



TURNING - Diamond

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ISO 513		DIAMOND		
		PCD	CVD	MONO
Non-ferrous materials N	N01	ND190	NDD*	NDM*
	N10	ND150		
	N20	ND100		
	N30	ND050		
HRSA S	S01			
	S10	ND050		
	S20			
	S30			
Hardened steel H	H01	ND190		
	H10			
	H20			
	H30			

HRSA: Heat resistant super alloy

*NDD-CVD diamond and NDM-monocrystalline diamond are available upon request

GRADE	COMPOSITION	HARDNESS HV	GRAIN SIZE	BINDER	APPLICATION	FEATURES
ND050 new name: NDP001	diamond 85%	5.000	~ 1 µm	Wc + Co	N N20 N35	<ul style="list-style-type: none"> ✦ Excellent surface finishing and very good toughness. First choice for titanium alloys machining. 🇮🇹 Eccellente finitura superficiale e ottima tenacità. Prima scelta per lavorazione di leghe di titanio. 🇩🇪 Ausgezeichnete Oberflächenqualität und hervorragende Robustheit. Erste Wahl für die Bearbeitung von Titan-Legierungen. 🇫🇷 Excellente finition de surface et excellente ténacité. Premier choix pour l'usinage d'alliages de titane.
ND100 new name: NDP010	diamond 95%	6.000	10 µm	Wc + Co	N N10 N30	<ul style="list-style-type: none"> ✦ First choice for all-around applications on non-ferrous materials. 🇮🇹 Prima scelta per lavorazioni universali su materiali non ferrosi. 🇩🇪 Erste Wahl für die universelle Bearbeitung von Nichtisenmaterialien. 🇫🇷 Premier choix pour usinages universels sur matériaux non ferreux.
ND150 new name: NDP020	diamond 95%	7.000	multi-modal 30 + 2 µm	Wc + Co	N N05 N25	<ul style="list-style-type: none"> ✦ Multi-modal grade for a perfect combination between toughness and wear resistance. Good solution for high silicon aluminium and bi-metal applications. 🇮🇹 Grado multimodale per una perfetta combinazione fra tenacità e resistenza all'usura. Buona soluzione per applicazioni su alluminio ad alto tenore di silicio e bi-metalli. 🇩🇪 Multimodale Qualität für eine perfekte Kombination aus Robustheit und Verschleißfestigkeit. Gute Lösung für Anwendungen mit Aluminium mit hohem Siliziumgehalt und Bimetallen. 🇫🇷 Qualité multimodale pour une combinaison parfaite entre ténacité et résistance à l'usure. Bonne solution pour applications sur aluminium à haute teneur en silicium et bi-métaux.
ND190 new name: NDP025	diamond 90%	7.000	25 µm	Wc + Co	N N01 N15	<ul style="list-style-type: none"> ✦ Excellent wear resistance. First choice for high silicon aluminium alloys (Si > 13%), tungsten carbide and ceramic. 🇮🇹 Eccellente resistenza all'usura. Prima scelta per leghe di alluminio ad alto contenuto in silicio (Si > 13%), metallo duro in tungsteno e ceramica. 🇩🇪 Hervorragende Verschleißfestigkeit. Erste Wahl für Aluminiumlegierungen mit hohem Siliziumgehalt (Si > 13 %), Hartmetall und Keramik. 🇫🇷 Excellente résistance à l'usure. Premier choix pour alliages d'aluminium à haute teneur en silicium (Si > 13 %), carbure et céramique.
NDD CVD diamond	-	8.000	-	binder free	N N01 N10	<ul style="list-style-type: none"> ✦ Longer tool life compared to PCD grades. Best performance on abrasive materials such as AISi, graphite, CFRP carbon fiber-reinforced plastic. 🇮🇹 Migliore vita utensile confrontata con i gradi PCD. Migliori prestazioni su materiali abrasivi quali AISi, grafite, e materiali plastici rinforzati in fibra di carbonio (CFRP). 🇩🇪 Verbesserte Standzeit gegenüber den PCD-Qualitäten. Bessere Leistung bei abrasiven Materialien wie AISi, Graphit und kohlenstoffaserverstärktem Kunststoff (CFK). 🇫🇷 Meilleure durée de vie de l'outil par rapport aux nuances PCD. Performances optimisées sur des matériaux abrasifs tels que l'AISI, le graphite et les plastiques renforcés en fibre de carbone (CFRP).

NDD-CVD diamond and NDM-monocrystalline diamond are available upon request
ND120: same features of ND100

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NDM Monocrystalline diamond	-	10.000	-	binder free	N N01 N05	<ul style="list-style-type: none"> Best surface finishing reaching nanometers roughness value not reachable with conventional polycrystalline tools. Eccezionale finitura superficiale con valori di rugosità nanometrici, irraggiungibili con utensili policristallini convenzionali. Verbesserte Oberflächenqualität (Rauheitswerte im Nanometerbereich), wie sie mit herkömmlichen polykristallinen Werkzeugmaterialien nicht erreicht werden kann. Meilleure finition de surface (valeurs de rugosité de l'ordre du nanomètre), inatteignable avec des outils polycristallins conventionnels.

NDD-CVD diamond and NDM-monocrystalline diamond are available upon request
ND120: same features of ND100

ISO 513	nixkoTOOLS	ISCAR	KENAMETAL	KYOCERA	mitsubishi	SANDVIK	SECO	SUMITOMO	TAEGUTEC	TUNGALOY	WALTER	
N	N01 - N10	ND150 ND190		KD1405		MD205 MD220		PCD30	DA90	TD810	DX140 DX160	
	N10 - N20	ND100 ND150	ID5	KD1425	KPD010	MD220 MD230	CD10	PCD20	DA150	KP300	DX120 DX140	WDN10
	N20 - N30	ND050 ND100	ID5	KD1400	KPD001 KPD010	MD230 MD2030	CD05 CD10	PCD20	DA1000 DA2200	TD830	DX110 DX120	WDN10

This table is our own estimation based on information available to the public and is not authorized by the company mentioned on it.

