

THE NEW VALUE FRONTIER



新斷屑槽
New chipbreaker

全新槽刀!!
New Grooving Solution

新構造
New structure toolholder

新材質
New grades

新槽溝 切斷工具
New grooving and cut-off tool

端面槽溝工具
Face grooving tool

KGD / KGDF

1

徹底掌握槽溝加工

Master of Grooving

- 良好的碎屑處理 Smooth chip control
- 高精密度刀刃樣式 High precision edge preparation
- 採用MEGACOAT以延長壽命及提高效率
MEGACOAT for long tool life and high efficiency machining

2

種類豐富的刀柄規格

Various Toolholder lineup

- 一體式刀桿齊全 Integral type toolholder with wide lineup
- 針對多品種少量生產的分離型
(0度分離, 90度分離)
Separate type toolholder for high-mix low-volume production (0 separate type, 90 separate type)
- 端面槽溝新登場 Face grooving is available

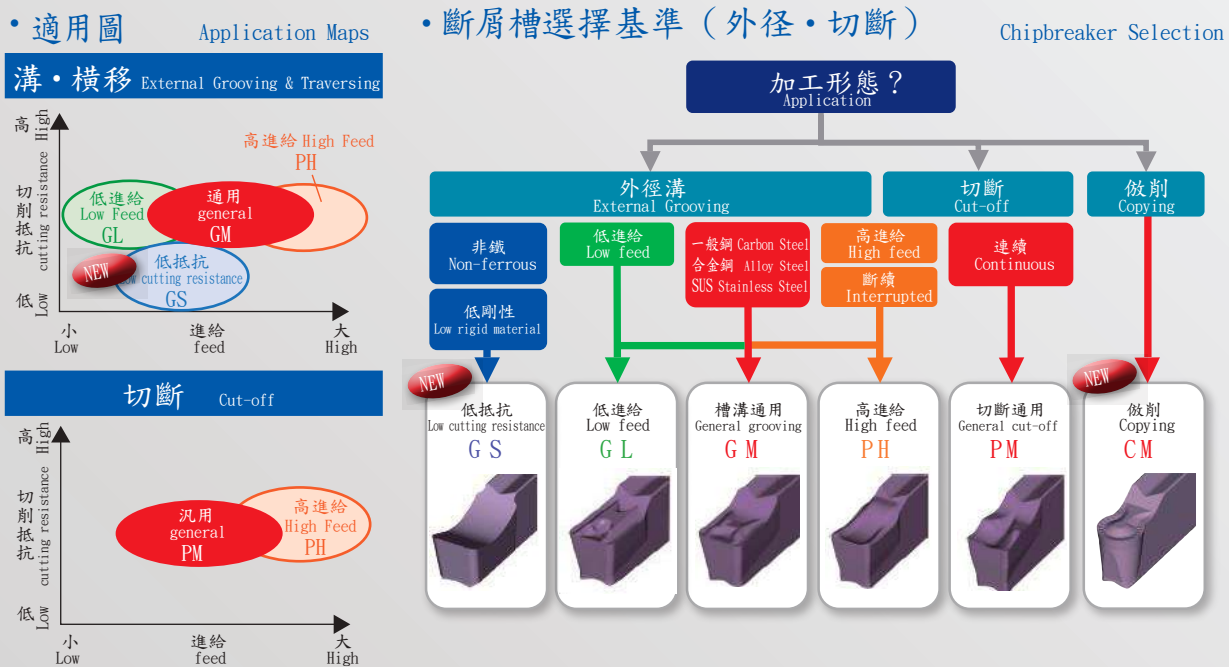
端面槽溝新登場!

ADVANCING PRODUCTIVITY

生産性向上に貢献する京セラ

- **良好的切屑處理** Good chip control
 - ➔ 涵蓋多樣工件材種，新斷屑槽現已發行
Covers a variety of workpiece materials. New chipbreakers are now available
- **高精度之刀口** High precision edge preparation
 - ➔ 高精度研磨技術 刀幅公差 $\pm 0.03\text{mm}$ (溝幅 2, 3, 4)
High precision molding technology tolerance $\pm 0.03\text{mm}$ (Edge width 2, 3, 4mm type)
- **採用廣受好評的MEGACOAT** MEGACOAT technology
 - ➔ 優秀的耐酸化性和耐摩耗性、實現長壽命和高效能之加工
Long tool life and high efficiency machining by high oxidation resistance and wear resistance.
- **多樣化的刀桿選擇** Various Toolholder lineup
 - ➔ 豐富的一體型刀桿、多品種少量生產最為適合的分離型刀桿。
Integral type toolholder with wide lineup and Separate type toolholder for high-mix low-volume production are available.

外徑溝·切斷用及橫移之刀片 Inserts lineup for External grooving, Traversing and Cut-off.



良好的切屑處理，改善生產力 Good chip control to contribute productivity improvement

● 切屑處理比較 (SCM415 $V_c=150\text{m/min}$, $f=0.15\text{mm/rev}$)



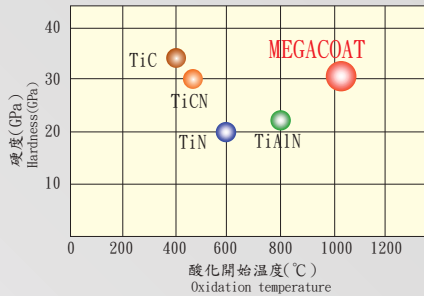
切屑處理比其他社品好 Better chip control than competitors

減少卡屑的問題 Less chip biting trouble

長壽命塗層 MEGACOAT

Long tool life coating "MEGACOAT"

MEGACOAT的優點特性 Features of MEGACOAT



PR1225 :

切斷・槽溝・橫移加工的第一推薦材種

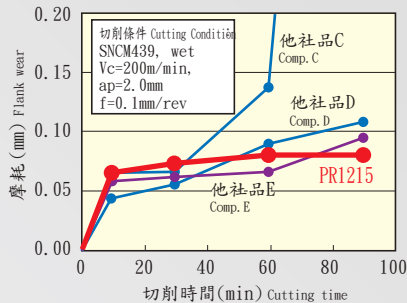
PR1225: 1st. Recommendation for cut-off, grooving and traversing

PR1215 :

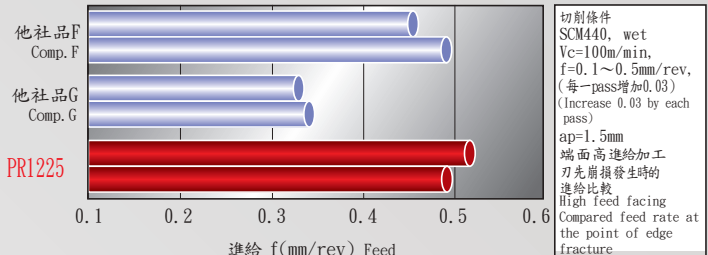
耐摩耗性優良、安定條件下槽溝・切斷加工用鑄鐵加工推薦

PR1215: With superior wear resistance, recommended for grooving and cut-off under the stable conditions.
1st. Recommendation for machining of cast iron.

耐摩耗性比較 Comparison of wear resistance



耐崩損性比較 Comparison of fracture resistance



切割條件
SCM440, wet
Vc=100m/min,
f=0.1~0.5mm/rev,
(每一pass增加0.03)
(Increase 0.03 by each pass)
ap=1.5mm
端面高進給加工
刀先崩損發生時的
進給比較
High feed facing
Compared feed rate at
the point of edge
fracture

良好的耐摩耗性、耐崩損性

Good wear resistance and fracture resistance

穩定的槽溝・切斷加工、實現長壽命

Stable cutting and long tool life at grooving and cut-off

多樣化產品線

Various lineup

兩種類型支刀桿提供選擇：一體型與分離型(本體+刀板)

Available two types of toolholder, Integral type and Separate type.



一體型 integral type
(豐富的溝幅・溝深 Various groove width and depth)



分離型 separate type
(適合多樣少量之生產 Suitable for high-mix low-volume production)

端面槽溝刀桿・刀片

Toolholder and Inserts for Face grooving.



端面槽溝僅有分離型
(藉由更換刀板提供多樣化溝幅及溝深選擇)
Only separate type is available for Face grooving
(Applicable for various groove diameter by replacing blades)

刀片夾持之特色 Features of insert clamping system

新研發「W型」提供更穩固的夾持與安定的加工

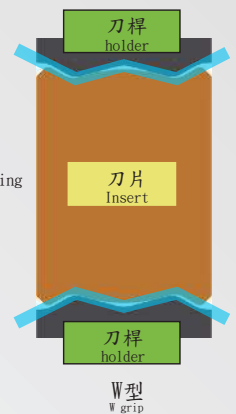
The new "W grip" is applied for more rigid clamping and stable machining.

1) 防止刀片滑動造成不穩定加工及刀片崩損
Prevent the insert from side-slip causing unstable machining and insert brakage

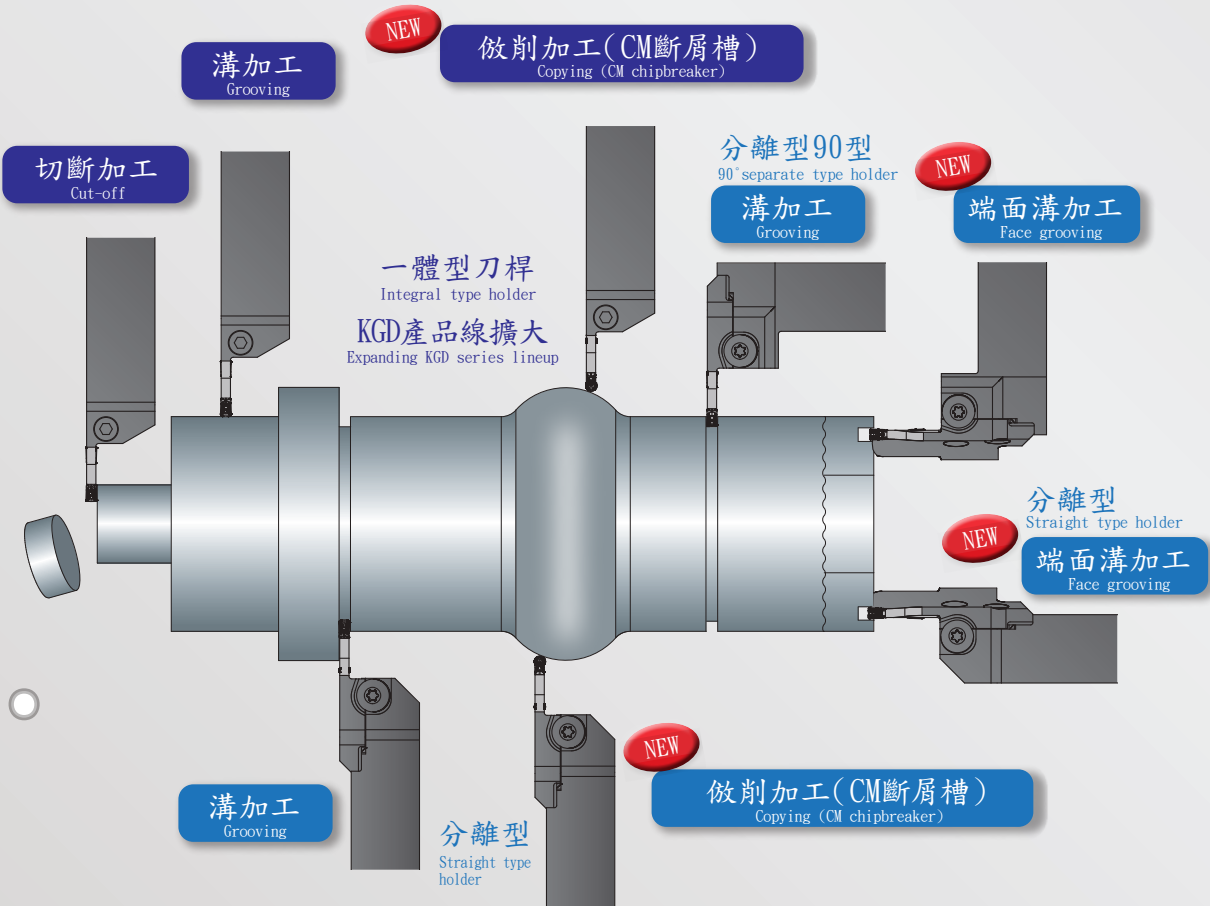
2) 提升裝載刀片時的精度
Upgrade the accuracy of indexability.

高剛性・高信賴性・高夾持力
High rigidity, reliability and clamping strength.

GDFM型・GDFMS型的刀片無法使用在KGD型的刀桿上。
Insert for GDFM/GDFMS is not compatible with KGD holder.



● KGD型/KGDF型 槽溝系列 KGD / KGDF type grooving tool series



- 一體型刀桿: 寬廣的刀桿產品線
Integral type toolholder with wide lineup (for various groove width and depth)
- 分離型刀桿: 藉由更換刀板對應多樣化端面及外徑的槽溝及切斷加工
Separate type toolholder : Applicable for various types of grooving and cut-off, such as external and face cutting by replacing blade parts.

