

HN

Indexable HN End Mill for Efficient Machining 高效捨棄式 HN 雙面六角銑刀片

Multi-Purpose, Stable Machining of Steel, Cast Iron, Stainless Steel, and General Purpose by ONE Tool.

實現了單一刀具可穩定加工於一般鋼材、鑄鐵、不銹鋼的通用性。

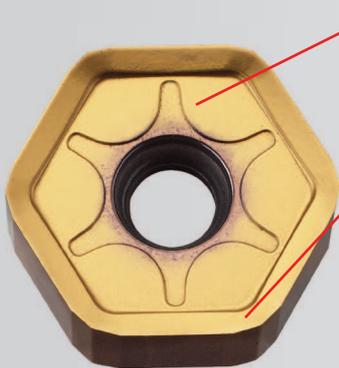
- The double-sided multi-edge design make it a cost-efficient solution – 12 times use.
大幅降低刀具成本 - 雙面對稱共十二角可換位切削
- Special cutting edge geometries are designed for machining cast iron.
刃口特殊設計對於鑄鐵材料有良好的切削性
- Circular arc design of corner is to maximize cutting edge, and improve tool life effectively
轉角圓弧設計提升刃口強度，有效提升刀具壽命。
- Nano composite; the oxidation temperature of nACro coating is up to 1,100°C
奈米級 nACro 高耐氧化溫度塗層
- Nano composite, super high hardness SH coating 奈米級 SH 超硬塗層

■ HN Indexable Insert

● 雙面六角銑刀片

■ Feature 特色

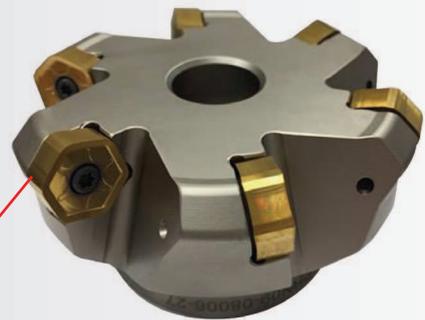
Design 外型設計



The double-sided multi-edge design make it a cost-efficient solution – 12 times use. It offers high productivity and a low cost per edge.
雙面對稱共十二角可換位切削，減少刀具成本。

Special cutting edge geometries are designed for machining cast iron.
刃口特殊設計對於鑄鐵材料有良好的切削性。

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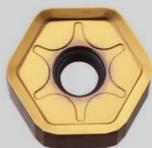


Coating 塗層介紹 – nACro and SH coating



The oxidation temperature of nACro coating is up to 1,100°C, which is suitable for milling cast iron, carbon steel, stainless steel, and alloy steel.

nACro 具有高達 1100°C 氧化溫度的特性，適用於切削鑄鐵、一般碳鋼、不鏽鋼以及合金鋼的鍍層。



SH coating is with low friction coefficient and super high hardness which is over HV4000; thus, with cutting tool, it can mill steel very easily.