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NEGATIVE type with hole			C	D	T	W		
			80°	55°	60°	80°		
N	SLANT TIP	ECO 	 A196 SIZE 12	 A199 SIZE 15	 A205 SIZE 16	 A211 SIZE 08		
		LARGE 	 A196 SIZE 12	 A199 SIZE 15	 A205 SIZE 16	 A211 SIZE 08		
	FLAT TIP	ECO 	 A196 SIZE 12	 A199 SIZE 15	 A205 SIZE 16	 A211 SIZE 08		
		LARGE 	 A196 SIZE 12	 A199 SIZE 15	 A205 SIZE 16	 A211 SIZE 08		

			C	D	T	V		
POSITIVE type with hole								
			80°	55°	60°	35°		
N	SLANT TIP	ECO 1.5÷3.0 	CC A194 SIZE 06 09 12	DC A197 SIZE 07 11	TC, TP A203, A206 SIZE 08 09 11 16	VB, VC A207, A209 SIZE 11 16		
		LARGE 2.9÷4.5 	CC A194 SIZE 06 09 12	DC A197 SIZE 07 11	TC A203 SIZE 11 16	VB, VC A207, A209 SIZE 16		
	FLAT TIP	ECO 1.5÷3.0 	CC A194 SIZE MCC 06 09 12	DC A197 SIZE 07 11	TC, TP A203, A206 SIZE 08 09 11 16	VB, VC A207, A209 SIZE 11 16		
		LARGE 2.9÷4.5 	CC A194 SIZE 06 09 12	DC A197 SIZE 07 11	TC A203 SIZE 11 16	VB, VC A207, A209 SIZE 16		
3D CHIPBREAKER		CBU 0.04 30° 	CC A195 SIZE 06 09	DC A198 SIZE 07 11	TC A204 SIZE 11 16	VC A209 SIZE 11 16		
		CBF 0.05 30° 	CC A195 SIZE 06	DC A198 SIZE 07	TC, TP A204, A206 SIZE 09 11 16	VB A207 SIZE 11 16		
		CBG 0.1 20° 	CC A195 SIZE 09	DC A149 SIZE 11	TC A204 SIZE 09 11	VB A208 SIZE 11 16		
		1S 	CC A195 SIZE 06 09 12	DC A198 SIZE 07 11	TC A204 SIZE 09 11 16	VC A210 SIZE 11 16		
FULL FACE		FF 	CC A195 SIZE 06 09	DC A198 SIZE 07 11	TC A204 SIZE 11 16			

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Slant tip

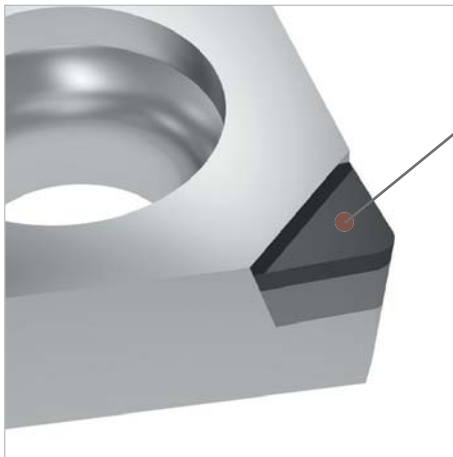
Cutting edge

- The diamond tip is brazed with an inclination of $7^{\circ} \div 10^{\circ}$. This solution is available both for eco and large tip dimensions
 - Positive rake angle effectively reduces vibrations and burrs formation
 - Creating smaller cutting force, the slant tip is especially helpful on long shaft and thin wall work piece machining
 - Possible to provide tailored combination of small radii with extra clearance on the flank face
- La placchetta diamantata è saldobrasata con un'inclinazione di $7^{\circ} \div 10^{\circ}$. Soluzione disponibile per riporto PCD nelle dimensioni eco e grande
 - L'angolo di spoglia positivo riduce efficacemente le vibrazioni e la formazione di bave
 - Generando piccole forze di taglio, la placchetta PCD inclinata è particolarmente utile nella lavorazione di alberi lunghi e pareti sottili
 - Design che permette di combinare spoglia aggiuntiva e raggi di piccole dimensioni
- Die PKD Wendeplatte wird in einem Winkel von $7^{\circ} \div 10^{\circ}$ gelötet. Lösung für Bestückungen in Eco- und Großformaten erhältlich
 - Der positive Spanwinkel reduziert effektiv Vibrationen und Gratbildung
 - Die geeignete Wendeplatte erzeugt geringe Schnittkräfte und ist besonders bei der Bearbeitung langer Wellen und dünner Wände nützlich
 - Design, das die Kombination von zusätzlichem Span und kleinen Radien ermöglicht
- La pointe diamant est brasée avec une inclinaison de $7^{\circ} \div 10^{\circ}$. Solution aussi bien disponible pour l'éco que pour les grandes dimensions de pointes
 - L'angle de dépouille positif réduit efficacement les vibrations et la formation de bavures
 - Générant de faibles efforts de coupe, la pointe inclinée est particulièrement utile lors de l'usinage d'arbres longs et de parois fines
 - Conception permettant de combiner un râteau supplémentaire et de petits rayons

Slant tip

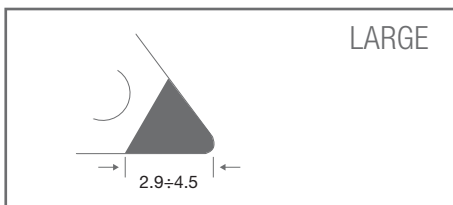
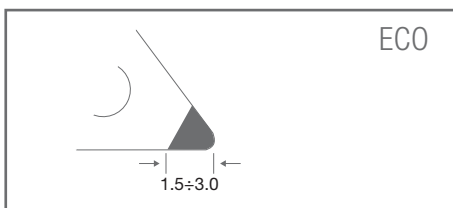
Cutting edge