● 一體型/分離型 應用參考

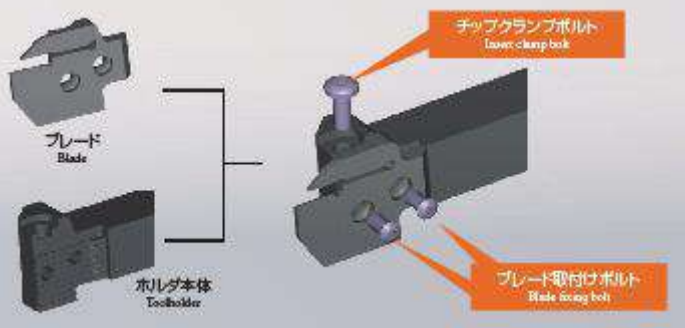
Integral type / Separate type Selection Reference

一體型 integral type	分離型 separate type
<ul style="list-style-type: none"> • 寬廣的刀桿產品線 Various toolholder lineup 對應多樣溝深 (淺溝 / 標準溝 / 深溝) Available for various groove depth (shallow / medium / deep) 理想的懸伸量確保 Optimum overhang length • 可對應低剛性的機台和工件 Available for low-rigid machine and workpiece • 對應狹小工作空間的車床 (自動車床、小型車床等) For small machine with limited work space (Swiss type machine, small lathe, etc.) 	<ul style="list-style-type: none"> • 對應少量多樣之生產 Suitable for high-mix low-volume production 適合多種溝寬之加工 Suitable for grooving with various width 藉由更換刀板應用在不同溝寬 Applicable for various groove width by replacing blades • 適合難加工材料 Suitable for difficult-to-cut material 嚴苛的切削條件 Tough cutting conditions 刀桿成本減少 (可替換刀板) Toolholder cost reduction (replaceable blade) • 藉由更換刀板也可對應端面槽溝加工 Face grooving is possible by changing blade ※需注意左手及右手刀 Make sure right hand / left hand

刀桿本體+刀板組合 (外徑・横移・切斷)

Combination of Toolholder & Blade (for grooving, traversing, cut-off)

① 分離式 0° 0° separate type



刀桿本體 (KGD R/L ●● -C) Toolholder

+

刀板 (KGD R/L - ● T ●● -C) Blade

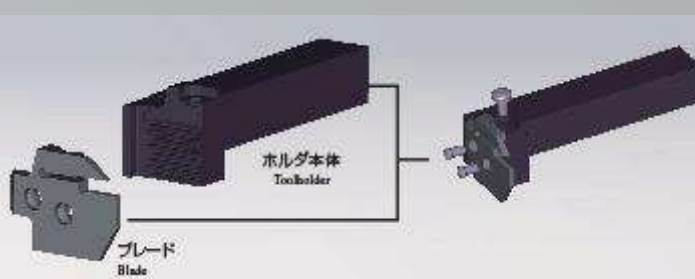
=> 右手 (R) 刀桿、右手 (R) 刀板

左手 (L) 刀桿、左手 (L) 刀板

Right-hand Blade for Right-hand Toolholder,

Left-hand Blade for Left-hand Toolholder

② 直角分離式 90° 90° separate type



刀桿本體 (KGDS R/L ●● -C) Toolholder

+

刀板 (KGD L/R - ● T ●● -C) Blade

=> 右手 (R) 刀桿、左手 (L) 刀板

左手 (L) 刀桿、右手 (R) 刀板

Left-hand Blade for Right-hand Toolholder,

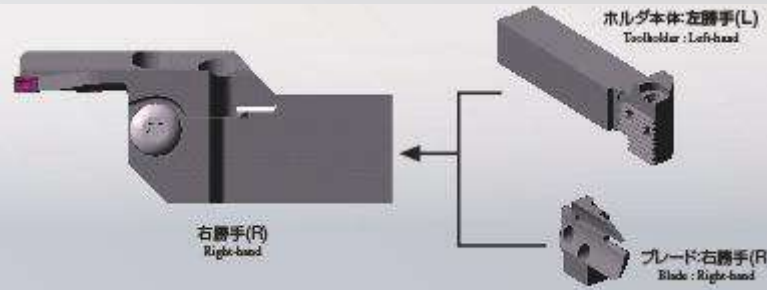
Right-hand Blade for Left-hand Toolholder

刀桿本體+刀板組合 (端面槽溝)

Combination of Toolholder & Blade (for Face Grooving)

■ 分離式 0° 0° separate type

① 右勝手 (R) Right-hand



刀桿本體 (KGD \perp ●● -C) Toolholder

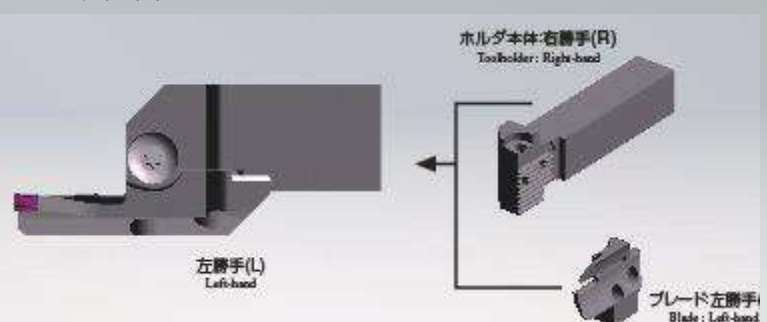
+

刀板 (KGDFR - ●● - ●● -C) Blade

全端面槽溝・右手 (R) 皆適用

All face grooving toolholder (Right-hand) is applicable

② 左勝手 (L) Left-hand



刀桿本體 (KGD \perp ●● -C) Toolholder

+

刀板 (KGDFL - ●● - ●● -C) Blade

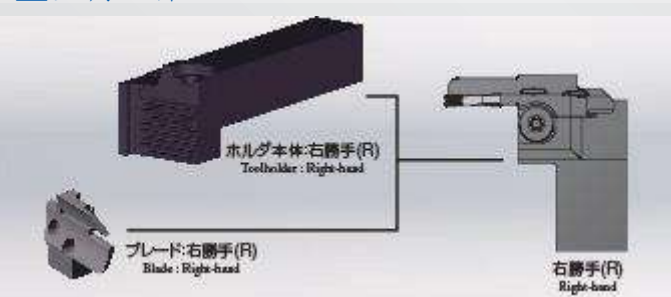
全端面槽溝・左手 (L) 皆適用

All face grooving toolholder (Left-hand) is applicable

※ 刀桿與刀板為反方向 (僅在0度分離型)

Toolholder hand is opposite as the one assembled. (Only for 0° separate type)

■ 直角刀桿 90° 90° separate type



刀桿本體 (KGDS R/L ●● -C) Toolholder

+

刀板 (KGDF R/L - ●● - ●● -C) Blade

右手 (R) 刀桿、右手 (R) 端面槽溝

左手 (L) 刀桿、左手 (L) 端面槽溝

Right-hand Blade (face grooving) for Right-hand Toolholder,

Left-hand Blade (face grooving) for Left-hand Toolholder

●適合刀片(溝・橫移)

Applicable Inserts
(Grooving & Traversing)

使用的分類 Classification of usage	P	炭素鋼・合金鋼 Carbon steel, Alloy steel	●	●	◎
	M	不銹鋼 Stainless Steel		● <td>◎ <td></td> </td>	◎ <td></td>
K	鑄鐵 Cast iron			● <td></td>	
N	非鐵金屬 Non-ferrous Material				●
S	鈦合金 Titanium alloy				●
H	高硬度材(40HRC以下) Hard materials (under 40HRC)				
	高硬度材(40HRC以上) Hard materials (over 40HRC)				

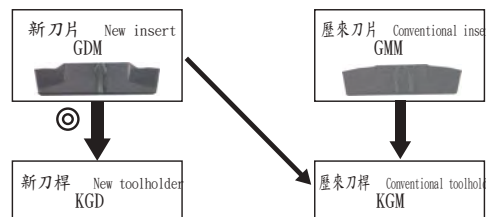
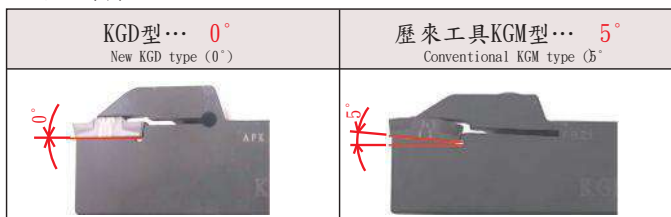
形狀 Shape 顯示為右手(R)刀 Right-hand Insert shown	型番 Description	尺寸(mm) Dimension(mm)					角度(°) Angle θ	陶瓷 Cermet TN90	MEGACOAT PRI225	PRI215	超硬 Carbide GW15
		W	公差 tolerance		L	H					
			IT	M							
溝・橫移 Grooving & Traversing 通用 2刀 General Purpose 2-edge	GDM 2420N-020GM	2.4	±0.03	0.2	1.95	20	4.3	-	●	●	●
	GDM 3020N-020GM	3.0	±0.03	0.2	2.3				●	●	●
	GDM 3020N-040GM	3.0	±0.03	0.4	2.3				●	●	●
	GDM 4020N-020GM	4.0	±0.03	0.2	3.3				●	●	●
	GDM 4020N-040GM	4.0	±0.03	0.4	3.3				●	●	●
	GDM 4020N-080GM	4.0	±0.03	0.8	3.3				●	●	●
	GDM 5020N-040GM	5.0	±0.04	0.4	4.2				●	●	●
	GDM 5020N-080GM	5.0	±0.04	0.8	4.2				●	●	●
	GDM 6020N-040GM	6.0	±0.04	0.4	5.2				●	●	●
	GDM 6020N-080GM	6.0	±0.04	0.8	5.2				●	●	●
溝・橫移 Grooving & Traversing 通用 1刀 General Purpose 1-edge	GDM 2420N-020GL	2.4	±0.03	0.2	1.95	20	4.3	-	●	●	●
	GDM 3020N-020GL	3.0	±0.03	0.2	2.3				●	●	●
	GDM 3020N-040GL	3.0	±0.03	0.4	2.3				●	●	●
	GDM 4020N-020GL	4.0	±0.03	0.2	3.3				●	●	●
	GDM 4020N-040GL	4.0	±0.03	0.4	3.3				●	●	●
	GDM 5020N-040GL	5.0	±0.04	0.4	4.2				●	●	●
溝 Grooving 低抵抗 2刀 Low feed 2-edge	GDG 2520N-020GS	2.5	±0.02	0.2	2.0	20	4.3	-	●	●	●
	GDG 3020N-020GS	3.0	±0.02	0.2	2.3				●	●	●
	GDG 3520N-020GS	3.5	±0.02	0.2	2.8				●	●	●
	GDG 4020N-040GS	4.0	±0.02	0.4	3.3				●	●	●
	GDG 5020N-040GS	5.0	±0.02	0.4	4.2				●	●	●
	GDG 6020N-040GS	6.0	±0.02	0.4	5.2				●	●	●
全R溝・做削 Full-R / Copying 2刀 2-edge	GDM 3020N-150R-CM	3.0	±0.03	1.5	2.3	20	4.3	-	●	●	●
	GDM 4020N-200R-CM	4.0	±0.03	2.0	3.3				●	●	●
	GDM 5020N-250R-CM	5.0	±0.04	2.5	4.2				●	●	●
	GDM 6020N-300R-CM	6.0	±0.04	3.0	5.2				●	●	●
溝・切斷 Grooving & Traversing 高進給 2刀 High feed 2-edge	GDM 2020N-020PH	2.0	±0.03	0.2	1.5	20	4.3	-	●	●	●
	GDM 3020N-030PH	3.0	±0.03	0.3	2.3				●	●	●
	GDM 4020N-030PH	4.0	±0.03	0.3	3.3				●	●	●
	GDM 2020N-020PH	2.0	±0.03	0.2	1.5				●	●	●
	GDM 3020N-030PH	3.0	±0.03	0.3	2.3				●	●	●
	GDM 4020N-030PH	4.0	±0.03	0.3	3.3				●	●	●

●標準在庫 Standard Stock

※KGD型(新型)・KGM型(歷來型)刀桿刀片組合需注意的點

Combination of KGD / KGM toolholder and Insert

刀片夾持角度 Insert setting angle of KGD / KGM toolholder



不建議將歷來刀片裝在新型刀桿上
Not recommended for installing conventional insert on new toolholder

●適合刀片

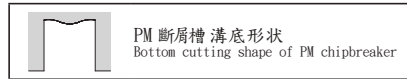
(切斷 PM 斷屑槽)

Applicable Inserts
(Cut-off PM chipbreaker)

使用的分類 Classification of usage	P	炭素鋼・合金鋼 Carbon steel, Alloy steel	●	☉
	M	不銹鋼 Stainless Steel	●	☉
	K	鑄鐵 Cast iron	●	●
	N	非鐵金屬 Non-ferrous Material	●	●
	S	鈦合金 Titanium alloy	●	●
	H	高硬度材 (40HRC 以下) Hard materials (under 40HRC) 高硬度材 (40HRC 以上) Hard materials (over 40HRC)	●	●

形狀 Shape 顯示為右手(R)刀 Right-hand Insert shown	型番 Description	尺寸 (mm) Dimension (mm)					角度 (°) Angle θ	寬金 Cermet MEGACOAT		
		W 公差 tolerance	rE	M	L	H		TN90	PRI225	PRI215
切斷 Cut-off 2刃 2-edge	GDM 2020N-020PM	2.0	±0.03	0.2	1.5	20	-		●	●
	2520N-020PM	2.5		0.2	1.95					
	3020N-025PM	3.0		0.25	2.3					
	4020N-030PM	4.0		0.3	3.3					
2刃 2-edge	GDM 2020R-020PM-6D	2.0	±0.03	0.2	1.5	20	6°		●	●
	2520R-020PM-6D	2.5		0.2	1.95					
	3020R-025PM-6D	3.0		0.25	2.3					
1刃 1-edge	GDMS 2020N-020PM	2.0	±0.03	0.2	1.5	20	-		●	●
	3020N-025PM	3.0		0.25	2.3					
	4020N-030PM	4.0		0.3	3.3					
1刃 1-edge	GDMS 2020R-020PM-6D	2.0	±0.03	0.2	1.5	20	6°		●	●
	3020R-025PM-6D	3.0		0.25	2.3					
	4020R-030PM-6D	4.0		0.3	3.3					

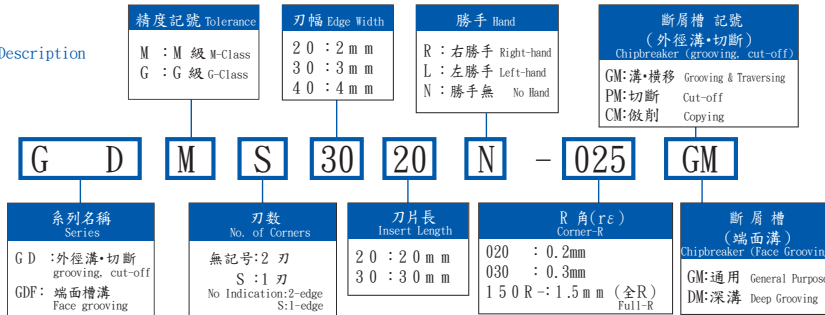
注)1. 使用PM 斷屑槽做加工，底部形狀並非平坦 (右圖參照)。
1. When grooving with PM chipbreaker (for cut-off), bottom cutting shape is not flat. (see Right Fig.)



