



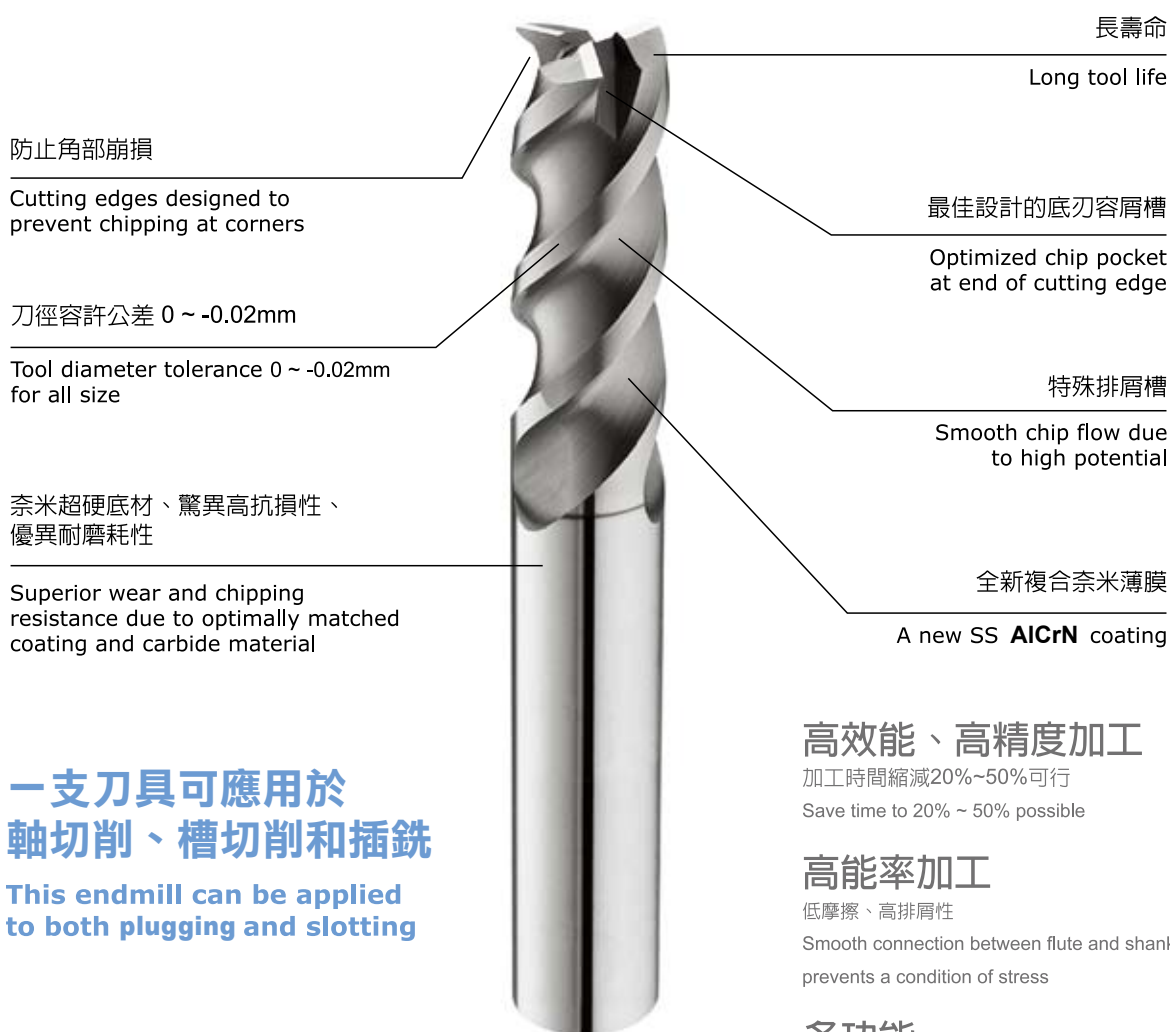


Function Series



High Speed Plunging
High Speed Slotting
High Speed Sidemilling

HPSS



一支刀具可應用於 軸切削、槽切削和插銑

This endmill can be applied
to both plunging and slotting

高效能、高精度加工

加工時間縮減20%~50%可行
Save time to 20% ~ 50% possible

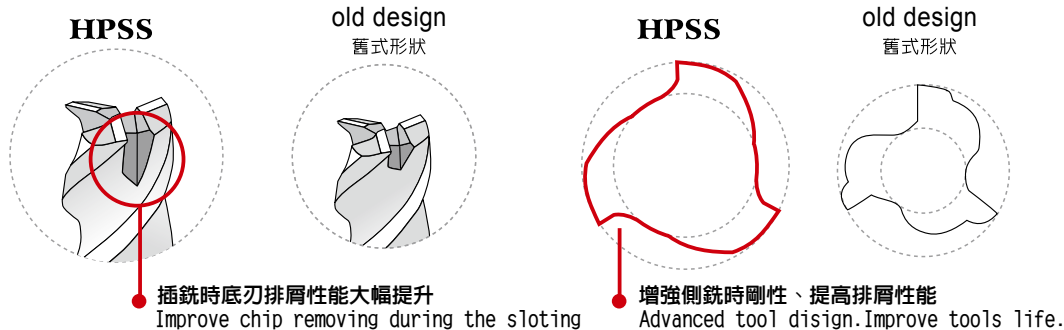
高能率加工

低摩擦、高排屑性
Smooth connection between flute and shank
prevents a condition of stress

多功能

插銑、側銑、溝加工一次完成，產能速增

■ 進化的3枚刀刃形狀



HPSS Super plugging+Slotting

■ 插銑 / 溝銑 二合一

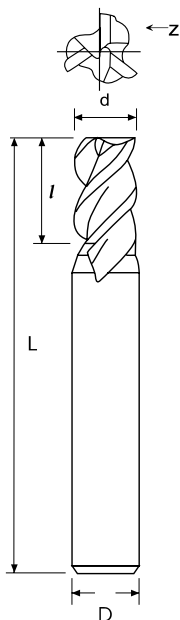
400
NanoHRC
▶ 45

45°

SS

功能性銑刀

● Ultra Micro Grain Carbide

● WC=87 Co=12 HRA=92.1 Rupture=3800N/mm² Grain Size=0.4μm

HPSS					
Mode	Diameter	Flute Length	Full Length	Shank Diameter	Flutes
型號	d 直徑	l 刃長	L 全長	D 柄徑	Z 刃數
HPSS0200	2	4	50	6	3
HPSS0250	2.5	5	50	6	3
HPSS0300	3	6	50	6	3
HPSS0350	3.5	8	50	6	3
HPSS0400	4	8	50	6	3
HPSS0450	4.5	10	50	6	3
HPSS0500	5	10	50	6	3
HPSS0550	5.5	13	50	6	3
HPSS0600	6	13	60	6	3
HPSS0650	6.5	16	60	8	3
HPSS0700	7	16	60	8	3
HPSS0750	7.5	16	60	8	3
HPSS0800	8	19	60	8	3
HPSS0850	8.5	19	75	10	3
HPSS0900	9	19	75	10	3
HPSS0950	9.5	19	75	10	3
HPSS1000	10	22	75	10	3
HPSS1100	11	22	75	12	3
HPSS1200	12	26	100	12	3
HPSS1300	13	26	100	14	3
HPSS1400	14	26	100	14	3
HPSS1500	15	26	100	16	3
HPSS1600	16	30	100	16	3
HPSS2000	20	32	100	20	3

Application 適用材質：

◎ Recommend 最適合 ○ Suitable 適合 X Not Recommend 不建議

carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-hardened steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不銹鋼	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金
	~45HRC	~50HRC	~55HRC	~60HRC	~65HRC				
◎	◎	○							



