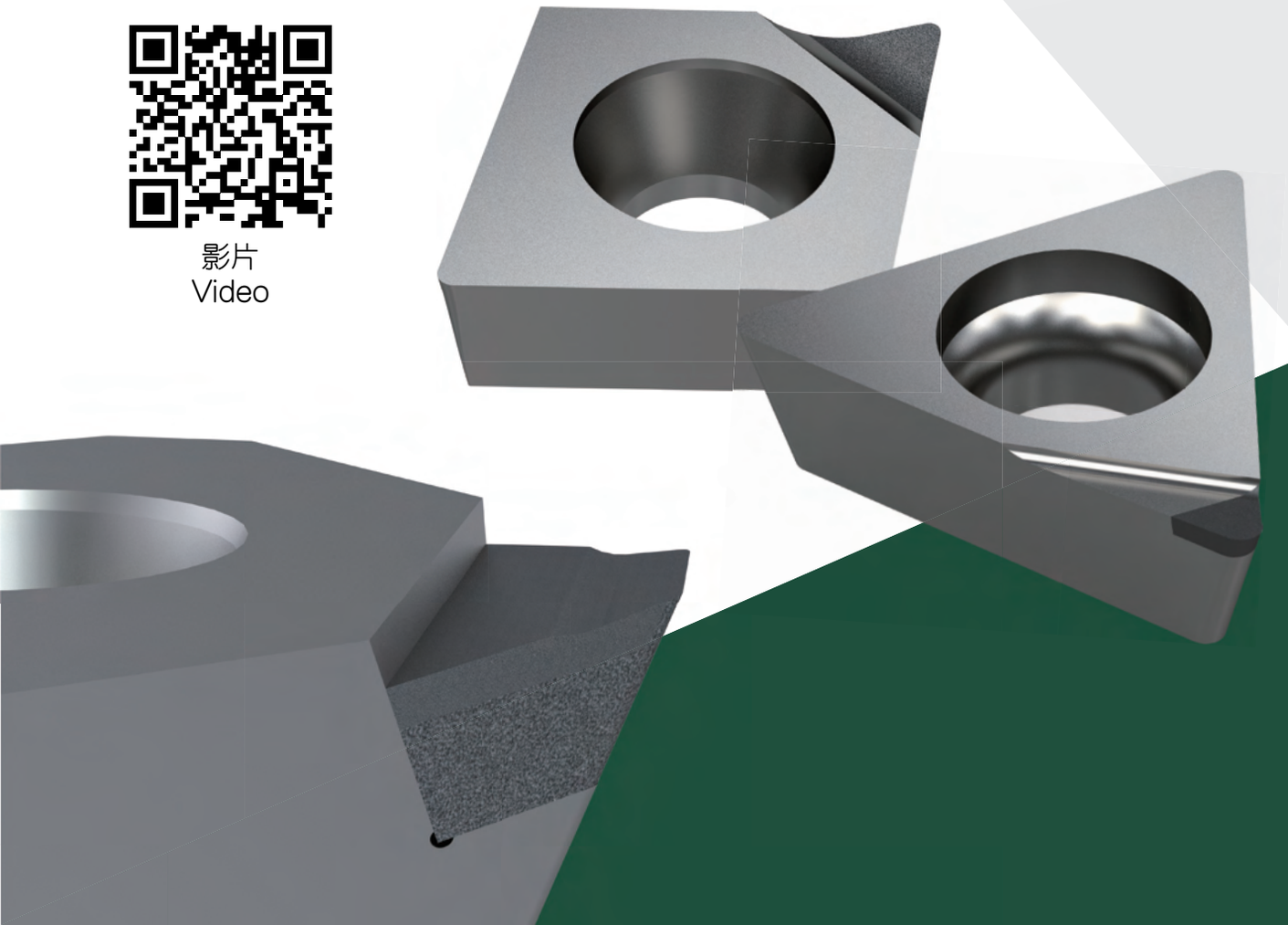
CHAIN HEADWAY

PCD & PCBN PRECISION INSERT

PCD＆PCBN 精密刀片

No. 240826009

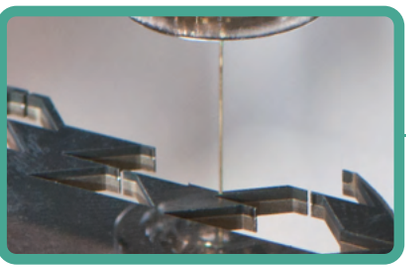
影片
Video



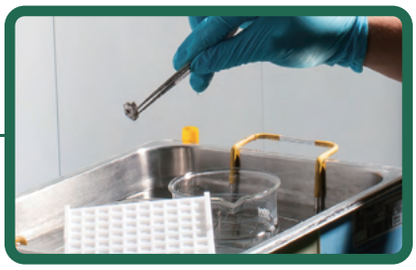
刀片製造流程
Manufacturing Process

1. 聚晶鑽石及立方氮化硼 PCD & PCBN

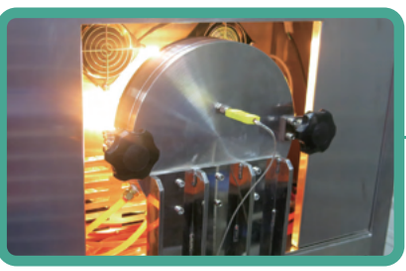
2. 切割 Cutting



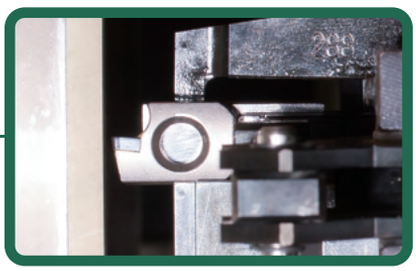
3. 清洗 Clean



4. 真空焊接 Vacuum Brazing

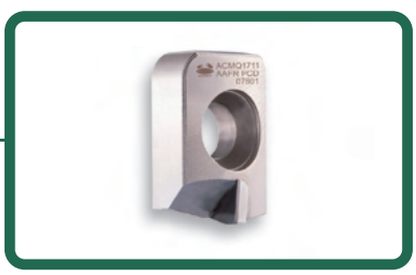


5. 研磨 Grinding



6. 檢驗 Quality Control

7. 成品 Finished Product



品質管控
Quality Control

堅持把關每個程序
Insisting on Rigorous of Every Procedures

ISO 9001：2015

- **日本 - 工具顯微鏡**
  細微外觀崩缺檢查及外型尺寸量測
- **日本 - 螢光 X 光元素分析儀**
  材質分析及膜厚量測
- **日本 - 2D 影像量測儀**
  外型尺寸量測
- **台灣 - 洛式硬度計**
  硬度檢測
- **奧地利 - 3D 光學量測儀**
  刃口及邊緣形狀量測、鈍化輪廓量測

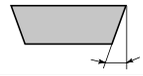
- **Tool Microscope (Japan)**
  Inspection of minor appearance chipping and measurement of external dimensions.
- **X-Ray Fluorescence Spectrometer (Japan)**
  Material analysis and coating thickness measurement.
- **2D Measurement System (Japan)**
  External dimensions measurement.
- **Rockwell Hardness Testing Machine (Taiwan)**
  Hardness testing.
- **3D Optical Measurement Instrument (Austria)**
  Measurement of edge treatment (shape, size of chamfer, and edge honing.)