Features of Slant tip cutting edge



LIGHT CUTTING ACTION

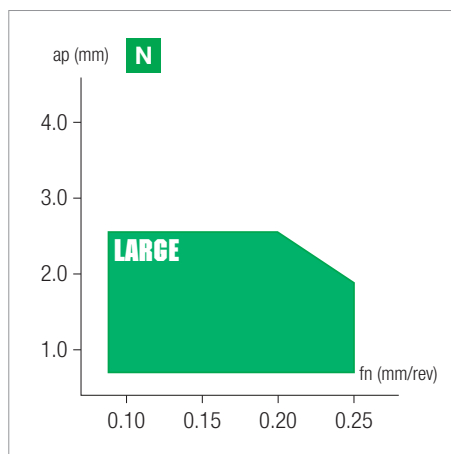
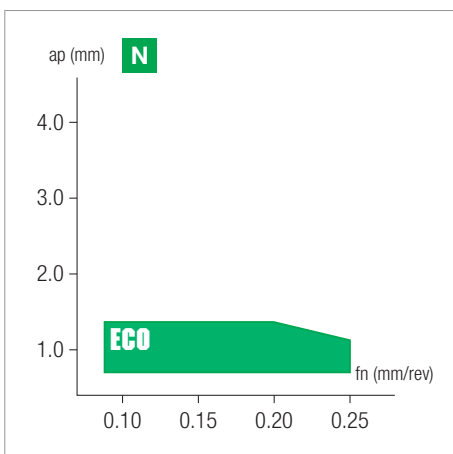
- The cutting edge is completely sharp (F type) as for all NIKKO TOOLS diamond solutions
- The rake angle of all slant type is from 7° to 10°
- Tagliante interamente affilato (tipo F) come in tutte le soluzioni diamantate Nikko Tools
- The rake angle of all slant types is from 7° to 10°
- Vollständig geschliffene Schneidkante (F-Typ) wie bei allen Diamantlösungen von Nikko Tools
- Der Spanwinkel aller schrägen Typen variiert zwischen 7° und 10°
- L'arête de coupe est entièrement affûtée (type F) comme dans toutes les solutions diamantées Nikko Tools
- L'angle de dépouille de tous les types inclinés varie entre 7 ° et 10 °



BROAD RANGE

- The availability of different tip sizes allows to face both finishing and roughing applications
- La disponibilità di taglienti saldobrasati con differenti dimensioni consente di affrontare applicazioni di finitura e di sgrossatura
- Die Verfügbarkeit von Platten in verschiedenen Größen ermöglicht sowohl Schlicht- als auch Schruppanwendungen
- La disponibilité de différentes dimensions de pointes permet d'aborder les applications de finition et d'ébauche

Application range - ISO 513



MAXIMUM ap

APMX ≤ 70% LE

- The maximum depth of cut (APMX) can be calculated as 70% of diamond tip length.
- La profondità massima di taglio (APMX) può essere calcolata come il 70% della lunghezza della punta diamantata.
- Die maximale Schnitttiefe (APMX) kann als 70 % der Länge der PKD Bestückung berechnet werden.
- La profondeur de coupe maximale (APMX) peut être calculée comme 70 % de la longueur de la pointe diamantée

Flat tip

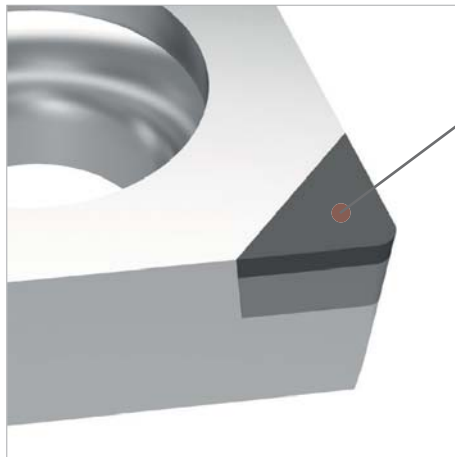
Cutting edge

- All-around solution for every kind of operations on non-ferrous materials. The diamond tip is completely flat and is available both with eco and large tip dimensions
 - Reliable and strong cutting edge able to produce excellent surface finishing
 - The flat cutting edge can be used on both continuous and interrupted cutting
- Soluzione universale per qualsiasi tipo di operazione su materiali non ferrosi. Il tagliente saldobrasato completamente piatto, è disponibile nelle dimensioni eco e grande
 - Tagliente affidabile e robusto in grado di ottenere eccellente finitura superficiale
 - Tagliente piatto utilizzabile per condizioni di taglio continuo e taglio interrotto.
- Universallösung für jede Art von Bearbeitung von Nichteisenmaterialien. Komplette flache PKD Wendepatte, erhältlich in verschiedenen Bestückungen - Eco und Groß
 - Zuverlässige und robuste Schneidkante mit hervorragender Oberflächenqualität
 - Die flache Schneidkante kann für kontinuierliche und unterbrochene Schnittbedingungen eingesetzt werden.
- Solution universelle pour tout type d'opération sur matériaux non ferreux. Pointe diamantée entièrement plate, disponible en formats éco et grand
 - Arête de coupe fiable et robuste apportant une excellente finition de surface
 - L'arête de coupe plate peut être utilisée dans des conditions de coupe continues et de coupe interrompues.