SH

Super High Hardness & Super High Speed Cutting

End Mill Series For High Hardness Steels

高硬度鋼加工超長壽命
超高表面硬度・超高速加工
超高附著薄膜・超高硬度薄膜
震虎與瑞士 **Ion Bond** 技術合作開發

Long life for high hardness steel

Super high hardness, super high speed cutting

Super high adhesion coating & super high hardness coating

SPEED TIGER Super Coating SH

- 奈米複合塗層採用奈米晶格靶材，大幅改善附著效果，並且維持更低的摩擦係數。
- 非常出色地應用在塑膠模，尤其是在NAK鋼材加工效率在2倍以上，並且在合金鋼NAK、碳鋼形成超長刀具壽命和高品質加工。
- 摩擦係數大幅改善，形成較低的切削溫度，所以乾式切削可行，超高速切削亦可行。
- Nano-composite coating which is improved the adhesion property without making the abrasive property lower by new coating material of nano-crystal.
- Excellent cutting is reached in machining plastic moulds, especially in NAK steels with over two times in machining efficiency. Long tool life and precision machining in carbon steels, alloy steels, NAK55 etc.
- Dry cutting applicable, because of less cutting heat by improving friction property very much and high speed cutting applicable.

Swiss & SPEED TIGER
Technological Cooperation

SH Super High Speed High Hardness

■ 超高硬度 / 超高速加工

200
Nano

HRC
65

5°

SH

功能性銑刀

● Ultra Micro Grain Carbide

● WC=91 Co=9 HRA=93.2 Rupture=4000N/mm² Grain Size=0.2μm



SH KCR

Mode	Diameter	Corner Radius	Flute Length	Efficient Length	Neck Dia	Full Length	Shank Diameter	Flutes
型號	d 直徑	R 角	l 刃長	L1 有效長	頸徑	L 全長	D 柄徑	Z 刃數
KCR0203	2	0.3	0.8	5	1.8	60	6	4
KCR0205	2	0.5	0.8	5	1.8	60	6	4
KCR0307	3	0.75	1.2	7.5	2.7	60	6	4
KCR0310	3	1	1.2	7.5	2.7	60	6	4
KCR0405	4	0.5	1.6	10	3.6	75	6	4
KCR0410	4	1	1.6	10	3.6	75	6	4
KCR0510	5	1	2	12	4.5	75	6	4
KCR0512	5	1.2	2	12	4.5	75	6	4
KCR0610	6	1	2.5	13	5.4	100	6	4
KCR0615	6	1.5	2.5	13	5.4	100	6	4
KCR0810	8	1	3.5	16	7.2	100	8	4
KCR0820	8	2	3.5	16	7.2	100	8	4
KCR0920	9	2	4	18	8.2	100	10	4
KCR1010	10	1	4	20	9	100	10	4
KCR1020	10	2	4	20	9	100	10	4
KCR1210	12	1	5	24	11	100	12	4
KCR1220	12	2	5	24	11	100	12	4
KCR1230	12	3	5	24	11	100	12	4

Application 適用材質：

◎ Recommend 最適合 ○ Suitable 適合 X Not Recommend 不建議

carbon steel, Alloy steel 炭素鋼,合金鋼	Pre-hardened steel 預硬鋼	High-hardened 高硬度鋼				Stainless steel 不銹鋼	Copper alloy 銅合金,銅	Aluminun alloy 鋁合金
	~45HRC	~50HRC	~55HRC	~60HRC	~65HRC			
○	○	◎	◎	◎	◎			



SH KTG Super High Hardness & Super High Speed Cutting

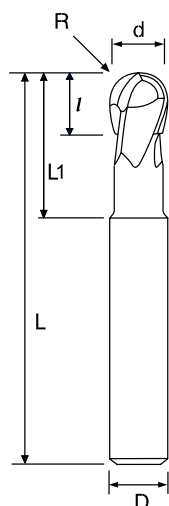
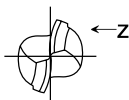
■ 超高硬度 / 超高速加工

