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2019 *New*

*Create the largest profit.  
Improve and Elevate the Quality.*



## INTRODUCTION

## HG TECHNOLOGY CO., LTD.,

located at Changhua, Taiwan, dedicated to developing, designing, producing, and marketing cutting tools, comprises professionals with sophisticated processing experience that provide extensive services and ensure total customer satisfaction.

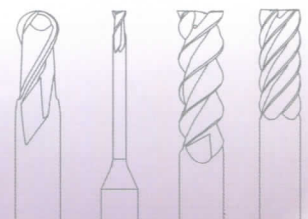
Our service range extensively covers 3C, semiconductor, medical care equipment, aerospace, and precision molding industries.

HG Technology continuously develops more advanced processing technologies based on the enterprise philosophy of extending the lifespan of tools, increasing work efficiencies, minimizing production costs in terms of wear and tear of tools, and maximizing customer benefits.

For HGT Cutting Tools, from material to finished products,

**HG Technology insists on utilizing the processes provided by the original European manufacturers for the production. We only use high quality and stable German Carbide Rods, German and Swiss 6-axis CNC Grinding machines, advanced Swiss Coating technologies, and sophisticated German Digital Measuring Instruments.**

With reasonable prices and stable quality, HG Technology has an expanding sales network that currently covers more than 30 countries throughout the world. Based on the enterprise philosophy of maximizing customer's benefits, HG Technology continuously refines itself and grows together with all its customers.



*Always improve and elevate the quality,  
in order let our customers keep the best competition.*

**HG TECHNOLOGY CO., LTD.**  
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## CONTENTS

			Mill Dia.	Coating	Carbon Steels S H B 2 2 5	Alloy Steels H E R N I M A N	Pre-Hardened Steels H R C 4 8	Hardened Steels H R C 5 9	Hardened Steels H R C 6 5	Stainless Steels	Aluminum Alloy	Heat resistant alloy	Titanium Alloy
04	<b>SEKPRO</b>		1~12	i8	○	○	○	◎	◎				
05	<b>SHXPRO</b>		5~16	i8	○	○	○	◎	◎	○		○	○
06	<b>ZPRO</b>		2~12	i8	◎	◎	◎			○	○	○	○
07	<b>SUSB4PRO</b>		3~12	i8	○	○	○			◎		◎	◎
08	<b>SUSPRO(E)</b>		1~20	i8	◎	◎	○			◎		◎	◎
10	<b>SHXPRO(A)</b>		5~16	i8	○	○	○	○	○	◎		◎	◎
11	<b>RAPRO(E)</b>		1~20	i8	◎	◎	◎	○		◎		◎	◎
13	<b>NECKPRO 5D(E)</b>		3~16	i8	◎	◎	○			◎		◎	◎
14	<b>AL3PRO</b>		3~20								◎		
15	<b>3VPRO</b>		4~12	i8	◎	◎	◎			◎	○	◎	◎
16	<b>4VPRO</b>		4~12	i8	◎	◎	◎			○	○	○	○

## TOLERANCE

### Square End Mills (mm)

Flute Dia.	Dia. Tolerance
1.0	0~ -0.015
1.5	0~ -0.015
2.0	0~ -0.015
2.5	0~ -0.015
3.0	0~ -0.015
4.0	0~ -0.015
5.0	0~ -0.015
6.0	0~ -0.015
8.0	0~ -0.020
10.0	0~ -0.020
12.0	0~ -0.020
16.0	0~ -0.020
20.0	0~ -0.020

### Ball Nose End Mills (mm)

Flute Dia.	R Tolerance
R0.5	±0.01
R1	±0.01
R1.5	±0.01
R2	±0.01
R2.5	±0.01
R3	±0.01
R4	±0.01
R5	±0.01
R6	±0.01
R8	±0.02
R10	±0.02

### Corner Radius End Mills (mm)

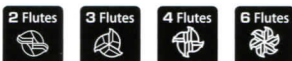
Flute Dia.	R Tolerance
1.0	±0.01
2.0	±0.01
3.0	±0.01
4.0	±0.01
6.0	±0.01
8.0	±0.01
10.0	±0.01
12.0	±0.01
16.0	±0.015

### Shank (mm)

Shank Dia. (h6)	Shank Tolerance
∅ 3	0~ -0.008
∅ 4	0~ -0.008
∅ 6	0~ -0.008
∅ 8	0~ -0.009
∅ 10	0~ -0.009
∅ 12	0~ -0.011
∅ 16	0~ -0.011
∅ 20	0~ -0.013

## ICONS

### Flutes



### Helix Angle ( 30°, 35°, 39°/40°/41°, 40°/43° )



### Work Material Hardness ( 40, 55, 60, 65 )



### Coating



### Corner Radius ( 0.1, 0.2, 0.3, 0.4, 0.5, 1, 1.5, 2, 3 )



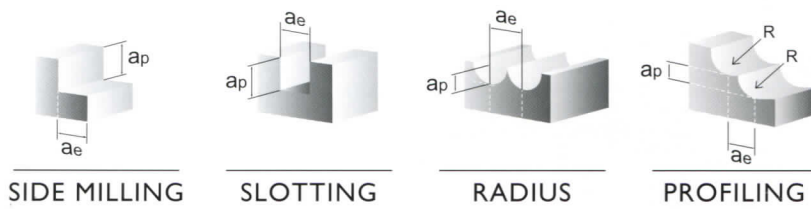
### Tip Angle ( 90°, 120° )