PCD 規格介紹
Designation of PCD

記號 Symbol	形狀 Shape	頂角 Vertical angles	圖形 Shape
H	正六角形 Hexagonal	120°	
O	正八角形 Octagonal	135°	
P	正五角形 Pentagonal	108°	
S	正方形 Square	90°	
T	正三角形 Triangular	60°	
C	菱形 Rhombic	80°	
D		55°	
E		75°	
F		50°	
M		86°	
V		35°	
Y	多角形 Rhombic	25°	
W	六角形 Trigon	80°	
L	長方形 Rectangular	90°	
A	菱形 Rhombic	85°	
B		82°	
K		55°	
R	圓形 Round	-	

① 形狀記號 Insert Shape

記號 Symbol	離隙角 Relief Angle
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
O	其他 Other



② 離隙角記號 Relief Angle

記號 (級) Symbol	容許公差 (mm) Tolerance		
	高度 (mm) Height	厚度 (mm) Thickness	內接圓直徑 (Ød) Inscribed Circle
A	±0.005	±0.025	±0.025
F	±0.005	±0.025	±0.13
C	±0.013	±0.025	±0.025
H	±0.013	±0.025	±0.13
E	±0.025	±0.025	±0.025
G	±0.025	±0.13	±0.025
J	±0.005	±0.025	±0.005~±0.13
K	±0.013	±0.025	±0.005~±0.13
L	±0.025	±0.025	±0.005~±0.13
M	±0.08~±0.18	±0.13	±0.005~±0.13
N	±0.08~±0.18	±0.025	±0.005~±0.13
U	±0.13~±0.38	±0.13	±0.008~±0.25

③ 精度等級記號 Tolerance Class

T	N	G	A	16
①	②	③	④	⑤

④ 螺絲孔記號 Hole Symbol

記號 Symbol	孔 Hole	孔的形狀 Hole Configuration	斷屑槽 Chip Breaker	形狀 Shape
N	無孔 Without Hole	-	無 NO	
R			單面 One side	
F			兩面 Double side	
A	有孔 With Hole	有孔 With Hole	無 NO	
M			單面 One side	
G			兩面 Double side	
W		有孔 With Hole 40° ~60°	無 NO	
T			單面 One side	
Q		有孔 With Hole 40° ~60°	無 NO	
U			兩面 Double side	
B		有孔 With Hole 70° ~90°	無 NO	
H			單面 One side	
C		有孔 With Hole 70° ~90°	無 NO	
J			兩面 Double side	
X	-	-	-	-

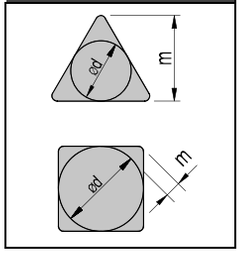
⑤ 長度記號 Cutting Edge Length

*R		S		C		W		T		D		V		K		內接圓直徑
記號 Symbol	寸法 Size	記號 Symbol	寸法 Size	記號 Symbol	寸法 Size	記號 Symbol	寸法 Size	記號 Symbol	寸法 Size	記號 Symbol	寸法 Size	記號 Symbol	寸法 Size	記號 Symbol	寸法 Size	Inscribed Circle
		03	3.97	03	4.0			06	6.9	04	4.8					3.97
		04	4.76	04	4.8			08	8.2	05	5.8					4.67
*05	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
		05	5.56	05	5.6	03	3.8	09	9.6	06	6.8					5.56
*06	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
		06	6.35	06	6.5	04	4.3	11	11	07	7.8	11	11.2			6.35
		07	7.94	08	8.1	05	5.4	13	13.8	09	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
*32	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	32

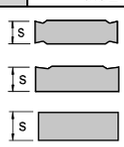
基準內接圓 Detail of M Class Insert Tolerance	內接圓直徑 (Ød) 容許公差 Tolerance of Inscribed Circle		高度 (m) 容許公差 Tolerance of Height		適用形狀 Shape
	J.K.L.M.N(級 Class)	U(級 Class)	J.K.L.M.N(級 Class)	U(級 Class)	
6.35	±0.05	±0.08	±0.08	±0.13	H W O R P S T C、E、M
9.525					
12.7	±0.08	±0.13	±0.13	±0.2	
15.875	±0.1	±0.18	±0.15	±0.27	
19.05					
25.4	±0.13	±0.25	±0.18	±0.38	
31.75	±0.15	±0.25	±0.2	±0.38	
32					

基準內接圓 Detail of M Class Insert Tolerance	內接圓直徑 (Ød) 容許公差 Tolerance of Inscribed Circle	高度 (m) 容許公差 Tolerance of Height	適用形狀 Shape
6.35	±0.05	±0.11	D
9.525			
12.7	±0.08	±0.15	
15.875	±0.1	±0.18	
19.05			
6.35	±0.05	±0.16	V Y
9.525			

內接圓直徑 (Ød) 高度
Inscribed Circle Height



記號 Symbol	厚度 (mm) Thickness
01	1.59
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



⑥ 厚度記號 Insert Thickness

04 ⑥ **08** ⑦ **F** ⑧ **N** ⑨ - **F01** ⑩

⑦ r 角記號 Corner (radius)

記號 Symbol	刀尖圓弧半徑 Corner Radius
00	0.03
02	0.2
04	0.4
08	0.8
12	1.2
16	1.6
20	2.0
24	2.4
38	2.8
32	3.2

⑧ 刃口處理 Edge Treatment

記號 Symbol	切削刃的狀態 Cutting Edge Shape	形狀 Shape
F	大銳角削角 Sharp Cutting Edges	
E	圓切削角 Round Cutting Edges	
T	雙切削倒角 Chamfered Cutting Edges	
S	雙倒角及圓切削角 Double Chamfered and Rounded Cutting Edges	

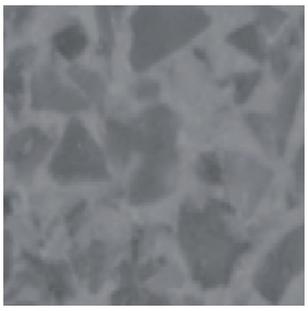
⑨ 切削方向 Cutting Direction

記號 Symbol	方向 Direction
R	右 Right
L	左 Left
N	中間 Neutral

⑩ 特別記號 Special Symbol

記號 Symbol	方向 Direction
R01	粗切削 Roughing
M01	中切削 Semi-finishing
F01	精切削 Finishing

PCD 適用材料
Suitable Materials for PCD



微粒金剛石
Micro-Diamond

塑膠	Plastic
石墨	Graphite
黃銅青銅合金	Brass&Bronze Alloys
氧基樹脂	Epoxy Resins
矽鋁合金	Silicon-Aluminum Alloys
木材、複合木材	Wood / Compound Wood
銅合金	Copper Alloys
硬質橡膠	Hard Rubber
鎂合金	Magnesium Alloy
玻璃纖維	Fibre Glass Composites
鋁合金	Aluminum Alloys
陶瓷	Ceramics
碳、石碳酸	Carbon-Phenolic
預燒結或全燒結碳化鎢	Presintered or Sintered Tungsten Carbide

刀片刃邊處理及切削方向
Symbol of Cutting Edge and Cutting Direction

記號 Symbol	切削刃的狀態 Cutting Edge	形狀 Shape
F	大銳角削角 Sharp Cutting Edges	
E	圓切削角 Round Cutting Edges	
T	刃口倒角 Edge Chamfering	
S	倒角及圓切削角 Chamfered and Honed Cutting Edges	

記號 Symbol	方向 Direction
R	右 Right
L	左 Left
N	標準型 無切削方向 Neutral

PCD 粒度及特性
Grain Size & Feature for PCD

PCD010

粒度 1μm 極小粒徑，表面質量首選。
• 低矽鋁合金加工 (電子產品)　• 鈦合金加工
1.超細晶粒結構擁有極強的刃口鋒利度和刃口耐用度，適用於需要極致表面質量的首選。
2.鋁合金的銑削和粗切，也適用於鈦及鈦合金和複合材料的機加工。

Grain Size 1μm Ultra diameter, best quality of surface.
• Low silicon aluminium processing(electronic products)　• Titanium alloy processing
1.Ultra fine grain structure allows precisely sharpened and durable cutting edges. It's suitable for excellent quality of surface needed.
2.Milling and roughing for aluminum material and also can process titanium and titanium alloys and composite material.

PCD020

粒度 2μm 極小粒徑，表面質量首選。
• 低矽鋁合金加工 (電子產品)　• 鈦合金加工
1.優異的表面質量，適合高速連續加工。
2.非鐵金屬的一般精加工、壓模成形表面加工、ERP、硬質橡膠、木材、無機板材等的切割及端面加工。

Grain Size 2μm Ultra diameter, best quality of surface.
• Low silicon aluminium processing(electronic products)　• Titanium alloy processing
1.Excellent quality of surface, it's suitable for high speed continuous processing.
2.Finishing for non-ferrous, surface milling for press forming, and face milling for ERP, hard rubber, wood, and inorganic plates.