200
NanoHRC
65

5°

SH

● Ultra Micro Grain Carbide

● WC=91 Co=9 HRA=93.2 Rupture=4000N/mm² Grain Size=0.2μm

SH KTG

Mode	Diameter	Radius	Flute Length	Efficient Length	Neck Dia	Full Length	Shank Diameter
型號	d 直徑	R 角	l 刃長	L1 有效長	頸徑	L 全長	D 柄徑
KTG0102SH	1	0.5	1	2.5	0.96	50	6
KTG0152SH	1.5	0.75	1.5	4	1.46	50	6
KTG0202SH	2	1	2	6	1.96	50	6
KTG0252SH	2.5	1.25	2.5	7	2.46	50	6
KTG0302SH	3	1.5	3	8	2.96	50	6
KTG4402SH	4	2	4	8	3.96	50	4
KTG0402SH	4	2	4	8	3.96	50	6
KTG0502SH	5	2.5	5	12	4.96	50	6
KTG0602SH	6	3	6	13	5.96	50	6
KTG0802SH	8	4	8	16	7.9	60	8
KTG1002SH	10	5	10	20	9.9	75	10
KTG1202SH	12	6	12	24	11.9	75	12

Application 適用材質：

◎ Recommend 最適 ○ Suitable 適合 X Not Recommend 不建議

carbon steel, Alloy steel 炭素鋼,合金鋼	Pre-hardened steel 預硬鋼	High-hardened 高硬度鋼				Stainless steel 不銹鋼	Copper alloy 銅合金,銅	Aluminum alloy 鋁合金
	~45HRC	~50HRC	~55HRC	~60HRC	~65HRC			
○	○	◎	◎	◎	◎			

Note



SAVE TIME

BIG FOOT

RADIUS ENDMILL

刀刃平順光滑

Smooth radiul relief

刀徑容許公差 0 ~ -0.02mm

Tool diameter tolerance 0 ~ -0.02mm
for all size

奈米超硬底材、驚異高抗損性、優異耐磨耗性

Superior wear and chipping
resistance due to optimally matched
coating and carbide material