Flat tip

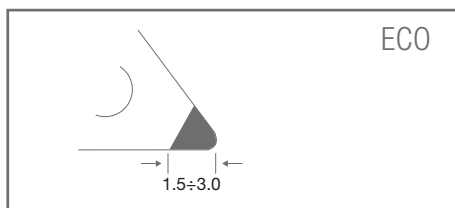
Cutting edge

Features of Flat tip cutting edge



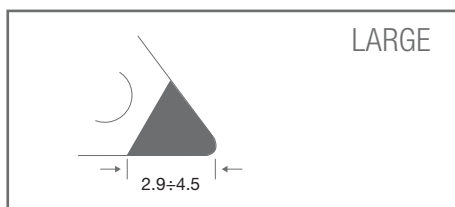
RELIABLE CUTTING EDGE

- Sharp edge and strong rake face for smooth and stable machining
• First choice for universal use
- Tagliente affilato e spoglia robusta per ottenere taglienza e stabilità
• Prima scelta per uso universale
- Scharfe Schneidkante in Verbindung mit einer stabilen Spanfläche für ein ausgewogenes Maß an Schnittkantenrobustheit
• Erste Wahl für universellen Einsatz
- Arête vive combinée à une solide surface de dépouille pour une coupe douce et un usinage stable
• Premier choix pour une utilisation universelle

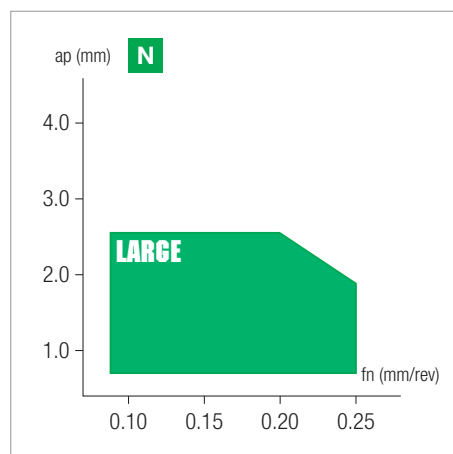
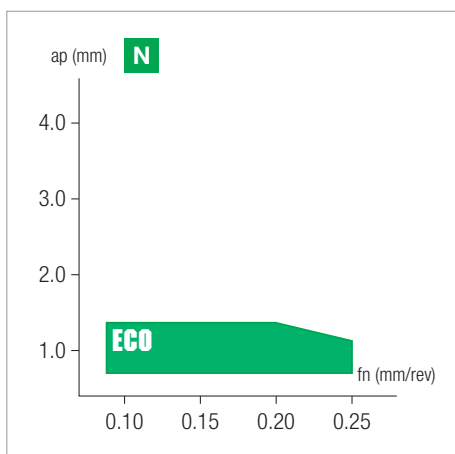


BROAD RANGE

- Different tip sizes available covering various applications from finishing to roughing
- Taglienti saldobrasati con differenti dimensioni a copertura di diverse applicazioni, dalla finitura alla sgrossatura
- Die Bohrer sind in verschiedenen Größen erhältlich, um unterschiedliche Anwendungen abzudecken, vom Schlichten bis zum Schruppen
- La disponibilité de différentes dimensions de pointes permet d'aborder les applications de finition et d'ébauche



Application range - ISO 513



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CBU - 3D chipbreaker

Cutting edge

- 3D laser chipbreaker geometry for excellent chip control
 - Variable edge allows reliable performances from finishing to roughing
 - Recommended for mass production and automated workpiece handling thanks to the excellent chip control
 - Effectively avoids twisted chips scratching the workpiece surface
- Die programmierte Geometrie wird durch modernste Lasertechnologie umgesetzt und bietet eine hervorragende Spankontrolle
 - Variable Schneidkante zur Anpassung der Geometrie für die Bearbeitung vom Schlichten bis zum Schruppen
 - Empfohlen für die Herstellung von Großserien, insbesondere bei automatisiertem Werkstück-Handling, aufgrund der verbesserten Spankontrolle
 - Beugt effektiv dem Verkratzen der bereits bearbeiteten Oberfläche durch verdrehte Späne vor
- Rompitruicolo 3D ricavato con tecnologia laser, garantisce ottimo controllo trucioli
 - La geometria variabile del tagliente permette lavorazioni che vanno dalla finitura alla sgrossatura
 - Raccomandato per produzione di grandi lotti, specialmente con movimentazione automatizzata dei pezzi, grazie al migliore controllo del truciolo
 - Evita efficacemente che il truciolo attorcigliato graffi la superficie già lavorata
- Géométrie du brise copeau laser 3D pour un contrôle optimal des copeaux
 - Arête variable, permet une solution fiable pour l'usinage de la finition à l'ébauche
 - Recommandé pour la production de grandes séries et à la manipulation automatisée des pièces, grâce à un meilleur contrôle des copeaux
 - Empêche efficacement le recyclage des copeaux qui peut rayer la surface déjà usinée

