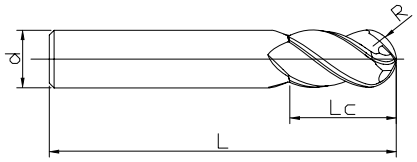


Fig1

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
R≥1	±0.02

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P483

ST300-RN4

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

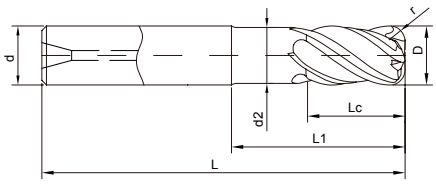


Fig1

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P484

ST300-RN5

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

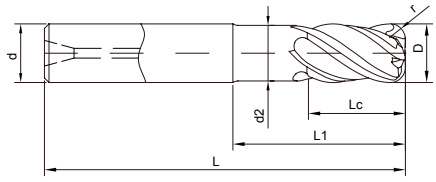
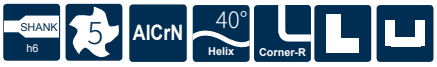


Fig1



See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P485

SN200-R4

4Flute with Unequal Tooth Pitch,Cornor Raidus

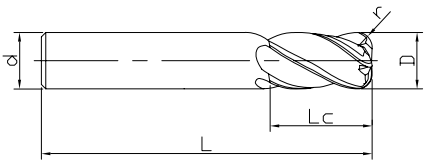


Fig1

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P486

SN200-B4

4 Flute with Unequal Tooth Pitch,Ballnose

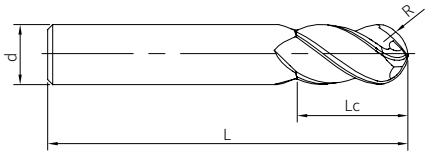


Fig1

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

R	Tol
R≥3	±0.020

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P487

SD200-KDA

12 Flute, Rhombic teeth

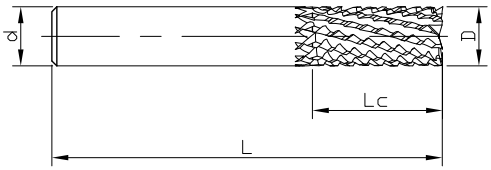


Fig1

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

R	Tol
4≤D≤12	$^{0}_{-0.04}$

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P488

SD200-JD2

2 Flute, Herringbone Endmill

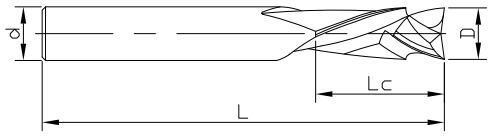


Fig1

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

R	Tol
4≤D≤12	$^{0}_{-0.04}$

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P488

SH260-S2-H

NEW

2 Flute, Standard Length

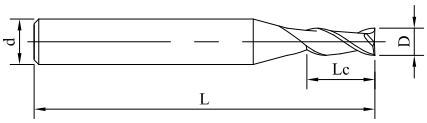


Fig1

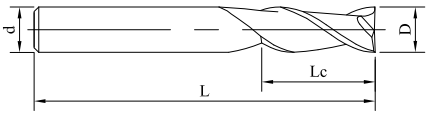


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
D≤6	0 -0.01
D>6	0 -0.02

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P489

SH260-SN2-H NEW

2 Flute, Reduced Neck

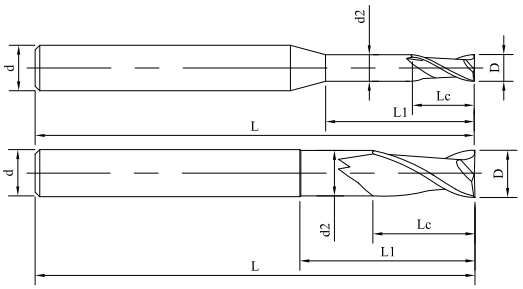


Fig1

Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
D≤6	0 -0.01
D>6	0 -0.02

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P489

SH260-SN2-H

NEW

2 Flute,Reduced Neck

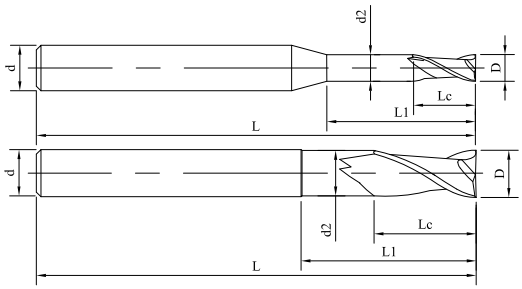


Fig1

Fig2

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

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
D≤6	0 -0.01
D>6	0 -0.02

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P489

SH260-S4-H

NEW

4 Flute, Standard Length

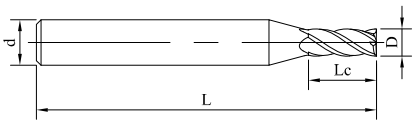


Fig1

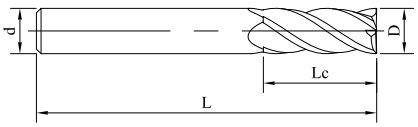


Fig2

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

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

SH260-S4-H NEW

4 Flute, Standard Length

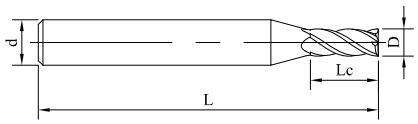


Fig1

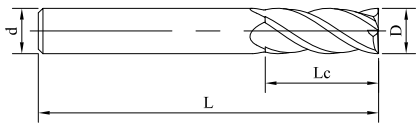


Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

SH260-SH4-H

NEW

4 Flute, Long Shank

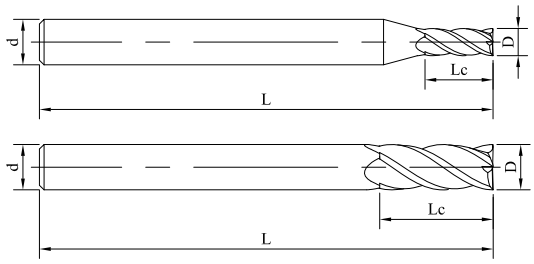


Fig1

Fig2

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

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

SH260-SH4-H NEW

4 Flute, Long Shank

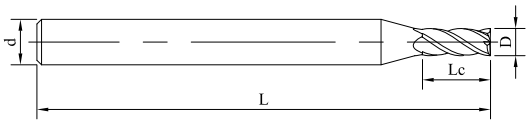


Fig1

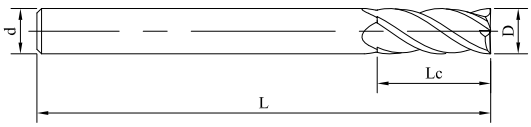


Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

SH260-SN4-H

NEW

4 Flute, Reduced Neck

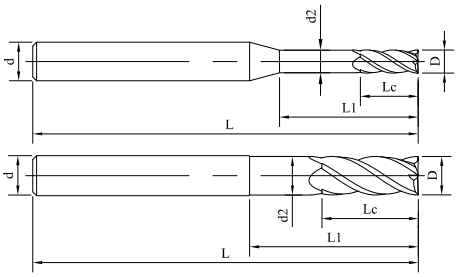


Fig1

Fig2

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

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

SH260-SN4-H

NEW

4 Flute,Reduced Neck

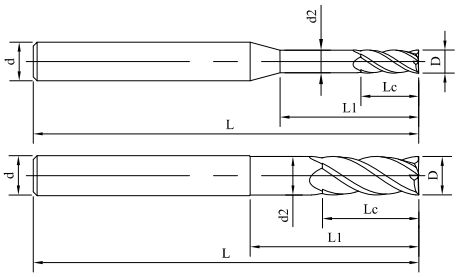


Fig1

Fig2

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

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

SH260-SL4-H NEW

4 Flute,Long Flute

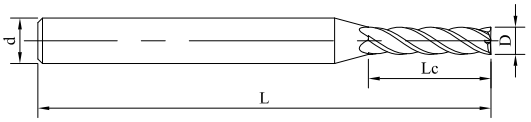


Fig1

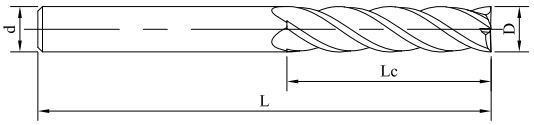


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

SH260-S6-H NEW

6 Flute, Standard Length

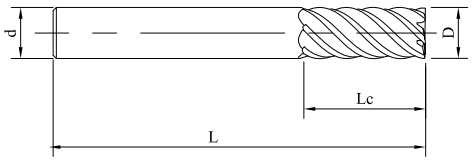


Fig1

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

SH260-SH6-H NEW

6 Flute, Long Shank

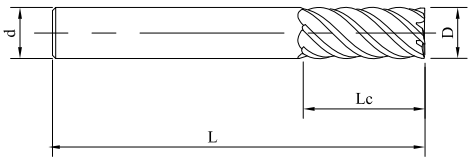


Fig1

SHANK h6 | 6 | TiAlCrSiN | 45° Helix | Square | L

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

SH260-SL6-H

NEW

6 Flute, Long Flute

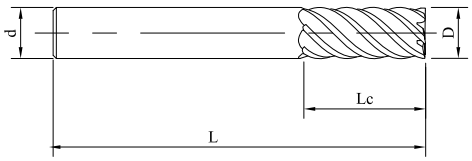


Fig1

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
D≤6	0 -0.010
D>6	0 -0.020

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

SH260-R2-H NEW

2 Flute, Cornor Raidus

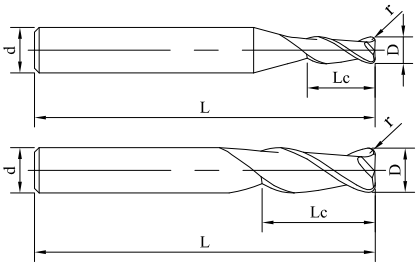


Fig1

Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

SH260-RN2-H NEW

2 Flute with Reduced Neck ,Cornor Raidus

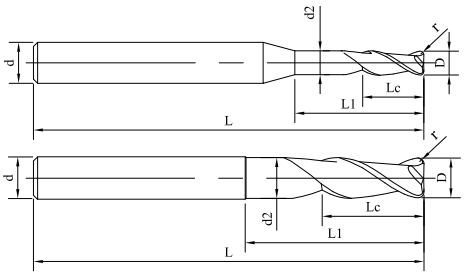


Fig1

Fig2

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

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P489

SH260-RN2-H NEW

2 Flute with Reduced Neck ,Cornor Raidus

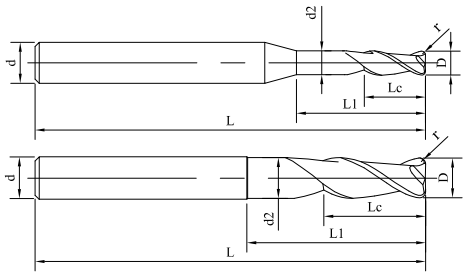


Fig1

Fig2

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

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P489

SH260-R4-H NEW

4 Flute, Cornor Raidus

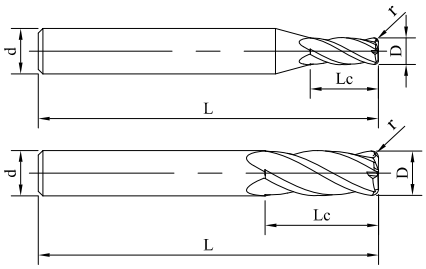


Fig1

Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

SH260-R4-H NEW

4 Flute, Cornor Raidus

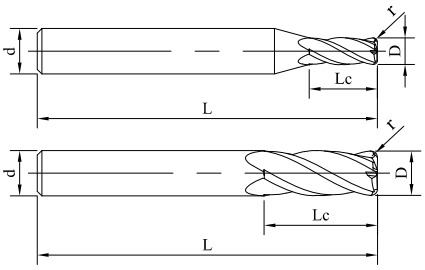


Fig1

Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

SH260-R4-H NEW

4 Flute, Cornor Raidus

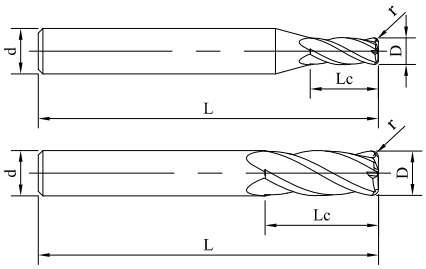


Fig1

Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

SH260-RH4-H NEW

4 Flute with Long Shank, Cornor Raidus

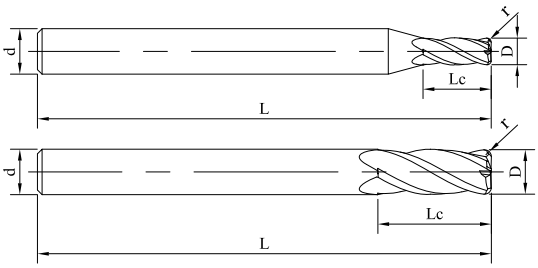


Fig1

Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

SH260-RH4-H NEW

4 Flute with Long Shank, Cornor Raidus

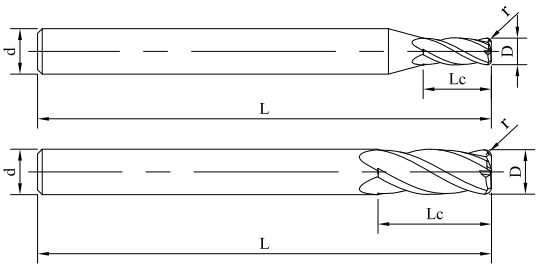


Fig1

Fig2

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

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

SH260-RN4-H NEW

4 Flute with Reduced Neck,Cornor Raidus

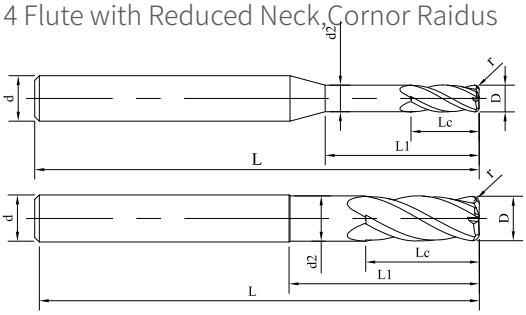


Fig1

Fig2

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

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

SH260-RN4-H NEW

4 Flute with Reduced Neck,Cornor Raidus

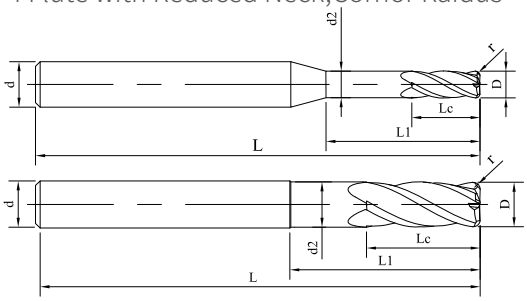


Fig1

Fig2

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

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P490

SH260-B2-H NEW

2 Flute, Ballnose

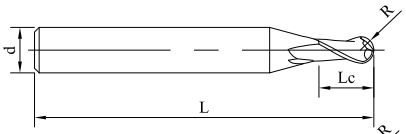


Fig1

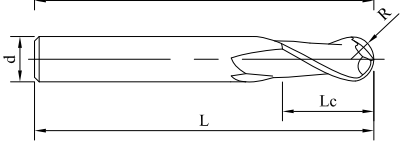


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
R≤3	±0.005
R>3	±0.008

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P491

SH260-BH2-H NEW

2 Flute Long Shank, Ballnose

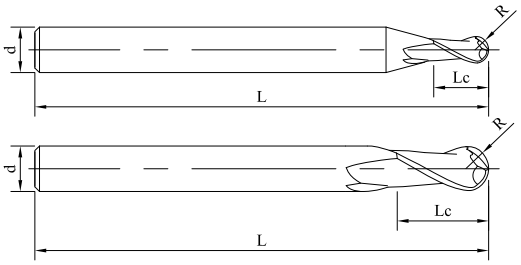


Fig1

Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
R≤3	±0.005
R>3	±0.008

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P491

SH260-BH2-H NEW

2 Flute Long Shank, Ballnose

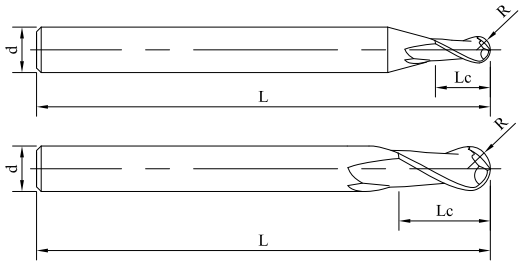


Fig1

Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

D	Tol
R≤3	±0.005
R>3	±0.008

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P491

SH260-BN2-H

NEW

2 Flute with Reduced Neck, Ballnose

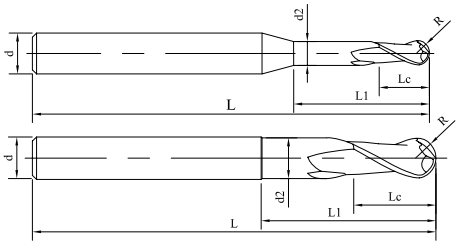


Fig1

Fig2

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

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
R≤3	±0.005
R>3	±0.008

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P491

SH260-BN2-H

NEW

2 Flute with Reduced Neck, Ballnose

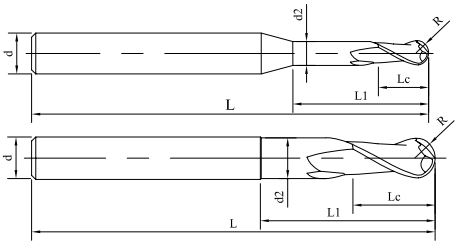


Fig1

Fig2

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

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

D	Tol
R≤3	±0.005
R>3	±0.008

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P491

SH300-S2-H

2 Flute, Standard Length

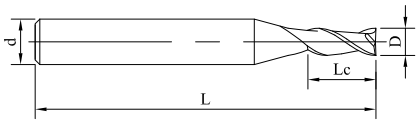


Fig1

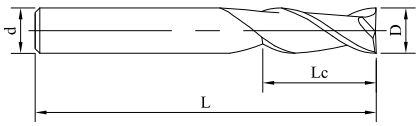


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P491

SH300-SN2-H

2 Flute,Reduced Neck

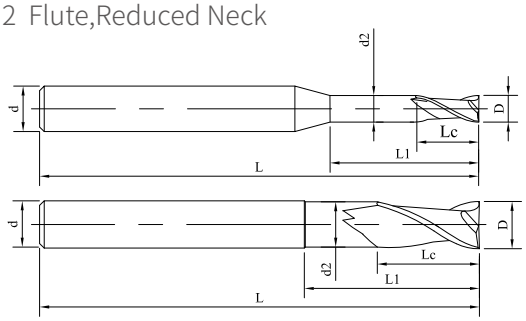


Fig1

Fig2

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

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
D≤6	0 -0.01

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P491

SH300-SS4-H

4 Flute, Stub Length

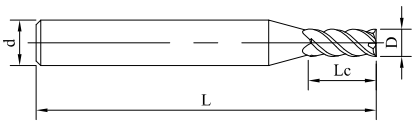


Fig1

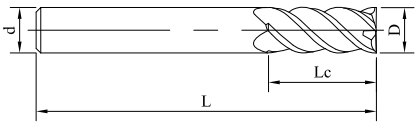


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

SH300-SS4-H

4 Flute, Stub Length

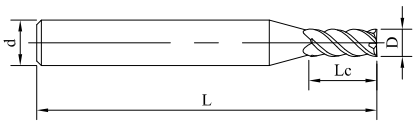


Fig1

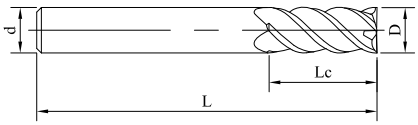


Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

SH300-S4-H

4 Flute, Standard Length

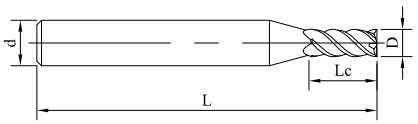


Fig1

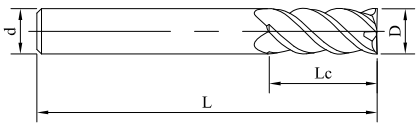


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

SH300-S4-H

4 Flute, Standard Length

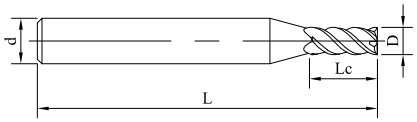


Fig1

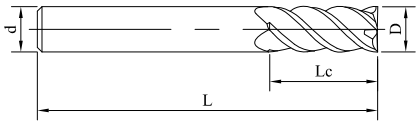


Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

SH300-SH4-H

4 Flute, Long Shank

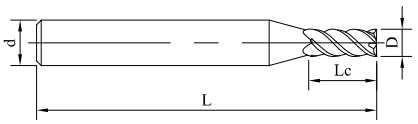


Fig1

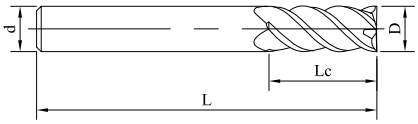


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit(mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

SH300-SH4-H

4 Flute, Long Shank

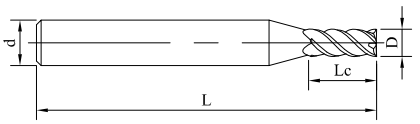


Fig1

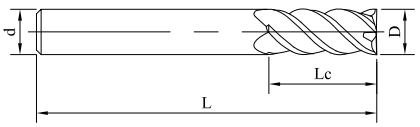


Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

SH300-SL4-H

4 Flute, Long Flute

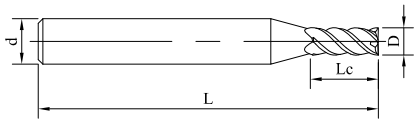


Fig1

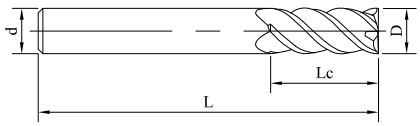


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

SH300-SL4-H

4 Flute, Long Flute

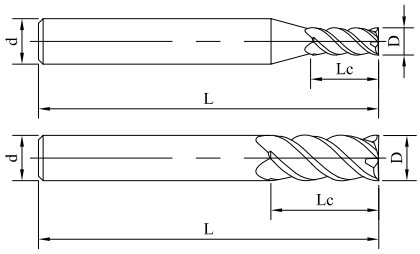


Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

SH300-SN4-H

4 Flute, Reduced Neck

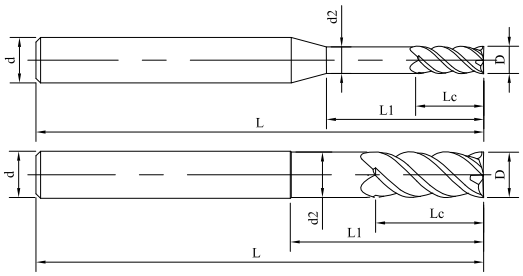


Fig1

Fig2

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

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

SH300-SN4-H

4 Flute, Reduced Neck

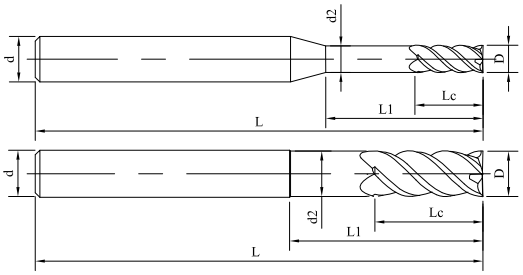


Fig1

Fig2

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

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

SH300-SN4-H

4 Flute, Reduced Neck

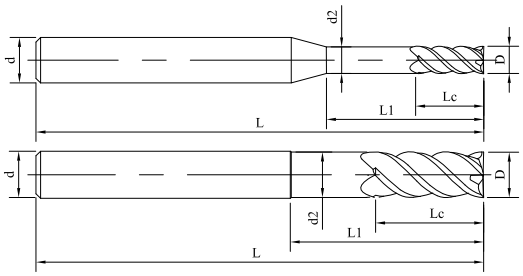


Fig1

Fig2

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

See page 149 or guidelines to icons

》 Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

SH300-SN4-H

4 Flute, Reduced Neck

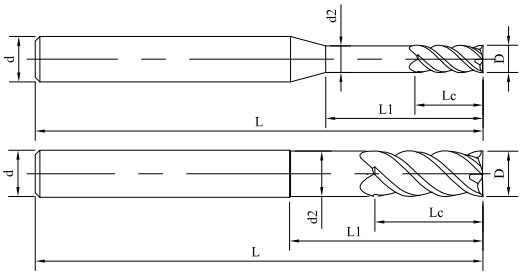


Fig1

Fig2

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

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

SH300-S6-H

6 Flute, Standard Length

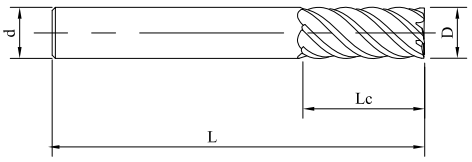


Fig1

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

SH300-SH6-H

6 Flute, Long Shank

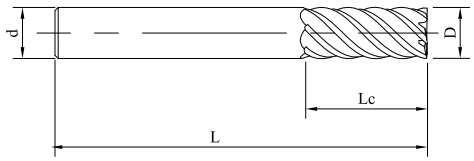


Fig1

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

SH300-SL6-H

6 Flute, Long Flute

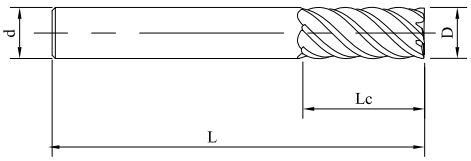


Fig1

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

SH300-R2-H

2 Flute, Cornor Raidus

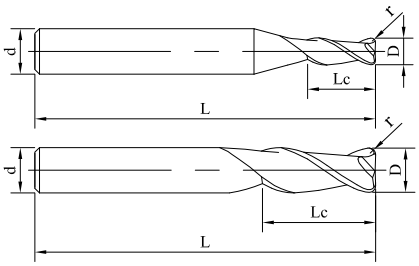


Fig1

Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

SH300-R2-H

2 Flute, Cornor Raidus

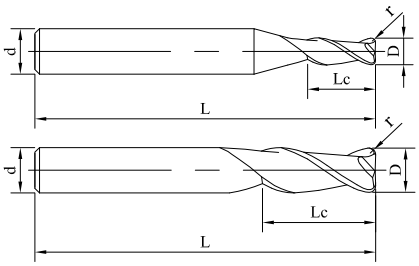


Fig1

Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

单位 (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

SH300-RN2-H

2 Flute with Reduced Neck, Cornor Raidus

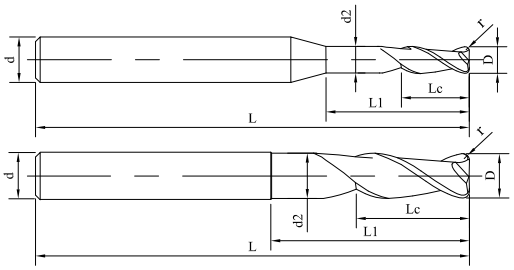


Fig1

Fig2

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

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

单位 (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

SH300-R4-H

4 Flute, Cornor Raidus

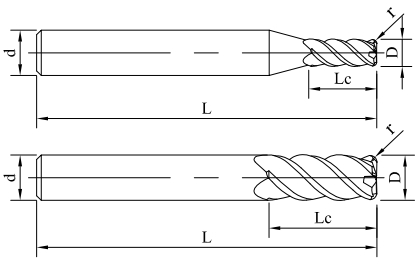


Fig1

Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

SH300-R4-H

4 Flute, Cornor Raidus

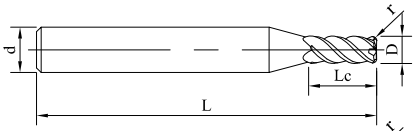


Fig1

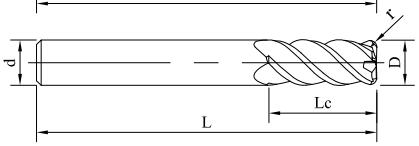


Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

SH300-R4-H

4 Flute, Cornor Raidus

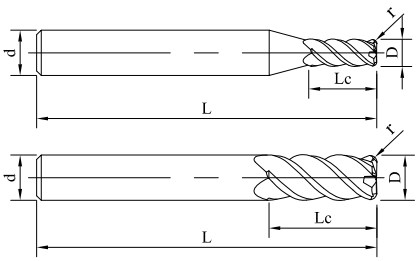


Fig1

Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

SH300-R4-H

4 Flute, Cornor Raidus

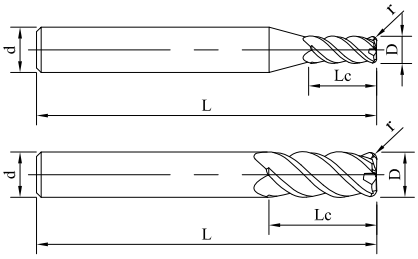


Fig1

Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

SH300-RH4-H

4 Flute with Long Shank,Cornor Raidus

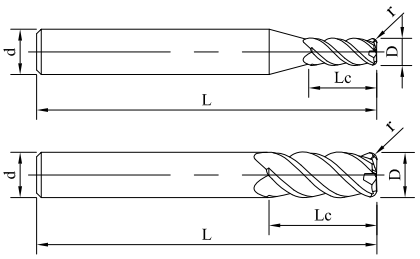


Fig1

Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

SH300-RH4-H

4 Flute with Long Shank,Cornor Raidus

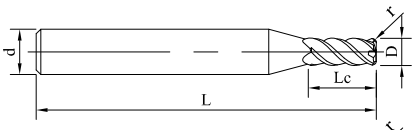


Fig1

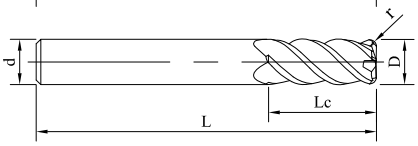


Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

SH300-RH4-H

4 Flute with Long Shank,Cornor Raidus

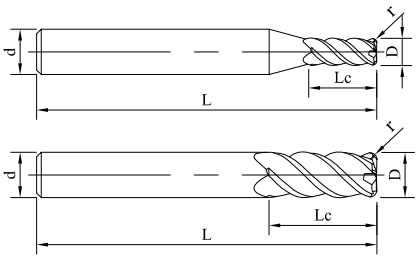


Fig1

Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

SH300-RN4-H

4 Flute with Reduced Neck, Cornor Raidus

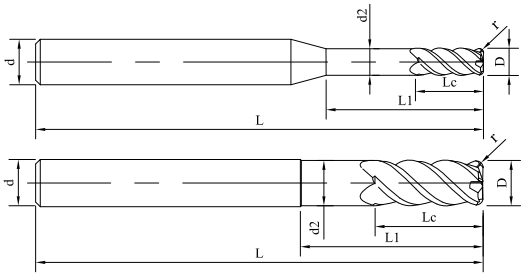


Fig1

Fig2

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

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

SH300-RN4-H

4 Flute with Reduced Neck, Cornor Raidus

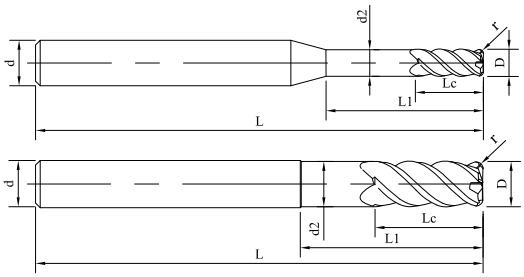


Fig1

Fig2

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

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

SH300-RN4-H

4 Flute with Reduced Neck, Cornor Raidus

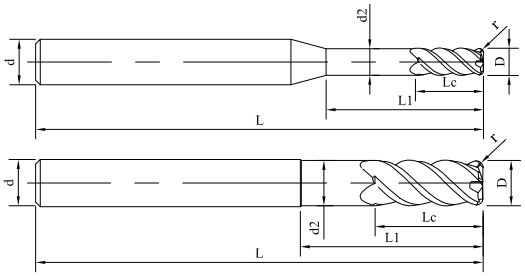


Fig1

Fig2

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

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

SH300-RN4-H

4 Flute with Reduced Neck, Cornor Raidus

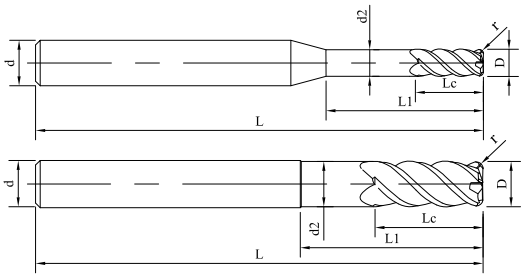


Fig1

Fig2

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

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

SH300-RN4-H

4 Flute with Reduced Neck, Cornor Raidus

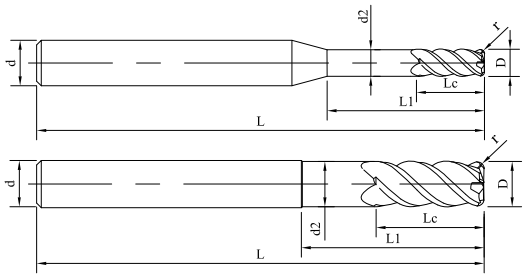


Fig1

Fig2

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

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

SH300-RN4-H

4 Flute with Reduced Neck, Cornor Raidus

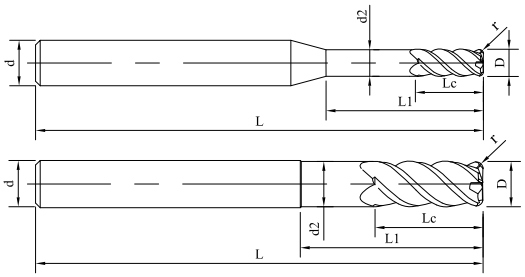


Fig1

Fig2

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P492

SH300-R6-H

6 Flute, Cornor Raidus

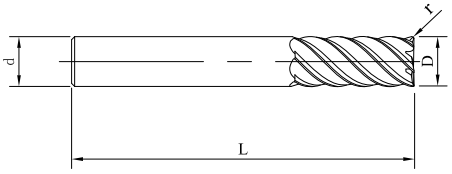


Fig1

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

SH300-R6-H

6 Flute, Cornor Raidus

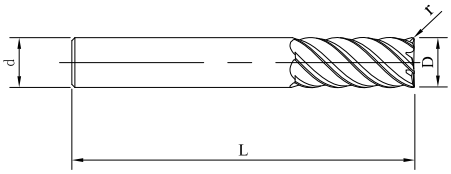


Fig1

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

D	Tol
D≤12	0 -0.015
D>12	0 -0.020

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

SH300-RH6-H

6 Flute with Long Shank, Cornor Raidus

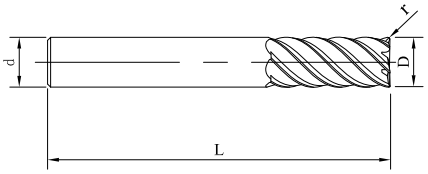


Fig1

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

SH300-RH6-H

6 Flute with Long Shank, Cornor Raidus

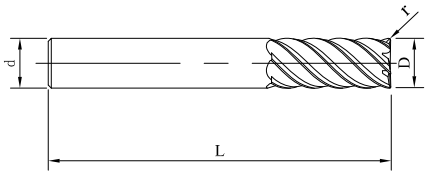


Fig1

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

SH300-B2-H

2 Flute, Ballnose

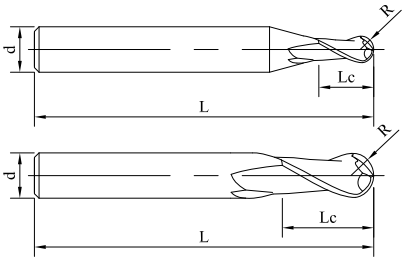


Fig1

Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

R	Tol
R≤3	±0.005
R>3	±0.007

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

SH300-B2-H

2 Flute, Ballnose

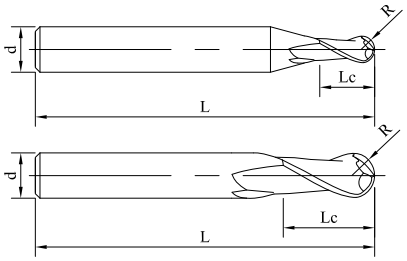


Fig1

Fig2

See page 149 or guidelines to icons

》 Continuation

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

●Stock ○Available upon Order

R	Tol
R≤3	±0.005
R>3	±0.007

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

SH300-BH2-H

2 Flute with Long Shank, Ballnose

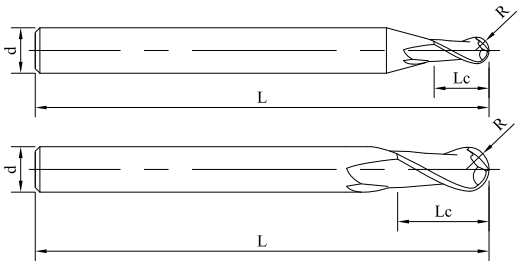


Fig1

Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

R	Tol
R≤3	±0.005
R>3	±0.007

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

SH300-BH2-H

2 Flute with Long Shank, Ballnose

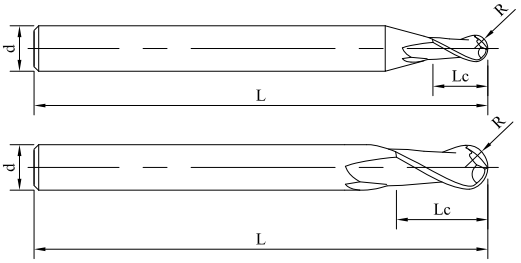


Fig1

Fig2

See page 149 or guidelines to icons

》 Continuation

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

●Stock ○Available upon Order

R	Tol
R≤3	±0.005
R>3	±0.007

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

SH300-BN2-H

2 Flute, Ballnose

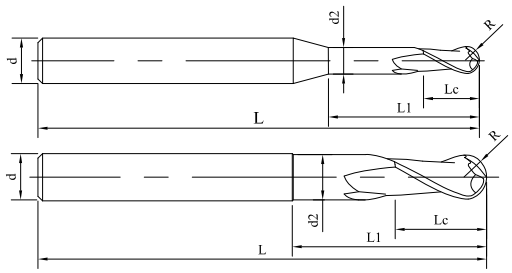


Fig1

Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

R	Tol
R≤3	±0.005
R>3	±0.007

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

SH300-BN2-H

2 Flute with Reduced Neck, Ballnose

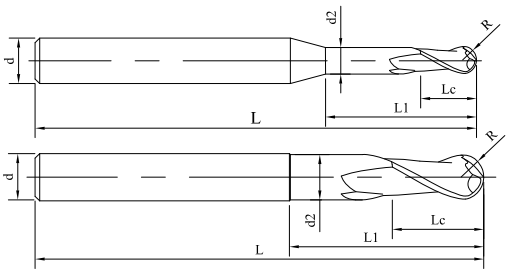


Fig1

Fig2

See page 149 or guidelines to icons

》 Continuation

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

●Stock ○Available upon Order

R	Tol
R≤3	±0.005
R>3	±0.007

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

SH300-BN2-H

2 Flute with Reduced Neck, Ballnose

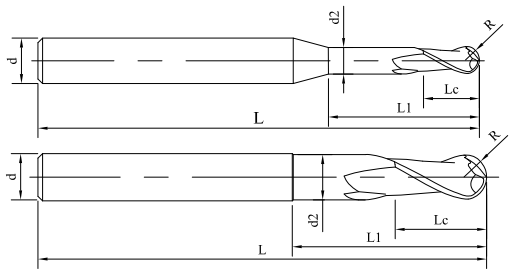


Fig1

Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

R	Tol
R≤3	±0.005
R>3	±0.007

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

SH300-BN2-H

2 Flute with Reduced Neck, Ballnose

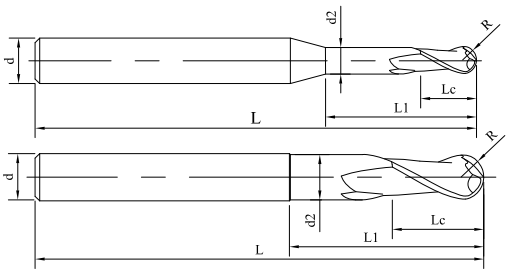


Fig1

Fig2

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

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

R	Tol
R≤3	±0.005
R>3	±0.007

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

SH300-B4-H

4 Flute, Ballnose

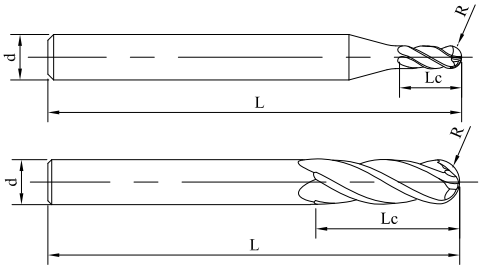


Fig1

Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

R	Tol
R≤3	±0.005
R>3	±0.007

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P493

SH300-BH4-H

4 Flute with Long Shank, Ballnose

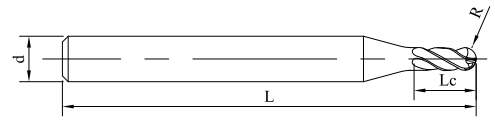


Fig1

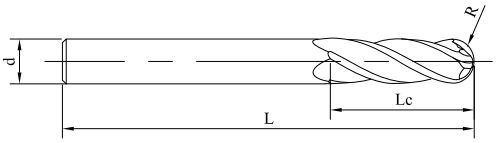


Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

R	Tol
R≤3	±0.005
R>3	±0.007

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P494

SH300-BN4-H

4 Flute with Reduced Neck, Ballnose

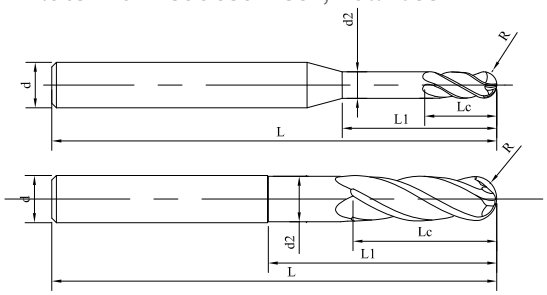


Fig1

Fig2

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

R	Tol
R≤3	±0.005
R>3	±0.007

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P494

FH200-R4-H

4 Flute, Cornor Raidus

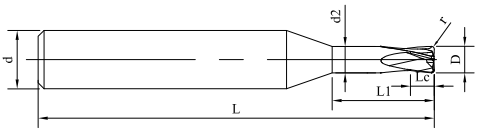


Fig1

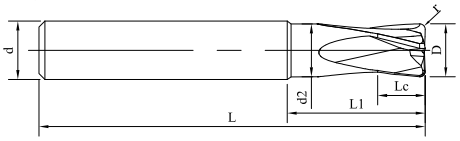


Fig2

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

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P495

FH200-R4-H

4 Flute, Cornor Raidus

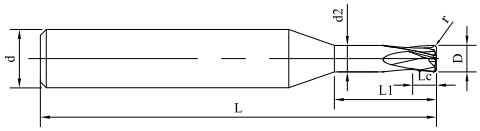


Fig1

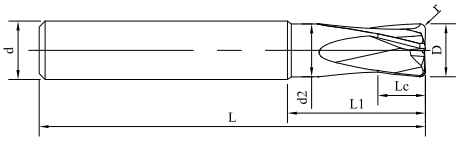


Fig2

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

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P495

FH200-RN4-H

4 Flute with Reduced Neck,Cornor Raidus

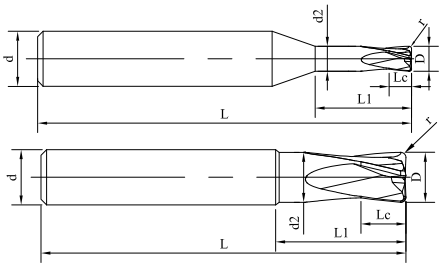


Fig1

Fig2

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

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
D≤5	0 -0.01
D>5	0 -0.015

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P495

FH200-RN4-H

4 Flute with Reduced Neck,Cornor Raidus

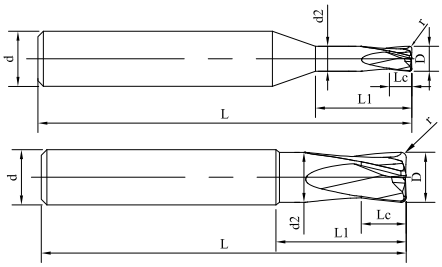


Fig1

Fig2

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

See page 149 or guidelines to icons

》Continuation

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

●Stock ○Available upon Order

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

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P495

FH200-R6-H

6 Flute, Cornor Raidus

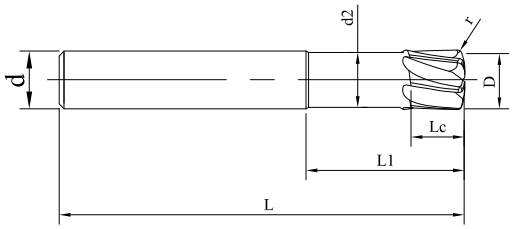


Fig1

See page 149 or guidelines to icons

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

●Stock ○Available upon Order

D	Tol
D≤20	-0.014 -0.038

unit (mm)

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

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P495

FH200-RH6-H

6 Flute with Long Shank, Cornor Raidus

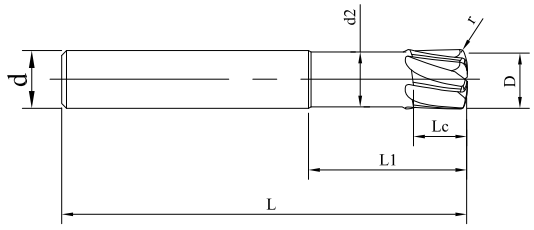


Fig1

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, AlloySteel (<35HRC)	Alloy Steel,ToolSteel (48HRC)	PH,Ferrite,Martensite Steel(< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel(> 60HRC)
	◎		◎	◎	◎

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P495

FH200-RN6-H

6 Flute with Reduced Neck, Cornor Raidus

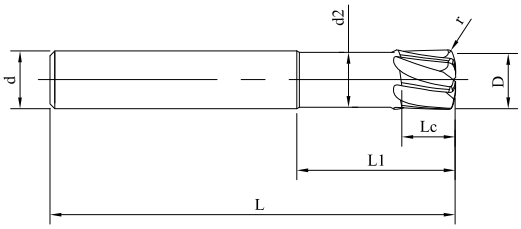


Fig1

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

See page 149 or guidelines to icons

Ordering Code	D	Lc	r	d2	L1	L	d	Figure No.	Stock
FH200-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)

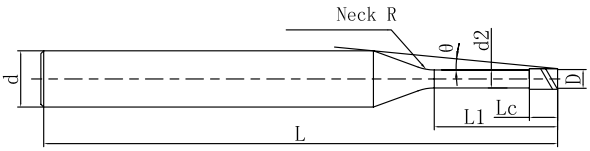
Workpiece Material					
P			H		
1 2 3 4	5	6	1	2	3 4
Carbon Steel, AlloySteel (<35HRC)	Alloy Steel,ToolSteel (48HRC)	PH,Ferrite,Martensite Steel(< 35HRC)	Hardened Steel (45-55HRC)	Hardened Steel (55-60HRC)	Hardened Steel(> 60HRC)
	◎		◎	◎	◎

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P495

SPM200-SN2

2 Flute with Extended Neck,Square



SHANK h5 | 2 | AlCrSiN | 30° Helix | Square

See page 149 for guidelines to icons

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

● Stock ○ Available upon Order

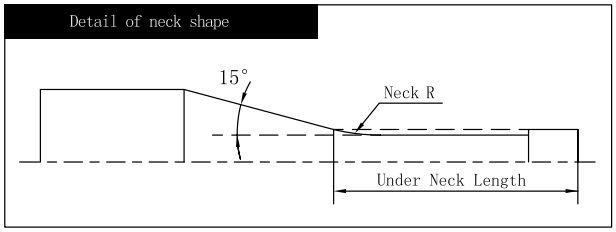
D	Tol
0.1≤D≤0.5	0 -0.007
0.6≤D≤0.9	0 -0.01
1.0≤D≤6.0	0 -0.015

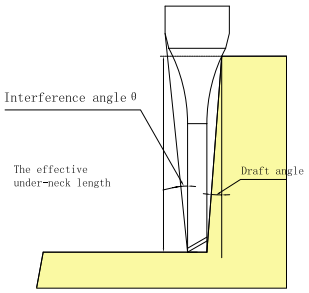
(mm)

Cutting Parameters ※ P497

SPM200-SN2

2 Flute with Extended Neck,Square





See page 149 for guidelines to icons

》Continue

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

● Stock ○ Available upon Order

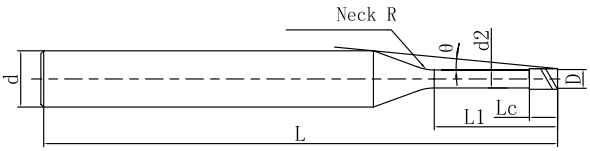
D	Tol
0.1≤D≤0.5	$^{0}_{-0.007}$
0.6≤D≤0.9	$^{0}_{-0.01}$
1.0≤D≤6.0	$^{0}_{-0.015}$

(mm)

Cutting Parameters ※ P497

SPM200-SN2

2 Flute with Extended Neck,Square



See page 149 for guidelines to icons

》 Continue

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

● Stock ○ Available upon Order

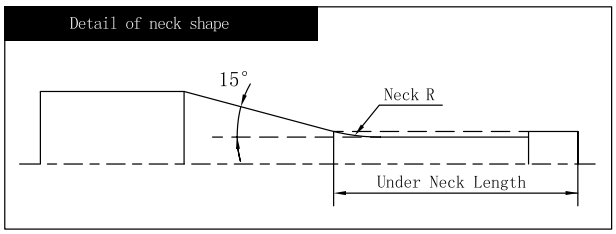
D	Tol
0.1≤D≤0.5	0 -0.007
0.6≤D≤0.9	0 -0.01
1.0≤D≤6.0	0 -0.015

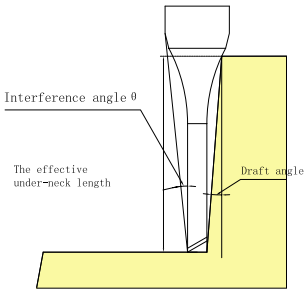
(mm)

Cutting Parameters ※ P497

SPM200-SN2

2 Flute with Extended Neck,Square





See page 149 for guidelines to icons

》Continue

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

● Stock ○ Available upon Order

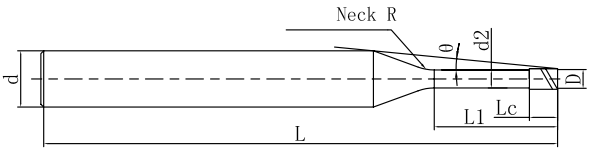
D	Tol
0.1≤D≤0.5	$^{0}_{-0.007}$
0.6≤D≤0.9	$^{0}_{-0.01}$
1.0≤D≤6.0	$^{0}_{-0.015}$

(mm)

Cutting Parameters ※ P497

SPM200-SN2

2 Flute with Extended Neck,Square



See page 149 for guidelines to icons

》 Continue

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

● Stock ○ Available upon Order

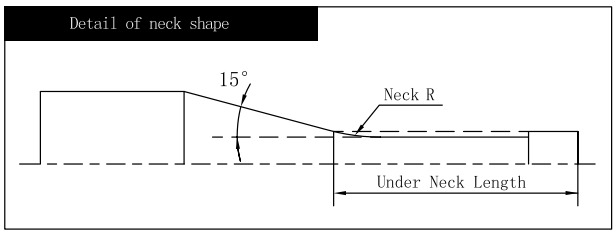
D	Tol
0.1≤D≤0.5	0 -0.007
0.6≤D≤0.9	0 -0.01
1.0≤D≤6.0	0 -0.015

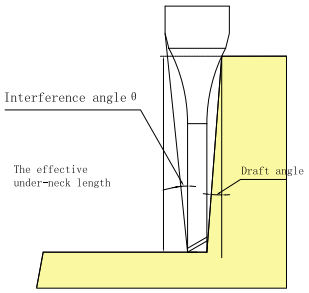
(mm)

Cutting Parameters ※ P497

SPM200-SN2

2 Flute with Extended Neck,Square





See page 149 for guidelines to icons

》Continue

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

● Stock ○ Available upon Order

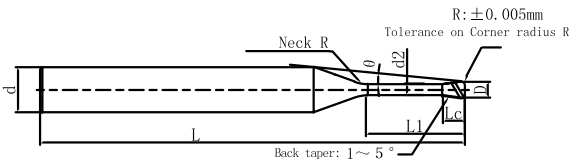
D	Tol
0.1≤D≤0.5	0 -0.007
0.6≤D≤0.9	0 -0.01
1.0≤D≤6.0	0 -0.015

(mm)

Cutting Parameters ※ P497

SPM200-RN2

2 Flute with Extended Neck, Cornor Raidus



Φ4 or higher does not have backdraft shape

See page 149 for guidelines to icons

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

● Stock ○ Available upon Order

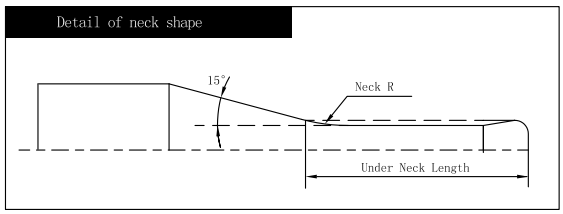
R	Tol
R	±0.005

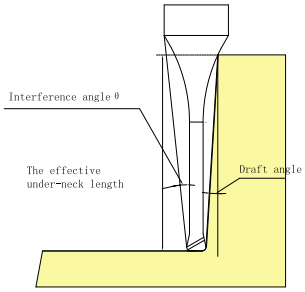
(mm)

Cutting Parameters ※ P507

SPM200-RN2

2 Flute with Extended Neck, Cornor Raidus





See page 149 for guidelines to icons

》Continue

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

● Stock ○ Available upon Order

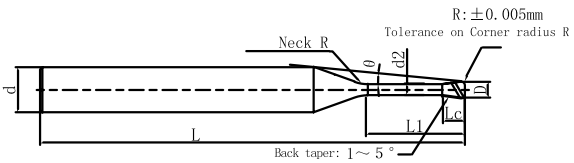
R	Tol
R	±0.005

(mm)