高效能、高精度加工

加工時間縮減20%~50%可行

高能率加工

橢圓形狀，切削接觸面積增大
加工時間縮減20%~50%可行

長壽命

Long tool life

高效

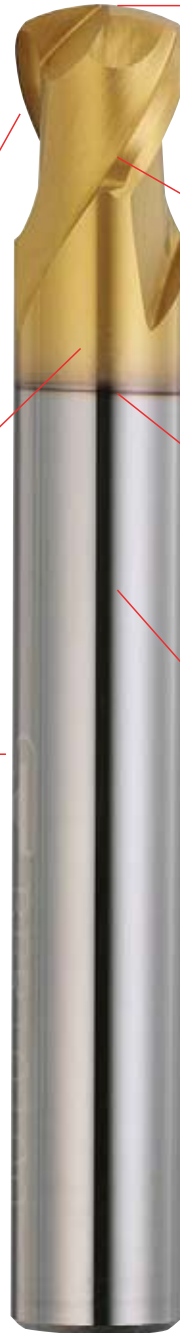
High efficient

高精度

High accuracy

全新氮化鋁鈦

A new SH AlTiN coating



長壽命

橢圓形狀同球型銼刀加工場合
走行距離大幅縮短
形成長壽命

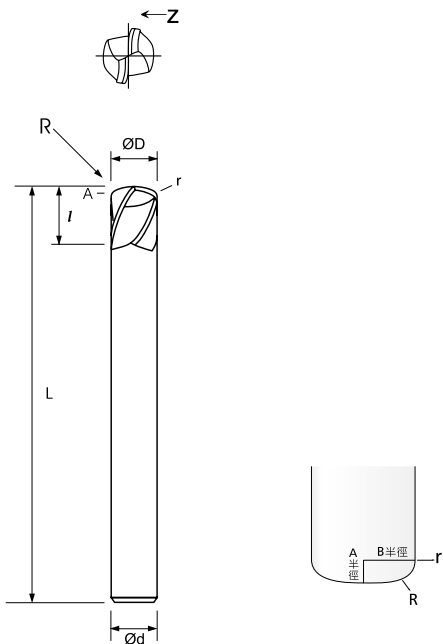
BIG FOOT Super Remover
BIG FOOT



- Ultra Micro Grain Carbide
- WC=87 Co=12 HRA=92.1 Rupture=3800N/mm² Grain Size=0.4μm



BIG FOOT								
Mode	Diameter	Corner Radius			Corner	Flute Length	Full Length	Shank Diameter
型號	d 直徑	R 角	A 半徑	B 半徑	r	l 刃長	L 全長	D 柄徑
BFR06050	6	5	0.66	3	2	7	60	6
BFR06051	6	5	0.66	3	2	7	100	6
BFR06060	6	6	0.66	3	1.5	7	60	6
BFR06061	6	6	0.66	3	1.5	7	100	6
BFR08080	8	8	0.88	4	2	9	60	8
BFR08081	8	8	0.88	4	2	9	100	8
BFR10100	10	10	0.9	5	3	11	75	10
BFR10101	10	10	0.9	5	3	11	100	10
BFR12120	12	12	1.6	6	3	13	75	12
BFR12121	12	12	1.6	6	3	13	100	12
BFR12150	12	15	0.91	6	3	15	75	12
BFR12151	12	15	0.91	6	3	15	100	12
BFR16160	16	16	1.77	8	4	18	150	16
BFR16200	16	20	1.5	8	3	22	150	16



Application 適用材質： ◎ Recommend 最適合 ○ Suitable 適合 X Not Recommend 不建議

carbon steel, Alloy steel 炭素鋼,合金鋼	Pre-hardened steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不銹鋼	Copper alloy 銅合金,銅	Aluminum alloy 鋁合金
	~45HRC	~50HRC	~55HRC	~60HRC	~65HRC				
○	○	◎	◎	◎	◎				





FULGURITE AND HIGH SPEED MILLING AND POEWRFUL

■ UMG-FHPS

■ UMG-FHP

■ UMG-CR-FHP

刀徑容許公差 0 ~ -0.02mm

Tool diameter tolerance 0 ~ -0.02mm
for all size

奈米超硬底材、驚異高抗損性、優異耐磨耗性

Superior wear and chipping
resistance due to optimally matched
coating and carbide material

刀刃平順光滑

Smooth radiul relief

多機能

高速溝加工及超高速側面加工

高精度加工一次完成

優異的切削排出性

切削排出性高

特殊溝形狀採用

四枚刀溝重切削實現

高剛性

獨自的溝形狀應用

大幅度的高剛性設計

抗折損強度大幅提昇

長壽命

Long tool life

高效能

High efficient

高精度

High accuracy

優異新刃形採用

A new geomatry is
adopted to ensure rigidity



FHP - FHPS 4 Flutes • Short (Heavy- duty operation type)