CBU - 3D chipbreaker

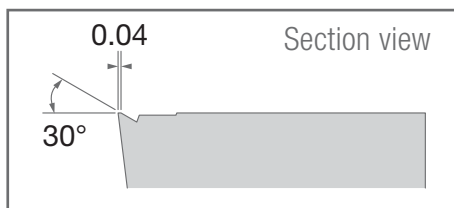
Cutting edge

Features of CBU chipbreaker



STATE OF THE ART GEOMETRY

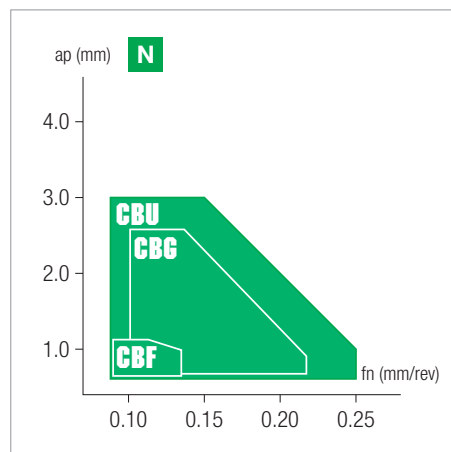
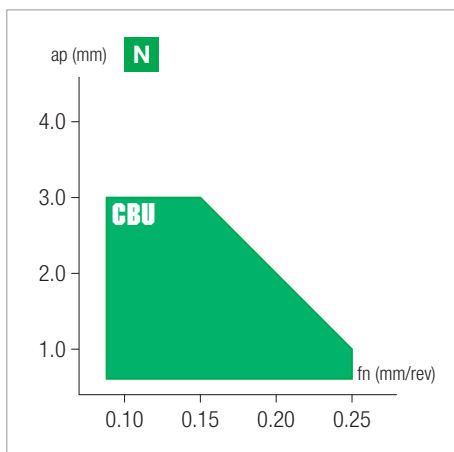
- Optimized rake face and tailored chip groove effectively improve the chip control performances
- Variable land to support broad range of applications from finishing to roughing
- Superficie di spoglia ottimizzata e scanalatura ad hoc per effettivo miglioramento delle prestazioni nel controllo del truciolo
- Pianetto variabile per supportare ampio campo applicativo, dalla finitura alla sgrossatura
- Optimierte Spanfläche und Ad-hoc-Nuten für die effektive Leistungsverbesserung bei der Spankontrolle
- Variable Fläche für ein breites Anwendungsspektrum vom Schlichten bis zum Schruppen
- Face de dépouille optimisée et goujure à copeau sur mesure pour une amélioration efficace des performances de contrôle des copeaux
- Support variable pour prendre en charge une large gamme d'applications, de la finition à l'ébauche



BROAD RANGE

- Most common shapes and radii available as standard
- Tailor-made also possible upon request
- Forme e raggi più comuni disponibili come standard
- Disponibili su richiesta versioni personalizzate
- Standardmäßig sind die meisten gängigen Formen und Radien erhältlich
- Auf Anfrage sind kundenspezifische Ausführungen erhältlich
- Formes et rayons les plus courants disponibles en version standard
- Versions sur mesure disponibles sur demande

Application range - ISO 513



MAXIMUM ap

CBF finishing CBG medium

! CBU^{NEW} universal

- CBU cover the application range of our previous series (CBF, CBG) with improved performances.
- CBU copre l'intervallo applicativo delle precedenti serie Nikko Tools (CBF, CBG) con prestazioni migliorate.
- CBU deckt den Anwendungsbereich der bisherigen Nikko Tools-Serien (CBF, CBG) ab, jedoch mit verbesserter Leistung.
- CBU couvre la gamme d'applications des séries précédentes de Nikko Tools (CBF, CBG) avec une optimisation des performances.

Full Face/Full Edge

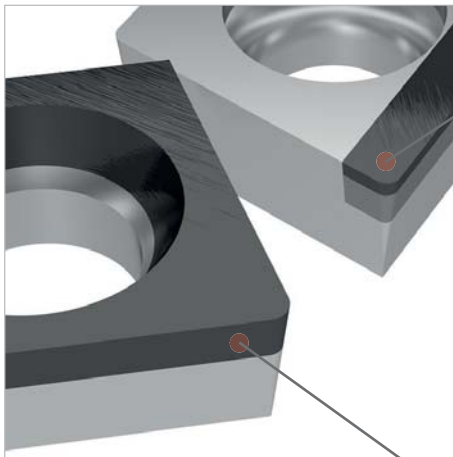
Cutting edge

- Extra large diamond tip or full face style for tough applications and large depth of cut.
 - Best solutions for high depth of cut of high feed rate, chamfering application and whenever a long diamond tip is necessary due to a specific workpiece shape
 - For full edge type (1S), it is generally necessary to define the cutting direction (R or L)
- Plachetta diamantata extra large o full face per applicazioni gravose e profondità di taglio elevate.
 - Migliore soluzione per grandi profondità di taglio con alti avanzamenti, lavorazione di smussi e in tutti i casi in cui sia richiesta una lunga punta diamantata per le particolari dimensioni del pezzo da lavorare
 - Nel tipo a tagliente pieno (1S) è generalmente necessario definire la direzione di taglio (R/L, destra o sinistra)
- Diamant, extragroß und volle Schneidkante oder volle Fläche, für schwere oder spezielle Schnittbedingungen
 - Optimale Lösung für große Schnitttiefen mit hohen Vorschüben, für die Bearbeitung von Fasen und in allen Fällen, in denen ein PKD Wendplatte mit langer Bestückung, aufgrund der besonderen Abmessungen des Werkstücks, erforderlich ist
 - Beim Vollschnittkantentyp (1S) ist es generell notwendig, die Schnittrichtung anzugeben (R/L, rechts oder links)
- Pointe diamant extra-large ou surface complète pour applications intensives et grandes profondeurs de coupe
 - La meilleure solution pour les grandes profondeurs de coupe à avances élevées, le chanfreinage et chaque fois qu'une pointe longue diamantée est nécessaire en raison de la forme spécifique de la pièce à usiner.
 - Pour le type arête complète (1S), il est généralement nécessaire de définir la direction de coupe (R/L, droite ou gauche)