Cutting Parameters ※ P507

SPM200-RN2

2 Flute with Extended Neck, Cornor Raidus



Φ4 or higher does not have backdraft shape

See page 149 for guidelines to icons

》 Continue

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

● Stock ○ Available upon Order

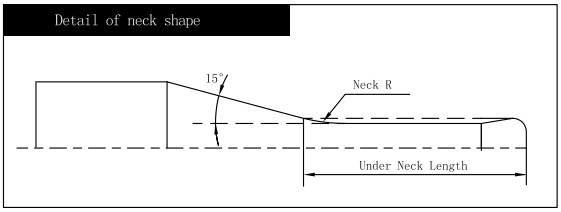
R	Tol
R	±0.005

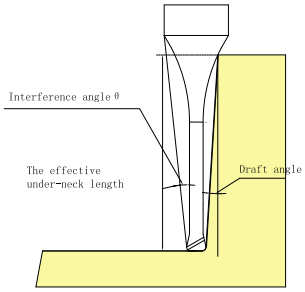
(mm)

Cutting Parameters ※ P507

SPM200-RN2

2 Flute with Extended Neck, Cornor Raidus





See page 149 for guidelines to icons

》Continue

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

● Stock ○ Available upon Order

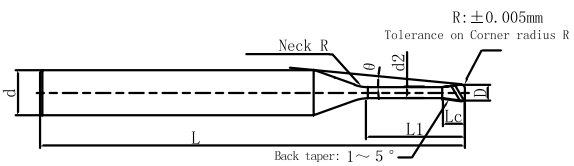
R	Tol
R	±0.005

(mm)

Cutting Parameters ※ P507

SPM200-RN2

2 Flute with Extended Neck, Cornor Raidus



Φ4 or higher does not have backdraft shape

See page 149 for guidelines to icons

》Continue

Ordering Code	Mill	r	Under Neck Length	Flute Length	Neck Dia.	Overall Length	Shank Dia.	Neck	Interference Angle	The effective under-neck length for the various draft angles					Stock
										0.5°	1°	1.5°	2°	3°	
SPM200-RN2-1-4-0.1-V	1	0.1	4	0.8	0.96	50	4	4	8.80	4.26	4.47	4.64	4.81	5.19	○
SPM200-RN2-1-5-0.1-V			5			50			7.99	5.32	5.55	5.75	5.96	6.44	●
SPM200-RN2-1-6-0.1-V			6			50			7.31	6.37	6.62	6.86	7.11	7.68	●
SPM200-RN2-1-8-0.1-V			8			50			6.25	8.45	8.76	9.07	9.41	10.17	●
SPM200-RN2-1-10-0.1-V			10			50			5.46	10.53	10.90	11.29	11.71	12.65	●
SPM200-RN2-1-12-0.1-V			12			55			4.85	12.60	13.04	13.51	14.01	15.14	○
SPM200-RN2-1-16-0.1-V			16			60			3.96	16.74	17.32	17.94	18.61	20.11	●
SPM200-RN2-1-20-0.1-V			20			60			3.35	20.87	21.60	22.37	23.21	25.08	○
SPM200-RN2-1-2-0.2-V		0.2	2			50			11.17	2.14	2.26	2.38	2.48	2.68	●
SPM200-RN2-1-3-0.2-V			3			50			9.90	3.20	3.37	3.51	3.65	3.93	●
SPM200-RN2-1-4-0.2-V			4			50			8.89	4.26	4.46	4.63	4.80	5.17	●
SPM200-RN2-1-5-0.2-V			5			50			8.06	5.31	5.54	5.74	5.95	6.41	○
SPM200-RN2-1-6-0.2-V			6			50			7.37	6.36	6.61	6.85	7.10	7.66	●
SPM200-RN2-1-8-0.2-V			8			50			6.30	8.45	8.75	9.06	9.40	10.14	●
SPM200-RN2-1-10-0.2-V			10			50			5.50	10.53	10.89	11.28	11.70	12.63	○
SPM200-RN2-1-12-0.2-V			12			55			4.88	12.60	13.03	13.50	14.00	15.11	●
SPM200-RN2-1-16-0.2-V			16			60			3.98	16.74	17.31	17.93	18.59	20.09	○
SPM200-RN2-1-20-0.2-V			20			60			3.36	20.87	21.59	22.36	23.19	25.06	○
SPM200-RN2-1-2-0.3-V		0.3	2			50			11.32	2.13	2.25	2.36	2.47	2.66	●
SPM200-RN2-1-3-0.3-V			3			50			10.01	3.20	3.36	3.50	3.63	3.90	○
SPM200-RN2-1-4-0.3-V			4			50			8.98	4.25	4.45	4.62	4.78	5.15	●
SPM200-RN2-1-5-0.3-V			5			50			8.14	5.31	5.53	5.73	5.93	6.39	○
SPM200-RN2-1-6-0.3-V			6			50			7.44	6.36	6.61	6.84	7.08	7.63	●
SPM200-RN2-1-8-0.3-V			8			50			6.35	8.44	8.75	9.05	9.38	10.12	●

● Stock ○ Available upon Order

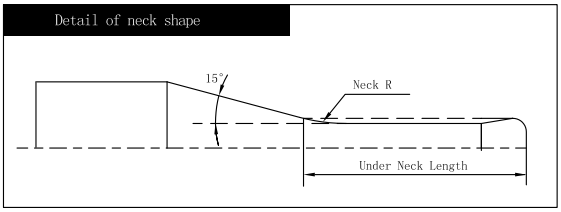
R	Tol
R	±0.005

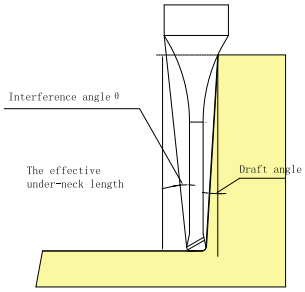
(mm)

Cutting Parameters ※ P507

SPM200-RN2

2 Flute with Extended Neck, Cornor Raidus





See page 149 for guidelines to icons

》Continue

Ordering Code	Mill	r	Under Neck Length	Flute Length	Neck Dia.	Overall Length	Shank Dia.	Neck	Interference Angle	The effective under-neck length for the various draft angles					Stock
										0.5°	1°	1.5°	2°	3°	
SPM200-RN2-1-10-0.3-V	1	0.3	10	0.8	0.96	50	4	4	5.53	10.52	10.89	11.27	11.68	12.60	●
SPM200-RN2-1-12-0.3-V			12			55			4.90	12.60	13.03	13.49	13.98	15.09	○
SPM200-RN2-1-16-0.3-V			16			60			4.00	16.73	17.30	17.92	18.58	20.06	●
SPM200-RN2-1-20-0.3-V			20			60			3.37	20.87	21.58	22.35	23.18	25.04	○
SPM200-RN2-1.25-5-0.1-V	1.25	0.1	5	1	1.20	50	4	4	7.68	5.30	5.52	5.72	5.93	6.40	●
SPM200-RN2-1.25-10-0.1-V			10			50			5.17	10.50	10.87	11.26	11.68	12.62	○
SPM200-RN2-1.25-15-0.1-V			15			55			3.90	15.68	16.22	16.80	17.43	18.83	●
SPM200-RN2-1.25-20-0.1-V			20			60			3.13	20.84	21.57	22.34	23.18	25.05	●
SPM200-RN2-1.25-5-0.2-V		0.2	5			50			7.75	5.29	5.51	5.71	5.91	6.38	○
SPM200-RN2-1.25-10-0.2-V			10			50			5.21	10.50	10.86	11.25	11.66	12.59	●
SPM200-RN2-1.25-15-0.2-V			15			55			3.92	15.67	16.21	16.79	17.41	18.81	●
SPM200-RN2-1.25-20-0.2-V			20			60			3.14	20.84	21.56	22.33	23.16	25.02	○
SPM200-RN2-1.25-5-0.3-V		0.3	5			50			7.83	5.29	5.50	5.70	5.90	6.35	●
SPM200-RN2-1.25-10-0.3-V			10			50			5.24	10.50	10.86	11.24	11.65	12.57	●
SPM200-RN2-1.25-15-0.3-V			15			55			3.94	15.67	16.20	16.78	17.40	18.78	●
SPM200-RN2-1.25-20-0.3-V			20			60			3.15	20.84	21.55	22.32	23.15	25.00	○
SPM200-RN2-1.5-4-0.1-V	1.5	0.1	4	1.2	1.44	50	4	4	8.17	4.23	4.42	4.58	4.75	5.13	●
SPM200-RN2-1.5-6-0.1-V			6			50			6.66	6.32	6.57	6.80	7.05	7.62	○
SPM200-RN2-1.5-8-0.1-V			8			50			5.62	8.41	8.71	9.02	9.35	10.10	●
SPM200-RN2-1.5-12-0.1-V			12			55			4.28	12.55	12.98	13.45	13.95	15.07	●
SPM200-RN2-1.5-15-0.1-V			15			55			3.63	15.65	16.19	16.77	17.40	18.80	○
SPM200-RN2-1.5-20-0.1-V			20			60			2.90	20.82	21.54	22.32	23.15	-	●
SPM200-RN2-1.5-4-0.2-V		0.2	4			50			8.26	4.23	4.41	4.57	4.74	5.10	●
SPM200-RN2-1.5-6-0.2-V			6			50			6.72	6.32	6.56	6.79	7.04	7.59	●

● Stock ○ Available upon Order

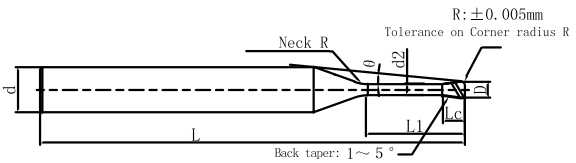
R	Tol
R	±0.005

(mm)

Cutting Parameters ※ P507

SPM200-RN2

2 Flute with Extended Neck, Cornor Raidus



Φ4 or higher does not have backdraft shape

See page 149 for guidelines to icons

》 Continue

Ordering Code	Mill	r	Under Neck Length	Flute Length	Neck Dia.	Overall Length	Shank Dia.	Neck	Interference Angle	The effective under-neck length for the various draft angles					Stock
										0.5°	1°	1.5°	2°	3°	
SPM200-RN2-1.5-8-0.2-V	1.5	0.2	8	1.2	1.44	50	4	4	5.66	8.40	8.70	9.01	9.34	10.08	○
SPM200-RN2-1.5-12-0.2-V			12			55			4.31	12.55	12.98	13.44	13.94	15.05	●
SPM200-RN2-1.5-15-0.2-V			15			55			3.65	15.65	16.19	16.76	17.38	18.78	●
SPM200-RN2-1.5-20-0.2-V			20			60			2.91	20.82	21.53	22.31	23.13	-	○
SPM200-RN2-1.5-4-0.3-V		0.3	4			50			8.36	4.22	4.40	4.56	4.72	5.08	●
SPM200-RN2-1.5-6-0.3-V			6			50			6.78	6.31	6.55	6.78	7.02	7.57	●
SPM200-RN2-1.5-8-0.3-V			8			50			5.71	8.40	8.69	8.99	9.32	10.05	○
SPM200-RN2-1.5-12-0.3-V			12			55			4.33	12.54	12.97	13.43	13.92	15.03	●
SPM200-RN2-1.5-15-0.3-V			15			55			3.67	15.64	16.18	16.75	17.37	18.76	●
SPM200-RN2-1.5-20-0.3-V			20			60			2.92	20.81	21.53	22.29	23.12	-	○
SPM200-RN2-1.5-4-0.5-V		0.5	4			50			8.55	4.21	4.39	4.54	4.69	5.03	●
SPM200-RN2-1.5-6-0.5-V			6			50			6.91	6.31	6.54	6.76	6.99	7.52	●
SPM200-RN2-1.5-8-0.5-V			8			50			5.80	8.39	8.68	8.97	9.29	10.00	○
SPM200-RN2-1.5-12-0.5-V			12			55			4.39	12.54	12.96	13.41	13.89	14.98	●
SPM200-RN2-1.5-15-0.5-V			15			55			3.71	15.64	16.17	16.73	17.34	18.71	●
SPM200-RN2-1.5-20-0.5-V			20			60			2.95	20.81	21.51	22.27	23.09	-	○
SPM200-RN2-1.75-5-0.1-V	1.75	0.1	5	1.4	1.68	50	4	4	6.96	5.26	5.47	5.67	5.88	6.35	●
SPM200-RN2-1.75-10-0.1-V			10			50			4.53	10.46	10.82	11.21	11.63	12.56	●
SPM200-RN2-1.75-15-0.1-V			15			55			3.35	15.63	16.17	16.75	17.38	18.78	○
SPM200-RN2-1.75-20-0.1-V			20			60			2.66	20.80	21.52	22.29	23.13	-	●
SPM200-RN2-1.75-5-0.2-V		0.2	5			50			7.03	5.26	5.47	5.66	5.86	6.32	●
SPM200-RN2-1.75-10-0.2-V			10			50			4.56	10.46	10.82	11.20	11.61	12.54	○
SPM200-RN2-1.75-15-0.2-V			15			55			3.37	15.63	16.16	16.74	17.36	18.75	●
SPM200-RN2-1.75-20-0.2-V			20			60			2.67	20.80	21.51	22.28	23.11	-	●

● Stock ○ Available upon Order

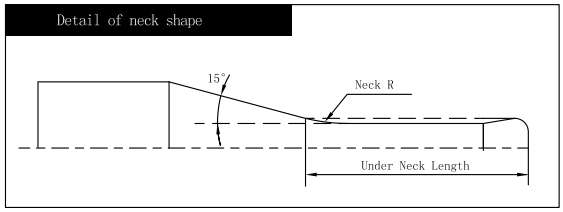
R	Tol
R	±0.005

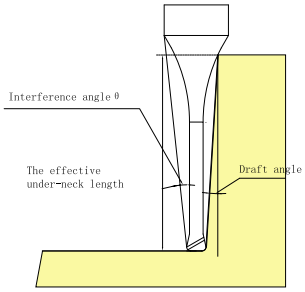
(mm)

Cutting Parameters ※ P507

SPM200-RN2

2 Flute with Extended Neck, Cornor Raidus





See page 149 for guidelines to icons

》Continue

Ordering Code	Mill	r	Under Neck Length	Flute Length	Neck Dia.	Overall Length	Shank Dia.	Neck	Interference Angle	The effective under-neck length for the various draft angles					Stock
										0.5°	1°	1.5°	2°	3°	
SPM200-RN2-1.75-5-0.3-V	1.75	0.3	5	1.4	1.68	50	4	4	7.11	5.25	5.46	5.65	5.85	6.30	●
SPM200-RN2-1.75-10-0.3-V			10			50			4.59	10.45	10.81	11.19	11.60	12.51	○
SPM200-RN2-1.75-15-0.3-V			15			55			3.39	15.62	16.16	16.73	17.35	18.73	●
SPM200-RN2-1.75-20-0.3-V			20			60			2.69	20.79	21.51	22.27	23.10	-	●
SPM200-RN2-2-4-0.1-V	2	0.1	4	1.6	1.92	50	4	4	7.36	4.21	4.38	4.54	4.71	5.08	●
SPM200-RN2-2-6-0.1-V			6			50			5.86	6.29	6.53	6.76	7.01	7.57	●
SPM200-RN2-2-8-0.1-V			8			50			4.87	8.37	8.66	8.97	9.31	10.05	○
SPM200-RN2-2-12-0.1-V			12			55			3.64	12.51	12.94	13.41	13.91	15.03	●
SPM200-RN2-2-16-0.1-V			16			55			2.90	16.65	17.22	17.84	18.51	-	●
SPM200-RN2-2-20-0.1-V			20			60			2.42	20.78	21.50	22.27	23.11	-	○
SPM200-RN2-2-25-0.1-V			25			65			2.00	25.95	26.85	27.82	-	-	●
SPM200-RN2-2-30-0.1-V			30			70			1.70	31.12	32.20	33.36	-	-	○
SPM200-RN2-2-4-0.2-V		0.2	4			50			7.46	4.20	4.37	4.53	4.69	5.06	●
SPM200-RN2-2-6-0.2-V			6			50			5.93	6.29	6.52	6.75	6.99	7.54	●
SPM200-RN2-2-8-0.2-V			8			50			4.91	8.37	8.66	8.96	9.29	10.03	○
SPM200-RN2-2-12-0.2-V			12			55			3.66	12.51	12.94	13.40	13.89	15.00	●
SPM200-RN2-2-16-0.2-V			16			55			2.92	16.64	17.22	17.83	18.49	-	●
SPM200-RN2-2-20-0.2-V			20			60			2.43	20.78	21.49	22.26	23.09	-	○
SPM200-RN2-2-25-0.2-V			25			65			2.00	25.95	26.84	27.80	-	-	●
SPM200-RN2-2-30-0.2-V			30			70			1.71	31.11	32.19	33.35	-	-	○
SPM200-RN2-2-4-0.3-V		0.3	4			50			7.56	4.20	4.37	4.52	4.68	5.03	●
SPM200-RN2-2-6-0.3-V			6			50			5.99	6.28	6.51	6.74	6.98	7.52	●
SPM200-RN2-2-8-0.3-V			8			50			4.96	8.36	8.65	8.95	9.28	10.01	○
SPM200-RN2-2-12-0.3-V			12			55			3.69	12.50	12.93	13.39	13.88	14.98	●

● Stock ○ Available upon Order

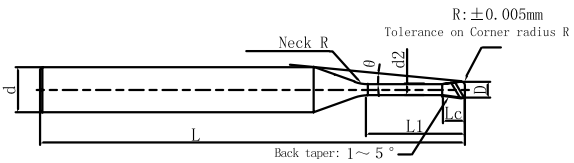
R	Tol
R	±0.005

(mm)

Cutting Parameters ※ P507

SPM200-RN2

2 Flute with Extended Neck, Cornor Raidus



Φ4 or higher does not have backdraft shape

See page 149 for guidelines to icons

》Continue

Ordering Code	Mill	r	Under Neck Length	Flute Length	Neck Dia.	Overall Length	Shank Dia.	Neck	Interference Angle	The effective under-neck length for the various draft angles					Stock
										0.5°	1°	1.5°	2°	3°	
SPM200-RN2-2-16-0.3-V	2	0.3	16	1.6	1.92	55	4	4	2.93	16.64	17.21	17.82	18.48	-	○
SPM200-RN2-2-20-0.3-V			20			60			2.44	20.77	21.49	22.25	23.08	-	●
SPM200-RN2-2-25-0.3-V			25			65			2.01	25.94	26.84	27.79	28.82	-	●
SPM200-RN2-2-30-0.3-V			30			70			1.71	31.11	32.18	33.34	-	-	○
SPM200-RN2-2-6-0.5-V		0.5	6			50			6.11	6.28	6.50	6.71	6.95	7.47	●
SPM200-RN2-2-8-0.5-V			8			50			5.04	8.36	8.64	8.93	9.25	9.96	●
SPM200-RN2-2-12-0.5-V			12			55			3.73	12.50	12.92	13.36	13.85	14.93	○
SPM200-RN2-2-16-0.5-V			16			55			2.96	16.63	17.19	17.80	18.45	-	●
SPM200-RN2-2-20-0.5-V			20			60			2.46	20.77	21.47	22.23	23.05	-	●
SPM200-RN2-2-25-0.5-V			25			65			2.03	25.94	26.82	27.77	28.79	-	○
SPM200-RN2-2-30-0.5-V			30			70			1.72	31.10	32.17	33.31	-	-	○
SPM200-RN2-2-6-0.8-V		0.8	6			50			6.31	6.26	6.48	6.68	6.90	7.40	●
SPM200-RN2-2-8-0.8-V			8			50			5.18	8.35	8.62	8.90	9.20	9.88	●
SPM200-RN2-2-12-0.8-V			12			55			3.81	12.49	12.89	13.33	13.80	14.86	○
SPM200-RN2-2-16-0.8-V			16			55			3.01	16.62	17.17	17.77	18.40	19.83	●
SPM200-RN2-2-20-0.8-V			20			60			2.49	20.76	21.45	22.20	23.00	-	○
SPM200-RN2-2-25-0.8-V			25			65			2.05	25.93	26.80	27.74	28.75	-	●
SPM200-RN2-2-30-0.8-V			30			70			1.74	31.09	32.15	33.28	-	-	○
SPM200-RN2-2.5-10-0.1-V	2.5	0.1	10	2	2.40	50	4	4	3.36	10.41	10.77	11.16	11.57	12.50	●
SPM200-RN2-2.5-20-0.1-V			20			60			1.89	20.75	21.47	22.24	-	-	○
SPM200-RN2-2.5-30-0.1-V			30			70			1.32	31.09	32.17	-	-	-	●
SPM200-RN2-2.5-10-0.2-V		0.2	10			50			3.39	10.41	10.77	11.15	11.56	12.48	●
SPM200-RN2-2.5-20-0.2-V			20			60			1.90	20.75	21.46	22.23	-	-	○
SPM200-RN2-2.5-30-0.2-V			30			70			1.32	31.08	32.16	-	-	-	○

● Stock ○ Available upon Order

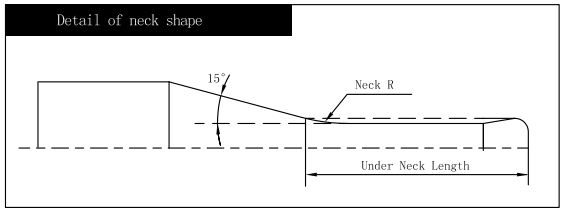
R	Tol
R	±0.005

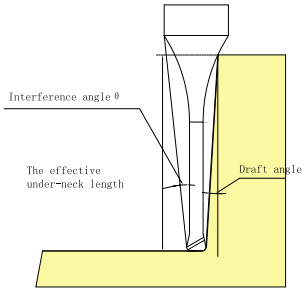
(mm)

Cutting Parameters ※ P507

SPM200-RN2

2 Flute with Extended Neck, Cornor Raidus





See page 149 for guidelines to icons

》Continue

Ordering Code	Mill	r	Under Neck Length	Flute Length	Neck Dia.	Overall Length	Shank Dia.	Neck	Interference Angle	The effective under-neck length for the various draft angles					Stock
										0.5°	1°	1.5°	2°	3°	
SPM200-RN2-2.5-10-0.3-V	2.5	0.3	10	2	2.40	50	4	4	3.42	10.41	10.76	11.14	11.54	12.46	●
SPM200-RN2-2.5-20-0.3-V			20			60			1.91	20.74	21.46	22.22	-	-	○
SPM200-RN2-2.5-30-0.3-V			30			70			1.32	31.08	32.15	-	-	-	●
SPM200-RN2-2.5-10-0.5-V		0.5	10			50			3.47	10.40	10.75	11.12	11.51	12.41	○
SPM200-RN2-2.5-20-0.5-V			20			60			1.92	20.74	21.44	22.20	-	-	●
SPM200-RN2-2.5-30-0.5-V			30			70			1.33	31.07	32.14	-	-	-	○
SPM200-RN2-3-6-0.1-V	3	0.1	6	2.4	2.88	50	6	4	7.40	6.25	6.47	6.70	6.95	7.50	●
SPM200-RN2-3-8-0.1-V			8			55			6.32	8.32	8.61	8.92	9.25	9.99	●
SPM200-RN2-3-12-0.1-V			12			60			4.89	12.46	12.89	13.35	13.85	14.96	○
SPM200-RN2-3-16-0.1-V			16			60			3.99	16.59	17.17	17.78	18.45	19.94	●
SPM200-RN2-3-18-0.1-V			18			65			3.65	18.66	19.31	20.00	20.75	22.42	●
SPM200-RN2-3-20-0.1-V			20			65			3.36	20.73	21.45	22.22	23.05	24.91	○
SPM200-RN2-3-30-0.1-V			30			75			2.42	31.06	32.14	33.30	34.55	-	○
SPM200-RN2-3-35-0.1-V			35			80			2.12	36.23	37.49	38.84	40.29	-	○
SPM200-RN2-3-6-0.2-V		0.2	6			50			7.46	6.25	6.46	6.69	6.93	7.48	●
SPM200-RN2-3-8-0.2-V			8			55			6.36	8.32	8.60	8.91	9.23	9.97	●
SPM200-RN2-3-12-0.2-V			12			60			4.92	12.45	12.88	13.34	13.83	14.94	●
SPM200-RN2-3-16-0.2-V			16			60			4.00	16.59	17.16	17.77	18.43	19.91	○
SPM200-RN2-3-18-0.2-V			18			65			3.66	18.66	19.30	19.99	20.73	22.40	●
SPM200-RN2-3-20-0.2-V			20			65			3.38	20.72	21.44	22.21	23.03	24.88	●
SPM200-RN2-3-30-0.2-V			30			75			2.43	31.06	32.14	33.29	34.53	-	○
SPM200-RN2-3-35-0.2-V			35			80			2.13	36.23	37.48	38.83	40.28	-	○
SPM200-RN2-3-6-0.3-V		0.3	6			50			7.53	6.24	6.46	6.68	6.92	7.46	●
SPM200-RN2-3-8-0.3-V			8			55			6.41	8.32	8.60	8.90	9.22	9.94	●

● Stock ○ Available upon Order

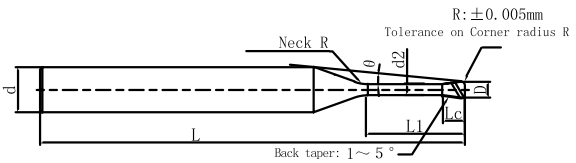
R	Tol
R	±0.005

(mm)

Cutting Parameters ※ P507

SPM200-RN2

2 Flute with Extended Neck, Cornor Raidus



Φ4 or higher does not have backdraft shape

See page 149 for guidelines to icons

》 Continue

Ordering Code	Mill	r	Under Neck Length	Flute Length	Neck Dia.	Overall Length	Shank Dia.	Neck	Interference Angle	The effective under-neck length for the various draft angles					Stock
										0.5°	1°	1.5°	2°	3°	
SPM200-RN2-3-12-0.3-V	3	0.3	12	2.4	2.88	60	6	4	4.94	12.45	12.87	13.33	13.82	14.91	○
SPM200-RN2-3-16-0.3-V			16			60			4.02	16.59	17.15	17.76	18.42	19.89	●
SPM200-RN2-3-18-0.3-V			18			65			3.68	18.65	19.29	19.98	20.72	22.37	●
SPM200-RN2-3-20-0.3-V			20			65			3.39	20.72	21.43	22.20	23.02	24.86	○
SPM200-RN2-3-30-0.3-V			30			75			2.43	31.06	32.13	33.28	34.52	-	●
SPM200-RN2-3-35-0.3-V			35			80			2.13	36.23	37.48	38.82	40.26	-	○
SPM200-RN2-3-8-0.5-V		0.5	8			55			6.51	8.31	8.58	8.87	9.19	9.89	●
SPM200-RN2-3-12-0.5-V			12			60			5.00	12.44	12.86	13.31	13.79	14.87	●
SPM200-RN2-3-16-0.5-V			16			60			4.06	16.58	17.14	17.74	18.39	19.84	●
SPM200-RN2-3-18-0.5-V			18			65			3.71	18.65	19.28	19.96	20.69	22.33	●
SPM200-RN2-3-20-0.5-V			20			65			3.42	20.71	21.42	22.17	22.99	24.81	●
SPM200-RN2-3-30-0.5-V			30			75			2.45	31.05	32.12	33.26	34.49	-	○
SPM200-RN2-3-35-0.5-V			35			80			2.14	36.22	37.46	38.80	40.23	-	○
SPM200-RN2-3-8-1-V		1	8			55			6.76	8.29	8.55	8.82	9.11	9.77	●
SPM200-RN2-3-12-1-V			12			60			5.15	12.43	12.83	13.25	13.71	14.74	●
SPM200-RN2-3-16-1-V			16			60			4.16	16.56	17.10	17.69	18.31	19.72	○
SPM200-RN2-3-18-1-V			18			65			3.79	18.63	19.24	19.90	20.61	22.20	●
SPM200-RN2-3-20-1-V			20			65			3.49	20.70	21.38	22.12	22.91	24.69	○
SPM200-RN2-3-30-1-V			30			75			2.48	31.03	32.08	33.20	34.41	-	●
SPM200-RN2-3-35-1-V			35			80			2.17	36.20	37.43	38.74	40.16	-	○
SPM200-RN2-4-8-0.1-V	4	0.1	8	3.2	3.86	55	6	4	4.90	8.31	8.59	8.90	9.23	9.97	●
SPM200-RN2-4-12-0.1-V			12			60			3.66	12.44	12.87	13.33	13.83	14.94	●
SPM200-RN2-4-16-0.1-V			16			60			2.91	16.57	17.15	17.76	18.43	-	○
SPM200-RN2-4-20-0.1-V			20			65			2.42	20.71	21.43	22.20	23.03	-	●

● Stock ○ Available upon Order

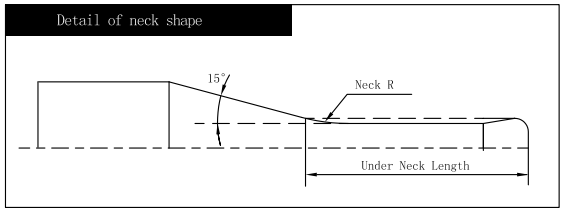
R	Tol
R	±0.005

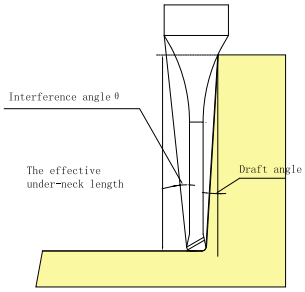
(mm)

Cutting Parameters ※ P507

SPM200-RN2

2 Flute with Extended Neck, Cornor Raidus





See page 149 for guidelines to icons

》Continue

Ordering Code	Mill	r	Under Neck Length	Flute Length	Neck Dia.	Overall Length	Shank Dia.	Neck	Interference Angle	The effective under-neck length for the various draft angles					Stock
										0.5°	1°	1.5°	2°	3°	
SPM200-RN2-4-30-0.1-V	4	0.1	30	3.2	3.86	75	6	4	1.71	31.05	32.12	33.28	-	-	○
SPM200-RN2-4-35-0.1-V			35			80			1.49	36.21	37.47	-	-	-	○
SPM200-RN2-4-45-0.1-V			45			90			1.18	46.55	48.17	-	-	-	○
SPM200-RN2-4-8-0.2-V		0.2	8			55			4.94	8.30	8.58	8.89	9.21	9.94	●
SPM200-RN2-4-12-0.2-V			12			60			3.68	12.44	12.86	13.32	13.81	14.92	●
SPM200-RN2-4-16-0.2-V			16			60			2.93	16.57	17.14	17.75	18.41	-	●
SPM200-RN2-4-20-0.2-V			20			65			2.43	20.71	21.42	22.19	23.01	-	●
SPM200-RN2-4-30-0.2-V			30			75			1.71	31.04	32.12	33.27	-	-	○
SPM200-RN2-4-35-0.2-V			35			80			1.49	36.21	37.47	-	-	-	●
SPM200-RN2-4-45-0.2-V			45			90			1.18	46.55	48.16	-	-	-	○
SPM200-RN2-4-8-0.3-V		0.3	8			55			4.99	8.30	8.58	8.88	9.20	9.92	●
SPM200-RN2-4-12-0.3-V			12			60			3.70	12.43	12.86	13.31	13.80	14.89	●
SPM200-RN2-4-16-0.3-V			16			60			2.94	16.57	17.13	17.74	18.40	-	●
SPM200-RN2-4-20-0.3-V			20			65			2.44	20.70	21.41	22.18	23.00	-	●
SPM200-RN2-4-30-0.3-V			30			75			1.72	31.04	32.11	33.26	-	-	●
SPM200-RN2-4-35-0.3-V			35			80			1.49	36.21	37.46	-	-	-	●
SPM200-RN2-4-45-0.3-V			45			90			1.19	46.54	48.16	-	-	-	○
SPM200-RN2-4-12-0.5-V		0.5	12			60			3.75	12.43	12.84	13.29	13.77	14.84	●
SPM200-RN2-4-16-0.5-V			16			60			2.97	16.56	17.12	17.72	18.37	-	●
SPM200-RN2-4-20-0.5-V			20			65			2.47	20.70	21.40	22.15	22.97	-	●
SPM200-RN2-4-30-0.5-V			30			75			1.73	31.03	32.10	33.24	-	-	●
SPM200-RN2-4-35-0.5-V			35			80			1.50	36.20	37.44	-	-	-	○
SPM200-RN2-4-45-0.5-V			45			90			1.19	46.54	48.14	-	-	-	○
SPM200-RN2-4-12-1-V		1	12			60			3.88	12.41	12.81	13.23	13.69	14.72	●

● Stock ○ Available upon Order

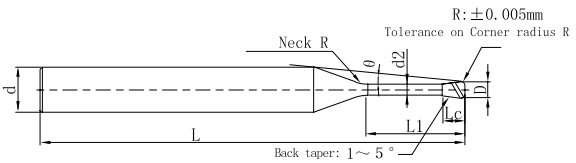
R	Tol
R	±0.005

(mm)

Cutting Parameters ※ P507

SPM200-RN2

2 Flute with Extended Neck, Cornor Raidus



Φ4 or higher does not have backdraft shape

See page 149 for guidelines to icons

》Continue

Ordering Code	Mill	r	Under Neck Length	Flute Length	Neck Dia.	Overall Length	Shank Dia.	Neck	Interference Angle	The effective under-neck length for the various draft angles					Stock
										0.5°	1°	1.5°	2°	3°	
SPM200-RN2-4-16-1-V	4	1	16	3.2	3.86	60	6	4	3.05	16.54	17.09	17.67	18.29	19.70	●
SPM200-RN2-4-20-1-V			20			65			2.52	20.68	21.36	22.10	22.89	-	○
SPM200-RN2-4-30-1-V			30			75			1.75	31.02	32.06	33.18	-	-	●
SPM200-RN2-4-35-1-V			35			80			1.52	36.18	37.41	38.73	-	-	○
SPM200-RN2-4-45-1-V			45			90			1.20	46.52	48.11	-	-	-	●
SPM200-RN2-5-20-0.1-V	5	0.1	20	4	4.85	65	6	4	1.32	20.70	21.42	-	-	-	●
SPM200-RN2-5-40-0.1-V			40			85			0.69	41.38	-	-	-	-	○
SPM200-RN2-5-20-0.2-V		0.2	20			65			1.32	20.70	21.41	-	-	-	●
SPM200-RN2-5-40-0.2-V			40			85			0.69	41.37	-	-	-	-	●
SPM200-RN2-5-20-0.3-V		0.3	20			65			1.33	20.69	21.41	-	-	-	○
SPM200-RN2-5-40-0.3-V			40			85			0.69	41.37	-	-	-	-	●
SPM200-RN2-5-20-0.5-V		0.5	20			65			1.34	20.69	21.39	-	-	-	●
SPM200-RN2-5-40-0.5-V			40			85			0.70	41.36	-	-	-	-	○
SPM200-RN2-5-20-1-V		1	20			65			1.38	20.67	21.36	-	-	-	●
SPM200-RN2-5-40-1-V			40			85			0.71	41.34	-	-	-	-	○
SPM200-RN2-6-12-0.1-V	6	0.1	12	4.8	5.85	50	6	-	-	-	-	-	-	-	●
SPM200-RN2-6-18-0.1-V			18			60			-	-	-	-	-	-	●
SPM200-RN2-6-24-0.1-V			24			70			-	-	-	-	-	-	●
SPM200-RN2-6-35-0.1-V			35			80			-	-	-	-	-	-	○
SPM200-RN2-6-55-0.1-V			55			100			-	-	-	-	-	-	○
SPM200-RN2-6-12-0.2-V		0.2	12			50			-	-	-	-	-	-	○
SPM200-RN2-6-18-0.2-V			18			60			-	-	-	-	-	-	●
SPM200-RN2-6-24-0.2-V			24			70			-	-	-	-	-	-	●
SPM200-RN2-6-35-0.2-V			35			80			-	-	-	-	-	-	○

● Stock ○ Available upon Order

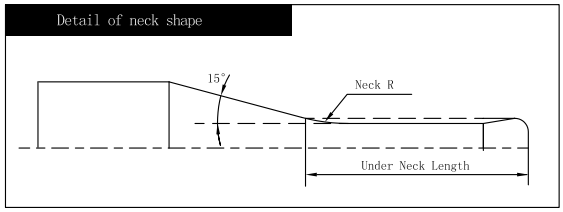
R	Tol
R	±0.005

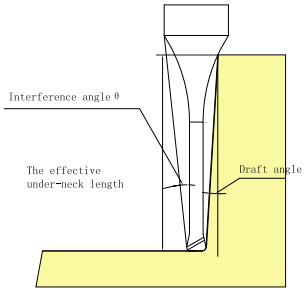
(mm)

Cutting Parameters ※ P507

SPM200-RN2

2 Flute with Extended Neck, Cornor Raidus





See page 149 for guidelines to icons

》 Continue

Ordering Code	Mill	r	Under Neck Length	Flute Length	Neck Dia.	Overall Length	Shank Dia.	Neck	Interference Angle	The effective under-neck length for the various draft angles					Stock
										0.5°	1°	1.5°	2°	3°	
SPM200-RN2-6-55-0.2-V	6	0.2	55	4.8	5.85	100	6	-	-	-	-	-	-	-	●
SPM200-RN2-6-12-0.3-V		0.3	12			50			-	-	-	-	-	-	●
SPM200-RN2-6-18-0.3-V			18			60			-	-	-	-	-	-	●
SPM200-RN2-6-24-0.3-V			24			70			-	-	-	-	-	-	○
SPM200-RN2-6-35-0.3-V			35			80			-	-	-	-	-	-	●
SPM200-RN2-6-55-0.3-V			55			100			-	-	-	-	-	-	○
SPM200-RN2-6-18-0.5-V		0.5	18			60			-	-	-	-	-	-	●
SPM200-RN2-6-24-0.5-V			24			70			-	-	-	-	-	-	●
SPM200-RN2-6-35-0.5-V			35			80			-	-	-	-	-	-	○
SPM200-RN2-6-55-0.5-V			55			100			-	-	-	-	-	-	○
SPM200-RN2-6-18-1-V		1	18			60			-	-	-	-	-	-	●
SPM200-RN2-6-24-1-V			24			70			-	-	-	-	-	-	●
SPM200-RN2-6-35-1-V			35			80			-	-	-	-	-	-	○
SPM200-RN2-6-55-1-V			55			100			-	-	-	-	-	-	○

● Stock ○ Available upon Order

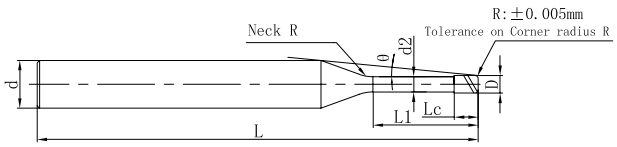
R	Tol
R	±0.005

(mm)

Cutting Parameters ※ P507

SPM200-RN4 NEW

4 Flute with Extended Neck, Cornor Raidus



See page 149 for guidelines to icons

Ordering Code	Mill	r	Under Neck Length	Flute Length	Neck Dia.	Overall Length	Shank Dia.	Neck	Interference Angle	The effective under-neck length for the various draft angles					Stock
										0.5°	1°	1.5°	2°	3°	
SPM200-RN4-1-4-0.05-V	1	0.05	4	0.8	0.96	50	4	4	8.75	4.27	4.47	4.65	4.82	5.21	●
SPM200-RN4-1-6-0.05-V			6			50			7.28	6.37	6.63	6.86	7.12	7.69	●
SPM200-RN4-1-8-0.05-V			8			50			6.23	8.45	8.76	9.08	9.42	10.18	●
SPM200-RN4-1-10-0.05-V			10			50			5.45	10.53	10.90	11.30	11.72	12.67	●
SPM200-RN4-1-12-0.05-V			12			60			4.84	12.61	13.04	13.51	14.02	15.15	●
SPM200-RN4-1-16-0.05-V			16			60			3.95	16.74	17.32	17.95	18.62	20.12	○
SPM200-RN4-1-20-0.05-V			20			60			3.34	20.88	21.60	22.38	23.22	25.10	○
SPM200-RN4-1-4-0.1-V		0.1	4			50			8.80	4.26	4.47	4.64	4.81	5.19	●
SPM200-RN4-1-6-0.1-V			6			50			7.31	6.37	6.62	6.86	7.11	7.68	●
SPM200-RN4-1-8-0.1-V			8			50			6.25	8.45	8.76	9.07	9.41	10.17	●
SPM200-RN4-1-10-0.1-V			10			50			5.46	10.53	10.90	11.29	11.71	12.65	○
SPM200-RN4-1-12-0.1-V			12			60			4.85	12.60	13.04	13.51	14.01	15.14	●
SPM200-RN4-1-16-0.1-V			16			60			3.96	16.74	17.32	17.94	18.61	20.11	●
SPM200-RN4-1-20-0.1-V			20			60			3.35	20.87	21.60	22.37	23.21	25.08	○
SPM200-RN4-1.5-4-0.05-V	1.5	0.05	4	1.2	1.44	50			8.12	4.23	4.42	4.59	4.76	5.14	●
SPM200-RN4-1.5-8-0.05-V			8			50			5.60	8.41	8.71	9.02	9.36	10.11	●
SPM200-RN4-1.5-12-0.05-V			12			60			4.27	12.55	12.99	13.46	13.96	15.09	○
SPM200-RN4-1.5-15-0.05-V			15			60			3.62	15.65	16.20	16.78	17.41	18.82	●
SPM200-RN4-1.5-20-0.05-V			20			60			2.89	20.82	21.55	22.32	23.16	-	○
SPM200-RN4-1.5-4-0.1-V		0.1	4			50			8.17	4.23	4.42	4.58	4.75	5.13	●
SPM200-RN4-1.5-8-0.1-V			8			50			5.62	8.41	8.71	9.02	9.35	10.10	○
SPM200-RN4-1.5-12-0.1-V			12			60			4.28	12.55	12.98	13.45	13.95	15.07	●
SPM200-RN4-1.5-15-0.1-V			15			60			3.63	15.65	16.19	16.77	17.40	18.80	●
SPM200-RN4-1.5-20-0.1-V			20			60			2.90	20.82	21.54	22.32	23.15	-	○

● Stock ○ Available upon Order

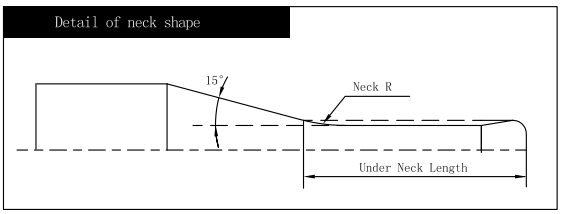
R	Tol
R	±0.005
D	0 -0.01

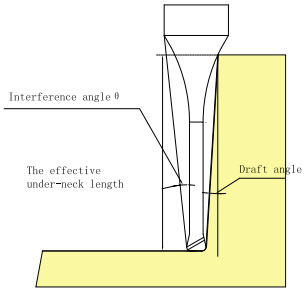
(mm)

Cutting Parameters ※ P529

SPM200-RN4 NEW

4 Flute with Extended Neck, Cornor Raidus





See page 149 for guidelines to icons

》Continue

Ordering Code	Mill	r	Under Neck Length	Flute Length	Neck Dia.	Overall Length	Shank Dia.	Neck	Interference Angle	The effective under-neck length for the various draft angles					Stock
										0.5°	1°	1.5°	2°	3°	
SPM200-RN4-2-4-0.05-V	2	0.05	4	1.6	1.92	50	4	4	7.32	4.21	4.39	4.55	4.72	5.09	●
SPM200-RN4-2-6-0.05-V			6			50			5.84	6.30	6.53	6.76	7.01	7.58	●
SPM200-RN4-2-8-0.05-V			8			50			4.85	8.37	8.67	8.98	9.31	10.07	○
SPM200-RN4-2-12-0.05-V			12			60			3.63	12.51	12.95	13.41	13.91	15.04	●
SPM200-RN4-2-16-0.05-V			16			60			2.90	16.65	17.23	17.85	18.51	-	○
SPM200-RN4-2-20-0.05-V			20			60			2.41	20.78	21.50	22.28	23.11	-	○
SPM200-RN4-2-4-0.1-V		0.1	4			50			7.36	4.21	4.38	4.54	4.71	5.08	●
SPM200-RN4-2-6-0.1-V			6			50			5.86	6.29	6.53	6.76	7.01	7.57	●
SPM200-RN4-2-8-0.1-V			8			50			4.87	8.37	8.66	8.97	9.31	10.05	●
SPM200-RN4-2-12-0.1-V			12			60			3.64	12.51	12.94	13.41	13.91	15.03	●
SPM200-RN4-2-16-0.1-V			16			60			2.90	16.65	17.22	17.84	18.51	-	○
SPM200-RN4-2-20-0.1-V			20			60			2.42	20.78	21.50	22.27	23.11	-	○
SPM200-RN4-2-4-0.2-V		0.2	4			50			7.46	4.20	4.37	4.53	4.69	5.06	●
SPM200-RN4-2-6-0.2-V			6			50			5.93	6.29	6.52	6.75	6.99	7.54	●
SPM200-RN4-2-8-0.2-V			8			50			4.91	8.37	8.66	8.96	9.29	10.03	●
SPM200-RN4-2-12-0.2-V			12			60			3.66	12.51	12.94	13.40	13.89	15.00	○
SPM200-RN4-2-16-0.2-V			16			60			2.92	16.64	17.22	17.83	18.49	-	●
SPM200-RN4-2-20-0.2-V			20			60			2.43	20.78	21.49	22.26	23.09	-	●
SPM200-RN4-2-25-0.2-V			25			70			2.00	25.95	26.84	27.80	-	-	○
SPM200-RN4-2-30-0.2-V			30			70			1.71	31.11	32.19	33.35	-	-	●
SPM200-RN4-2-4-0.3-V		0.3	4			50			7.56	4.20	4.37	4.52	4.68	5.03	○
SPM200-RN4-2-8-0.3-V			8			50			4.96	8.36	8.65	8.95	9.28	10.01	●
SPM200-RN4-2-12-0.3-V			12			60			3.69	12.50	12.93	13.39	13.88	14.98	○
SPM200-RN4-2-16-0.3-V			16			60			2.93	16.64	17.21	17.82	18.48	-	●
SPM200-RN4-2-20-0.3-V			20			60			2.44	20.77	21.49	22.25	23.08	-	○

● Stock ○ Available upon Order

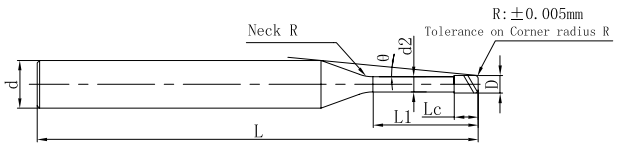
R	Tol
R	±0.005
D	0 -0.01

(mm)

Cutting Parameters ※ P529

SPM200-RN4 NEW

4 Flute with Extended Neck, Cornor Raidus



See page 149 for guidelines to icons

》Continue

Ordering Code	Mill	r	Under Neck Length	Flute Length	Neck Dia.	Overall Length	Shank Dia.	Neck	Interference Angle	The effective under-neck length for the various draft angles					Stock
										0.5°	1°	1.5°	2°	3°	
SPM200-RN4-2-4-0.5-V	2	0.5	4	1.6	1.92	50	4	4	7.76	4.19	4.35	4.50	4.65	4.98	●
SPM200-RN4-2-6-0.5-V			6			50			6.11	6.28	6.50	6.71	6.95	7.47	●
SPM200-RN4-2-8-0.5-V			8			50			5.04	8.36	8.64	8.93	9.25	9.96	○
SPM200-RN4-2-12-0.5-V			12			60			3.73	12.50	12.92	13.36	13.85	14.93	●
SPM200-RN4-2-16-0.5-V			16			60			2.96	16.63	17.19	17.80	18.45	-	●
SPM200-RN4-2-20-0.5-V			20			60			2.46	20.77	21.47	22.23	23.05	-	○
SPM200-RN4-2-25-0.5-V			25			70			2.03	25.94	26.82	27.77	28.79	-	●
SPM200-RN4-2-30-0.5-V			30			70			1.72	31.10	32.17	33.31	-	-	○
SPM200-RN4-2.5-8-0.1-V	2.5	0.1	8	2	2.4	50			3.98	8.34	8.63	8.94	9.27	10.02	●
SPM200-RN4-2.5-16-0.1-V			16			60			2.29	16.62	17.19	17.81	18.47	-	●
SPM200-RN4-2.5-20-0.1-V			20			60			1.89	20.75	21.47	22.24	-	-	○
SPM200-RN4-2.5-8-0.2-V		0.2	8			50			4.02	8.34	8.63	8.93	9.26	9.99	●
SPM200-RN4-2.5-16-0.2-V			16			60			2.30	16.61	17.18	17.80	18.46	-	○
SPM200-RN4-2.5-20-0.2-V			20			60			1.90	20.75	21.46	22.23	-	-	●
SPM200-RN4-2.5-12-0.3-V		0.3	12			60			2.95	12.47	12.90	13.35	13.84	-	●
SPM200-RN4-2.5-20-0.3-V			20			60			1.91	20.74	21.46	22.22	-	-	○
SPM200-RN4-2.5-12-0.5-V		0.5	12			60			2.99	12.47	12.88	13.33	13.81	-	●
SPM200-RN4-2.5-20-0.5-V			20			60			1.92	20.74	21.44	22.20	-	-	●
SPM200-RN4-3-8-0.1-V	3	0.1	8	2.4	2.88	60	6		6.32	8.32	8.61	8.92	9.25	9.99	●
SPM200-RN4-3-16-0.1-V			16			60			3.99	16.59	17.17	17.78	18.45	19.94	○
SPM200-RN4-3-25-0.1-V			25			70			2.82	25.90	26.79	27.76	28.80	-	●
SPM200-RN4-3-30-0.1-V			30			80			2.42	31.06	32.14	33.30	34.55	-	○
SPM200-RN4-3-8-0.2-V		0.2	8			60			6.36	8.32	8.60	8.91	9.23	9.97	●
SPM200-RN4-3-12-0.2-V			12			60			4.92	12.45	12.88	13.34	13.83	14.94	●

● Stock ○ Available upon Order

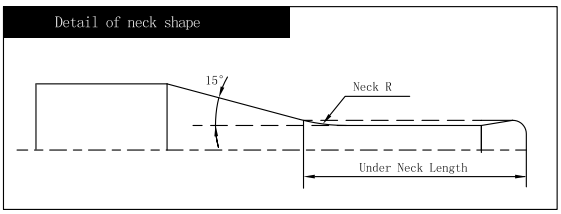
R	Tol
R	±0.005
D	0 -0.01

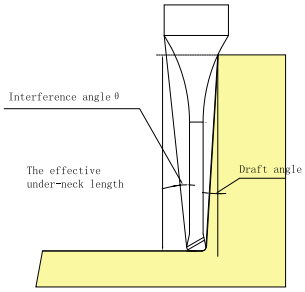
(mm)

Cutting Parameters ※ P529

SPM200-RN4 NEW

4 Flute with Extended Neck, Cornor Raidus





See page 149 for guidelines to icons

》Continue

Ordering Code	Mill	r	Under Neck Length	Flute Length	Neck Dia.	Overall Length	Shank Dia.	Neck	Interference Angle	The effective under-neck length for the various draft angles					Stock
										0.5°	1°	1.5°	2°	3°	
SPM200-RN4-3-16-0.2-V	3	0.2	16	2.4	2.88	60	6	4	4.00	16.59	17.16	17.77	18.43	19.91	●
SPM200-RN4-3-20-0.2-V			20			70			3.38	20.72	21.44	22.21	23.03	24.88	○
SPM200-RN4-3-25-0.2-V			25			70			2.82	25.89	26.79	27.75	28.78	-	●
SPM200-RN4-3-30-0.2-V			30			80			2.43	31.06	32.14	33.29	34.53	-	○
SPM200-RN4-3-8-0.3-V		0.3	8			60			6.41	8.32	8.60	8.90	9.22	9.94	●
SPM200-RN4-3-16-0.3-V			16			60			4.02	16.59	17.15	17.76	18.42	19.89	●
SPM200-RN4-3-20-0.3-V			20			70			3.39	20.72	21.43	22.20	23.02	24.86	○
SPM200-RN4-3-25-0.3-V			25			70			2.83	25.89	26.78	27.74	28.77	-	●
SPM200-RN4-3-30-0.3-V			30			80			2.43	31.06	32.13	33.28	34.52	-	○
SPM200-RN4-3-8-0.5-V		0.5	8			60			6.51	8.31	8.58	8.87	9.19	9.89	●
SPM200-RN4-3-12-0.5-V			12			60			5.00	12.44	12.86	13.31	13.79	14.87	●
SPM200-RN4-3-16-0.5-V			16			60			4.06	16.58	17.14	17.74	18.39	19.84	○
SPM200-RN4-3-20-0.5-V			20			70			3.42	20.71	21.42	22.17	22.99	24.81	●
SPM200-RN4-3-25-0.5-V			25			70			2.85	25.88	26.77	27.72	28.74	-	●
SPM200-RN4-3-30-0.5-V			30			80			2.45	31.05	32.12	33.26	34.49	-	○
SPM200-RN4-3-35-0.5-V			35			80			2.14	36.22	37.46	38.80	40.23	-	●
SPM200-RN4-4-12-0.1-V	4	0.1	12	3.2	3.86	60			3.66	12.44	12.87	13.33	13.83	14.94	●
SPM200-RN4-4-20-0.1-V			20			60			2.42	20.71	21.43	22.20	23.03	-	○
SPM200-RN4-4-30-0.1-V			30			80			1.71	31.05	32.12	33.28	-	-	●
SPM200-RN4-4-40-0.1-V			40			80			1.32	41.38	42.82	-	-	-	○
SPM200-RN4-4-12-0.2-V		0.2	12			60			3.68	12.44	12.86	13.32	13.81	14.92	●
SPM200-RN4-4-20-0.2-V			20			60			2.43	20.71	21.42	22.19	23.01	-	●
SPM200-RN4-4-30-0.2-V			30			80			1.71	31.04	32.12	33.27	-	-	○
SPM200-RN4-4-40-0.2-V			40			80			1.32	41.38	42.81	-	-	-	○