■ 4刃重切削立銑刀

● Ultra Micro Grain Carbide

● WC=87 Co=12 HRA=92.1 Rupture=3800N/mm² Grain Size=0.4μm



UMG - FHPS

Mode	Diameter	Flute Length	Full Length	Shank Diameter	Flutes
型號	d 直徑	l 刃長	L 全長	D 柄徑	Z 刃數
FHPS020	2	3	50	6	4
FHPS021	2.1	3.2	50	6	4
FHPS022	2.2	3.3	50	6	4
FHPS023	2.3	3.5	50	6	4
FHPS024	2.4	3.6	50	6	4
FHPS025	2.5	3.8	50	6	4
FHPS026	2.6	3.9	50	6	4
FHPS027	2.7	4.1	50	6	4
FHPS028	2.8	4.2	50	6	4
FHPS029	2.9	4.4	50	6	4
FHPS030	3	4.5	50	6	4
FHPS031	3.1	4.7	50	6	4
FHPS032	3.2	4.8	50	6	4
FHPS033	3.3	5	50	6	4
FHPS034	3.4	5.1	50	6	4
FHPS035	3.5	5.3	50	6	4
FHPS036	3.6	5.4	50	6	4
FHPS037	3.7	5.6	50	6	4
FHPS038	3.8	5.7	50	6	4
FHPS039	3.9	5.9	50	6	4
FHPS040	4	6	50	6	4
FHPS041	4.1	6.2	50	6	4
FHPS042	4.2	6.3	50	6	4
FHPS043	4.3	6.5	50	6	4
FHPS044	4.4	6.6	50	6	4
FHPS045	4.5	6.8	50	6	4
FHPS046	4.6	6.9	50	6	4
FHPS047	4.7	7.1	50	6	4
FHPS048	4.8	7.2	50	6	4
FHPS049	4.9	7.4	50	6	4
FHPS050	5	7.5	50	6	4
FHPS051	5.1	7.7	50	6	4
FHPS052	5.2	7.8	50	6	4
FHPS053	5.3	8	50	6	4
FHPS054	5.4	8.1	50	6	4
FHPS055	5.5	8.3	50	6	4

Application 適用材質：

◎ Recommend 最適合 ○ Suitable 適合 X Not Recommend 不建議

carbon steel, Alloy steel 炭素鋼,合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼				Stainless steel 不銹鋼	Copper alloy 銅合金,銅	Aluminun alloy 鋁合金
	~45HRC	~50HRC	~55HRC	~60HRC	~65HRC			
◎	◎	◎	○	○				



FHP - FHPS 4 Flutes • Short (Heavy- duty operation type)

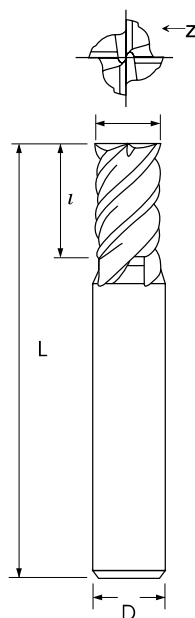
400
NanoHRC
60

45°

nBS

■ 4刃重切削立銑刀

● Ultra Micro Grain Carbide

● WC=87 Co=12 HRA=92.1 Rupture=3800N/mm² Grain Size=0.4μm

UMG - FHPS

Mode	Diameter	Flute Length	Full Length	Shank Diameter	Flutes
型號	d 直徑	l 刃長	L 全長	D 柄徑	Z 刃數
FHPS056	5.6	8.4	50	6	4
FHPS057	5.7	8.6	50	6	4
FHPS058	5.8	8.7	50	6	4
FHPS059	5.9	8.9	50	6	4
FHPS060	6	9	50	6	4
FHPS061	6.1	9.2	60	8	4
FHPS062	6.2	9.3	60	8	4
FHPS063	6.3	9.5	60	8	4
FHPS064	6.4	9.6	60	8	4
FHPS065	6.5	9.8	60	8	4
FHPS066	6.6	9.9	60	8	4
FHPS067	6.7	10.1	60	8	4
FHPS068	6.8	10.2	60	8	4
FHPS069	6.9	10.4	60	8	4
FHPS070	7	10.5	60	8	4
FHPS071	7.1	10.7	60	8	4
FHPS072	7.2	10.8	60	8	4
FHPS073	7.3	11	60	8	4
FHPS074	7.4	11.1	60	8	4
FHPS075	7.5	11.3	60	8	4
FHPS076	7.6	11.4	60	8	4
FHPS077	7.7	11.6	60	8	4
FHPS078	7.8	11.7	60	8	4
FHPS079	7.9	11.9	60	8	4
FHPS080	8	12	60	8	4
FHPS081	8.1	12.2	75	10	4
FHPS082	8.2	12.3	75	10	4
FHPS083	8.3	12.5	75	10	4
FHPS084	8.4	12.6	75	10	4
FHPS085	8.5	12.8	75	10	4
FHPS086	8.6	12.9	75	10	4
FHPS087	8.7	13.1	75	10	4
FHPS088	8.8	13.2	75	10	4
FHPS089	8.9	13.4	75	10	4
FHPS090	9	13.5	75	10	4
FHPS091	9.1	13.7	75	10	4