PCD100

粒度 4μm 優異的表面質量，適合連續加工。
• <12% 矽鋁合金　• 低矽鋁合金加工 (電子產品)　• 銅合金
1.具有良好的耐磨性及韌性，通用性佳。
2.非鐵金屬的一般加工、陶瓷燒結品、壓模成形表面加工、ERP、硬質橡膠、石墨加工、木材、無機板材等的切割及端面加工。

Grain Size 4μm Excellent quality of surface, suitable for continuous processing.
• <12% silicon aluminium　• Low silicon aluminium processing(electronic products)
• Copper alloy
1.It remains excellent abrasion resistance, tenacity, and great versatility.
2.Processing for non-ferrous, surface milling for shrink-fitting ceramic and press forming, and face-milling for ERP, hard rubber, graphite, wood, and inorganic plates.

PCD250

粒度 25μm 高耐磨性、特殊結合提高結合強度。
• >12% 矽鋁合金　• 燒結及未燒結陶瓷　• 金屬基複合材　• 燒結硬質合金
1.高耐磨性、特殊結合提高結合強度。
2.高矽鋁合金加工、鋁複合材料的加工、硬質合金、陶瓷半燒結品、壓模成形的粗加工、陶瓷燒結加工、石材、岩石加工。

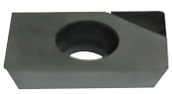
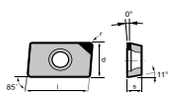
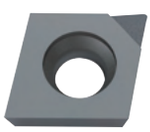
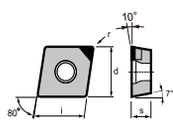
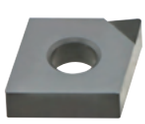
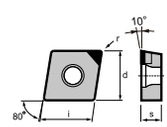
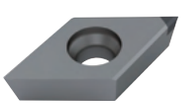
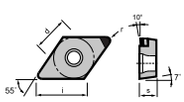
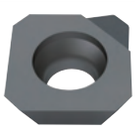
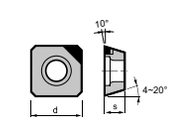
Grain Size 25μm High abrasion resistance and specific combination raised the strength of integration.
• <12% silicon aluminium　• Shrink-fitting and non shrink-fitting ceramic　• (MMC)
• Shrink-fitting hard alloy
1.High abrasion resistance and specific combination raised the strength of integration.
2.Processing for silicon aluminum alloys, aluminum composite, cemented carbide, and shrink-fitting semi-ceramic; roughing for press forming, shrink-fitting ceramic, and rock.

PCD 聚晶鑽石刀片
Polycrystalline Diamond Inserts

ISO 分類		PCD010	PCD020	PCD100	PCD250
P	合金鋼 Alloyed Steels				
M	不鏽鋼 Stainless Steels				
K	鑄鐵 Cast Iron				
N	鋁及鋁合金 Aluminum&Al	●■	●	■	
S	高溫合金 Refractory Alloys				
H	高硬度材 Hard Material				○

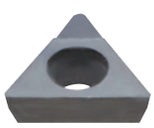
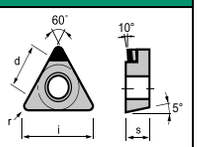
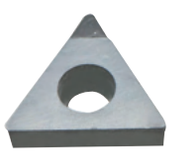
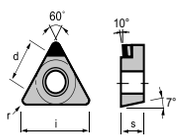
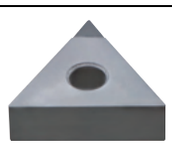
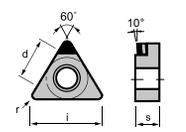
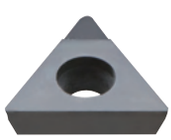
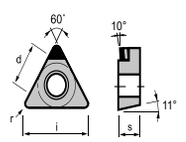
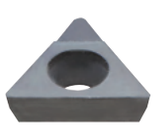
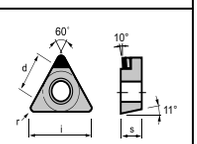
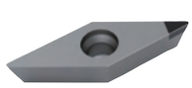
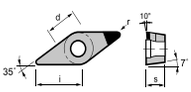
切削狀態 Cutting Condition :

● 連續切削 Continuous Cutting
○ 一般切削 General Cutting
■ 斷續切削 Interrupted Cutting

形狀 Form	規格 Spec.	聚晶鑽石 Polycrystalline diamond PCD010	PCD020	PCD100	PCD250	尺寸 Size(mm) d	i	s	r	圖形 Drawing
	APGW160404PDFR-F01			●		9.525	16.5	4.76	-	
	APGW1604PDFR-F01			●		9.525	16.5	4.76	-	
	CCGW060202FN-F01			●		6.35	6.5	2.38	0.2	
	CCGW060204FN-F01			●		6.35	6.5	2.38	0.4	
	CCGW09T304FN-F01			●		9.525	9.7	3.97	0.4	
	CCGW120404FN-F01			●		12.7	12.9	4.76	0.4	
	CNGA120404FN-F01			●		12.7	12.9	4.76	0.4	
	DCGW070202FN-F01			●		6.35	7.8	2.38	0.2	
	DCGW070204FN-F01			●		6.35	7.8	2.38	0.4	
	DCGW11T302FN-F01			●		9.525	11.6	3.97	0.2	
	DCGW11T304FN-F01			●		9.525	11.6	3.97	0.4	
	SEGW120404AFFN-F01			●		12.7	-	4.76	-	
	SEGW1204AFFN-F01			●		12.7	-	4.76	-	

PCD 聚晶鑽石刀片
Polycrystalline Diamond Inserts

ISO 分類							切削狀態 Cutting Condition :
	P	合金鋼 Alloyed Steels					● 連續切削 Continuous Cutting
	M	不鏽鋼 Stainless Steels					○ 一般切削 General Cutting
	K	鑄鐵 Cast Iron					■ 斷續切削 Interrupted Cutting
	N	鋁及鋁合金 Aluminum&Al	●■	●	■	○	
	S	高溫合金 Refractory Alloys					
	H	高硬度材 Hard Material					

形狀 Form	規格 Spec.	聚晶鑽石 Polycrystalline diamond					尺寸 Size(mm)				圖形 Drawing
		PCD010	PCD020	PCD100	PCD250		d	i	s	r	
	TBGW060102FN-F01			●			3.97	6.4	1.59	0.2	
	TBGW060104FN-F01			●			3.97	6.4	1.59	0.4	
	TCGW110202FN-F01			●			6.35	11	2.38	0.2	
	TCGW110204FN-F01			●			6.35	11	2.38	0.4	
	TCGW16T304FN-F01			●			9.525	16.5	3.97	0.4	
	TNGA160402FN-F01			●			9.525	16.5	4.76	0.2	
	TNGA160404FN-F01			●			9.525	16.5	4.76	0.4	
	TPGW090202FN-F01			●			5.56	9.6	2.38	0.2	
	TPGW090204FN-F01			●			5.56	9.6	2.38	0.4	
	TPGW110302FN-F01			●			6.35	11	3.18	0.2	
	TPGW110304FN-F01			●			6.35	11	3.18	0.4	
	TPGW080202FN-F01			●			4.76	8.2	2.38	0.2	
	TPGW080204FN-F01			●			4.76	8.2	2.38	0.4	
	VCGW160402FN-F01			●			9.525	16.5	4.76	0.2	
	VCGW160404FN-F01			●			9.525	16.5	4.76	0.4	
	VCGW160408FN-F01			●			9.525	16.5	4.76	0.8	