### Applications

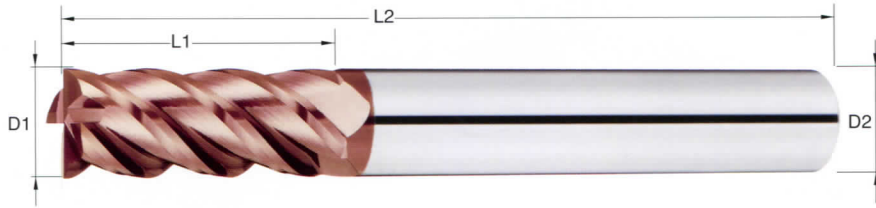


## DEPTH OF CUT





# SEKPRO



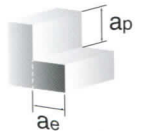
Carbon Steels	Alloy Steels	Pre-Hardened Steel	Hardened Steels	Stainless Steels	Aluminum Alloys	Heat resistant Alloy	Titanium Alloys
~HB225	HB225~352	HRC~48	HRC~56	HRC~65			
○	○	○	◎	◎			

unit: mm

Order No.	Diameter (D1)	Flute Length (L1)	O.A.L. (L2)	Shank Dia (D2)
SEKPRO-0104	1.0	3	50	4
SEKPRO-0154	1.5	4	50	4
SEKPRO-0204	2.0	6	50	4
SEKPRO-0306	3.0	8	50	6
SEKPRO-0406	4.0	11	50	6
SEKPRO-0506	5.0	13	50	6
SEKPRO-0606	6.0	16	50	6
SEKPRO-0808	8.0	20	60	8
SEKPRO-1010	10.0	25	75	10
SEKPRO-1212	12.0	30	75	12

## ▼ Recommended Cutting Condition

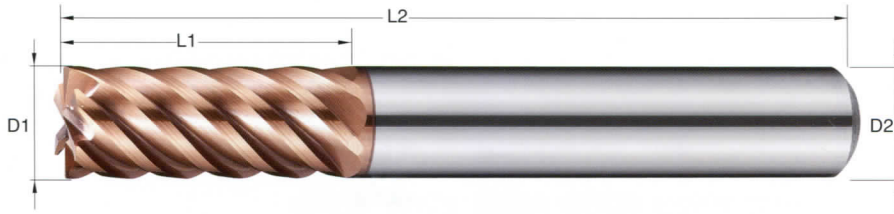
Material	Carbon Steels/Alloy Steels/Cast Irons		Pre-Hardened Steels		Hardened Steels		Depth of cut
	SS/S45C/SCM/FC		NAK80/SKD11		SKD11		
Depth of cut	ap:1.5Dc ae:0.1Dc		ap:1.5Dc ae:0.05Dc		ap:1Dc ae:0.02Dc		
Order No.	Dia. (D1)	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min
SEKPRO-0104	1.0	20700	910	20700	910	20700	550
SEKPRO-0154	1.5	20000	800	20000	800	14860	420
SEKPRO-0204	2.0	20000	1600	16000	1400	11000	880
SEKPRO-0306	3.0	13800	1660	10600	1270	7340	880
SEKPRO-0406	4.0	11150	1780	8000	1280	5570	890
SEKPRO-0506	5.0	8920	1780	6370	1280	4460	890
SEKPRO-0606	6.0	7400	2360	5300	1700	3700	1180
SEKPRO-0808	8.0	5600	2240	4000	1600	2800	1120
SEKPRO-1010	10.0	4460	2670	3180	1900	2230	1330
SEKPRO-1212	12.0	3700	2510	2700	1830	1900	1290



MAGIC CUT



# SHXPRO



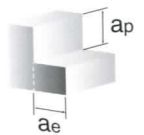
Carbon Steel	Alloy Steel	Pre-Hardened Steel	Hardened Steel		Stainless Steel	Aluminum	Heat-resistant Alloy	Titanium
~HB225	HB225~352	HRC~48	HRC~56	HRC~65				
○	○	○	◎	◎	○		○	○

unit: mm

Order No.	Diameter (D1)	Flute Length (L1)	O.A.L. (L2)	Shank Dia (D2)
SHXPRO-0506	5.0	13	50	6
SHXPRO-0606	6.0	16	50	6
SHXPRO-0808	8.0	20	60	8
SHXPRO-1010	10.0	25	75	10
SHXPRO-1212	12.0	30	75	12
SHXPRO-1616	16.0	40	100	16

▼ Recommended Cutting Condition

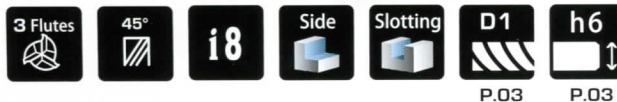
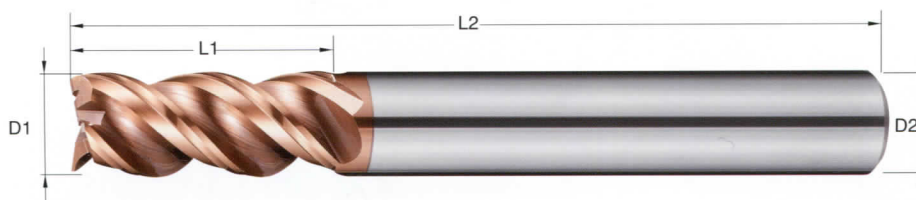
Material		Carbon Steels~Hardened Steels		Hardened Steels		Depth of cut
Hardness		(30-55HRC)		(55-62HRC)		
Depth of cut		ap:1.5Dc ae:0.3-1.0mm		ap:1Dc ae:0.2-0.5mm		
Order No.	Dia. (D1)	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min	
SHXPRO-0506	5.0	15400	5550	7640	2500	
SHXPRO-0606	6.0	12800	4640	6400	2320	
SHXPRO-0808	8.0	9600	4640	4800	2320	
SHXPRO-1010	10.0	7680	4640	3840	2320	
SHXPRO-1212	12.0	6400	3800	3180	1920	ap:3D-5D ae:0.16 ↓
SHXPRO-1616	16.0	4800	2880	2400	1440	ap:3D-5D ae:0.08 ↓