●:標準在庫 Standard Stock

●刀片型番

Indication of Insert Description



■ 安裝刀片的程序

Setting the insert (Common procedure for integrated and separate types)

- 1 使用吹風或其他工具讓刀片夾持的部位完全去除鐵屑 (圖1參照)。
1. Make air blow or other measures to completely eliminate chips from the insert mounting part (Fig.1).
- 2 將刀片安裝在刀桿上，輕推讓刀片底部接觸到夾持部位的面 (圖1圖2參照)。
2. Set the insert to the toolholder and push until it contacts with the toolholder's surface for fixing the insert's back end (See Fig.1 and Fig.2).
- 3 使用適當的扭力鎖緊夾持螺絲 (建議扭力: 6.5 N·m (8mm寬 8 N·m))。
3. Keeping the insert fit to the toolholder's surface, tighten the insert clamp bolt at an appropriate torque. (Recommended tightening torque: 6.5 N·m (8N·m for 8mm width))
- 4 使用前確認刀桿與刀片間沒有縫隙，並且注意刀片是否有傾斜 (圖2圖3參照)。
4. Before using the unit, make sure that no gap is between the insert and the toolholder's surface, and that the insert is mounted without tilting (See Fig.2 and Fig.3).

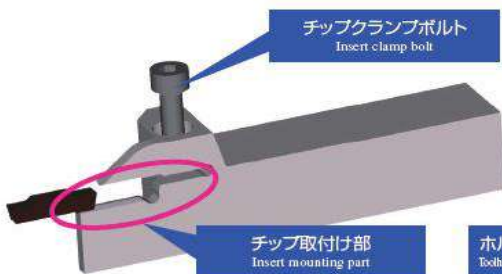


圖 1 Fig.1

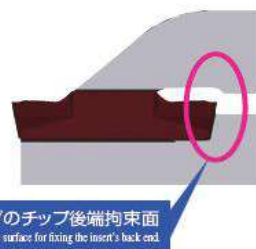


圖 2 Fig.2

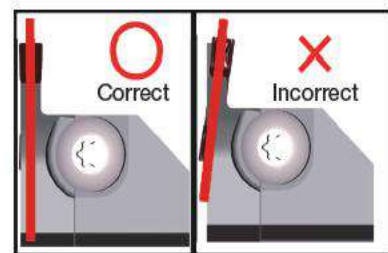
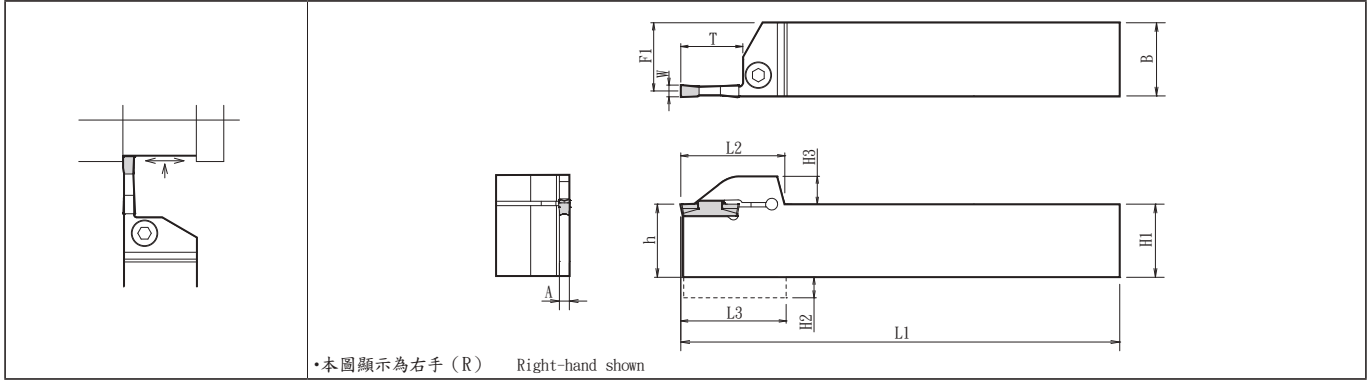


圖 3 Fig.3

KGD型(一體型)

KGD type (integral type)



● 刀桿尺寸 Toolholder dimensions

溝幅 Width (mm)	加工深度 Max. Grooving Depth (mm)	型番 Description	在庫 Stock		尺寸 (mm) Dimension										刃幅 W (mm) Width		部品 Spare parts											
			R	L	H1=h	H2	H3	B	L1	L2	L3	F1	A	T	MIN	MAX	緊固螺栓 Clamp Bolt	扳手 Wrench										
2	6	KGD R/L 1616H-2T06	▲	▲	16	4.0	9.5	16	100	27.7	28.0	15.2	1.7	6	2.0	3.0	HH5X16	LW-4										
		2020K-2T06	▲	▲	20	-		20	125	28.0	-	19.2					HH5X25											
		2525M-2T06	▲	▲	25	-		25	150	28.0	-	24.2					HH5X25											
	10	KGD R/L 1616H-2T10	▲	▲	16	4.0		16	100	30.2	30.5	15.2					17		10	2.0	3.0	HH5X16	LW-4					
		2020K-2T10	▲	▲	20	-		20	125	30.5	-	19.2										HH5X16						
		2525M-2T10	▲	▲	25	-		25	150	30.5	-	24.2										HH5X25						
	17	KGD R/L 1616H-2T17	▲	▲	16	4.0		16	100	31.2	31.5	15.2										20		17	3.0	4.0	HH5X16	LW-4
		2012K-2T17	●	●	20	-		12	125	-	11.2	HH5X16																
		2020K-2T17	●	●	20	-		20	125	32.5	-	19.2															HH5X16	
3	6	KGD R/L 1616H-3T06	▲	▲	16	4.0	16	100	27.7	28.0	14.8	2.4	6	3.0	4.0	HH5X16		LW-4										
		2020K-3T06	▲	▲	20	-	20	125	28.0	-	18.8					HH5X25												
		2525M-3T06	▲	▲	25	-	25	150	28.0	-	23.8					HH5X25												
	10	KGD R/L 1616H-3T10	●	●	16	4.0	16	100	30.2	30.5	14.8					20	10		3.0	4.0	HH5X16		LW-4					
		2020K-3T10	●	●	20	-	20	125	30.5	-	18.8										HH5X16							
		2525M-3T10	●	●	25	-	25	150	30.5	-	23.8										HH5X25							
	20	KGD R/L 1616H-3T20	●	●	16	4.0	16	100	34.2	34.5	14.8										25	20		3.0	4.0	HH5X16	LW-4	
		2012K-3T20	●	●	20	-	12	125	34.5	-	10.8															HH5X16		
		2020K-3T20	●	●	20	-	20	125	34.5	-	18.8															HH5X16		
4	10	KGD R/L 2020K-4T10	●	●	20	-	20	125	30.5	-	18.3	3.4	10	4.0	5.0			HH5X16								LW-4		
		2525M-4T10	●	●	25	-	25	150	30.5	-	23.3							HH5X25										
		KGD R/L 2020K-4T20	●	●	20	-	20	125	34.5	-	18.3							HH5X16										
	2525M-4T20	●	●	25	-	25	150	35.5	-	23.3	HH5X25																	
	25	KGD R/L 2525M-4T25	●	●	25	-	25	150	40.5	-	23.3					HH5X25												
5	10	KGD R/L 2020K-5T10	●	●	20	-	20	125	30.5	-	17.8	4.4	10	5.0	6.0	HH5X16	LW-4											
		2525M-5T10	●	●	25	-	25	150	30.5	-	22.8					HH5X25												
		KGD R/L 2020K-5T17	▲	▲	20	-	20	125	37.5	-	17.8					HH5X16												
	2525M-5T17	▲	▲	25	-	25	150	37.5	-	22.8	HH5X25																	
	17	KGD R/L 2525M-5T25	●	●	25	-	25	150	40.5	-	22.8					HH5X25												
6	15	KGD R/L 2525M-6T15	●	●	25	-	25	150	32.5	-	22.4	5.3	15	6.0	6.0	HH5X25	LW-4											
	30	KGD R/L 2525M-6T30	●	●	25	-	25	150	45.5	-	22.4		30															
8	25	KGD R/L 2525M-8T25	●	●	25	7.0	25	150	43.3	44.2	22.0	6.0	25	8.0	8.0	HH6X25	LW-5											
		3232P-8T25	●	●	32	-	32	170	43.3	-	29.0																	

注 T 尺寸: 加工可能達到的溝深 (T 尺寸 20mm 以上的場合, 2 刃刀的溝深需在 18mm 以下)

T dimension shows the distance from the Toolholder to the cutting edge. (When using 2-edge insert, set the groove depth under 18mm.)

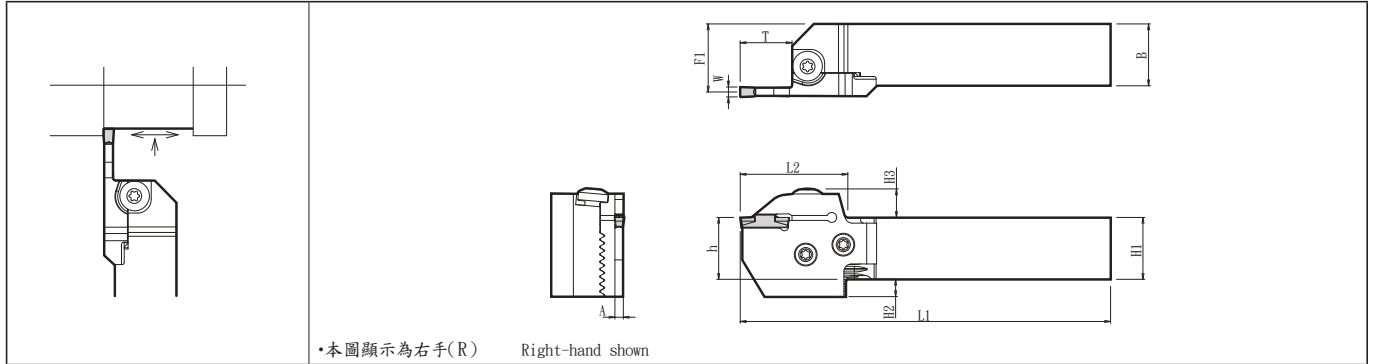
●: 標準在庫 Standard Stock

▲: 2011年8月預定在庫

Scheduled to be in stock August 2011

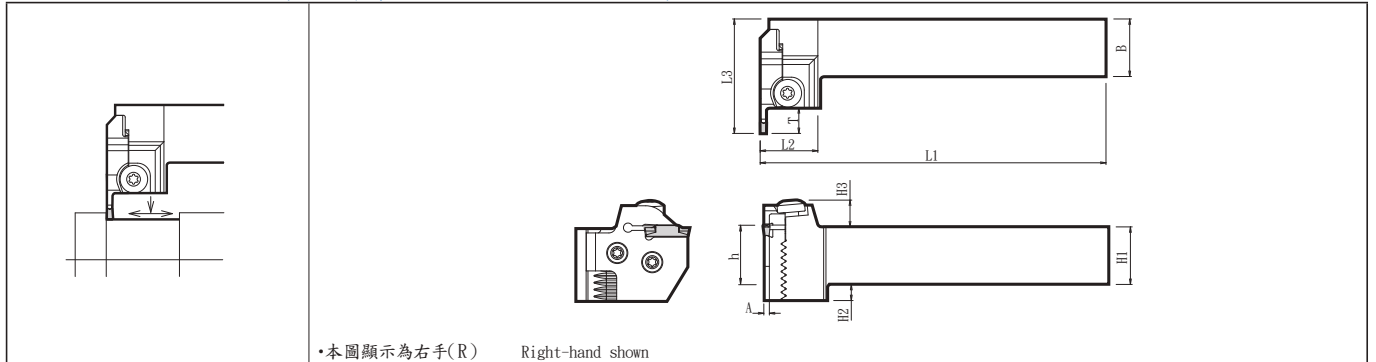
KGDS-S型(0度 分離型)

KGDS-S type (0° separate type)



KGDS-S型(直角90度 分離型)

KGDS-S type (90° separate type)



●刀桿尺寸 (刀桿本體+刀板)

Toolholder dimensions (toolholder and blade)