聚晶鑽石刀片切削標準
Polycrystalline Diamond Inserts Cutting Standard

鋁合金 Aluminum 4~8% Si		鋁合金 Aluminum 9~13% Si	
車削 Turning	銑削 Milling	車削 Turning	銑削 Milling
線速度 V 500~1500(m/min) 進給 F 0.1~0.4(mm/rev) 切削深度 Ap Ap 0.1~2.0(mm)	線速度 V 500~1500(m/min) 進給 F 0.1~0.3(mm/rev) 切削深度 Ap Ap 0.1~2.0(mm)	線速度 V 300~500(m/min) 進給 F 0.1~0.4(mm/rev) 切削深度 Ap Ap 0.1~2.0(mm)	線速度 V 300~500(m/min) 進給 F 0.1~0.3(mm/rev) 切削深度 Ap Ap 0.1~2.0(mm)
銅合金 Copper Alloy 銅、鋅、黃銅 Copper, zinc, brass		塑膠 Plastic	
車削 Turning	銑削 Milling	車削 Turning	銑削 Milling
線速度 V 300~1000(m/min) 進給 F 0.03~0.3(mm/rev) 切削深度 Ap 0.05~2.0(mm)	線速度 V 300~1000(m/min) 進給 F 0.03~0.3(mm/rev) 切削深度 Ap 0.05~2.0(mm)	線速度 V 300~600(m/min) 進給 F 0.1~0.2(mm/rev) 切削深度 Ap Ap 0.1~3.0(mm)	線速度 V 1000~5000(m/min) 進給 F 0.05~2.0(mm/rev) 切削深度 Ap Ap 0.1~0.4(mm)

滿足您最嚴苛的加工需求
Meeting Your Utmost Machining Requirements

客製化 PCD 刀片
優異的切削性能及量身打造幾何，提升加工效率，優異表面品質。

Custom PCD Inserts
Superior cutting performance and tailored geometries to enhance machining efficiency and surface quality.

CBN 規格介紹
Designation of CBN

①	②	③	④	⑤
3	ST	TNGA160404	FC	CB10H

① 刃數 Number of Edges

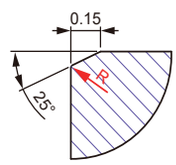
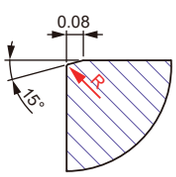
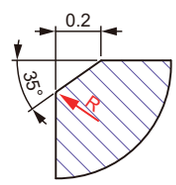
未標示 Not specified	刃數 =1 1 Edges
2	刃數 =2 2 Edges
3	刃數 =3 3 Edges
S	整體式 Solid

② 形式 Type

ST	標準型 Standard type
WF	高進給修光型 High feed wiper type

③ 刀片 ISO 規範 Insert ISO Standard

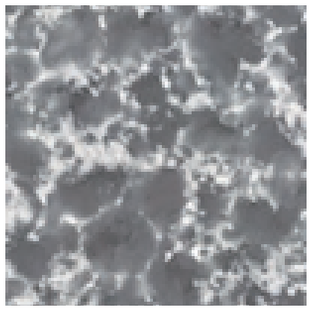
④ 刃口處理 Edge Treatment

SN	 標準型 Standard type
FC	 高速精加工 High-speed finishing
RC	 刃口強化 Edge reinforcement

⑤ 材質 Material

CB10H	**焊接式 CBN 刀片** 焠火鋼高速連續切削 **Brazed CBN insert** Continuous cutting of hardened steel
CB30H	**焊接式 CBN 刀片** 焠火鋼斷續切削 **Brazed CBN insert** Interrupted cutting of hardened steel
CB10K	**焊接式 CBN 刀片** 鑄鐵及鐵基粉末冶金精切削 **Brazed CBN insert** Finishing of cast iron and iron-based powder metallurgy
CB30K	**焊接式 CBN 刀片** 鑄鐵及鐵基粉末冶金粗切削 **Brazed CBN insert** Roughing of cast iron and iron-based powder metallurgy
CB10KS	**整體式 CBN 刀片** 鑄鐵及粉末冶金零件精加工 **Solid CBN insert** Finishing of cast iron and powder metallurgy parts
CB20KS	**整體式 CBN 刀片** 鑄鐵及粉末冶金零件中精加工 **Solid CBN insert** Semi-finishing of cast iron and powder metallurgy parts
CB30KS	**整體式 CBN 刀片** 鑄鐵及粉末冶金零件粗加工 **Solid CBN insert** Roughing of cast iron and powder metallurgy parts

CBN 適用材料
Suitable Materials for CBN



粗細微粒底材
Various Size
Substrate

工具鋼	Tool Steel
硬鎳鑄鐵	Hardened Ni Cast Iron
鑄鐵	Cast Iron
鈷基合金	Cobalt-Based Alloy
合金鋼	Alloy Steel
高溫合金 HRC35 以上	Epoxy Resins
冷激鑄鐵	Chilled Cast Iron
鎳基合金	Nickel-Based Alloy
高鈷粉末金屬	Powdered Metal with More Cobalt

CBN 粒度及特性
Grain Size & Feature for CBN

CB10H

粒度 1μm 特性：HRC50~67 焠火鋼高速連續切削
• CBN 比例：40% ~ 45% • 結合劑：TiN • 硬度 24GPa • 抗折力 900
1.高速及輕微斷續硬車削的首選
2.優異的表面粗糙度
3.優異的抵抗月牙溝磨損

Grain Size 1μm Characteristics : HRC50~67 hardened steel, high-speed continuous cutting
• CBN Ratio：40% ~ 45% • Binder: TiN • Hardness: 24 GPa • Bending Strength: 900 MPa
1.Preferred for high-speed and light intermittent hard turning
2.Excellent surface finish
3.Excellent resistance to crater wear

CB30H

粒度 1μm 特性：HRC50~67 焠火鋼，斷續切削
• CBN 比例：60% ~ 65% • 結合劑：TiN • 硬度 28GPa • 抗折力 1300
1.適用於重斷續硬車削
2.高韌性抵抗崩刃及後刀面磨損

Grain Size 1μm Characteristics : HRC50~67 hardened steel, intermittent cutting
• CBN Ratio：60% ~ 65% • Binder: TiN • Hardness: 28 GPa • Bending Strength: 1300 MPa
1.Suitable for heavy intermittent hard turning
2.High toughness to resist chipping and wear on the tool's rear surface

CB10K

粒度 3μm 特性：鑄鐵及粉末冶金零件精切削
• CBN 比例：90% ~ 95% • 結合劑：Ti Alloy • 硬度 36GPa • 抗折力 1000
1.適用於多數鑄鐵材料加工首選
2.高 CBN 含量具有極佳穩定性

Grain Size 3μm Characteristics : Precision cutting of cast iron and powder metallurgy parts
• CBN Ratio：90% ~ 95% • Binder: Ti Alloy • Hardness: 36 GPa • Bending Strength: 1000 MPa
1.Preferred choice for machining most cast iron materials
2.High CBN content provides excellent stability

CB30K

粒度 10μm 特性：鑄鐵及粉末冶金零件粗切削
• CBN 比例：90% ~ 93% • 結合劑：Ti Alloy • 硬度 36GPa • 抗折力 1300
1.適用於鑄鐵及金屬粉末冶金材料粗加工
2.高 CBN 含量，粗顆粒耐磨性優異

Grain Size 10μm Characteristics : Rough cutting of cast iron and powder metallurgy parts
• CBN Ratio：90% ~ 93% • Binder: Ti Alloy • Hardness: 36 GPa • Bending Strength: 1300 MPa
1.Suitable for rough machining of cast iron and metal powder metallurgy materials
2.High CBN content, excellent wear resistance of coarse grains

CBN 粒度及特性
Grain Size & Feature for CBN

CB10KS

粒度 12μm　特性：適用於鑄鐵及粉末冶金零件精加工與連續切削
• CBN 比例：85 ~ 90%　• 結合劑：TiN

Grain Size 12μm　Suitable for finishing and continuous cutting of cast iron and powder metallurgy parts
• CBN Ratio：85 ~ 90%　• Binder: TiN