Full Face/Full Edge

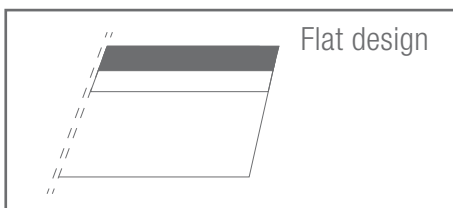
Cutting edge

Features of long cutting edge types



1S - FULL EDGE

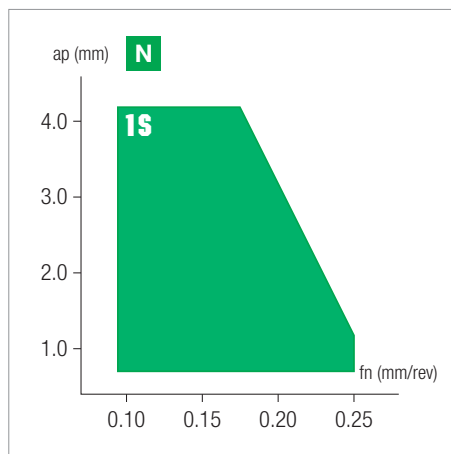
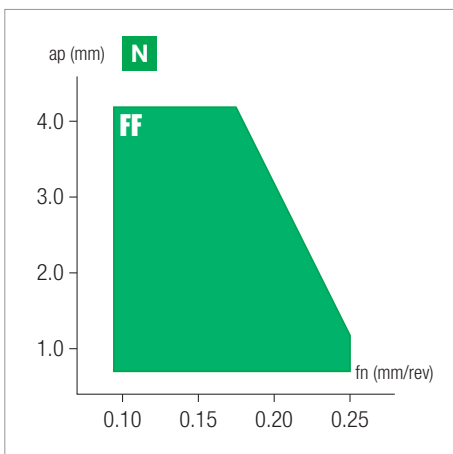
- Increased tip length allows higher depth of cut in comparison with conventional type
- Very common for long chamfering application
- Massima lunghezza del tagliente per maggiore profondità di taglio rispetto alle tipologie convenzionali
- Molto comune nelle applicazioni con lunghi smussi
- Größere Schnittkante für mehr Schnitttiefe als bei herkömmlichen Typen
- Sehr gängig bei Anwendungen mit langen Fasen
- Longueur de pointe optimisée pour une plus grande profondeur de coupe par rapport aux types conventionnels
- Très courant dans les applications avec de longs chanfreins



FF - FULL FACE

- Great cost effective solution due to multiple cutting edges available
- Maximum connection strength between PCD layer and carbide support
- Soluzione con costo/tagliente molto contenuto
- Massimo ancoraggio tra supporto in metallo duro e PCD
- Hervorragende kostengünstige Lösung durch Verfügbarkeit von mehreren Schneidkanten
- Maximale Verbindungskraft zwischen PCD-Schicht und Hartmetall-Grundmaterial
- Excellente solution économique grâce aux multiples arêtes de coupe disponibles
- Force de connexion maximale entre la couche PCD et le support en carbure

Application range - ISO 513



MAXIMUM ap

APMX ≤ 70% LE

- The maximum depth of cut (APMX) can be calculated as 70% of diamond tip length.
- La profondità massima di taglio (APMX) può essere calcolata come il 70% della lunghezza della punta diamantata.
- Die maximale Schnitttiefe (APMX) kann als 70% der Länge der PKD Bestückung berechnet werden.
- La profondeur de coupe maximale (APMX) peut être calculée comme 70% de la longueur de la pointe diamantée

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N		STANDARD TIP		CHIPBREAKER			
		NEGATIVE	POSITIVE	NEGATIVE	POSITIVE		
●	wear resistance	ND150	ND150	-	-		
	▲ 1 st CHOICE ▼	ND100	ND100	-	NDP010 / CBU		
	toughness	ND050	ND050	-	-		
●	wear resistance	ND150	ND150	-	-		
	▲ 1 st CHOICE ▼	ND100	ND100	-	NDP010 / CBU		
	toughness	ND050	ND050	-	-		
⊕	wear resistance	ND100	ND100	-	-		
	▲ 1 st CHOICE ▼	ND050	ND050	-	-		
	toughness	-	-	-	-		

D	C	G	X	11	T3	04	-	CBU	-	NDP	010
1	2	3	4	5	6	7		8		9	10

1	SHAPE
C	80° rhombic
D	55° rhombic
K	55° parallelogram
S	90° square
T	60° triangular
V	35° rhombic
W	80° trigon

2	RELIEF ANGLE
B	5°
C	7°
D	15°
E	20°
N	0°
P	11°

3	TOLERANCES		
Symbol	I.C.	Thickness	Corner height
E	±0.025	±0.025	±0.025
G	±0.025	±0.13	±0.025
M	±0.05 ~ ±0.15	±0.13	±0.08 ~ ±0.18
U	±0.08 ~ ±0.25	±0.13	±0.13 ~ ±0.38

4	HOLE/CHIPBREAKER		
Symbol	Hole	Hole countersink	Chipbreaker
A		✓	✗
G		✓	✗
M		✓	✗
N		✗	✗
T		✓	40° ÷ 60°
W		✓	40° ÷ 60°
X	NIKKO norm		

5	EDGE LENGHT						
I.C. (mm)	C shape	D shape	R shape	S shape	T shape	V shape	W shape
3.97	03	04		03	06		
4.76	04	05		04	08	08	
5.00			05				
5.56	05	06		05	09		03
6.00			06				
6.35	06	07		06	11	11	04
7.94	08	09		07	13		05
8.00			08				
9.53	09	11	09	09	16	16	06
10.00		12	10				
12.00							
12.70	12	15	12	12	22	22	08
15.88	16	19	15	15	27	24	10
16.00			16				
19.05	19	23	19	19	33	33	13
20.00			20				
22.23	22	27		22	38		
25.00			25				
25.40	25	31	25	25	44	44	17
31.75	32	38	31	31	54	54	21
32.00			32				