刀桿角度 Shank Angle	溝幅 Width (mm)	加工深度 Max. Grooving Depth (mm)	組型式番 Unit Description (標準在庫型番) Std. Stock Description	在庫 Stock		本體型番 Toolholder Description P9	刀板型番 Blade Description P9	尺寸 (mm) Dimension(mm)										刀幅W(mm) Width(mm)	
				R	L			H1=h	H2	H3	B	L1	L2	L3	F1	A	T	MIN	MAX
0°	2	17	KGDS R/L 2020X-2T17S	●	●	KGDS R/L 2020-C	KGDS R/L-2T17-C	20	12	11.6	20	122	39.9	23.4	1.7	17	2.0	3.0	
			2525X-2T17S	●	●	KGDS R/L 2525-C		25	7		25	147		28.4					
			KGDS R/L 2020X-3T10S	●	●	KGDS R/L 2020-C	KGDS R/L-3T10-C	20	12		20	115		23.0					
	3	10	2525X-3T10S	●	●	KGDS R/L 2525-C		25	7		25	140	32.9	28.0	2.4	10	3.0	4.0	
			3232X-3T10S	●	●	KGDS R/L 3232-C		32	-		32	160	33.0						
			KGDS R/L 2020X-3T20S	●	●	KGDS R/L 2020-C	KGDS R/L-3T20-C	20	12		20	125	23.0						
		2525X-3T20S	●	●	KGDS R/L 2525-C		25	7	25		150	42.9	28.0						
		3232X-3T20S	●	●	KGDS R/L 3232-C		32	-	32		170	33.0							
		4	10	KGDS R/L 2020X-4T10S	●	●	KGDS R/L 2020-C	KGDS R/L-4T10-C	20		12	20	115	32.9					22.5
	2525X-4T10S			●	●	KGDS R/L 2525-C		25	7		25	140	27.5						
	3232X-4T10S			●	●	KGDS R/L 3232-C		32	-		32	160	32.5						
	20		KGDS R/L 2020X-4T20S	●	●	KGDS R/L 2020-C	KGDS R/L-4T20-C	20	12		20	125	-	22.5					
			2525X-4T20S	●	●	KGDS R/L 2525-C		25	7		25	150	42.9	27.5					
			3232X-4T20S	●	●	KGDS R/L 3232-C		32	-		32	170	32.5						
	25		KGDS R/L 2020X-4T25S	●	●	KGDS R/L 2020-C		20	12		20	130		22.5					
			2525X-4T25S	●	●	KGDS R/L 2525-C	KGDS R/L-4T25-C	25	7		25	155	47.9	27.5					
			3232X-4T25S	●	●	KGDS R/L 3232-C		32	-		32	175	32.5						
	5	10	KGDS R/L 2020X-5T10S	●	●	KGDS R/L 2020-C	KGDS R/L-5T10-C	20	12		20	115	32.9	22.0	4.4	10	5.0	6.0	
2525X-5T10S			●	●	KGDS R/L 2525-C		25	7	25	140	27.0								
3232X-5T10S			●	●	KGDS R/L 3232-C		32	-	32	160	32.0								
25		KGDS R/L 2020X-5T25S	●	●	KGDS R/L 2020-C		20	12	20	130		22.0							
		2525X-5T25S	●	●	KGDS R/L 2525-C	KGDS R/L-5T25-C	25	7	25	155	47.9	27.0							
		3232X-5T25S	●	●	KGDS R/L 3232-C		32	-	32	175	32.0								
90°	3	10	KGDS R/L 2020X-3T10S	●	●	KGDS R/L 2020-C	KGDS L/R-3T10-C	20	12		20	125	25.1	49.7	-	2.4	10	3.0	4.0
			2525X-3T10S	●	●	KGDS R/L 2525-C		25	7	25	150								

注)1. 正常使用狀況下, 刀桿可能會干涉刀具預調儀

●:標準在庫 Standard Stock

2. 刀桿和刀板型番印在刀桿上

KGDS-S型: 右手(R)刀桿搭配右手(R)刀板, 左手(L)刀桿搭配左手(L)刀板

KGDS-S型: 右手(R)刀桿搭配左手(L)刀板, 左手(L)刀桿搭配右手(R)刀板

刀桿本體可搭配所有刀板, 但需先確定左右手刀

3. T尺寸: 加工可能達到的溝深。(T尺寸20mm以上的場合, 2刃刀的溝深需在18mm以下)

Note) 1. In case of normal mounting position, toolholder body may interfere with tool presetter

2. Toolholder description and blade description are printed on toolholder body. (Unit description is not indicated.)

KGDS-S : R-hand Blade for R-hand Toolholder, L-hand Blade for L-hand Toolholder.

KGDS-S : L-hand Blade for R-hand Toolholder, R-hand Blade for L-hand Toolholder.

The toolholder is applicable for all blade with suitable hand.

3. T dimension shows the distance from the Toolholder to the cutting edge. (When using 2-edge insert, set the groove depth under 18mm.)

分離式(0度)本體形狀 0° separate type shape 本圖顯示為右手(R) Right-hand Shown	刀桿型番 Description of Toolholder	在庫 Stock		尺寸 (mm) Dimension (mm)		
		R	L	L	B	H1
	KG D R/L 2020-C	●	●	104	20	20
	2525-C	●	●	129	25	25
	3232-C	●	●	149	32	32

直角刀桿 (90度)本體形狀 90° separate type shape 本圖顯示為右手(R) Right-hand Shown	刀桿型番 Description of Toolholder	在庫 Stock		尺寸 (mm) Dimension (mm)		
		R	L	L	B	H1
	KGDS R/L 2020-C	●	●	122	20	20
	2525-C	●	●	147	25	25

刀板 形狀 Blade shape 本圖顯示為右手(R) Right-hand Shown	刀板型番 Description of Blade	在庫 Stock		尺寸 (mm) Dimension (mm)		
		R	L	L	T	W
	KG D R/L -2T17-C	●	●	51.2	17.2	1.7
	-3T10-C	●	●	44.2	10.2	2.4
	-3T20-C	●	●	53.2	20.2	2.4
	-4T10-C	●	●	44.2	10.2	3.4
	-4T20-C	●	●	54.2	20.2	3.4
	-4T25-C	●	●	59.2	25.2	3.4
	-5T10-C	●	●	44.2	10.2	4.4
	-5T25-C	●	●	59.2	25.2	4.4

●:標準在庫 Standard Stock

● 部品 Spare parts

組合の型番 Unit Description	部品 Spare parts		
	緊固螺栓 (緊固刀片用) Clamp bolt (For Insert Clamp)	緊固門 (刀板用) Fixing bolt (For Blade)	板手 Wrench
KG D \$S	BH6X10TR	SB-60120TR	LTW-25

■ 組裝刀板(分離型刀桿) Setting the blade (Separate-type toolholder)

- 1 使用吹風或其他工具讓刀片夾持的部位完全去除鐵屑(圖4參照)。
1. Make air blow or other measures to completely eliminate chips and dusts from the serration part (See Fig.4).
- 2 將鋸齒狀的刀桿與刀板做緊密結合(圖5參照)。
2. Fit closely the serration joints of the blade and toolholder (See Fig.5).
- 3 用適當的扭力鎖緊刀板(建議扭力 8 N·m)(圖5參照)。
3. Tighten the blade fixing bolts at an appropriate torque (Recommended tightening torque : 8 N·m). You can tighten them in any order (See Fig.5).
- 4 裝好刀板後將刀片安裝上去。
4. Set the insert after setting the blade.

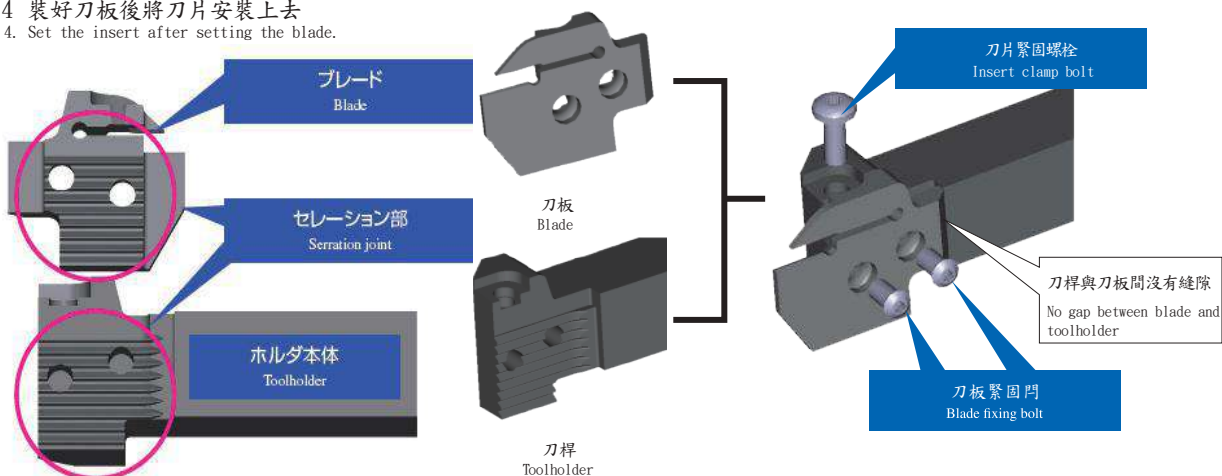


圖 4 Fig. 4

圖 5 Fig. 5

推薦切削條件(外徑溝・切斷)

Recommended Cutting Conditions (Grooving, Cut-off)

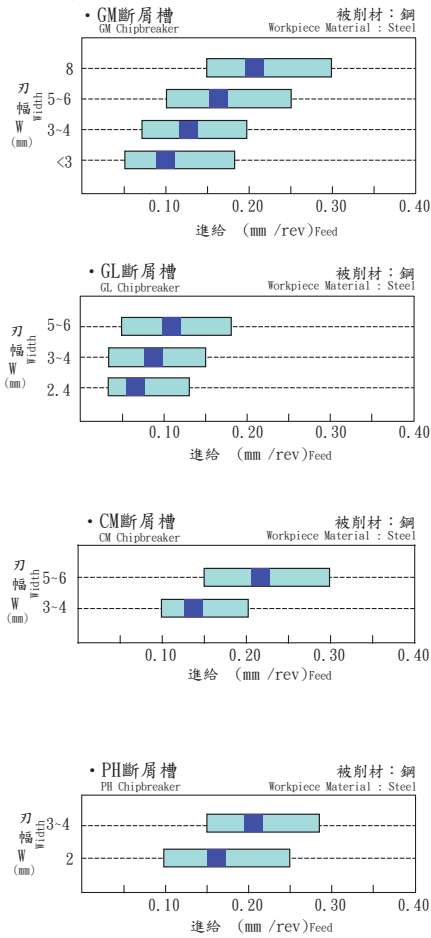
被削材 Workpiece Material	斷屑槽	推薦刀片材種(切削速度 m/min) Recommended Insert Grad(Cutting Speed/min)				備考
		氮化 Cermet	MEGACOAT		超硬	
		TN90	PR1225	PR1215	GW15	
炭素鋼 Carbon Steel (SxxC等)	GM	☆ 100~220	★ 80~200	☆ 100~200	-	溼式
合金鋼 Alloy Steel (SCM等)	GL	☆ 80~200	★ 70~180	☆ 80~180	-	
不銹鋼 Stainless Steel (SUS304等)	PH	☆ 70~180	★ 60~150	☆ 60~150	-	
鑄鐵 Cast Iron (FC、FCD等)	CM	-	-	★ 100~200	-	
鋁	GS	-	-	-	★ 200~500	
黃銅	GS	-	-	-	★ 100~200	

★:第1推薦 1st. Recommendation ☆:第2推薦 2nd. Recommendation

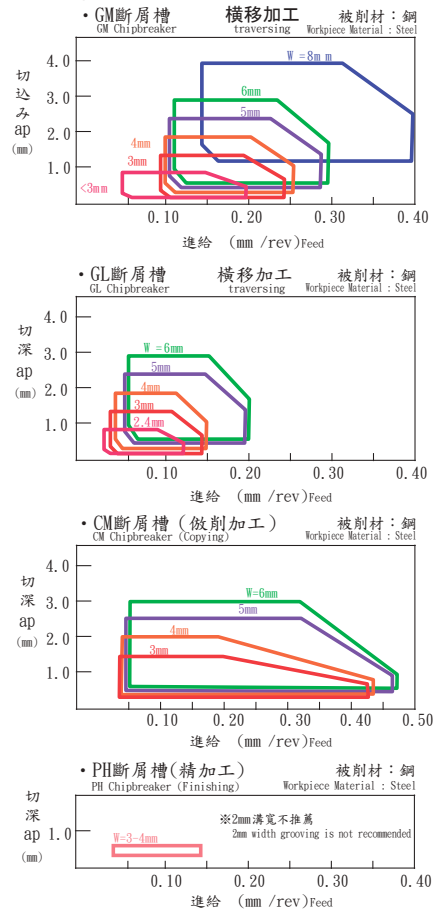
推薦切削條件(進給、切深)

Recommended Cutting Conditions (f, ap)

槽溝 Grooving



橫移 traversing



1) 上述條件為刀桿的T(溝深)在17mm以下

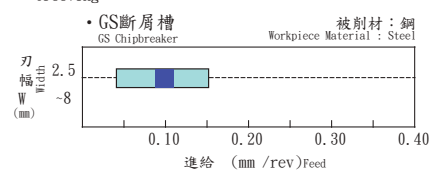
Above conditions are in case toolholder's T dimension is under 17mm

2) 若刀桿的T(溝深)在17mm以上,除了刀幅8mm之刀片,其他請用90%以下之條件做橫移

In case T dimension is more than 17mm for all toolholders except 8mm insert width type, use up to 90% of recommended cutting conditions at traversing.

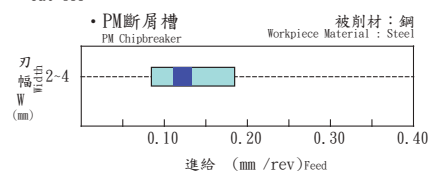
推薦切削條件(進給) Recommended Cutting Conditions (Feed)

槽溝 Grooving



GS 斷屑槽橫移時,切深請小於R角
Set up depth of cut (ap) for traversing less than radius size.