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## ZPRO



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Carbon Steels	Alloy Steels	Pre-Hardened Steel	Hardened Steels	Stainless Steels	Aluminum Alloys	Heat resistant Alloy	Titanium Alloys
~HB225	HB225~352	HRC~48	HRC~56	HRC~65			
○	○	○			○	○	○

unit: mm

型式	刃径 (D1)	刃長 (L1)	全長 (L2)	シャンク径 (D2)
ZPRO-0206	2.0	6	50	6
ZPRO-0256	2.5	6	50	6
ZPRO-0306	3.0	8	50	6
ZPRO-0356	3.5	8	50	6
ZPRO-0406	4.0	11	50	6
ZPRO-0456	4.5	11	50	6
ZPRO-0506	5.0	13	50	6
ZPRO-0606	6.0	16	50	6
ZPRO-0808	8.0	21	65	8
ZPRO-1010	10.0	25	80	10
ZPRO-1212	12.0	30	80	12

## ▼ Recommended Cutting Condition (Side Milling)

Material	Carbon Steels/Alloy Steels/Cast Irons			Pre-Hardened Steels		Stainless Steels		Depth of cut
	SS/S45C/SCM/FC			SKD11/SKD61...		SUS304/SUS316L...		
Depth of cut		ap:1.0Dc ae:0.5Dc		ap:1.0Dc ae:0.3Dc		ap:1.0Dc ae:0.2Dc		
Order No.	Dia. (D1)	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min	
ZPRO-0206	2	19100	860	12740	380	9550	430	
ZPRO-0256	2.5	15280	915	10200	300	7640	460	
ZPRO-0306	3.0	12740	955	8490	765	6370	570	
ZPRO-0356	3.5	10920	980	7280	655	5460	570	
ZPRO-0406	4.0	9550	1140	6370	760	4780	570	
ZPRO-0456	4.5	8490	1020	5660	760	4250	640	
ZPRO-0506	5.0	7640	1030	5090	680	3800	680	
ZPRO-0606	6.0	6370	1140	4250	640	3200	670	
ZPRO-0808	8.0	4780	1140	3180	480	2390	570	
ZPRO-1010	10.0	3820	1140	2550	460	1910	510	
ZPRO-1212	12.0	3180	950	2120	440	1590	470	

## ▼ Recommended Cutting Condition (Grooving)

Material	Carbon Steels/Alloy Steels/Cast Irons			Pre-Hardened Steels		Stainless Steels		Depth of cut
	SS/S45C/SCM/FC			SKD11/SKD61...		SUS304/SUS316L...		
Depth of cut		ap:1.0Dc		ap:0.5Dc		ap:0.3Dc		
Order No.	Dia. (D1)	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min	
ZPRO-0206	2	19100	510	12740	300	9550	345	
ZPRO-0256	2.5	15280	640	10200	240	7640	370	
ZPRO-0306	3.0	12740	660	8490	530	6370	450	
ZPRO-0356	3.5	10920	680	7280	460	5460	450	
ZPRO-0406	4.0	9550	800	6370	530	4780	450	
ZPRO-0456	4.5	8490	710	5660	530	4250	510	
ZPRO-0506	5.0	7640	720	5090	470	3800	540	
ZPRO-0606	6.0	6370	800	4250	510	3200	530	
ZPRO-0808	8.0	4780	800	3180	380	2390	450	
ZPRO-1010	10.0	3820	800	2550	370	1910	400	
ZPRO-1212	12.0	3180	670	2120	350	1590	380	

I.pro

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# SUSB4PRO



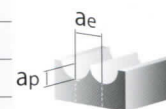
Carbon Steels	Alloy Steels	Pre-Hardened Steel	Hardened Steels		Stainless Steels	Aluminum Alloys	Heat resistant Alloy	Titanium Alloys
~HB225	HB225~352	HRC~48	HRC~56	HRC~65				
○	○	○			◎		◎	◎

unit: mm

Order No.	Diameter (D1)	Radius (R)	Flute Length (L1)	O.A.L. (L2)	Shank Dia (D2)
SUSB4PRO-0306	3.0	R1.5	6	50	6
SUSB4PRO-0406	4.0	R2	8	50	6
SUSB4PRO-0506	5.0	R2.5	10	50	6
SUSB4PRO-0606	6.0	R3	12	50	6
SUSB4PRO-0808	8.0	R4	16	60	8
SUSB4PRO-1010	10.0	R5	20	75	10
SUSB4PRO-1212	12.0	R6	24	75	12

## ▼ Recommended Cutting Condition

Material		Carbon Steels Alloy Steels/Cast Irons	Pre-Hardened Steels	Stainless Steels	Titanium Alloys	Superalloy	Depth of cut
		SS/S45C/SCM/FC	SKD11/SKD61...	SUS304/SUS316L...	Ti6AL-4V...	Inconel 718...	
Depth of cut		ap:0.25-1.2mm ae:0.75-3mm	ap:0.25-1.2mm ae:0.75-3mm	ap:0.25-1.2mm ae:0.75-3mm	ap:0.25-1.2mm ae:0.75-3mm	ap:0.13-0.6mm ae:0.3-1.2mm	
Order No.	Radius (R)	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min
SUSB4PRO-0306	R1.5	19100	2900	19100	2900	12740	1500
SUSB4PRO-0406	R2	14330	2500	14330	2500	9550	1350
SUSB4PRO-0506	R2.5	11460	2230	11460	2230	7640	1190
SUSB4PRO-0606	R3	9550	1900	9550	1900	6370	1110
SUSB4PRO-0808	R4	7160	1700	7160	1700	4780	1090
SUSB4PRO-1010	R5	5730	1600	5730	1600	3820	1030
SUSB4PRO-1212	R6	4780	1590	4780	1590	3190	1020