● Stock ○ Available upon Order

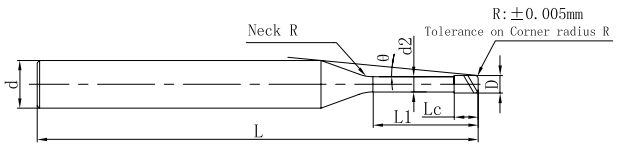
R	Tol
R	±0.005
D	0 -0.01

(mm)

Cutting Parameters ※ P529

SPM200-RN4 NEW

4 Flute with Extended Neck, Cornor Raidus



See page 149 for guidelines to icons

》Continue

Ordering Code	Mill	r	Under Neck Length	Flute Length	Neck Dia.	Overall Length	Shank Dia.	Neck	Interference Angle	The effective under-neck length for the various draft angles					Stock
										0.5°	1°	1.5°	2°	3°	
SPM200-RN4-4-12-0.3-V	4	0.3	12	3.2	3.86	60	6	4	3.70	12.43	12.86	13.31	13.80	14.89	●
SPM200-RN4-4-20-0.3-V			20			60			2.44	20.70	21.41	22.18	23.00	-	●
SPM200-RN4-4-30-0.3-V			30			80			1.72	31.04	32.11	33.26	-	-	●
SPM200-RN4-4-40-0.3-V			40			80			1.32	41.38	42.81	-	-	-	○
SPM200-RN4-4-12-0.5-V		0.5	12			60			3.75	12.43	12.84	13.29	13.77	14.84	●
SPM200-RN4-4-20-0.5-V			20			60			2.47	20.70	21.40	22.15	22.97	-	●
SPM200-RN4-4-30-0.5-V			30			80			1.73	31.03	32.10	33.24	-	-	○
SPM200-RN4-4-40-0.5-V			40			80			1.33	41.37	42.79	-	-	-	○
SPM200-RN4-5-20-0.1-V	5	0.1	20	4	4.85	70			1.32	20.70	21.42	-	-	-	●
SPM200-RN4-5-40-0.1-V			40			90			0.69	41.38	-	-	-	-	○
SPM200-RN4-5-20-0.2-V		0.2	20			70			1.32	20.70	21.41	-	-	-	●
SPM200-RN4-5-40-0.2-V			40			90			0.69	41.37	-	-	-	-	○
SPM200-RN4-5-20-0.3-V		0.3	20			70			1.33	20.69	21.41	-	-	-	●
SPM200-RN4-5-40-0.3-V			40			90			0.69	41.37	-	-	-	-	○
SPM200-RN4-5-20-0.5-V		0.5	20			70			1.34	20.69	21.39	-	-	-	●
SPM200-RN4-5-40-0.5-V			40			90			0.70	41.36	-	-	-	-	○
SPM200-RN4-5-20-1-V		1	20			70			1.38	20.67	21.36	-	-	-	●
SPM200-RN4-5-40-1-V			40			90			0.71	41.34	-	-	-	-	○
SPM200-RN4-6-30-0.2-V	6	0.2	30	4.8	5.85	80			-	-	-	-	-	-	●
SPM200-RN4-6-54-0.2-V			54			100			-	-	-	-	-	-	○
SPM200-RN4-6-72-0.2-V			72			120			-	-	-	-	-	-	○
SPM200-RN4-6-30-0.3-V		0.3	30			80			-	-	-	-	-	-	●
SPM200-RN4-6-54-0.3-V			54			100			-	-	-	-	-	-	○
SPM200-RN4-6-72-0.3-V			72			120			-	-	-	-	-	-	○

● Stock ○ Available upon Order

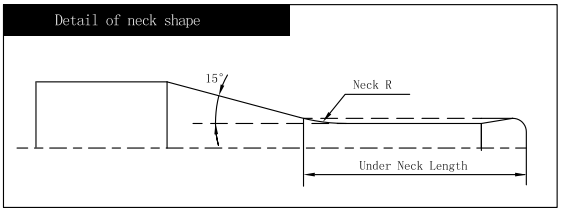
R	Tol
R	±0.005
D	0 -0.01

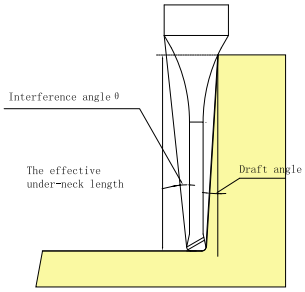
(mm)

Cutting Parameters ※ P529

SPM200-RN4 NEW

4 Flute with Extended Neck, Cornor Raidus





See page 149 for guidelines to icons

》Continue

Ordering Code	Mill	r	Under Neck Length	Flute Length	Neck Dia.	Overall Length	Shank Dia.	Neck	Interference Angle	The effective under-neck length for the various draft angles					Stock
										0.5°	1°	1.5°	2°	3°	
SPM200-RN4-6-30-0.5-V	6	0.5	30	4.8	5.85	80	6	4	-	-	-	-	-	-	●
SPM200-RN4-6-54-0.5-V			54			100			-	-	-	-	-	-	○
SPM200-RN4-6-72-0.5-V			72			120			-	-	-	-	-	-	○
SPM200-RN4-6-30-1-V		1	30			80			-	-	-	-	-	-	●
SPM200-RN4-6-54-1-V			54			100			-	-	-	-	-	-	○
SPM200-RN4-6-72-1-V			72			120			-	-	-	-	-	-	○

● Stock ○ Available upon Order

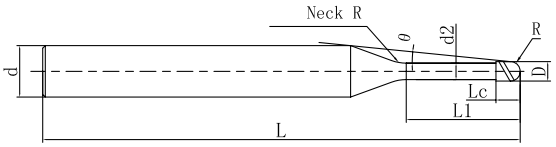
R	Tol
R	±0.005
D	0 -0.01

(mm)

Cutting Parameters ※ P529

SPM200-BN2

2 Flute with Extended Neck,Ballnose



See page 149 for guidelines to icons

Ordering Code	Mill Dia.	R	Under Neck Length	Flute Length	Neck Dia.	Overall Length	Shank Dia.	Neck	Interference Angle	The effective under-neck length for the various draft angles					Stock
										0.5°	1°	1.5°	2°	3°	
SPM200-BN2-0.1-0.2-V	0.1	0.05	0.2	0.08	0.08	50	4	1	14.66	0.2	0.21	0.22	0.24	0.26	○
SPM200-BN2-0.1-0.3-V			0.3						14.48	0.31	0.33	0.34	0.36	0.39	●
SPM200-BN2-0.1-0.5-V			0.5						14.12	0.52	0.55	0.57	0.59	0.64	○
SPM200-BN2-0.2-0.5-V	0.2	0.1	0.5	0.16	0.17	50	4	1	14.21	0.51	0.53	0.55	0.57	0.61	●
SPM200-BN2-0.2-0.75-V			0.75						13.77	0.78	0.8	0.83	0.86	0.92	●
SPM200-BN2-0.2-1-V			1						13.36	1.04	1.07	1.11	1.15	1.23	●
SPM200-BN2-0.2-1.25-V			1.25						12.97	1.3	1.34	1.39	1.43	1.54	●
SPM200-BN2-0.2-1.5-V			1.5						12.6	1.56	1.61	1.66	1.72	1.85	●
SPM200-BN2-0.2-2-V			2						11.92	2.07	2.14	2.22	2.3	2.48	●
SPM200-BN2-0.2-2.5-V			2.5						11.31	2.59	2.68	2.77	2.87	3.1	●
SPM200-BN2-0.2-3-V			3						10.76	3.11	3.21	3.33	3.45	3.72	●
SPM200-BN2-0.3-0.5-V	0.3	0.15	0.5	0.24	0.27	50	4	2	14.17	0.52	0.55	0.57	0.6	0.66	●
SPM200-BN2-0.3-0.75-V			0.75						13.72	0.79	0.83	0.87	0.91	0.98	○
SPM200-BN2-0.3-1-V			1						13.3	1.05	1.11	1.16	1.2	1.29	●
SPM200-BN2-0.3-1.25-V			1.25						12.9	1.32	1.38	1.44	1.5	1.61	○
SPM200-BN2-0.3-1.5-V			1.5						12.53	1.58	1.66	1.72	1.78	1.92	○
SPM200-BN2-0.3-2-V			2						11.84	2.11	2.2	2.28	2.36	2.54	○
SPM200-BN2-0.3-2.5-V			2.5						11.22	2.63	2.74	2.83	2.93	3.16	●
SPM200-BN2-0.3-3-V			3						10.66	3.15	3.27	3.39	3.51	3.78	○
SPM200-BN2-0.4-0.75-V	0.4	0.2	0.75	0.32	0.37	50	4	2	13.78	0.78	0.82	0.86	0.9	0.97	●
SPM200-BN2-0.4-1-V			1						13.34	1.05	1.1	1.15	1.19	1.28	●
SPM200-BN2-0.4-1.5-V			1.5						12.55	1.58	1.65	1.72	1.78	1.9	●
SPM200-BN2-0.4-2-V			2						11.84	2.11	2.19	2.27	2.35	2.53	●
SPM200-BN2-0.4-2.5-V			2.5						11.2	2.63	2.73	2.83	2.93	3.15	●

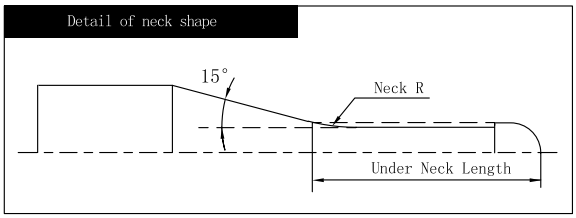
● Stock ○ Available upon Order

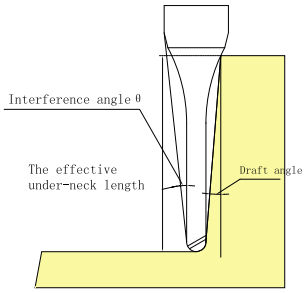
R	Tol
R≤0.25	±0.003
R>0.25	±0.005

Cutting Parameters ※ P534

SPM200-BN2

2 Flute with Extended Neck,Ballnose





See page 149 for guidelines to icons

》Continue

Ordering Code	Mill Dia.	R	Under Neck Length	Flute Length	Neck Dia.	Overall Length	Shank Dia.	Neck	Interference Angle	The effective under-neck length for the various draft angles					Stock
										0.5°	1°	1.5°	2°	3°	
SPM200-BN2-0.4-3-V	0.4	0.2	3	0.32	0.37	50	4	2	10.63	3.15	3.27	3.38	3.5	3.77	●
SPM200-BN2-0.4-3.5-V			3.5						10.12	3.67	3.8	3.94	4.08	4.39	○
SPM200-BN2-0.4-4-V			4						9.65	4.19	4.34	4.49	4.65	5.01	○
SPM200-BN2-0.4-4.5-V			4.5						9.22	4.71	4.87	5.04	5.23	5.63	●
SPM200-BN2-0.5-1-V	0.5	0.25	1	0.4	0.47	50	4	2	13.39	1.05	1.09	1.14	1.19	1.27	●
SPM200-BN2-0.5-1.5-V			1.5						12.56	1.58	1.65	1.71	1.77	1.89	○
SPM200-BN2-0.5-2-V			2						11.83	2.1	2.19	2.27	2.34	2.51	●
SPM200-BN2-0.5-2.5-V			2.5						11.18	2.63	2.73	2.82	2.92	3.14	○
SPM200-BN2-0.5-3-V			3						10.6	3.15	3.27	3.38	3.49	3.76	●
SPM200-BN2-0.5-4-V			4						9.6	4.19	4.34	4.48	4.64	5	○
SPM200-BN2-0.5-5-V			5						8.77	5.23	5.41	5.59	5.79	6.24	●
SPM200-BN2-0.5-5.5-V			5.5						8.4	5.75	5.94	6.15	6.37	6.86	●
SPM200-BN2-0.5-6-V			6						8.07	6.27	6.48	6.7	6.94	7.49	●
SPM200-BN2-0.5-8-V			8						6.96	8.33	8.62	8.92	9.24	9.97	○
SPM200-BN2-0.6-1-V	0.6	0.3	1	0.48	0.57	50	4	4	13.15	1.07	1.14	1.2	1.27	1.41	●
SPM200-BN2-0.6-2-V			2						11.61	2.15	2.28	2.39	2.5	2.7	●
SPM200-BN2-0.6-2.5-V			2.5						10.96	2.68	2.84	2.97	3.09	3.32	○
SPM200-BN2-0.6-3-V			3						10.38	3.22	3.39	3.54	3.67	3.95	●
SPM200-BN2-0.6-3.5-V			3.5						9.86	3.75	3.94	4.1	4.25	4.57	●
SPM200-BN2-0.6-4-V			4						9.39	4.28	4.48	4.66	4.82	5.19	●
SPM200-BN2-0.6-4.5-V			4.5						8.97	4.81	5.03	5.21	5.4	5.81	○
SPM200-BN2-0.6-5-V			5						8.57	5.33	5.57	5.77	5.97	6.43	●
SPM200-BN2-0.6-5.5-V			5.5						8.22	5.86	6.11	6.32	6.55	7.05	○
SPM200-BN2-0.6-6-V			6						7.89	6.38	6.64	6.87	7.12	7.67	●

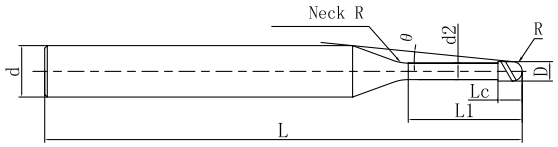
● Stock ○ Available upon Order

R	Tol
R≤0.25	±0.003
R>0.25	±0.005

Cutting Parameters ※ P534

SPM200-BN2

2 Flute with Extended Neck,Ballnose



See page 149 for guidelines to icons

》Continue

Ordering Code	Mill Dia.	R	Under Neck Length	Flute Length	Neck Dia.	Overall Length	Shank Dia.	Neck	Interference Angle	The effective under-neck length for the various draft angles					Stock
										0.5°	1°	1.5°	2°	3°	
SPM200-BN2-0.6-7-V	0.6	0.3	7	0.48	0.57	50	4	4	7.3	7.43	7.71	7.98	8.27	8.92	○
SPM200-BN2-0.6-8-V			8						6.79	8.48	8.78	9.09	9.42	10.16	○
SPM200-BN2-0.6-9-V			9						6.35	9.52	9.85	10.2	10.57	11.4	●
SPM200-BN2-0.6-10-V			10						5.97	10.56	10.92	11.31	11.72	12.65	●
SPM200-BN2-0.6-12-V			12						5.32	12.63	13.06	13.52	14.02	15.13	●
SPM200-BN2-0.7-2-V	0.7	0.35	2	0.56	0.67	50	4	4	11.6	2.14	2.27	2.39	2.49	2.69	●
SPM200-BN2-0.7-4-V			4						9.33	4.27	4.48	4.65	4.81	5.18	●
SPM200-BN2-0.7-6-V			6						7.81	6.38	6.64	6.87	7.11	7.66	●
SPM200-BN2-0.7-8-V			8						6.71	8.47	8.78	9.09	9.41	10.15	●
SPM200-BN2-0.8-2-V	0.8	0.4	2	0.64	0.76	50	4	4	11.64	2.12	2.24	2.35	2.45	2.63	●
SPM200-BN2-0.8-4-V			4						9.3	4.25	4.44	4.61	4.77	5.12	●
SPM200-BN2-0.8-5-V			5						8.45	5.3	5.53	5.72	5.92	6.36	○
SPM200-BN2-0.8-6-V			6						7.74	6.35	6.6	6.83	7.07	7.61	●
SPM200-BN2-0.8-8-V			8						6.63	8.44	8.74	9.04	9.37	10.09	●
SPM200-BN2-0.8-10-V			10						5.8	10.52	10.88	11.26	11.67	12.58	○
SPM200-BN2-0.9-2-V	0.9	0.45	2	0.72	0.86	50	4	4	11.63	2.12	2.23	2.34	2.44	2.62	●
SPM200-BN2-0.9-4-V			4						9.24	4.25	4.44	4.6	4.76	5.11	●
SPM200-BN2-0.9-6-V			6						7.66	6.35	6.6	6.82	7.06	7.6	●
SPM200-BN2-0.9-8-V			8						6.54	8.44	8.74	9.04	9.36	10.08	●
SPM200-BN2-1-2-V	1	0.5	2	0.8	0.96	50	4	4	11.62	2.12	2.23	2.33	2.43	2.61	●
SPM200-BN2-1-3-V			3						10.25	3.18	3.34	3.48	3.6	3.85	●
SPM200-BN2-1-4-V			4						9.17	4.24	4.43	4.6	4.75	5.1	●
SPM200-BN2-1-5-V			5						8.29	5.3	5.52	5.71	5.9	6.34	○
SPM200-BN2-1-6-V			6						7.57	6.35	6.59	6.81	7.05	7.58	●

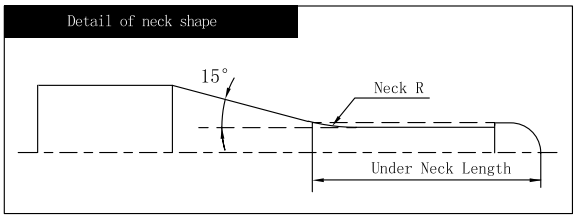
● Stock ○ Available upon Order

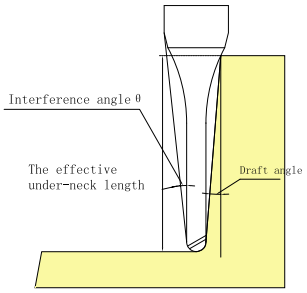
R	Tol
R≤0.25	±0.003
R>0.25	±0.005

Cutting Parameters ※ P534

SPM200-BN2

2 Flute with Extended Neck,Ballnose





See page 149 for guidelines to icons

》Continue

Ordering Code	Mill Dia.	R	Under Neck Length	Flute Length	Neck Dia.	Overall Length	Shank Dia.	Neck	Interference Angle	The effective under-neck length for the various draft angles					Stock
										0.5°	1°	1.5°	2°	3°	
SPM200-BN2-1-7-V	1	0.5	7	0.8	0.96	50	4	4	6.96	7.39	7.66	7.92	8.2	8.83	●
SPM200-BN2-1-8-V			8			50			6.44	8.44	8.73	9.03	9.35	10.07	●
SPM200-BN2-1-9-V			9			50			5.99	9.48	9.8	10.14	10.5	11.31	○
SPM200-BN2-1-10-V			10			50			5.6	10.52	10.87	11.25	11.65	12.56	○
SPM200-BN2-1-12-V			12			55			4.96	12.59	13.01	13.46	13.95	15.04	●
SPM200-BN2-1-13-V			13			55			4.69	13.62	14.08	14.57	15.1	16.29	●
SPM200-BN2-1-14-V			14			55			4.45	14.66	15.15	15.68	16.25	17.53	●
SPM200-BN2-1-16-V			16			55			4.03	16.73	17.29	17.9	18.55	20.01	●
SPM200-BN2-1-18-V			18			60			3.69	18.79	19.43	20.11	20.85	22.5	○
SPM200-BN2-1-20-V			20			60			3.4	20.86	21.57	22.33	23.15	24.99	●
SPM200-BN2-1.1-2-V	1.1	0.55	2	0.88	1.06	50	4	4	11.61	2.11	2.22	2.32	2.42	2.6	●
SPM200-BN2-1.1-4-V			4						9.09	4.24	4.43	4.59	4.74	5.08	●
SPM200-BN2-1.1-6-V			6						7.47	6.34	6.59	6.81	7.04	7.57	●
SPM200-BN2-1.1-8-V			8						6.34	8.43	8.73	9.03	9.34	10.06	●
SPM200-BN2-1.1-10-V			10						5.5	10.51	10.87	11.24	11.64	12.54	○
SPM200-BN2-1.2-4-V	1.2	0.6	4	0.96	1.15	50	4	4	9.05	4.22	4.4	4.55	4.7	5.04	●
SPM200-BN2-1.2-8-V			8			50			6.25	8.41	8.7	8.99	9.3	10.01	○
SPM200-BN2-1.2-10-V			10			50			5.41	10.49	10.84	11.21	11.6	12.5	●
SPM200-BN2-1.2-12-V			12			55			4.77	12.56	12.97	13.42	13.9	14.98	○
SPM200-BN2-1.4-8-V	1.4	0.7	8	1.12	1.34	50	4	4	6.04	8.38	8.66	8.95	9.26	9.96	●
SPM200-BN2-1.4-12-V			12			55			4.56	12.53	12.94	13.38	13.86	14.93	●
SPM200-BN2-1.4-16-V			16			55			3.67	16.66	17.22	17.82	18.46	19.9	●
SPM200-BN2-1.5-4-V	1.5	0.75	4	1.2	1.44	50	4	4	8.82	4.2	4.36	4.51	4.65	4.97	●
SPM200-BN2-1.5-6-V			6						7.08	6.29	6.52	6.73	6.95	7.46	●

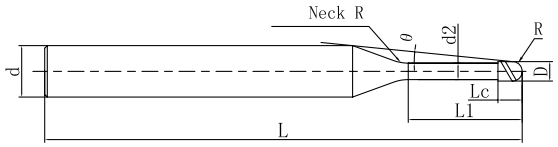
● Stock ○ Available upon Order

R	Tol
R≤0.25	±0.003
R>0.25	±0.005

Cutting Parameters ※ P534

SPM200-BN2

2 Flute with Extended Neck,Ballnose



See page 149 for guidelines to icons

》Continue

Ordering Code	Mill Dia.	R	Under Neck Length	Flute Length	Neck Dia.	Overall Length	Shank Dia.	Neck	Interference Angle	The effective under-neck length for the various draft angles					Stock
										0.5°	1°	1.5°	2°	3°	
SPM200-BN2-1.5-8-V	1.5	0.75	8	1.2	1.44	50	4	4	5.92	8.38	8.66	8.95	9.25	9.94	●
SPM200-BN2-1.5-10-V			10			50			5.08	10.46	10.8	11.16	11.55	12.43	●
SPM200-BN2-1.5-12-V			12			55			4.45	12.53	12.94	13.38	13.85	14.92	○
SPM200-BN2-1.5-14-V			14			55			3.96	14.6	15.08	15.6	16.15	17.4	●
SPM200-BN2-1.5-16-V			16			55			3.57	16.66	17.22	17.81	18.45	19.89	●
SPM200-BN2-1.5-18-V			18			60			3.25	18.73	19.36	20.03	20.75	22.38	●
SPM200-BN2-1.5-20-V			20			60			2.98	20.8	21.5	22.25	23.05	-	●
SPM200-BN2-1.6-8-V	1.6	0.8	8	1.28	1.54	50	4	4	5.8	8.38	8.66	8.94	9.25	9.93	○
SPM200-BN2-1.6-12-V			12			55			4.34	12.53	12.94	13.37	13.85	14.9	●
SPM200-BN2-1.6-16-V			16			55			3.47	16.66	17.21	17.81	18.44	19.88	●
SPM200-BN2-1.6-20-V			20			60			2.89	20.8	21.49	22.24	23.04	-	●
SPM200-BN2-1.8-8-V	1.8	0.9	8	1.44	1.73	50	4	4	5.55	8.36	8.63	8.91	9.21	9.88	●
SPM200-BN2-1.8-12-V			12			55			4.11	12.5	12.91	13.34	13.81	14.85	●
SPM200-BN2-1.8-16-V			16			55			3.26	16.64	17.19	17.77	18.41	19.83	●
SPM200-BN2-1.8-20-V			20			60			2.7	20.77	21.46	22.21	23.01	-	●
SPM200-BN2-2-3-V	2	1	3	1.6	1.92	50	4	4	9.72	3.11	3.22	3.32	3.42	3.62	●
SPM200-BN2-2-4-V			4			50			8.32	4.16	4.31	4.44	4.57	4.86	●
SPM200-BN2-2-6-V			6			50			6.46	6.26	6.46	6.66	6.87	7.35	●
SPM200-BN2-2-8-V			8			50			5.27	8.34	8.6	8.88	9.17	9.84	●
SPM200-BN2-2-10-V			10			50			4.46	10.41	10.74	11.09	11.47	12.32	●
SPM200-BN2-2-12-V			12			55			3.86	12.48	12.88	13.31	13.77	14.81	○
SPM200-BN2-2-13-V			13			55			3.62	13.51	13.95	14.42	14.92	16.05	●
SPM200-BN2-2-14-V			14			55			3.4	14.55	15.02	15.53	16.07	17.29	●
SPM200-BN2-2-16-V			16			55			3.04	16.62	17.16	17.74	18.37	19.78	●

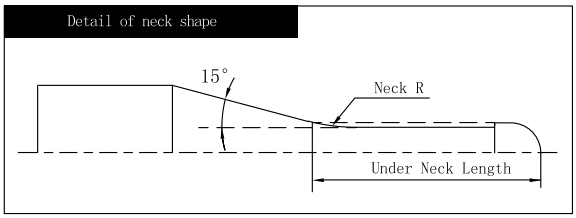
● Stock ○ Available upon Order

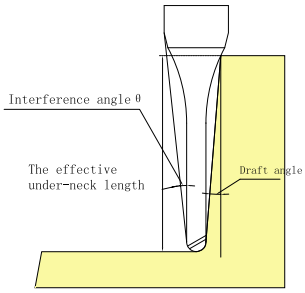
R	Tol
R≤0.25	±0.003
R>0.25	±0.005

Cutting Parameters ※ P534

SPM200-BN2

2 Flute with Extended Neck,Ballnose





See page 149 for guidelines to icons

》Continue

Ordering Code	Mill Dia.	R	Under Neck Length	Flute Length	Neck Dia.	Overall Length	Shank Dia.	Neck	Interference Angle	The effective under-neck length for the various draft angles					Stock
										0.5°	1°	1.5°	2°	3°	
SPM200-BN2-2-18-V	2	1	18	1.6	1.92	60	4	4	2.75	18.68	19.3	19.96	20.67	-	●
SPM200-BN2-2-20-V			20			60			2.51	20.75	21.44	22.18	22.97	-	●
SPM200-BN2-2-22-V			22			60			2.31	22.82	23.58	24.39	25.27	-	●
SPM200-BN2-2-25-V			25			65			2.06	25.92	26.79	27.72	28.72	-	●
SPM200-BN2-2-30-V			30			70			1.75	31.09	32.14	33.26	-	-	●
SPM200-BN2-2-35-V			35			75			1.52	36.26	37.48	38.8	-	-	●
SPM200-BN2-2-40-V			40			80			1.34	41.42	42.83	-	-	-	○
SPM200-BN2-2.5-6-V	2.5	1.25	6	2	2.4	50	4	4	5.62	6.22	6.41	6.6	6.8	7.25	●
SPM200-BN2-2.5-10-V			10			50			3.69	10.37	10.69	11.03	11.4	12.23	●
SPM200-BN2-2.5-15-V			15			55			2.59	15.54	16.04	16.58	17.15	-	●
SPM200-BN2-2.5-20-V			20			60			1.99	20.71	21.39	22.12	-	-	●
SPM200-BN2-2.5-25-V			25			65			1.62	25.88	26.74	27.66	-	-	●
SPM200-BN2-2.5-30-V			30			70			1.36	31.05	32.09	-	-	-	●
SPM200-BN2-3-8-V	3	1.5	8	2.4	2.88	55	6	4	7.04	8.27	8.51	8.77	9.04	9.65	●
SPM200-BN2-3-10-V			10			55			6.05	10.34	10.65	10.98	11.34	12.14	●
SPM200-BN2-3-13-V			13			60			5	13.44	13.86	14.31	14.79	15.87	○
SPM200-BN2-3-16-V			16			60			4.26	16.55	17.07	17.63	18.24	19.6	●
SPM200-BN2-3-20-V			20			65			3.56	20.68	21.35	22.07	22.84	24.57	●
SPM200-BN2-3-25-V			25			70			2.95	25.85	26.7	27.61	28.59	-	●
SPM200-BN2-3-30-V			30			75			2.52	31.02	32.05	33.15	34.34	-	○
SPM200-BN2-3-35-V			35			80			2.2	36.19	37.39	38.69	40.08	-	●
SPM200-BN2-3.5-15-V	3.5	1.75	15	2.8	3.36	60	6	4	3.99	15.49	15.96	16.48	17.03	18.27	●
SPM200-BN2-3.5-25-V			25			70			2.56	25.82	26.66	27.56	28.53	-	●
SPM200-BN2-3.5-35-V			35			80			1.89	36.16	37.36	38.64	-	-	●

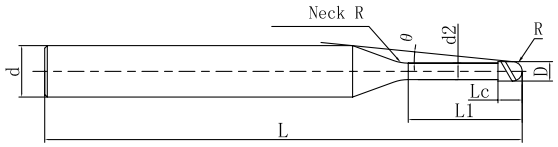
● Stock ○ Available upon Order

R	Tol
R≤0.25	±0.003
R>0.25	±0.005

Cutting Parameters ※ P534

SPM200-BN2

2 Flute with Extended Neck,Ballnose



See page 149 for guidelines to icons

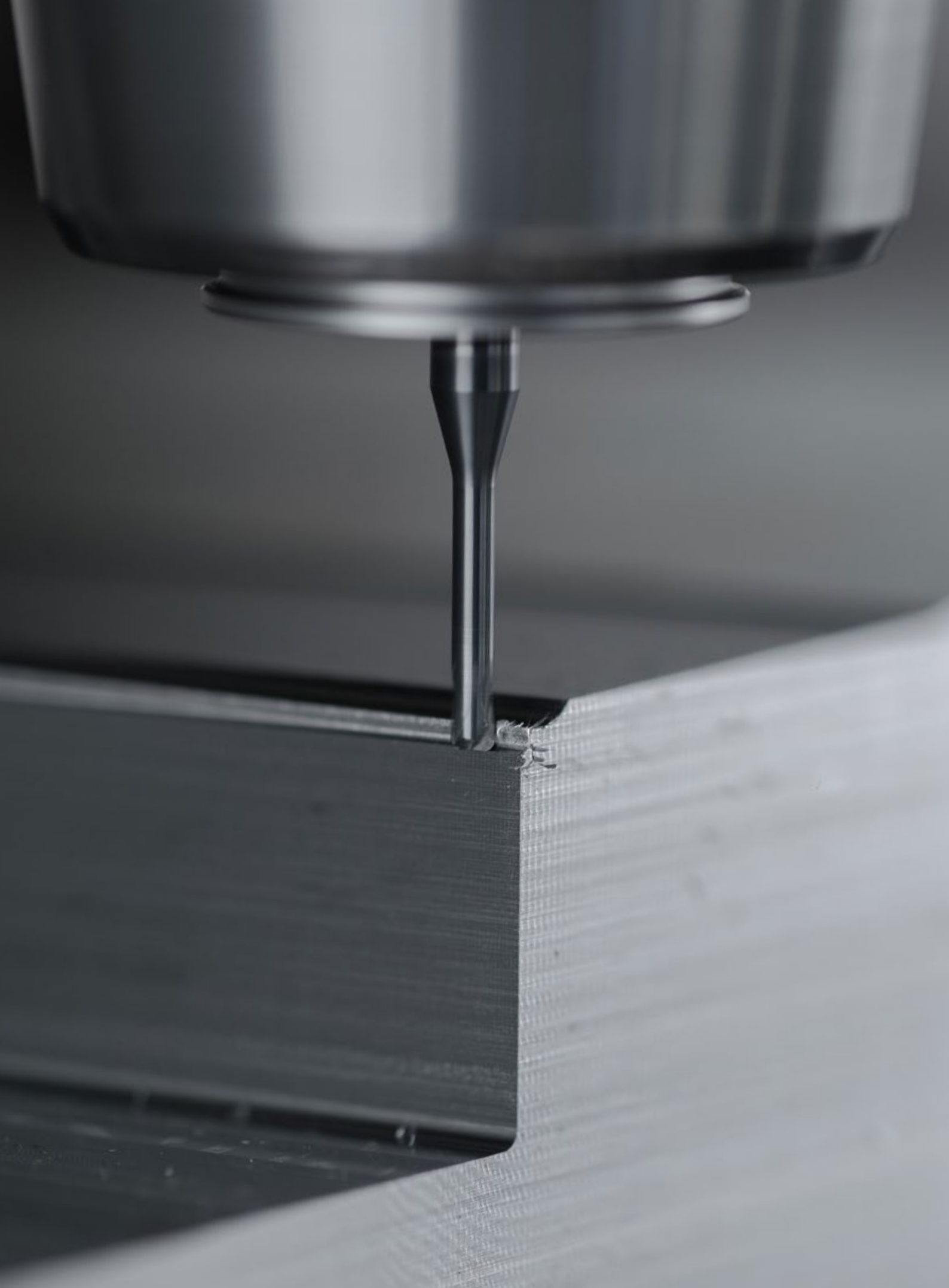
》Continue

Ordering Code	Mill Dia.	R	Under Neck Length	Flute Length	Neck Dia.	Overall Length	Shank Dia.	Neck	Interference Angle	The effective under-neck length for the various draft angles					Stock
										0.5°	1°	1.5°	2°	3°	
SPM200-BN2-3.5-45-V	3.5	1.75	45	2.8	3.36	90	6	4	1.5	46.5	48.05	-	-	-	○
SPM200-BN2-4-10-V	4	2	10	3.2	3.86	55	6	4	4.86	10.31	10.6	10.91	11.24	11.99	○
SPM200-BN2-4-13-V			13			60			3.88	13.41	13.81	14.23	14.69	15.72	●
SPM200-BN2-4-16-V			16			60			3.23	16.51	17.02	17.56	18.14	19.45	●
SPM200-BN2-4-20-V			20			65			2.63	20.65	21.3	21.99	22.74	-	○
SPM200-BN2-4-25-V			25			70			2.14	25.81	26.64	27.53	28.49	-	●
SPM200-BN2-4-30-V			30			75			1.81	30.98	31.99	33.08	-	-	○
SPM200-BN2-4-35-V			35			80			1.56	36.15	37.34	38.62	-	-	●
SPM200-BN2-4-40-V			40			80			1.38	41.32	42.69	-	-	-	●
SPM200-BN2-4-45-V			45			90			1.23	46.49	48.04	-	-	-	●
SPM200-BN2-4-50-V			50			100			1.11	51.66	53.39	-	-	-	●
SPM200-BN2-5-20-V	5	2.5	20	4	4.85	65	6	4	1.48	20.62	21.25	-	-	-	○
SPM200-BN2-5-25-V			25			70			1.18	25.79	26.6	-	-	-	●
SPM200-BN2-5-30-V			30			75			0.98	30.96	-	-	-	-	○
SPM200-BN2-5-40-V			40			80			0.73	41.29	-	-	-	-	●
SPM200-BN2-6-12-V	6	3	12	6	5.85	60	6	-	-	-	-	-	-	-	●
SPM200-BN2-6-20-V			20			65			-	-	-	-	-	-	○
SPM200-BN2-6-30-V			30			75			-	-	-	-	-	-	●
SPM200-BN2-6-50-V			50			100			-	-	-	-	-	-	○

● Stock ○ Available upon Order

R	Tol
R≤0.25	±0.003
R>0.25	±0.005

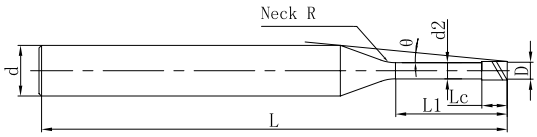
Cutting Parameters ※ P534



SAM200-SN2

NEW

2 Flute with Extended Neck,Square



See page 149 for guidelines to icons

Ordering Code	Mill Dia.	Under Neck Length	Flute Length	Neck Dia.	Overall Length	Shank Dia.	Neck	Interference Angle	The effective under-neck length for the various draft angles					Stock
									0.5°	1°	1.5°	2°	3°	
SAM200-SN2-0.2-1-H	0.2	1	0.3	0.17	50	4	1	13.19	1.05	1.09	1.13	1.17	1.26	●
SAM200-SN2-0.3-1.5-H	0.3	1.5	0.45	0.27	50	4	2	12.31	1.59	1.67	1.74	1.81	1.96	●
SAM200-SN2-0.4-2-H	0.4	2	0.6	0.37	50	4	2	11.57	2.12	2.22	2.30	2.39	2.58	●
SAM200-SN2-0.5-2-H	0.5	2	0.75	0.47	50	4	2	11.49	2.12	2.22	2.30	2.39	2.58	●
SAM200-SN2-0.5-4-H		4						9.37	4.21	4.36	4.52	4.69	5.07	●
SAM200-SN2-0.5-6-H		6						7.90	6.28	6.50	6.73	6.99	7.55	○
SAM200-SN2-0.5-8-H		8						6.83	8.35	8.64	8.95	9.28	10.04	○
SAM200-SN2-0.6-2-H	0.6	2	0.9	0.57	50	4	4	11.21	2.17	2.32	2.45	2.56	2.78	●
SAM200-SN2-0.6-4-H		4						9.13	4.30	4.52	4.70	4.87	5.27	●
SAM200-SN2-0.6-6-H		6						7.70	6.40	6.67	6.91	7.17	7.75	○
SAM200-SN2-0.6-8-H		8						6.65	8.49	8.81	9.13	9.47	10.24	○
SAM200-SN2-0.8-4-H	0.8	4	1.2	0.76	50	4	4	8.94	4.28	4.48	4.66	4.83	5.22	●
SAM200-SN2-0.8-6-H		6						7.49	6.37	6.63	6.87	7.13	7.71	○
SAM200-SN2-0.8-8-H		8						6.44	8.46	8.77	9.09	9.43	10.20	●
SAM200-SN2-0.8-10-H		10						5.65	10.54	10.91	11.31	11.73	12.68	○
SAM200-SN2-1-4-H	1	4	1.5	0.96	50	4	4	8.70	4.28	4.48	4.66	4.83	5.22	●
SAM200-SN2-1-6-H		6			50			7.24	6.37	6.63	6.87	7.13	7.71	○
SAM200-SN2-1-8-H		8			50			6.20	8.46	8.77	9.09	9.43	10.20	●
SAM200-SN2-1-10-H		10			50			5.42	10.54	10.91	11.31	11.73	12.68	○
SAM200-SN2-1-12-H		12			55			4.82	12.61	13.05	13.52	14.03	15.17	●
SAM200-SN2-1-14-H		14			55			4.33	14.68	15.19	15.74	16.33	17.65	○
SAM200-SN2-1.5-6-H	1.5	6	2.25	1.44	50	4	4	6.59	6.33	6.58	6.82	7.07	7.64	●
SAM200-SN2-1.5-8-H		8			50			5.57	8.41	8.72	9.03	9.37	10.13	●
SAM200-SN2-1.5-12-H		12			55			4.25	12.56	13.00	13.47	13.97	15.10	○

● Stock ○ Available upon Order

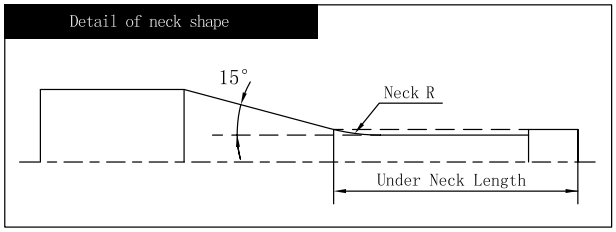
R	Tol
0.2≤D≤0.5	$^{0}_{-0.007}$
0.6≤D≤0.9	$^{0}_{-0.01}$
1.0≤D≤6.0	$^{0}_{-0.015}$

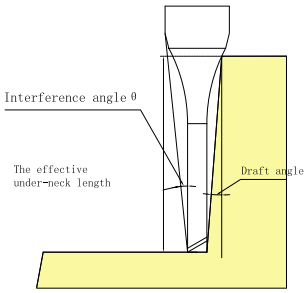
(mm)

Cutting Parameters ※ P545

SAM200-SN2 NEW

2 Flute with Extended Neck,Square





See page 149 for guidelines to icons

》Continue

Ordering Code	Mill Dia.	Under Neck Length	Flute Length	Neck Dia.	Overall Length	Shank Dia.	Neck	Interference Angle	The effective under-neck length for the various draft angles					Stock
									0.5°	1°	1.5°	2°	3°	
SAM200-SN2-1.5-16-H	1.5	16	2.25	1.44	55	4	4	3.44	16.69	17.27	17.90	18.57	20.08	○
SAM200-SN2-1.5-18-H		18			60			3.14	18.76	19.41	20.12	20.87	22.56	○
SAM200-SN2-2-6-H	2	6	3	1.92	50	4	4	5.80	6.30	6.54	6.77	7.03	7.60	●
SAM200-SN2-2-8-H		8			50			4.83	8.38	8.68	8.99	9.33	10.08	●
SAM200-SN2-2-10-H		10			50			4.13	10.45	10.82	11.21	11.63	12.57	●
SAM200-SN2-2-12-H		12			55			3.61	12.52	12.96	13.42	13.93	15.06	●
SAM200-SN2-2-14-H		14			55			3.21	14.59	15.09	15.64	16.23	17.54	○
SAM200-SN2-2-16-H		16			55			2.88	16.65	17.23	17.86	18.53	-	○
SAM200-SN2-2-24-H		24			65			2.06	24.92	25.79	26.72	27.72	-	○
SAM200-SN2-2.5-10-H	2.5	10	3.75	2.4	55	4	4	3.33	10.42	10.78	11.17	11.59	12.53	●
SAM200-SN2-2.5-20-H		20			60			1.88	20.76	21.48	22.26	-	-	○
SAM200-SN2-3-10-H	3	10	4.5	2.88	50	6	4	5.47	10.40	10.76	11.15	11.57	12.51	●
SAM200-SN2-3-12-H		12			60			4.86	12.47	12.90	13.37	13.87	14.99	●
SAM200-SN2-3-20-H		20			65			3.35	20.74	21.46	22.23	23.07	24.94	●
SAM200-SN2-3-24-H		24			70			2.90	24.87	25.74	26.67	27.67	-	○
SAM200-SN2-3-36-H		36			75			2.06	37.27	38.57	39.97	41.46	-	○
SAM200-SN2-4-16-H	4	16	6	3.86	60	6	4	2.89	16.58	17.16	17.78	18.45	-	●
SAM200-SN2-4-25-H		25			70			1.99	25.89	26.79	27.76	-	-	○
SAM200-SN2-4-32-H		32			80			1.60	33.12	34.28	35.51	-	-	●
SAM200-SN2-4-48-H		48			100			1.11	49.66	51.39	-	-	-	○
SAM200-SN2-5-16-H	5	16	7.5	4.85	70	6	4	1.60	16.58	17.15	17.77	-	-	●
SAM200-SN2-5-25-H		25			70			1.06	25.88	26.78	-	-	-	●
SAM200-SN2-6-20-H	6	20	9	5.85	70	6	4	-	-	-	-	-	-	●
SAM200-SN2-6-30-H		30			80			-	-	-	-	-	-	●

● Stock ○ Available upon Order

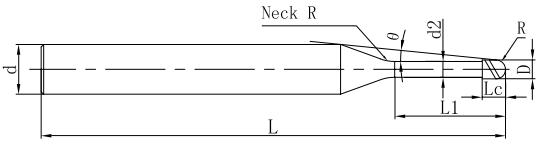
R	Tol
0.2≤D≤0.5	0 -0.007
0.6≤D≤0.9	0 -0.01
1.0≤D≤6.0	0 -0.015

(mm)

Cutting Parameters ※ P545

SAM200-BN2 NEW

2 Flute with Extended Neck,Ballnose



See page 149 for guidelines to icons

》Continue

Ordering Code	Mill Dia.	R	Under Neck Length	Flute Length	Neck Dia.	Overall Length	Shank Dia.	Neck	Interference Angle	The effective under-neck length for the various draft angles					Stock
										0.5°	1°	1.5°	2°	3°	
SAM200-BN2-0.2-1-H	0.2	0.1	1	0.16	0.17	50	4	1	13.35	1.04	1.08	1.11	1.15	1.24	●
SAM200-BN2-0.4-2-H	0.4	0.2	2	0.32	0.37	50	4	2	11.83	2.11	2.20	2.28	2.36	2.53	●
SAM200-BN2-0.4-3-H			3						10.63	3.16	3.28	3.39	3.51	3.77	●
SAM200-BN2-0.4-4-H			4						9.64	4.20	4.34	4.49	4.66	5.02	○
SAM200-BN2-0.4-5-H			5						8.83	5.24	5.41	5.60	5.81	6.26	○
SAM200-BN2-0.5-2-H	0.5	0.25	2	0.4	0.47	50	4	2	11.83	2.11	2.20	2.27	2.35	2.52	●
SAM200-BN2-0.5-4-H			4						9.59	4.20	4.34	4.49	4.65	5.00	●
SAM200-BN2-0.5-6-H			6						8.06	6.27	6.48	6.71	6.95	7.49	○
SAM200-BN2-0.6-2-H	0.6	0.3	2	0.48	0.57	50	4	4	11.60	2.15	2.28	2.40	2.51	2.71	●
SAM200-BN2-0.6-4-H			4						9.39	4.28	4.49	4.66	4.83	5.19	●
SAM200-BN2-0.6-6-H			6						7.88	6.39	6.65	6.88	7.13	7.68	●
SAM200-BN2-0.6-8-H			8						6.79	8.48	8.79	9.10	9.43	10.17	○
SAM200-BN2-0.8-4-H	0.8	0.4	4	0.64	0.76	50	4	4	9.30	4.25	4.45	4.61	4.77	5.13	●
SAM200-BN2-0.8-6-H			6						7.74	6.36	6.61	6.83	7.07	7.61	●
SAM200-BN2-0.8-8-H			8						6.63	8.45	8.75	9.05	9.37	10.10	○
SAM200-BN2-0.8-10-H			10						5.79	10.53	10.88	11.26	11.67	12.58	○
SAM200-BN2-1-4-H	1	0.5	4	0.8	0.96	50	4	4	9.16	4.25	4.44	4.60	4.76	5.10	●
SAM200-BN2-1-6-H			6			50			9.44	6.35	6.60	6.82	7.06	7.59	●
SAM200-BN2-1-8-H			8			50			6.43	8.44	8.74	9.04	9.36	10.07	○
SAM200-BN2-1-10-H			10			50			5.60	10.52	10.88	11.25	11.66	12.56	●
SAM200-BN2-1-12-H			12			55			4.96	12.59	13.02	13.47	13.96	15.05	○

● Stock ○ Available upon Order

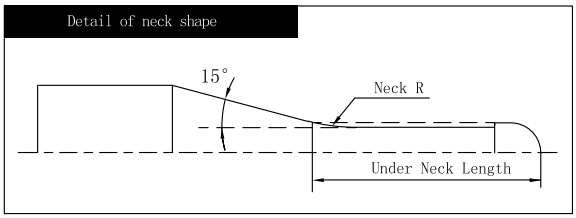
R	Tol
R≤0.25	±0.003
R>0.25	±0.005

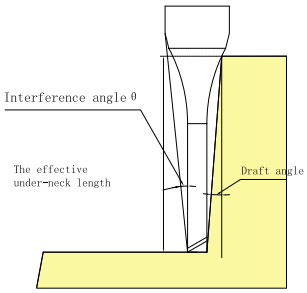
(mm)

Cutting Parameters ※ P547

SAM200-BN2 NEW

2 Flute with Extended Neck,Ballnose





See page 149 for guidelines to icons

》Continue

Ordering Code	Mill Dia.	R	Under Neck Length	Flute Length	Neck Dia.	Overall Length	Shank Dia.	Neck	Interference Angle	The effective under-neck length for the various draft angles					Stock
										0.5°	1°	1.5°	2°	3°	
SAM200-BN2-1.5-6-H	1.5	0.75	6	1.2	1.44	50	4	4	7.08	6.30	6.53	6.73	6.96	7.46	●
SAM200-BN2-1.5-8-H			8			50			5.92	8.38	8.67	8.95	9.26	9.95	●
SAM200-BN2-1.5-10-H			10			50			5.08	10.46	10.80	11.17	11.56	12.44	●
SAM200-BN2-1.5-12-H			12			55			4.45	12.53	12.94	13.38	13.86	14.92	●
SAM200-BN2-1.5-16-H			16			55			3.56	16.67	17.22	17.82	18.46	19.89	○
SAM200-BN2-1.5-18-H			18			60			3.24	18.74	19.36	20.03	20.76	22.38	○
SAM200-BN2-2-6-H	2	1	6	1.6	1.92	50	4	4	6.45	6.26	6.47	6.67	6.88	7.35	●
SAM200-BN2-2-8-H			8			50			5.27	8.34	8.61	8.88	9.18	9.84	●
SAM200-BN2-2-10-H			10			50			4.45	10.42	10.75	11.10	11.48	12.33	●
SAM200-BN2-2-12-H			12			55			3.85	12.49	12.89	13.32	13.78	14.81	○
SAM200-BN2-2-16-H			16			55			3.04	16.62	17.16	17.75	18.38	19.79	●
SAM200-BN2-2-20-H			20			60			2.51	20.76	21.44	22.18	22.98	-	○
SAM200-BN2-2-24-H			24			70			2.13	24.89	25.72	26.61	27.58	-	○
SAM200-BN2-3-8-H	3	1.5	8	2.4	2.88	55	6	4	7.03	8.28	8.52	8.77	9.04	9.66	●
SAM200-BN2-3-10-H			10			60			6.05	10.35	10.66	10.99	11.34	12.14	●
SAM200-BN2-3-12-H			12			60			5.30	12.42	12.80	13.20	13.64	14.63	●
SAM200-BN2-3-16-H			16			60			4.26	16.55	17.07	17.64	18.24	19.60	●
SAM200-BN2-3-20-H			20			65			3.55	20.69	21.35	22.07	22.84	24.57	○
SAM200-BN2-3-25-H			25			70			2.94	25.85	26.70	27.61	28.59	-	●
SAM200-BN2-3-30-H			30			75			2.51	31.02	32.05	33.15	34.34	-	○
SAM200-BN2-3-36-H			36			80			2.14	37.22	38.47	39.80	41.24	-	○

● Stock ○ Available upon Order

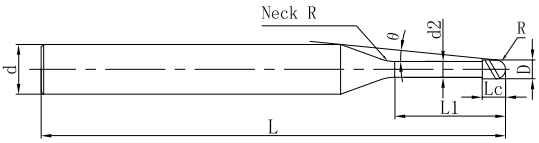
R	Tol
R≤0.25	±0.003
R>0.25	±0.005

(mm)

Cutting Parameters ※ P547

SAM200-BN2 NEW

2 Flute with Extended Neck,Ballnose



See page 149 for guidelines to icons

》Continue

Ordering Code	Mill Dia.	R	Under Neck Length	Flute Length	Neck Dia.	Overall Length	Shank Dia.	Neck	Interference Angle	The effective under-neck length for the various draft angles					Stock
										0.5°	1°	1.5°	2°	3°	
SAM200-BN2-4-10-H	4	2	10	3.2	3.86	55	6	4	4.85	10.31	10.60	10.91	11.25	12.00	●
SAM200-BN2-4-12-H			12			60			4.15	12.38	12.74	13.13	13.55	14.48	●
SAM200-BN2-4-16-H			16			60			3.22	16.52	17.02	17.56	18.15	19.46	●
SAM200-BN2-4-20-H			20			65			2.63	20.65	21.30	22.00	22.75	-	●
SAM200-BN2-4-25-H			25			70			2.14	25.82	26.65	27.54	28.50	-	●
SAM200-BN2-4-32-H			32			75			1.70	33.05	34.14	35.30	-	-	○
SAM200-BN2-4-35-H			35			80			1.56	36.16	37.35	38.62	-	-	○
SAM200-BN2-4-48-H			48			90			1.15	49.59	51.25	-	-	-	○
SAM200-BN2-5-16-H	5	2.5	16	4	4.85	65	6	4	1.86	16.49	16.98	17.50	-	-	●
SAM200-BN2-5-20-H			20			70			1.48	20.63	21.26	-	-	-	●
SAM200-BN2-5-25-H			25			75			1.17	25.79	26.61	-	-	-	●
SAM200-BN2-5-40-H			40			80			0.73	41.30	-	-	-	-	○
SAM200-BN2-6-12-H	6	3	12	4.8	5.85	60	6	-	-	-	-	-	-	-	●
SAM200-BN2-6-20-H			20			65			-	-	-	-	-	-	●
SAM200-BN2-6-30-H			30			75			-	-	-	-	-	-	○
SAM200-BN2-6-50-H			50			100			-	-	-	-	-	-	○

● Stock ○ Available upon Order

R	Tol
R≤0.25	±0.003
R>0.25	±0.005

(mm)

Cutting Parameters ※ P547

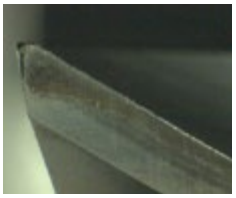
Case Study

UP210 Stamp die Machining

Model	UP210-SL4-12045
Spec	D12*45*100*d12
Workpiece	H13（45HRC）
Cutting Speed	2600RPM(100m/min)
Feed Rate	1600mm/min（0.15mm/z）
Cutting Method	Side Milling
Cutting Depth	ap=30mm，ae=0.05~0.2mm
Cooling Method	Air Cooling

Workpiece

Profiling



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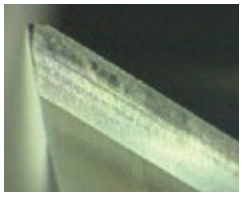
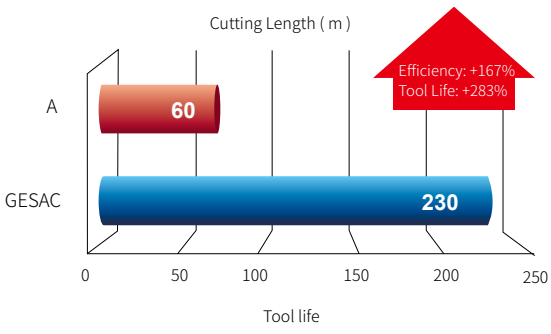