SH 結構低摩擦係數，超高硬度，表面硬度達 Hv4000 以上，削鐵如泥。

Application 應用 新型超強韌微晶硬質合金 3225/4225 及 3220/4220

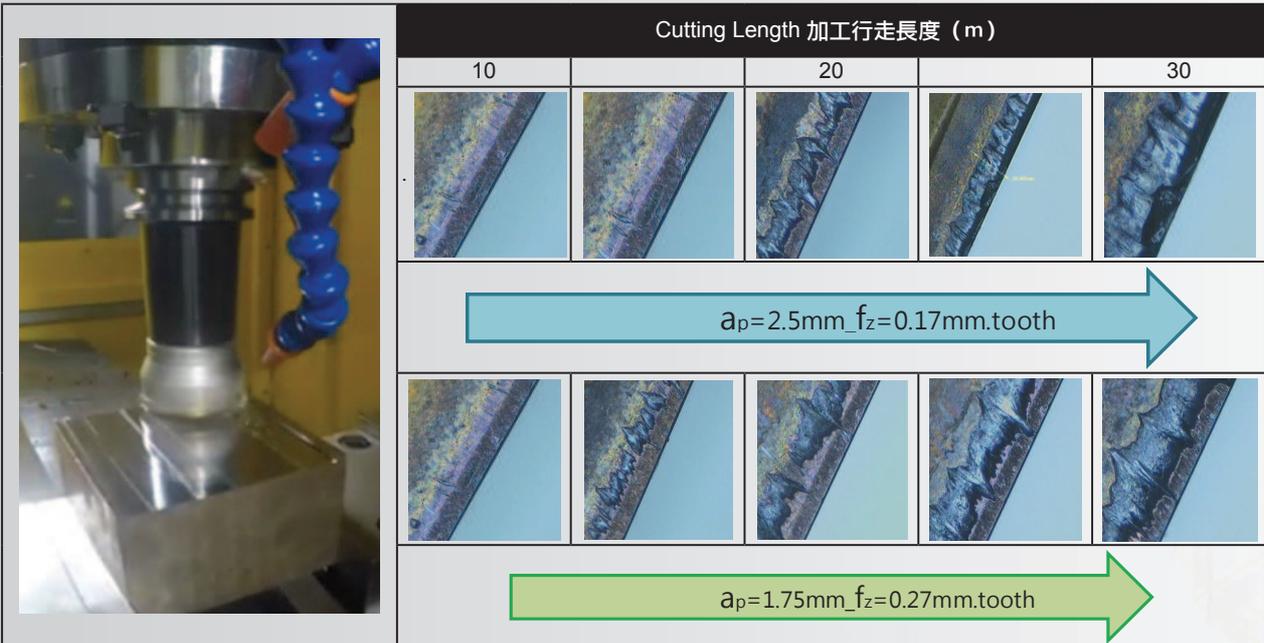
Tool Material 材料型號	ISO Standard Code ISO 標準代號	Cutting Material 材料種類	Applications 應用範圍													P Steel	M Stainless	K Cast Iron	N Non-ferrous	S Heat resistant	H Hard Alloy	
			1	5	10	15	20	25	30	35	40	45	50									
3225	P	Super Hard Alloy 超硬質合金															●					▲
	M																	▲				
	K																			●		
4225	P	Super Hard Alloy 超硬質合金																●				▲
	M																	▲				
	K																			●		
3220	P	Super Hard Alloy 超硬質合金																●				
	M																		●			▲
	K																			▲		
4220	P	Super Hard Alloy 超硬質合金																●				
	M																		●			▲
	K																			▲		

■ Cutting Performance

● 切削效能

■ Carbon Steel - S45C

HNGX0604 切削 S45C 中碳鋼



Cutting Conditions 條件與設備規格

Material 工件材料	S45C
Cutting Fluid 切削液	噴氣
Spindle Horsepower 主軸馬力	7.5/11kW
Chucks 刀桿規格	BT40
Tool 刀具規格	PHN06-5006(Ø50mm x 145mm x 6T)
Insert 刀片規格	HNGX0604-R-4225
Vc 切線速度	250(m/min)
Ae 徑向切削步距	33mm

Formula 公式 $Vc = \pi DN/1000$ $F = fz \cdot T \cdot N$

■ Surface Performance

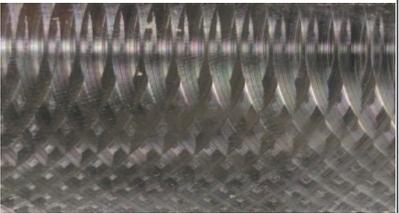
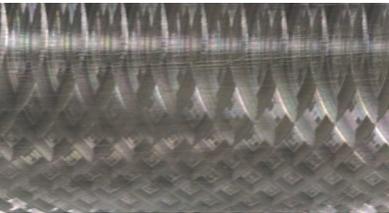
- 表面粗糙度

■ HN face milling HN 面銑

Surface Roughness Tester 表面粗度測量儀 : MitutoyoSurftest_SJ-301

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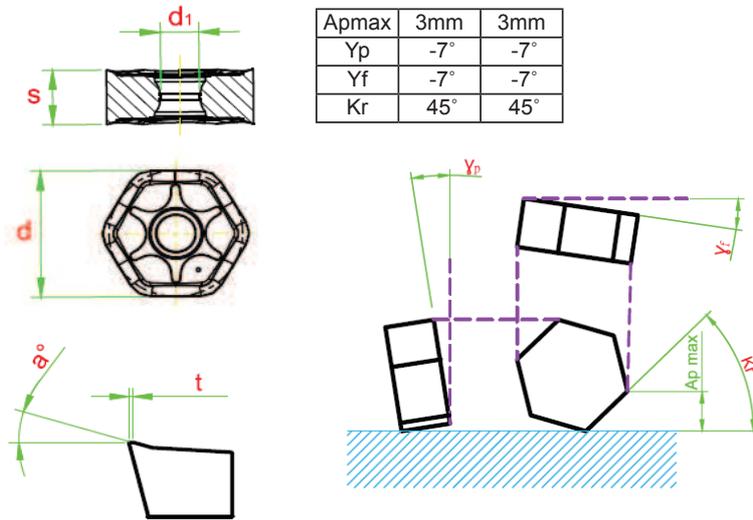
Carbon Steel 中碳鋼 - S45C		
		