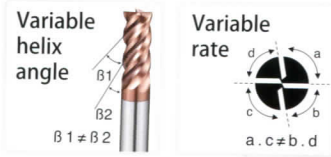
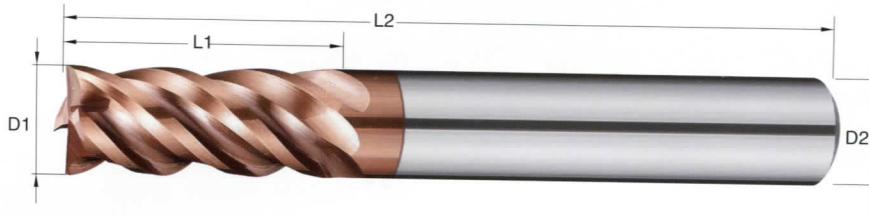




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# SUSPRO(E)



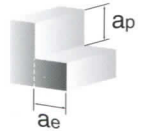
Carbon Steel	Alloy Steel	Pre-Hardened Steel	Hardened Steel		Stainless Steel	Aluminum	Heat-resistant Alloy	Titanium
~HB225	HB225~352	HRC~48	HRC~56	HRC~65				
◎	◎	○			◎		◎	◎

unit: mm

Order No.	Diameter (D1)	Flute Length (L1)	O.A.L. (L2)	Shank Dia (D2)
SUSPRO(E)-0104	1.0	3	50	4
SUSPRO(E)-0204	2.0	6	50	4
SUSPRO(E)-0306	3.0	8	50	6
SUSPRO(E)-0406	4.0	11	50	6
SUSPRO(E)-0506	5.0	13	50	6
SUSPRO(E)-0606	6.0	16	50	6
SUSPRO(E)-0708	7.0	20	60	8
SUSPRO(E)-0808	8.0	20	60	8
SUSPRO(E)-0910	9.0	25	75	10
SUSPRO(E)-1010	10.0	25	75	10
SUSPRO(E)-1112	11.0	28	75	12
SUSPRO(E)-1212	12.0	30	75	12
SUSPRO(E)-1616	16.0	40	100	16
SUSPRO(E)-2020	20.0	45	100	20

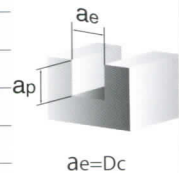
## ▼ Recommended Cutting Condition (Side Milling)

Material	Carbon Steels Alloy Steels/Cast Irons		Pre-Hardened Steels		Stainless Steels		Titanium Alloys		Superalloy		Depth of cut
	SS/S45C/SCM/FC		SKD11/SKD61...		SUS304/SUS316L...		Ti6AL-4V...		Inconel 718...		
Depth of cut		ap:1Dc ae:0.2Dc		ap:1Dc ae:0.2Dc		ap:1Dc ae:0.2Dc		ap:1Dc ae:0.1Dc		ap:1Dc ae:0.05Dc	
Order No.	Dia. (D1)	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min
SUSPRO(E)-0104	1	38210	1220	25480	710	18840	390	18840	390	9550	80
SUSPRO(E)-0204	2	19108	1070	12740	510	9550	420	9550	420	4775	87
SUSPRO(E)-0306	3.0	12730	1530	8490	510	6370	440	6370	440	3200	90
SUSPRO(E)-0406	4.0	9550	1530	6370	510	4780	500	4780	500	2400	96
SUSPRO(E)-0506	5.0	7640	1530	5100	510	3820	510	3820	510	1910	96
SUSPRO(E)-0606	6.0	6370	1530	4250	680	3180	510	3180	510	1595	96
SUSPRO(E)-0708	7.0	5460	1740	3640	730	2730	550	2730	550	1365	100
SUSPRO(E)-0808	8.0	4780	1530	3180	760	2390	550	2390	550	1195	100
SUSPRO(E)-0910	9.0	4250	1530	2830	790	2120	580	2120	580	1040	110
SUSPRO(E)-1010	10.0	3820	1530	2550	710	1910	580	1910	580	955	110
SUSPRO(E)-1212	12.0	3180	1270	2120	590	1590	510	1590	510	800	96
SUSPRO(E)-1616	16.0	2390	1145	1590	510	1190	450	1190	450	600	96
SUSPRO(E)-2020	20.0	1910	1070	1270	460	955	410	955	410	480	96