GESAC

Wear Condition after Cutting 1.5H

SP210 Type Block Contour Finishing

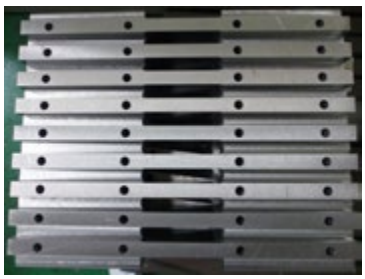
Model	SP210-S4-10025
Spec	D10*25*75*d10
Workpiece	Q235A(HB200)
Cutting Speed	5100RPM(160m/min)
Feed Rate	1600mm/min（0.078mm/z）
Cutting Method	Contour Finishing
Cutting Depth	ap=5-12mm,ae=0.15mm
Cooling Method	Emulsion

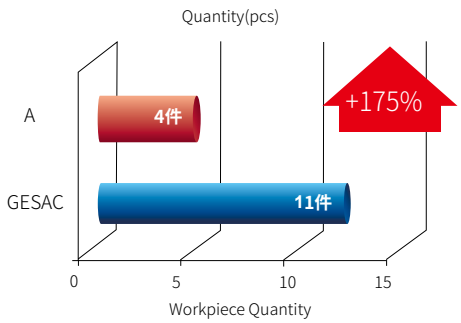


Case Study

UPR210 Magnechuck machining

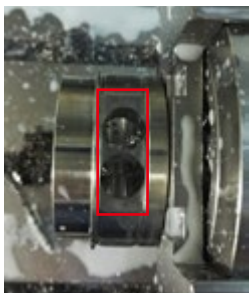
Model	UPR210-S4-10025
Spec	D10*C0.3*25*75*d10
Workpiece	45#(180HB)
Cutting Speed	172.7m/min (5500rpm)
Feed Rate	600mm/min（0.027mm/z）
Cutting Method	Side Milling
Cutting Depth	ap=6mm,ae=10mm
Cooling Method	Emulsion

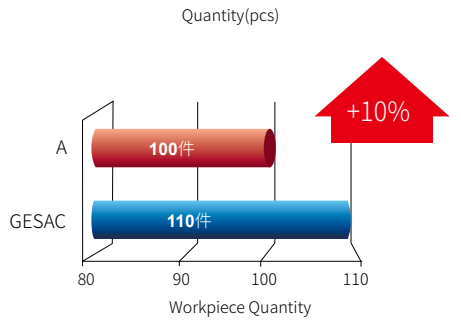




UPR300 Output Shaft side milling

Model	UPR300-S4-10025
Spec	D10*C0.3*25*75*d10
Workpiece	SCM440（30HRC）
Cutting Speed	4777rpm (150m/min)
Feed Rate	0.012mm/z（238mm/min）
Cutting Method	Side Milling
Cutting Depth	ap=20mm,ae=5mm
Cooling Method	Emulsion



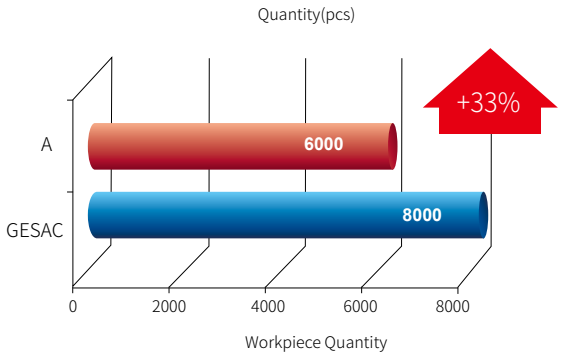


Case Study

US300 Cellphone Charge Jack machining

Model	US300-S4-01503
Spec	D1.5*3*50*d4
Workpiece	SUS316L（HB150-200）
Cutting Speed	8000rpm (37.68m/min)
Feed Rate	Plunge Milling 20mm/min Side Milling 200mm/min
Cutting Method	Plunge milling, Side milling
Cutting Depth	ap=2.6 mm，ae=0.32 mm
Cooling Method	Oil Cooling

Machining zone marked as Red



SA100 Cellphone cavity milling

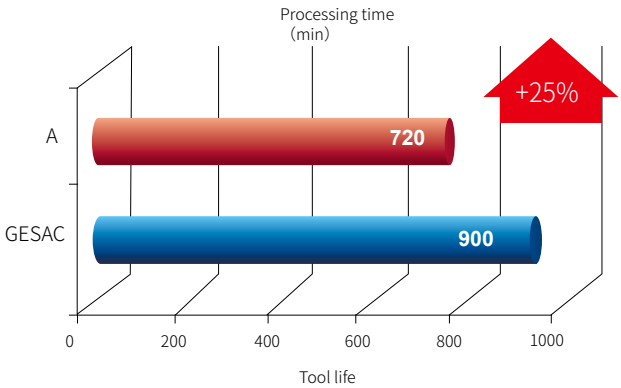
Model	SA100-S3-06012
Spec	D6*12*50*d6
Workpiece	AL6063
Cutting Speed	16000RPM(301.44m/min)
Feed Rate	0.083mm/z(4000mm/min)
Cutting Method	Face milling
Cutting Depth	ap=0.8mm，ae=4.8mm
Cooling Method	Emuslion

Machining zone marked as Red

Case Study

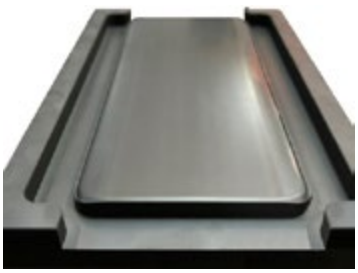
SG200 Graphite Electrode Machining

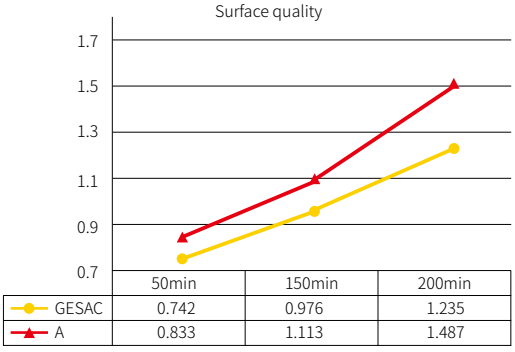
Model	SG200-RN4-10005
Spec	D10*R0.5*15*45*100*d10
Workpiece	Graphite
Cutting Speed	9000RPM(280m/min)
Feed Rate	4000mm/min（0.11mm/z）
Cutting Method	Side Milling
Cutting Depth	ap=0.15mm，ae=0.25mm
Cooling Method	Air Cooling



SG200 Graphite Mold Machining

Model	SG200-M-BN2
Spec	Terrace Die：R0.75*5*10*50*d4
Workpiece	HK-75
Cutting Speed	15000 RPM
Feed Rate	3500mm/min
Cutting Method	Profile Milling
Cutting Depth	ap=0.05mm，ae=0.03mm
Cooling Method	Dry, Dust extraction



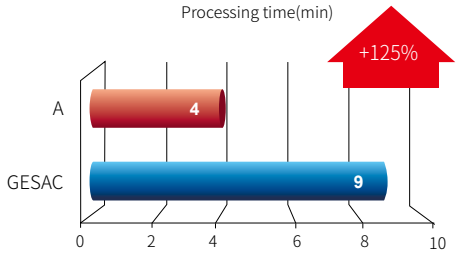


	50min	150min	200min
GESAC	0.742	0.976	1.235
A	0.833	1.113	1.487

Case Study

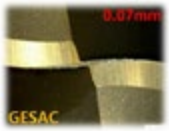
SH260-H Automobile die machining NEW

Model	SH260-B2-10-15-H
Spec	R5*15*75*d10
Workpiece	NAK80（48-52HRC）
Cutting Speed	4000RPM（126.6m/min）
Feed Rate	2000mm/min（0.25mm/z）
Cutting Method	Profile Milling
Cutting Depth	ap=0.1mm
Cooling Method	Air Cooling

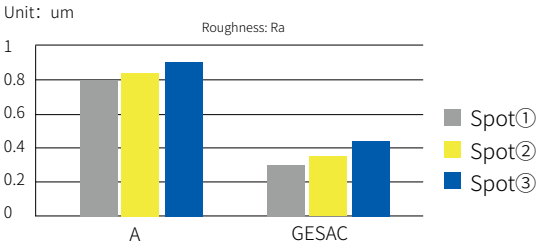


SH300-H Male die of automobile

Model	SH300-BH2-06009E-H
Spec	R3*9*75*d6
Workpiece	SKD11（62HRC）
Cutting Speed	10000RPM（188.4m/min）
Feed Rate	1200mm/min（0.06mm/z）
Cutting Method	Profile Milling
Cutting Depth	ap=0.03mm，ae=0.05mm
Cooling Method	Oil Cooling



after 9 hours continually profile milling



Case Study

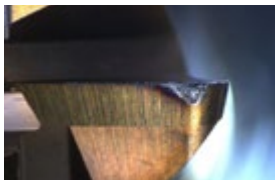
FH200-H:SKD11 Rough Machining

Model	FH200-R6-12008-H
Spec	D12*R0.75*10*36*100*d12*D11.5
Workpiece	SKD11(60HRC)
Cutting Speed	1592RPM(60m/min)
Feed Rate	1911mm/min (0.2mm/z)
Cutting Method	Face Milling
Cutting Depth	ap=0.25mm，ae=6mm
Cooling Method	Air Cooling

Machining Process

Chip Form

GESAC



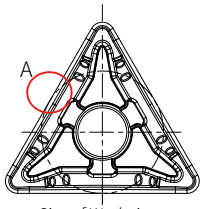
A

SPM200 High Precision Copper-Tungsten Electrode Mold Finishing Machining

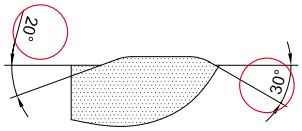
Model	SPM200-BN2-0.6-4-V
Type	2 Flute, Extended Neck,Ballnose, Coating
Spec	R0.3*0.48*4*50*d4*D0.57
Workpiece	Copper-Tungsten(25~30HRC)
Machine	Germany Karn (KARN-771)
Tool Holder	HSK—E25 Heat Shrinkable Tool Holder
Cutting Speed	30000RPM(56m/min)
Feed Rate	500mm/min
Cutting Method	Profile Milling, Finishing
Cutting Depth	ap=0.01mm，ae=0.02mm
Cooling Method	Oil Mis
Workpiece	Angles Tol. : ± 15 ′, Surface Roughness: Ra＜0.1μm

Cutting Tool

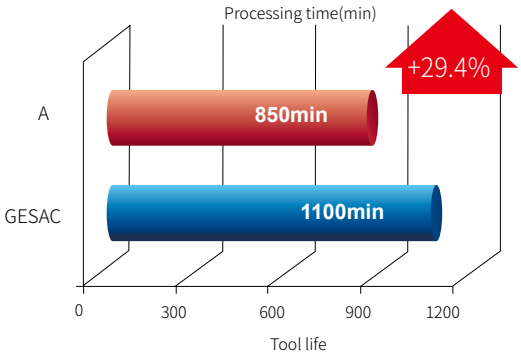
Workpiece



Size of Workpiece



Enlarged view of zone A



Recommended Cutting Data

UP210- SS2/S2/SL2 /SH2/R2/RH2
Side Milling : For Steel, Cast Iron

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	3	4	6	8	10	12	16	20
P	Carbon Steel,Alloy (<35HRC)	ap≤1.5D	180	n	19110	14330	9550	7170	5730	4780	3580	2870
		ae≤0.15D		Vf	1070	1030	920	930	920	860	860	860
	Alloy Steel (35-48HRC)	ap≤1D	130	n	13800	10350	6900	5180	4140	3450	2590	2070
		ae≤0.12D		Vf	610	580	550	620	560	500	410	370
M	Stainless Steel	ap≤1.5D	130	n)	13800	10350	6900	5180	4140	3450	2590	2070
		ae≤0.15D		Vf)	690	660	590	650	610	590	490	460
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	ap≤1.5D	160	n	16990	12740	8490	6370	5100	4250	3190	2550
		ae≤0.15D		Vf	850	820	820	750	700	680	610	560
	High Alloy Cast Iron (35-45HRC)	ap≤1D	140	n	14860	11150	7430	5570	4460	3720	2790	2230
		ae≤0.12D		Vf	650	670	670	620	580	560	500	460

UP210- S3
Side Milling : For Steel, Cast Iron

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	3	4	6	8	10	12	16	20
P	Carbon Steel,Alloy (<35HRC)	ap≤1.5D	180	n	19110	14330	9550	7170	5730	4780	3580	2870
		ae≤0.15D		Vf	1610	1550	1380	1400	1380	1290	1290	1290
	Alloy Steel (35-48HRC)	ap≤1D	130	n	13800	10350	6900	5180	4140	3450	2590	2070
		ae≤0.12D		Vf	910	870	830	930	850	760	620	560
M	Stainless Steel	ap≤1.5D	130	n)	13800	10350	6900	5180	4140	3450	2590	2070
		ae≤0.15D		Vf)	1040	990	890	980	920	880	740	680
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	ap≤1.5D	160	n	16990	12740	8490	6370	5100	4250	3190	2550
		ae≤0.15D		Vf	1270	1220	1220	1130	1060	1020	910	840
	High Alloy Cast Iron (35-45HRC)	ap≤1D	140	n	14860	11150	7430	5570	4460	3720	2790	2230
		ae≤0.12D		Vf	980	1000	1000	940	870	840	750	680

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

Recommended Cutting Data

UP210- SS4/S4/SC4/S4A/SL4 /SH4/R4/R4A/RH4

Side Milling : For Steel, Cast Iron

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	3	4	6	8	10	12	16	20
P	Carbon Steel,Alloy (<35HRC)	ap≤1.5D	180	n	19110	14330	9550	7170	5730	4780	3580	2870
		ae≤0.15D		Vf	2140	2060	1830	1860	1830	1720	1720	1720
	Alloy Steel (35-48HRC)	ap≤1D	130	n	13800	10350	6900	5180	4140	3450	2590	2070
		ae≤0.12D		Vf	1210	1160	1100	1240	1130	1010	830	750
M	Stainless Steel	ap≤1.5D	130	n)	13800	10350	6900	5180	4140	3450	2590	2070
		ae≤0.15D		Vf)	1380	1330	1190	1300	1230	1170	980	910
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	ap≤1.5D	160	n	16990	12740	8490	6370	5100	4250	3190	2550
		ae≤0.15D		Vf	1700	1630	1630	1500	1410	1360	1210	1120
	High Alloy Cast Iron (35-45HRC)	ap≤1D	140	n	14860	11150	7430	5570	4460	3720	2790	2230
		ae≤0.12D		Vf	1310	1340	1340	1250	1160	1120	1000	910

UP210- S6

Side Milling : For Steel, Cast Iron

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	3	4	6	8	10	12	16	20
P	Carbon Steel,Alloy (<35HRC)	ap≤1.5D	180	n	19110	14330	9550	7170	5730	4780	3580	2870
		ae≤0.15D		Vf	3210	3100	2750	2800	2750	2580	2580	2580
	Alloy Steel (35-48HRC)	ap≤1D	130	n	13800	10350	6900	5180	4140	3450	2590	2070
		ae≤0.12D		Vf	1820	1740	1660	1860	1690	1510	1240	1120
M	Stainless Steel	ap≤1.5D	130	n)	13800	10350	6900	5180	4140	3450	2590	2070
		ae≤0.15D		Vf)	2070	1990	1780	1960	1840	1760	1480	1370
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	ap≤1.5D	160	n	16990	12740	8490	6370	5100	4250	3190	2550
		ae≤0.15D		Vf	2550	2450	2450	2260	2110	2040	1820	1680
	High Alloy Cast Iron (35-45HRC)	ap≤1D	140	n	14860	11150	7430	5570	4460	3720	2790	2230
		ae≤0.12D		Vf	1960	2010	2010	1870	1740	1670	1510	1360

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

Recommended Cutting Data

UP210- SS2/S2/SL2/SH2/R2/RH2
Slot Milling : For Steel, Cast Iron

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	3	4	6	8	10	12	16	20
P	Carbon Steel,Alloy (<35HRC)	ap≤0.8D	80	n	8490	6370	4250	3190	2550	2120	1590	1270
				Vf	430	540	440	400	370	350	400	410
	Alloy Steel (35-48HRC)	ap≤0.3D	60	n	6370	4780	3190	2390	1910	1590	1190	960
				Vf	260	310	270	230	220	220	230	230
M	Stainless Steel	ap≤0.3D	55	n)	5840	4380	2920	2190	1750	1460	1100	880
				Vf)	140	160	200	200	200	190	170	160
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	ap≤0.5D	55	n	5840	4380	2920	2190	1750	1460	1100	880
				Vf	210	250	250	220	210	200	190	170
	High Alloy Cast Iron (35-45HRC)	ap≤0.3D	50	n	5310	3980	2650	1990	1590	1330	1000	800
				Vf	160	180	210	180	180	170	160	140

UP210- S3
Slot Milling : For Steel, Cast Iron

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	3	4	6	8	10	12	16	20
P	Carbon Steel,Alloy (<35HRC)	ap≤0.8D	80	n	8490	6370	4250	3190	2550	2120	1590	1270
				Vf	640	800	660	590	550	520	600	610
	Alloy Steel (35-48HRC)	ap≤0.3D	60	n	6370	4780	3190	2390	1910	1590	1190	960
				Vf	380	460	400	340	330	330	340	340
M	Stainless Steel	ap≤0.3D	55	n)	5840	4380	2920	2190	1750	1460	1100	880
				Vf)	210	240	310	300	290	290	260	240
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	ap≤0.5D	55	n	5840	4380	2920	2190	1750	1460	1100	880
				Vf	320	370	380	330	320	310	280	250
	High Alloy Cast Iron (35-45HRC)	ap≤0.3D	50	n	5310	3980	2650	1990	1590	1330	1000	800
				Vf	240	280	320	270	260	260	240	220

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

Recommended Cutting Data

UP210- B2/BH2

Profile Milling： For Steel, Cast Iron

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	4	5	6	7	8	9	10	11	12
P	Carbon Steel,Alloy (<35HRC)	ap≤0.2D	160	n	12740	10190	8490	7280	6370	5660	5100	4630	4250
		ae≤0.3D		Vf	1020	1020	1020	1020	1020	1020	1020	1020	1020
	Alloy Steel (35-48HRC)	ap≤0.15D	120	n	9550	7640	6370	5460	4780	4250	3820	3470	3190
		ae≤0.15D		Vf	610	640	660	630	620	610	610	610	610
M	Stainless Steel	ap≤0.2D	110	n	8760	7010	5840	5010	4380	3890	3500	3190	2920
		ae≤0.2D		Vf	610	630	640	630	630	620	630	640	640
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	ap≤0.2D	140	n	11150	8920	7430	6370	5570	4950	4460	4050	3720
		ae≤0.2D		Vf	780	800	820	800	800	790	800	810	820
	High Alloy Cast Iron (35-45HRC)	ap≤0.1D	120	n	9550	7640	6370	5460	4780	4250	3820	3470	3190
		ae≤0.1D		Vf	610	640	660	660	670	650	650	660	670

UP210- B4

Profile Milling： For Steel, Cast Iron

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	4	5	6	7	8	9	10	11	12
P	Carbon Steel,Alloy (<35HRC)	ap≤0.2D	160	n	12740	10190	8490	7280	6370	5660	5100	4630	4250
		ae≤0.3D		Vf	2040	2040	2040	2040	2040	2040	2040	2040	2040
	Alloy Steel (35-48HRC)	ap≤0.15D	120	n	9550	7640	6370	5460	4780	4250	3820	3470	3190
		ae≤0.15D		Vf	1220	1280	1330	1270	1240	1220	1220	1210	1210
M	Stainless Steel	ap≤0.2D	110	n)	8760	7010	5840	5010	4380	3890	3500	3190	2920
		ae≤0.2D		Vf)	1230	1260	1290	1260	1260	1250	1260	1270	1290
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	ap≤0.2D	140	n	11150	8920	7430	6370	5570	4950	4460	4050	3720
		ae≤0.2D		Vf	1560	1610	1640	1610	1610	1590	1610	1620	1640
	High Alloy Cast Iron (35-45HRC)	ap≤0.1D	120	n	9550	7640	6370	5460	4780	4250	3820	3470	3190
		ae≤0.1D		Vf	1220	1280	1330	1310	1340	1310	1300	1320	1340

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

Recommended Cutting Data

UP210- L60/L90/L120

Chamfer Milling: For Steel, Cast Iron

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	6	8	10	12	16	20
P	Carbon Steel,Alloy (<35HRC)	130	n	10350	6900	5175	4140	3450	2588	2070
			Vf	414	33	311	414	442	435	406
	Alloy Steel (35-48HRC)	90	n	7166	4777	3583	2866	2389	1791	1433
			Vf	229	191	172	172	239	229	241
M	Stainless Steel	80	n)	6369	4246	3185	2548	2123	1592	1274
			Vf)	204	170	153	153	212	204	214
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	100	n	7962	5308	3981	3185	2654	1990	1592
			Vf	318	255	239	318	340	334	312
	High Alloy Cast Iron (35-45HRC)	150	n	11943	7962	5971	4777	3981	2986	2389
			Vf	621	573	597	611	669	585	602

SP210- S3/C3

Side Milling : For Steel, Cast Iron

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	3	4	6	8	10	12	16	20
P	Carbon Steel,Alloy (<35HRC)	ap≤1.5D	200	10350	21230	15920	10620	7960	6370	5310	3980	3190
		ae≤0.15D		414	2040	1960	1690	1670	1620	1590	1490	1480
	Alloy Steel (35-48HRC)	ap≤1D	150	7166	15920	11940	7960	5970	4780	3980	2990	2390
		ae≤0.12D		229	1290	1180	1080	1160	1050	930	760	680
M	Stainless Steel	ap≤1.5D	150	6369	15920	11940	7960	5970	4780	3980	2990	2390
		ae≤0.15D		204	1580	1330	1150	1220	1130	1080	900	820
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	ap≤1.5D	170	7962	18050	13540	9020	6770	5410	4510	3380	2710
		ae≤0.15D		318	1620	1500	1440	1300	1200	1150	1020	930
	High Alloy Cast Iron (35-45HRC)	ap≤1D	150	11943	15920	11940	7960	5970	4780	3980	2990	2390
		ae≤0.12D		621	1290	1250	1190	1090	1000	960	850	770

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

Recommended Cutting Data

SP210- C4/CN4/R4/RH4/S4

Side Milling : For Steel, Cast Iron

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	3	4	6	8	10	12	16	20
P	Carbon Steel,Alloy (<35HRC)	ap≤1.5D	200	n	21230	15920	10620	7960	6370	5310	3980	3190
		ae≤0.15D		Vf	2720	2610	2250	2230	2170	2120	1990	1980
	Alloy Steel (35-48HRC)	ap≤1D	150	n	15920	11940	7960	5970	4780	3980	2990	2390
		ae≤0.12D		Vf	1720	1580	1430	1550	1400	1240	1020	910
M	Stainless Steel	ap≤1.5D	150	n)	15920	11940	7960	5970	4780	3980	2990	2390
		ae≤0.15D		Vf)	2100	1770	1530	1620	1510	1430	1190	1100
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	ap≤1.5D	170	n	18050	13540	9020	6770	5410	4510	3380	2710
		ae≤0.15D		Vf	2170	2000	1910	1730	1600	1530	1350	1250
	High Alloy Cast Iron (35-45HRC)	ap≤1D	150	n	15920	11940	7960	5970	4780	3980	2990	2390
		ae≤0.12D		Vf	1720	1670	1590	1460	1340	1270	1140	1020

SP210- S3/C3

Slot Milling : For Steel, Cast Iron

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	3	4	6	8	10	12	16	20
P	Carbon Steel,Alloy (<35HRC)	ap≤1D	80	n	8490	6370	4250	3190	2550	2120	1590	1270
				Vf	790	920	730	640	590	570	640	650
	Alloy Steel (35-48HRC)	ap≤0.5D	60	n	6370	4780	3190	2390	1910	1590	1190	960
				Vf	500	550	450	370	360	360	370	370
M	Stainless Steel	ap≤0.3D	55	n)	5840	4380	2920	2190	1750	1460	1100	880
				Vf)	320	320	350	340	320	320	280	260
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	ap≤0.8D	55	n	5840	4380	2920	2190	1750	1460	1100	880
				Vf	420	450	420	360	340	340	310	280
	High Alloy Cast Iron (35-45HRC)	ap≤0.5D	50	n	5310	3980	2650	1990	1590	1330	1000	800
				Vf	330	350	360	300	290	290	260	240

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

Recommended Cutting Data

SP210- C4/CN4/R4/RH4/S4
Slot Milling : For Steel, Cast Iron

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	3	4	6	8	10	12	16	20
P	Carbon Steel,Alloy (<35HRC)	ap≤1D	80	n	8490	6370	4250	3190	2550	2120	1590	1270
				Vf	1050	1220	970	850	790	760	850	870
	Alloy Steel (35-48HRC)	ap≤0.5D	60	n	6370	4780	3190	2390	1910	1590	1190	960
				Vf	660	730	600	500	470	480	490	500
M	Stainless Steel	ap≤0.3D	55	n)	5840	4380	2920	2190	1750	1460	1100	880
				Vf)	420	420	470	450	430	430	380	350
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	ap≤0.8D	55	n	5840	4380	2920	2190	1750	1460	1100	880
				Vf	560	600	560	480	460	450	410	370
	High Alloy Cast Iron (35-45HRC)	ap≤0.5D	50	n	5310	3980	2650	1990	1590	1330	1000	800
				Vf	450	460	480	400	380	380	350	320

SP210- B2/BH2
Profile Milling : For Steel, Cast Iron

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	3	4	6	8	10	12
P	Carbon Steel,Alloy (<35HRC)	ap≤0.04D	220	n	50000	35030	23360	17520	11680	8760	7010	5840
		ae≤0.04D		Vf	2800	2800	2800	2800	2800	2800	2800	2800
	Alloy Steel (35-48HRC)	ap≤0.02D	180	n	50000	28660	19110	14330	9550	7170	5730	4780
		ae≤0.02D		Vf	1950	2010	1990	2010	2010	2010	2000	2000
M	Stainless Steel	ap≤0.04D	220	n)	50000	35030	23360	17520	11680	8760	7010	5840
		ae≤0.04D		Vf)	2520	2450	2570	2630	2570	2540	2520	2530
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	ap≤0.04D	220	n	50000	35030	23360	17520	11680	8760	7010	5840
		ae≤0.04D		Vf	2520	2450	2570	2630	2570	2540	2520	2530
	High Alloy Cast Iron (35-45HRC)	ap≤0.04D	220	n	50000	35030	23360	17520	11680	8760	7010	5840
		ae≤0.04D		Vf	2380	2450	2430	2450	2450	2450	2440	2440

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

Recommended Cutting Data

UPR100- S4

Side Milling : For Steel, Cast Iron

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	6	8	10	12	16	20
P	Carbon Steel,Alloy (<35HRC)	ap≤1D	130	n	6900	5180	4140	3450	2590	2070
		ae≤0.2D		Vf	990	990	990	990	930	830
	Alloy Steel (35-48HRC)	ap≤1D	110	n	5840	4380	3500	2920	2190	1750
		ae≤0.12D		Vf	580	610	630	640	525	490
M	Stainless Steel	ap≤1D	130	n)	6900	5180	4140	3450	2590	2070
		ae≤0.2D		Vf)	280	310	330	350	310	290
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	ap≤1D	130	n	6900	5180	4140	3450	2590	2070
		ae≤0.2D		Vf	990	990	990	990	930	830
	High Alloy Cast Iron (35-45HRC)	ap≤1D	110	n	5840	4380	3500	2920	2190	1750
		ae≤0.12D		Vf	580	610	630	640	525	490

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

Recommended Cutting Data

UPR100- S4

Slot Milling : For Steel, Cast Iron

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	6	8	10	12	16	20
P	Carbon Steel,Alloy (<35HRC)	ap≤1D	80	n	4250	3190	2550	2120	1590	1270
				Vf	760	700	660	640	700	710
	Alloy Steel (35-48HRC)	ap≤0.5D	60	n	3190	2390	1910	1590	1190	960
				Vf	380	380	380	380	330	310
M	Stainless Steel	ap≤0.5D	55	n)	2920	2190	1750	1460	1100	880
				Vf)	350	350	350	350	310	280
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	ap≤1D	55	n	2920	2190	1750	1460	1100	880
				Vf	370	370	360	350	310	280
	High Alloy Cast Iron (35-45HRC)	ap≤0.75D	55	n	2920	2190	1750	1460	1100	880
				Vf	350	350	350	320	290	260

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

Recommended Cutting Data

UPR210- S4

Side Milling : For Steel, Cast Iron

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	6	8	10	12	16	20
P	Carbon Steel,Alloy (<35HRC)	ap ⩽ 1.5D	140	n	7430	5570	4460	3720	2790	2230
		ae ⩽ 0.3D		Vf	1070	1070	1070	1070	1000	900
	Alloy Steel (35-48HRC)	ap ⩽ 1D	120	n	6370	4780	3820	3190	2390	1910
		ae ⩽ 0.25D		Vf	630	660	690	700	570	535
M	Stainless Steel	ap ⩽ 1.5D	110	n)	5840	4380	3500	2920	2190	1750
		ae ⩽ 0.3D		Vf)	580	610	630	640	525	490
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	ap ⩽ 1.5D	140	n	7430	5570	4460	3720	2790	2230
		ae ⩽ 0.3D		Vf	1070	1070	1070	1070	1000	900
	High Alloy Cast Iron (35-45HRC)	ap ⩽ 1D	120	n	6370	4780	3820	3190	2390	1910
		ae ⩽ 0.25D		Vf	630	660	690	700	570	535
H	Alloy Steel Hardened Steel (<55HRC)	ap ⩽ 1D	100	n	5300	3980	3190	2650	1990	1590
		ae ⩽ 0.125D		Vf	530	480	450	420	400	380

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

UPR210- S4

Slot Milling : For Steel, Cast Iron

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	6	8	10	12	16	20
P	Carbon Steel,Alloy (<35HRC)	ap ⩽ 1D	120	n	6370	4780	3820	3190	2390	1910
				Vf	640	630	610	640	570	535
	Alloy Steel (35-48HRC)	ap ⩽ 0.75D	100	n	5310	4000	3190	2650	1990	1590
				Vf	430	400	450	425	360	320
M	Stainless Steel	ap ⩽ 0.75D	90	n)	4775	3580	2865	2385	1790	1432
				Vf)	382	160	190	210	200	190
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	ap ⩽ 1D	120	n	6370	4780	3820	3190	2390	1910
				Vf	640	630	610	640	570	535
	High Alloy Cast Iron (35-45HRC)	ap ⩽ 0.75D	100	n	5310	4000	3190	2650	1990	1590
				Vf	430	400	450	425	360	320

Recommended Cutting Data

UPN210- S4

Side Milling : For Steel, Cast Iron

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	6	8	10	12	16	20
P	Carbon Steel,Alloy (<35HRC)	ap ⩽ 1.5D	130	n	6900	5180	4140	3450	2590	2070
		ae ⩽ 0.3D		Vf	990	990	990	990	930	830
	Alloy Steel (35-48HRC)	ap ⩽ 1D	110	n	5840	4380	3500	2920	2190	1750
		ae ⩽ 0.25D		Vf	580	610	630	640	525	490
M	Stainless Steel	ap ⩽ 1.5D	130	n)	6900	5180	4140	3450	2590	2070
		ae ⩽ 0.3D		Vf)	280	310	330	350	310	290
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	ap ⩽ 1.5D	130	n	6900	5180	4140	3450	2590	2070
		ae ⩽ 0.3D		Vf	990	990	990	990	930	830
	High Alloy Cast Iron (35-45HRC)	ap ⩽ 1D	110	n	5840	4380	3500	2920	2190	1750
		ae ⩽ 0.25D		Vf	580	610	630	640	525	490
H	Alloy Steel Hardened Steel (<55HRC)	ap ⩽ 1D	90	n	4780	3580	2870	2390	1790	1430
		ae ⩽ 0.125D		Vf	480	430	400	380	360	345

Recommended Cutting Data

UPN210- S4

Slot Milling : For Steel, Cast Iron

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	6	8	10	12	16	20
P	Carbon Steel,Alloy (<35HRC)	ap≤0.8D	120	n	6370	4780	3820	3190	2390	1910
				Vf	640	630	610	640	570	535
	Alloy Steel (35-48HRC)	ap≤0.5D	100	n	5310	4000	3190	2650	1990	1590
				Vf	430	400	450	425	360	320
M	Stainless Steel	ap≤0.8D	100	n)	5310	3980	3190	2655	1990	1600
				Vf)	150	160	190	210	200	190
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	ap≤0.8D	120	n	6370	4780	3820	3190	2390	1910
				Vf	640	630	610	640	570	535
	High Alloy Cast Iron (35-45HRC)	ap≤0.5D	100	n	5310	4000	3190	2650	1990	1590
				Vf	430	400	450	425	360	320

UPR300-S3/S4

Side Milling : For Steel, Cast Iron

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	6	8	10	12	16	20
P	Carbon Steel,Alloy (<35HRC)	ap ⩽ 1.5D	160	n	8490	6370	5090	4240	3180	2550
		ae ⩽ 0.4D		Vf	790	820	1040	1020	940	880
	Alloy Steel (35-48HRC)	ap ⩽ 1.5D	150	n	7960	5970	4770	3980	2980	2390
		ae ⩽ 0.3D		Vf	670	680	880	840	780	720
M	Stainless Steel	ap ⩽ 1.5D	115	n)	6100	4580	3660	3050	2290	1830
		ae ⩽ 0.4D		Vf)	570	590	750	730	680	630
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	ap ⩽ 1.5D	150	n	7960	5970	4770	3980	2980	2390
		ae ⩽ 0.5D		Vf	880	910	1170	1110	1030	930
	High Alloy Cast Iron (35-45HRC)	ap ⩽ 1.5D	130	n	6900	5170	4140	3450	2590	2070
		ae ⩽ 0.4D		Vf	520	530	680	660	610	570
H	Alloy Steel Hardened Steel (<55HRC)	ap ⩽ 1.5D	140	n	7430	5570	4460	3710	2790	2230
		ae ⩽ 0.3D		Vf	620	640	820	790	720	670

Recommended Cutting Data

UPR300-S3/S4

Slot Milling : For Steel, Cast Iron

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	6	8	10	12	16	20
P	Carbon Steel,Alloy (<35HRC)	ap ⩽ 1D	130	n	6900	5175	4140	3450	2590	2070
				Vf	510	530	680	660	610	570
	Alloy Steel (35-48HRC)	ap ⩽ 0.75D	120	n	6370	4780	3820	3185	2390	1910
				Vf	430	440	560	540	500	460
M	Stainless Steel	ap ⩽ 0.75D	90	n)	4780	3580	2870	2390	1790	1430
				Vf)	360	370	470	460	430	395
K	Gray Cast Iron Nodular Cast Iron (<32HRC)	ap ⩽ 1D	120	n	6370	4780	3820	3185	2390	1910
				Vf	570	590	750	710	660	595
	High Alloy Cast Iron (35-45HRC)	ap ⩽ 1D	100	n	5310	3980	3185	2650	1990	1590
				Vf	320	325	420	410	375	350
H	Alloy Steel Hardened Steel (<55HRC)	ap ⩽ 0.3D	110	n	5840	4380	3500	2920	2190	1750
				Vf	390	400	515	500	450	420

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

Recommended Cutting Data

US200-S2/R2
Side Milling：Stainless Steel

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12	16	20
M	Stainless Steel	ap≤1D	100 (80-120)	n	25000	15900	7960	5300	3980	3180	2650	1990	1590
		ae≤0.1D		Vf	220	254	340	340	365	330	300	245	230

US200-S2/R2
Slot Milling：Stainless Steel

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12	16	20
M	Stainless Steel	ap≤0.1D	45 (35-55)	n	14330	7165	3580	2390	1790	1430	1195	895	715
		ae≤1D		Vf	200	140	120	155	155	155	155	135	120

US200- R3
Side Milling：Stainless Steel

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12	16	20
M	Stainless Steel	ap≤1D	100 (80-120)	n	25000	15900	7960	5300	3980	3180	2650	1990	1590
		ae≤0.1D		Vf	525	480	525	510	550	500	450	370	340

US200-R3
Slot Milling：Stainless Steel

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12	16	20
M	Stainless Steel	ap≤0.1D	45 (35-55)	n	14330	7165	3580	2390	1790	1430	1195	895	715
		ae≤1D		Vf	300	215	180	235	235	230	230	200	180

Recommended Cutting Data

US200-SS4/S4/SN4/R4

Side Milling：Stainless Steel

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12	16	20
M	Stainless Steel	ap≤1D	100 (80-120)	n	25000	15900	7960	5300	3980	3180	2650	1990	1590
		ae≤0.1D		Vf	700	635	700	680	730	660	600	490	460

US200-R4

Slot Milling：Stainless Steel

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12	16	20
M	Stainless Steel	ap≤0.1D	45 (35-55)	n	14330	7165	3580	2390	1790	1430	1195	895	715
		ae≤1D		Vf	400	280	240	310	310	310	310	270	240

US200- B2

Profile Milling：Stainless Steel

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12	16	20
M	Stainless Steel	ap≤0.2D	100 (80-120)	n	25000	15900	7960	5300	3980	3180	2650	1990	1590
		ae≤0.2D		Vf	525	480	510	550	560	540	560	520	510

US200-B4

Profile Milling：Stainless Steel

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12	16	20
M	Stainless Steel	ap≤0.2D	100 (80-120)	n	25000	15900	7960	5300	3980	3180	2650	1990	1590
		ae≤0.2D		Vf	560	955	1020	1100	1110	1080	1115	1030	1020

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

Recommended Cutting Data

US300-SS4/S4
Side Milling：Stainless Steel

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12
M	Stainless Steel	ap≤1D	100 (80-120)	n	20000	15900	7960	5300	3980	3180	2650
		ae≤0.1D		Vf	960	950	1110	950	950	890	850

US300-SS4/S4
Slot Milling：Stainless Steel

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12
M	Stainless Steel	ap≤0.3D	45 (35-55)	n	14300	7160	3580	2390	1790	1400	1200
		ae≤1D		Vf	340	250	215	300	300	300	300

SS200-CS4/C4
Side Milling：Stainless Steel

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	2	4	6	8	10	12
M	Stainless Steel	ap≤1D	80 (60-100)	n	15900	7960	5300	3980	3180	2650
		ae≤0.5D		Vf	600	480	500	510	490	480

SS200-CS4/C4
Slot Milling：Stainless Steel

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	2	4	6	8	10	12
M	Stainless Steel	ap≤1D	60 (50-70)	n	9550	4780	3180	2390	1900	1590
		ae≤1D		Vf	500	350	350	380	350	350

Recomme nded Cutting Data

UA100-S2/SH2/R2/RH2
Side Milling： Aluminium Alloy

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12	16	20
N	Wrought Aluminum Alloys Cast Aluminum Alloys (Si≤12%)	ap≤1.5D	150 (60-350)	n	16000	12700	12000	10600	10000	9500	9280	7000	5600
		ae≤0.2D		Vf	580	710	1200	1280	1390	1720	2400	2500	2450
	Copper Alloy (＜HB200)	ap≤1.5D	150 (60-350)	n	16000	12700	12000	10600	10000	9500	9280	7000	5600
		ae≤0.2D		Vf	520	650	1070	1150	1250	1550	2170	2250	2200

UA100-S2/SH2/R2/RH2
Slot Milling： Aluminium Alloy

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12	16	20
N	Wrought Aluminum Alloys Cast Aluminum Alloys (Si≤12%)	ap≤0.5D	150 (60-350)	n	16000	10000	9000	8000	7800	8000	6800	5000	4000
		ae=1D		Vf	400	500	810	920	1100	1280	1300	1310	1200
	Copper Alloy (＜HB200)	ap≤0.5D	150 (60-350)	n	16000	10000	9000	8000	7800	8000	6800	5000	4000
		ae=1D		Vf	380	450	800	830	1000	1150	1130	1000	1080

UA100-SL2
Side Milling：Aluminium Alloy

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12	16	20
N	Wrought Aluminum Alloys Cast Aluminum Alloys (Si≤12%)	ap≤2.5D	150 (60-350)	n	16000	10000	9000	8000	7800	8000	6800	5000	4000
		ae≤0.15D		Vf	400	500	810	920	1100	1280	1300	1310	1200
	Copper Alloy (＜HB200)	ap≤2.5D	150 (60-350)	n	16000	10000	9000	8000	7800	8000	6800	5000	4000
		ae≤0.15D		Vf	380	450	800	830	1000	1150	1130	1000	1080

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

Recommended Cutting Data

UA100-S3/SH3/R3/RH3
Side Milling : Aluminium Alloys

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12	16	20
N	Wrought Aluminum Alloys Cast Aluminum Alloys (Si≤12%)	ap≤1.5D	150 (60-350)	n	16000	13000	12000	10600	10000	9500	9280	7000	5600
		ae≤0.2D		Vf	650	850	1430	1530	1670	2050	2800	3000	3150
	Copper Alloy (<HB200)	ap≤1.5D	150 (60-350)	n	16000	13000	12000	10600	10000	9500	9280	7000	5600
		ae≤0.2D		Vf	720	900	1200	1200	1500	1800	2225	2500	3000

UA100-S3/SH3/R3/RH3
Slot Milling: Aluminium Alloys

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12	16	20
N	Wrought Aluminum Alloys Cast Aluminum Alloys (Si≤12%)	ap≤0.5D	150 (60-350)	n	16000	10000	9000	8000	7800	8000	6800	5000	4000
		ae=1D		Vf	450	570	960	1050	1300	1500	1620	1680	1800
	Copper Alloy (<HB200)	ap≤0.5D	150 (60-350)	n	16000	10000	9000	8000	7800	8000	6800	5000	4000
		ae=1D		Vf	450	520	860	830	960	1240	1500	1550	1510

UA100- SL3
Side Milling : Aluminium Alloys

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12	16	20
N	Wrought Aluminum Alloys Cast Aluminum Alloys (Si≤12%)	ap≤2.5D	150 (60-350)	n	16000	10000	9000	8000	7800	8000	6800	5000	4000
		ae≤0.15D		Vf	450	570	960	1050	1300	1500	1620	1680	1800
	Copper Alloy (<HB200)	ap≤2.5D	150 (60-350)	n	16000	10000	9000	8000	7800	8000	6800	5000	4000
		ae≤0.15D		Vf	450	520	860	830	960	1240	1500	1550	1510

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

Recommended Cutting Data

UA100-B2

Profile Milling : Aluminium Alloys

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12	16
N	Wrought Aluminum Alloys Cast Aluminum Alloys (Si≤12%)	ap≤0.3D	150 (60-350)	n	19000	15900	11900	10600	8000	7950	7950	7000
		ae≤0.3D		Vf	950	1600	1900	2500	2550	3200	3800	4450
	Copper Alloy (<HB200)	ap≤0.3D	150 (60-350)	n	19000	15900	11900	10600	8000	7950	7950	7000
		ae≤0.3D		Vf	860	1430	1720	2300	2300	2850	3450	4010

UA160-S2

Side Milling : Aluminium A

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

UA160-S2

Slot Milling : Aluminium Alloys

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12
N	Wrought Aluminum Alloys Cast Aluminum Alloys (Si≤12%)	ap≤0.5D	150 (60-350)	n	16000	12800	10000	9300	8750	8000	7450
		ae=1D		Vf	350	650	900	1100	1230	1280	1410
	Copper Alloy (<HB200)	ap≤0.5D	150 (60-350)	n	16000	12800	10000	9300	8750	8000	7450
		ae=1D		Vf	300	570	800	970	1100	1150	1270

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

Recommended Cutting Data

UA160-S3
Side Milling : Aluminium Alloys

	Workpiece	Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	2	4	6	8	10	12
N	Wrought Aluminum Alloys Cast Aluminum Alloys (Si≤12%)	ap≤1.5D	150 (60-350)	n	16000	12000	10600	10000	9500	9300
		ae≤0.2D		Vf	1150	1570	1650	1800	2300	3100
	Copper Alloy (＜HB200)	ap≤1.5D	150 (60-350)	n	16000	12000	10600	10000	9500	9300
		ae≤0.2D		Vf	1030	1420	1490	1610	2060	2800

UA160-S3
Slot Milling : Aluminium Alloys

	Workpiece	Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	2	4	6	8	10	12
N	Wrought Aluminum Alloys Cast Aluminum Alloys (Si≤12%)	ap≤0.5D	150 (60-350)	n	12800	10000	9300	8750	8000	7450
		ae=1D		Vf	760	1080	1300	1470	1530	1700
	Copper Alloy (＜HB200)	ap≤0.5D	150 (60-350)	n	12800	10000	9300	8750	8000	7450
		ae=1D		Vf	690	970	1160	1320	1380	1530

UA160-S4
Side Milling : Aluminium Alloys

	Workpiece	Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	4	6	8	10	12
N	Wrought Aluminum Alloys Cast Aluminum Alloys (Si≤12%)	ap≤1.5D	200 (120-350)	n	16000	12000	10000	8000	6600
		ae≤0.1D		Vf	1500	1800	2000	2250	2500

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

Recommended Cutting Data

SA100-S3

Side Milling : Aluminium Alloys

Recommended Cutting Data		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	2	4	6	8	10	12
N	Wrought Aluminum Alloys Cast Aluminum Alloys (Si≤12%)	ap≤1.5D	150 (60-350)	n	14000	12000	10000	9000	8500	8000
		ae≤0.2D		Vf	2000	3000	3500	4000	4500	5000
	Copper Alloy (<HB200)	ap≤1.5D	150 (60-350)	n	14000	12000	10000	9000	8500	8000
		ae≤0.2D		Vf	2000	3000	3500	4000	4500	5000

SA100-S3

For Aluminium Alloy ——Slotting

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	2	4	6	8	10	12
N	Wrought Aluminum Alloys Cast Aluminum Alloys (Si≤12%)	ap≤1D	150 (60-350)	n	11500	10000	9300	8750	8000	7450
		azte≤1D		Vf	1000	1500	2000	2500	3500	4000
	Copper Alloy (<HB200)	ap≤1D	150 (60-350)	n	11500	10000	9300	8750	8000	7450
		ae≤1D		Vf	1000	1500	2000	2500	3500	4000

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

Recommended Cutting Data

SA210-BW
Side Milling : Aluminium Alloys

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	12	16	20	25
N	Aluminium Alloy	ap≤0.75D	950	n	20000	18000	16000	12000
		ae≤1D		Vf	7800	8100	7200	5760

SA210-BW
Slot Milling: Aluminium Alloys

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	12	16	20	25
N	Aluminium Alloy	ap≤0.75D	800	n	20000	15000	12000	10000
				Vf	6000	5400	4680	3900

SA210-HF
Slot Milling: Aluminium Alloys

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	8	10	12	16	20
N	Aluminium Alloy 7075, 7050	ap≤0.2D	385 (300~471)	n	8000	6400	6000	5000	4000
		ae=1D		Vf	2300	2880	3200	3700	4000

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

Recommended Cutting Data

SA300-RN2
Aluminium Alloy ——Side Milling

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	6	8	10	12	16	20	25
N	Aluminium Alloy 7075, 7050	ap≤0.15D	835 (370～1300)	n	20000	20000	20000	20000	20000	20000	16000
		ae≤0.5D		Vf	3200	4000	5200	6000	6600	6800	7560

SA300-RN2
Aluminium Alloy ——Slotting

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	6	8	10	12	16	20	25
N	Aluminium Alloy 7075, 7050	ap≤0.2D	385 (300~471)	n	16000	15000	12000	10000	8000	7000	6000
		ae=1D		Vf	3200	3600	3360	3200	3040	2940	3000

SA300-RN3
Aluminium Alloy ——Side Milling

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	6	8	10	12	16	20	25	32
N	Aluminium Alloy 7075, 7050	ap≤0.25D	785 (370~1200)	n	20000	20000	20000	20000	20000	20000	16000	12000
		ae≤0.5D		Vf	4800	6000	7200	8400	9000	9000	10000	10800

SA300-RN3
Aluminium Alloy ——Slotting

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	6	8	10	12	16	20	25	32
N	Aluminium Alloy 7075, 7050	ap≤0.2D	400 (300~500)	n	16000	15000	12000	10000	8000	7000	6000	4000
		ae=1D		Vf	4800	5400	5040	4800	4560	4410	4500	3000

1、Maximum T.I.R. in when tool is chucked is 0.005mm(0.005mm maximum recommended).
2、Pls pay attention to use machine and holder with high rigidity .
3、Please adjust the speed,feed and cutting depth according to actual cutting conditons.
4、The milling conditions are for an end mill where the tool overhang length is less than 4*D (mill dia).When the tool overhang length is longer, please adjust the speed,feed and cutting depth.

Recommended Cutting Data

SG200- S2/SN2/R2/RN2
Side Milling :Graphite

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	2	4	6	8	10	12
N	For High silicon aluminum (Si>12%)	ap≤1D	200	n	31850	15920	10620	7960	6370	5310
		ae≤0.15D		Vf	1910	1590	1270	1120	1080	1380
	Graphite	ap≤1.5D	250	n	39810	19900	13270	9950	7960	6640
		ae≤0.5D		Vf	3980	2790	2390	2190	2390	2390

SG200-S3
Side Milling :Graphite

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	2	4	6	8	10	12
N	For High silicon aluminum (Si>12%)	ap≤1D	200	n	31850	15920	10620	7960	6370	5310
		ae≤0.15D		Vf	2870	2390	1910	1670	1620	2070
	Graphite	ap≤1.5D	250	n	39810	19900	13270	9950	7960	6640
		ae≤0.5D		Vf	5970	4180	3580	3280	3580	3580

SG200- S4/R4/RN4
Side Milling :Graphite

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	2	4	6	8	10	12
N	For High silicon aluminum (Si>12%))	ap≤1D	200	n	31850	15920	10620	7960	6370	5310
		ae≤0.15D		Vf	3820	3190	2550	2230	2170	2760
	Graphite	ap≤1.5D	250	n	39810	19900	13270	9950	7960	6640
		ae≤0.5D		Vf	7960	5570	4780	4380	4780	4780

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

Recommended Cutting Data

SG200- S2/SN2/R2/RN2
Slot Milling :Graphite

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	2	4	6	8	10	12
N	For High silicon aluminum (Si>12%)	ap≤0.5D	180	n	28660	14330	9550	7170	5730	4780
				Vf	1150	1150	960	860	800	860
	Graphite	ap≤0.5D	200	n	31850	15920	10620	7960	6370	5310
				Vf	1910	1430	1380	1350	1400	1590

SG200-S3
Slot Milling :Graphite

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	2	4	6	8	10	12
N	For High silicon aluminum (Si>12%)	ap≤0.5D	180	n	28660	14330	9550	7170	5730	4780
				Vf	1720	1720	1430	1290	1200	1290
	Graphite	ap≤0.5D	200	n	31850	15920	10620	7960	6370	5310
				Vf	2870	2150	2070	2030	2100	2390

SG200-B2/BN2
Profile Milling :Graphite

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	2	4	6	8	10	12
N	For High silicon aluminum (Si>12%)	ap≤0.3D	200	n	31850	15920	10620	7960	6370	5310
		ae≤0.3D		Vf	2040	1430	1270	1270	1400	1380
	Graphite	ap≤0.5D	250	n	39810	19900	13270	9950	7960	6640
		ae≤0.4D		Vf	2790	1990	1860	1790	1910	1990

SG200-M-RN4/B2/BN2
Profile Milling :Graphite

Workpiece		Cutting Depth（mm）	Cutting Application	n	Feed Spped (mm/min)
N	Graphite	0.03≤ap≤0.05 0.03≤ae≤0.05	General Condition	10000~15000	2000~3000
			High Speed Condition	25000~32000	3500~4500

1、Use machine and holder with high rigidity .
2、Adjust the speed, feed and cutting depth according to actual cutting condition.
3、The milling conditions should be applied for the tool overhang length less than 4*D (mill dia).If the tool overhang length is too long, please adjust the speed, feed and cutting depth.

Recommended Cutting Data

ST210—S4/R4/RN4
Side Milling: Titanium Alloy

Workpiece		Cutting Depth	Vc m/min	Tool Diameter (mm)	2	3	4	5	6	8	10	12	16	20
S	Titanium Alloy	ap≤1.5D	60 (40~100)	n (min-1)	9555	6370	4780	3820	3185	2390	1910	1590	1195	955
		ae≤0.25D		Vf (mm/min)	380	305	285	305	320	335	345	350	310	305
M	Stainless Steel	ap≤1.5D	80 (60~110)	n (min-1)	12740	8490	6370	5095	4245	3185	2545	2020	1590	1275
		ae≤0.25D		Vf (mm/min)	760	575	510	510	510	510	510	485	445	430

ST210-S4/R4/RN4
Slot Milling: Titanium Alloy

Workpiece		Cutting Depth	Vc m/min	Tool Diameter (mm)	2	3	4	5	6	8	10	12	16	20
S	Titanium Alloy	ap≤1D	40 (30~60)	n (min-1)	6370	4245	3185	2545	2120	1590	1270	1060	795	635
		ae≤1D		Vf (mm/min)	255	200	190	170	170	190	200	210	190	190
M	Stainless Steel	ap≤1D	60 (50~70)	n (min-1)	9555	6370	4775	3820	3185	2390	1910	1590	1195	955
		ae≤1D		Vf (mm/min)	380	305	285	305	320	335	345	350	310	305

Recommended Cutting Data

ST210—RL5

Profile Milling: Titanium Alloy

Workpiece		Cutting Depth	Vc m/min	Tool Diameter (mm)	16	20	25
S	Titanium Alloy	ap≤0.7*Lc	50 (40-60)	n (min-1)	980	780	620
		ae≤0.1D		Vf (mm/min)	390	370	300

Remark: Lc is the length of the edge

1、Pls pay attention to use machine and holder with high rigidity .
2、Please adjust the speed,feed and cutting depth according to actual cutting conditons.

ST210-B4

Profile Milling: Titanium Alloy

Workpiece		Cutting Depth	Vc m/min	Tool Diameter (mm)	2	3	4	5	6	8	10	12	16	20
S	Titanium Alloy	ap≤0.2D	70 (60~80)	n (min-1)	8000	6300	5580	4500	3715	2785	2230	1860	1390	1120
		ae≤0.3D		Vf (mm/min)	800	1000	1000	800	670	610	535	480	445	360

1、Maximum T.I.R. in when tool is chucked is 0.01mm(0.01mm maximum recommended).
2、Pls pay attention to use machine and holder with high rigidity .
3、Please adjust the speed,feed and cutting depth according to actual cutting conditons.
4、The milling conditions are for an end mill where the tool overhang length is less than 4*D (mill dia).When the tool overhang length is longer, please adjust the speed,feed and cutting depth.