6	THICKNESS	
Symbol	(mm)	
01	1.59	
T1	1.98	
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	9.53	

7	RADIUS	
Symbol	(mm)	
005	0.05	
01	0.10	
02	0.20	
04	0.40	
08	0.80	
12	1.20	
16	1.60	
20	2.00	
24	2.40	

8	EDGES GEOMETRY	
1S	full edge	
CBU	3D chipbreaker	
FF	full face	
LRG	large tip size	
-	eco tip size	

9	GRADE - features	
NDD	CVD diamond	
NDM	monocrystalline diamond	
NDP	PCD polycrystalline diamond	

10	GRADE - grit size	
xxx	diamond grit (µm)	

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ISO 513	MATERIAL	ND050 (NDP001)			ND100 / ND120 (NDP010)			ND150 (NDP302)			ND190 (NDP025)					
		min	start	max	min	start	max	min	start	max	min	start	max			
N1	Aluminium alloys Si ≤ 12% (ex. 3.4365/AlZn5.5MgCu/ERGA)	○	600	1300	2000	●	600	1500	2400							
		●	450	1100	1750	●	450	1300	2150							
		⊕	400	1000	1600											
N2	Aluminium alloys Si > 12% (ex. 3.2382/G-AlSi12)				●	300	500	700	●	400	600	800	●	400	700	1000
					●	250	400	550	○	350	500	650				
N3	Copper alloy (ex. 2.0060/E-Cu57)	○	400	800	1200	●	400	900	1400							
		●	350	700	1050	●	350	800	1250							
		⊕	300	600	900											
S4 - S5	Titanium alloys (ex. TiAl2Sn4Zr2MoSi)	○	50	75	100											
		●	45	60	75											
		⊕	40	50	60											

Complete workpiece materials p. M1.

DESIGNATION	DEPTH OF CUT			FEED RATE		
	ap (mm)			fn (mm/rev)		
	min	start	max	min	start	max
CCGT060202	0.40	1.00	1.60	0.05	0.10	0.15
CCGT060204	0.40	1.00	1.60	0.10	0.15	0.20
CCGT060204-LRG	0.40	1.20	2.00	0.10	0.15	0.20
CCGT060208	0.40	1.00	1.60	0.15	0.20	0.25
CCGT09T302	0.40	1.00	1.60	0.05	0.10	0.15
CCGT09T304	0.40	1.00	1.60	0.10	0.15	0.20
CCGT09T304-LRG	0.40	1.20	2.00	0.10	0.15	0.20
CCGT09T308	0.40	1.00	1.60	0.15	0.20	0.25
CCGT09T308-LRG	0.40	1.50	2.60	0.10	0.15	0.20
CCGT120404	0.40	1.00	1.60	0.10	0.15	0.20
CCGT120404-LRG	0.40	1.20	2.00	0.10	0.15	0.20
CCGT120408	0.40	1.00	1.60	0.15	0.20	0.25
CCGT120408-LRG	0.40	1.50	2.60	0.10	0.15	0.20
CCGW060202	0.40	1.00	1.60	0.05	0.10	0.15
CCGW060204	0.40	1.00	1.60	0.10	0.15	0.20
CCGW060204-LRG	0.40	1.20	2.00	0.10	0.15	0.20
CCGW060208	0.40	1.00	1.60	0.15	0.20	0.25
CCGW09T302	0.40	1.00	1.60	0.05	0.10	0.15
CCGW09T304	0.40	1.00	1.60	0.10	0.15	0.20
CCGW09T304-LRG	0.40	1.20	2.00	0.10	0.15	0.20
CCGW09T308	0.40	1.00	1.60	0.15	0.20	0.25
CCGW09T308-LRG	0.40	1.50	2.60	0.10	0.15	0.20
CCGW120404	0.40	1.00	1.60	0.10	0.15	0.20
CCGW120404-LRG	0.40	1.20	2.00	0.10	0.15	0.20
CCGW120408	0.40	1.00	1.60	0.15	0.20	0.25
CCGW120408-LRG	0.40	1.50	2.60	0.10	0.15	0.20
CCGX060202-CBF	0.20	0.60	1.00	0.04	0.08	0.12
CCGX060202-CBU	0.20	1.50	2.80	0.04	0.08	0.12
CCGX060204-CBF	0.20	0.60	1.00	0.05	0.10	0.15
CCGX060204-CBG	0.40	1.20	2.00	0.10	0.15	0.20
CCGX060204-CBU	0.20	1.50	2.80	0.04	0.12	0.20
CCGX060204-1/8-1S	0.50	2.00	3.50	0.10	0.15	0.20
CCGX060208-CBU	0.20	1.50	2.80	0.08	0.18	0.26
CCGX09T304-CBG	0.50	1.50	2.50	0.10	0.15	0.20
CCGX09T304-CBU	0.20	1.50	2.80	0.04	0.12	0.20
CCGX09T304-1/8-1S	0.50	3.00	5.50	0.10	0.15	0.20
CCGX09T308-CBG	0.50	1.50	2.50	0.15	0.20	0.25
CCGX09T308-CBU	0.20	1.50	2.80	0.08	0.18	0.26
CNGA120404	0.40	1.00	1.60	0.10	0.15	0.20
CNGA120404-LRG	0.40	1.20	2.00	0.10	0.15	0.20
CNGA120408	0.40	1.00	1.60	0.15	0.20	0.25
CNGA120408-LRG	0.40	1.50	2.60	0.10	0.15	0.20
CNGM120404	0.40	1.00	1.60	0.10	0.15	0.20
CNGM120404-LRG	0.40	1.20	2.00	0.10	0.15	0.20
CNGM120408	0.40	1.00	1.60	0.15	0.20	0.25
CNGM120408-LRG	0.40	1.50	2.60	0.10	0.15	0.20
DCGT070202	0.40	1.00	1.60	0.05	0.10	0.15
DCGT070204	0.40	1.00	1.60	0.10	0.15	0.20
DCGT070204-LRG	0.40	1.20	2.00	0.10	0.15	0.20
DCGT070208	0.40	1.00	1.60	0.15	0.20	0.25
DCGT11T302	0.40	1.00	1.60	0.05	0.10	0.15
DCGT11T304	0.40	1.00	1.60	0.10	0.15	0.20
DCGT11T304-LRG	0.40	1.20	2.00	0.10	0.15	0.20
DCGT11T308	0.40	1.00	1.60	0.15	0.20	0.25
DCGT11T308-LRG	0.40	1.50	2.60	0.10	0.15	0.20
DCGW070202	0.40	1.00	1.60	0.05	0.10	0.15