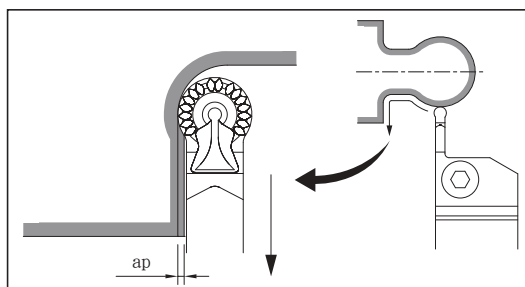
切斷 Cut-off



●CM斷屑槽 [加工時最大切深] 最大切深 (ap)的推薦

CM chip-breaker [about max. a.p. for pulling up] Recommended ap for pulling up.

型番 Description	最大切深 (ap: mm) Max. ap				
	刀桿型番 Description of Toolholder				
	KGD...-2T...	KGD...-3T...	KGD...-4T...	KGD...-5T...	KGD...-6T...
GDM 3020N-150R-CM	0.24	0.20	-	-	-
4020N-200R-CM	-	0.24	0.20	-	-
5020N-250R-CM	-	-	0.30	0.20	-
6020N-300R-CM	-	-	-	0.30	0.25



●外徑加工的要點 Point of OD turning

•加工的要點 (I) (開槽後橫移加工的要點)

Point (I) (Traversing after grooving)

1) 溝深0.5mm以上: 粗加工時(圖1參照)

over 0.5mm of groove depth : For Roughing (Refer to fig 1)

開槽後，將刀桿後拉至0.1mm 再做橫移加工
(將切刃的負載朝單一方向)

Before traversing, pull the tool back by 0.1mm after grooving.
(Put the load on edge from single direction.)

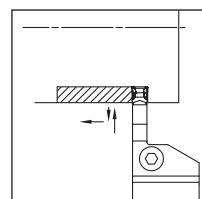


圖 1 fig 1

橫移前刀桿後拉至0.1mm
(溝深 0.5mm 以上: 粗加工時)
Pull back the tool by 0.1mm before traversing
(over 0.5mm of groove depth : For Roughing)

2) 溝深0.5mm以下: 精加工時(圖2參照)

Less 0.5mm of groove depth : For Finishing (Refer to fig 2)

在開槽後直接橫移。

(不需要停留)

Available to traverse continuously after grooving.
(Dwell motion is not required)

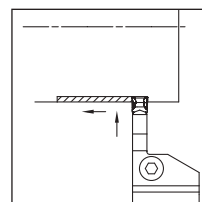


圖 2 fig 2

開槽後直接橫移
(溝深 0.5mm 以下: 精加工時)
Traversing continuously after grooving
(Less 0.5mm of groove depth : For Finishing)

•加工的要點 (II) Point (II)

1) 擴大溝幅的場合(圖3參照) In case of expanding groove width (Refer to fig. 3)

請用階梯式加工。 Please program to make steps at each pass.

2) 最後之精加工 For finishing

(留0.5mm以上的材料會讓切屑處理更好)

(Leave the material more than 0.5mm total to get better chip control.)

注) 朝向中心加工時建議降低進給速率

Caution) Recommend not feeding the tool toward to center when traversing without center.

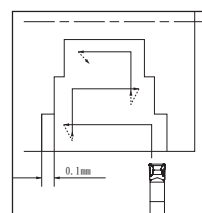
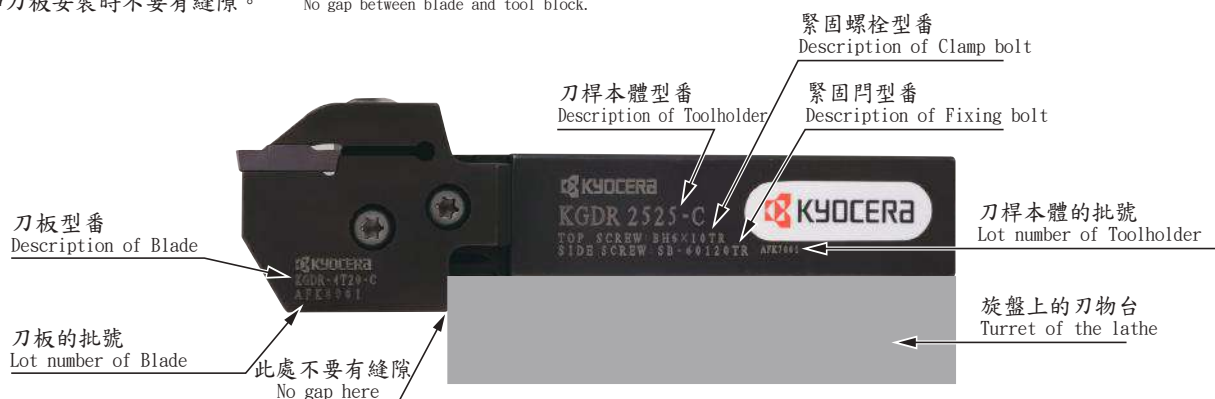


圖 3 fig 3

●分離型刀桿型番和旋盤安裝方式指引 Descriptions of separate type toolholder and indication of setting up to machine.

刀桿和刀板安裝時不要有縫隙。 No gap between blade and tool block.






KGDF型 端面切槽工具 KGDF Face grooving tool

GDFM/GDFMS型

使用分類標準 Classification of usage	P	碳鋼・合金鋼 Carbon steel, Alloy steel	●	●	◎
	M	不鏽鋼 Stainless Steel		●	◎
	K	鑄鐵 Cast iron			●
	N	有色金属 Non-ferrous Material			
	S	鈦合金 Titanium alloy			
	H	淬硬材料(40HRC以下) Hard materials (under 40HRC) 淬硬材料(40HRC以上) Hard materials (over 40HRC)			

◎: 連續~斷續 / 第1選擇 (Continuous - Interruption / 1st Choice)
◎: 連續~斷續 / 第2選擇 (Continuous - Interruption / 2nd Choice)
●: 連續 / 第1選擇 (Continuous / 1st Choice)

形狀 Shape	型號 Description	尺寸 (mm) Dimension(mm)				金屬陶瓷 Cermet				
		W 公差 tolerance	IE	M	L	H	TN90	PR1225	PR1215	
切槽・橫進給 Grooving & Traversing 	GDFM 3020N-030GM	3.0	±0.03	0.3	2.3	20	4.3	●	●	●
	4020N-040GM	4.0			3.3			●	●	●
	5020N-040GM	5.0	±0.04	0.4	4.2	●	●	●		
	6020N-040GM	6.0			5.2	▲	▲	▲		
深槽・橫進給 Deep Grooving, traversing 	GDFM 3020N-030DM	3.0	±0.03	0.3	2.3	20	4.3	●	●	●
	4020N-040DM	4.0			3.3			●	●	●
	5020N-040DM	5.0	±0.04	0.4	4.2	●	●	●		
	6020N-040DM	6.0			5.2	▲	▲	▲		
深槽・橫進給 Deep Grooving, traversing 	GDFMS 3020N-030DM	3.0	±0.03	0.3	2.3	20	4.3	▲	▲	▲
	4020N-040DM	4.0			3.3			▲	▲	▲
	5020N-040DM	5.0	±0.04	0.4	4.2	▲	▲	▲		
	6020N-040DM	6.0			5.2	▲	▲	▲		

•チップ型番の見方はP.6を参照ください。
See page 6 for indication of insert description

●:標準庫存 Standard Stock
▲:2011年8月預定庫存
Scheduled to be in stock August 2011

刀尖式樣 Advantages of chipbreaker

通用GM 斷屑槽 General Purpose, GM chipbreaker

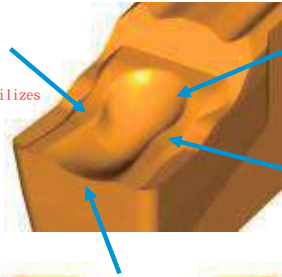
- 從刀尖到後方平滑連接的壁面
Smooth wall design from front edge to back side
促進切屑的形變
與排出方向的穩定化
Changes chip shape and stabilizes chip evacuation direction
- 緩慢形成的壁面
Gently raised wall shape
切屑捲曲的穩定感
Constantly curled chips
- 刀尖附近的壁面
Front edge wall
提高台階加工時的切屑處理性能
Improves chip control at shouldering
- 平滑的切刃稜線
Flat cutting edge line
切屑處理性能提高
Improves chip control



- 前切刃的彎曲形狀 Curved front edge line
切屑形狀的穩定性提高 Stabilizes chip shape

深槽用DM 斷屑槽 Deep Grooving, DM chipbreaker

- 向內部突出的壁面
Convex wall
促進切屑的形變
與排出方向的穩定化
Changes chip shape and stabilizes chip evacuation direction
- 中央凹部
Concave portion
促進切屑的形變
Changes chip shape smooth
- 能連貫置後方立壁為止的平滑壁面
Smooth wall design from front edge to back side
降低切削抵抗，促進切屑的形變以及排出方向的穩定化
Reduces cutting resistance
Changes chip shape and stabilizes chip evacuation direction



- 前切刃的彎曲形狀 Curved front edge line
切屑形狀的穩定性提高 Stabilizes chip shape

GM斷屑槽的切屑處理 Comparison of chip control (GM chipbreaker)

< 切削條件 > Cutting Condition

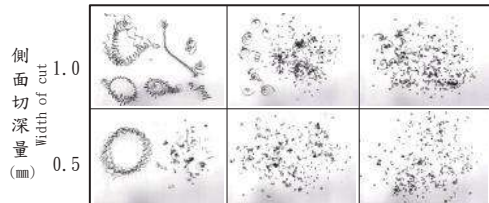
Vc=150m/min f=0.05~0.1mm/rev GDFMS020N-040GM SCM415 濕式 Wet

端面切槽加工 (φ62) Face grooving



0.05 0.08 0.1
進給量 f (mm / rev) Feed

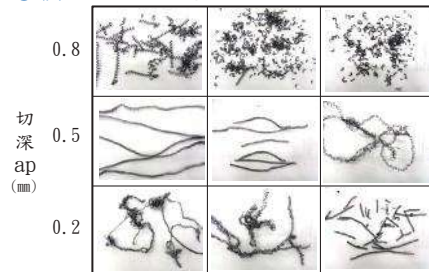
側面加工 Groove wall machining



側面切槽
Width of cut
1.0
0.5
深度 (mm)

0.1 0.15 0.2
進給量 f (mm / rev) Feed

橫向加工 Turning

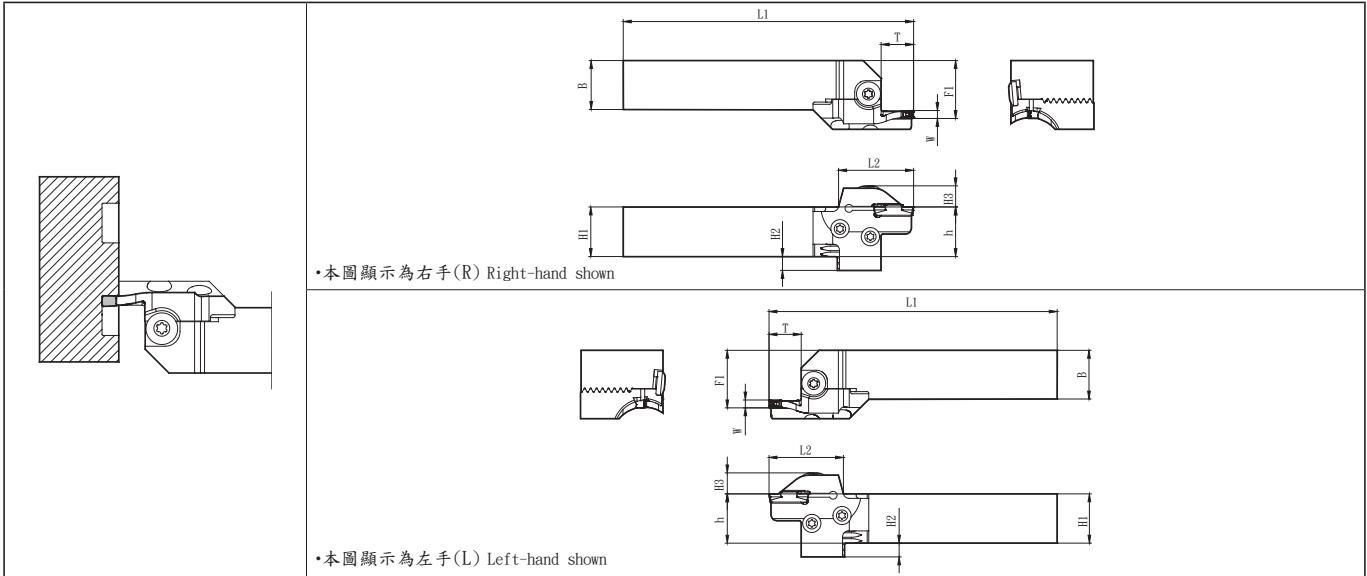


0.8
0.5
0.2
切深 ap (mm)