Recommended Cutting Data

ST300-RN4
Side Milling:Titanium Alloy

Workpiece		Cutting Depth	Vc m/min	Tool Diameter (mm)	12	16	20
S	TA Titanium Alloys	ap≤1.5D	100 (80-120)	n (min-1)	2650	1990	1590
		ae≤0.2D		Vf (mm/min)	740	635	605
	TC Titanium Alloys	ap≤1.5D	100 (80-120)	n (min-1)	2650	1990	1590
		ae≤0.2D		Vf (mm/min)	690	635	570
	TB Titanium Alloys	ap≤1.5D	80 (60-100)	n (min-1)	2120	1590	1270
		ae≤0.2D		Vf (mm/min)	550	510	460

ST300-RN4
Slot Milling: Titanium Alloy

Workpiece		Cutting Depth	Vc m/min	Tool Diameter (mm)	12	16	20
S	TA Titanium Alloy	ap≤1D	80 (60-100)	n (min-1)	2120	1590	1275
		ae≤1D		Vf (mm/min)	595	510	485
	TC Titanium Alloy	ap≤1D	80 (60-100)	n (min-1)	2120	1590	1275
		ae≤1D		Vf (mm/min)	550	510	460
	TB Titanium Alloy	ap≤1D	50 (40-60)	n (min-1)	1460	1095	875
		ae≤1D		Vf (mm/min)	380	350	315

1、Make sure workpiece and machine are suitable, use high qualitycollect chucks.
2、Please adjust the speed feed and cutting depth according to actual cutting conditions.
3、The milling cindition are for an endmill where the tool overhang length ie less than 4D. When the tool overhang length is longer, please adjust the speed, feed and cutting depth.
4、If corner radius is ＞15% of D then ap=-30%，fz=-20%.

Recommended Cutting Data

ST300-RN5
Side Milling:Titanium Alloy

Workpiece		Cutting Depth	Vc m/min	Tool Diameter (mm)	16	20	25
S	TA Titanium Alloys	ap≤1.5D	100 (80-120)	n (min-1)	1990	1590	1270
		ae≤0.2D		Vf (mm/min)	795	755	605
	TC Titanium Alloys	ap≤1.5D	100 (80-120)	n (min-1)	1990	1590	1270
		ae≤0.2D		Vf (mm/min)	795	715	570
	TB Titanium Alloys	ap≤1.5D	80 (60-100)	n (min-1)	1590	1270	1020
		ae≤0.2D		Vf (mm/min)	635	570	460

ST300-RN5
Slot Milling: Titanium Alloy

Workpiece		Cutting Depth	Vc m/min	Tool Diameter (mm)	16	20	25
S	TA Titanium Alloy	ap≤1D	80 (60-100)	n (min-1)	1590	1275	1020
		ae≤1D		Vf (mm/min)	635	605	485
	TC Titanium Alloy	ap≤1D	80 (60-100)	n (min-1)	1590	1275	1020
		ae≤1D		Vf (mm/min)	635	570	460
	TB Titanium Alloy	ap≤1D	50 (40-60)	n (min-1)	1095	875	700
		ae≤1D		Vf (mm/min)	435	395	315

1、Make sure workpiece and machine are suitable, use high qualitycollect chucks.
2、Please adjust the speed feed and cutting depth according to actual cutting conditions.
3、The milling cindition are for an endmill where the tool overhang length ie less than 4D. When the tool overhang length is longer, please adjust the speed, feed and cutting depth.
4、If corner radius is ＞15% of D then ap=-30%，fz=-20%.

Recommended Cutting Data

SN200-R4
Heat Resistant Super Alloy:Side Milling

Workpiece		Cutting Depth	Vc m/min	Tool Diameter (mm)	6	8	10	12	16	18
S	TA Titanium Alloys	ap≤1D	25 (15-35)	n (min-1)	1325	995	795	660	495	450
		ae≤0.1D		Vf (mm/min)	160	160	190	185	160	180
	TC Titanium Alloys	ap≤1D	20 (15-30)	n (min-1)	1060	795	635	530	400	360
		ae≤0.1D		Vf (mm/min)	125	125	150	145	125	140
	TB Titanium Alloys	ap≤1D	25 (15-30)	n (min-1)	1325	995	795	660	495	450
		ae≤0.1D		Vf (mm/min)	160	160	190	185	160	180

SN200-R4
Heat Resistant Super Alloy: Slot Milling

Workpiece		Cutting Depth	Vc m/min	Tool Diameter (mm)	6	8	10	12	16	18
S	TA Titanium Alloys	ap≤0.5D	20 (10-30)	n (min-1)	1060	795	635	530	400	360
		ae≤1D		Vf (mm/min)	105	95	90	95	80	80
	TC Titanium Alloys	ap≤0.5D	15 (10-25)	n (min-1)	795	600	475	400	300	270
		ae≤1D		Vf (mm/min)	65	60	60	60	60	60
	TB Titanium Alloys	ap≤0.5D	20 (10-30)	n (min-1)	1060	795	635	530	400	360
		ae≤1D		Vf (mm/min)	105	95	90	95	80	80

1、Maximum T.I.R. in when tool is chucked is 0.01mm(0.01mm maximum recommended).
2、Pls pay attention to use machine and holder with high rigidity .
3、Please adjust the speed,feed and cutting depth according to actual cutting conditons.
4、The milling conditions are for an end mill where the tool overhang length is less than 4*D (mill dia).When the tool overhang length is longer, please adjust the speed,feed and cutting depth.

Recommended Cutting Data

SN200-B4

Heat Resistant Super Alloy:Profile Milling

Workpiece		Cutting Depth	Vc m/min	Tool Diameter (mm)	6	8	10	12	16
S	TA Titanium Alloys	ap≤0.04D	40 (30-50)	n (min-1)	2120	1590	1270	1060	795
		ae≤0.04D		Vf (mm/min)	255	285	305	340	320
	TC Titanium Alloys	ap≤0.04D	35 (25-45)	n (min-1)	1855	1390	1115	930	695
		ae≤0.04D		Vf (mm/min)	220	220	265	260	280
	TB Titanium Alloys	ap≤0.03D	40 (30-50)	n (min-1)	2120	1590	1270	1060	795
		ae≤0.03D		Vf (mm/min)	255	285	305	320	320

1、Maximum T.I.R. in when tool is chucked is 0.01mm(0.01mm maximum recommended).
2、Pls pay attention to use machine and holder with high rigidity .
3、Please adjust the speed,feed and cutting depth according to actual cutting conditons.
4、The milling conditions are for an end mill where the tool overhang length is less than 4*D (mill dia).When the tool overhang length is longer, please adjust the speed,feed and cutting depth.

Recommended Cutting Data

SD200-KDA
Compound material- Side Milling

Workpiece		Cutting Depth	Vc m/min	Tool Diameter (mm)	4	6	8	10	12
N	CFRP	ap≤2D	140 (80-200)	n (min-1)	8000	7430	5570	4460	3715
		ae≤0.2D		Vf (mm/min)	480	445	445	445	370
	GFRP	ap≤2D	150 (100-200)	n (min-1)	8000	7960	5970	4775	3980
		ae≤0.2D		Vf (mm/min)	480	475	475	475	400

SD200-KDA
Compound material - Slot Milling

Workpiece		Cutting Depth	Vc m/min	Tool Diameter (mm)	4	6	8	10	12
N	CFRP	ap≤1D	120 (80-160)	n (min-1)	8000	6370	4775	3820	3185
		ae≤1D		Vf (mm/min)	320	255	285	305	320
	GFRP	ap≤1D	150 (100-200)	n (min-1)	8000	7960	5970	4775	3980
		ae≤1D		Vf (mm/min)	320	320	360	380	400

SD200-JD2
Compound material - Side Milling

Workpiece		Cutting Depth	Vc m/min	Tool Diameter (mm)	4	6	8	10	12
N	CFRP	ap≤2D	140 (80-200)	n (min-1)	10350	6900	5175	4140	3450
		ae≤0.2D		Vf (mm/min)	621	483	414	414	345
	GFRP	ap≤2D	150 (100-200)	n (min-1)	9554	6369	4777	3822	3185
		ae≤0.2D		Vf (mm/min)	573	445	382	382	318

1、Please attention to use machine and holder with high rigidity .
2、Please adjust the speed,feed and cutting depth according to actual cutting conditons.
3、The milling conditions are for an end mill where the tool overhang length is less than 4*D (mill dia).When the tool overhang length is longer, please adjust the speed,feed and cutting depth.

Recommended Cutting Data

SH260- S2/SN2/R2/RN2-H
Alloy Steel, Hardened Steel - Slot Milling

Workpiece		Cutting Depth	Tool Diameter	Tool Diameter (mm)					
				2	4	6	8	10	12
P	Alloy Steel (30-45HRC)	ae=1D	n (min-1)	20000	10350	8500	6600	5250	4400
		ap≤0.05D	Vf (mm/min)	520	550	630	610	580	580
H	Hardened Steel (45-55HRC)	ae=1D	n (min-1)	16000	8300	5200	3800	3100	2800
		ap≤0.02D	Vf (mm/min)	380	410	340	320	300	300
	Hardened Steel (55-60HRC)	ae=1D	n (min-1)	13500	6800	4600	3000	2400	2000
		ap≤0.01D	Vf (mm/min)	240	240	230	190	180	170

SH260- S2/SN2/R2/RN2-H
Alloy Steel, Hardened Steel - Side Milling

Workpiece Material		Cutting Depth (mm)	Tool Diameter	Tool Diameter（mm）					
				2	4	6	8	10	12
P	Alloy Steel (30-45HRC)	ap≤0.8D	n (min-1)	20000	10350	8500	6600	5250	4400
		ae≤0.03D	Vf (mm/min)	720	750	880	610	820	820
H	Hardened Steel (45-55HRC)	ap≤0.5D	n (min-1)	16000	8300	5200	3800	3100	2800
		ae≤0.03D	Vf (mm/min)	540	570	520	460	420	420
	Hardened Steel (55-60HRC)	ap≤0.5D	n (min-1)	13500	6800	4600	3000	2400	2000
		ae≤0.01D	Vf (mm/min)	340	360	350	270	250	250

1、Please attention to use machine and holder with high rigidity .
2、Please adjust the speed,feed and cutting depth according to actual cutting conditons.
3、The milling conditions are for an end mill where the tool overhang length is less than 4*D (mill dia).When the tool overhang length is longer, please adjust the speed,feed and cutting depth.

Recommended Cutting Data

SH260- S4/SH4/SL4/SN4/R4/RH4/RN4-H
Alloy Steel, Hardened Steel - Side Milling

Workpiece		Cutting Depth (mm)	Cutting Application	Tool Diameter	Tool Diameter（mm）					
					2	4	6	8	10	12
P	Alloy Steel (30-45HRC)	ap≤1.2D ae≤0.08D	General Condition	n (min-1)	14000	7200	4800	3600	2900	2400
				Vf (mm/min)	800	900	1000	1100	1050	1000
			High Speed Condition	n (min-1)	20000	10000	7000	5200	4200	3600
				Vf (mm/min)	1200	1400	1600	1800	1600	1500
H	Hardened Steel (45-55HRC)	ap≤1.0D ae≤0.04D	General Condition	n (min-1)	12500	6400	4200	3200	2500	2100
				Vf (mm/min)	500	600	700	800	700	640
			High Speed Condition	n (min-1)	18000	9200	6100	4600	3600	3000
				Vf (mm/min)	900	1150	1300	1400	1300	1200
	Hardened Steel (55-60HRC)	ap≤0.8D ae≤0.02D	General Condition	n (min-1)	11000	5600	3700	2800	2200	1900
				Vf (mm/min)	440	500	580	630	570	550
			High Speed Condition	n (min-1)	15000	8000	5300	4000	3200	2700
				Vf (mm/min)	790	900	1040	1100	1000	900

SH260- S6/SH6/SL6-H
Alloy Steel, Hardened Steel - Side Milling

Workpiece		Cutting Depth (mm)	Tool Diameter	Tool Diameter（mm）					
				6	8	10	12	16	20
P	Alloy Steel (30-45HRC)	ap≤1.5D ae≤0.05D	n (min-1)	6200	4800	4000	3200	2400	1600
			Vf (mm/min)	1674	1584	1560	1440	1296	960
H	Hardened Steel (45-55HRC)	ap≤1.5D ae≤0.03D	n (min-1)	4500	3600	3000	2400	1800	1200
			Vf (mm/min)	1215	1188	1170	1080	972	720
	Hardened Steel (55-60HRC)	ap≤1.5D ae≤0.02D	n (min-1)	3100	2400	2000	1600	1200	800
			Vf (mm/min)	744	720	720	627	576	432

1、Please attention to use machine and holder with high rigidity .
2、Please adjust the speed,feed and cutting depth according to actual cutting conditons.
3、The milling conditions are for an end mill where the tool overhang length is less than 4*D (mill dia).When the tool overhang length is longer, please adjust the speed,feed and cutting depth.

Recommended Cutting Data

SH260-B2/BH2/BN2-H

Alloy Steel ,Hardened Steel - Profile Milling

Workpiece		Cutting Depth (mm)	Cutting Application	Tool Diameter	Tool Diameter（mm）					
					2	4	6	8	10	12
P	Alloy Steel (30-45HRC)	ap=0.05~0.1D ae≤0.02D	General Condition	n (min-1)	20000	10300	6900	5100	4100	3400
				Vf (mm/min)	1500	1650	1650	1700	1700	1750
			High Speed Condition	n (min-1)	35000	17500	11600	8700	7000	6000
				Vf (mm/min)	2600	2700	2700	2850	2850	2900
H	Hardened Steel (45-55HRC)	ap=0.05~0.1D ae≤0.02D	General Condition	n (min-1)	15900	8000	5300	4000	3200	2600
				Vf (mm/min)	1200	1300	1300	1350	1350	1400
			High Speed Condition	n (min-1)	28600	14300	9500	7200	5700	4500
				Vf (mm/min)	2200	2300	2300	2350	2350	2400
	Hardened Steel (55-60HRC)	ap=0.05~0.1D ae≤0.02D	General Condition	n (min-1)	12000	6000	4000	2900	2400	2100
				Vf (mm/min)	900	960	960	920	920	900
			High Speed Condition	n (min-1)	25400	12700	8500	6400	5000	1900
				Vf (mm/min)	1800	1800	1800	1500	1500	1500

1、Please attention to use machine and holder with high rigidity .
2、Please adjust the speed,feed and cutting depth according to actual cutting conditons.
3、The milling conditions are for an end mill where the tool overhang length is less than 4*D (mill dia).When the tool overhang length is longer, please adjust the speed,feed and cutting depth.

Recommended Cutting Data

SH300-S2/SN2/R2/RN2-H
For Alloy Steels, Hardened Steel——Side Milling

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter	Tool Diameter（mm）						
					1	2	4	6	8	10	12
H	Alloy Steel Hardened Steel (< 55HRC)	ap ⩽ 1D	100	n (min-1)	25400	15900	7960	5300	3980	3180	2650
		ae ⩽ 0.02D		Vf (mm/min)	500	570	560	530	480	480	430
	Alloy Steel Hardened Steel (55-60HRC)	ap ⩽ 1D	80	n (min-1)	19100	12700	6370	4250	3180	2550	2120
		ae ⩽ 0.015D		Vf (mm/min)	280	300	320	290	280	260	260
	Alloy Steel Hardened Steel (> 60HRC)	ap ⩽ 1D	60	n (min-1)	16000	9550	4780	3180	2390	1910	1590
		ae ⩽ 0.01D		Vf (mm/min)	160	190	200	200	180	160	160

SH300-SS4/S4/SH4/SL4/SN4/R4/RH4/RN4-H
For Alloy Steels, Hardened Steel——Side Milling

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter	Tool Diameter（mm）						
					1	2	4	6	8	10	12
H	Alloy Steel Hardened Steel (< 55HRC)	ap ⩽ 1D	150	n (min-1)	40000	24000	12000	8000	6000	4800	4000
		ae ⩽ 0.02D		Vf (mm/min)	1350	1440	2400	1760	1440	1248	1200
	Alloy Steel Hardened Steel (55-60HRC)	ap ⩽ 1D	120	n (min-1)	30000	18000	10350	6900	5175	4140	3450
		ae ⩽ 0.015D		Vf (mm/min)	1000	1080	2070	1518	1242	1076.4	1035
	Alloy Steel Hardened Steel (> 60HRC)	ap ⩽ 1D	100	n (min-1)	20000	14000	7960	5300	4000	3280	2600
		ae ⩽ 0.01D		Vf (mm/min)	800	840	1592	1166	960	852.8	780

1、Please attention to use machine and holder with high rigidity .
2、Please adjust the speed,feed and cutting depth according to actual cutting conditons.
3、The milling conditions are for an end mill where the tool overhang length is less than 4*D (mill dia).When the tool overhang length is longer, please adjust the speed,feed and cutting depth.

Recommended Cutting Data

SH300-S6/SH6/SL6/R6/RH6-H

For Alloy Steels, Hardened Steel——Side Milling

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter	Tool Diameter（mm）						
					6	8	10	12	14	16	20
H	Alloy Steel Hardened Steel (< 55HRC)	ap ⩽ 1.5D	120	n (min-1)	6200	4800	4000	3200	2800	2400	1600
		ae ⩽ 0.03D		Vf (mm/min)	1674	1584	1560	1440	1344	1296	960
	Alloy Steel Hardened Steel (55-60HRC)	ap ⩽ 1.5D	100	n (min-1)	4500	3600	3000	2400	2100	1800	1200
		ae ⩽ 0.025D		Vf (mm/min)	1215	1188	1170	1080	1020	972	720
	Alloy Steel Hardened Steel (> 60HRC)	ap ⩽ 1.5D	70	n (min-1)	3100	2400	2000	1600	1400	1200	800
		ae ⩽ 0.02D		Vf (mm/min)	744	720	720	627	600	576	432

SH300-B2/BH2/BN2-H

For Alloy Steels, Hardened Steel——Profiling

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter	Tool Diameter（mm）							
					0.6	1	2	4	6	8	10	12
H	Alloy Steel Hardened Steel (< 55HRC)	ap ⩽ 0.02D	150	n (min-1)	44000	23000	16000	10000	7400	5700	4500	3800
		ae ⩽ 0.02D		Vf (mm/min)	1100	1200	1770	1680	1500	1300	1100	1000
	Alloy Steel Hardened Steel (55-60HRC)	ap ⩽ 0.015D	120	n (min-1)	41000	21000	14000	9500	5100	4100	3500	2600
		ae ⩽ 0.015D		Vf (mm/min)	1000	1200	1480	1390	1300	1170	1000	800
	Alloy Steel Hardened Steel (> 60HRC)	ap ⩽ 0.01D	90	n (min-1)	40000	20000	13000	7000	5100	3900	3100	2600
		ae ⩽ 0.01D		Vf (mm/min)	700	800	1300	1100	960	800	700	600

1、Please attention to use machine and holder with high rigidity .
2、Please adjust the speed,feed and cutting depth according to actual cutting conditons.
3、The milling conditions are for an end mill where the tool overhang length is less than 4*D (mill dia).When the tool overhang length is longer, please adjust the speed,feed and cutting depth.

Recommended Cutting Data

SH300-B4/BH4/BN4-H
For Alloy Steels, Hardened Steel——Profiling Roughing

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter	Tool Diameter（mm）					
					2	4	6	8	10	12
H	Alloy Steel Hardened Steel (< 55HRC)	ap ⩽ 0.08D	130	n (min-1)	21000	10350	6900	5175	4140	3450
		ae ⩽ 0.18D		Vf (mm/min)	2520	2484	2484	2270	2150	2070
	Alloy Steel Hardened Steel (55-60HRC)	ap ⩽ 0.06D	100	n (min-1)	15120	7560	5040	3780	3020	2520
		ae ⩽ 0.13D		Vf (mm/min)	1210	1210	1310	1280	1200	1210
	Alloy Steel Hardened Steel (> 60HRC)	ap ⩽ 0.04D	80	n (min-1)	12740	6370	4250	3180	2550	2120
		ae ⩽ 0.08D		Vf (mm/min)	920	1020	980	890	920	850

SH300-B4/BH4/BN4-H
For Alloy Steels, Hardened Steel——Profiling Finishiing

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter	Tool Diameter（mm）					
					2	4	6	8	10	12
H	Alloy Steel Hardened Steel (< 55HRC)	ap ⩽ 0.03D	180	n (min-1)	29460	14700	9800	7360	5890	4900
		ae ⩽ 0.02D		Vf (mm/min)	2360	2640	2660	2650	2590	2700
	Alloy Steel Hardened Steel (55-60HRC)	ap ⩽ 0.02D	150	n (min-1)	23880	11940	7960	5970	4780	3980
		ae ⩽ 0.02D		Vf (mm/min)	1720	1760	1850	1860	1870	1910
	Alloy Steel Hardened Steel (> 60HRC)	ap ⩽ 0.01D	130	n (min-1)	20700	10350	6900	5180	4140	3450
		ae ⩽ 0.01D		Vf (mm/min)	1160	1240	1240	1300	1320	1240

1、Please attention to use machine and holder with high rigidity .
2、Please adjust the speed,feed and cutting depth according to actual cutting conditons.
3、The milling conditions are for an end mill where the tool overhang length is less than 4*D (mill dia).When the tool overhang length is longer, please adjust the speed,feed and cutting depth.

Recommended Cutting Data

FH200-R4/RN4-H
For Alloy Steels, Hardened Steel——Face Milling

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter	Tool Diameter（mm）						
					1	2	4	6	8	10	12
P	Alloy Steel (< 48HRC)	ap≤0.03D	150	n (min-1)	40000	24000	12000	8000	6500	5000	4500
		ae≤0.5D		Vf (mm/min)	2640	3120	3840	5760	5760	5800	5200
H	Alloy Steel Hardened Steel (45-55HRC)	ap≤0.025D	125	n (min-1)	33000	20000	10000	7000	5500	4000	3500
		ae≤0.5D		Vf (mm/min)	2200	2600	3200	4800	4800	4400	3800
	Alloy Steel Hardened Steel (55-65HRC)	ap≤0.02D	90	n (min-1)	23000	14000	7200	5000	3600	3000	2500
		ae≤0.5D		Vf (mm/min)	2000	2500	2800	3500	3300	3000	2600

1、Turning red is a normal phenomenonIn the process of processing,As long as the machine does not have obvious vibration or cutting tool without obvious damage, you can continue to use.
2、The knife type is not suitable for large depth and side milling.
3、Please adjust the speed,feed and cutting depth according to actual cutting conditons.
4、Air blow or oil mist is recommended for good chip evacuation.

FH200-R6/RN6/RH6-H
For Alloy Steels, Hardened Steel——Face Milling

Workpiece		Cutting Depth (mm)	Vc m/min	Tool Diameter	Tool Diameter（mm）					
					6	8	10	12	16	20
P	Alloy Steel (35-48 HRC)	ap≤0.035D	60-90	n (min-1)	3200-4800	2400-3600	1900-2900	1600-2400	1200-1800	950-1450
		ae≤0.5D		Vf (mm/min)	2200-3000	2200-3000	2200-3000	2200-3000	2500-3500	2500-3500
H	Alloy Steel Hardened Steel (45-65HRC)	ap≤0.035D	60-90	n (min-1)	3200-4800	2400-3600	1900-2900	1600-2400	1200-1800	950-1450
		ae≤0.5D		Vf (mm/min)	1920-2880	1950-2920	1950-2950	1920-2880	2160-3240	2280-3480

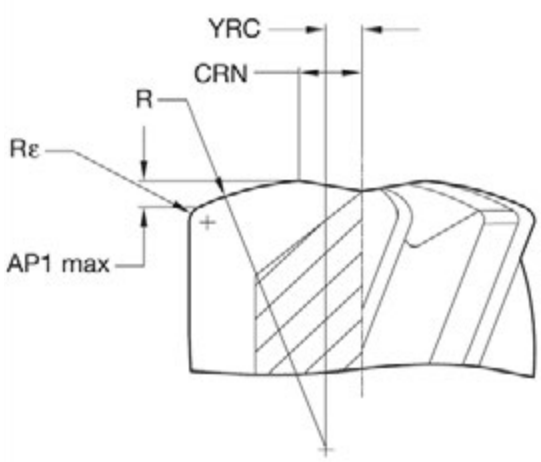
1、Turning red is a normal phenomenonIn the process of processing,As long as the machine does not have obvious vibration or cutting tool without obvious damage, you can continue to use.
2、The knife type is not suitable for large depth and side milling.
3、Please adjust the speed,feed and cutting depth according to actual cutting conditons.
4、Air blow or oil mist is recommended for good chip evacuation.

Programming Data

FH200-R6、RN6、RH6-H

Geometrical Parameters						Ramping Guide For Circular and Linear Ramping						
						Circular Interpolation		Linear Ramping				
						Optimal Range of Circle Diameter for A Single Pass		Calculated Length Per Ramp Angle（mm）				
diameter	Ap1 max	R	R_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.
Rε=the shoulder radius or radius at the corner of the cutter.



FH200-H schematic diagram of 6 flute endmill shaear blade

Recommended Cutting Data

SPM200-SN2

2 Flute, Standard Length
Endmills of Micro Diameter for Deep Machining

Workpiece Material			P						N		H			
			Carbon Steel,Alloy Steel (180~250HB)		Alloy Steels,Tool Steels(25~35HRC)		PH,Ferrite,Martensite Steel (35~45HRC)		Copper, Copper Alloys		Hardened Steels (45~55HRC)		Hardened Steels (55~65HRC)	
Ratio to standard depth of cut(ap)			1.00		0.90		0.70		1.20		0.50		0.45	
Mill Dia. (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
0.1	0.3	0.006	45,000	450	45,000	428	43,740	313	50,000	500	38,475	230	36,045	187
	0.5	0.004	45,000	450	45,000	428	43,740	313	50,000	500	38,475	230	36,045	187
	1	0.003	45,000	410	43,740	387	39,330	284	50,000	455	34,650	209	32,445	168
0.2	0.5	0.02	40,500	574	36,450	517	34,425	363	45,000	637	30,375	271	28,350	218
	1	0.014	40,500	574	36,450	517	34,425	363	45,000	637	30,375	271	28,350	218
	1.5	0.008	36,450	473	32,805	425	30,983	326	43,740	567	27,338	244	25,515	196
	2	0.005	32,400	378	29,160	340	27,540	257	38,880	454	24,300	193	22,680	155
	3	0.003	32,400	340	29,160	306	27,540	231	38,880	409	24,300	174	22,680	140
0.3	1	0.021	36,000	510	32,400	459	30,600	322	43,200	612	27,000	240	25,200	194
	1.5	0.021	36,000	510	32,400	459	30,600	322	43,200	612	27,000	240	25,200	194
	2	0.012	32,400	420	29,160	378	27,540	290	38,880	504	24,300	217	22,680	175
	2.5	0.01	32,400	420	29,160	378	27,540	290	38,880	504	24,300	217	22,680	175
	3	0.008	32,400	420	29,160	378	27,540	290	38,880	504	24,300	217	22,680	175
0.4	1	0.04	28,800	635	25,920	572	24,480	401	34,560	762	21,600	300	20,160	241
	1.5	0.028	28,800	635	25,920	572	24,480	401	34,560	762	21,600	300	20,160	241
	2	0.028	28,800	635	25,920	572	24,480	401	34,560	762	21,600	300	20,160	241
	2.5	0.022	25,920	523	23,328	471	22,032	361	31,104	627	19,440	269	18,144	217
	3	0.016	25,920	523	23,328	471	22,032	361	31,104	627	19,440	269	18,144	217
	3.5	0.012	25,920	523	23,328	471	22,032	361	31,104	627	19,440	269	18,144	217
	4	0.01	25,920	523	23,328	471	22,032	361	31,104	627	19,440	269	18,144	217
	5	0.01	23,040	407	20,736	365	19,584	234	27,648	488	17,280	207	16,128	163
	6	0.006	23,040	407	20,736	365	19,584	234	27,648	488	17,280	207	16,128	163
	8	0.003	20,160	310	18,144	279	17,136	180	24,192	372	15,120	155	14,112	118
	10	0.002	17,280	228	15,552	205	14,688	132	20,736	274	12,960	114	12,096	86
0.5	1	0.05	28,800	635	25,920	572	24,480	482	34,560	762	21,600	300	20,160	241
	1.5	0.05	28,800	635	25,920	572	24,480	482	34,560	762	21,600	300	20,160	241
	2	0.035	28,800	635	25,920	572	24,480	482	34,560	762	21,600	300	20,160	241
	2.5	0.03	25,920	523	23,328	471	22,032	397	31,104	627	19,440	269	18,144	217
	3	0.02	25,920	523	23,328	471	22,032	397	31,104	627	19,440	269	18,144	217
	4	0.02	25,920	523	23,328	471	22,032	361	31,104	627	19,440	269	18,144	217
	5	0.013	25,920	523	23,328	471	22,032	361	31,104	627	19,440	269	18,144	217
	6	0.013	23,040	407	20,736	365	19,584	234	27,648	488	17,280	207	16,128	163

【Note】Please refer to P501

Recommended Cutting Data

SPM200-SN2

2 Flute, Standard Length
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material			P						N		H			
			Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)			1.00		0.90		0.70		1.20		0.50		0.45	
Mill Dia. (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
0.5	8	0.008	23,040	348	20,736	313	19,584	222	27,648	418	17,280	175	16,128	132
	10	0.004	20,160	270	18,144	243	17,136	157	24,192	324	15,120	135	14,112	103
0.6	2	0.042	28,800	907	25,920	816	24,480	572	34,560	1,089	21,600	428	20,160	345
	3	0.035	25,920	746	23,328	671	22,032	516	31,104	896	19,440	385	18,144	311
	4	0.024	25,920	746	23,328	671	22,032	516	31,104	896	19,440	385	18,144	311
	5	0.02	25,920	746	23,328	671	22,032	516	31,104	896	19,440	385	18,144	311
	6	0.015	25,920	746	23,328	671	22,032	516	31,104	896	19,440	385	18,144	311
	7	0.015	23,040	644	20,736	580	19,584	445	27,648	773	17,280	332	16,128	268
	8	0.015	23,040	581	20,736	523	19,584	335	27,648	697	17,280	295	16,128	232
	9	0.012	23,040	581	20,736	523	19,584	335	27,648	697	17,280	295	16,128	232
	10	0.009	23,040	581	20,736	523	19,584	335	27,648	697	17,280	295	16,128	232
0.7	2	0.07	28,800	907	25,920	816	24,480	572	34,560	1,089	21,600	428	20,160	346
	4	0.049	25,920	746	23,328	671	22,032	516	31,104	896	19,440	385	18,144	311
	6	0.018	25,920	746	23,328	671	22,032	516	31,104	896	19,440	385	18,144	311
	8	0.018	23,040	581	20,736	523	19,584	335	27,648	697	17,280	295	16,128	232
	10	0.018	23,040	581	20,736	523	19,584	335	27,648	697	17,280	295	16,128	232
0.8	4	0.056	28,800	907	25,920	816	24,480	702	34,560	1,089	21,600	619	20,160	380
	6	0.032	25,920	746	23,328	671	22,032	610	31,104	896	21,600	599	18,144	341
	8	0.02	25,920	746	23,328	671	22,032	516	31,104	896	19,440	385	18,144	311
	10	0.02	23,040	581	20,736	523	19,584	335	27,648	697	17,280	295	16,128	232
	12	0.012	23,040	581	20,736	523	19,584	335	27,648	697	17,280	295	16,128	232
0.9	6	0.036	25,920	895	23,328	806	22,032	618	31,104	985	19,440	500	18,144	373
	8	0.023	25,920	820	23,328	738	22,032	567	31,104	985	19,440	462	18,144	341
	10	0.023	23,040	581	20,736	523	19,584	335	27,648	697	17,280	295	16,128	232
	12	0.023	23,040	581	20,736	523	19,584	335	27,648	697	17,280	295	16,128	232
1	2	0.1	25,920	1,220	23,328	1,098	22,032	1,035	31,104	1,465	20,637	907	18,144	761
	3	0.085	25,920	1,220	23,328	1,098	22,032	1,035	31,104	1,465	20,637	907	18,144	761
	4	0.07	25,920	1,220	23,328	1,098	22,032	969	31,104	1,465	20,637	867	18,144	689
	5	0.055	25,920	1,220	23,328	1,098	22,032	925	31,104	1,465	20,637	784	18,144	617
	6	0.04	23,328	1,008	20,995	907	19,829	813	27,994	1,210	18,630	671	16,330	419
	7	0.04	23,328	1,008	20,995	907	19,829	753	27,994	1,210	18,630	633	16,330	419
	8	0.04	23,328	1,008	20,995	907	19,829	753	27,994	1,210	18,630	560	16,330	419

【Note】Please refer to P501

Recommended Cutting Data

SPM200-SN2

2 Flute, Standard Length
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material			P						N		H			
			Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)			1.00		0.90		0.70		1.20		0.50		0.45	
Mill Dia. (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
1	9	0.033	23,328	1,008	20,995	907	19,829	696	27,994	1,210	17,496	519	16,330	419
	10	0.025	23,328	1,008	20,995	907	19,829	696	27,994	1,210	17,496	519	16,330	419
	12	0.025	20,736	784	18,662	706	17,626	452	24,883	941	15,552	399	14,515	313
	14	0.025	20,736	784	18,662	706	17,626	452	24,883	941	15,552	399	14,515	313
	16	0.015	20,736	671	18,662	605	17,626	428	24,883	806	15,552	336	14,515	255
	20	0.01	18,621	549	20,111	494	15,828	313	22,345	659	13,966	275	13,035	203
	25	0.005	15,750	427	17,010	384	13,388	243	18,900	512	11,813	213	11,025	158
1.2	6	0.084	23,040	1,089	20,736	980	19,584	783	27,648	1,307	17,280	513	16,128	414
	8	0.048	20,736	896	18,662	806	17,626	705	24,883	1,075	15,552	462	14,515	373
	10	0.03	20,736	896	18,662	806	17,626	670	24,883	1,075	15,552	462	14,515	373
	12	0.03	20,736	896	18,662	806	17,626	618	24,883	1,075	15,552	462	14,515	373
	16	0.02	18,432	796	16,589	716	15,667	550	22,118	955	13,824	410	12,902	331
1.4	6	0.1	20,160	952	18,144	858	17,136	601	24,192	1,143	15,120	449	14,112	363
	12	0.035	18,144	784	16,330	706	15,422	541	21,773	941	13,608	404	12,701	326
1.5	4	0.11	20,160	1,047	18,144	943	17,136	721	24,192	1,257	15,120	583	14,112	434
	6	0.11	20,160	1,047	18,144	943	17,136	721	24,192	1,257	15,120	561	14,112	434
	8	0.08	18,144	862	16,330	846	15,422	649	21,773	1,034	13,608	484	12,701	374
	10	0.06	18,144	784	16,330	776	15,422	649	21,773	1,034	13,608	484	12,701	374
	12	0.06	18,144	784	16,330	706	15,422	649	21,773	941	13,608	404	12,701	326
	14	0.038	18,144	784	16,330	706	15,422	649	21,773	941	13,608	404	12,701	326
	16	0.038	16,128	609	14,515	549	13,709	352	19,354	732	12,096	311	11,290	244
	18	0.038	16,128	609	14,515	549	13,709	352	19,354	732	12,096	311	11,290	244
	20	0.038	16,128	609	14,515	549	13,709	352	19,354	732	12,096	311	11,290	244
	25	0.023	12,096	392	10,886	353	10,282	250	14,515	471	9,072	196	8,467	149
	30	0.015	10,080	266	10,886	239	8,568	160	12,096	320	7,560	125	7,056	101
	35	0.01	10,080	266	10,886	239	8,568	160	12,096	320	7,560	125	7,056	101
	40	0.005	8,064	142	7,258	128	6,854	86	9,677	171	6,048	67	5,645	54
1.6	6	0.11	18,720	1,081	16,848	1,017	15,912	683	22,464	1,179	14,040	509	13,104	410
	8	0.11	18,720	1,081	16,848	885	15,912	621	22,464	1,179	14,040	509	13,104	410
1.8	6	0.13	18,720	1,081	16,848	1,061	15,912	683	22,464	1,179	14,040	556	13,104	448
	8	0.13	18,720	1,081	16,848	973	15,912	621	22,464	1,179	14,040	556	13,104	448
2	4	0.2	15,120	1,057	13,608	943	12,852	661	18,144	1,257	11,340	493	10,584	399

【Note】Please refer to P501

Recommended Cutting Data

SPM200-SN2
2 Flute, Standard Length
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material			P						N		H			
			Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)			1.00		0.90		0.70		1.20		0.50		0.45	
Mill Dia. (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
2	6	0.2	15,120	1,057	13,608	943	12,852	661	18,144	1,257	11,340	493	10,584	399
	8	0.14	15,120	1,057	13,608	943	12,852	661	18,144	1,257	11,340	493	10,584	399
	10	0.14	15,120	1,057	13,608	943	12,852	661	18,144	1,257	11,340	493	10,584	399
	12	0.1	13,608	862	12,247	776	11,567	595	16,330	1,034	10,206	444	9,526	358
	14	0.08	13,608	862	12,247	776	11,567	595	16,330	1,034	10,206	444	9,526	326
	16	0.08	13,608	823	12,247	776	11,567	541	16,330	941	10,206	404	9,526	326
	18	0.05	13,608	823	12,247	776	11,567	541	16,330	941	10,206	404	9,526	326
	20	0.05	13,608	784	12,247	706	11,567	541	16,330	941	10,206	404	9,526	326
	25	0.05	12,096	609	10,886	549	10,282	352	14,515	732	9,072	311	8,467	244
	30	0.03	12,096	609	10,886	549	10,282	352	14,515	732	9,072	311	8,467	244
	35	0.02	10,584	437	9,526	393	8,996	254	12,701	525	7,938	205	7,409	167
	40	0.01	10,584	437	9,526	393	8,996	254	12,701	525	7,938	205	7,409	167
	50	0.005	9,072	266	8,165	239	7,711	155	10,886	320	6,804	125	6,350	101
2.5	8	0.18	12,960	1,122	11,664	1,011	11,016	708	15,552	1,347	9,720	578	9,072	427
	12	0.18	12,960	1,122	11,664	1,011	11,016	644	15,552	1,134	9,720	529	9,072	388
	16	0.1	11,664	966	10,498	869	9,914	580	13,997	1,008	8,748	476	8,165	349
	20	0.1	11,664	840	10,498	756	9,914	580	13,997	1,008	8,748	476	8,165	349
	30	0.06	10,368	653	9,331	588	8,813	392	12,442	783	7,776	307	7,258	248
	40	0.03	9,072	469	8,165	422	7,711	282	10,886	563	6,804	221	6,350	178
	50	0.01	9,072	469	8,165	422	7,711	282	10,886	563	6,804	221	6,350	178
3	8	0.3	11,520	997	10,368	897	9,792	629	13,824	1,198	9,540	513	8,064	380
	12	0.21	11,520	997	10,368	897	9,792	629	13,824	1,198	9,540	513	8,064	380
	16	0.15	10,368	895	9,331	738	8,813	567	12,442	1,030	8,505	462	7,258	341
	20	0.12	10,368	820	9,331	738	8,813	567	12,442	896	8,505	462	7,258	341
	25	0.08	10,368	820	9,331	738	8,813	567	12,442	896	8,505	462	7,258	341
	30	0.08	10,368	746	9,331	671	8,813	567	12,442	896	8,505	462	7,258	312
	40	0.05	9,216	663	8,294	597	7,834	458	11,059	796	6,912	342	6,451	276
	50	0.02	8,064	417	7,258	375	6,854	250	9,677	500	6,048	196	5,645	158
4	12	0.4	8,460	1,692	7,614	1,372	7,191	1,222	10,350	2,070	6,345	812	5,922	655
	16	0.28	8,460	1,692	7,614	1,372	7,191	1,222	10,350	2,070	6,345	812	5,922	655
	20	0.28	7,614	1,523	6,853	1,234	6,472	1,100	9,315	1,863	5,711	731	5,330	590
	25	0.16	7,614	1,372	6,853	1,110	6,472	990	9,315	1,677	5,711	731	5,330	590

【Note】Please refer to P501

Recommended Cutting Data

SPM200-SN2

2 Flute, Standard Length
Endmills of Micro Diameter for Deep Machining

》 Continuation

Workpiece Material			P						N		H			
			Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)			1.00		0.90		0.70		1.20		0.50		0.45	
Mill Dia. (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
4	30	0.16	7,614	1,372	6,853	1,110	6,472	990	9,315	1,677	5,711	731	5,330	590
	35	0.1	6,853	1,234	6,168	999	5,825	891	8,223	1,481	5,140	658	4,797	530
	40	0.1	6,853	1,234	6,168	999	5,825	891	8,223	1,481	5,140	658	4,797	530
	50	0.06	5,922	846	5,330	761	5,034	592	7,106	1,015	4,442	398	4,145	321
5	20	0.3	6,761	1,487	6,085	1,338	5,747	946	8,113	1,622	5,071	635	4,732	514
	25	0.3	6,084	1,216	5,476	1,094	5,171	851	7,301	1,459	4,563	572	4,259	462
	30	0.2	6,084	1,095	5,476	985	5,171	766	7,301	1,315	4,563	516	4,259	416
	40	0.15	5,476	986	4,928	887	4,654	690	6,571	1,184	4,107	464	3,833	374
	50	0.1	5,476	986	4,928	887	4,654	690	6,571	1,184	4,107	464	3,833	374
6	20	0.5	5,564	1,333	5,008	1,200	4,730	932	6,676	1,466	4,173	689	3,894	506
	30	0.4	5,058	1,211	4,552	1,091	4,299	848	6,070	1,332	3,794	626	3,541	460
	40	0.3	5,058	998	4,552	898	4,299	762	6,070	1,199	3,794	563	3,541	413
	50	0.2	4,500	887	4,050	798	3,825	621	5,400	981	3,375	464	3,150	341

【Note】
1. For different materials, adjust the cutting depth (ap) according to the cutting depth factors in the above table. E.g. for hardened steels (45～55HRC), ap*0.5.
2. Use the appropriate coolant such as air cooling or emulsion for the work material and machining shape.
3. In actual machining, the condition should be adjusted according to the machining shape, purpose and the machine type.
4. If the rpm of the machine is low, lower the feed rate also to put the rpm and feed rate in the same ratio.

Recommended Cutting Data（High Precision）

SPM200-SN2

2 Flute, Standard Length
Endmills of Micro Diameter for Deep Machining

Workpiece Material			P						N		H			
			Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)			1.00		0.90		0.70		1.20		0.50		0.45	
Mill Dia. (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
0.1	0.3	0.006	50,000	350	45,000	299	43,740	218	50,000	350	38,475	160	36,045	130
	0.5	0.004	50,000	350	45,000	299	43,740	218	50,000	350	38,475	160	36,045	130
	1	0.003	50,000	318	43,740	271	39,330	198	50,000	318	34,650	146	32,445	116
0.2	0.5	0.015	40,500	401	36,450	361	34,425	254	45,000	446	30,375	189	28,350	152
	1	0.011	40,500	401	36,450	361	34,425	254	45,000	446	30,375	189	28,350	152
	1.5	0.006	36,450	330	32,805	297	30,983	228	43,740	397	27,338	170	25,515	137
	2	0.004	32,400	265	29,160	238	27,540	180	38,880	317	24,300	149	22,680	132
	3	0.002	32,400	238	29,160	214	27,540	161	38,880	285	24,300	149	22,680	120
0.3	1	0.021	36,000	408	32,400	367	30,600	257	43,200	490	27,000	216	25,200	174
	1.5	0.021	36,000	408	32,400	367	30,600	257	43,200	490	27,000	216	25,200	174
	2	0.012	32,400	336	29,160	302	27,540	231	38,880	403	24,300	173	22,680	140
	2.5	0.01	32,400	336	29,160	302	27,540	231	38,880	403	24,300	173	22,680	140
	3	0.008	32,400	336	29,160	302	27,540	231	38,880	403	24,300	162	22,680	131
0.4	1	0.04	28,800	572	25,920	514	24,480	361	34,560	686	21,600	267	20,160	217
	1.5	0.028	28,800	572	25,920	514	24,480	361	34,560	686	21,600	267	20,160	217
	2	0.028	28,800	572	25,920	514	24,480	361	34,560	686	21,600	267	20,160	217
	2.5	0.022	25,920	418	23,328	376	22,032	288	31,104	501	19,440	215	18,144	173
	3	0.016	25,920	418	23,328	376	22,032	288	31,104	501	19,440	215	18,144	173
	3.5	0.012	25,920	418	23,328	376	22,032	288	31,104	501	19,440	215	18,144	173
	4	0.01	25,920	418	23,328	376	22,032	288	31,104	501	19,440	215	18,144	173
	5	0.01	23,040	284	20,736	256	19,584	187	27,648	365	17,280	166	16,128	130
	6	0.006	23,040	284	20,736	256	19,584	187	27,648	365	17,280	166	16,128	130
	8	0.003	20,160	216	18,144	195	17,136	144	24,192	260	15,120	127	14,112	115
	10	0.002	17,280	159	15,552	143	14,688	105	20,736	191	12,960	93	12,096	85
0.5	1	0.05	28,800	572	25,920	514	24,480	401	34,560	686	21,600	269	20,160	217
	1.5	0.05	28,800	572	25,920	514	24,480	401	34,560	686	21,600	269	20,160	217
	2	0.035	28,800	572	25,920	514	24,480	401	34,560	686	21,600	269	20,160	217
	2.5	0.03	25,920	418	23,328	376	22,032	319	31,104	501	19,440	215	18,144	173
	3	0.02	25,920	418	23,328	376	22,032	319	31,104	501	19,440	215	18,144	173
	4	0.02	25,920	418	23,328	376	22,032	288	31,104	501	19,440	215	18,144	173
	5	0.013	25,920	418	23,328	376	22,032	288	31,104	501	19,440	215	18,144	173
	6	0.013	23,040	325	20,736	292	19,584	187	27,648	390	17,280	166	16,128	130

【Note】Please refer to P506

Recommended Cutting Data（High Precision）

SPM200-SN2

2 Flute, Standard Length
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material			P						N		H			
			Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)			1.00		0.90		0.70		1.20		0.50		0.45	
Mill Dia. (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
0.5	8	0.008	23,040	278	20,736	250	19,584	155	27,648	334	17,280	140	16,128	105
	10	0.004	20,160	216	18,144	194	17,136	109	24,192	259	15,120	95	14,112	71
0.6	2	0.042	28,800	816	25,920	734	24,480	515	34,560	980	21,600	384	20,160	310
	3	0.035	25,920	671	23,328	604	22,032	464	31,104	806	19,440	347	18,144	279
	4	0.024	25,920	671	23,328	604	22,032	464	31,104	806	19,440	347	18,144	279
	5	0.02	25,920	597	23,328	536	22,032	412	31,104	716	19,440	308	18,144	248
	6	0.015	25,920	597	23,328	536	22,032	412	31,104	716	19,440	308	18,144	248
	7	0.015	23,040	515	20,736	464	19,584	356	27,648	618	17,280	266	16,128	214
	8	0.015	23,040	464	20,736	418	19,584	267	27,648	536	17,280	236	16,128	185
	9	0.012	23,040	464	20,736	418	19,584	267	27,648	536	17,280	236	16,128	185
	10	0.009	23,040	464	20,736	418	19,584	267	27,648	536	17,280	236	16,128	185
0.7	2	0.07	28,800	816	25,920	734	24,480	515	34,560	980	21,600	384	20,160	310
	4	0.049	25,920	597	23,328	536	22,032	412	31,104	716	19,440	308	18,144	248
	6	0.018	25,920	597	23,328	536	22,032	412	31,104	716	19,440	308	18,144	248
	8	0.018	23,040	406	20,736	365	19,584	234	27,648	487	17,280	206	16,128	162
	10	0.018	23,040	406	20,736	365	19,584	234	27,648	487	17,280	206	16,128	162
0.8	4	0.056	28,800	816	25,920	734	24,480	572	34,560	980	21,600	428	20,160	345
	6	0.032	25,920	597	23,328	536	22,032	516	31,104	716	19,440	385	18,144	311
	8	0.02	25,920	597	23,328	536	22,032	412	31,104	716	19,440	308	18,144	248
	10	0.02	23,040	406	20,736	365	19,584	234	27,648	487	17,280	206	16,128	162
	12	0.012	23,040	406	20,736	365	19,584	234	27,648	487	17,280	206	16,128	162
0.9	6	0.036	25,920	746	23,328	671	22,032	516	31,104	896	19,440	385	18,144	311
	8	0.023	25,920	671	23,328	671	22,032	516	31,104	896	19,440	385	18,144	311
	10	0.023	23,040	464	20,736	418	19,584	267	27,648	557	17,280	236	16,128	185
	12	0.023	23,040	406	20,736	373	19,584	267	27,648	487	17,280	236	16,128	185
1	2	0.09	25,920	1,098	23,328	988	22,032	842	31,104	1,319	19,440	629	18,144	507
	3	0.07	25,920	1,098	23,328	988	22,032	842	31,104	1,319	19,440	629	18,144	507
	4	0.065	25,920	1,098	23,328	988	22,032	842	31,104	1,319	19,440	629	18,144	507
	5	0.05	25,920	1,098	23,328	988	22,032	842	31,104	1,319	19,440	629	18,144	507
	6	0.035	23,328	907	20,995	816	19,829	696	27,994	1,148	17,496	519	16,330	376
	7	0.035	23,328	907	20,995	816	19,829	696	27,994	1,148	17,496	519	16,330	376
	8	0.035	23,328	907	20,995	816	19,829	696	27,994	1,088	17,496	519	16,330	376

【Note】Please refer to P506

Recommended Cutting Data（High Precision）

SPM200-SN2

2 Flute, Standard Length
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material			P						N		H			
			Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)			1.00		0.90		0.70		1.20		0.50		0.45	
Mill Dia. (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
1	9	0.03	23,328	907	20,995	816	19,829	626	27,994	1,088	17,496	415	16,330	335
	10	0.022	23,328	806	20,995	734	19,829	626	27,994	1,088	17,496	415	16,330	335
	12	0.022	20,736	626	18,662	564	17,626	361	24,883	752	15,552	319	14,515	250
	14	0.022	20,736	626	18,662	564	17,626	361	24,883	752	15,552	319	14,515	250
	16	0.012	20,736	536	18,662	483	17,626	342	24,883	644	15,552	268	14,515	203
	20	0.008	18,621	439	16,759	395	15,828	250	22,345	527	13,966	192	13,035	142
	25	0.005	15,750	341	14,175	307	13,388	194	18,900	410	11,813	149	11,025	110
1.2	6	0.084	23,040	980	20,736	882	19,584	684	27,648	1,175	17,280	462	16,128	373
	8	0.048	20,736	806	18,662	725	17,626	616	24,883	967	15,552	415	14,515	335
	10	0.03	20,736	806	18,662	725	17,626	616	24,883	967	15,552	415	14,515	335
	12	0.03	20,736	644	18,662	578	17,626	494	24,883	860	15,552	369	14,515	298
	16	0.02	18,432	636	16,589	501	15,667	439	22,118	763	13,824	328	12,902	265
1.4	6	0.1	20,160	857	18,144	771	17,136	541	24,192	1,029	15,120	404	14,112	325
	12	0.035	18,144	705	16,330	635	15,422	486	21,773	846	13,608	364	12,701	293
1.5	4	0.11	20,160	952	18,144	858	17,136	601	24,192	1,143	15,120	449	14,112	362
	6	0.11	20,160	857	18,144	779	17,136	601	24,192	1,029	15,120	449	14,112	362
	8	0.06	18,144	784	16,330	706	15,422	541	21,773	941	13,608	404	12,701	326
	10	0.06	18,144	705	16,330	635	15,422	541	21,773	941	13,608	404	12,701	326
	12	0.06	18,144	705	16,330	635	15,422	541	21,773	846	13,608	364	12,701	293
	14	0.038	18,144	705	16,330	635	15,422	541	21,773	846	13,608	364	12,701	293
	16	0.038	16,128	548	14,515	494	13,709	316	19,354	658	12,096	279	11,290	219
	18	0.038	16,128	548	14,515	494	13,709	316	19,354	658	12,096	279	11,290	219
	20	0.038	16,128	548	14,515	439	13,709	281	19,354	658	12,096	248	11,290	194
	25	0.023	12,096	352	10,886	282	10,282	200	14,515	423	9,072	157	8,467	119
	30	0.015	10,080	239	10,886	191	8,568	134	12,096	287	7,560	100	7,056	80
	35	0.01	10,080	212	10,886	167	8,568	134	12,096	256	7,560	100	7,056	80
	40	0.005	8,064	113	7,258	102	6,854	68	9,677	137	6,048	53	5,645	43
1.6	6	0.11	18,720	879	16,848	796	15,912	621	22,464	1,061	14,040	464	13,104	374
	8	0.11	18,720	879	16,848	796	15,912	559	22,464	1,061	14,040	464	13,104	374
1.8	6	0.13	18,720	897	16,848	796	15,912	621	22,464	1,061	14,040	464	13,104	374
	8	0.13	18,720	897	16,848	796	15,912	559	22,464	1,061	14,040	464	13,104	374
2	4	0.2	15,120	857	13,608	775	12,852	590	18,144	1,143	11,340	449	10,584	362

【Note】Please refer to P506

Recommended Cutting Data（High Precision）

SPM200-SN2

2 Flute, Standard Length
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material			P						N		H			
			Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)			1.00		0.90		0.70		1.20		0.50		0.45	
Mill Dia. (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
2	6	0.2	15,120	857	13,608	775	12,852	590	18,144	1,143	11,340	449	10,584	362
	8	0.14	15,120	857	13,608	775	12,852	590	18,144	1,143	11,340	449	10,584	362
	10	0.14	15,120	857	13,608	775	12,852	590	18,144	1,143	11,340	449	10,584	362
	12	0.08	13,608	784	12,247	706	11,567	531	16,330	941	10,206	404	9,526	326
	14	0.08	13,608	784	12,247	706	11,567	531	16,330	941	10,206	404	9,526	293
	16	0.08	13,608	705	12,247	636	11,567	486	16,330	846	10,206	383	9,526	293
	18	0.05	13,608	705	12,247	636	11,567	486	16,330	846	10,206	364	9,526	260
	20	0.05	13,608	626	12,247	564	11,567	432	16,330	799	10,206	323	9,526	260
	25	0.05	12,096	548	10,886	494	10,282	281	14,515	658	9,072	279	8,467	209
	30	0.03	12,096	487	10,886	439	10,282	246	14,515	585	9,072	248	8,467	194
	35	0.02	10,584	349	9,526	314	8,996	203	12,701	419	7,938	164	7,409	133
	40	0.01	10,584	306	9,527	275	8,996	177	12,701	367	7,938	143	7,409	116
	50	0.005	9,072	212	8,165	167	7,711	108	10,886	256	6,804	87	6,350	70
2.5	8	0.18	12,960	1,021	11,664	919	11,016	644	15,552	1,225	9,720	482	9,072	388
	12	0.18	12,960	918	11,664	840	11,016	580	15,552	1,021	9,720	468	9,072	348
	16	0.1	11,664	755	10,498	682	9,914	521	13,997	907	8,748	405	8,165	314
	20	0.1	11,664	715	10,498	640	9,914	464	13,997	756	8,748	405	8,165	279
	30	0.06	10,368	522	9,331	411	8,813	313	12,442	626	7,776	245	7,258	198
	40	0.03	9,072	328	8,165	295	7,711	225	10,886	393	6,804	176	6,350	142
	50	0.01	9,072	304	8,165	274	7,711	183	10,886	338	6,804	154	6,350	124
3	8	0.3	11,520	907	10,368	816	9,792	572	13,824	1,089	8,640	428	8,064	345
	12	0.21	11,520	907	10,368	816	9,792	572	13,824	1,089	8,640	428	8,064	345
	16	0.12	10,368	746	9,331	671	8,813	516	12,442	896	7,776	385	7,258	310
	20	0.12	10,368	708	9,331	635	8,813	516	12,442	806	7,776	385	7,258	310
	25	0.08	10,368	708	9,331	635	8,813	516	12,442	806	7,776	385	7,258	310
	30	0.08	10,368	597	9,331	541	8,813	516	12,442	716	7,776	385	7,258	279
	40	0.05	9,216	464	8,294	418	7,834	320	11,059	556	6,912	274	6,451	221
	50	0.02	8,064	312	7,258	262	6,854	175	9,677	350	6,048	137	5,645	111
4	12	0.4	8,460	1,523	7,614	1,233	7,191	1,100	10,350	1,863	6,345	730	5,922	589
	16	0.28	8,460	1,523	7,614	1,233	7,191	1,100	10,350	1,863	6,345	730	5,922	589
	20	0.28	7,614	1,370	6,853	1,110	6,472	989	9,315	1,677	5,711	657	5,330	529
	25	0.16	7,614	1,233	6,853	998	6,472	891	9,315	1,508	5,711	657	5,330	529

【Note】Please refer to P506

Recommended Cutting Data（High Precision）

SPM200-SN2

2 Flute, Standard Length

Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material			P						N		H			
			Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)			1.00		0.90		0.70		1.20		0.50		0.45	
Mill Dia. (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
4	30	0.16	7,614	1,233	6,853	998	6,472	792	9,315	1,508	5,711	584	5,330	529
	35	0.1	6,853	986	6,168	799	5,825	713	8,223	1,184	5,140	526	4,797	424
	40	0.1	6,853	863	6,168	699	5,825	624	8,223	1,036	5,140	460	4,797	371
	50	0.06	5,922	592	6,395	533	5,034	414	7,106	710	4,442	278	4,145	224
5	20	0.3	6,761	1,216	6,085	1,094	5,747	851	8,113	1,459	5,071	572	4,732	462
	25	0.3	6,084	1,094	5,476	985	5,171	765	7,301	1,312	4,563	514	4,259	415
	30	0.2	6,084	985	5,476	886	5,171	689	7,301	1,182	4,563	463	4,259	374
	40	0.15	5,476	788	4,928	709	4,654	552	6,571	947	4,107	371	3,833	299
	50	0.1	5,476	788	4,928	621	4,654	518	6,571	887	4,107	324	3,833	262
6	20	0.5	5,564	1,111	5,008	1,000	4,730	778	6,676	1,333	4,173	522	3,894	422
	30	0.4	5,058	1,010	4,552	909	4,299	707	6,070	1,211	3,794	474	3,541	383
	40	0.3	5,058	908	4,552	817	4,299	635	6,070	1,090	3,794	427	3,541	345
	50	0.2	4,500	735	4,050	662	3,825	572	5,400	883	3,375	384	3,150	311

【Note】
1. For different materials, adjust the cutting depth (ap) according to the cutting depth factors in the above table. E.g. for hardened steels (45～55HRC), ap*0.5.
2. Use the appropriate coolant such as air cooling or emulsion for the work material and machining shape.
3. In actual machining, the condition should be adjusted according to the machining shape, purpose and the machine type.
4. If the rpm of the machine is low, lower the feed rate also to put the rpm and feed rate in the same ratio.