Application 適用材質：

◎ Recommend 最適合 ○ Suitable 適合 X Not Recommend 不建議

carbon steel, Alloy steel 炭素鋼 ,合金鋼	Pre-hardened steel 預硬鋼	High-hardened 高硬度鋼				Stainless steel 不銹鋼	Copper alloy 銅合金,銅	Aluminun alloy 鋁合金
	~45HRC	~50HRC	~55HRC	~60HRC	~65HRC			
◎	◎	◎	○	○				

FHP - FHPS 4 Flutes • Short (Heavy- duty operation type)

400
NanoHRC
▶ 60

45°

nBS

■ 4刃重切削立銑刀

● Ultra Micro Grain Carbide

● WC=87 Co=12 HRA=92.1 Rupture=3800N/mm² Grain Size=0.4μm

UMG - FHPS

Mode	Diameter	Flute Length	Full Length	Shank Diameter	Flutes
型號	d 直徑	l 刃長	L 全長	D 柄徑	Z 刃數
FHPS092	9.2	13.8	75	10	4
FHPS093	9.3	14	75	10	4
FHPS094	9.4	14.1	75	10	4
FHPS095	9.5	14.3	75	10	4
FHPS096	9.6	14.4	75	10	4
FHPS097	9.7	14.6	75	10	4
FHPS098	9.8	14.7	75	10	4
FHPS099	9.9	14.9	75	10	4
FHPS100	10	15	75	10	4
FHPS105	10.5	15.8	100	12	4
FHPS110	11	16.5	100	12	4
FHPS115	11.5	17.3	100	12	4
FHPS120	12	18	100	12	4
FHPS125	12.5	18.8	100	14	4
FHPS130	13	19.5	100	14	4
FHPS135	13.5	20.3	100	14	4
FHPS140	14	21	100	14	4
FHPS145	14.5	21.8	100	16	4
FHPS150	15	22.5	100	16	4
FHPS155	15.5	23.3	100	16	4
FHPS160	16	24	100	16	4
FHPS170	17	25.5	100	20	4
FHPS180	18	27	100	20	4
FHPS190	19	28.5	100	20	4
FHPS200	20	30	100	20	4

Application 適用材質：

◎ Recommend 最適合 ○ Suitable 適合 X Not Recommend 不建議

carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼				Stainless steel 不銹鋼	Copper alloy 銅合金, 銅	Aluminun alloy 鋁合金
	~45HRC	~50HRC	~55HRC	~60HRC	~65HRC			
◎	◎	◎	○	○				



UMG - FHP 4 Flutes • Short (Heavy- duty operation type)