CB20KS

粒度 20μm　特性：適用於鑄鐵及粉末冶金零件半精加工與輕斷續切削
• CBN 比例：85 ~ 90%　• 結合劑：TiN

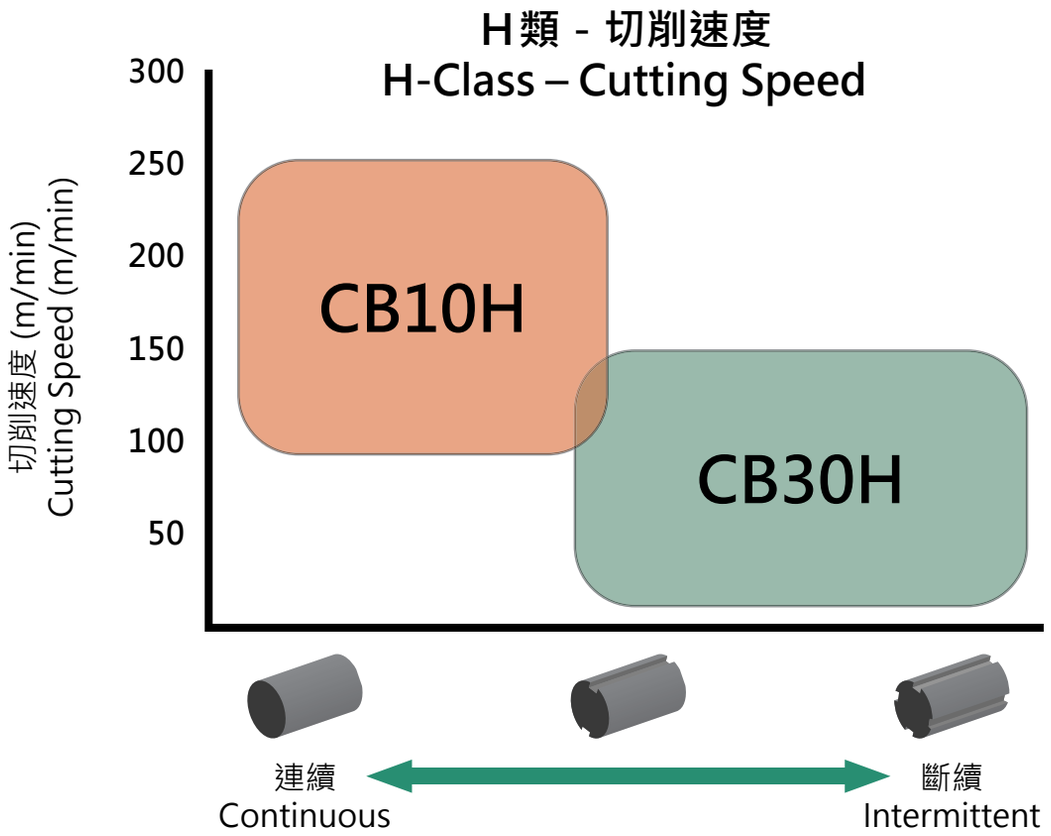
Grain Size 20μm　Suitable for semi-finishing and light intermittent cutting of cast iron and powder metallurgy parts
• CBN Ratio：85 ~ 90%　• Binder: TiN

CB30KS

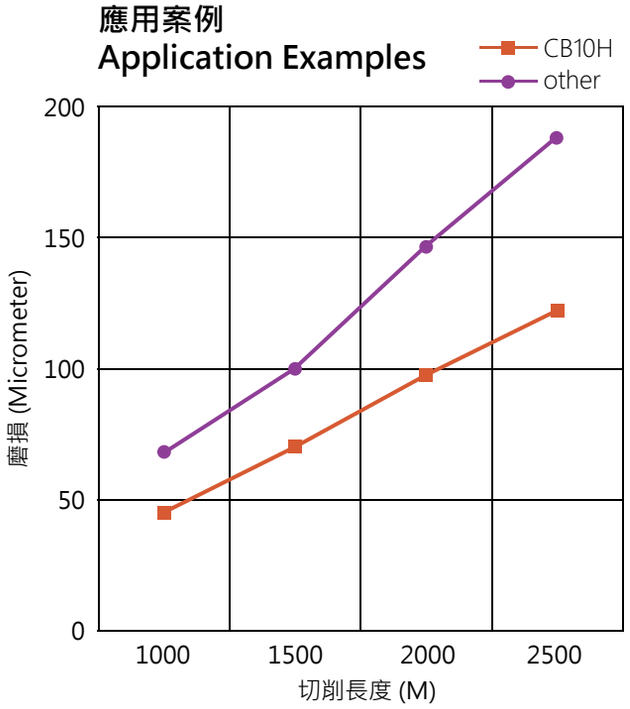
粒度 25μm　特性：粗顆粒耐磨性優異適用於鑄鐵及金屬粉末冶金材料粗加工與重斷續切削
• CBN 比例：80 ~ 85%　• 結合劑：Al-Ni

Grain Size 25μm　Excellent wear resistance with coarse grain, suitable for rough machining and heavy intermittent cutting of cast iron and powder metallurgy materials
• CBN Ratio：80 ~ 85%　• Binder: Al-Ni

焠火鋼切削
Hardened Steel Cutting

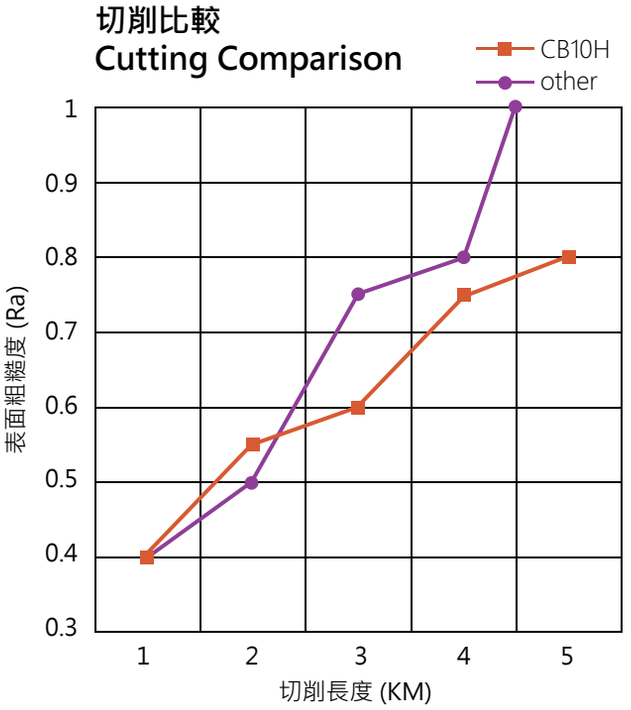


應用案例
Application Examples



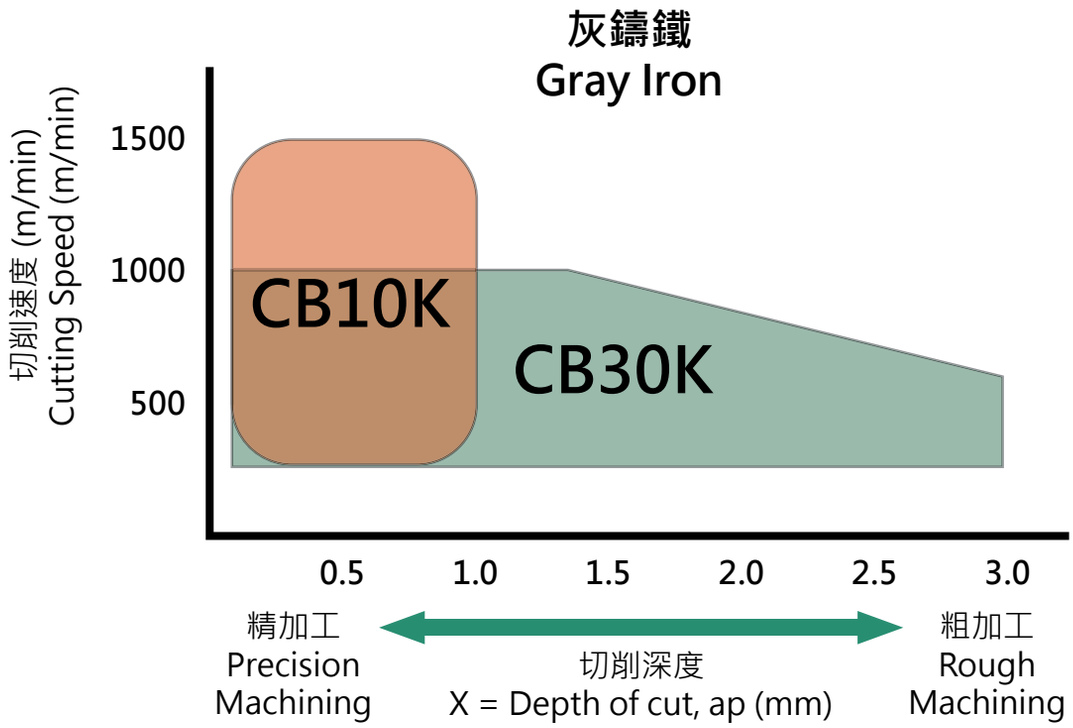
SCM 420 (HRC62)
V = 150 m/min　　ap = 0.1 mm
F = 0.10 mm/rev　　DRY