Holder 刀具 - PHN06-5006(Ø50mm x 145mm x 6T)		
Insert 刀片 - HNGX0604-R-3225		
Vc=200m/min		
N=1270rpm		
Fz=0.1mm/tooth Ra=1.22 μm	Fz=0.3mm/tooth Ra=1.66 μm	Fz=0.5mm/tooth Ra=1.82 μm

Stainless Steel 不鏽鋼 - SUS304		
		
Holder 刀具 - PHN06-5006(Ø50mm x 145mm x 6T)		
Insert 刀片 - HNGX0604-R-3225		
Vc=120m/min		
N=764rpm		
Fz=0.1mm/tooth Ra=1.19 μm	Fz=0.3mm/tooth Ra=1.51 μm	Fz=0.5mm/tooth Ra=1.85 μm

Nodular Cast Iron/Ductile Iron 球墨鑄鐵		
		
Holder 刀具 - PHN06-5006(Ø50mm x 145mm x 6T)		
Insert 刀片 - HNGX0604-R-3225		
Vc=200m/min		
N=1270rpm		
Fz=0.1mm/tooth Ra=1.38 μm	Fz=0.3mm/tooth Ra=1.90 μm	Fz=0.5mm/tooth Ra=2.85 μm

HN Indexable Insert

HN 雙面六角銑刀



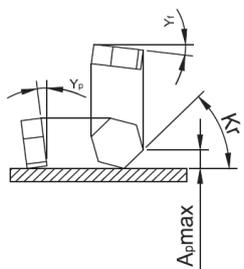
Apmax	3mm	3mm
Yp	-7°	-7°
Yf	-7°	-7°
Kr	45°	45°



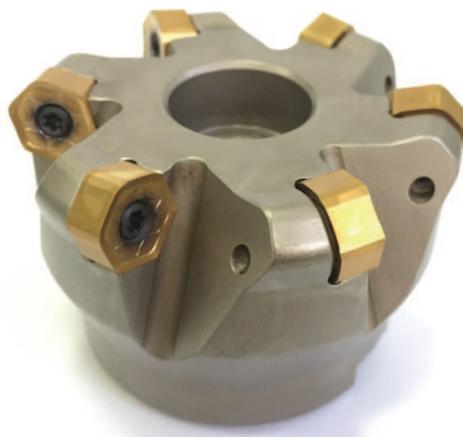
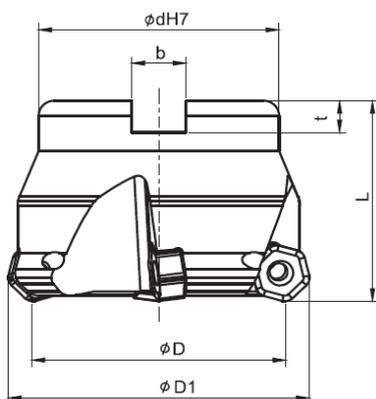
Item Code 規格碼	Dimensions (mm) 規格					Material 材質 3225 4225	Coating 塗層		Milling 銑削	P	M	K
	d	d1	s	a	t		nACro	SH				
HNGX0604-R-3225	10.5	3.64	5.26	15	0.08	✓		✓	Roughing 粗銑	●	▲	●
									Medium 中	●	▲	●
									Finishing 精銑	●	▲	●
HNGX0604-R-4225	10.5	3.64	5.26	15	0.08	✓	✓		Roughing 粗銑	●	●	▲
									Medium 中	●	●	▲
									Finishing 精銑	●	●	▲
HNGX0906-R-3225	16.5	4.74	6.4	15	0.08	✓		✓	Roughing 粗銑	●	▲	●
									Medium 中	●	▲	●
									Finishing 精銑	●	▲	●
HNGX0906-R-4225	16.5	4.74	6.4	15	0.08	✓	✓		Roughing 粗銑	●	●	▲
									Medium 中	●	●	▲
									Finishing 精銑	●	●	▲