0.05 0.1 0.15
進給量 f (mm / rev) Feed

KGDF 型

KGDF type

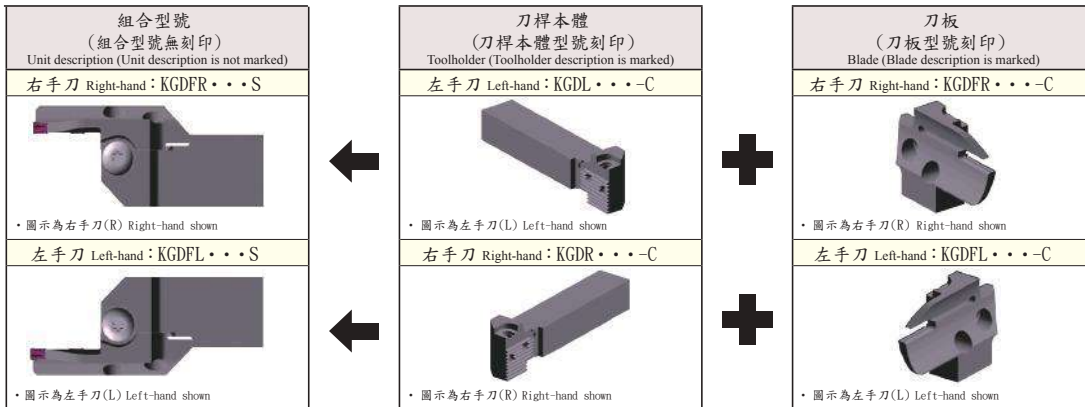


● 刀桿尺寸 Toolholder dimensions

本體角度 Shank Angle (mm)	溝寬 Width (mm)	可加工深度 Max. Grooving Depth (mm)	組合型號 Unit Description	庫存 Stock		本體型號 Toolholder Description P9	刀板型號 Blade Description P16	尺寸(mm) Dimension(mm)								刀寬 (mm) Width(mm)	端面溝外徑 oD (mm)		
				R	L			H1-h	H2	H3	B	L1	L2	F1	T		W	MIN	MAX
				0°	3			13	KGDF R/L 2020X25-3AS 2020X30-3AS 2020X40-3AS 2020X50-3BS 2020X65-3BS 2020X85-3BS 2020X110-3BS 2020X50-3CS 2020X65-3CS 2020X85-3CS 2020X110-3CS	●	▲	KGD 1/4 2020-C	KGD R/L -25-3A-C -30-3A-C -40-3A-C -50-3B-C -65-3B-C -85-3B-C -110-3B-C -50-3C-C -65-3C-C -85-3C-C -110-3C-C	20	12		11.6	20	118
15	30	40	50	65	85	110	145												
22	50	65	85	110	145														
25	85	110	145																
13	25	30	40	50	65	85	110	145											
15	30	40	50	65	85	110	145												
22	50	65	85	110	145														
25	85	110	145																
13	25	30	40	50	65	85	110	145											
15	30	40	50	65	85	110	145												
22	50	65	85	110	145														
25	85	110	145																

● KGDF型刀桿組合型號的表示方式 Indication of KGDF unit description

●:標準庫存 Standard Stock
▲:2011年8月預定庫存 Scheduled to be in stock August 2011



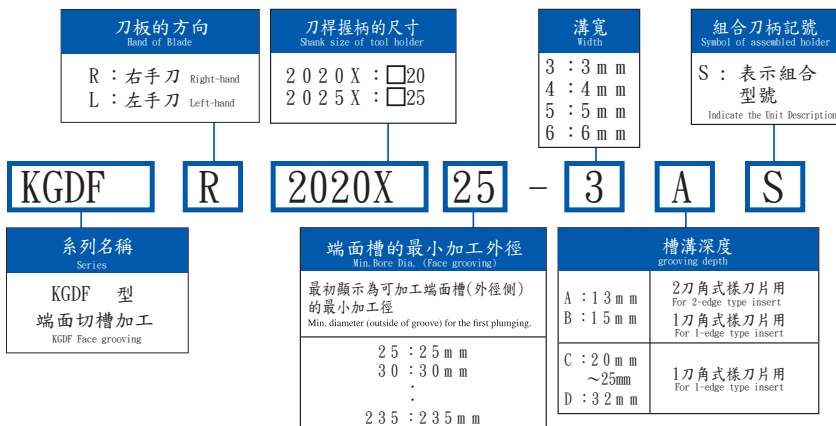
- 左手(L)刀桿本體上安裝右手(R)刀板, 右手(R)刀桿上安裝左手(L)刀板。
R-hand Blade for L-hand Toolholder, L-hand Blade for R-hand Toolholder
- 組合型號無刻印。外包裝的標籤上有組合型號。
Unit description is shown on the label, not marked on
- 分別採購刀桿本體與刀板, 可作為組合型號產品來使用。
Blade and tool holder are available to assemble when purchasing individually.
- 刀片緊固刀桿 (BH6x10TR)/刀板安裝螺絲 (SB-60120TR)/板手 (LTW-25)。
Insert clamp bolt (BH6x10TR)/Blade fixing bolt (SB-60120TR) come with tool holder.

● 刀桿尺寸 Toolholder dimensions

本體角度 Shank Angle (mm)	槽寬 Width (mm)	可加工深度 Max. Grooving Depth (mm)	組合型號 Unit Description	庫存 Stock		本體型號 Toolholder Description P9	刀板型號 Blade Description P16	尺寸 (mm) Dimension(mm)										刀寬 (mm) Width(mm)		端面溝外徑 øD (mm)	
				R	L			H1=h	H2	H3	B	L1	L2	F1	T	W	MIN	MAX			
				0°	4			13	KGDF R/L 2020X25-4AS	●	▲	KGD ¼ 2020-C	KGDF R/L -25-4A-C	20	12	11.6	20	118	36	24.2	13
15	2020X35-4BS	●	▲	-35-4B-C	35	50															
	2020X50-4BS	●	▲	-50-4B-C	50	70															
25	2020X70-4BS	●	▲	-70-4B-C	70	100															
	2020X100-4BS	●	▲	-100-4B-C	100	150															
	2020X150-4BS	●	▲	-150-4B-C	150	220															
	2020X220-4BS	●	▲	-220-4B-C	220	∞															
15	2020X35-4CS	▲	▲	-35-4C-C	35	50															
	2020X50-4CS	▲	▲	-50-4C-C	50	70															
25	2020X70-4CS	▲	▲	-70-4C-C	70	100															
	2020X100-4CS	▲	▲	-100-4C-C	100	150															
	2020X150-4CS	▲	▲	-150-4C-C	150	220															
	2020X220-4CS	▲	▲	-220-4C-C	220	∞															
5	13	KGDF R/L 2525X25-4AS	●	▲	KGD ¼ 2525-C	KGDF R/L -25-4A-C	25	17	11.6	25	143	36	29.2	13	4	25	35				
	15	2525X35-4BS	●	▲												-35-4B-C	35	50			
		2525X50-4BS	●	▲												-50-4B-C	50	70			
	25	2525X70-4BS	●	▲												-70-4B-C	70	100			
		2525X100-4BS	●	▲												-100-4B-C	100	150			
		2525X150-4BS	●	▲												-150-4B-C	150	220			
		2525X220-4BS	●	▲												-220-4B-C	220	∞			
	15	2525X35-4CS	▲	▲												-35-4C-C	35	50			
		2525X50-4CS	▲	▲												-50-4C-C	50	70			
	25	2525X70-4CS	▲	▲												-70-4C-C	70	100			
		2525X100-4CS	▲	▲												-100-4C-C	100	150			
		2525X150-4CS	▲	▲												-150-4C-C	150	220			
2525X220-4CS		▲	▲	-220-4C-C	220	∞															
5	15	KGDF R/L 2020X25-5BS	●	▲	KGD ¼ 2020-C	KGDF R/L -25-5B-C	20	12	11.6	20	120	38	24.2	15	5	25	35				
	20	2020X35-5BS	●	▲												-35-5B-C	35	50			
		2020X50-5BS	●	▲												-50-5B-C	50	75			
		2020X75-5BS	●	▲												-75-5B-C	75	115			
		2020X115-5BS	●	▲												-115-5B-C	115	180			
	25	2020X180-5BS	●	▲												-180-5B-C	180	235			
		2020X235-5BS	●	▲												-235-5B-C	235	∞			
		2020X25-5CS	▲	△												-25-5C-C	25	35			
		2020X35-5CS	▲	△												-35-5C-C	35	50			
	32	2020X50-5CS	▲	△												-50-5C-C	50	75			
		2020X75-5CS	▲	△												-75-5C-C	75	115			
		2020X115-5CS	▲	△												-115-5C-C	115	180			
2020X180-5CS		▲	△	-180-5C-C	180	235															
5	15	KGDF R/L 2525X25-5BS	●	▲	KGD ¼ 2525-C	KGDF R/L -25-5B-C	25	17	11.6	25	145	38	29.2	15	5	25	35				
	20	2525X35-5BS	●	▲												-35-5B-C	35	50			
		2525X50-5BS	●	▲												-50-5B-C	50	75			
		2525X75-5BS	●	▲												-75-5B-C	75	115			
		2525X115-5BS	●	▲												-115-5B-C	115	180			
	25	2525X180-5BS	●	▲												-180-5B-C	180	235			
		2525X235-5BS	●	▲												-235-5B-C	235	∞			
		2525X25-5CS	▲	△												-25-5C-C	25	35			
		2525X35-5CS	▲	△												-35-5C-C	35	50			
	32	2525X50-5CS	▲	△												-50-5C-C	50	75			
		2525X75-5DS	▲	△												-75-5C-C	75	115			
		2525X115-5DS	▲	△												-115-5C-C	115	180			
2525X180-5DS		▲	△	-180-5C-C	180	235															
32	2525X235-5DS	▲	△	-235-5C-C	235	∞															

●:標準庫存 Standard Stock
 ▲:2011年8月預定存庫 Scheduled to be in stock August 2011
 △:2011年10月預定存庫 Scheduled to be in stock October 2011

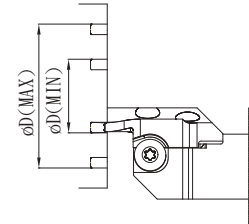
● 端面槽溝用組合型號表示方法 Indication of Face Grooving tool Unit Description



● 端面切槽直徑øD是指 What is min.D and max.D for ?

顯示最初切削端面槽時，該刀板可能加工的范围。此外，直徑由端面槽的外側判定。

"It indicates the available range for the 1st plunging. Outside diameter of the groove is shown."



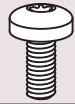
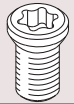
端面槽外徑øD Face Grooving Dia.(Out side)
 MIN:最小值(型號記載數值) minimum (Shown in the description)
 MAX:最大值(參照型號表) maximum (Refer to the spec chart)

● 刀桿尺寸 Toolholder dimensions

本體角度 Shank Angle (mm)	溝寬 Width (mm)	可加工深度 Max. Grooving Depth (mm)	組合型號 Unit Description	庫存 Stock		本體型號 Toolholder Description P9	刀板型號 Blade Description P16	尺寸 (mm) Dimension(mm)								刀寬 (mm) Width(mm)	端面切槽直徑 øD (mm)		
				R	L			H1-h	H2	H3	B	L1	L2	F1	T		W	MIN	MAX
0°	6	15	KGDF R/L 2020X25-6BS	▲	△	KGD ¼ 2020-C	KGDF R/L -25-6B-C	20	12	11.6	20	120	38	24.2	15	6	25	35	
			2020X35-6BS	▲	△		-35-6B-C										35	50	
			2020X50-6BS	▲	△		-50-6B-C										50	75	
			2020X75-6BS	▲	△		-75-6B-C										75	115	
			2020X115-6BS	▲	△		-115-6B-C										115	180	
			2020X180-6BS	▲	△		-180-6B-C										180	235	
		2020X235-6BS	▲	△	-235-6B-C		235										∞		
		2020X25-6CS	△	△	-25-6C-C		25										35		
		2020X35-6CS	△	△	-35-6C-C		35										50		
		2020X50-6CS	△	△	-50-6C-C		50										75		
		2020X75-6CS	△	△	-75-6C-C		75										115		
		2020X115-6CS	△	△	-115-6C-C		115										180		
	2020X180-6CS	△	△	-180-6C-C	180	235													
	2020X235-6CS	△	△	-235-6C-C	235	∞													
	6	15	25	KGDF R/L 2525X25-6BS	▲	△	KGD ¼ 2525-C	KGDF R/L -25-6B-C	25	17	11.6	25	145	38	29.2	15	6	25	35
				2525X35-6BS	▲	△		-35-6B-C										35	50
				2525X50-6BS	▲	△		-50-6B-C										50	75
				2525X75-6BS	▲	△		-75-6B-C										75	115
				2525X115-6BS	▲	△		-115-6B-C										115	180
				2525X180-6BS	▲	△		-180-6B-C										180	235
		2525X235-6BS	▲	△	-235-6B-C	235		∞											
		2525X25-6CS	△	△	-25-6C-C	25		35											
		2525X35-6CS	△	△	-35-6C-C	35		50											
		2525X50-6CS	△	△	-50-6C-C	50		75											
2525X75-6CS		△	△	-75-6C-C	75	115													
2525X115-6CS		△	△	-115-6C-C	115	180													
2525X180-6CS	△	△	-180-6C-C	180	235														
2525X235-6CS	△	△	-235-6C-C	235	∞														

▲:2011年8月預定庫存 Scheduled to be in stock August 2011
 △:2011年10月預定庫存 Scheduled to be in stock October 2011

● 零件 Spare parts

組合型號 Unit Description	零件 Spare parts		
	緊固螺栓 Clamp bolt (For Insert Clamp)	安裝螺栓 Fixing bolt(For Blade)	板手 Wrench
	KGDF R/L.....S	 BH6X10TR	 SB-60120TR

● 小徑加工時的橫進給界限尺寸 limitation of groove expansion for small diameter.

小徑加工至中心時因為刀桿與之干涉所以受限。此外，外徑側可擴大至無限大 (∞)進行槽的擴大加工。
 Please be aware of the limit diameter when expanding the groove to the center. There is no limit diameter to expand the groove outside.

型號 Description	øD			
	25	26	27	28 以上 over
KGDF R/L 2020X25-3AS	4	2	0	0 (無凸點) No remaining Boss
2525X25-3AS	6	3	0	
2020X25-4AS	7	4	1	
2525X25-4AS	9	4	1	
2020X25-5AS				
2525X25-5AS				
2020X25-6AS				
2525X25-6AS				

例) KGDFR2020X25-3AS 對外徑φ25的端面槽加工後，再向中心方向進行橫進給加工時，因與刀桿干涉，中心部留有φ4的突起。

KGDFR2020X25-3AS with ø25mm as first cut towards the center, it will encounter rubbing of the holder cartridge when ød is 4.0mm. However, if the first cut ød was 27mm and above, it will be able to transverse cut towards the center without interference.