Recommended Cutting Data（General type）

SPM200-RN2

2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
Mill Dia. (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	Vf mm/min
0.2	0.02	0.5	0.016	45,000	830	40,500	746	38,250	635	45,000	830	33,750	498	31,500	407
		1	0.011	45,000	830	40,500	746	38,250	635	45,000	830	33,750	498	31,500	407
		2	0.007	37,800	697	36,450	671	34,425	572	45,000	728	30,375	448	28,350	365
	0.05	0.5	0.02	45,000	830	40,500	746	38,250	635	45,000	830	33,750	498	31,500	407
		1	0.014	45,000	830	40,500	746	38,250	635	45,000	830	33,750	498	31,500	407
		1.5	0.008	42,300	779	38,475	709	36,338	603	45,000	728	32,063	473	29,925	386
		2	0.008	37,800	697	36,450	671	34,425	572	45,000	728	30,375	448	28,350	365
0.3	0.02	1	0.016	43,200	1,045	38,880	941	36,720	660	45,000	1,087	32,400	492	30,240	397
		2	0.011	34,992	774	31,493	697	29,743	535	40,500	898	26,244	399	24,494	321
		3	0.007	33,242	684	29,918	616	28,256	473	38,475	793	24,932	353	23,270	284
	0.05	1	0.021	43,200	1,045	38,880	941	36,720	660	45,000	1,087	32,400	492	30,240	397
		1.5	0.016	41,040	993	36,936	894	34,884	627	42,750	1,032	30,780	468	28,728	377
		2	0.012	34,992	774	31,493	697	29,743	535	40,500	898	26,244	399	24,494	321
		2.5	0.01	34,992	774	31,493	697	29,743	535	40,500	898	26,244	399	24,494	321
		3	0.008	33,242	684	29,918	616	28,256	473	38,475	793	24,932	353	23,270	284
0.4	0.02	1	0.016	34,470	929	31,104	836	29,030	714	41,472	1,115	25,920	558	24,053	457
		2	0.013	34,470	836	31,104	752	29,030	643	41,472	1,004	25,920	501	24,053	411
		3	0.01	26,393	584	23,793	527	22,208	449	31,725	702	19,828	351	18,401	288
		4	0.007	21,735	482	19,595	433	18,288	370	26,126	578	16,329	289	15,153	237
	0.05	1	0.025	34,470	929	31,104	836	29,030	714	41,472	1,115	25,920	558	24,053	457
		1.5	0.02	34,470	929	31,104	836	29,030	714	41,472	1,115	25,920	558	24,053	457
		2	0.016	34,470	836	31,104	752	29,030	643	41,472	1,004	25,920	501	24,053	411
		2.5	0.015	32,400	797	29,160	716	27,540	609	38,880	956	24,300	478	22,680	391
		3	0.014	26,393	584	23,793	527	22,208	449	31,725	702	19,828	351	18,401	288
		3.5	0.012	24,786	548	22,307	493	21,068	420	29,743	658	18,590	329	17,350	269
		4	0.008	21,735	482	19,595	433	18,288	370	26,126	578	16,329	289	15,153	237
	0.1	1	0.033	34,470	929	31,104	836	29,030	714	41,472	1,115	25,920	558	24,053	457
		2	0.028	34,470	836	31,104	752	29,030	643	41,472	1,004	25,920	501	24,053	411
		3	0.016	26,393	584	23,793	527	22,208	449	31,725	702	19,828	351	18,401	288
		4	0.01	21,735	482	19,595	433	18,288	370	26,126	578	16,329	289	15,153	237
0.5	0.02	1	0.016	34,470	929	31,104	836	29,030	714	41,472	1,115	25,920	558	24,053	457
		2	0.013	34,470	929	31,104	836	29,030	714	41,472	1,115	25,920	558	24,053	457

【Note】Please refer to P517

Recommended Cutting Data（General type）

SPM200-RN2

2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
Mill Dia. (mm)	r (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
0.5	0.02	3	0.01	27,994	755	25,195	675	23,794	571	33,593	900	20,995	426	19,596	343
		4	0.008	24,883	671	22,395	599	21,151	507	29,860	800	18,662	378	17,419	305
		6	0.006	19,354	500	17,419	449	16,450	288	23,225	599	14,515	254	13,548	200
	0.05	1	0.03	34,470	929	31,104	836	29,030	714	41,472	1,115	25,920	558	24,053	457
		2	0.023	34,470	929	31,104	836	29,030	714	41,472	1,115	25,920	558	24,053	457
		3	0.017	27,994	755	25,195	675	23,794	571	33,593	900	20,995	426	19,596	343
		4	0.017	24,883	671	22,395	599	21,151	507	29,860	800	18,662	378	17,419	305
		5	0.011	21,773	588	19,596	525	18,507	444	26,127	700	16,330	331	15,241	267
		6	0.008	19,354	500	17,419	449	16,450	288	23,225	599	14,515	254	13,548	200
	0.1	1	0.035	34,470	929	31,104	836	29,030	714	41,472	1,115	25,920	558	24,053	457
		2	0.03	34,470	929	31,104	836	29,030	714	41,472	1,115	25,920	558	24,053	457
		3	0.02	27,994	755	25,195	675	23,794	571	33,593	900	20,995	426	19,596	343
		4	0.02	24,883	671	22,395	599	21,151	507	29,860	800	18,662	378	17,419	305
		5	0.013	21,773	588	19,596	525	18,507	444	26,127	700	16,330	331	15,241	267
		6	0.013	19,354	500	17,419	449	16,450	288	23,225	599	14,515	254	13,548	200
0.6	0.02	2	0.016	34,470	1,310	31,104	1,182	29,030	892	41,472	1,576	25,920	697	24,053	572
		4	0.013	27,994	1,032	25,195	929	23,794	713	33,593	1,238	20,995	532	19,596	429
		6	0.01	21,773	803	19,596	723	18,507	554	26,127	963	16,330	414	15,241	334
	0.05	2	0.028	34,470	1,310	31,104	1,182	29,030	892	41,472	1,576	25,920	697	24,053	572
		4	0.019	27,994	1,032	25,195	929	23,794	713	33,593	1,238	20,995	532	19,596	429
		6	0.012	21,773	803	19,596	723	18,507	554	26,127	963	16,330	414	15,241	334
		8	0.01	20,684	762	18,616	687	17,582	527	24,821	915	15,513	393	14,479	317
		10	0.007	18,507	610	16,656	549	15,731	440	22,208	733	13,880	320	12,955	258
	0.1	2	0.035	34,470	1,310	31,104	1,182	29,030	892	41,472	1,576	25,920	697	24,053	572
		4	0.024	27,994	1,032	25,195	929	23,794	713	33,593	1,238	20,995	532	19,596	429
		6	0.015	21,773	803	19,596	723	18,507	554	26,127	963	16,330	414	15,241	334
		8	0.013	20,684	762	18,616	687	17,582	527	24,821	915	15,513	393	14,479	317
		10	0.009	18,507	610	16,656	549	15,731	440	22,208	733	13,880	320	12,955	258
0.7	0.05	4	0.024	27,994	1,032	25,195	929	23,794	713	33,593	1,238	20,995	532	19,596	429
		6	0.015	21,773	803	19,596	723	18,507	554	26,127	963	16,330	414	15,241	334
	0.1	4	0.029	27,994	1,032	25,195	929	23,794	713	33,593	1,238	20,995	532	19,596	429
		6	0.018	21,773	803	19,596	723	18,507	554	26,127	963	16,330	414	15,241	334

【Note】Please refer to P517

Recommended Cutting Data（General type）

SPM200-RN2

2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
Mill Dia. (mm)	r (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
0.8	0.02	4	0.016	36,000	1,328	32,400	1,194	30,600	1,015	43,200	1,592	27,000	797	25,200	651
		6	0.013	27,540	914	24,786	823	23,409	777	33,048	1,096	20,655	609	19,278	498
	0.05	4	0.026	36,000	1,328	32,400	1,194	30,600	1,015	43,200	1,592	27,000	797	25,200	651
		6	0.015	27,540	914	24,786	823	23,409	777	33,048	1,096	20,655	609	19,278	498
		8	0.012	22,032	680	19,829	612	18,727	578	26,438	815	16,524	454	15,422	370
		12	0.01	19,829	569	17,846	512	16,854	483	23,794	683	14,872	379	13,880	310
	0.1	4	0.032	36,000	1,328	32,400	1,194	30,600	1,015	43,200	1,592	27,000	797	25,200	651
		6	0.019	27,540	914	24,786	823	23,409	777	33,048	1,096	20,655	609	19,278	498
		8	0.015	22,032	680	19,829	612	18,727	578	26,438	815	16,524	454	15,422	370
		12	0.012	19,829	569	17,846	512	16,854	483	23,794	683	14,872	379	13,880	310
	0.2	4	0.056	36,000	1,328	32,400	1,194	30,600	1,015	43,200	1,592	27,000	797	25,200	651
		6	0.032	27,540	914	24,786	823	23,409	777	33,048	1,096	20,655	609	19,278	498
		8	0.018	22,032	680	19,829	612	18,727	578	26,438	815	16,524	454	15,422	370
		12	0.015	19,829	569	17,846	512	16,854	483	23,794	683	14,872	379	13,880	310
1	0.02	2	0.016	35,541	2,132	32,101	1,926	30,095	1,625	42,993	2,579	26,655	1,279	24,936	1,047
		4	0.013	32,400	1,941	29,160	1,747	27,540	1,485	38,880	2,329	24,300	1,165	22,680	951
		6	0.01	26,244	1,415	26,369	1,581	22,307	1,202	31,493	1,698	19,683	943	18,371	770
		8	0.008	23,328	1,257	23,620	1,274	19,829	1,069	27,994	1,509	17,496	839	16,330	685
		10	0.006	20,412	1,101	20,995	1,132	17,350	935	24,494	1,320	15,309	734	14,288	599
		12	0.005	18,144	869	18,371	990	15,422	647	21,773	1,043	13,608	571	12,701	456
	0.05	2	0.046	35,541	2,132	32,101	1,926	30,095	1,625	42,993	2,579	26,655	1,279	24,936	1,047
		3	0.035	35,541	2,132	32,101	1,926	30,095	1,625	42,993	2,579	26,655	1,279	24,936	1,047
		4	0.027	32,400	1,941	29,160	1,747	27,540	1,485	38,880	2,329	24,300	1,165	22,680	951
		5	0.021	28,662	1,719	26,369	1,581	24,936	1,346	35,827	2,149	22,070	1,059	20,636	867
		6	0.017	26,244	1,415	23,620	1,274	22,307	1,202	31,493	1,698	19,683	943	18,371	770
		8	0.016	23,328	1,257	20,995	1,132	19,829	1,069	27,994	1,509	17,496	839	16,330	685
		10	0.011	20,412	1,101	18,371	990	17,350	935	24,494	1,320	15,309	734	14,288	599
		12	0.01	18,144	869	16,330	783	15,422	647	21,773	1,043	13,608	571	12,701	456
		16	0.006	18,144	761	16,330	685	15,422	600	21,773	913	13,608	489	12,701	381
		20	0.004	13,608	571	12,247	514	11,567	450	16,330	685	10,206	367	9,526	285
	0.1	2	0.065	35,541	2,132	32,101	1,926	30,095	1,625	42,993	2,579	26,655	1,279	24,936	1,047
		3	0.05	35,541	2,132	32,101	1,926	30,095	1,625	42,993	2,579	26,655	1,279	24,936	1,047

【Note】Please refer to P517

Recommended Cutting Data（General type）

SPM200-RN2
2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
Mill Dia. (mm)	r (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
1	0.1	4	0.038	32,400	1,941	29,160	1,747	27,540	1,485	38,880	2,329	24,300	1,165	22,680	951
		5	0.03	28,662	1,719	26,369	1,581	24,936	1,346	35,827	2,149	22,070	1,059	20,636	867
		6	0.024	26,244	1,415	23,620	1,274	22,307	1,202	31,493	1,698	19,683	943	18,371	770
		8	0.024	23,328	1,257	20,995	1,132	19,829	1,069	27,994	1,509	17,496	839	16,330	685
		10	0.015	20,412	1,101	18,371	990	17,350	935	24,494	1,320	15,309	734	14,288	599
		12	0.015	18,144	869	16,330	783	15,422	647	21,773	1,043	13,608	571	12,701	456
		16	0.009	18,144	761	16,330	685	15,422	600	21,773	913	13,608	489	12,701	381
		20	0.006	13,608	571	12,247	514	11,567	450	16,330	685	10,206	367	9,526	285
	0.2	2	0.11	35,541	2,132	32,101	1,926	30,095	1,625	42,993	2,579	26,655	1,279	24,936	1,047
		3	0.09	35,541	2,132	32,101	1,926	30,095	1,625	42,993	2,579	26,655	1,279	24,936	1,047
		4	0.07	32,400	1,941	29,160	1,747	27,540	1,485	38,880	2,329	24,300	1,165	22,680	951
		5	0.05	28,662	1,719	26,369	1,581	24,936	1,346	35,827	2,149	22,070	1,059	20,636	867
		6	0.04	26,244	1,415	23,620	1,274	22,307	1,202	31,493	1,698	19,683	943	18,371	770
		8	0.04	23,328	1,257	20,995	1,132	19,829	1,069	27,994	1,509	17,496	839	16,330	685
		10	0.025	20,412	1,101	18,371	990	17,350	935	24,494	1,320	15,309	734	14,288	599
		12	0.025	18,144	869	16,330	783	15,422	647	21,773	1,043	13,608	571	12,701	456
		16	0.015	18,144	761	16,330	685	15,422	600	21,773	913	13,608	489	12,701	381
		20	0.01	13,608	571	12,247	514	11,567	450	16,330	685	10,206	367	9,526	285
	0.3	2	0.11	35,541	2,132	32,101	1,926	30,095	1,625	42,993	2,579	26,655	1,279	24,936	1,047
		3	0.09	35,541	2,132	32,101	1,926	30,095	1,625	42,993	2,579	26,655	1,279	24,936	1,047
		4	0.07	32,400	1,941	29,160	1,747	27,540	1,485	38,880	2,329	24,300	1,165	22,680	951
		5	0.05	28,662	1,719	26,369	1,581	24,936	1,346	35,827	2,149	22,070	1,059	20,636	867
		6	0.04	26,244	1,415	23,620	1,274	22,307	1,202	31,493	1,698	19,683	943	18,371	770
		8	0.04	23,328	1,257	20,995	1,132	19,829	1,069	27,994	1,509	17,496	839	16,330	685
		10	0.025	20,412	1,101	18,371	990	17,350	935	24,494	1,320	15,309	734	14,288	599
		12	0.025	18,144	869	16,330	783	15,422	647	21,773	1,043	13,608	571	12,701	456
		16	0.015	18,144	761	16,330	685	15,422	600	21,773	913	13,608	489	12,701	381
		20	0.01	13,608	571	12,247	514	11,567	450	16,330	685	10,206	367	9,526	285
1.25	0.1	5	0.03	28,662	1,719	26,369	1,581	24,936	1,346	35,827	2,149	22,070	1,059	20,636	867
		10	0.015	23,328	1,257	18,371	990	17,350	935	24,494	1,320	15,309	734	14,288	599
		15	0.01	18,144	761	16,330	685	15,422	600	21,773	913	13,608	489	12,701	381
		20	0.006	13,608	571	12,247	514	11,567	450	16,330	685	10,206	367	9,526	285

【Note】Please refer to P517

Recommended Cutting Data（General type）

SPM200-RN2
2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
Mill Dia. (mm)	r (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
1.25	0.2	5	0.05	28,662	1,719	26,369	1,581	24,936	1,346	35,827	2,149	22,070	1,059	20,636	867
		10	0.025	23,328	1,257	18,371	990	17,350	935	24,494	1,320	15,309	734	14,288	599
		15	0.016	18,144	761	16,330	685	15,422	600	21,773	913	13,608	489	12,701	381
		20	0.01	13,608	571	12,247	514	11,567	450	16,330	685	10,206	367	9,526	285
	0.3	5	0.05	28,662	1,719	26,369	1,581	24,936	1,346	35,827	2,149	22,070	1,059	20,636	867
		10	0.025	23,328	1,257	18,371	990	17,350	935	24,494	1,320	15,309	734	14,288	599
		15	0.016	18,144	761	16,330	685	15,422	600	21,773	913	13,608	489	12,701	381
		20	0.01	13,608	571	12,247	514	11,567	450	16,330	685	10,206	367	9,526	285
1.5	0.1	4	0.042	24,930	1,614	22,453	1,453	20,957	1,240	29,938	1,938	18,711	968	17,364	795
		6	0.04	23,885	1,543	21,401	1,382	20,255	1,199	28,662	1,851	17,961	930	16,624	761
		8	0.036	22,680	1,467	20,412	1,320	19,278	1,141	27,216	1,760	17,010	881	15,876	726
		12	0.036	18,144	1,174	16,330	1,057	15,422	913	21,773	1,409	13,608	705	12,701	581
		15	0.023	14,112	812	12,701	731	11,995	604	16,934	974	10,584	533	9,878	426
		20	0.018	14,112	734	12,701	660	11,995	552	16,934	880	10,584	486	9,878	385
	0.2	4	0.07	24,930	1,614	22,453	1,453	20,957	1,240	29,938	1,938	18,711	968	17,364	795
		6	0.065	23,885	1,543	21,401	1,382	20,255	1,199	28,662	1,851	17,961	930	16,624	761
		8	0.06	22,680	1,467	20,412	1,320	19,278	1,141	27,216	1,760	17,010	881	15,876	726
		12	0.06	18,144	1,174	16,330	1,057	15,422	913	21,773	1,409	13,608	705	12,701	581
		15	0.038	14,112	812	12,701	731	11,995	604	16,934	974	10,584	533	9,878	426
		20	0.03	14,112	734	12,701	660	11,995	552	16,934	880	10,584	486	9,878	385
	0.3	4	0.07	24,930	1,614	22,453	1,453	20,957	1,240	29,938	1,938	18,711	968	17,364	795
		6	0.065	23,885	1,543	21,401	1,382	20,255	1,199	28,662	1,851	17,961	930	16,624	761
		8	0.06	22,680	1,467	20,412	1,320	19,278	1,141	27,216	1,760	17,010	881	15,876	726
		12	0.06	18,144	1,174	16,330	1,057	15,422	913	21,773	1,409	13,608	705	12,701	581
		15	0.038	14,112	812	12,701	731	11,995	604	16,934	974	10,584	533	9,878	426
		20	0.03	14,112	734	12,701	660	11,995	552	16,934	880	10,584	486	9,878	385
	0.5	4	0.085	24,930	1,614	22,453	1,453	20,957	1,240	29,938	1,938	18,711	968	17,364	795
		6	0.08	23,885	1,543	21,401	1,382	20,255	1,199	28,662	1,851	17,961	930	16,624	761
		8	0.07	22,680	1,467	20,412	1,320	19,278	1,141	27,216	1,760	17,010	881	15,876	726
		12	0.065	18,144	1,174	16,330	1,057	15,422	913	21,773	1,409	13,608	705	12,701	581
		15	0.045	14,112	812	12,701	731	11,995	604	16,934	974	10,584	533	9,878	426
		20	0.035	14,112	734	12,701	660	11,995	552	16,934	880	10,584	486	9,878	385

【Note】Please refer to P517

Recommended Cutting Data（General type）

SPM200-RN2
2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
Mill Dia. (mm)	r (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
1.75	0.1	5	0.04	23,885	1,543	21,401	1,382	20,255	1,199	28,662	1,851	17,961	930	16,624	761
		10	0.036	18,144	1,174	16,330	1,057	15,422	913	21,773	1,409	13,608	705	12,701	581
		15	0.023	14,112	812	12,701	731	11,995	604	16,934	974	10,584	533	9,878	426
		20	0.018	14,112	734	12,701	660	11,995	552	16,934	880	10,584	486	9,878	385
	0.2	5	0.065	23,885	1,543	21,401	1,382	20,255	1,199	28,662	1,851	17,961	930	16,624	761
		10	0.06	18,144	1,174	16,330	1,057	15,422	913	21,773	1,409	13,608	705	12,701	581
		15	0.038	14,112	812	12,701	731	11,995	604	16,934	974	10,584	533	9,878	426
		20	0.03	14,112	734	12,701	660	11,995	552	16,934	880	10,584	486	9,878	385
	0.3	5	0.065	23,885	1,543	21,401	1,382	20,255	1,199	28,662	1,851	17,961	930	16,624	761
		10	0.06	18,144	1,174	16,330	1,057	15,422	913	21,773	1,409	13,608	705	12,701	581
		15	0.038	14,112	812	12,701	731	11,995	604	16,934	974	10,584	533	9,878	426
		20	0.03	14,112	734	12,701	660	11,995	552	16,934	880	10,584	486	9,878	385
2	0.1	4	0.08	21,783	2,448	19,634	2,207	18,487	2,077	25,796	2,899	16,337	1,467	15,334	1,205
		6	0.07	20,790	2,336	18,711	2,102	17,672	1,985	24,948	2,803	15,593	1,401	14,553	1,144
		8	0.055	18,900	2,123	17,010	1,911	16,065	1,805	22,680	2,547	14,175	1,274	13,230	1,040
		12	0.03	15,309	1,548	13,778	1,393	13,013	1,316	18,371	1,857	11,482	1,031	10,716	842
		16	0.03	13,608	1,375	12,247	1,238	11,567	1,169	16,330	1,651	10,206	917	9,526	749
		20	0.025	11,907	1,203	10,716	1,084	10,121	1,023	14,288	1,445	8,931	721	8,335	588
		25	0.015	11,907	1,203	10,716	1,084	10,121	1,023	14,288	1,445	8,931	721	8,335	588
		30	0.01	11,312	1,144	10,181	1,029	9,615	972	13,574	1,373	8,483	685	7,918	559
	0.2	4	0.1	21,783	2,448	19,634	2,207	18,487	2,077	25,796	2,899	16,337	1,467	15,334	1,205
		6	0.08	20,790	2,336	18,711	2,102	17,672	1,985	24,948	2,803	15,593	1,401	14,553	1,144
		8	0.07	18,900	2,123	17,010	1,911	16,065	1,805	22,680	2,547	14,175	1,274	13,230	1,040
		12	0.04	15,309	1,548	13,778	1,393	13,013	1,316	18,371	1,857	11,482	1,031	10,716	842
		16	0.04	13,608	1,375	12,247	1,238	11,567	1,169	16,330	1,651	10,206	917	9,526	749
		20	0.035	11,907	1,203	10,716	1,084	10,121	1,023	14,288	1,445	8,931	721	8,335	588
		25	0.025	11,907	1,203	10,716	1,084	10,121	1,023	14,288	1,445	8,931	721	8,335	588
		30	0.017	11,312	1,144	10,181	1,029	9,615	972	13,574	1,373	8,483	685	7,918	559
	0.3	4	0.13	21,783	2,448	19,634	2,207	18,487	2,077	25,796	2,899	16,337	1,467	15,334	1,205
		6	0.11	20,790	2,336	18,711	2,102	17,672	1,985	24,948	2,803	15,593	1,401	14,553	1,144
		8	0.09	18,900	2,123	17,010	1,911	16,065	1,805	22,680	2,547	14,175	1,274	13,230	1,040
		12	0.06	15,309	1,548	13,778	1,393	13,013	1,316	18,371	1,857	11,482	1,031	10,716	842

【Note】Please refer to P517

Recommended Cutting Data（General type）

SPM200-RN2

2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
Mill Dia. (mm)	r (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
2	0.3	16	0.06	13,608	1,375	12,247	1,238	11,567	1,169	16,330	1,651	10,206	917	9,526	749
		20	0.037	11,907	1,203	10,716	1,084	10,121	1,023	14,288	1,445	8,931	721	8,335	588
		25	0.03	11,907	1,203	10,716	1,084	10,121	1,023	14,288	1,445	8,931	721	8,335	588
		30	0.021	11,312	1,144	10,181	1,029	9,615	972	13,574	1,373	8,483	685	7,918	559
	0.5	6	0.17	20,790	2,336	18,711	2,102	17,672	1,985	24,948	2,803	15,593	1,401	14,553	1,144
		8	0.14	18,900	2,123	17,010	1,911	16,065	1,805	22,680	2,547	14,175	1,274	13,230	1,040
		12	0.08	15,309	1,548	13,778	1,393	13,013	1,316	18,371	1,857	11,482	1,031	10,716	842
		16	0.08	13,608	1,375	12,247	1,238	11,567	1,169	16,330	1,651	10,206	917	9,526	749
		20	0.05	11,907	1,203	10,716	1,084	10,121	1,023	14,288	1,445	8,931	721	8,335	588
		25	0.05	11,907	1,203	10,716	1,084	10,121	1,023	14,288	1,445	8,931	721	8,335	588
		30	0.03	11,312	1,144	10,181	1,029	9,615	972	13,574	1,373	8,483	685	7,918	559
	0.8	6	0.22	20,790	2,336	18,711	2,102	17,672	1,985	24,948	2,803	15,593	1,401	14,553	1,144
		8	0.2	18,900	2,123	17,010	1,911	16,065	1,805	22,680	2,547	14,175	1,274	13,230	1,040
		12	0.13	15,309	1,548	13,778	1,393	13,013	1,316	18,371	1,857	11,482	1,031	10,716	842
		16	0.1	13,608	1,375	12,247	1,238	11,567	1,169	16,330	1,651	10,206	917	9,526	749
		20	0.06	11,907	1,203	10,716	1,084	10,121	1,023	14,288	1,445	8,931	721	8,335	588
		25	0.057	11,907	1,203	10,716	1,084	10,121	1,023	14,288	1,445	8,931	721	8,335	588
		30	0.045	11,312	1,144	10,181	1,029	9,615	972	13,574	1,373	8,483	685	7,918	559
2.5	0.1	10	0.05	15,309	1,548	13,778	1,393	13,013	1,316	18,371	2,064	11,482	1,031	10,716	842
		20	0.03	11,907	1,203	10,716	1,084	10,121	1,023	14,288	1,605	8,931	721	8,335	588
		30	0.015	11,312	1,144	10,181	1,029	9,615	972	13,574	1,373	8,483	685	7,918	559
	0.2	10	0.07	15,309	1,548	13,778	1,393	13,013	1,316	18,371	2,064	11,482	1,031	10,716	842
		20	0.04	11,907	1,203	10,716	1,084	10,121	1,023	14,288	1,605	8,931	721	8,335	588
		30	0.025	11,312	1,144	10,181	1,029	9,615	972	13,574	1,373	8,483	685	7,918	559
	0.3	10	0.09	15,309	1,548	13,778	1,393	13,013	1,316	18,371	2,064	11,482	1,031	10,716	842
		20	0.06	11,907	1,203	10,716	1,084	10,121	1,023	14,288	1,605	8,931	721	8,335	588
		30	0.03	11,312	1,144	10,181	1,029	9,615	972	13,574	1,373	8,483	685	7,918	559
	0.5	10	0.12	15,309	1,548	13,778	1,393	13,013	1,316	18,371	2,064	11,482	1,031	10,716	842
		20	0.08	11,907	1,203	10,716	1,084	10,121	1,023	14,288	1,605	8,931	721	8,335	588
		30	0.05	11,312	1,144	10,181	1,029	9,615	972	13,574	1,373	8,483	685	7,918	559
3	0.1	6	0.08	14,400	2,021	12,960	1,820	12,240	1,718	17,280	2,426	10,800	1,213	10,080	991
		8	0.07	14,400	2,021	12,960	1,820	12,240	1,718	17,280	2,426	10,800	1,213	10,080	991

【Note】Please refer to P517

Recommended Cutting Data（General type）

SPM200-RN2

2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
Mill Dia. (mm)	r (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
3	0.1	12	0.05	14,400	2,021	12,960	1,820	12,240	1,718	17,280	2,426	10,800	1,213	10,080	991
		16	0.035	14,400	2,021	12,960	1,820	12,240	1,718	17,280	2,426	10,800	1,213	10,080	991
		18	0.035	12,898	1,811	11,464	1,609	10,987	1,543	15,287	2,146	9,554	1,074	9,076	893
		20	0.035	11,664	1,638	10,498	1,474	9,914	1,392	13,997	1,966	8,748	983	8,165	803
		30	0.027	9,072	1,143	8,165	1,029	7,711	971	10,886	1,372	6,804	694	6,350	559
		35	0.02	9,072	1,143	8,165	1,029	7,711	971	10,886	1,372	6,804	694	6,350	559
	0.2	6	0.1	14,400	2,021	12,960	1,820	12,240	1,718	17,280	2,426	10,800	1,213	10,080	991
		8	0.09	14,400	2,021	12,960	1,820	12,240	1,718	17,280	2,426	10,800	1,213	10,080	991
		12	0.07	14,400	2,021	12,960	1,820	12,240	1,718	17,280	2,426	10,800	1,213	10,080	991
		16	0.05	14,400	2,021	12,960	1,820	12,240	1,718	17,280	2,426	10,800	1,213	10,080	991
		18	0.05	12,898	1,811	11,464	1,609	10,987	1,543	15,287	2,146	9,554	1,074	9,076	893
		20	0.05	11,664	1,638	10,498	1,474	9,914	1,392	13,997	1,966	8,748	983	8,165	803
		30	0.04	9,072	1,143	8,165	1,029	7,711	971	10,886	1,372	6,804	694	6,350	559
		35	0.035	9,072	1,143	8,165	1,029	7,711	971	10,886	1,372	6,804	694	6,350	559
	0.3	6	0.145	14,400	2,021	12,960	1,820	12,240	1,718	17,280	2,426	10,800	1,213	10,080	991
		8	0.13	14,400	2,021	12,960	1,820	12,240	1,718	17,280	2,426	10,800	1,213	10,080	991
		12	0.1	14,400	2,021	12,960	1,820	12,240	1,718	17,280	2,426	10,800	1,213	10,080	991
		16	0.075	14,400	2,021	12,960	1,820	12,240	1,718	17,280	2,426	10,800	1,213	10,080	991
		18	0.075	12,898	1,811	11,464	1,609	10,987	1,543	15,287	2,146	9,554	1,074	9,076	893
		20	0.075	11,664	1,638	10,498	1,474	9,914	1,392	13,997	1,966	8,748	983	8,165	803
		30	0.06	9,072	1,143	8,165	1,029	7,711	971	10,886	1,372	6,804	694	6,350	559
		35	0.05	9,072	1,143	8,165	1,029	7,711	971	10,886	1,372	6,804	694	6,350	559
	0.5	8	0.18	14,400	2,021	12,960	1,820	12,240	1,718	17,280	2,426	10,800	1,213	10,080	991
		12	0.13	14,400	2,021	12,960	1,820	12,240	1,718	17,280	2,426	10,800	1,213	10,080	991
		16	0.1	14,400	2,021	12,960	1,820	12,240	1,718	17,280	2,426	10,800	1,213	10,080	991
		18	0.1	12,898	1,811	11,464	1,609	12,240	1,718	15,287	2,146	9,554	1,074	9,076	893
		20	0.1	11,664	1,638	10,498	1,474	9,914	1,392	13,997	1,966	8,748	983	8,165	803
		30	0.08	9,072	1,143	8,165	1,029	7,711	971	10,886	1,372	6,804	694	6,350	559
		35	0.065	9,072	1,143	8,165	1,029	7,711	971	10,886	1,372	6,804	694	6,350	559
	1	8	0.2	14,400	2,021	12,960	1,820	12,240	1,718	17,280	2,426	10,800	1,213	10,080	991
		12	0.15	14,400	2,021	12,960	1,820	12,240	1,718	17,280	2,426	10,800	1,213	10,080	991
		16	0.12	14,400	2,021	12,960	1,820	12,240	1,718	17,280	2,426	10,800	1,213	10,080	991

【Note】Please refer to P517

Recommended Cutting Data（General type）

SPM200-RN2

2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
Mill Dia. (mm)	r (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
3	1	18	0.11	12,898	1,811	11,464	1,609	12,240	1,718	15,287	2,146	9,554	1,074	9,076	893
		20	0.11	11,664	1,638	10,498	1,474	9,914	1,392	13,997	1,966	8,748	983	8,165	803
		30	0.09	9,072	1,143	8,165	1,029	7,711	971	10,886	1,372	6,804	694	6,350	559
		35	0.075	9,072	1,143	8,165	1,029	7,711	971	10,886	1,372	6,804	694	6,350	559
4	0.1	8	0.08	12,420	2,160	11,178	1,944	10,557	1,836	14,904	2,592	9,315	1,296	8,694	1,058
		12	0.065	12,420	2,160	11,178	1,944	10,557	1,836	14,904	2,592	9,315	1,296	8,694	1,058
		16	0.06	10,301	1,791	9,064	1,576	8,652	1,504	12,360	2,149	7,416	1,031	7,004	852
		20	0.055	10,301	1,791	9,064	1,576	8,652	1,504	12,360	2,149	7,416	1,031	7,004	852
		30	0.045	8,239	1,290	7,415	1,161	7,003	1,096	9,887	1,547	6,179	774	5,767	632
		35	0.04	8,239	1,290	7,415	1,161	7,003	1,096	9,887	1,547	6,179	774	5,767	632
		45	0.03	6,592	825	5,933	743	5,603	702	7,910	990	4,945	499	4,614	401
	0.2	8	0.16	12,420	2,160	11,178	1,944	10,557	1,836	14,904	2,592	9,315	1,296	8,694	1,058
		12	0.14	12,420	2,160	11,178	1,944	10,557	1,836	14,904	2,592	9,315	1,296	8,694	1,058
		16	0.13	10,301	1,791	9,064	1,576	8,652	1,504	12,360	2,149	7,416	1,031	7,004	852
		20	0.11	10,301	1,791	9,064	1,576	8,652	1,504	12,360	2,149	7,416	1,031	7,004	852
		30	0.1	8,239	1,290	7,415	1,161	7,003	1,096	9,887	1,547	6,179	774	5,767	632
		35	0.08	8,239	1,290	7,415	1,161	7,003	1,096	9,887	1,547	6,179	774	5,767	632
		45	0.06	6,592	825	5,933	743	5,603	702	7,910	990	4,945	499	4,614	401
	0.3	8	0.24	12,420	2,160	11,178	1,944	10,557	1,836	14,904	2,592	9,315	1,296	8,694	1,058
		12	0.22	12,420	2,160	11,178	1,944	10,557	1,836	14,904	2,592	9,315	1,296	8,694	1,058
		16	0.2	10,301	1,791	9,064	1,576	8,652	1,504	12,360	2,149	7,416	1,031	7,004	852
		20	0.18	10,301	1,791	9,064	1,576	8,652	1,504	12,360	2,149	7,416	1,031	7,004	852
		30	0.16	8,239	1,290	7,415	1,161	7,003	1,096	9,887	1,547	6,179	774	5,767	632
		35	0.14	8,239	1,290	7,415	1,161	7,003	1,096	9,887	1,547	6,179	774	5,767	632
		45	0.12	6,592	825	5,933	743	5,603	702	7,910	990	4,945	499	4,614	401
	0.5	12	0.35	12,420	2,160	11,178	1,944	10,557	1,836	14,904	2,592	9,315	1,296	8,694	1,058
		16	0.25	10,301	1,791	9,064	1,576	8,652	1,504	12,360	2,149	7,416	1,031	7,004	852
		20	0.2	10,301	1,791	9,064	1,576	8,652	1,504	12,360	2,149	7,416	1,031	7,004	852
		30	0.15	8,239	1,290	7,415	1,161	7,003	1,096	9,887	1,547	6,179	774	5,767	632
		35	0.1	8,239	1,290	7,415	1,161	7,003	1,096	9,887	1,547	6,179	774	5,767	632
		45	0.05	6,592	825	5,933	743	5,603	702	7,910	990	4,945	499	4,614	401

【Note】Please refer to P517

Recommended Cutting Data（General type）

SPM200-RN2

2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
Mill Dia. (mm)	r (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
4	1	12	0.4	12,420	2,160	11,178	1,944	10,557	1,836	14,904	2,592	9,315	1,296	8,694	1,058
		16	0.29	10,301	1,791	9,064	1,576	8,652	1,504	12,360	2,149	7,416	1,031	7,004	852
		20	0.23	10,301	1,791	9,064	1,576	8,652	1,504	12,360	2,149	7,416	1,031	7,004	852
		30	0.17	8,239	1,290	7,415	1,161	7,003	1,096	9,887	1,547	6,179	774	5,767	632
		35	0.12	8,239	1,290	7,415	1,161	7,003	1,096	9,887	1,547	6,179	774	5,767	632
		45	0.06	6,592	825	5,933	743	5,603	702	7,910	990	4,945	499	4,614	401
5	0.1	20	0.08	9,885	2,149	8,896	1,934	8,402	1,826	11,861	2,579	7,413	1,290	6,919	1,053
		40	0.06	8,901	1,733	8,011	1,561	7,566	1,473	10,681	2,081	6,676	1,040	6,231	850
	0.2	20	0.16	9,885	2,149	8,896	1,934	8,402	1,826	11,861	2,579	7,413	1,290	6,919	1,053
		40	0.13	8,901	1,733	8,011	1,561	7,566	1,473	10,681	2,081	6,676	1,040	6,231	850
	0.3	20	0.24	9,885	2,149	8,896	1,934	8,402	1,826	11,861	2,579	7,413	1,290	6,919	1,053
		40	0.2	8,901	1,733	8,011	1,561	7,566	1,473	10,681	2,081	6,676	1,040	6,231	850
	0.5	20	0.35	9,885	2,149	8,896	1,934	8,402	1,826	11,861	2,579	7,413	1,290	6,919	1,053
		40	0.135	8,901	1,733	8,011	1,561	7,566	1,473	10,681	2,081	6,676	1,040	6,231	850
	1	20	0.4	9,885	2,149	8,896	1,934	8,402	1,826	11,861	2,579	7,413	1,290	6,919	1,053
		40	0.15	8,901	1,733	8,011	1,561	7,566	1,473	10,681	2,081	6,676	1,040	6,231	850
6	0.1	12	0.08	8,239	2,149	7,415	1,934	7,003	1,827	9,887	2,579	6,179	1,290	5,767	1,053
		18	0.065	8,239	2,149	7,415	1,934	7,003	1,827	9,887	2,579	6,179	1,290	5,767	1,053
		24	0.06	8,239	2,149	7,415	1,934	7,003	1,827	9,887	2,579	6,179	1,290	5,767	1,053
		35	0.05	7,411	1,740	6,670	1,566	6,299	1,479	8,893	2,088	5,558	1,044	5,188	852
		55	0.04	5,765	1,354	5,189	1,219	4,901	1,150	6,918	1,625	4,325	812	4,036	663
	0.2	12	0.16	8,239	2,149	7,415	1,934	7,003	1,827	9,887	2,579	6,179	1,290	5,767	1,053
		18	0.14	8,239	2,149	7,415	1,934	7,003	1,827	9,887	2,579	6,179	1,290	5,767	1,053
		24	0.13	8,239	2,149	7,415	1,934	7,003	1,827	9,887	2,579	6,179	1,290	5,767	1,053
		35	0.11	7,411	1,740	6,670	1,566	6,299	1,479	8,893	2,088	5,558	1,044	5,188	852
		55	0.08	5,765	1,354	5,189	1,219	4,901	1,150	6,918	1,625	4,325	812	4,036	663
	0.3	12	0.24	8,239	2,149	7,415	1,934	7,003	1,827	9,887	2,579	6,179	1,290	5,767	1,053
		18	0.22	8,239	2,149	7,415	1,934	7,003	1,827	9,887	2,579	6,179	1,290	5,767	1,053
		24	0.2	8,239	2,149	7,415	1,934	7,003	1,827	9,887	2,579	6,179	1,290	5,767	1,053
		35	0.18	7,411	1,740	6,670	1,566	6,299	1,479	8,893	2,088	5,558	1,044	5,188	852
		55	0.14	5,765	1,354	5,189	1,219	4,901	1,150	6,918	1,625	4,325	812	4,036	663

【Note】Please refer to P517

Recommended Cutting Data（General type）

SPM200-RN2

2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
Mill Dia. (mm)	r (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
6	0.5	18	0.35	8,239	2,149	7,415	1,934	7,003	1,827	9,887	2,579	6,179	1,290	5,767	1,053
		24	0.29	8,239	2,149	7,415	1,934	7,003	1,827	9,887	2,579	6,179	1,290	5,767	1,053
		35	0.24	7,411	1,740	6,670	1,566	6,299	1,479	8,893	2,088	5,558	1,044	5,188	852
		55	0.165	5,765	1,354	5,189	1,219	4,901	1,150	6,918	1,625	4,325	812	4,036	663
	1	18	0.4	8,239	2,149	7,415	1,934	7,003	1,827	9,887	2,579	6,179	1,290	5,767	1,053
		24	0.35	8,239	2,149	7,415	1,934	7,003	1,827	9,887	2,579	6,179	1,290	5,767	1,053
		35	0.28	7,411	1,740	6,670	1,566	6,299	1,479	8,893	2,088	5,558	1,044	5,188	852
		55	0.2	5,765	1,354	5,189	1,219	4,901	1,150	6,918	1,625	4,325	812	4,036	663

【Note】
1. For different materials, adjust the cutting depth (ap) according to the cutting depth factors in the above table. E.g. for hardened steels (45～55HRC), ap*0.65.
2. Use the appropriate coolant such as air cooling or emulsion for the work material and machining shape.
3. In actual machining, the condition should be adjusted according to the machining shape, purpose and the machine type.
4. If the rpm of the machine is low, lower the feed rate also to put the rpm and feed rate in the same ratio.