## ▼ Recommended Cutting Condition (Grooving)

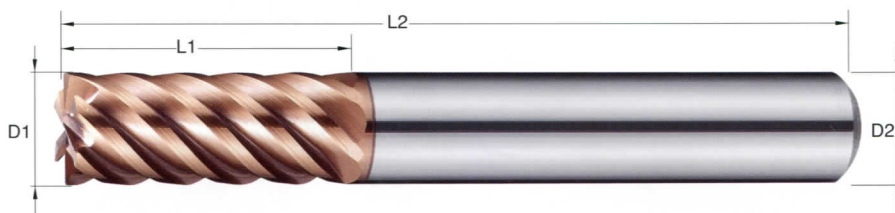
Material	Carbon Steels Alloy Steels/Cast Irons		Pre-Hardened Steels		Stainless Steels		Titanium Alloys		Superalloy		Depth of cut
	SS/S45C/SCM/FC		SKD11/SKD61...		SUS304/SUS316L...		Ti6AL-4V...		Inconel 718...		
Depth of cut		ap:1Dc		ap:0.5Dc		ap:0.5Dc		ap:0.1Dc		ap:0.05Dc	
Order No.	Dia. (D1)	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min
SUSPRO(E)-0104	1	34390	415	19740	190	17500	140	17500	140	8900	25
SUSPRO(E)-0204	2	17200	500	9870	230	8750	170	8750	170	4290	30
SUSPRO(E)-0306	3.0	11450	590	6660	270	5830	200	5830	200	2880	35
SUSPRO(E)-0406	4.0	8590	680	5040	320	4380	200	4380	200	2160	43
SUSPRO(E)-0506	5.0	6870	750	4050	360	3500	240	3500	240	1720	48
SUSPRO(E)-0606	6.0	5730	840	3330	400	3700	270	3700	270	1440	56
SUSPRO(E)-0708	7.0	4910	820	2880	410	2500	270	2500	270	1230	50
SUSPRO(E)-0808	8.0	4300	820	2520	410	2190	270	2190	270	1080	50
SUSPRO(E)-0910	9.0	3820	820	2250	410	1940	270	1940	270	940	48
SUSPRO(E)-1010	10.0	3430	850	1980	420	1750	280	1750	280	860	48
SUSPRO(E)-1212	12.0	2860	760	1710	370	1460	250	1460	250	720	46
SUSPRO(E)-1616	16.0	2150	720	1260	340	1095	220	1095	220	540	43
SUSPRO(E)-2020	20.0	1710	680	990	320	875	215	875	215	430	41



I.pro

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# SHXPRO(A)



Carbon Steel	Alloy Steel	Pre-Hardened Steel	Hardened Steel		Stainless Steel	Aluminum	Heat-resistant Alloy	Titanium
~HB225	HB225~352	HRC~48	HRC~56	HRC~65				
○	○	○	○	○	◎		◎	◎

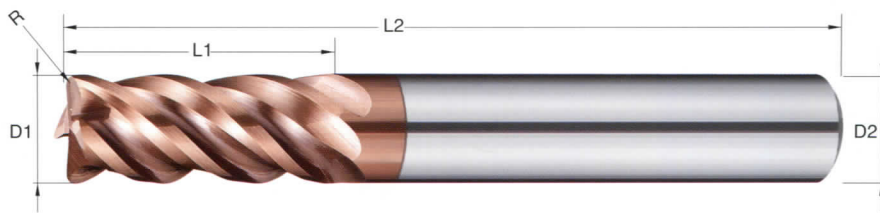
unit: mm

Order No.	Diameter (D1)	Flute Length (L1)	O.A.L. (L2)	Shank Dia (D2)
SHXPRO(A)-0506	5.0	13	50	6
SHXPRO(A)-0606	6.0	16	50	6
SHXPRO(A)-0808	8.0	20	60	8
SHXPRO(A)-1010	10.0	25	75	10
SHXPRO(A)-1212	12.0	30	75	12
SHXPRO(A)-1616	16.0	40	100	16





# RAPRO(E)



P.03    P.03    P.03

Variable  
helix  
angle

$\beta 1 \neq \beta 2$

Variable  
rate

$a \cdot c \neq b \cdot d$

unit: mm

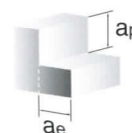
Carbon Steels	Alloy Steels	Pre-Hardened Steel	Hardened Steels		Stainless Steels	Aluminum Alloys	Heat resistant Alloy	Titanium Alloys
~HB225	HB225~352	HRC~48	HRC~56	HRC~65				
◎	◎	◎	○		◎		◎	◎

Order No.	Diameter (D1)	Corner R	Flute Length (L1)	O.A.L. (L2)	Shank Dia (D2)
RAPRO(E)-0204R01	2.0	0.1	5	50	4
RAPRO(E)-0204R02	2.0	0.2	5	50	4
RAPRO(E)-0204R03	2.0	0.3	5	50	4
RAPRO(E)-0306R01	3.0	0.1	7.5	50	6
RAPRO(E)-0306R02	3.0	0.2	7.5	50	6
RAPRO(E)-0306R03	3.0	0.3	7.5	50	6
RAPRO(E)-0306R04	3.0	0.4	7.5	50	6
RAPRO(E)-0306R05	3.0	0.5	7.5	50	6
RAPRO(E)-0406R01	4.0	0.1	10	50	6
RAPRO(E)-0406R02	4.0	0.2	10	50	6
RAPRO(E)-0406R03	4.0	0.3	10	50	6
RAPRO(E)-0406R04	4.0	0.4	10	50	6
RAPRO(E)-0406R05	4.0	0.5	10	50	6
RAPRO(E)-0406R1	4.0	1	10	50	6
RAPRO(E)-0506R02	5.0	0.2	12.5	50	6
RAPRO(E)-0506R03	5.0	0.3	12.5	50	6
RAPRO(E)-0506R05	5.0	0.5	12.5	50	6
RAPRO(E)-0506R1	5.0	1	12.5	50	6
RAPRO(E)-0606R03	6.0	0.3	15	50	6
RAPRO(E)-0606R04	6.0	0.4	15	50	6
RAPRO(E)-0606R05	6.0	0.5	15	50	6
RAPRO(E)-0606R1	6.0	1	15	50	6
RAPRO(E)-0606R1.5	6.0	1.5	15	50	6
RAPRO(E)-0606R2	6.0	2	15	50	6
RAPRO(E)-0808R03	8.0	0.3	20	60	8
RAPRO(E)-0808R04	8.0	0.4	20	60	8
RAPRO(E)-0808R05	8.0	0.5	20	60	8
RAPRO(E)-0808R1	8.0	1	20	60	8
RAPRO(E)-0808R1.5	8.0	1.5	20	60	8
RAPRO(E)-0808R2	8.0	2	20	60	8