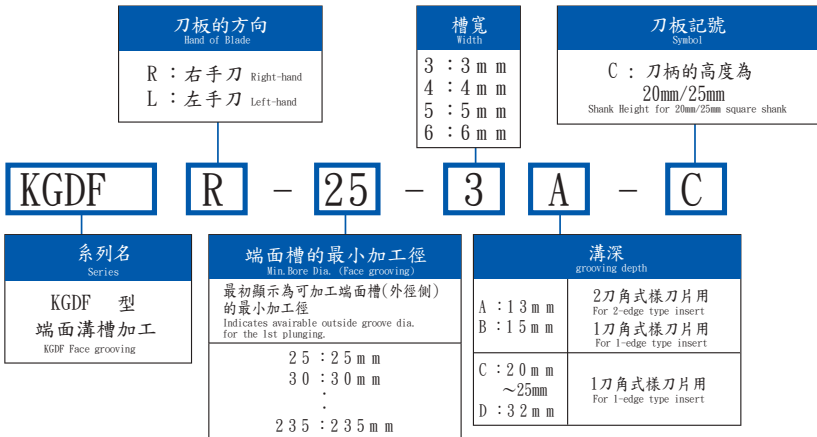
● 刀桿尺寸 Blade dimensions

形狀 Shape	刀板型號 Description of Blade	庫存 Stock		尺寸 (mm) Dimension(mm)			端面切槽直徑 Face Grooving Dia. øD (mm)		適用刀片 Applicable Inserts P12	刀桿 本體型號 Description or Toolholder P9		
		R	L	L	T	A	MIN	MAX				
<p>圖示為右手方向(R) Right-hand Shown</p>	KGDF R/L	-25-3A-C	●	▲	47.35	13	2	25	30	GDFM 3020N-030GM GDFM 3020N-030DM GDFMS 3020N-030DM		
		-30-3A-C	●	▲				30	40			
		-40-3A-C	●	▲				40	50			
		-50-3B-C	●	▲	49.35	15		50	65			
		-65-3B-C	●	▲				65	85			
		-85-3B-C	●	▲				85	110			
		-110-3B-C	●	▲	56.35	22		110	145			
		-50-3C-C	▲	▲				50	65			
		-65-3C-C	▲	▲				65	85			
		-85-3C-C	▲	▲	59.35	25		85	110			
		-110-3C-C	▲	▲				110	145			
	-25-4A-C	●	▲	47.35			13	3	25	35	GDFM 4020N-040GM GDFM 4020N-040DM GDFMS 4020N-040DM	
	-35-4B-C	●	▲		35	50						
	-50-4B-C	●	▲		50	70						
	-70-4B-C	●	▲		49.35	15			70	100		
	-100-4B-C	●	▲						100	150		
	-150-4B-C	●	▲						150	220		
	-220-4B-C	●	▲		59.35	25			220	∞		
	-35-4C-C	▲	▲						35	50		
	-50-4C-C	▲	▲						50	70		
	-70-4C-C	▲	▲		59.35	25			70	100		
	-100-4C-C	▲	▲						100	150		
	-150-4C-C	▲	▲	150			220					
	-220-4C-C	▲	▲	220	∞							
	KGDF R/L	-25-5B-C	●	▲	49.35	15	4	25	35	GDFM 5020N-040GM GDFM 5020N-040DM GDFMS 5020N-040DM		
		-35-5B-C	●	▲				35	50			
		-50-5B-C	●	▲				50	75			
		-75-5B-C	●	▲				75	115			
		-115-5B-C	●	▲				115	180			
		-180-5B-C	●	▲	180	235						
		-235-5B-C	●	▲	235	∞						
		-25-5C-C	▲	△	54.35	20		25	35			
		-35-5C-C	▲	△				35	50			
		-50-5C-C	▲	△				50	75			
		-75-5C-C	▲	△				75	115			
		-115-5C-C	▲	△				115	180			
		-180-5C-C	▲	△	59.35	25		180	235			
		-235-5C-C	▲	△				235	∞			
		-75-5D-C	▲	△				66.35	32		75	115
		-115-5D-C	▲	△							115	180
		-180-5D-C	▲	△							180	235
		-235-5D-C	▲	△	235	∞						
		-25-6B-C	▲	△	49.35	15					25	35
		-35-6B-C	▲	△				35	50			
		-50-6B-C	▲	△				50	75			
	-75-6B-C	▲	△	75			115					
	-115-6B-C	▲	△	115			180					
	-180-6B-C	▲	△	180	235							
	-235-6B-C	▲	△	235	∞							
	-25-6C-C	△	△	54.35	20	25	35					
	-35-6C-C	△	△			35	50					
	-50-6C-C	△	△			50	75					
	-75-6C-C	△	△			75	115					
	-115-6C-C	△	△			115	180					
	-180-6C-C	△	△	59.35	25	180	235					
	-235-6C-C	△	△			235	∞					
	-75-6D-C	△	△			66.35	32	75	115			
	-115-6D-C	△	△					115	180			
	-180-6D-C	△	△					180	235			
	-235-6D-C	△	△	235	∞							
-25-6D-C	△	△	25	35								
-35-6D-C	△	△	35	50								
-50-6D-C	△	△	50	75								
-75-6D-C	△	△	75	115								
-115-6D-C	△	△	115	180								
-180-6D-C	△	△	180	235								
-235-6D-C	△	△	235	∞								

KGD L/R...-C
KGDS R/L...-C

●:標準在庫 Standard Stock
▲:2011年8月預定庫存 Scheduled to be in stock August 2011
△:2011年10月預定庫存 Scheduled to be in stock October 2011

● 端面槽溝用刀板的表示方法 Indication of blade for face groove



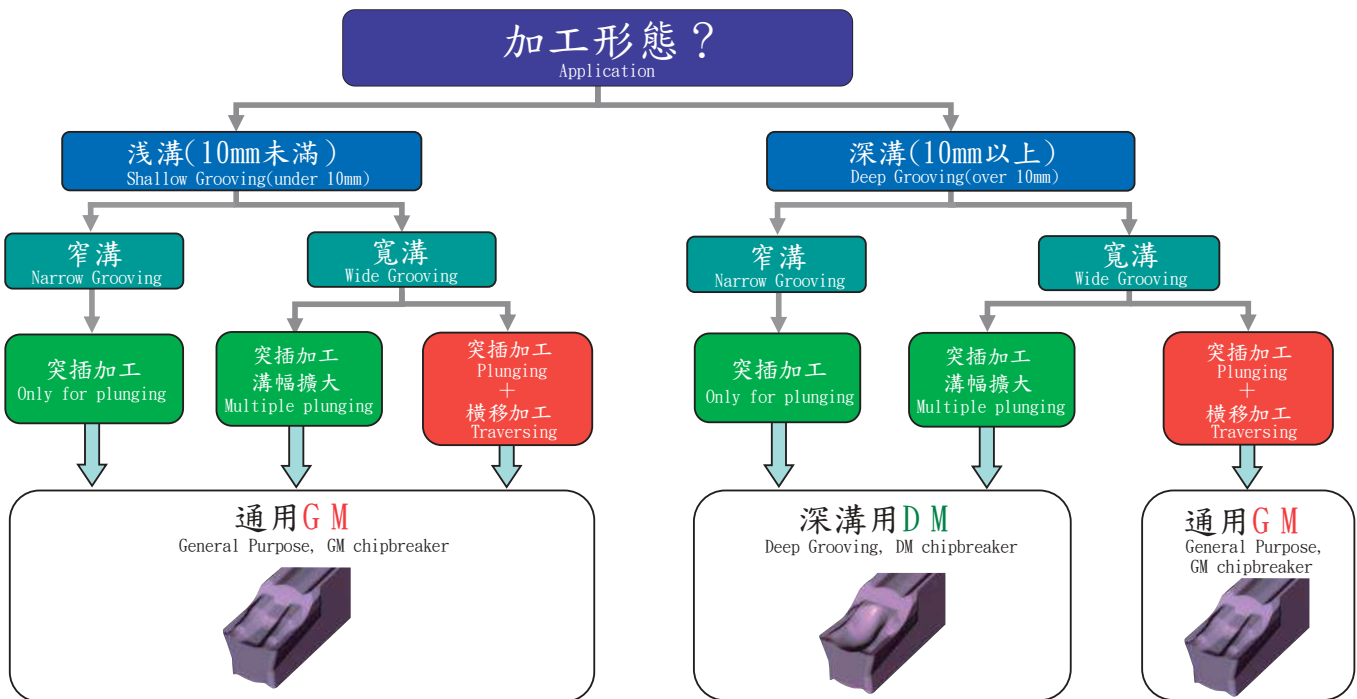
推薦切削條件(端面槽溝)

Recommended Cutting Conditions (Face grooving)

被削材 Workpiece Material	推薦刀片材種(切削速度 m/min) Recommended Insert Grad/Cutting Speed(m/min)			備考 Remarks
	瓷金 Cermet	MEGACOAT		
		TN90	PR1225	
炭素鋼 Carbon Steel (SxxC等)	☆ 100-220	★ 80-200	☆ 100-200	溼式 Wet
合金鋼 Alloy Steel (SCM等)	☆ 80-200	★ 70-180	☆ 80-180	
不銹鋼 Stainless Steel (SUS304等)	☆ 70-180	★ 60-150	☆ 60-150	
鑄鐵 Cast Iron (FC、FCD等)	-	-	★ 100-200	
鋁 Aluminum	-	-	-	
黃銅 Brass	-	-	-	

★:第1推薦 1st. Recommendation ☆:第2推薦 2nd. Recommendation

斷屑槽選擇基準(端面溝) Chipbreaker Selection(Face grooving)

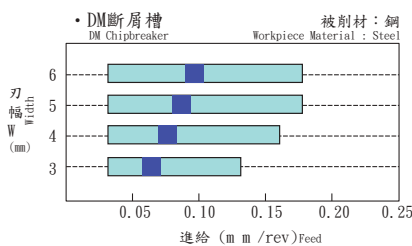
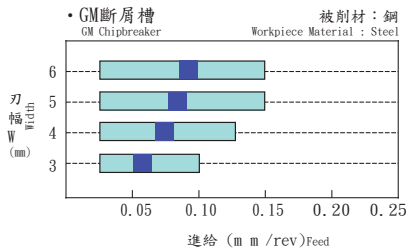


※若突插時GM斷屑槽排屑不穩，請試DM斷屑槽

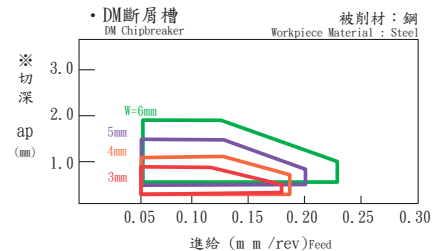
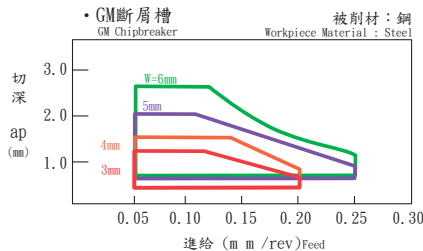
Please try DM chip-breaker when experiencing unstable chips evacuation with GM for plunging.

推薦切削條件(進給、切深) Recommended Cutting Conditions (f, ap)

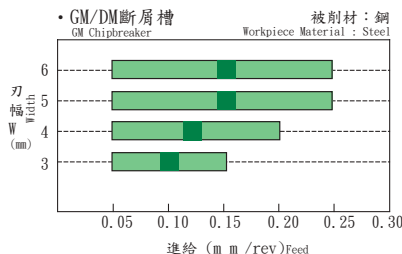
溝加工 Grooving



橫移加工 Traversing



肩加工(側面加工) Side grooving



※DM斷屑槽最大切深量：刃幅×30%
DM Chipbreaker Max. Depth of Cut: Edge widthx 0.3

● 端面槽溝加工的重點 Points for face grooving

1) 刀桿選擇

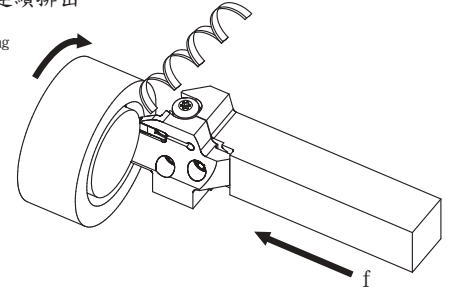
Toolholder Selection

端面槽溝加工，除了溝深與寬度外亦須確認端面溝最大及最小外徑。
Check available min and max dia as well as width and depth.

2) 切削條件(進給：f)的設定

Feed rate

進行鋼材等端面加工設定適當的進給保持切屑連續排出。
Set proper feed rate to create continuous chips for face grooving on steel.



3) 槽寬擴大加工

Expand groove width (Plunging, Traversing)

要從外側向中心加工切屑排出才會良好。
Recommend traversing from outside to inside to get better chips evacuation.

突插加工(端面+側面加工) Plunging (Face & Side grooving)	橫移加工 Traversing

4) 橫移加工時需注意的點 Points for traversing

A. 切深0.5mm以上之場合

To remove over 0.5mm depth of cut (cp), take the following three steps.