切削比較
Cutting Comparison

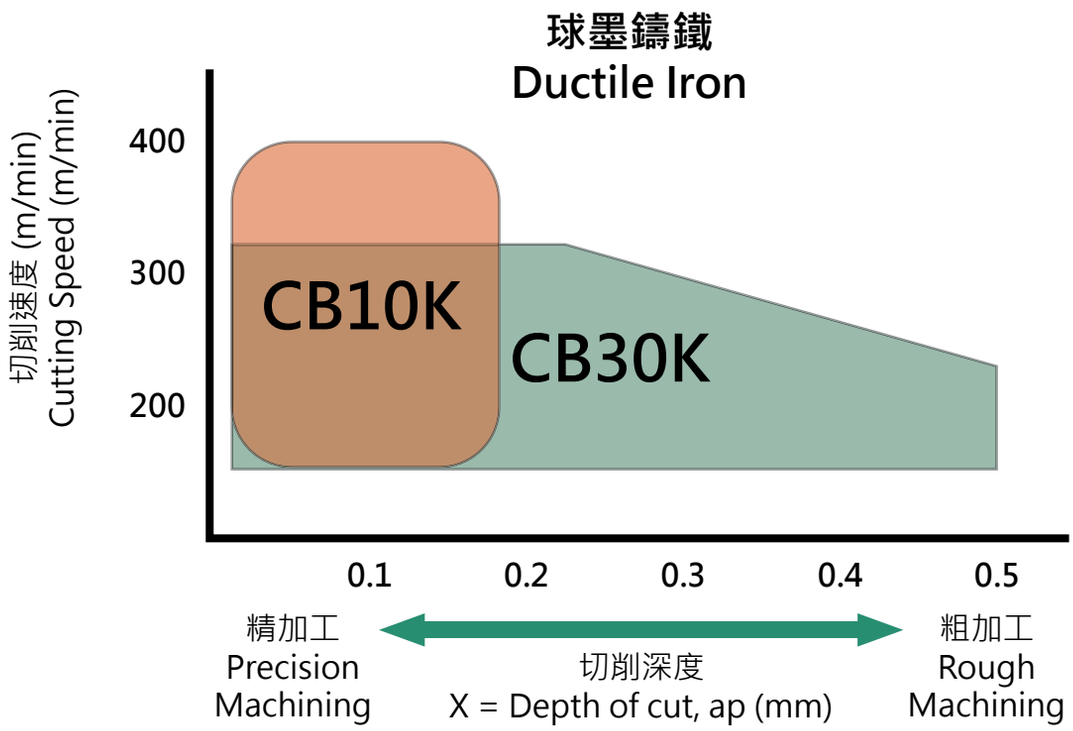


100Cr6 (HRC60)
V = 150 m/min　　ap = 0.1 mm
F = 0.10 mm/rev　　DRY

灰鑄鐵切削
Gray Iron Cutting

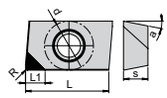
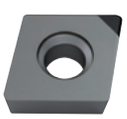
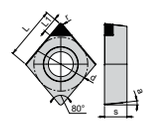
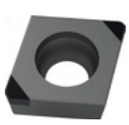
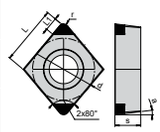
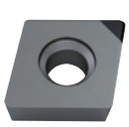
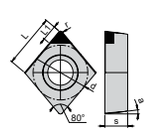
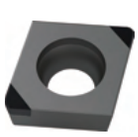
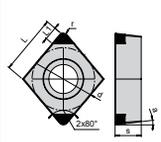
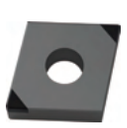
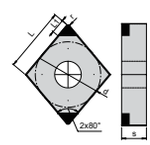


球墨鑄鐵切削
Ductile Iron Cutting



CBN 氮化硼刀片
Cubic Boron Nitride Inserts

ISO 分類						切削狀態 Cutting Condition : ● 連續切削 Continuous Cutting ○ 一般切削 General Cutting ■ 斷續切削 Interrupted Cutting
P	合金鋼 Alloyed Steels					
M	不鏽鋼 Stainless Steels					
K	鑄鐵 Cast Iron			○	■	
N	鋁及鋁合金 Aluminum&Al					
S	高溫合金 Refractory Alloys					
H	高硬度材 Hard Material	●○	■			

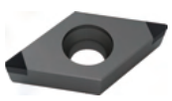
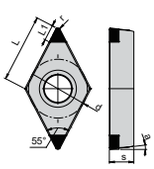
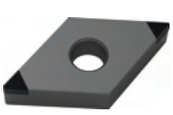
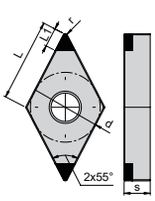
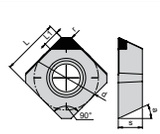
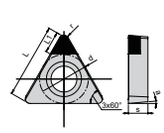
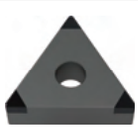
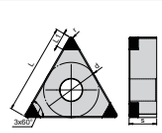
形狀 Form	規格 Spec.	氮化硼 CBN				尺寸 Size(mm)						圖形 Drawing
		CB10H	CB30H	CB10K	CB30K	L	L1	d	r	s	a	
	APGW1604PDER		●	●		16.19	2.54	9.525	0.4	4.76	11	
	CCGW060202SN	●	●	●		6.29	2.43	6.35	0.2	2.38	7	
	CCGW060204SN	●	●	●		6.15	2.28	6.35	0.4	2.38	7	
	CCGW060208SN	●	●	●		5.86	2	6.35	0.8	2.38	7	
	2ST-CCGW060202SN	●	●	●		6.29	2.43	6.35	0.2	2.38	7	
	2ST-CCGW060204SN	●	●	●		6.15	2.28	6.35	0.4	2.38	7	
	2ST-CCGW060208SN	●	●	●		5.86	2	6.35	0.8	2.38	7	
	CCGW09T302SN	●	●	●		9.51	2.85	9.525	0.2	3.97	7	
	CCGW09T304SN	●	●	●		9.37	2.7	9.525	0.4	3.97	7	
	CCGW09T308SN	●	●	●		9.08	2	9.525	0.8	3.97	7	
	2ST-CCGW09T302SN	●	●	●		9.51	2.85	9.525	0.2	3.97	7	
	2ST-CCGW09T304SN	●	●	●		9.37	2.7	9.525	0.4	3.97	7	
	2ST-CCGW09T308SN	●	●	●		9.08	2	9.525	0.8	3.97	7	
	2ST-CCGW120404SN	●	●	●		12.59	2.72	12.7	0.4	4.76	7	
	2ST-CNGA120404SN	●	●	●		12.61	2.74	12.7	0.4	4.76	0	
	2ST-CNGA120408SN	●	●	●		12.32	2.45	12.7	0.8	4.76	0	
	2ST-CNGA120412SN	●	●	●		12.03	2.16	12.7	1.2	4.76	0	
	2WF-CNGA120404SN	●	●	●		12.61	2.74	12.7	0.4	4.76	0	
	2WF-CNGA120408SN	●	●	●		12.32	2.45	12.7	0.8	4.76	0	
	2WF-CNGA120412SN	●	●	●		12.03	2.16	12.7	1.2	4.76	0	