Order No.	Diameter (D1)	Corner R	Flute Length (L1)	O.A.L. (L2)	Shank Dia (D2)
RAPRO(E)-1010R03	10.0	0.3	25	75	10
RAPRO(E)-1010R04	10.0	0.4	25	75	10
RAPRO(E)-1010R05	10.0	0.5	25	75	10
RAPRO(E)-1010R1	10.0	1	25	75	10
RAPRO(E)-1010R1.5	10.0	1.5	25	75	10
RAPRO(E)-1010R2	10.0	2	25	75	10
RAPRO(E)-1010R3	10.0	3	25	75	10
RAPRO(E)-1212R05	12.0	0.5	30	75	12
RAPRO(E)-1212R1	12.0	1	30	75	12
RAPRO(E)-1212R1.5	12.0	1.5	30	75	12
RAPRO(E)-1212R2	12.0	2	30	75	12
RAPRO(E)-1212R3	12.0	3	30	75	12

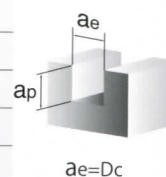
#### ▼ Recommended Cutting Condition (Side Milling)

Material		Carbon Steels Alloy Steels/Cast Irons		Pre-Hardened Steels		Stainless Steels		Titanium Alloys		Superalloy		Depth of cut
Depth of cut		SS/S45C/SCM/FC		SKD/NAK		SUS304/SUS316L...		Ti6AL-4V...		Inconel 718...		
Order No.	Dia. (D1)	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min	
RAPRO(E)-0204	2.0	19900	1200	11150	800	10350	415	10350	415	5890	190	
RAPRO(E)-0306	3.0	13270	1330	7430	595	6900	550	6900	550	3930	250	
RAPRO(E)-0406	4.0	9950	1190	5570	670	5180	520	5180	520	2950	240	
RAPRO(E)-0506	5.0	7960	1270	4460	625	4140	500	4140	500	2360	230	
RAPRO(E)-0606	6.0	6630	1460	3710	670	3450	520	3450	520	1960	300	
RAPRO(E)-0808	8.0	4970	1390	2780	700	2590	465	2590	465	1470	280	
RAPRO(E)-1010	10.0	3980	1270	2230	625	2070	480	2070	480	1200	250	
RAPRO(E)-1212	12.0	3320	1260	1860	560	1730	450	1730	450	980	220	



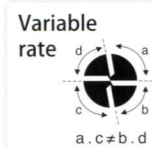
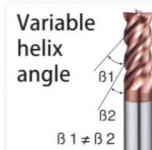
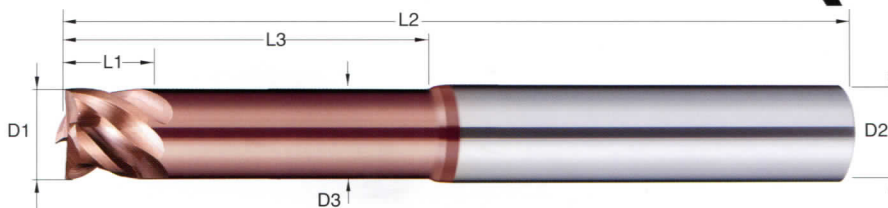
#### ▼ Recommended Cutting Condition (Grooving)

Material		Carbon Steels Alloy Steels/Cast Irons		Pre-Hardened Steels		Stainless Steels		Titanium Alloys		Superalloy		Depth of cut
Depth of cut		SS/S45C/SCM/FC		SKD11/SKD61...		SUS304/SUS316L...		Ti6AL-4V...		Inconel 718...		
Order No.	Dia. (D1)	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min	
RAPRO(E)-0204	2.0	17500	700	8760	420	9550	230	9550	230	4780	115	
RAPRO(E)-0306	3.0	11670	700	5840	420	6370	230	6370	230	3180	115	
RAPRO(E)-0406	4.0	8750	700	4380	350	4780	215	4780	215	2390	105	
RAPRO(E)-0506	5.0	7000	840	3500	420	3820	230	3820	230	1910	115	
RAPRO(E)-0606	6.0	5840	840	2920	410	3180	240	3180	240	1590	120	
RAPRO(E)-0808	8.0	4380	875	2190	395	2390	215	2390	215	1190	104	
RAPRO(E)-1010	10.0	3500	880	1750	370	1910	230	1910	230	950	115	
RAPRO(E)-1212	12.0	2920	800	1460	350	1590	215	1590	215	800	105	





# NECKPRO 5D(E)



P.03 P.03

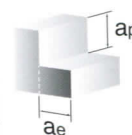
unit: mm

Carbon Steels	Alloy Steels	Pre-Hardened Steel	Hardened Steels		Stainless Steels	Aluminum Alloys	Heat resistant Alloy	Titanium Alloys
~HB225	HB225~352	HRC~48	HRC~56	HRC~65				
◎	◎	○			◎		◎	◎

Order No.	Diameter (D1)	Flute Length (L1)	Effective Length (L3)	Neck Dia (D3)	O.A.L. (L2)	Shank Dia (D2)
NECKPRO5D(E)-0306	3.0	4.5	15	2.9	70	6
NECKPRO5D(E)-0406	4.0	6	20	3.88	70	6
NECKPRO5D(E)-0506	5.0	7.5	25	4.8	70	6
NECKPRO5D(E)-0606	6.0	9	30	5.8	70	6
NECKPRO5D(E)-0808	8.0	12	40	7.7	80	8
NECKPRO5D(E)-1010	10.0	15	50	9.6	100	10
NECKPRO5D(E)-1212	12.0	18	60	11.5	110	12

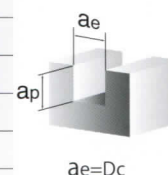
### ▼ Recommended Cutting Condition (Side Milling)