- ① 突切加工 Plunging
- ② 退刀至0.1mm Pull back the tool by 0.1mm
- ③ 橫移加工 Traversing

參考圖1 Refer to fig.1

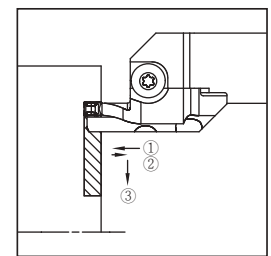
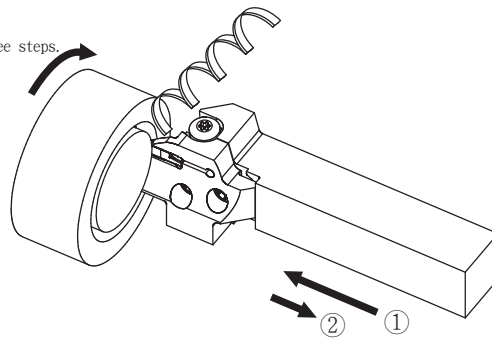


圖 1 fig 1

● 端面溝幅擴寬的場合 (參考圖2)

錯位成台階狀進行加工。最後進行精加工。

To expand groove width (Refer to fig.2) Leave steps at each pass for finishing

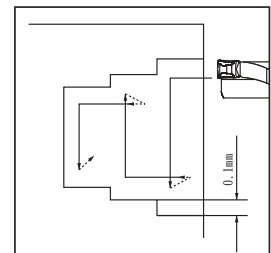
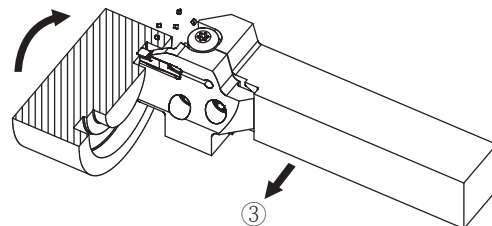


圖 2 fig 2

B. 切深0.5mm以下之場合

May take the following two steps continuously for less than 0.5mm D.O.C

- ① 突插加工 Plunging
 - ② 橫移加工 Traversing
- 可進行連續加工(參考圖3)。

Traversing subsequent to grooving is possible (Refer to fig.3)

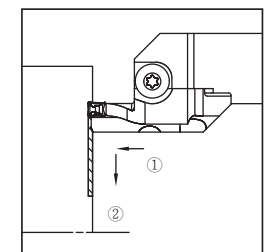
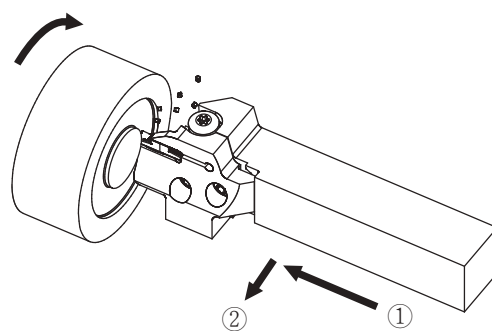


圖 3 fig 3

新產品

KGD 小徑系列 登場



刀柄尺寸
10x10mm ~追加

小徑槽溝・切斷刀桿
產品線擴大!

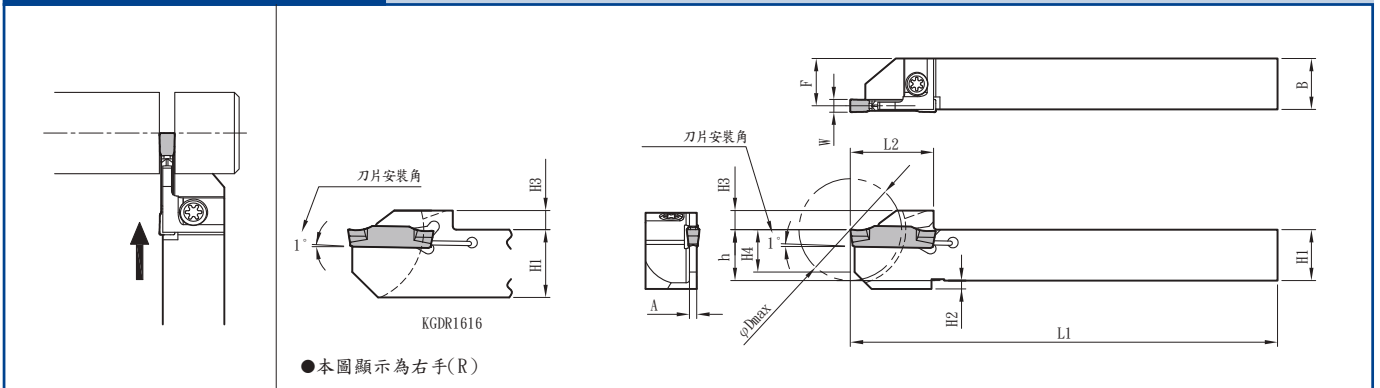
廣受好評的”KGD”系列，現已追加
自動車床用小徑系列刀桿。

KGDR1010JX-2

刀桿方向	刀柄尺寸	刀桿全長	適合刀片
R: 右手 L: 左手	10x10mm	120mm	GDM/GDMS 型 刃幅2~3mm

KGD (自動車床用)

刃幅: 2.0~4.0mm



刀桿尺寸

型番	在庫		加工徑 φD max	尺寸 (mm)								刀幅W (mm)		部品							
	R	L		H1=h	H2	H3	H4	B	L1	L2	F	A	MIN.	MAX.	緊固螺絲	扳手					
KGD R/L 1010JX-2	●	●	20	10	2	4.5	8	10	120	18	9.15	1.7	2.0	3.0	SB-40120TR	LTW-15S					
	●	●	24	12	2		10	12		19.5	11.15						2.4	3.0	4.0		
	●	●	32	16	-		10	16		24.5	15.15						2.4	3.0	4.0		
KGD R/L 1010JX-2.4	●	●	20	10	2		8	10	120	18	9	2.0	2.4	3.0			SB-40120TR	LTW-15S			
	●	●	24	12	2		10	12		19.5	11								2.4	3.0	4.0
	●	●	32	16	-		10	16		24.5	15								2.4	3.0	4.0
KGD R/L 1212JX-3	●	●	24	12	2		10	12	120	19.5	10.8	2.4	3.0	4.0					SB-40120TR	LTW-15S	
	●	●	32	16	-		10	16		24.5	14.8										
KGD R/L 1212F-2	●	●	24	12	2		10	12	85	19.5	11.15	1.7	2.0	3.0							SB-40120TR
	●	●	24	12	2	10	12	19.5		11	2.0				2.4	3.0					

●: 標準在庫

小徑適合刀片 (槽溝・切斷)

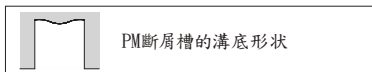
KGD型小徑系列



■GDM / GDMS / GDG 型

形狀	型番	尺寸 (mm)		陶瓷	MEGA COAT	超硬	
		刃幅(W)	R角 (rε)				
							公差
槽溝 橫移	通用 2 刀型	GDM 2420N-020GM	2.4	0.2	●	●	●
		3020N-020GM	3.0	0.2	●	●	●
		3020N-040GM		0.4	●	●	●
		4020N-020GM	4.0	0.2	●	●	●
		4020N-040GM		0.4	●	●	●
		4020N-080GM		0.8	●	●	●
	GDMS 2220N-020GM	2.2		0.2	●	●	●
	通用 1 刀型	3020N-040GM	3.0	0.4	●	●	●
		4020N-040GM	4.0	0.4	●	●	●
		GDM 2420N-020GL	2.4	0.2	●	●	●
	低進給 2 刀型	3020N-020GL	3.0	0.2	●	●	●
		3020N-040GL		0.4	●	●	●
4020N-020GL		4.0	0.2	●	●	●	
4020N-040GL			0.4	●	●	●	
GDG 2520N-020GS			2.5	0.2	●	●	●
3020N-020GS			3.0	0.2	●	●	●
3520N-020GS	3.5	0.2	●	●	●		
4020N-040GS	4.0	0.4	●	●	●		
槽溝 衍削	2 刀型	GDM 3020N-150R-CM	3.0	1.5	●	●	●
		4020N-200R-CM	4.0	2.0	●	●	●
槽溝 切斷	高進給 2 刀型	GDM 2020N-020PH	2.0	0.2	●	●	●
		3020N-030PH	3.0	0.3	●	●	●
		4020N-030PH	4.0	0.3	●	●	●
高進給 1 刀型	GDMS 2020N-020PH	2.0	0.2	●	●	●	
		3020N-030PH	3.0	0.3	●	●	●
		4020N-020NB	4.0	0.2	●	●	●
		4020N-040NB	4.0	0.4	●	●	●

注) 1 PM斷屑槽(切斷用)
槽溝加工之溝底形狀如右圖。



■GDM / GDMS 型

形狀	型番	尺寸 (mm)		陶瓷	MEGA COAT	超硬	
		刃幅(W)	R角 (rε)				
							公差
2 刀型	GDM 2020N-020PM	2.0	0.2	●	●	●	
		2520N-020PM	2.5	0.2	●	●	●
		3020N-025PM	3.0	0.25	●	●	●
		4020N-030PM	4.0	0.3	●	●	●
			GDMS 2020R-020PM-6D	2.0	0.2	●	●
		斜6度 2 刀型	2520R-020PM-6D	2.5	0.2	●	●
3020R-025PM-6D	3.0			0.25	●	●	●
GDMS 2020N-020PM	2.0			0.2	●	●	●
1 刀型	GDMS 2020N-025PM	3.0	0.25	●	●	●	
		4020N-030PM	4.0	0.3	●	●	●
		GDMS 2020R-020PM-6D	2.0	0.2	●	●	●
			3020R-025PM-6D	3.0	0.25	●	●
斜6度 1 刀型	4020R-030PM-6D	4.0	0.3	●	●	●	

●：標準在庫

■GDGS 型 (CBN・鑽石)

形狀	型番	尺寸 (mm)		MEGA CBN	CBN	鑽石	
		刃幅(W)	R角 (rε)				
							公差
槽溝 1 刀型	GDGS 2020N-020NB	2.0	0.2	●	●	●	
		3020N-020NB	3.0	0.2	●	●	●
		3020N-040NB	4.0	0.4	●	●	●
		4020N-020NB		0.2	●	●	●
		4020N-040NB	0.4	●	●	●	

●：標準在庫

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藉由輸入轉速、進給、工件尺寸等，可迅速算出床台進給和加工時間。計算含車削、銑削和鑽孔。



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http://www.kyocera.co.jp/prdct/tool/index.html

京セラ株式会社

加工實例 Case studies

SCr420H(切槽 Grooving)

<ul style="list-style-type: none"> 齒輪 Gear Vc=113 ~164 m/min f=0.06 mm/rev WET GDM4020N-040GM (PR1225) KGDL2525X-3T10S 	
GM 斷屑槽 GM Chipbreaker (PR1225)	1500 個/C 1500pcs/edge
他社品K (PVD塗層硬質合金) Competitor K (PVD Coated Carbide)	250 個/C 250pcs/edge
結果 •KGD型槽溝GM斷屑槽 (PR1225)，相較其他產品K使用壽命延長6倍 •無發現燒焦碎屑，處理情況良好 Results •KGD-type and GM chipbreaker (PR1225) improved tool life to 6 times of Comp. K. •No burned chips and good chip control.	
(根據使用者評價) Evaluation by the user	

S45CF(切斷 Cut-off)

<ul style="list-style-type: none"> 套筒 Sleeve Vc=103 m/min f=0.12 mm/rev WET GDM3020N-025PM (PR1225) KGDL2525X-3T20S 	
PM 斷屑槽 PM Chipbreaker (PR1225)	250 個/C 壽命可延長 250pcs/edge, capable of further machining
他社品L (PVD塗層硬質合金) Competitor L (PVD Coated Carbide)	250 個/C 有磨損情形 250pcs/edge, with chipping
結果 •KGD型切斷PM斷屑槽 (PR1225) 與其他產品使用相同次數後刀刃依舊完好 •可延長使用壽命 (其他產品則可能發生刀刃磨損) Results •KGD-type and PM chipbreaker (PR1225) showed good edge condition after machining same number of workpieces as Comp. L. •Available for further machining. (Comp. L caused chipping)	
(根據使用者評價) Evaluation by the user	

SCM435(倣削加工 Copying)

<ul style="list-style-type: none"> 球柱 Ball Stud Vc=100~160 m/min f=0.15~0.25 mm/rev ap=0.3 mm WET GDM3020N-150R-CM (PR1225) KGDR2020X-3T10S 	
CM 斷屑槽 CM Chipbreaker (PR1225)	800 個/C 800pcs/edge
過去使用產品A Conventional A	400 個/C 400pcs/edge
結果 •因碎屑的排出性良好，故能改善卡屑的問題 解決因碎屑造成的刀刃磨損 •因減少刀刃的磨損故可延長工具使用壽命至2倍 Results •Resolve issues such as chip-bite and tangled chips due to its superior evacuation performance => Resolve brakage of edge caused by chips. •Doubled tool life by reducing damage on the edge.	
(根據使用者評價) Evaluation by the user	

SCM435H(端面槽溝加工 Face grooving)

<ul style="list-style-type: none"> 活塞 Piston Vc=150 m/min f=0.05 mm/rev(溝) Grooving 0.1・0.15 mm/rev(橫) Traversing ap=1・1.8 mm(橫) Traversing WET GDFM4020N-040GM (PR1225) KGDFL2525X50MCS 	
GM 斷屑槽 GM Chipbreaker (PR1225)	40 個/C 壽命可延長 40pcs/edge, capable of further machining
過去使用產品B Conventional B	40 個/C 40pcs/edge, with chipping
結果 KGD F型端面槽溝GM斷屑槽與過去使用產品相較下碎屑的處理情形良好 (解決刀桿經常性崩損問題) •利用MEGACOAT可減少刀刃磨損情形且使其延長使用 (因刀片使用壽命之延長，故亦能節省成本) Results •KGD F + GM chipbreaker improved chip evacuation compared to B. (Resolved frequent brakage of holder.) •Smaller wear on the edge provided by MEGACOAT make the tool life longer. (Lower running cost by longer tool life)	
(根據使用者評價) Evaluation by the user	

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