400
NanoHRC
60

45°

nBS

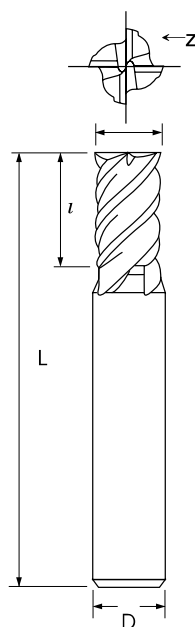
■ 4刃重切削立銑刀

● Ultra Micro Grain Carbide

● WC=87 Co=12 HRA=92.1 Rupture=3800N/mm² Grain Size=0.4μm

UMG - FHP

Mode	Diameter	Flute Length	Full Length	Shank Diameter	Flutes
型號	d 直徑	l 刃長	L 全長	D 柄徑	Z 刃數
FHP030	3	8	60	6	4
FHP040	4	11	60	6	4
FHP050	5	13	60	6	4
FHP060	6	13	60	6	4
FHP080	8	19	60	8	4
FHP100	10	22	75	10	4
FHP120	12	26	100	12	4
FHP160	16	35	100	16	4
FHP200	20	40	100	20	4



Application 適用材質：

◎ Recommend 最適合 ○ Suitable 適合 X Not Recommend 不建議

carbon steel, Alloy steel 炭素鋼,合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼				Stainless steel 不銹鋼	Copper alloy 銅合金,銅	Aluminun alloy 鋁合金
	~45HRC	~50HRC	~55HRC	~60HRC	~65HRC			
◎	◎	◎	○	○				



UMG - CR - FHP 4 Flutes • Short with Corner Radius (Heavy- duty operation type)

■ 4刃重切削圓鼻刀

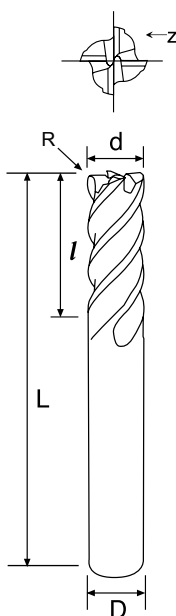
400
NanoHRC
▶ 60

45°

nBS

R

● Ultra Micro Grain Carbide

● WC=87 Co=12 HRA=92.1 Rupture=3800N/mm² Grain Size=0.4μm

UMG - CR - FHP

Mode	Diameter	Corner Radius	Flute Length	Full Length	Shank Diameter	Flutes
型號	d 直徑	R 角	l 刃長	L 全長	D 柄徑	Z 刃數
CRFHP0302	3	0.2	8	60	6	4
CRFHP0305	3	0.5	8	60	6	4
CRFHP0402	4	0.2	11	60	6	4
CRFHP0405	4	0.5	11	60	6	4
CRFHP0410	4	1	11	60	6	4
CRFHP0502	5	0.2	13	60	6	4
CRFHP0505	5	0.5	13	60	6	4
CRFHP0510	5	1	13	60	6	4
CRFHP0603	6	0.3	13	60	6	4
CRFHP0605	6	0.5	13	60	6	4
CRFHP0610	6	1	13	60	6	4
CRFHP0803	8	0.3	19	60	8	4
CRFHP0805	8	0.5	19	60	8	4
CRFHP0810	8	1	19	60	8	4
CRFHP0815	8	1.5	19	60	8	4
CRFHP0820	8	2	19	60	8	4
CRFHP1003	10	0.3	22	75	10	4
CRFHP1005	10	0.5	22	75	10	4
CRFHP1010	10	1	22	75	10	4
CRFHP1015	10	1.5	22	75	10	4
CRFHP1020	10	2	22	75	10	4
CRFHP1030	10	3	22	75	10	4
CRFHP1205	12	0.5	26	100	12	4
CRFHP1210	12	1	26	100	12	4
CRFHP1215	12	1.5	26	100	12	4
CRFHP1220	12	2	26	100	12	4
CRFHP1230	12	3	26	100	12	4
CRFHP1610	16	1	35	100	16	4
CRFHP1615	16	1.5	35	100	16	4
CRFHP1620	16	2	35	100	16	4
CRFHP1630	16	3	35	100	16	4
CRFHP2010	20	1	40	100	20	4
CRFHP2015	20	1.5	40	100	20	4
CRFHP2020	20	2	40	100	20	4
CRFHP2030	20	3	40	100	20	4

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◎	◎	◎	○	○				

Note