Material	Carbon Steels Alloy Steels/Cast Irons		Pre-Hardened Steels		Stainless Steels		Titanium Alloys		Superalloy		Depth of cut
	SS/S45C/SCM/FC	SKD11/SKD61...	SUS304/SUS316L...	Ti6AL-4V...	Inconel 718...						
Depth of cut	ap:1Dc ae:0.5Dc		ap:1Dc ae:0.5Dc		ap:1Dc ae:0.5Dc		ap:1Dc ae:0.5Dc		ap:1Dc ae:0.5Dc		
Order No.	Dia. (D1)	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min
NECKPRO5D(E)-0306	3.0	8000	640	5600	320	4800	270	4800	270	3200	90
NECKPRO5D(E)-0406	4.0	6000	640	4200	320	3500	280	3500	280	2400	96
NECKPRO5D(E)-0506	5.0	4800	670	3360	340	2900	290	2900	290	1910	96
NECKPRO5D(E)-0606	6.0	4000	720	2800	360	2400	290	2400	290	1595	96
NECKPRO5D(E)-0808	8.0	3000	600	2100	300	1800	290	1800	290	1195	100
NECKPRO5D(E)-1010	10.0	2400	670	1700	340	1500	300	1500	300	955	110
NECKPRO5D(E)-1212	12.0	2000	600	1500	300	1300	280	1300	280	800	96



### ▼ Recommended Cutting Condition (Grooving)

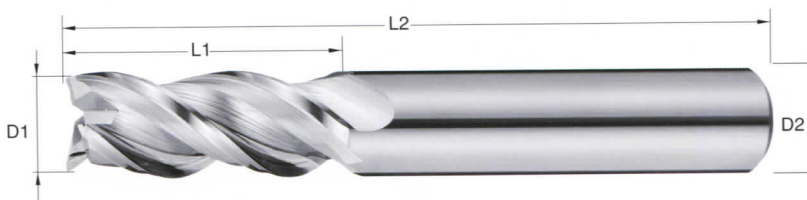
Material	Carbon Steels Alloy Steels/Cast Irons		Pre-Hardened Steels		Stainless Steels		Titanium Alloys		Superalloy		Depth of cut
	SS/S45C/SCM/FC	SKD11/SKD61...	SUS304/SUS316L...	Ti6AL-4V...	Inconel 718...						
Depth of cut	ap:1Dc		ap:1Dc		ap:1Dc		ap:0.5Dc		ap:0.5Dc		
Order No.	Dia. (D1)	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min
NECKPRO5D(E)-0306	3.0	7000	560	4900	255	4400	245	4400	245	3200	90
NECKPRO5D(E)-0406	4.0	5500	550	3900	280	3500	280	3500	280	2400	96
NECKPRO5D(E)-0506	5.0	4400	620	3000	300	2700	270	2700	270	1910	96
NECKPRO5D(E)-0606	6.0	3700	590	2600	310	2400	280	2350	280	1595	96
NECKPRO5D(E)-0808	8.0	2600	625	1900	300	1700	270	1700	270	1195	100
NECKPRO5D(E)-1010	10.0	2200	615	1500	300	1350	270	1350	270	955	110
NECKPRO5D(E)-1212	12.0	1800	575	1300	260	1200	260	1200	260	800	96





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## AL3PRO



Carbon Steels	Alloy Steels	Pre-Hardened Steel	Hardened Steels	Stainless Steels	Aluminum Alloys	Heat resistant Alloy	Titanium Alloys
~HB225	HB225~352	HRC~48	HRC~56	HRC~65			

unit: mm

Order No.	Diameter (D1)	Flute Length (L1)	O.A.L. (L2)	Shank Dia (D2)
AL3PRO-0306	3.0	8	50	6
AL3PRO-0406	4.0	11	50	6
AL3PRO-0506	5.0	13	50	6
AL3PRO-0606	6.0	16	50	6
AL3PRO-0808	8.0	20	65	8
AL3PRO-1010	10.0	25	80	10
AL3PRO-1212	12.0	30	80	12
AL3PRO-1616	16.0	50	110	16
AL3PRO-2020	20.0	60	150	20

## ▼ Recommended Cutting Condition (Side Milling)

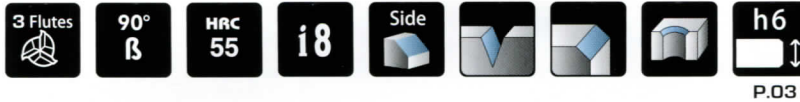
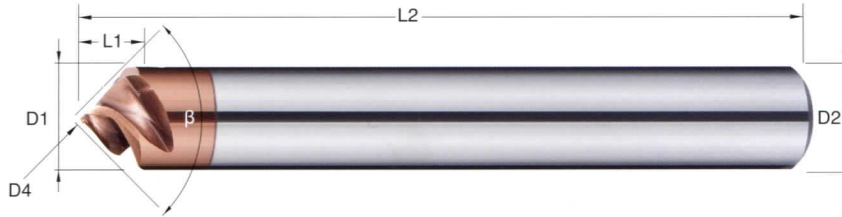
Material		Aluminums		Aluminum Alloys		Aluminum Alloy Castings		切込み
		A1050/A1070		A2017/A5052/A7075		AC/ADC		
Depth of cut		ap:1.5Dc ae:0.3Dc		ap:1.5Dc ae:0.3Dc		ap:1.5Dc ae:0.3Dc		
Order No.	Dia. (D1)	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min	
AL3PRO-0306	3.0	20000	3600	20000	3000	20000	3600	
AL3PRO-0406	4.0	20000	3600	20000	3000	19900	3600	
AL3PRO-0506	5.0	20000	3600	17200	3000	15920	3600	
AL3PRO-0606	6.0	15920	3340	14330	3000	13270	2790	
AL3PRO-0808	8.0	11940	2860	10750	2580	9950	2380	
AL3PRO-1010	10.0	9550	2580	8600	2400	7960	2150	
AL3PRO-1212	12.0	7960	2390	7160	2150	6630	1990	