■ HN06 Holder

● HN06 捨棄式整體刀柄

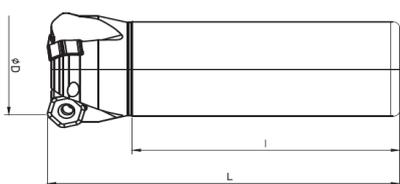
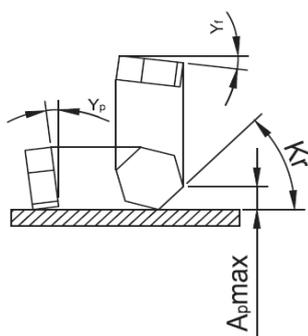


Apmax	3mm
γp	7°
γf	7°
Kr	45°



Shell Type Milling Cutter 殼型面銑刀

Item Code 規格碼	Dimensions (mm) 規格							Available Tools 適用工具		
	D	dh7	L	D1	b	t	齒數T*	Insert 刀片	Screw 星形螺絲	Screwdriver 旗形板手
PHN06-4005-C16	40	16	40	47.3	8.4	5.6	5	HNGX0604-R	M3x9.0x5.0xT15 (D07160100114)	T15
PHN06-5004-C22	50	22	40	57.3	10.4	6.3	4			
PHN06-5006-C22	50	22	40	57.3	10.4	6.3	6			
PHN06-6306-C22	63	22	40	70.3	10.4	6.3	6			
PHN06-6308-C22	63	22	40	70.3	10.4	6.3	8			
PHN06-8007-C27	80	27	50	86.8	12.4	7.0	7			
PHN06-8010-C27	80	27	50	86.8	12.4	7.0	10			



Apmax	3mm
γp	7°
γf	7°
Kr	45°

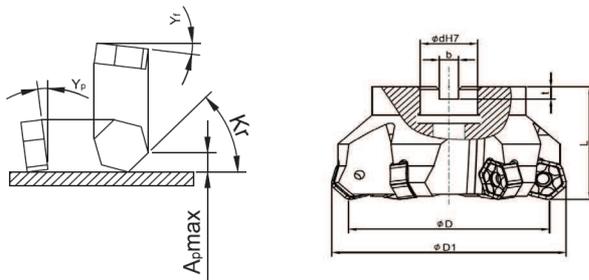


Holder 刀桿式六角銑刀

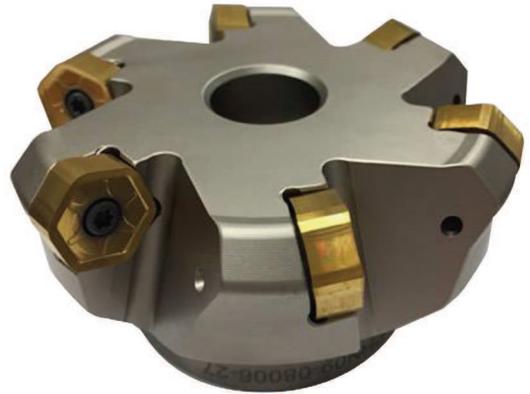
Item Code 規格碼	Dimensions (mm) 規格				Available Tools 適用工具		
	D	L	l	齒數T*	Insert 刀片	Screw 星形螺絲	Screwdriver 旗形板手
HHN06-2502-S25-150	25	150	100	2	HNGX0604-R	M3x9.0x5.0xT15 (D07160100114)	T15
HHN06-2503-S25-150	25	150	100	3			
HHN06-3203-S32-150	32	150	100	3			
HHN06-3204-S32-150	32	150	100	4			

■ HN09 Holder

● HN09 捨棄式整體刀柄



A_{pmax}	5mm
γ_p	7°
γ_f	7°
γ_r	45°



Shell Type Milling Cutter 殼型面銑刀

Item Code 規格碼	Dimensions (mm) 規格							Available Tools 適用工具		
	dh7	D	L	b	t	齒數T*	齒數T*	Insert 刀片	Screw 星形螺絲	Screwdriver 旗形板手
PHN09-5004-C22	22	50.0	40	10.4	6.3	4	5	HNGX 0906-R	M4.3x12.2x6xT20 (D07160100118)	T20
PHN09-6306-C22	22	63.0	40	10.4	6.3	6	4			
PHN09-8006-C27	27	80.0	50	12.4	7.0	6	6			
PHN09-8008-C27	27	80.0	50	12.4	7.0	8	6			
PHN09-10008-C32	32	100.0	50	14.4	8.0	6	8			
PHN09-10010-C32	32	100.0	50	14.4	8.0	8	7			