CBN 氮化硼刀片
Cubic Boron Nitride Inserts

ISO 分類						
P	合金鋼 Alloyed Steels					
M	不鏽鋼 Stainless Steels					
K	鑄鐵 Cast Iron			○	■	
N	鋁及鋁合金 Aluminum&Al					
S	高溫合金 Refractory Alloys					
H	高硬度材 Hard Material	●○	■			

切削狀態 Cutting Condition :

● 連續切削 Continuous Cutting
○ 一般切削 General Cutting
■ 斷續切削 Interrupted Cutting

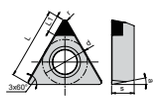
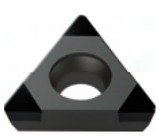
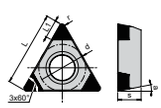
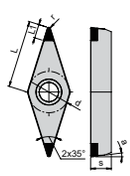
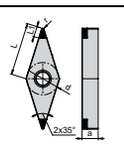
形狀 Form	規格 Spec.	氮化硼 CBN				尺寸 Size(mm)						圖形 Drawing
		CB10H	CB30H	CB10K	CB30K	L	L1	d	r	s	a	
	2ST-DCGW070202SN	●	●	●		7.48	2.88	6.35	0.2	2.38	7	
	2ST-DCGW070204SN	●	●	●		7.22	2.62	6.35	0.4	2.38	7	
	2ST-DCGW070208SN	●	●	●		6.69	2.1	6.35	0.8	2.38	7	
	2ST-DCGW11T302SN	●	●	●		11.36	3	9.525	0.4	3.97	7	
	2ST-DCGW11T304SN	●	●	●		11.09	2.54	9.525	0.4	3.97	7	
	2ST-DCGW11T308SN	●	●	●		10.57	2	9.525	0.8	3.97	7	
	2ST-DNGA150404SN	●	●	●		15.1	3.45	12.7	0.4	6.35	0	
	2ST-DNGA150408SN	●	●	●		14.57	2.93	12.7	0.8	6.35	0	
	2ST-DNGA150412SN	●	●	●		14.05	2.4	12.7	1.2	6.35	0	
	2ST-DNGA150604SN	●	●	●		15	3.3	12.7	0.4	6.35	0	
	2ST-DNGA150608SN	●	●	●		14.45	2.8	12.7	0.8	6.35	0	
	2ST-DNGA150612SN	●	●	●		13.93	2.28	12.7	1.2	6.35	0	
	2WF-DNGA150404SN	●	●	●		15.1	3.45	12.7	0.4	6.35	0	
	2WF-DNGA150408SN	●	●	●		14.57	2.93	12.7	0.8	6.35	0	
	2WF-DNGA150412SN	●	●	●		14.05	2.4	12.7	1.2	6.35	0	
	2WF-DNGA150604SN	●	●	●		15	3.3	12.7	0.4	6.35	0	
	2WF-DNGA150608SN	●	●	●		14.45	2.8	12.7	0.8	6.35	0	
	2WF-DNGA150612SN	●	●	●		13.93	2.28	12.7	1.2	6.35	0	
	SEGW1204AFSN		●			11.31	3.17	12.7	0.4	4.76	25	
	TBGW060102SN	●	●	●		6.5	2	3.97	0.2	1.59	5	
	TBGW060104SN	●	●	●		6.12	1.76	3.97	0.4	1.59	5	
	3ST-TNGA160404SN	●	●	●		15.74	2.45	9.525	0.4	4.76	0	
	3ST-TNGA160408SN	●	●	●		15	2	9.525	0.8	4.76	0	

CBN 氮化硼刀片
Cubic Boron Nitride Inserts

ISO 分類						
P	合金鋼 Alloyed Steels					
M	不鏽鋼 Stainless Steels					
K	鑄鐵 Cast Iron			○	■	
N	鋁及鋁合金 Aluminum&Al					
S	高溫合金 Refractory Alloys					
H	高硬度材 Hard Material	●○	■			

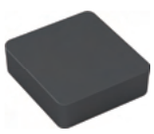
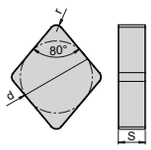
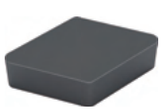
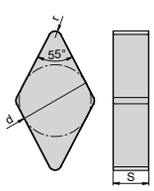
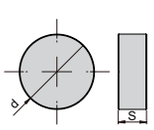
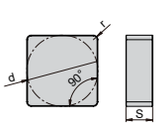
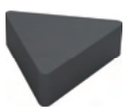
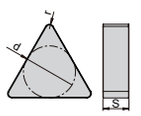
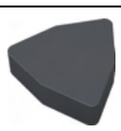
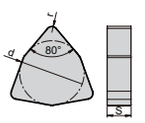
切削狀態 Cutting Condition :

● 連續切削 Continuous Cutting
○ 一般切削 General Cutting
■ 斷續切削 Interrupted Cutting

形狀 Form	規格 Spec.	氮化硼 CBN				尺寸 Size(mm)						圖形 Drawing
		CB10H	CB30H	CB10K	CB30K	L	L1	d	r	s	a	
	TPGW080202SN	●	●	●		7.86	2.7	4.73	0.2	2.38	11	
	TPGW080204SN	●	●	●		7.48	2.47	4.73	0.4	2.38	11	
	TPGW090202SN	●	●	●		9.24	2.9	5.56	0.4	2.38	11	
	TPGW090204SN	●	●	●		8.87	2.67	5.56	0.4	2.38	11	
	3ST-TPGW110302SN	●	●	●		10.61	2.7	6.35	0.2	3.18	11	
	3ST-TPGW110304SN	●	●	●		10.24	2.47	6.35	0.4	3.18	11	
	3ST-TPGW110308SN	●	●	●		9.48	2	6.35	0.8	3.18	11	
	3ST-TPGW16T302SN	●	●	●		16.11	3.1	9.525	0.2	3.97	11	
	3ST-TPGW16T304SN	●	●	●		15.74	2.87	9.525	0.4	3.97	11	
	3ST-TPGW16T308SN	●	●	●		14.97	2.4	9.525	0.8	3.97	11	
	2ST-VCGW110302SN	●	●	●		10.57	3.7	6.35	0.2	3.18	7	
	2ST-VCGW110304SN	●	●	●		10.1	3.2	6.35	0.4	3.18	7	
	2ST-VCGW110308SN	●	●	●		9.11	2.21	6.35	0.8	3.18	7	
	2ST-VCGW160402SN	●	●	●		16.11	3.67	9.525	0.2	4.76	7	
	2ST-VCGW160404SN	●	●	●		15.62	3.2	9.525	0.4	4.76	7	
	2ST-VCGW160408SN	●	●	●		14.65	2.2	9.525	0.8	4.76	7	
	2ST-VNGA160402SN	●	●	●		16.12	3.55	9.525	0.2	4.76	0	
	2ST-VNGA160404SN	●	●	●		15.63	3	9.525	0.4	4.76	0	
	2ST-VNGA160408SN	●	●	●		14.66	2.07	9.525	0.4	4.76	0	

整體式 CBN 刀片
Solid CBN Inserts

ISO 分類							切削狀態 Cutting Condition : ● 連續切削 Continuous Cutting ○ 一般切削 General Cutting ■ 斷續切削 Interrupted Cutting
	P	合金鋼 Alloyed Steels					
	M	不鏽鋼 Stainless Steels					
	K	鑄鐵 Cast Iron	●	○	○■		
	N	鋁及鋁合金 Aluminum&Al					
	S	高溫合金 Refractory Alloys					
	H	高硬度材 Hard Material					