## ▼ Recommended Cutting Condition (Grooving)

Material		Aluminums		Aluminum Alloys		Aluminum Alloy Castings		切込み
		A1050/A1070		A2017/A5052/A7075		AC/ADC		
Depth of cut		ap:1.0Dc ae:0.3Dc		ap:1.0Dc ae:0.3Dc		ap:1.0Dc ae:0.3Dc		
Order No.	Dia. (D1)	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min	Speed (min <sup>-1</sup> )	Feed mm/min	
AL3PRO-0306	3.0	18000	2700	19100	2700	14860	2700	
AL3PRO-0406	4.0	15920	2300	15920	2300	11140	2300	
AL3PRO-0506	5.0	12740	2300	14000	2000	8920	1600	
AL3PRO-0606	6.0	10620	1910	11670	1750	7430	1330	
AL3PRO-0808	8.0	7960	1910	8750	1750	5570	1330	
AL3PRO-1010	10.0	6370	1720	7000	1680	4460	1200	
AL3PRO-1212	12.0	5300	1590	5840	1570	3710	1110	



# 3VPRO



Carbon Steels	Alloy Steels	Pre-Hardened Steel	Hardened Steels		Stainless Steels	Aluminum Alloys	Heat resistant Alloy	Titanium Alloys
~HB225	HB225~352	HRC~48	HRC~56	HRC~65				
◎	◎	◎			◎	○	◎	◎

unit: mm

Order No.	Diameter (D1)	Tip Diameter (D4)	Flute Length (L1)	O.A.L. (L2)	Shank Dia (D2)
3VPRO-0404	4.0	0.2	1.5	50	4
3VPRO-0406	4.0	0.2	1.5	50	6
3VPRO-060	6.0	0.2	2	50	6
3VPRO-080	8.0	0.2	3	60	8
3VPRO-100	10.0	0.2	4	75	10
3VPRO-120	12.0	0.2	5	75	12

## ▼ Recommended Cutting Condition

Material	Carbon Steels/Cast Irons		Alloy Steels	Stainless Steels	Aluminum Alloys
	SS/S45C/FC		SCM/SKD	SUS304/SUS316L...	A2017/A5052/A7075
Cutting Speed (V)	50~80 m/min		35~60 m/min	20~40 m/min	100~150 m/min
Order No.	Dia. (D1)	fz mm/min	fz mm/min	fz mm/min	fz mm/min
3VPRO-040	4.0	0.03~0.04	0.02~0.03	0.015~0.03	0.04~0.07
3VPRO-060	6.0	0.03~0.04	0.02~0.03	0.015~0.03	0.04~0.07
3VPRO-080	8.0	0.03~0.07	0.03~0.05	0.025~0.05	0.07~0.09
3VPRO-100	10.0	0.03~0.07	0.03~0.05	0.025~0.05	0.07~0.09
3VPRO-120	12.0	0.03~0.07	0.03~0.05	0.025~0.05	0.07~0.09

fz = Feed per Tooth



# 4VPRO



Carbon Steels	Alloy Steels	Pre-Hardened Steel	Hardened Steels		Stainless Steels	Aluminum Alloys	Heat resistant Alloy	Titanium Alloys
~HB225	HB225~352	HRC~48	HRC~56	HRC~65				
◎	◎	◎			○	○	○	○

unit: mm

Order No.	Diameter (D1)	Tip Diameter (D4)	Flute Length (L1)	O.A.L. (L2)	Shank Dia (D2)
4VPRO-0404	4.0	0.2	9	50	4
4VPRO-0406	4.0	0.2	9	50	6
4VPRO-040L	4.0	0.2	9	100	4
4VPRO-060	6.0	0.2	12	50	6
4VPRO-060L	6.0	0.2	12	110	6
4VPRO-080	8.0	0.2	15	60	8
4VPRO-080L	8.0	0.2	15	110	8
4VPRO-100	10.0	0.2	16	75	10
4VPRO-100L	10.0	0.2	16	110	10
4VPRO-120	12.0	0.2	18	75	12

## ▼ Recommended Cutting Condition

Material	Carbon Steels/Cast Irons		Alloy Steels		Stainless Steels		Aluminum Alloys		
	SS/S45C/FC		SCM/SKD		SUS304/SUS316L...		A2017/A5052/A7075		
Cutting Speed (V)		50~80 m/min		35~60 m/min		20~40 m/min		100~150 m/min	
Order No.	Dia. (D1)	fz mm/min	fz mm/min	fz mm/min	fz mm/min	fz mm/min	fz mm/min	fz mm/min	fz mm/min
4VPRO-040	4.0	0.03~0.04	0.02~0.03	0.015~0.03	0.015~0.03	0.04~0.07	0.04~0.07	0.04~0.07	0.04~0.07
4VPRO-060	6.0	0.03~0.04	0.02~0.03	0.015~0.03	0.015~0.03	0.04~0.07	0.04~0.07	0.04~0.07	0.04~0.07
4VPRO-080	8.0	0.03~0.07	0.03~0.05	0.025~0.05	0.025~0.05	0.07~0.09	0.07~0.09	0.07~0.09	0.07~0.09
4VPRO-100	10.0	0.03~0.07	0.03~0.05	0.025~0.05	0.025~0.05	0.07~0.09	0.07~0.09	0.07~0.09	0.07~0.09
4VPRO-120	12.0	0.03~0.07	0.03~0.05	0.025~0.05	0.025~0.05	0.07~0.09	0.07~0.09	0.07~0.09	0.07~0.09

fz = Feed per Tooth