Recommended Cutting Data（High Precision）

SPM200-RN2

2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
Mill Dia. (mm)	r (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
0.2	0.02	0.5	0.016	45,000	232	45,000	207	45,000	185	45,000	276	45,000	162	45,000	144
		1	0.011	45,000	232	45,000	207	45,000	185	45,000	276	45,000	162	45,000	144
		2	0.007	37,800	182	34,020	163	33,030	158	45,000	221	33,030	146	33,030	132
	0.05	0.5	0.02	45,000	232	45,000	207	45,000	185	45,000	276	45,000	162	45,000	144
		1	0.014	45,000	232	45,000	207	45,000	185	45,000	276	45,000	162	45,000	144
		1.5	0.008	45,000	216	43,740	201	41,310	182	45,000	248	41,310	153	41,310	138
		2	0.008	37,800	182	34,020	163	33,030	158	45,000	221	33,030	146	33,030	132
0.3	0.02	1	0.016	45,000	527	45,000	464	45,000	410	45,000	626	45,000	302	45,000	288
		2	0.011	40,500	477	40,500	414	40,500	378	40,500	558	40,500	270	40,500	261
		3	0.007	31,500	371	31,500	322	31,500	293	36,000	454	27,000	180	27,000	175
	0.05	1	0.021	45,000	527	45,000	464	45,000	410	45,000	626	45,000	302	45,000	288
		1.5	0.016	45,000	527	40,500	464	40,500	410	45,000	626	40,500	302	40,500	288
		2	0.012	40,500	477	40,500	414	40,500	378	40,500	558	40,500	270	40,500	261
		2.5	0.01	36,000	424	36,000	368	36,000	336	36,000	496	36,000	240	36,000	232
		3	0.008	31,500	371	31,500	322	31,500	293	36,000	454	27,000	180	27,000	175
0.4	0.02	1	0.016	45,000	522	45,000	466	45,000	415	45,000	622	36,000	288	32,400	243
		2	0.013	40,500	468	40,500	423	40,500	369	40,500	558	32,400	261	30,600	216
		3	0.01	36,000	369	36,000	333	36,000	297	36,000	432	29,520	216	23,040	180
		4	0.007	27,000	288	27,000	252	27,000	225	27,000	333	19,440	144	17,280	135
	0.05	1	0.025	45,000	522	45,000	466	45,000	415	45,000	622	36,000	288	32,400	243
		1.5	0.02	45,000	522	45,000	466	45,000	415	45,000	622	36,000	288	32,400	243
		2	0.016	40,500	468	40,500	423	40,500	369	40,500	558	32,400	261	30,600	216
		2.5	0.015	36,450	432	36,450	360	36,450	333	36,450	504	30,060	243	27,540	198
		3	0.014	36,000	369	36,000	333	36,000	297	36,000	432	29,520	216	23,040	180
		3.5	0.012	32,400	342	32,400	288	32,400	270	32,400	378	26,460	180	20,628	162
		4	0.008	27,000	288	27,000	252	27,000	225	27,000	333	19,440	144	17,280	135
	0.1	1	0.033	45,000	522	45,000	466	45,000	415	45,000	622	36,000	288	32,400	243
		2	0.028	40,500	468	40,500	423	40,500	369	40,500	558	32,400	261	30,600	216
		3	0.016	36,000	369	36,000	333	36,000	297	36,000	432	29,520	216	23,040	180
		4	0.01	27,000	288	27,000	252	27,000	225	27,000	333	19,440	144	17,280	135
0.5	0.02	1	0.016	45,000	808	45,000	680	36,000	418	45,000	963	27,000	340	25,200	284
		2	0.013	45,000	808	45,000	680	36,000	418	45,000	963	27,000	340	25,200	284

【Note】Please refer to P528

Recommended Cutting Data（High Precision）

SPM200-RN2

2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
Mill Dia. (mm)	r (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
0.5	0.02	3	0.01	40,500	729	40,500	616	32,400	373	40,500	864	24,300	284	22,050	235
		4	0.008	36,000	648	36,000	543	28,800	340	36,000	765	21,600	251	18,000	211
		6	0.006	25,920	432	21,600	342	17,460	234	27,000	513	16,200	225	13,500	180
	0.05	1	0.03	45,000	808	45,000	680	36,000	418	45,000	963	27,000	340	25,200	284
		2	0.023	45,000	808	45,000	680	36,000	418	45,000	963	27,000	340	25,200	284
		3	0.017	40,500	729	40,500	616	32,400	373	40,500	864	24,300	284	22,050	235
		4	0.017	36,000	648	36,000	543	28,800	340	36,000	765	21,600	251	18,000	211
		5	0.011	25,920	486	21,600	342	17,460	252	27,000	576	16,200	225	13,500	180
		6	0.008	25,920	432	21,600	342	17,460	234	27,000	513	16,200	225	13,500	180
	0.1	1	0.035	45,000	808	45,000	680	36,000	418	45,000	963	27,000	340	25,200	284
		2	0.03	45,000	808	45,000	680	36,000	418	45,000	963	27,000	340	25,200	284
		3	0.02	40,500	729	40,500	616	32,400	373	40,500	864	24,300	284	22,050	235
		4	0.02	36,000	648	36,000	543	28,800	340	36,000	765	21,600	251	18,000	211
		5	0.013	25,920	486	21,600	342	17,460	252	27,000	576	16,200	225	13,500	180
		6	0.013	25,920	432	21,600	342	17,460	234	27,000	513	16,200	225	13,500	180
0.6	0.02	2	0.016	45,000	1,043	42,120	828	34,047	540	45,000	1,242	25,380	351	20,700	288
		4	0.013	36,000	747	31,050	558	25,020	396	36,000	882	21,240	252	18,900	207
		6	0.01	21,600	441	18,000	324	16,200	270	27,000	522	16,020	216	13,500	189
	0.05	2	0.028	45,000	1,043	42,120	828	34,047	540	45,000	1,242	25,380	351	20,700	288
		4	0.019	36,000	747	31,050	558	25,020	396	36,000	882	21,240	252	18,900	207
		6	0.012	21,600	441	18,000	324	16,200	270	27,000	522	16,020	216	13,500	189
		8	0.01	21,600	419	18,000	308	16,200	257	27,000	496	16,020	205	13,500	180
		10	0.007	21,600	406	18,000	298	16,200	248	27,000	481	16,020	199	13,500	174
	0.1	2	0.035	45,000	1,043	42,120	828	34,047	540	45,000	1,242	25,380	351	20,700	288
		4	0.024	36,000	747	31,050	558	25,020	396	36,000	882	21,240	252	18,900	207
		6	0.015	21,600	441	18,000	324	16,200	270	27,000	522	16,020	216	13,500	189
		8	0.013	21,600	419	18,000	308	16,200	257	27,000	496	16,020	205	13,500	180
		10	0.009	21,600	406	18,000	298	16,200	248	27,000	481	16,020	199	13,500	174
0.7	0.05	4	0.024	36,000	747	31,050	558	25,020	396	36,000	882	21,240	252	18,900	207
		6	0.015	21,600	441	18,000	324	16,200	270	27,000	522	16,020	216	13,500	189
	0.1	4	0.029	36,000	747	31,050	558	25,020	396	36,000	882	21,240	252	18,900	207
		6	0.018	21,600	441	18,000	324	16,200	270	27,000	522	16,020	216	13,500	189

【Note】Please refer to P528

Recommended Cutting Data（High Precision）

SPM200-RN2

2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
Mill Dia. (mm)	r (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
0.8	0.02	4	0.016	43,200	992	32,400	675	25,200	466	45,000	1,181	18,000	288	18,000	259
		6	0.013	34,830	720	23,400	477	22,500	415	36,000	855	16,200	259	16,200	230
	0.05	4	0.026	43,200	992	32,400	675	25,200	466	45,000	1,181	18,000	288	18,000	259
		6	0.015	34,830	720	23,400	477	22,500	415	36,000	855	16,200	259	16,200	230
		8	0.012	26,123	540	18,720	382	18,000	332	27,000	642	14,580	233	14,580	207
		12	0.01	26,123	513	18,720	363	18,000	315	27,000	609	14,580	221	14,580	197
	0.1	4	0.032	43,200	992	32,400	675	25,200	466	45,000	1,181	18,000	288	18,000	259
		6	0.019	34,830	720	23,400	477	22,500	415	36,000	855	16,200	259	16,200	230
		8	0.015	26,123	540	18,720	382	18,000	332	27,000	642	14,580	233	14,580	207
		12	0.012	26,123	513	18,720	363	18,000	315	27,000	609	14,580	221	14,580	197
	0.2	4	0.056	43,200	992	32,400	675	25,200	466	45,000	1,181	18,000	288	18,000	259
		6	0.032	34,830	720	23,400	477	22,500	415	36,000	855	16,200	259	16,200	230
		8	0.018	26,123	540	18,720	382	18,000	332	27,000	642	14,580	233	14,580	207
		12	0.015	26,123	513	18,720	363	18,000	315	27,000	609	14,580	221	14,580	197
1	0.02	2	0.016	32,101	1,412	28,868	1,270	27,265	1,091	38,408	1,689	24,057	866	22,453	718
		4	0.013	29,160	1,223	26,244	1,101	24,786	935	34,992	1,467	21,870	734	20,412	599
		6	0.01	23,620	891	21,258	802	20,076	758	28,344	1,070	17,715	594	16,534	485
		8	0.008	20,995	792	18,896	713	17,846	673	25,195	950	15,746	528	14,697	431
		10	0.006	18,371	693	16,534	624	15,615	590	19,596	832	13,778	463	12,859	377
		12	0.005	16,330	548	14,697	493	13,880	408	19,596	657	12,247	359	11,431	288
	0.05	2	0.046	32,101	1,412	28,868	1,270	27,229	1,089	38,408	1,689	24,057	866	22,453	718
		3	0.035	30,618	1,316	27,556	1,185	27,265	1,091	36,716	1,579	22,964	780	21,433	643
		4	0.027	29,160	1,223	26,244	1,101	26,025	1,015	34,992	1,467	21,870	734	20,412	599
		5	0.021	25,981	1,039	23,384	935	24,786	935	31,242	1,249	19,486	654	18,187	535
		6	0.017	23,620	891	21,258	802	22,084	835	28,344	1,070	17,715	594	16,534	485
		8	0.016	20,995	792	18,896	713	17,846	673	25,195	950	15,746	528	14,697	431
		10	0.011	18,371	693	16,534	624	15,615	590	22,045	832	13,778	463	12,859	377
		12	0.01	16,330	548	14,697	493	13,880	408	19,596	657	12,247	359	11,431	288
		16	0.006	16,330	480	14,697	431	13,880	378	19,596	575	12,247	308	11,431	239
		20	0.004	12,247	359	11,022	323	10,410	284	14,697	431	9,185	231	8,573	180
	0.1	2	0.065	32,101	1,412	28,868	1,270	27,265	1,091	38,408	1,689	24,057	866	22,453	718
		3	0.05	30,618	1,316	27,556	1,185	26,025	1,015	36,716	1,579	22,964	780	21,433	643

【Note】Please refer to P528

Recommended Cutting Data（High Precision）

SPM200-RN2

2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
Mill Dia. (mm)	r (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
1	0.1	4	0.038	29,160	1,223	26,244	1,101	24,786	935	34,992	1,467	21,870	734	20,412	599
		5	0.03	25,981	1,039	23,384	935	22,084	835	31,242	1,249	19,486	654	18,187	535
		6	0.024	23,620	891	21,258	802	20,076	758	28,344	1,070	17,715	594	16,534	485
		8	0.024	20,995	792	18,896	713	17,846	673	25,195	950	15,746	528	14,697	431
		10	0.015	18,371	693	16,534	624	15,615	590	22,045	832	13,778	463	12,859	377
		12	0.015	16,330	548	14,697	493	13,880	408	19,596	657	12,247	359	11,431	288
		16	0.009	16,330	480	14,697	431	13,880	378	19,596	575	12,247	308	11,431	239
		20	0.006	12,247	359	11,022	323	10,410	284	14,697	431	9,185	231	8,573	180
	0.2	2	0.11	32,101	1,412	28,868	1,270	27,265	1,091	38,408	1,689	24,057	866	22,453	718
		3	0.09	30,618	1,316	27,556	1,185	26,025	1,015	36,716	1,579	22,964	780	21,433	643
		4	0.07	29,160	1,223	26,244	1,101	24,786	935	34,992	1,467	21,870	734	20,412	599
		5	0.05	25,981	1,039	23,384	935	22,084	835	31,242	1,249	19,486	654	18,187	535
		6	0.04	23,620	891	21,258	802	20,076	758	28,344	1,070	17,715	594	16,534	485
		8	0.04	20,995	792	18,896	713	17,846	673	25,195	950	15,746	528	14,697	431
		10	0.025	18,371	693	16,534	624	15,615	590	22,045	832	13,778	463	12,859	377
		12	0.025	16,330	548	14,697	493	13,880	408	19,596	657	12,247	359	11,431	288
		16	0.015	16,330	480	14,697	431	13,880	378	19,596	575	12,247	308	11,431	239
		20	0.01	12,247	359	11,022	323	10,410	284	14,697	431	9,185	231	8,573	180
	0.3	2	0.11	32,101	1,412	28,868	1,270	27,265	1,091	38,408	1,689	24,057	866	22,453	718
		3	0.09	30,618	1,316	27,556	1,185	26,025	1,015	36,716	1,579	22,964	780	21,433	643
		4	0.07	29,160	1,223	26,244	1,101	24,786	935	34,992	1,467	21,870	734	20,412	599
		5	0.05	25,981	1,039	23,384	935	22,084	835	31,242	1,249	19,486	654	18,187	535
		6	0.04	23,620	891	21,258	802	20,076	758	28,344	1,070	17,715	594	16,534	485
		8	0.04	20,995	792	18,896	713	17,846	673	25,195	950	15,746	528	14,697	431
		10	0.025	18,371	693	16,534	624	15,615	590	22,045	832	13,778	463	12,859	377
		12	0.025	16,330	548	14,697	493	13,880	408	19,596	657	12,247	359	11,431	288
		16	0.015	16,330	480	14,697	431	13,880	378	19,596	575	12,247	308	11,431	239
		20	0.01	12,247	359	11,022	323	10,410	284	14,697	431	9,185	231	8,573	180
1.25	0.1	5	0.03	25,981	1,039	23,384	935	22,084	835	31,242	1,249	19,486	654	18,187	535
		10	0.015	18,371	693	16,534	624	15,615	590	22,045	832	13,778	463	12,859	377
		15	0.01	16,330	480	14,697	493	13,880	408	19,596	575	12,247	308	11,431	239
		20	0.006	12,247	359	11,022	323	10,410	284	14,697	431	9,185	231	8,573	180

【Note】Please refer to P528

Recommended Cutting Data（High Precision）

SPM200-RN2

2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
Mill Dia. (mm)	r (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
1.25	0.2	5	0.05	25,981	1,039	23,384	935	22,084	835	31,242	1,249	19,486	654	18,187	535
		10	0.025	18,371	693	16,534	624	15,615	590	22,045	832	13,778	463	12,859	377
		15	0.016	16,330	480	14,697	493	13,880	408	19,596	575	12,247	308	11,431	239
		20	0.01	12,247	359	11,022	323	10,410	284	14,697	431	9,185	231	8,573	180
	0.3	5	0.05	25,981	1,039	23,384	935	22,084	835	31,242	1,249	19,486	654	18,187	535
		10	0.025	18,371	693	16,534	624	15,615	590	22,045	832	13,778	463	12,859	377
		15	0.016	16,330	480	14,697	493	13,880	408	19,596	575	12,247	308	11,431	239
		20	0.01	12,247	359	11,022	323	10,410	284	14,697	431	9,185	231	8,573	180
1.5	0.1	4	0.042	22,437	1,017	20,208	915	18,860	852	26,944	1,220	16,840	677	15,628	550
		6	0.04	21,401	967	19,299	872	18,344	829	25,605	1,157	16,051	644	14,904	524
		8	0.036	20,412	924	18,371	832	17,350	786	24,494	1,110	15,309	617	14,288	503
		12	0.036	16,330	740	14,697	666	13,880	628	19,596	887	12,247	493	11,431	402
		15	0.023	12,701	511	11,431	460	10,796	381	15,241	614	9,526	336	8,890	268
		20	0.018	12,701	511	11,431	460	10,796	381	15,241	614	9,526	336	8,890	268
	0.2	4	0.07	22,437	1,017	20,208	915	18,860	781	26,944	1,220	16,840	610	15,628	500
		6	0.065	21,401	967	19,299	872	18,344	829	25,605	1,157	16,051	644	14,904	524
		8	0.06	20,412	924	18,371	832	17,350	786	24,494	1,110	15,309	617	14,288	503
		12	0.06	16,330	740	14,697	666	13,880	628	19,596	887	12,247	493	11,431	402
		15	0.038	12,701	511	11,431	460	10,796	381	15,241	614	9,526	336	8,890	268
		20	0.03	12,701	511	11,431	460	10,796	381	15,241	614	9,526	336	8,890	268
	0.3	4	0.07	22,437	1,017	20,208	915	18,860	781	26,944	1,220	16,840	610	15,628	500
		6	0.065	21,401	967	19,299	872	18,344	829	25,605	1,157	16,051	644	14,904	524
		8	0.06	20,412	924	18,371	832	17,350	786	24,494	1,110	15,309	617	14,288	503
		12	0.06	16,330	740	14,697	666	13,880	628	19,596	887	12,247	493	11,431	402
		15	0.038	12,701	511	11,431	460	10,796	381	15,241	614	9,526	336	8,890	268
		20	0.03	12,701	511	11,431	460	10,796	381	15,241	614	9,526	336	8,890	268
	0.5	4	0.085	22,437	1,017	20,208	915	18,860	781	26,944	1,220	16,840	610	15,628	500
		6	0.08	21,401	967	19,299	872	18,344	829	25,605	1,157	16,051	644	14,904	524
		8	0.07	20,412	924	18,371	832	17,350	786	24,494	1,110	15,309	617	14,288	503
		12	0.065	16,330	740	14,697	666	13,880	628	19,596	887	12,247	493	11,431	402
		15	0.045	12,701	511	11,431	460	10,796	381	15,241	614	9,526	336	8,890	268
		20	0.035	12,701	511	11,431	460	10,796	381	15,241	614	9,526	336	8,890	268

【Note】Please refer to P528

Recommended Cutting Data（High Precision）

SPM200-RN2
2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
Mill Dia. (mm)	r (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
1.75	0.1	5	0.04	22,437	1,017	20,208	915	18,860	781	26,944	1,220	16,840	610	15,628	500
		10	0.036	20,412	924	18,371	832	17,350	786	24,494	1,110	15,309	617	14,288	503
		15	0.023	12,701	511	11,431	460	10,796	381	15,241	614	9,526	336	8,890	268
		20	0.018	12,701	511	11,431	460	10,796	381	15,241	614	9,526	336	8,890	268
	0.2	5	0.065	22,437	1,017	20,208	915	18,860	781	26,944	1,220	16,840	610	15,628	500
		10	0.06	20,412	924	18,371	832	17,350	786	24,494	1,110	15,309	617	14,288	503
		15	0.038	12,701	511	11,431	460	10,796	381	15,241	614	9,526	336	8,890	268
		20	0.03	12,701	511	11,431	460	10,796	381	15,241	614	9,526	336	8,890	268
	0.3	5	0.065	22,437	1,017	20,208	915	18,860	781	26,944	1,220	16,840	610	15,628	500
		10	0.06	20,412	924	18,371	832	17,350	786	24,494	1,110	15,309	617	14,288	503
		15	0.038	12,701	511	11,431	460	10,796	381	15,241	614	9,526	336	8,890	268
		20	0.03	12,701	511	11,431	460	10,796	381	15,241	614	9,526	336	8,890	268
2	0.1	4	0.08	19,777	1,554	17,771	1,396	16,624	1,306	23,503	1,847	14,761	930	13,757	756
		6	0.07	18,711	1,472	16,840	1,324	15,905	1,250	22,453	1,766	14,034	883	13,098	721
		8	0.055	17,010	1,337	15,309	1,203	14,459	1,137	20,412	1,605	12,758	803	11,907	655
		12	0.03	13,778	975	12,400	878	11,712	829	16,534	1,170	10,334	650	9,644	531
		16	0.03	12,247	867	11,022	780	10,410	736	14,697	1,040	9,185	578	8,573	472
		20	0.025	10,716	759	9,644	682	9,109	644	12,859	910	8,037	506	7,502	413
		25	0.015	10,716	681	9,644	613	9,109	579	12,859	817	8,037	455	7,502	370
		30	0.01	10,181	647	9,162	582	8,654	550	12,217	777	7,636	432	7,126	352
	0.2	4	0.1	19,777	1,554	17,771	1,396	16,624	1,306	23,503	1,847	14,761	930	13,757	756
		6	0.08	18,711	1,472	16,840	1,324	15,905	1,250	22,453	1,766	14,034	883	13,098	721
		8	0.07	17,010	1,337	15,309	1,203	14,459	1,137	20,412	1,605	12,758	803	11,907	655
		12	0.04	13,778	975	12,400	878	11,712	829	16,534	1,170	10,334	650	9,644	531
		16	0.04	12,247	867	11,022	780	10,410	736	14,697	1,040	9,185	578	8,573	472
		20	0.035	10,716	759	9,644	682	9,109	644	12,859	910	8,037	506	7,502	413
		25	0.025	10,716	681	9,644	613	9,109	579	12,859	817	8,037	455	7,502	370
		30	0.017	10,181	647	9,162	582	8,654	550	12,217	777	7,636	432	7,126	352
	0.3	4	0.13	19,777	1,554	17,771	1,396	16,624	1,306	23,503	1,847	14,761	930	13,757	756
		6	0.11	18,711	1,472	16,840	1,324	15,905	1,250	22,453	1,766	14,034	883	13,098	721
		8	0.09	17,010	1,337	15,309	1,203	14,459	1,137	20,412	1,605	12,758	803	11,907	655
		12	0.06	13,778	975	12,400	878	11,712	829	16,534	1,300	10,334	650	9,644	531

【Note】Please refer to P528

Recommended Cutting Data（High Precision）

SPM200-RN2

2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
Mill Dia. (mm)	r (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
2	0.3	16	0.06	12,247	867	11,022	780	10,410	736	14,697	1,156	9,185	578	8,573	472
		20	0.037	10,716	759	9,644	682	9,109	644	12,859	1,011	8,037	506	7,502	413
		25	0.03	10,716	681	9,644	613	9,109	579	12,859	817	8,037	455	7,502	370
		30	0.021	10,181	647	9,162	582	8,654	550	12,217	777	7,636	432	7,126	352
	0.5	6	0.17	18,711	1,472	16,840	1,324	15,905	1,250	22,453	1,766	14,034	883	13,098	721
		8	0.14	17,010	1,337	15,309	1,203	14,459	1,137	20,412	1,605	12,758	803	11,907	655
		12	0.08	13,778	975	12,400	878	11,712	921	16,534	1,300	10,334	650	9,644	531
		16	0.08	12,247	867	11,022	780	10,410	736	14,697	1,156	9,185	578	8,573	472
		20	0.05	10,716	759	9,644	682	9,109	644	12,859	1,011	8,037	506	7,502	413
		25	0.05	10,716	681	9,644	613	9,109	579	12,859	817	8,037	455	7,502	370
		30	0.03	10,181	647	9,162	582	8,654	550	12,217	777	7,636	432	7,126	352
	0.8	6	0.22	18,711	1,472	16,840	1,324	15,905	1,250	22,453	1,766	14,034	883	13,098	721
		8	0.2	17,010	1,337	15,309	1,203	14,459	1,137	20,412	1,605	12,758	803	11,907	655
		12	0.13	13,778	975	12,400	878	11,712	829	16,534	1,300	10,334	650	9,644	531
		16	0.1	12,247	867	11,022	780	10,410	736	14,697	1,156	9,185	578	8,573	472
		20	0.06	10,716	759	9,644	682	9,109	644	12,859	1,011	8,037	506	7,502	413
		25	0.057	10,716	681	9,644	613	9,109	579	12,859	817	8,037	455	7,502	370
		30	0.045	10,181	647	9,162	582	8,654	550	12,217	777	7,636	432	7,126	352
2.5	0.1	10	0.055	17,010	1,337	15,309	1,203	14,459	1,137	20,412	1,605	12,758	803	11,907	655
		20	0.03	12,247	867	11,022	780	10,410	736	14,697	1,156	9,185	578	8,573	472
		30	0.015	10,716	681	9,644	613	9,109	579	12,859	907	8,037	455	7,502	370
	0.2	10	0.07	17,010	1,337	15,309	1,203	14,459	1,137	20,412	1,605	12,758	803	11,907	655
		20	0.04	12,247	867	11,022	780	10,410	736	14,697	1,156	9,185	578	8,573	472
		30	0.025	10,716	681	9,644	613	9,109	579	12,859	907	8,037	455	7,502	370
	0.3	10	0.09	17,010	1,337	15,309	1,203	14,459	1,137	20,412	1,605	12,758	803	11,907	655
		20	0.06	12,247	867	11,022	780	10,410	736	14,697	1,156	9,185	578	8,573	472
		30	0.03	10,716	681	9,644	613	9,109	579	12,859	907	8,037	455	7,502	370
	0.5	10	0.14	17,010	1,337	15,309	1,203	14,459	1,137	20,412	1,605	12,758	803	11,907	655
		20	0.08	12,247	867	11,022	780	10,410	736	14,697	1,156	9,185	578	8,573	472
		30	0.05	10,716	681	9,644	613	9,109	579	12,859	907	8,037	455	7,502	370
3	0.1	6	0.08	12,960	1,274	11,664	1,147	11,016	1,083	15,552	1,528	9,720	764	9,072	624
		8	0.07	12,960	1,274	11,664	1,147	11,016	1,083	15,552	1,528	9,720	764	9,072	624

【Note】Please refer to P528

Recommended Cutting Data（High Precision）

SPM200-RN2

2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
Mill Dia. (mm)	r (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
3	0.1	12	0.05	12,960	1,274	11,664	1,147	11,016	1,083	15,552	1,528	9,720	764	9,072	624
		16	0.035	12,960	1,274	11,664	1,147	11,016	1,083	15,552	1,528	9,720	764	9,072	624
		18	0.035	11,656	1,144	10,509	1,034	9,841	966	13,948	1,369	8,789	690	8,121	558
		20	0.035	10,498	1,031	9,448	929	8,923	877	12,597	1,238	7,873	618	7,349	505
		30	0.027	8,165	721	7,349	649	6,940	613	9,797	866	6,124	432	5,715	354
		35	0.02	8,165	721	7,349	649	6,940	613	9,797	866	6,124	432	5,715	354
	0.2	6	0.1	12,960	1,274	11,664	1,147	11,016	1,083	15,552	1,528	9,720	764	9,072	624
		8	0.09	12,960	1,274	11,664	1,147	11,016	1,083	15,552	1,528	9,720	764	9,072	624
		12	0.07	12,960	1,274	11,664	1,147	11,016	1,083	15,552	1,528	9,720	764	9,072	624
		16	0.05	12,960	1,274	11,664	1,147	11,016	1,083	15,552	1,528	9,720	764	9,072	624
		18	0.05	11,656	1,144	10,509	1,034	9,841	966	13,948	1,369	8,789	690	8,121	558
		20	0.05	10,498	1,031	9,448	929	8,923	877	12,597	1,238	7,873	618	7,349	505
		30	0.04	8,165	721	7,349	649	6,940	613	9,797	866	6,124	432	5,715	354
		35	0.035	8,165	721	7,349	649	6,940	613	9,797	866	6,124	432	5,715	354
	0.3	6	0.145	12,960	1,274	11,664	1,147	11,016	1,083	15,552	1,528	9,720	764	9,072	624
		8	0.13	12,960	1,274	11,664	1,147	11,016	1,083	15,552	1,528	9,720	764	9,072	624
		12	0.1	12,960	1,274	11,664	1,147	11,016	1,083	15,552	1,528	9,720	764	9,072	624
		16	0.075	12,960	1,274	11,664	1,147	11,016	1,083	15,552	1,528	9,720	764	9,072	624
		18	0.075	11,656	1,144	10,509	1,034	9,841	966	13,948	1,369	8,789	690	8,121	558
		20	0.075	10,498	1,031	9,448	929	8,923	877	12,597	1,238	7,873	618	7,349	505
		30	0.06	8,165	721	7,349	649	6,940	613	9,797	866	6,124	432	5,715	354
		35	0.05	8,165	721	7,349	649	6,940	613	9,797	866	6,124	432	5,715	354
	0.5	8	0.18	12,960	1,274	11,664	1,147	11,016	1,083	15,552	1,528	9,720	764	9,072	624
		12	0.13	12,960	1,274	11,664	1,147	11,016	1,083	15,552	1,528	9,720	764	9,072	624
		16	0.1	12,960	1,274	11,664	1,147	11,016	1,083	15,552	1,528	9,720	764	9,072	624
		18	0.1	11,656	1,144	10,509	1,034	9,841	966	13,948	1,369	8,789	690	8,121	558
		20	0.1	10,498	1,031	9,448	929	8,923	877	12,597	1,238	7,873	618	7,349	505
		30	0.08	8,165	721	7,349	649	6,940	613	9,797	866	6,124	432	5,715	354
		35	0.065	8,165	721	7,349	649	6,940	613	9,797	866	6,124	432	5,715	354
	1	8	0.2	12,960	1,274	11,664	1,147	11,016	1,083	15,552	1,528	9,720	764	9,072	624
		12	0.15	12,960	1,274	11,664	1,147	11,016	1,083	15,552	1,528	9,720	764	9,072	624
		16	0.12	12,960	1,274	11,664	1,147	11,016	1,083	15,552	1,528	9,720	764	9,072	624

【Note】Please refer to P528

Recommended Cutting Data（High Precision）

SPM200-RN2

2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
Mill Dia. (mm)	r (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
3	1	18	0.11	11,656	1,144	10,509	1,034	9,841	966	13,948	1,369	8,789	690	8,121	558
		20	0.11	10,498	1,031	9,448	929	8,923	877	12,597	1,238	7,873	618	7,349	505
		30	0.09	8,165	721	7,349	649	6,940	613	9,797	866	6,124	432	5,715	354
		35	0.075	8,165	721	7,349	649	6,940	613	9,797	866	6,124	432	5,715	354
4	0.1	8	0.08	10,092	1,755	9,082	1,580	8,578	1,492	12,110	2,106	7,569	1,053	7,064	860
		12	0.065	10,092	1,755	9,082	1,580	8,578	1,492	12,110	2,106	7,569	1,053	7,064	860
		16	0.06	9,230	1,605	8,240	1,433	7,827	1,361	11,124	1,934	6,839	951	6,016	733
		20	0.055	9,230	1,605	8,240	1,433	7,827	1,361	11,124	1,934	6,839	951	6,016	733
		30	0.045	9,230	1,605	8,240	1,433	6,180	968	11,124	1,934	4,942	619	4,612	505
		35	0.04	9,230	1,605	8,240	1,433	6,180	968	11,124	1,934	4,942	619	4,612	505
		45	0.03	7,416	968	6,592	860	5,026	655	8,899	1,160	4,450	464	3,707	322
	0.2	8	0.16	10,092	1,755	9,082	1,580	8,578	1,492	12,110	2,106	7,569	1,053	7,064	860
		12	0.14	10,092	1,755	9,082	1,580	8,578	1,492	12,110	2,106	7,569	1,053	7,064	860
		16	0.13	9,230	1,605	8,240	1,433	7,827	1,361	11,124	1,934	6,839	951	6,016	733
		20	0.11	9,230	1,605	8,240	1,433	7,827	1,361	11,124	1,934	6,839	951	6,016	733
		30	0.1	9,230	1,605	8,240	1,433	6,180	968	11,124	1,934	4,942	619	4,612	505
		35	0.08	9,230	1,605	8,240	1,433	6,180	968	11,124	1,934	4,942	619	4,612	505
		45	0.06	7,416	968	6,592	860	5,026	655	8,899	1,160	4,450	464	3,707	322
	0.3	8	0.24	10,092	1,755	9,082	1,580	8,578	1,492	12,110	2,106	7,569	1,053	7,064	860
		12	0.22	10,092	1,755	9,082	1,580	8,578	1,492	12,110	2,106	7,569	1,053	7,064	860
		16	0.2	9,230	1,605	8,240	1,433	7,827	1,361	11,124	1,934	6,839	951	6,016	733
		20	0.18	9,230	1,605	8,240	1,433	7,827	1,361	11,124	1,934	6,839	951	6,016	733
		30	0.16	9,230	1,605	8,240	1,433	6,180	968	11,124	1,934	4,942	619	4,612	505
		35	0.14	9,230	1,605	8,240	1,433	6,180	968	11,124	1,934	4,942	619	4,612	505
		45	0.12	7,416	968	6,592	860	5,026	655	8,899	1,160	4,450	464	3,707	322
	0.5	12	0.35	10,092	1,755	9,082	1,580	8,578	1,492	12,110	2,106	7,569	1,053	7,064	860
		16	0.25	9,230	1,605	8,240	1,433	7,827	1,361	11,124	1,934	6,839	951	6,016	733
		20	0.2	9,230	1,605	8,240	1,433	7,827	1,361	11,124	1,934	6,839	951	6,016	733
		30	0.15	9,230	1,605	8,240	1,433	6,180	968	11,124	1,934	4,942	619	4,612	505
		35	0.1	9,230	1,605	8,240	1,433	6,180	968	11,124	1,934	4,942	619	4,612	505
		45	0.05	7,416	968	6,592	860	5,026	655	8,899	1,160	4,450	464	3,707	322
	1	12	0.4	10,092	1,755	9,082	1,580	8,578	1,492	12,110	2,106	7,569	1,053	7,064	860

【Note】Please refer to P528

Recommended Cutting Data（High Precision）

SPM200-RN2

2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
Mill Dia. (mm)	r (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
4	1	16	0.29	9,230	1,605	8,240	1,433	7,827	1,361	11,124	1,934	6,839	951	6,016	733
		20	0.23	9,230	1,605	8,240	1,433	7,827	1,361	11,124	1,934	6,839	951	6,016	733
		30	0.17	9,230	1,605	8,240	1,433	6,180	968	11,124	1,934	4,942	619	4,612	505
		35	0.12	9,230	1,605	8,240	1,433	6,180	968	11,124	1,934	4,942	619	4,612	505
		45	0.06	7,416	968	6,592	860	5,026	655	8,899	1,160	4,450	464	3,707	322
5	0.1	20	0.08	8,239	1,791	7,415	1,612	7,003	1,523	9,887	2,149	6,179	1,075	5,767	878
		40	0.06	5,931	1,156	5,338	1,040	5,042	982	7,116	1,386	4,449	693	4,152	566
	0.2	20	0.16	8,239	1,791	7,415	1,612	7,003	1,523	9,887	2,149	6,179	1,075	5,767	878
		40	0.13	5,931	1,156	5,338	1,040	5,042	982	7,116	1,386	4,449	693	4,152	566
	0.3	20	0.24	8,239	1,791	7,415	1,612	7,003	1,523	9,887	2,149	6,179	1,075	5,767	878
		40	0.2	5,931	1,156	5,338	1,040	5,042	982	7,116	1,386	4,449	693	4,152	566
	0.5	20	0.35	8,239	1,791	7,415	1,612	7,003	1,523	9,887	2,149	6,179	1,075	5,767	878
		40	0.135	5,931	1,156	5,338	1,040	5,042	982	7,116	1,386	4,449	693	4,152	566
	1	20	0.4	8,239	1,791	7,415	1,612	7,003	1,523	9,887	2,149	6,179	1,075	5,767	878
		40	0.15	5,931	1,156	5,338	1,040	5,042	982	7,116	1,386	4,449	693	4,152	566
6	0.1	12	0.08	6,867	1,792	6,181	1,612	5,837	1,523	8,240	2,150	5,150	1,075	4,808	878
		18	0.065	6,867	1,792	6,181	1,612	5,837	1,523	8,240	2,150	5,150	1,075	4,808	878
		24	0.06	6,867	1,792	6,181	1,612	5,837	1,523	8,240	2,150	5,150	1,075	4,808	878
		35	0.05	5,837	1,371	5,253	1,234	4,962	1,165	7,005	1,644	4,379	823	4,086	671
		55	0.04	4,942	945	4,449	851	4,201	803	5,931	1,134	3,706	561	3,460	457
	0.2	12	0.16	6,867	1,792	6,181	1,612	5,837	1,523	8,240	2,150	5,150	1,075	4,808	878
		18	0.14	6,867	1,792	6,181	1,612	5,837	1,523	8,240	2,150	5,150	1,075	4,808	878
		24	0.13	6,867	1,792	6,181	1,612	5,837	1,523	8,240	2,150	5,150	1,075	4,808	878
		35	0.11	5,837	1,371	5,253	1,234	4,962	1,165	7,005	1,644	4,379	823	4,086	671
		55	0.08	4,942	945	4,449	851	4,201	803	5,931	1,134	3,706	561	3,460	457
	0.3	12	0.24	6,867	1,792	6,181	1,612	5,837	1,523	8,240	2,150	5,150	1,075	4,808	878
		18	0.22	6,867	1,792	6,181	1,612	5,837	1,523	8,240	2,150	5,150	1,075	4,808	878
		24	0.2	6,867	1,792	6,181	1,612	5,837	1,523	8,240	2,150	5,150	1,075	4,808	878
		35	0.18	5,837	1,371	5,253	1,234	4,962	1,165	7,005	1,644	4,379	823	4,086	671
		55	0.14	4,942	945	4,449	851	4,201	803	5,931	1,134	3,706	561	3,460	457
	0.5	18	0.35	6,867	1,792	6,181	1,612	5,837	1,523	8,240	2,150	5,150	1,075	4,808	878
		24	0.29	6,867	1,792	6,181	1,612	5,837	1,523	8,240	2,150	5,150	1,075	4,808	878

【Note】Please refer to P528

Recommended Cutting Data（High Precision）

SPM200-RN2
2 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
Mill Dia. (mm)	r (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
6	0.5	35	0.24	5,837	1,371	5,253	1,234	4,962	1,165	7,005	1,644	4,379	823	4,086	671
		55	0.165	4,942	945	4,449	851	4,201	803	5,931	1,134	3,706	561	3,460	457
	1	18	0.4	6,867	1,792	6,181	1,612	5,837	1,523	8,240	2,150	5,150	1,075	4,808	878
		24	0.35	6,867	1,792	6,181	1,612	5,837	1,523	8,240	2,150	5,150	1,075	4,808	878
		35	0.28	5,837	1,371	5,253	1,234	4,962	1,165	7,005	1,644	4,379	823	4,086	671
		55	0.2	4,942	945	4,449	851	4,201	803	5,931	1,134	3,706	561	3,460	457

【Note】
1. For different materials, adjust the cutting depth (ap) according to the cutting depth factors in the above table. E.g. for hardened steels (45～55HRC), ap*0.65.
2. Use the appropriate coolant such as air cooling or emulsion for the work material and machining shape.
3. In actual machining, the condition should be adjusted according to the machining shape, purpose and the machine type.
4. If the rpm of the machine is low, lower the feed rate also to put the rpm and feed rate in the same ratio.

Recommended Cutting Data（High Precision）

SPM200-RN4

4 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
Mill Dia. (mm)	r (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
1	0.05	4	0.012	31,120	1,952	28,008	1,757	26,608	1,669	38,900	2,440	23,947	1,230	22,749	1,000
		6	0.01	25,200	1,424	22,680	1,282	21,546	1,218	31,500	1,780	19,391	990	18,422	810
		8	0.008	22,400	1,264	20,160	1,138	19,152	1,081	28,000	1,580	17,237	880	16,375	720
		10	0.005	19,600	1,112	17,640	1,001	16,758	951	24,500	1,390	15,082	770	14,328	630
		12	0.004	17,440	880	15,696	792	14,911	752	21,800	1,100	13,420	600	12,749	480
		16	0.003	17,440	768	15,696	691	14,911	657	21,800	960	13,420	510	12,749	400
		20	0.002	13,040	576	11,736	518	11,149	492	16,300	720	10,034	385	9,533	300
	0.1	4	0.02	31,120	1,952	28,008	1,757	26,608	1,669	38,900	2,440	23,947	1,230	22,749	1,000
		6	0.018	25,200	1,424	22,680	1,282	21,546	1,218	31,500	1,780	19,391	990	18,422	810
		8	0.014	22,400	1,264	20,160	1,138	19,152	1,081	28,000	1,580	17,237	880	16,375	720
		10	0.01	19,600	1,112	17,640	1,001	16,758	951	24,500	1,390	15,082	770	14,328	630
		12	0.008	17,440	880	15,696	792	14,911	752	21,800	1,100	13,420	600	12,749	480
		16	0.006	17,440	768	15,696	691	14,911	657	21,800	960	13,420	510	12,749	400
		20	0.004	13,040	576	11,736	518	11,149	492	16,300	720	10,034	385	9,533	300
1.5	0.05	4	0.02	23,920	1,624	21,528	1,462	20,452	1,389	29,900	2,030	18,406	1,020	17,486	830
		8	0.014	21,760	1,480	19,584	1,332	18,605	1,265	27,200	1,850	16,744	1,030	15,907	840
		12	0.007	17,440	1,184	15,696	1,066	14,911	1,012	21,800	1,480	13,420	820	12,749	670
		15	0.006	13,520	816	12,168	734	11,560	698	16,900	1,020	10,404	560	9,883	450
		20	0.004	13,520	816	12,168	734	11,560	698	16,900	1,020	10,404	560	9,883	450
	0.1	4	0.027	23,920	1,624	21,528	1,462	20,452	1,389	29,900	2,030	18,406	1,020	17,486	830
		8	0.02	21,760	1,480	19,584	1,332	18,605	1,265	27,200	1,850	16,744	1,030	15,907	840
		12	0.017	17,440	1,184	15,696	1,066	14,911	1,012	21,800	1,480	13,420	820	12,749	670
		15	0.014	13,520	816	12,168	734	11,560	698	16,900	1,020	10,404	560	9,883	450
		20	0.01	13,520	816	12,168	734	11,560	698	16,900	1,020	10,404	560	9,883	450
2	0.05	4	0.035	20,800	2,450	18,700	2,210	17,700	2,080	24,900	2,940	15,600	1,470	14,600	1,200
		6	0.03	20,800	2,450	18,700	2,210	17,700	2,080	24,900	2,940	15,600	1,470	14,600	1,200
		8	0.025	18,900	2,230	17,000	2,010	16,100	1,890	22,700	2,670	14,200	1,340	13,200	1,090
		12	0.02	15,300	1,620	13,800	1,460	13,000	1,380	18,400	1,950	11,500	1,080	10,700	890
		16	0.015	13,600	1,440	12,200	1,300	11,600	1,230	16,300	1,730	10,200	960	9,500	790
		20	0.01	11,900	1,260	10,700	1,140	10,100	1,070	14,300	1,520	8,900	840	8,300	690

【Note】Please refer to P533

Recommended Cutting Data（High Precision）

SPM200-RN4
4 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
Mill Dia. (mm)	r (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
2	0.1	4	0.042	20,800	2,450	18,700	2,210	17,700	2,080	24,900	2,940	15,600	1,470	14,600	1,200
		6	0.042	20,800	2,450	18,700	2,210	17,700	2,080	24,900	2,940	15,600	1,470	14,600	1,200
		8	0.036	18,900	2,230	17,000	2,010	16,100	1,890	22,700	2,670	14,200	1,340	13,200	1,090
		12	0.036	15,300	1,620	13,800	1,460	13,000	1,380	18,400	1,950	11,500	1,080	10,700	890
		16	0.023	13,600	1,440	12,200	1,300	11,600	1,230	16,300	1,730	10,200	960	9,500	790
		20	0.018	11,900	1,260	10,700	1,140	10,100	1,070	14,300	1,520	8,900	840	8,300	690
	0.2	4	0.08	20,800	2,450	18,700	2,210	17,700	2,080	24,900	2,940	15,600	1,470	14,600	1,200
		6	0.08	20,800	2,450	18,700	2,210	17,700	2,080	24,900	2,940	15,600	1,470	14,600	1,200
		8	0.07	18,900	2,230	17,000	2,010	16,100	1,890	22,700	2,670	14,200	1,340	13,200	1,090
		12	0.04	15,300	1,620	13,800	1,460	13,000	1,380	18,400	1,950	11,500	1,080	10,700	890
		16	0.04	13,600	1,440	12,200	1,300	11,600	1,230	16,300	1,730	10,200	960	9,500	790
		20	0.035	11,900	1,260	10,700	1,140	10,100	1,070	14,300	1,520	8,900	840	8,300	690
		25	0.025	11,900	1,260	10,700	1,140	10,100	1,070	14,300	1,520	8,900	840	8,300	690
		30	0.017	11,300	1,200	10,200	1,080	9,600	1,020	13,600	1,440	8,500	800	7,900	650
	0.3	4	0.11	20,800	2,450	18,700	2,210	17,700	2,080	24,900	2,940	15,600	1,470	14,600	1,200
		8	0.09	18,900	2,350	17,000	2,100	16,100	1,950	22,700	2,850	14,200	1,490	13,200	1,210
		12	0.06	15,300	1,810	13,800	1,620	13,000	1,530	18,400	2,170	11,500	1,200	10,700	980
		16	0.06	13,600	1,610	12,200	1,440	11,600	1,360	16,300	1,930	10,200	1,070	9,500	870
		20	0.037	11,900	1,400	10,700	1,260	10,100	1,190	14,300	1,680	8,900	940	8,300	770
	0.5	4	0.17	20,800	2450	18,700	2210	17,700	2,080	24,900	2940	15,600	1,470	14,600	1,200
		6	0.17	20,800	2450	18,700	2210	17,700	2,080	24,900	2940	15,600	1,470	14,600	1,200
		8	0.14	18,900	2350	17,000	2100	16,100	1,950	22,700	2850	14,200	1,490	13,200	1,210
		12	0.08	15,300	1810	13,800	1620	13,000	1,530	18,400	2170	11,500	1,200	10,700	980
		16	0.08	13,600	1610	12,200	1440	11,600	1,360	16,300	1930	10,200	1,070	9,500	870
		20	0.05	11,900	1400	10,700	1260	10,100	1,190	14,300	1680	8,900	940	8,300	770
		25	0.05	11,900	1400	10,700	1260	10,100	1,190	14,300	1680	8,900	940	8,300	770
		30	0.03	11,300	1330	10,200	1200	9,600	1,130	13,600	1600	8,500	850	7,900	730
2.5	0.1	8	0.047	18,900	2480	17,000	2230	16,100	2,100	22,700	2970	14,200	1,490	13,200	1,210
		16	0.037	13,600	1610	12,200	1440	11,600	1,360	16,300	1930	10,200	1,070	9,500	870
		20	0.025	11,900	1400	10,700	1260	10,100	1,190	14,300	1680	8,900	940	8,300	770

【Note】Please refer to P533

Recommended Cutting Data（High Precision）

SPM200-RN4

4 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
Mill Dia. (mm)	r (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
2.5	0.2	8	0.08	16,200	2140	14,600	1920	13,800	1,820	19,400	2570	12,200	1,280	11300	1,100
		16	0.045	14,100	1770	12,700	1600	12,000	1,510	16,900	2130	10,600	1,110	9,900	960
		20	0.042	11,800	1410	10,600	1270	10,000	1,200	14,100	1750	8,800	930	8,200	790
	0.3	12	0.09	14,800	1960	13,300	1760	12,500	1,660	17,700	2350	11,100	1,230	10,300	1,010
		20	0.052	11,800	1560	10600	1400	10,000	1330	14,100	1870	8,800	1,040	8,200	850
	0.5	12	0.1	14,800	1,960	13,300	1,760	12,500	1,660	17,700	2,350	11,100	1,230	10,300	1,010
		20	0.07	11,800	1,560	10,600	1,400	10,000	1,330	14,100	1,870	8,800	1,040	8,200	850
3	0.1	8	0.055	14,400	2,120	13,000	1,910	12,200	1,800	17,300	2,550	10,800	1,270	10,100	1,040
		16	0.035	14,400	2,120	13,000	1,910	12,200	1,800	17,300	2,550	10,800	1,270	10,100	1,040
		25	0.022	11,700	1,720	10,500	1,550	9,900	1,460	14,000	2,060	8,700	1,150	8,200	940
		30	0.014	9,100	1,720	8,200	1,550	7,700	1,460	10,900	2,060	6,800	1,150	6,400	940
	0.2	8	0.09	14,400	2,120	13,000	1,910	12,200	1,800	17,300	2,550	10,800	1,270	10,100	1,040
		12	0.07	14,400	2,120	13,000	1,910	12,200	1,800	17,300	2,550	10,800	1,270	10,100	1,040
		16	0.05	14,400	2,120	13,000	1,910	12,200	1,800	17,300	2,550	10,800	1,270	10,100	1,040
		20	0.05	11,700	1,720	10,500	1,550	9,900	1,460	14,000	2,060	8,700	1,150	8,200	940
		25	0.045	11,700	1,720	10,500	1,550	9,900	1,460	14,000	2,060	8,700	1,150	8,200	940
		30	0.04	9,100	1,720	8,200	1,550	7,700	1,460	10,900	2,060	6,800	1,150	6,400	940
	0.3	8	0.13	14,400	2,360	13,000	2,120	12,200	2,010	17,300	2,830	10,800	1,410	10,100	1,160
		16	0.075	14,400	2,360	13,000	2,120	12,200	2,010	17,300	2,830	10,800	1,410	10,100	1,160
		20	0.075	11,700	1,910	10,500	1,720	9,900	1,620	14,000	2,290	8,700	1,270	8,200	1,040
		25	0.067	11,700	1,910	10,500	1,720	9,900	1,620	14,000	2,290	8,700	1,270	8,200	1,040
		30	0.06	9,100	1,910	8,200	1,720	7,700	1,620	10,900	2,290	6,800	1,270	6,400	1,040
	0.5	8	0.18	14,400	2,360	13,000	2,120	12,200	2,010	17,300	2,830	10,800	1,410	10,100	1,160
		12	0.13	14,400	2,360	13,000	2,120	12,200	2,010	17,300	2,830	10,800	1,410	10,100	1,160
		16	0.1	14,400	2,360	13,000	2,120	12,200	2,010	17,300	2,830	10,800	1,410	10,100	1,160
		20	0.1	11,700	1,910	10,500	1,720	9,900	1,620	14,000	2,290	8,700	1,270	8,200	1,040
		25	0.09	11,700	1,910	10,500	1,720	9,900	1,620	14,000	2,290	8,700	1,270	8,200	1,040
		30	0.08	9,100	1,910	8,200	1,720	7,700	1,620	10,900	2,290	6,800	1,270	6,400	1,040
		35	0.065	9,100	1,910	8,200	1,720	7,700	1,620	10,900	2,290	6,800	1,270	6,400	1,040

【Note】Please refer to P533

Recommended Cutting Data（High Precision）

SPM200-RN4
4 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
Mill Dia. (mm)	r (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
4	0.1	12	0.065	10,400	2,790	9,300	2,520	8,800	2,240	12,400	3,350	7,800	1,750	7,200	1,300
		20	0.055	10,400	2,790	9,300	2,520	8,800	2,240	12,400	3,350	7,800	1,750	7,200	1,300
		30	0.045	9,300	2,520	8,400	2,010	7,900	1,830	11,200	3,020	7000	1,470	6500	1,170
		40	0.03	9,300	2,520	8,400	2,010	7,900	1,830	11,200	3,020	7000	1,470	6,500	1,170
	0.2	12	0.13	10,400	2,790	9,300	2,520	8,800	2,240	12,400	3,350	7,800	1,750	7,200	1,300
		20	0.1	10,400	2,790	9,300	2,520	8,800	2,240	12,400	3,350	7,800	1,750	7,200	1,300
		30	0.08	9,300	2,520	8,400	2,010	7,900	1,830	11,200	3,020	7000	1,470	6500	1,170
		40	0.06	9,300	2,520	8,400	2,010	7,900	1,830	11,200	3,020	7000	1,470	6,500	1,170
	0.3	12	0.17	10,400	2,790	9,300	2,520	8,800	2,380	12,400	3,350	7,800	1,860	7,200	1,410
		20	0.13	10,400	2,790	9,300	2,520	8,800	2,380	12,400	3,350	7,800	1,860	7,200	1,410
		30	0.1	9,300	2,520	8,400	2,260	7,900	1,900	11,200	3,020	7,000	1,570	6,500	1,170
		40	0.08	9,300	2,520	8,400	2,260	7,900	1,900	11,200	3,020	7,000	1,570	6,500	1,170
	0.5	12	0.24	10,400	2,790	9,300	2,520	8,800	2,380	12,400	3,350	7,800	1,860	7,200	1,410
		20	0.2	10,400	2,790	9,300	2,520	8,800	2,380	12,400	3,350	7,800	1,860	7,200	1,410
		30	0.17	9,300	2,520	8,400	2,260	7,900	1,900	11,200	3,020	7,000	1,570	6,500	1,170
		40	0.1	9,300	2,520	8,400	2,260	7,900	1,900	11,200	3,020	7,000	1,570	6,500	1,170
5	0.1	20	0.07	8,100	2,190	7,300	1,970	6,900	1,760	9,700	2,620	6,100	1,370	5,700	1,020
		40	0.035	7,300	1,970	6,600	1,570	6,200	1,430	8,700	2,360	5,500	1,150	5,100	920
	0.2	20	0.15	8,100	2,190	7,300	1,970	6,900	1,760	9,700	2,620	6,100	1,370	5,700	1,020
		40	0.08	7,300	1,970	6,600	1,570	6,200	1,430	8,700	2,360	5,500	1,150	5,100	920
	0.3	20	0.21	8,100	2,190	7,300	1,970	6,900	1,860	9,700	2,620	6,100	1,460	5,700	1,110
		40	0.1	7,300	1,970	6,600	1,770	6,200	1,490	8,700	2,360	5,500	1,230	5,100	920
	0.5	20	0.28	8,100	2,190	7,300	1,970	6,900	1,860	9,700	2,620	6,100	1,460	5,700	1,110
		40	0.14	7,300	1,970	6,600	1,770	6,200	1,490	8,700	2,360	5,500	1,230	5,100	920
	1	20	0.35	8,100	2,190	7,300	1,970	6,900	1,860	9,700	2,620	6,100	1,460	5,700	1,110
		40	0.18	7,300	1,970	6,600	1,770	6,200	1,490	8,700	2,360	5,500	1,230	5,100	920

【Note】Please refer to P533

Recommended Cutting Data（High Precision）

SPM200-RN4
4 Flute, Corner Radius
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
Mill Dia. (mm)	r (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
6	0.2	30	0.15	7,200	1,940	6,500	1,750	6,100	1,560	8,600	2,330	5,400	1,220	5,000	910
		54	0.1	6,500	1,750	5,800	1,400	5,500	1,270	7,800	2,100	4,900	1,020	4,500	820
		72	0.07	6,500	1,750	5,800	1,400	5,500	1,270	7,800	2,100	4,900	1,020	4,500	820
	0.3	30	0.25	7,200	1,940	6,500	1,750	6,100	1,560	8,600	2,330	5,400	1,300	5,000	980
		54	0.18	6,500	1,750	5,800	1,570	5,500	1,270	7,800	2,100	4,900	1,090	4,500	820
		72	0.1	6,500	1,750	5,800	1,570	5,500	1,270	7,800	2,100	4,900	1,090	4,500	820
	0.5	30	0.35	7,200	1,940	6,500	1,750	6,100	1,650	8,600	2,330	5,400	1,300	5,000	980
		54	0.25	6,500	1,750	5,800	1,570	5,500	1,320	7,800	2,100	4,900	1,090	4,500	820
		72	0.15	6,500	1,750	5,800	1,570	5,500	1,320	7,800	2,100	4,900	1,090	4,500	820
	1	30	0.55	7,200	1,940	6,500	1,750	6,100	1,650	8,600	2,330	5,400	1,300	5,000	980
		54	0.4	6,500	1,750	5,800	1,570	5,500	1,320	7,800	2,100	4,900	1,090	4,500	820
		72	0.22	6,500	1,750	5,800	1,570	5,500	1,320	7,800	2,100	4,900	1,090	4,500	820

【Note】
1. For different materials, adjust the cutting depth (ap) according to the cutting depth factors in the above table. E.g. for hardened steels (45～55HRC), ap*0.65.
2. Use the appropriate coolant such as air cooling or emulsion for the work material and machining shape.
3. In actual machining, the condition should be adjusted according to the machining shape, purpose and the machine type.
4. If the rpm of the machine is low, lower the feed rate also to put the rpm and feed rate in the same ratio.