形狀 Form	規格 Spec.	氮化硼 CBN				尺寸 Size(mm)				圖形 Drawing
		CB10KS	CB20KS	CB30KS		L	ØIC	S	R	
	S-CNGN120404		●	●		12.9	12.7	4.76	0.4	
	S-CNGN120408	●	●	●		12.9	12.7	4.76	0.8	
	S-CNGN120412	●	●	●		12.9	12.7	4.76	1.2	
	S-CNGN120708	●	●	●		12.9	12.7	7.94	0.8	
	S-CNGN120712	●	●	●		12.9	12.7	7.94	1.2	
	S-DNGN150604	●	●	●		15.5	12.7	6.35	0.4	
	S-DNGN150608	●	●	●		15.5	12.7	6.35	0.8	
	S-DNGN150612	●	●	●		15.5	12.7	6.35	1.2	
	S-DNGN150704	●	●	●		15.5	12.7	7.94	0.4	
	S-DNGN150708	●	●	●		15.5	12.7	7.94	0.8	
	S-DNGN150712	●	●	●		15.5	12.7	7.94	1.2	
	S-RNGN090400	●	●	●		9.525	9.525	4.76	0	
	S-RNGN120400	●	●	●		12.7	12.7	4.76	0	
	S-RNGN120700	●	●	●		12.7	12.7	7.94	0	
	S-RNGN150700	●	●	●		15.875	15.875	7.94	0	
	S-RNGN200700		●	●		20	20	7.94	0	
	S-RNGN201000		●	●		20	20	10	0	
	S-SNGN120408	●	●	●		12.7	12.7	4.76	0.8	
	S-SNGN120712	●	●	●		12.7	12.7	7.94	1.2	
	S-SNGN150716	●	●	●		15.875	15.875	7.94	1.6	
	S-SNGN201012		●	●		20	20	10	1.2	
	S-SNGN200712		●	●		20	20	7.94	1.2	
	S-TNGN160404	●	●	●		16	9.525	4.76	0.4	
	S-TNGN160408	●	●	●		16	9.525	4.76	0.8	
	S-TNGN220408	●	●	●		22	12.7	4.76	0.8	
	S-WNGN080404	●	●	●		8.79	12.7	4.76	0.4	
	S-WNGN080408	●	●	●		8.79	12.7	4.76	0.8	
	S-WNGN080412	●	●	●		8.79	12.7	4.76	1.2	

* 刃口處理方式依據加工需求設計生產
The edge treatment method is designed and produced according to processing requirements.

氮化硼刀片切削標準
Cubic Boron Nitride Inserts Cutting Standard

<table>
<tr><th colspan="3">淬火鋼 Hardened Steel
(HRC50~68)</th></tr>
<tr><th colspan="2">CB10H</th><th>CB30H</th></tr>
<tr><td>連續
Continuous

切削速度 Vc
100~250(m/min)
進給 F
0.05~0.25(mm/rev)
切削深度 Ap
Ap 0.05~0.3(mm)</td><td>輕斷續
Light Intermittent

切削速度 Vc
80~180(m/min)
進給 F
0.05~0.25(mm/rev)
切削深度 Ap
Ap 0.05~0.3(mm)</td><td>中斷續
Medium Intermittent

切削速度 Vc
80~150(m/min)
進給 F
0.05~0.25(mm/rev)
切削深度 Ap
Ap 0.05~0.5(mm)</td></tr>
<tr><th colspan="3">鑄鐵 Cast Iron</th></tr>
<tr><th colspan="2">CB10K</th><th>CB30K</th></tr>
<tr><td colspan="2">輕斷續
Light Intermittent

切削速度 Vc
300~1000(m/min)
進給 F
0.1~0.5(mm/rev)
切削深度 Ap
Ap 0.3~3(mm)</td><td>中斷續
Medium Intermittent

切削速度 Vc
300~700(m/min)
進給 F
0.1~0.5(mm/rev)
切削深度 Ap
Ap 0.3~3(mm)</td></tr>
<tr><th>CB10KS</th><th colspan="2">CB20KS</th><th>CB30KS</th></tr>
<tr><td>連續
Continuous

切削速度 Vc
300~1000(m/min)
進給 F
0.25~0.8(mm/rev)
切削深度 Ap
Ap 0.50~4.0(mm)</td><td>連續
Continuous

切削速度 Vc
300~700(m/min)
進給 F
0.30~0.8(mm/rev)
切削深度 Ap
Ap 0.30~4.0(mm)</td><td>輕斷續
Light Intermittent

切削速度 Vc
300~700(m/min)
進給 F
0.30~0.8(mm/rev)
切削深度 Ap
Ap 0.30~4.0(mm)</td><td>中斷續
Medium Intermittent

切削速度 Vc
300~700(m/min)
進給 F
0.40~1.0(mm/rev)
切削深度 Ap
Ap 0.30~4.0(mm)</td></tr>
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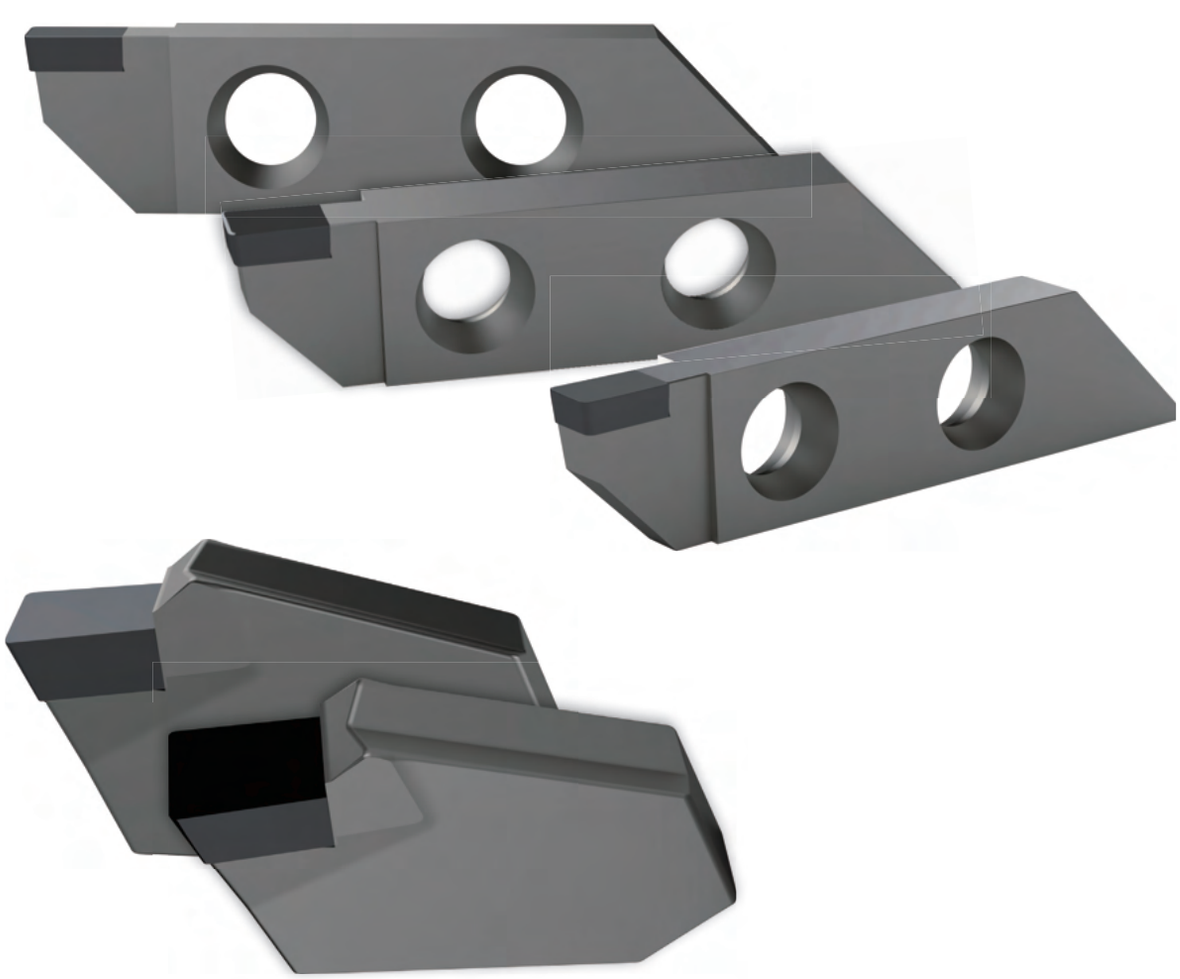

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