Recommended Cutting Data（General type）

SPM200-BN2
2 Flute, Ballnose
Endmills of Micro Diameter for Deep Machining

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
R (mm)	Mill Dia. (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
0.05	0.1	0.2	0.008	50,000	250	50,000	250	50,000	225	50,000	300	50,000	200	50,000	188
		0.3	0.006	50,000	250	50,000	250	50,000	225	50,000	300	50,000	200	50,000	188
		0.5	0.004	50,000	250	50,000	250	50,000	225	50,000	300	50,000	200	50,000	188
0.1	0.2	0.5	0.02	45,000	315	45,000	315	45,000	293	45,000	378	40,950	246	37,800	189
		0.75	0.017	45,000	315	45,000	315	45,000	293	45,000	378	40,950	246	37,800	189
		1	0.014	45,000	315	45,000	315	45,000	293	45,000	378	40,950	246	37,800	189
		1.25	0.011	45,000	284	43,740	275	41,310	242	45,000	340	36,450	197	34,020	153
		1.5	0.008	45,000	284	43,740	275	41,310	242	45,000	340	36,450	197	34,020	153
		2	0.008	45,000	284	43,740	275	41,310	242	45,000	340	36,450	197	34,020	153
		2.5	0.006	43,200	242	38,880	218	36,720	191	43,200	291	32,400	156	30,240	121
		3	0.004	43,200	242	38,880	218	36,720	191	43,200	291	32,400	156	30,240	121
0.15	0.3	0.5	0.027	45,000	450	45,000	450	45,000	405	45,000	540	40,500	345	37,800	302
		0.75	0.024	45,000	450	45,000	450	45,000	405	45,000	540	40,500	345	37,800	302
		1	0.021	45,000	450	45,000	450	45,000	405	45,000	540	40,500	345	37,800	302
		1.25	0.019	45,000	450	45,000	450	45,000	405	45,000	540	40,500	345	37,800	302
		1.5	0.016	45,000	450	45,000	450	45,000	405	45,000	540	40,500	345	37,800	302
		2	0.012	45,000	405	43,740	393	41,310	335	45,000	486	36,450	279	34,020	245
		2.5	0.01	45,000	405	43,740	393	41,310	335	45,000	486	36,450	279	34,020	245
		3	0.008	45,000	405	43,740	393	41,310	335	45,000	486	36,450	279	34,020	245
0.2	0.4	0.75	0.043	45,000	756	45,000	755	45,000	693	45,000	870	42,120	590	39,312	551
		1	0.04	45,000	756	45,000	755	45,000	693	45,000	870	42,120	590	39,312	551
		1.5	0.034	45,000	648	45,000	647	45,000	594	45,000	746	42,120	421	39,312	393
		2	0.028	45,000	540	45,000	540	45,000	495	45,000	622	42,120	421	39,312	393
		2.5	0.022	38,880	420	34,992	378	33,048	328	45,000	504	29,160	263	32,659	245
		3	0.016	38,880	420	34,992	378	33,048	328	45,000	504	29,160	263	32,659	245
		3.5	0.012	38,880	420	34,992	378	33,048	328	45,000	504	29,160	263	32,659	245
		4	0.01	38,880	420	34,992	378	33,048	328	45,000	504	29,160	263	32,659	245
		4.5	0.008	34,560	353	31,104	318	29,376	275	41,472	423	25,920	221	24,192	205
0.25	0.5	1	0.045	45,000	1,350	42,120	1,264	39,780	1,074	45,000	1,350	35,100	948	32,760	669
		1.5	0.04	45,000	1,350	42,120	1,264	39,780	1,074	45,000	1,350	35,100	948	32,760	613
		2	0.035	45,000	1,080	42,120	1,011	39,780	860	45,000	1,080	35,100	758	32,760	613
		2.5	0.033	45,000	900	37,908	682	35,802	581	45,000	973	31,590	511	29,484	452

【Note】Please refer to P544

Recommended Cutting Data（General type）

SPM200-BN2

2 Flute, Ballnose
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
R (mm	Mill Dia. (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
0.25	0.5	3	0.03	42,120	758	37,908	682	35,802	581	45,000	810	31,590	511	22,680	347
		4	0.02	32,400	583	29,160	525	27,540	446	38,880	700	29,160	472	22,680	347
		5	0.018	32,400	583	29,160	525	27,540	446	38,880	700	29,160	472	22,680	347
		5.5	0.015	28,800	490	25,920	441	24,480	374	34,560	588	21,600	330	20,160	292
		6	0.013	28,800	490	25,920	441	24,480	374	34,560	588	21,600	330	20,160	292
		8	0.008	28,800	490	25,920	441	24,480	374	34,560	588	21,600	330	20,160	292
0.3	0.6	1	0.075	45,000	2,025	45,000	2,025	45,000	1,755	45,000	2,025	43,200	1,555	40,320	1,210
		2	0.063	45,000	2,025	45,000	2,025	45,000	1,755	45,000	2,025	43,200	1,555	40,320	1,210
		2.5	0.046	45,000	1,620	45,000	1,620	45,000	1,404	45,000	1,620	43,200	1,244	40,320	887
		3	0.041	45,000	1,620	45,000	1,620	45,000	1,404	45,000	1,620	43,200	1,244	40,320	887
		3.5	0.035	45,000	1,539	45,000	1,538	44,064	1,307	45,000	1,539	38,880	1,065	36,288	759
		4	0.026	45,000	1,539	45,000	1,538	44,064	1,307	45,000	1,539	38,880	1,065	36,288	689
		4.5	0.022	45,000	1,215	43,740	1,182	41,310	967	45,000	1,215	36,450	788	34,020	613
		5	0.02	42,120	1,138	37,908	1,024	35,802	838	45,000	1,215	31,590	682	29,484	531
		5.5	0.017	42,120	1,138	37,908	1,024	35,802	838	45,000	1,215	31,590	682	29,484	531
		6	0.015	42,120	1,138	37,908	1,024	35,802	838	45,000	1,215	31,590	682	29,484	531
		7	0.015	28,800	734	25,920	793	24,480	541	34,560	881	21,600	441	20,160	446
		8	0.015	28,800	734	25,920	661	24,480	541	34,560	881	21,600	441	20,160	343
		9	0.012	28,800	734	25,920	661	24,480	541	34,560	881	21,600	441	20,160	343
		10	0.009	25,200	643	22,680	579	21,420	473	30,240	771	18,900	385	17,640	300
		12	0.007	21,600	518	19,440	466	18,360	382	25,920	622	16,200	311	15,120	242
0.35	0.7	2	0.092	45,000	2,228	45,000	2,228	45,000	1,940	45,000	2,228	43,200	1,739	37,800	1,069
		4	0.041	45,000	1,692	45,000	1,692	44,064	1,443	45,000	1,692	38,880	1,189	34,020	761
		6	0.027	42,120	1,251	37,908	1,126	35,802	925	45,000	1,337	31,590	763	27,216	577
		8	0.02	28,800	760	25,920	684	24,480	563	34,560	912	21,600	464	20,160	380
0.4	0.8	2	0.12	45,000	2,430	45,000	2,430	45,000	2,160	45,000	2,430	43,200	2,333	40,320	1,694
		4	0.078	45,000	2,430	45,000	2,430	45,000	2,160	45,000	2,430	43,200	2,333	40,320	1,694
		5	0.059	45,000	2,186	45,000	2,188	44,064	1,903	45,000	2,188	38,880	1,911	36,288	1,372
		6	0.042	45,000	2,040	40,824	1,852	38,556	1,554	45,000	2,042	34,020	1,286	31,752	1,121
		8	0.02	37,440	1,213	33,696	1,092	31,824	916	44,928	1,455	28,080	758	26,208	660
		10	0.02	28,800	881	25,920	793	24,480	666	34,560	1,058	21,600	551	20,160	480
0.45	0.9	2	0.135	45,000	2,877	45,000	2,877	45,000	2,539	45,000	2,877	41,040	2,170	38,304	1,924

【Note】Please refer to P544

Recommended Cutting Data（General type）

SPM200-BN2

2 Flute, Ballnose
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
R (mm	Mill Dia. (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
0.45	0.9	4	0.081	45,000	2,494	45,000	2,494	43,605	2,132	45,000	2,494	38,475	1,763	35,910	1,563
		6	0.05	43,092	1,818	38,783	1,636	36,628	1,364	45,000	2,072	32,319	1,128	30,164	1,000
		8	0.036	32,832	1,259	29,549	1,133	27,907	944	39,398	1,511	24,624	781	22,982	693
0.5	1	2	0.2	45,000	3,375	43,740	3,281	41,310	2,788	45,000	3,375	38,880	2,450	34,020	2,041
		3	0.2	45,000	3,375	43,740	3,281	41,310	2,788	45,000	3,375	38,880	2,450	34,020	2,041
		4	0.14	45,000	3,375	43,740	3,281	41,310	2,788	45,000	3,375	38,880	2,450	34,020	2,041
		5	0.09	42,120	2,948	37,908	2,653	35,802	2,336	45,000	3,150	38,880	2,286	29,484	1,652
		6	0.06	37,908	2,389	36,742	2,302	34,700	2,087	45,000	2,836	34,992	2,118	26,536	1,241
		7	0.06	34,992	1,575	31,493	1,417	29,743	1,204	41,990	1,890	28,431	1,191	24,494	955
		8	0.06	34,992	1,575	31,493	1,417	29,743	1,204	41,990	1,890	28,431	1,191	24,494	881
		9	0.045	34,992	1,575	31,493	1,417	29,743	1,204	41,990	1,890	28,431	1,191	24,494	881
		10	0.038	34,992	1,575	31,493	1,417	29,743	1,204	41,990	1,890	28,431	1,191	24,494	881
		12	0.025	25,920	1,102	23,328	992	22,032	842	31,104	1,322	19,440	694	18,144	617
		13	0.023	25,920	1,102	23,328	992	22,032	842	31,104	1,322	19,440	694	18,144	617
		14	0.02	25,920	1,102	23,328	992	22,032	842	31,104	1,322	19,440	694	18,144	617
		16	0.015	25,920	1,102	23,328	992	22,032	842	31,104	1,322	19,440	694	18,144	617
		18	0.012	22,680	907	20,412	816	19,278	694	27,216	1,089	17,010	572	15,876	508
		20	0.01	19,440	778	17,496	700	16,524	595	23,328	933	14,580	490	13,608	436
0.55	1.1	2	0.2	45,000	3,532	40,824	3,204	38,556	2,634	45,000	3,532	34,020	2,207	31,752	1,958
		4	0.14	45,000	3,532	40,824	3,204	38,556	2,634	45,000	3,532	34,020	2,207	31,752	1,958
		6	0.06	35,802	2,075	32,222	1,868	30,432	1,535	42,962	2,490	26,852	1,287	25,061	1,141
		8	0.06	35,802	2,075	32,222	1,556	28,091	1,181	42,962	2,075	24,786	990	23,134	878
		10	0.038	35,802	1,597	32,222	1,556	28,091	1,181	42,962	2,075	24,786	990	23,134	878
0.6	1.2	4	0.16	41,539	3,369	37,384	2,934	35,307	2,445	45,000	3,532	33,231	2,300	29,076	1,674
		8	0.06	33,696	1,928	30,326	1,893	28,642	1,862	40,435	2,313	27,216	1,856	23,587	943
		10	0.053	31,104	1,537	27,994	1,310	26,438	1,190	37,325	1,746	24,300	962	21,773	784
		12	0.045	31,104	1,456	27,994	1,310	26,438	1,190	37,325	1,746	23,328	923	21,773	784
0.7	1.4	8	0.11	29,484	2,123	26,536	1,911	25,061	1,625	35,381	2,547	22,113	1,380	20,639	1,238
		12	0.053	27,216	1,470	24,494	1,323	23,134	1,124	32,659	1,764	20,412	956	19,051	858
		16	0.035	20,160	1,028	18,144	925	17,136	787	24,192	1,234	15,120	669	14,112	599
0.75	1.5	4	0.2	37,800	3,742	34,020	3,368	32,130	2,892	45,000	4,456	28,350	2,297	26,460	1,985
		6	0.2	37,800	3,742	34,020	3,368	32,130	2,892	45,000	4,456	28,350	2,297	26,460	1,985
		8	0.09	29,484	2,364	26,536	1,891	25,061	1,625	35,381	2,522	22,113	1,291	20,639	1,115

【Note】Please refer to P544

Recommended Cutting Data（General type）

SPM200-BN2

2 Flute, Ballnose
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
R (mm	Mill Dia. (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
0.75	1.5	10	0.09	27,216	1,940	24,494	1,746	23,134	1,499	32,659	2,327	20,412	1,191	19,051	1,029
		12	0.09	27,216	1,616	24,494	1,454	23,134	1,249	32,659	1,940	20,412	993	19,051	858
		14	0.075	27,216	1,616	21,773	1,221	20,563	1,049	29,030	1,629	18,144	833	16,934	719
		16	0.038	20,160	1,131	18,144	1,018	17,136	874	24,192	1,357	15,120	694	14,112	599
		18	0.038	20,160	1,131	18,144	1,018	17,136	874	24,192	1,357	15,120	694	14,112	599
		20	0.038	20,160	1,131	18,144	1,018	17,136	874	24,192	1,357	15,120	694	14,112	599
0.8	1.6	8	0.22	32,760	2,752	29,484	2,477	27,846	2,244	39,312	3,302	24,570	1,916	21,294	1,431
		12	0.098	29,484	2,600	26,536	2,341	25,061	1,958	35,381	3,120	22,113	1,672	19,165	1,160
		16	0.06	25,272	1,592	22,745	1,433	21,481	1,199	30,326	1,911	18,954	1,024	17,690	892
		20	0.04	18,720	1,114	16,848	1,003	15,912	839	22,464	1,337	14,040	716	13,104	624
0.9	1.8	8	0.26	30,420	2,921	27,378	2,628	25,857	2,172	36,504	3,505	22,815	1,807	21,294	1,534
		12	0.105	25,272	1,820	22,745	1,637	21,481	1,354	30,326	2,183	18,954	1,125	17,690	956
		16	0.068	25,272	1,820	22,745	1,637	21,481	1,354	30,326	2,183	18,954	1,125	17,690	956
		20	0.045	18,720	1,273	16,848	1,146	15,912	947	22,464	1,527	14,040	788	13,104	669
1	2	3	0.4	28,350	4,253	25,515	3,828	24,098	3,254	34,020	5,103	21,263	2,744	19,845	2,381
		4	0.4	28,350	4,253	25,515	3,828	24,098	3,254	34,020	5,103	21,263	2,744	19,845	2,381
		6	0.4	28,350	3,828	25,515	3,444	24,098	2,892	34,020	4,593	21,263	2,424	19,845	2,143
		8	0.28	28,350	3,828	25,515	3,444	24,098	2,892	34,020	4,593	21,263	2,424	19,845	2,143
		10	0.21	26,460	3,175	23,814	2,858	22,491	2,429	31,752	3,811	19,845	2,024	17,199	1,321
		12	0.12	23,814	2,858	21,433	2,572	20,242	2,187	28,577	3,428	17,861	1,846	15,479	1,189
		13	0.12	23,814	2,858	21,433	2,572	20,242	2,187	28,577	3,428	17,861	1,822	14,288	914
		14	0.12	23,814	2,477	21,433	2,229	20,242	1,895	28,577	2,971	16,585	1,466	14,288	914
		16	0.12	22,113	1,592	19,902	1,434	18,797	1,218	26,536	1,911	16,585	1,320	14,288	823
		18	0.09	20,412	1,470	18,371	1,323	17,350	1,124	24,494	1,764	16,585	1,219	14,288	823
		20	0.075	20,412	1,470	18,371	1,323	17,350	1,124	24,494	1,764	16,585	1,015	14,288	823
		22	0.05	16,065	1,093	14,459	983	13,656	836	19,278	1,311	12,049	697	13,495	734
		25	0.05	15,120	1,028	13,608	925	12,852	787	18,144	1,234	11,340	655	12,701	691
		30	0.03	15,120	1,028	13,608	925	12,852	787	18,144	1,234	11,340	655	12,701	691
		35	0.025	13,230	847	11,907	762	11,246	648	15,876	1,016	9,923	540	9,261	474
		40	0.022	11,340	725	10,206	653	9,639	555	13,608	871	8,505	463	7,938	407
1.25	2.5	6	0.5	24,975	4,557	22,478	4,100	21,229	3,417	29,970	5,468	18,732	2,779	17,483	2,278
		10	0.34	24,975	4,557	22,478	4,100	21,229	3,417	29,970	5,468	18,732	2,779	17,483	2,278
		15	0.15	19,481	2,558	17,533	2,302	16,558	1,919	23,377	3,070	14,611	1,821	13,637	1,279

【Note】Please refer to P544

Recommended Cutting Data（General type）

SPM200-BN2

2 Flute, Ballnose
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
R (mm	Mill Dia. (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
1.25	2.5	20	0.12	17,982	1,967	16,184	1,771	15,285	1,476	21,578	2,362	14,611	1,301	12,587	984
		25	0.098	17,982	1,770	16,184	1,593	15,285	1,328	21,578	2,124	13,487	1,080	12,587	885
		30	0.055	13,320	1,377	11,988	1,239	11,322	1,033	15,984	1,652	9,990	840	9,324	689
1.5	3	8	0.6	21,600	4,860	19,440	4,374	18,360	3,690	25,920	5,832	16,200	3,062	15,120	2,722
		10	0.42	21,600	4,860	19,440	4,374	18,360	3,690	25,920	5,832	16,200	3,062	15,120	2,722
		13	0.315	20,160	3,629	18,144	3,266	17,136	2,755	24,192	4,354	15,120	2,286	14,112	2,032
		16	0.315	20,160	3,266	18,144	2,939	17,136	2,480	24,192	3,920	15,120	2,057	13,104	1,699
		20	0.18	16,848	2,274	15,163	2,048	14,321	1,727	20,218	2,730	12,636	1,434	10,886	1,176
		25	0.12	16,848	2,274	15,163	2,048	14,321	1,727	20,218	2,730	12,636	1,434	10,886	1,176
		30	0.12	15,552	2,100	13,997	1,890	13,219	1,594	18,662	2,520	11,664	1,323	10,886	1,176
		35	0.08	11,520	1,469	10,368	1,322	9,792	1,115	13,824	1,762	8,640	925	9,677	987
1.75	3.5	15	0.36	16,088	3,299	14,479	2,969	13,675	2,475	19,305	3,959	12,065	2,012	11,262	1,650
		25	0.21	13,365	2,052	12,029	1,847	11,361	1,539	16,038	2,462	10,024	1,252	9,356	1,026
		35	0.09	13,365	2,052	12,029	1,847	11,361	1,539	16,038	2,462	10,024	1,252	9,356	1,026
		45	0.09	9,900	1,438	8,910	1,294	8,415	1,079	11,880	1,726	7,425	878	6,930	719
2	4	10	0.6	15,525	4,658	13,973	4,192	13,197	3,564	18,630	5,589	11,644	2,969	10,868	2,608
		13	0.48	15,525	4,658	13,973	4,192	13,197	3,564	18,630	5,589	11,644	2,969	10,868	2,608
		16	0.42	15,525	4,658	13,973	4,192	13,197	3,564	18,630	5,589	11,644	2,969	10,868	2,608
		20	0.42	13,455	3,229	12,110	2,906	11,437	2,471	16,146	3,875	10,092	2,058	9,419	1,808
		25	0.24	12,110	2,615	10,899	2,354	10,293	2,001	14,531	3,139	9,083	1,946	8,477	1,464
		30	0.16	11,178	2,012	10,060	1,811	9,502	1,539	13,414	2,415	8,384	1,283	7,825	1,127
		35	0.1	11,178	2,012	10,060	1,811	9,502	1,539	13,414	2,415	8,384	1,283	7,825	1,127
		40	0.1	11,178	2,012	10,060	1,811	9,502	1,539	13,414	2,415	8,384	1,283	7,825	1,127
		45	0.1	8,280	1,408	7,452	1,267	7,038	1,076	9,936	1,689	6,210	897	5,796	788
		50	0.1	8,280	1,408	7,452	1,267	7,038	1,076	9,936	1,689	6,210	897	5,796	788
2.5	5	20	0.525	11,340	4,082	10,206	3,674	9,639	2,892	13,608	4,899	8,505	2,552	7,938	2,143
		25	0.525	10,530	3,285	9,477	3,412	8,951	2,686	12,636	4,549	7,898	2,370	7,371	1,990
		30	0.3	9,477	2,502	8,529	3,072	8,056	2,417	11,372	4,094	7,108	2,132	6,634	1,792
		40	0.2	8,748	1,890	7,873	1,701	7,436	1,338	10,498	2,268	6,561	1,182	6,124	993
3	6	12	0.6	12,150	5,103	10,935	4,593	10,328	3,828	14,580	6,124	9,113	3,113	8,505	2,552
		20	0.5	11,475	4,476	10,328	4,028	9,754	3,356	13,770	5,370	8,607	2,730	8,033	2,237
		30	0.42	9,360	2,696	8,424	2,426	7,956	1,910	11,232	3,235	7,020	1,825	6,552	1,415
		50	0.15	7,776	2,015	6,998	1,814	6,610	1,428	9,331	2,418	5,832	1,260	5,443	1,058

【Note】Please refer to P544

Recommended Cutting Data（High Precision）

SPM200-BN2

2 Flute, Ballnose
Endmills of Micro Diameter for Deep Machining

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
R (mm	Mill Dia. (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
0.05	0.1	0.2	0.004	50,000	250	50,000	250	50,000	225	50,000	300	50,000	200	50,000	188
		0.3	0.003	50,000	250	50,000	250	50,000	225	50,000	300	50,000	200	50,000	188
		0.5	0.002	50,000	250	50,000	250	50,000	225	50,000	300	50,000	200	50,000	188
0.1	0.2	0.5	0.015	45,000	315	45,000	315	45,000	293	45,000	378	40,950	246	37,800	189
		0.75	0.013	45,000	315	45,000	315	45,000	293	45,000	378	40,950	246	37,800	189
		1	0.011	45,000	315	45,000	315	45,000	293	45,000	378	40,950	246	37,800	189
		1.25	0.008	45,000	284	43,740	275	41,310	242	45,000	340	36,450	197	34,020	153
		1.5	0.007	45,000	284	43,740	275	41,310	242	45,000	340	36,450	197	34,020	153
		2	0.006	45,000	284	43,740	275	41,310	242	45,000	340	36,450	197	34,020	153
		2.5	0.005	43,200	242	38,880	218	36,720	191	43,200	291	32,400	156	30,240	121
		3	0.003	43,200	242	38,880	218	36,720	191	43,200	291	32,400	156	30,240	121
0.15	0.3	0.5	0.02	45,000	450	45,000	450	45,000	405	45,000	540	40,500	345	37,800	302
		0.75	0.018	45,000	450	45,000	450	45,000	405	45,000	540	40,500	345	37,800	302
		1	0.016	45,000	450	45,000	450	45,000	405	45,000	540	40,500	345	37,800	302
		1.25	0.014	45,000	450	45,000	450	45,000	405	45,000	540	40,500	345	37,800	302
		1.5	0.012	45,000	450	45,000	450	45,000	405	45,000	540	40,500	345	37,800	302
		2	0.009	45,000	405	43,740	393	41,310	335	45,000	486	36,450	279	34,020	245
		2.5	0.008	45,000	405	43,740	393	41,310	335	45,000	486	36,450	279	34,020	245
		3	0.006	45,000	405	43,740	393	41,310	335	45,000	486	36,450	279	34,020	245
0.2	0.4	0.75	0.043	43,200	518	38,880	466	36,720	404	45,000	622	32,400	324	30,240	302
		1	0.04	43,200	518	38,880	466	36,720	404	45,000	622	32,400	324	30,240	302
		1.5	0.034	43,200	518	38,880	466	36,720	404	45,000	622	32,400	324	30,240	302
		2	0.028	43,200	518	38,880	466	36,720	404	45,000	622	32,400	324	30,240	302
		2.5	0.016	38,880	420	34,992	378	33,048	328	45,000	504	29,160	263	27,216	245
		3	0.011	38,880	420	34,992	378	33,048	328	45,000	504	29,160	263	27,216	245
		3.5	0.008	38,880	420	34,992	378	33,048	328	45,000	504	29,160	263	27,216	245
		4	0.005	38,880	420	34,992	378	33,048	328	45,000	504	29,160	263	27,216	245
		4.5	0.004	34,560	353	31,104	318	29,376	275	41,472	423	25,920	221	24,192	205
0.25	0.5	1	0.045	36,000	720	32,400	648	30,600	551	43,200	864	27,000	486	25,200	428
		1.5	0.04	36,000	720	32,400	648	30,600	551	43,200	864	27,000	486	25,200	428
		2	0.035	36,000	720	32,400	648	30,600	551	43,200	864	27,000	486	25,200	428
		2.5	0.033	36,000	720	29,160	525	27,540	446	38,880	700	24,300	393	22,680	347

【Note】Please refer to P544

Recommended Cutting Data（High Precision）

SPM200-BN2

2 Flute, Ballnose
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
R (mm	Mill Dia. (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
0.25	0.5	3	0.03	32,400	583	29,160	525	27,540	446	38,880	700	24,300	393	22,680	347
		4	0.02	32,400	583	29,160	525	27,540	446	38,880	700	24,300	393	22,680	347
		5	0.018	32,400	583	29,160	525	27,540	446	38,880	700	24,300	393	22,680	347
		5.5	0.008	28,800	490	25,920	441	24,480	374	34,560	588	21,600	330	20,160	292
		6	0.007	28,800	490	25,920	441	24,480	374	34,560	588	21,600	330	20,160	292
		8	0.004	28,800	490	25,920	441	24,480	374	34,560	588	21,600	330	20,160	292
0.3	0.6	1	0.05	36,000	1,080	32,400	972	30,600	796	43,200	1,296	27,000	648	25,200	504
		2	0.042	36,000	1,080	32,400	972	30,600	796	43,200	1,296	27,000	648	25,200	504
		2.5	0.038	36,000	1,080	32,400	972	30,600	796	43,200	1,296	27,000	648	25,200	504
		3	0.034	36,000	1,080	32,400	972	30,600	796	43,200	1,296	27,000	648	25,200	504
		3.5	0.029	32,400	923	29,160	831	27,540	680	38,880	1,108	24,300	554	22,680	431
		4	0.024	32,400	923	29,160	831	27,540	680	38,880	1,108	24,300	554	22,680	431
		4.5	0.022	32,400	875	29,160	788	27,540	644	38,880	1,049	24,300	525	22,680	409
		5	0.02	32,400	875	29,160	788	27,540	644	38,880	1,049	24,300	525	22,680	409
		5.5	0.017	32,400	875	29,160	788	27,540	644	38,880	1,049	24,300	525	22,680	409
		6	0.015	32,400	875	29,160	788	27,540	644	38,880	1,049	24,300	525	22,680	409
		7	0.008	28,800	734	25,920	661	24,480	541	34,560	881	21,600	441	20,160	343
		8	0.008	28,800	734	25,920	661	24,480	541	34,560	881	21,600	441	20,160	343
		9	0.006	28,800	734	25,920	661	24,480	541	34,560	881	21,600	441	20,160	343
		10	0.005	25,200	643	22,680	579	21,420	473	30,240	771	18,900	385	17,640	300
		12	0.004	21,600	518	19,440	466	18,360	382	25,920	622	16,200	311	15,120	242
0.35	0.7	2	0.061	36,000	1,188	32,400	1,069	30,600	879	43,200	1,426	27,000	725	25,200	594
		4	0.034	32,400	1,015	29,160	914	27,540	752	38,880	1,219	24,300	619	22,680	508
		6	0.027	32,400	962	29,160	866	27,540	712	38,880	1,155	24,300	587	22,680	482
		8	0.01	28,800	760	25,920	684	24,480	563	34,560	912	21,600	464	20,160	380
0.4	0.8	2	0.08	36,000	1,296	32,400	1,166	30,600	979	43,200	1,555	27,000	810	25,200	706
		4	0.056	36,000	1,296	32,400	1,166	30,600	979	43,200	1,555	27,000	810	25,200	706
		5	0.045	32,400	1,049	29,160	945	27,540	793	38,880	1,260	24,300	656	22,680	572
		6	0.032	32,400	1,049	29,160	945	27,540	793	38,880	1,260	24,300	656	22,680	572
		8	0.02	28,800	933	25,920	840	24,480	705	34,560	1,120	21,600	583	20,160	508
		10	0.01	28,800	881	25,920	793	24,480	666	34,560	1,058	21,600	551	20,160	480
0.45	0.9	2	0.09	34,200	1,458	30,780	1,312	29,070	1,094	41,040	1,750	25,650	904	23,940	802

【Note】Please refer to P544

Recommended Cutting Data（High Precision）

SPM200-BN2

2 Flute, Ballnose
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
R (mm	Mill Dia. (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
0.45	0.9	4	0.058	34,200	1,458	30,780	1,312	29,070	1,094	41,040	1,750	25,650	904	23,940	802
		6	0.042	30,780	1,181	27,702	1,063	26,163	886	36,936	1,417	23,085	732	21,546	650
		8	0.03	27,360	1,049	24,624	944	23,256	788	32,832	1,259	20,520	651	19,152	577
0.5	1	2	0.1	32,400	1,620	29,160	1,458	27,540	1,239	38,880	1,944	24,300	1,021	22,680	907
		3	0.1	32,400	1,620	29,160	1,458	27,540	1,239	38,880	1,944	24,300	1,021	22,680	907
		4	0.07	32,400	1,620	29,160	1,458	27,540	1,239	38,880	1,944	24,300	1,021	22,680	907
		5	0.06	32,400	1,620	29,160	1,458	27,540	1,239	38,880	1,944	24,300	1,021	22,680	907
		6	0.04	29,160	1,312	26,244	1,181	24,786	1,004	34,992	1,575	21,870	827	20,412	734
		7	0.04	29,160	1,312	26,244	1,181	24,786	1,004	34,992	1,575	21,870	827	20,412	734
		8	0.04	29,160	1,312	26,244	1,181	24,786	1,004	34,992	1,575	21,870	827	20,412	734
		9	0.03	29,160	1,312	26,244	1,181	24,786	1,004	34,992	1,575	21,870	827	20,412	734
		10	0.025	29,160	1,312	26,244	1,181	24,786	1,004	34,992	1,575	21,870	827	20,412	734
		12	0.013	25,920	1,102	23,328	992	22,032	842	31,104	1,322	19,440	694	18,144	617
		13	0.011	25,920	1,102	23,328	992	22,032	842	31,104	1,322	19,440	694	18,144	617
		14	0.01	25,920	1,102	23,328	992	22,032	842	31,104	1,322	19,440	694	18,144	617
		16	0.008	25,920	1,102	23,328	992	22,032	842	31,104	1,322	19,440	694	18,144	617
		18	0.006	22,680	907	20,412	816	19,278	694	27,216	1,089	17,010	572	15,876	508
		20	0.005	19,440	778	17,496	700	16,524	595	23,328	933	14,580	490	13,608	436
0.55	1.1	2	0.1	30,240	1,582	27,216	1,424	25,704	1,171	36,288	1,899	22,680	981	21,168	870
		4	0.07	30,240	1,582	27,216	1,424	25,704	1,171	36,288	1,899	22,680	981	21,168	870
		6	0.04	27,540	1,330	24,786	1,197	23,409	985	33,048	1,597	20,655	824	19,278	732
		8	0.04	27,540	1,330	24,786	1,197	23,409	985	33,048	1,597	20,655	824	19,278	732
		10	0.025	27,540	1,330	24,786	1,197	23,409	985	33,048	1,597	20,655	824	19,278	732
0.6	1.2	4	0.08	27,692	1,449	24,923	1,304	23,539	1,087	33,231	1,739	20,769	898	19,384	797
		8	0.04	25,920	1,348	23,328	1,213	22,032	992	31,104	1,617	19,440	855	18,144	725
		10	0.035	25,920	1,281	23,328	1,092	22,032	992	31,104	1,455	19,440	770	18,144	653
		12	0.03	25,920	1,213	23,328	1,092	22,032	992	31,104	1,455	19,440	770	18,144	653
0.7	1.4	8	0.055	22,680	1,361	20,412	1,225	19,278	1,041	27,216	1,633	17,010	885	15,876	794
		12	0.035	22,680	1,225	20,412	1,103	19,278	937	27,216	1,470	17,010	797	15,876	715
		16	0.017	20,160	1,028	18,144	925	17,136	787	24,192	1,234	15,120	669	14,112	599
0.75	1.5	4	0.1	25,200	1,663	22,680	1,497	21,420	1,285	30,240	1,996	18,900	1,021	17,640	882
		6	0.1	25,200	1,663	22,680	1,497	21,420	1,285	30,240	1,996	18,900	1,021	17,640	882

【Note】Please refer to P544

Recommended Cutting Data（High Precision）

SPM200-BN2

2 Flute, Ballnose
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
R (mm	Mill Dia. (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
0.75	1.5	8	0.06	22,680	1,347	20,412	1,212	19,278	1,041	27,216	1,616	17,010	827	15,876	715
		10	0.06	22,680	1,347	20,412	1,212	19,278	1,041	27,216	1,616	17,010	827	15,876	715
		12	0.06	22,680	1,347	20,412	1,212	19,278	1,041	27,216	1,616	17,010	827	15,876	715
		14	0.05	22,680	1,347	18,144	1,018	17,136	874	24,192	1,357	15,120	694	14,112	599
		16	0.019	20,160	1,131	18,144	1,018	17,136	874	24,192	1,357	15,120	694	14,112	599
		18	0.019	20,160	1,131	18,144	1,018	17,136	874	24,192	1,357	15,120	694	14,112	599
		20	0.019	20,160	1,131	18,144	1,018	17,136	874	24,192	1,357	15,120	694	14,112	599
0.8	1.6	8	0.11	23,400	1,638	21,060	1,474	19,890	1,233	28,080	1,966	17,550	1,053	16,380	917
		12	0.065	21,060	1,327	18,954	1,194	17,901	999	25,272	1,592	15,795	853	14,742	743
		16	0.04	21,060	1,327	18,954	1,194	17,901	999	25,272	1,592	15,795	853	14,742	743
		20	0.02	18,720	1,114	16,848	1,003	15,912	839	22,464	1,337	14,040	716	13,104	624
0.9	1.8	8	0.13	23,400	1,872	21,060	1,685	19,890	1,392	28,080	2,246	17,550	1,158	16,380	983
		12	0.07	21,060	1,517	18,954	1,364	17,901	1,128	25,272	1,820	15,795	938	14,742	797
		16	0.045	21,060	1,517	18,954	1,364	17,901	1,128	25,272	1,820	15,795	938	14,742	797
		20	0.022	18,720	1,273	16,848	1,146	15,912	947	22,464	1,527	14,040	788	13,104	669
1	2	3	0.2	18,900	1,890	17,010	1,701	16,065	1,446	22,680	2,268	14,175	1,220	13,230	1,058
		4	0.2	18,900	1,890	17,010	1,701	16,065	1,446	22,680	2,268	14,175	1,220	13,230	1,058
		6	0.2	18,900	1,701	17,010	1,531	16,065	1,285	22,680	2,041	14,175	1,077	13,230	952
		8	0.14	18,900	1,701	17,010	1,531	16,065	1,285	22,680	2,041	14,175	1,077	13,230	952
		10	0.14	18,900	1,512	17,010	1,361	16,065	1,157	22,680	1,814	14,175	964	13,230	847
		12	0.08	17,010	1,361	15,309	1,225	14,459	1,041	20,412	1,633	12,758	868	11,907	762
		13	0.08	17,010	1,361	15,309	1,225	14,459	1,041	20,412	1,633	12,758	868	11,907	762
		14	0.08	17,010	1,361	15,309	1,225	14,459	1,041	20,412	1,633	12,758	868	11,907	762
		16	0.08	17,010	1,225	15,309	1,103	14,459	937	20,412	1,470	12,758	781	11,907	686
		18	0.06	17,010	1,225	15,309	1,103	14,459	937	20,412	1,470	12,758	781	11,907	686
		20	0.05	17,010	1,225	15,309	1,103	14,459	937	20,412	1,470	12,758	781	11,907	686
		22	0.042	16,065	1,093	14,459	983	13,656	836	19,278	1,311	12,049	697	11,246	612
		25	0.035	15,120	1,028	13,608	925	12,852	787	18,144	1,234	11,340	655	10,584	576
		30	0.015	15,120	1,028	13,608	925	12,852	787	18,144	1,234	11,340	655	10,584	576
		35	0.012	13,230	847	11,907	762	11,246	648	15,876	1,016	9,923	540	9,261	474
		40	0.01	11,340	725	10,206	653	9,639	555	13,608	871	8,505	463	7,938	407
1.25	2.5	6	0.25	16,650	2,025	14,985	1,823	14,153	1,519	19,980	2,430	12,488	1,236	11,655	1,013

【Note】Please refer to P544

Recommended Cutting Data（High Precision）

SPM200-BN2

2 Flute, Ballnose
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
R (mm	Mill Dia. (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
1.25	2.5	10	0.17	16,650	2,025	14,985	1,823	14,153	1,519	19,980	2,430	12,488	1,236	11,655	1,013
		15	0.1	14,985	1,640	13,487	1,476	12,738	1,230	17,982	1,967	11,239	1,000	10,490	820
		20	0.08	14,985	1,640	13,487	1,476	12,738	1,230	17,982	1,967	11,239	1,000	10,490	820
		25	0.065	14,985	1,475	13,487	1,328	12,738	1,106	17,982	1,770	11,239	900	10,490	738
		30	0.044	13,320	1,377	11,988	1,239	11,322	1,033	15,984	1,652	9,990	840	9,324	689
1.5	3	8	0.3	14,400	2,160	12,960	1,944	12,240	1,640	17,280	2,592	10,800	1,361	10,080	1,210
		10	0.21	14,400	2,160	12,960	1,944	12,240	1,640	17,280	2,592	10,800	1,361	10,080	1,210
		13	0.21	14,400	2,160	12,960	1,944	12,240	1,640	17,280	2,592	10,800	1,361	10,080	1,210
		16	0.21	14,400	1,944	12,960	1,750	12,240	1,476	17,280	2,333	10,800	1,225	10,080	1,089
		20	0.12	12,960	1,750	11,664	1,575	11,016	1,328	15,552	2,100	9,720	1,103	9,072	980
		25	0.08	12,960	1,750	11,664	1,575	11,016	1,328	15,552	2,100	9,720	1,103	9,072	980
		30	0.08	12,960	1,750	11,664	1,575	11,016	1,328	15,552	2,100	9,720	1,103	9,072	980
		35	0.064	11,520	1,469	10,368	1,322	9,792	1,115	13,824	1,762	8,640	925	8,064	823
1.75	3.5	15	0.24	12,375	2,115	11,138	1,904	10,519	1,587	14,850	2,538	9,282	1,291	8,663	1,058
		25	0.14	11,138	1,710	10,024	1,539	9,467	1,283	13,365	2,052	8,353	1,043	7,797	855
		35	0.09	11,138	1,710	10,024	1,539	9,467	1,283	13,365	2,052	8,353	1,043	7,797	855
		45	0.072	9,900	1,438	8,910	1,294	8,415	1,079	11,880	1,726	7,425	878	6,930	719
2	4	10	0.4	10,350	2,070	9,315	1,863	8,798	1,584	12,420	2,484	7,763	1,319	7,245	1,159
		13	0.32	10,350	2,070	9,315	1,863	8,798	1,584	12,420	2,484	7,763	1,319	7,245	1,159
		16	0.28	10,350	2,070	9,315	1,863	8,798	1,584	12,420	2,484	7,763	1,319	7,245	1,159
		20	0.28	10,350	2,070	9,315	1,863	8,798	1,584	12,420	2,484	7,763	1,319	7,245	1,159
		25	0.16	9,315	1,677	8,384	1,509	7,918	1,283	11,178	2,012	6,987	1,069	6,521	939
		30	0.16	9,315	1,677	8,384	1,509	7,918	1,283	11,178	2,012	6,987	1,069	6,521	939
		35	0.1	9,315	1,677	8,384	1,509	7,918	1,283	11,178	2,012	6,987	1,069	6,521	939
		40	0.1	9,315	1,677	8,384	1,509	7,918	1,283	11,178	2,012	6,987	1,069	6,521	939
		45	0.08	8,280	1,408	7,452	1,267	7,038	1,076	9,936	1,689	6,210	897	5,796	788
		50	0.07	8,280	1,408	7,452	1,267	7,038	1,076	9,936	1,689	6,210	897	5,796	788
2.5	5	20	0.35	8,100	1,944	7,290	1,750	6,885	1,377	9,720	2,333	6,075	1,215	5,670	1,021
		25	0.35	8,100	1,944	7,290	1,750	6,885	1,377	9,720	2,333	6,075	1,215	5,670	1,021
		30	0.2	7,290	1,750	6,561	1,575	6,197	1,239	8,748	2,100	5,468	1,094	5,103	919
		40	0.2	7,290	1,575	6,561	1,418	6,197	1,115	8,748	1,890	5,468	985	5,103	827

【Note】Please refer to P544

Recommended Cutting Data（High Precision）

SPM200-BN2

2 Flute, Ballnose
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material				P						N		H			
				Carbon Steel,Alloy Steel (180～250HB)		Alloy Steels,Tool Steels(25～35HRC)		PH,Ferrite,Martensite Steel (35～45HRC)		Copper, Copper Alloys		Hardened Steels (45～55HRC)		Hardened Steels (55～65HRC)	
Ratio to standard depth of cut(ap)				1.00		0.90		0.80		1.20		0.65		0.60	
R (mm	Mill Dia. (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min	n r/min	Vf mm/min
3	6	12	0.6	8,100	2,268	7,290	2,041	6,885	1,701	9,720	2,722	6,075	1,383	5,670	1,134
		20	0.5	7,650	1,989	6,885	1,790	6,503	1,492	9,180	2,387	5,738	1,213	5,355	995
		30	0.42	7,200	1,728	6,480	1,555	6,120	1,224	8,640	2,074	5,400	1,080	5,040	907
		50	0.15	6,480	1,400	5,832	1,260	5,508	992	7,776	1,679	4,860	875	4,536	734

【Note】
1. For different materials, adjust the cutting depth (ap) according to the cutting depth factors in the above table. E.g. for hardened steels (45～55HRC), ap*0.5.
2. When performing cutting where cutting chips may cause clogging, such as for rib cutting, blind grooves, etc., cutting depth setting should be set by multiplying a cutting depth factor to calculate the cutting depth amount, and this amount should then be reduced to 80% of the calculated value.
3. Adjust by setting ae to (3 to 5)×(ap)×(cutting depth ratio). When performing finishing processing, calculate the theoretical cusp height and set accordingly.
4. Use the appropriate coolant such as air cooling or emulsion for the work material and machining shape.
5. In actual machining, the condition should be adjusted according to the machining shape, purpose and the machine type.

Recommended Cutting Data

SAM200-SN2

2 Flute, Standard Length
Endmills of Micro Diameter for Deep Machining

Workpiece Material			Copper，Aluminum alloy	
Mill Dia. (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min
0.2	1	0.014	45,000	637
0.3	1.5	0.021	43,200	612
0.4	2	0.028	34,560	762
0.5	2	0.035	34,560	762
	4	0.02	31,104	627
	6	0.013	27,648	488
	8	0.008	27,648	418
0.6	2	0.042	34,560	1089
	4	0.024	31,104	896
	6	0.015	31,104	896
	8	0.015	27,648	697
0.8	4	0.056	34,560	1089
	6	0.032	31,104	896
	8	0.02	31,104	896
	10	0.012	27,648	697
1	4	0.07	31,104	1465
	6	0.04	27,994	1210
	8	0.04	27,994	1210
	10	0.025	27,994	1210
	12	0.025	24,883	941
	14	0.025	24,883	941
1.5	6	0.11	24,192	1257
	8	0.08	21,773	1034
	12	0.06	21,773	941
	16	0.038	19,354	732
	18	0.038	19,354	732
2	6	0.2	18,144	1257
	8	0.14	18,144	1257
	10	0.14	18,144	1257
	12	0.1	16,330	1034
	14	0.08	16,330	1034
	16	0.08	16,330	941
	24	0.05	14,515	732
2.5	10	0.18	15,552	1134
	20	0.1	13,997	1008

【Note】Please refer to P546

Recommended Cutting Data

SAM200-SN2

2 Flute, Standard Length
Endmills of Micro Diameter for Deep Machining

》Continuation

Workpiece Material			Copper，Aluminum alloy	
Mill Dia. (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min
3	10	0.25	13,824	1198
	12	0.21	13,824	1198
	20	0.12	12,442	896
	24	0.08	12,442	896
	36	0.06	11,059	850
4	16	0.28	10,350	2070
	25	0.16	9,315	1677
	32	0.1	8,223	1481
	48	0.06	7,106	1015
5	16	0.3	8,113	1622
	25	0.3	7,301	1459
6	20	0.5	6,676	1466
	30	0.4	6,070	1332

Remark
1.Please choose the suitable coolant liquid base on the material and shape of the work piece. Suggest the oil coolant and water coolant.
2.Please make the adjustment of the cutting condition base on the machining shape, target and the situation of the machine.
3.If the rotation speed(n) is lower than the data in the table, the feed rate(Vf) should be reduce with the same ratio.

Recommended Cutting Data

SAM200-BN2

2 Flute, Ballnose
Endmills of Micro Diameter for Deep Machining

Workpiece Material				Copper，Aluminum alloy	
R (mm)	Mill Dia. (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min
0.1	0.2	1	0.014	45000	378
0.2	0.4	2	0.028	45000	622
		3	0.016	45000	504
		4	0.01	45000	504
		5	0.008	41472	423
0.25	0.5	2	0.035	45000	1080
		4	0.02	38800	700
		6	0.016	34560	588
0.3	0.6	2	0.16	45000	3532
		4	0.16	45000	3200
		6	0.06	40435	2313
		8	0.053	37325	1746
0.4	0.8	4	0.078	45000	2430
		6	0.042	45000	2042
		8	0.02	44928	1455
		10	0.02	34560	1058
0.5	1	4	0.14	45000	3375
		6	0.06	45000	2836
		8	0.06	41990	1890
		10	0.038	41990	1890
		12	0.025	31104	1322
0.75	1.5	6	0.2	45000	4456
		8	0.09	35381	2522
		10	0.09	32659	2327
		12	0.09	32659	1940
		16	0.038	24192	1357
		18	0.038	24192	1357
1	2	6	0.4	34020	4593
		8	0.28	34020	4593
		10	0.21	31752	3811
		12	0.12	28577	3428
		16	0.12	26536	1911
		20	0.075	24494	1764
		24	0.05	18144	1234

【Note】Please refer to P548

Recommended Cutting Data

SAM200-BN2

2 Flute, Ballnose
Endmills of Micro Diameter for Deep Machining

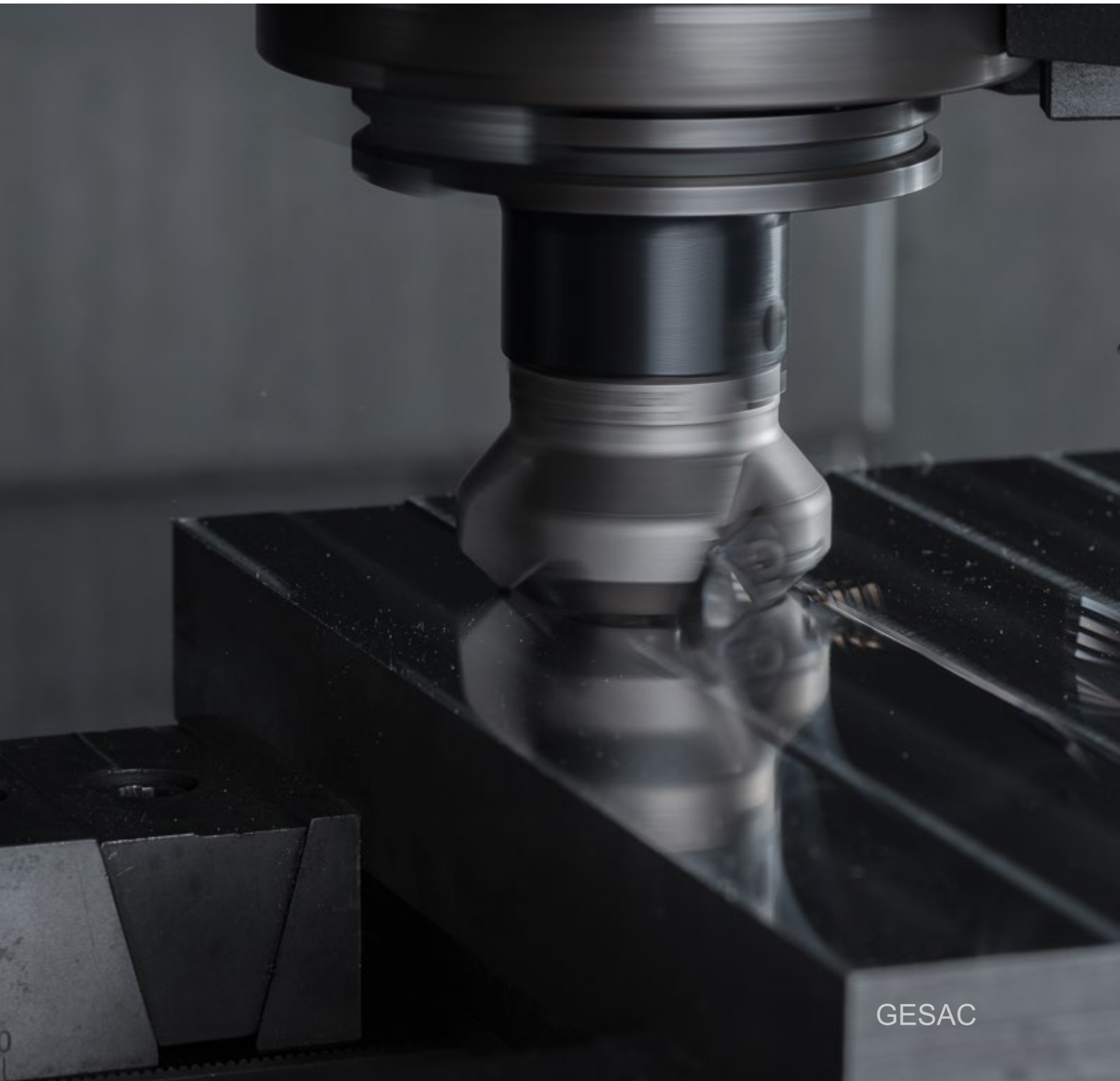
》Continuation

Workpiece Material				Copper，Aluminum alloy	
R (mm)	Mill Dia. (mm)	Under Neck Length (mm)	ap	n r/min	Vf mm/min
1.5	3	8	0.6	25920	5832
		10	0.42	25920	5832
		12	0.315	24192	4354
		16	0.315	24192	3920
		20	0.18	20218	2730
		25	0.12	20218	2730
		30	0.12	18662	2520
		36	0.08	13824	1762
2	4	10	0.6	18630	5589
		12	0.48	18630	5589
		16	0.42	18630	5589
		20	0.42	16146	3875
		25	0.24	14531	3139
		32	0.16	13414	2415
		35	0.1	13414	2415
		48	0.1	9936	1689
2.5	5	16	0.53	13608	4899
		20	0.53	12636	4549
		25	0.3	11372	4094
		40	0.2	10498	2268
3	6	12	0.6	14580	6124
		20	0.5	13770	5370
		30	0.42	11232	3235
		50	0.15	9331	2418

Remark
1.Please choose the suitable coolant liquid base on the material and shape of the work piece. Suggest the oil coolant and water coolant.
2.Please make the adjustment of the cutting condition base on the machining shape, target and the situation of the machine.
3.If the rotation speed(n) is lower than the data in the table, the feed rate(Vf) should be reduce with the same ratio.

C

Appendix



Cutting Calculations and Definitions

Parameter and Unit			
D Diameter	(mm)	Fn Feed per Revolution (mm/rev)	
ap Cutting Depth	(mm)	fz Feeding per Teeth (mm/tooth)	
ae Cutting Width	(mm)	Z Number of Teeth	
Vf Feed Rate	(mm/min)	n Spindle Speed (rev/min)	
Vc Cutting Speed	(m/min)	L Length (mm)	
Q Rate of Metal Removal	(cm^3/min)	Tc Processing Time (min)	

General Formula	
n Spindle Speed	$n = \frac{Vc * 1000}{\pi * D}$ (rev/min)
Vc Cutting Speed	$Vc = \frac{\pi * D * n}{1000}$ (m/min)
Vf Feed Rate	$V_f = f_z * z * n$ (mm/min)
fz Feed per Teeth	$f_z = \frac{V_f}{z * n}$ (mm)
Q Rate of Metal Removal	$Q = \frac{ae * ap * V_f}{1000}$ (cm^3/min)
Tc Processing Time	$T_c = \frac{L}{V_f}$ (min)

Workpiece Material Table

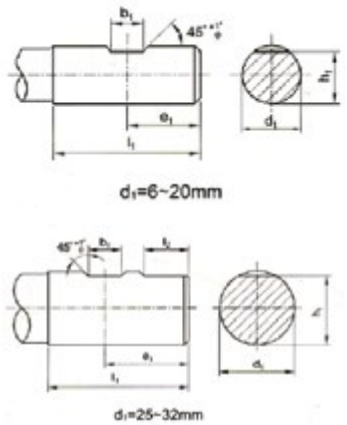
ISO Material Group	MC	Workpiece Material	Content	Tensile Strength N/mm2	Brinell Hardness HB	Rockwell Hardness HRC
P Steels	P1	Low-carbon Steels，Long Chipping	C<0.25%	<530	<125	
	P2	Low-carbon Steels，Short Chipping，Free-cutting Steels	C<0.25%	<530	<125	
	P3	High-carbon Steels, Medium-carbon Steels	C>0.25%	>530	<220	<25
	P4	Alloy Steels，Tool Steels.	C>0.25%	600-850	<330	<35
	P5	Alloy Steels，Tool Steels.	C>0.25%	850-1400	340-450	35-48
	P6	Ferritic Stainless Steels，Martensitic Stainless Steels，PH Stainless Steels	C=(0-0.4)%	600-900	<330	<35
	P7	High-strength Ferritic Stainless Steels，Martensitic Stainless Steels，PH Stainless Steels.	C=(0.1-0.6)%	900-1350	330-450	35-48
M Stainless Steels	M1	Austenitic Stainless Steels	C=(0.05-0.15)%	<600	130-200	
	M2	High-Strength Austenitic Stainless Steels and Cast Stainless Steels	C=(0.05-0.15)%	600-800	150-230	<25
	M3	Duplex Stainless Steels	C=(0.05-0.20)%	<800	135-275	<30
K Cast Iron	K1	Grey Cast Iron		125-500	120-290	＜ 32
	K2	Moderately Difficult Alloy Cast iron，Nodular Cast Iron.		<600	130-260	＜ 28
	K3	Difficult High-alloy Cast Iron，Nodular Cast Iron		>600	180-350	＜ 43
N Non-ferrous Materials	N1	Wrought Aluminium Alloys		<520	60-90	
	N2	Cast Aluminium Alloys	Si<12%	<350	70-100	
	N3	Cast Aluminium Alloys	Si>12%	200-320	60-120	
	N4	Copper，Copper Alloys		200-650	60-200	
	N5	Graphite，CFK，CFRP Graphite，Composite Materials		600-1500		
	N6	GFK，CFK Aluminium-based Composite Materials (MMCs)		<700	<210	
S Heat-resistant SuperAlloys、Titanium Alloys	S1	Iron-based Heat-resistant Alloys		500-1200	160-260	25-48
	S2	Cobalt-based Heat-resistant Alloys		1000-1450	250-450	25-48
	S3	Nickel-based Heat-resistant Alloys		600-1700	160-450	<48
	S4	Titanium and Titanium Alloys		900-1600	300-400	33-48
H Hardened Materials	H1	Hardened Steels				45-55
	H2	Hardened Steels				55-60
	H3	Hardened Steels				60-65
	H4	Hardened Steels				>65

The Structure of Shank-DIN Standard

DIN 6535-HA

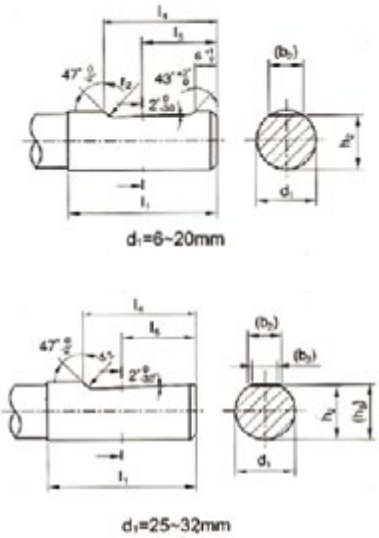
d_1h_6	2	3	4	5	6	8	10	12	14	16	18	20	25	32
l_1 +2 0	28				36		40	45		48		50	56	60

DIN 6535-HB



d_1 h_6	b_1 +0.05 0	e_1 0 -1	h_1 h_{11}	l_1 +2 0	l_2 +1 0
6.0	4.2	18.0	5.1	36.0	
8.0	5.5		6.9		
10	7.0	20.0	8.5	40.0	
12	8.0	22.5	10.4	45.0	
14			12.7		
16	10.0	24.0	14.2	48.0	
18			16.2		
20	11.0	25.0	18.2	50.0	
25	12.0	32.0	23.0	56.0	17.0
32	14.0	36.0	30.0	60.0	19.0

DIN 6535-HE



d_1	(b_2)	(b_3)	(h_2)	(h_3)	l_1	l_4	l_5	r_2
6.0	4.3		5.1		36.0	25.0	18.0	
8.0	5.5		6.9					
10	7.1		8.5		40.0	28.0	20.0	1.2
12	8.2		10.4		45.0	33.0	22.5	
14	8.1		12.7					
16	10.1		14.2		48.0	36.0	24.0	
18	10.8		16.2					
20	11.4		18.2		50.0	38.0	25.0	1.6
25	13.6	9.3	23.0	24.1	56.0	44.0	32.0	
32	15.5	9.9	30.0	31.2	60.0	48.0	35.0	

Comparison Table for Tensile Strength , Brinell Hardness and Rockwell Hardness

N/mm2	HV10	HB	HRC
240	75	71	
255	80	76	
270	85	81	
285	90	86	
305	95	90	
320	100	95	
335	105	100	
350	110	105	
370	115	109	
385	120	114	
400	125	119	
415	130	124	
430	135	128	
450	140	133	
465	145	138	
480	150	143	
495	155	147	
510	160	152	
530	165	157	
545	170	162	
560	175	166	
575	180	171	
595	185	176	
610	190	181	
625	195	185	
640	200	190	
660	205	195	
675	210	199	
690	215	204	
705	220	209	
720	225	214	
740	230	219	
755	235	223	
770	240	228	
785	245	233	
800	250	238	22
820	255	242	23
835	260	247	24
860	268	255	25
870	272	258	26
900	280	266	27

N/mm2	HV10	HB	HRC
920	287	273	28
940	293	278	29
970	302	287	30
995	310	295	31
1020	317	301	32
1050	327	311	33
1080	336	319	34
1110	345	328	35
1140	355	337	36
1170	364	346	37
1200	373	354	38
1230	382	363	39
1260	392	372	40
1260	403	383	41
1330	413	393	42
1360	423	402	43
1400	434	413	44
1440	446	424	45
1480	458	435	46
1530	473	449	47
1570	484	460	48
1620	497	472	49
1680	514	488	50
1730	527	501	51
1790	544	517	52
1845	560	632	53
1910	578	549	54
1980	596	567	55
2050	615	584	56
2140	639	607	57
	655	622	58
	675		59
	698		60
	720		61
	745		62
	773		63
	800		64
	829		65
	864		66
	900		67
	940		68

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