DESIGNATION	DEPTH OF CUT			FEED RATE		
	ap (mm)			fn (mm/rev)		
	min	start	max	min	start	max
DCGW070204	0.40	1.00	1.60	0.10	0.15	0.20
DCGW070204-FF	0.50	2.00	3.50	0.10	0.15	0.20
DCGW070204-LRG	0.40	1.20	2.00	0.10	0.15	0.20
DCGW070208	0.40	1.00	1.60	0.15	0.20	0.25
DCGW11T302	0.40	1.00	1.60	0.05	0.10	0.15
DCGW11T304	0.40	1.00	1.60	0.10	0.15	0.20
DCGW11T304-FF	0.50	3.00	5.50	0.10	0.15	0.20
DCGW11T304-LRG	0.40	1.20	2.00	0.10	0.15	0.20
DCGW11T308	0.40	1.00	1.60	0.15	0.20	0.25
DCGW11T308-FF	0.50	3.00	5.50	0.15	0.20	0.25
DCGW11T308-LRG	0.40	1.50	2.60	0.10	0.15	0.20
DCGX070202-CBF	0.20	0.60	1.00	0.04	0.08	0.12
DCGX070202-CBU	0.20	1.50	2.80	0.04	0.08	0.12
DCGX070204-CBU	0.20	1.50	2.80	0.04	0.12	0.20
DCGX070204-1/8-1S	0.50	2.00	3.50	0.10	0.15	0.20
DCGX11T302-CBF	0.20	0.60	1.00	0.04	0.08	0.12
DCGX11T302-CBU	0.20	1.50	2.80	0.04	0.08	0.12
DCGX11T304-CBG	0.50	1.50	2.50	0.10	0.15	0.20
DCGX11T304-CBU	0.20	1.50	2.80	0.04	0.12	0.20
DCGX11T304-1/8-1S	0.50	3.00	5.50	0.10	0.15	0.20
DCGX11T308-CBG	0.50	1.50	2.50	0.15	0.20	0.25
DCGX11T308-CBU	0.20	1.50	2.80	0.08	0.18	0.26
DCGX11T308-1/8-1S	0.50	3.00	5.50	0.15	0.20	0.25
DNGA150604	0.40	1.00	1.60	0.10	0.15	0.20
DNGA150604-LRG	0.40	1.20	2.00	0.10	0.15	0.20
DNGA150608	0.40	1.00	1.60	0.15	0.20	0.25
DNGA150608-LRG	0.40	1.50	2.60	0.10	0.15	0.20
DNGM150604	0.40	1.00	1.60	0.10	0.15	0.20
DNGM150604-LRG	0.40	1.20	2.00	0.10	0.15	0.20
DNGM150608	0.40	1.00	1.60	0.15	0.20	0.25
DNGM150608-LRG	0.40	1.50	2.60	0.10	0.15	0.20
MCC.R02	0.20	0.60	1.00	0.05	0.10	0.15
MCC.R04	0.20	0.60	1.00	0.10	0.15	0.20
MCN.R02G-CBF	0.20	0.60	1.00	0.04	0.08	0.12
MCN.R02G-LRG	0.40	1.20	2.00	0.05	0.10	0.15
MCN.R04G-CBF	0.20	0.60	1.00	0.05	0.10	0.15
MCN.R04G-CBG	0.40	1.20	2.00	0.10	0.15	0.20
MCN.R04G-LRG	0.40	1.20	2.00	0.10	0.15	0.20
MCN.R08G-CBG	0.40	1.20	2.00	0.15	0.20	0.25
MCN.R08G-LRG	0.40	1.20	2.00	0.15	0.20	0.25
MDN.R02G-CBF	0.20	0.60	1.00	0.04	0.08	0.12
MDN.R02G-LRG	0.40	1.20	2.00	0.05	0.10	0.15
MDN.R04G-CBF	0.20	0.60	1.00	0.05	0.10	0.15
MDN.R04G-CBG	0.40	1.20	2.00	0.10	0.15	0.20
MDN.R04G-LRG	0.40	1.20	2.00	0.10	0.15	0.20
MDN.R08G-CBG	0.40	1.20	2.00	0.15	0.20	0.25
MDN.R08G-LRG	0.40	1.20	2.00	0.15	0.20	0.25
TCGT090202	0.40	1.00	1.60	0.05	0.10	0.15
TCGT090204	0.40	1.00	1.60	0.10	0.15	0.20
TCGT110202	0.40	1.00	1.60	0.05	0.10	0.15
TCGT110204	0.40	1.00	1.60	0.10	0.15	0.20
TCGT110204-LRG	0.40	1.20	2.00	0.10	0.15	0.20
TCGT110208	0.40	1.00	1.60	0.15	0.20	0.25
TCGT110208-LRG	0.40	1.50	2.60	0.10	0.15	0.20
TCGT16T304	0.40	1.00	1.60	0.10	0.15	0.20
TCGT16T304-LRG	0.40	1.20	2.00	0.10	0.15	0.20
TCGT16T308	0.40	1.00	1.60	0.15	0.20	0.25
TCGT16T308-LRG	0.40	1.50	2.60	0.10	0.15	0.20

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DESIGNATION	DEPTH OF CUT			FEED RATE		
	ap (mm)			fn (mm/rev)		
	min	start	max	min	start	max
TCGW090202	0.40	1.00	1.60	0.05	0.10	0.15
TCGW090204	0.40	1.00	1.60	0.10	0.15	0.20
TCGW110202	0.40	1.00	1.60	0.05	0.10	0.15
TCGW110204	0.40	1.00	1.60	0.10	0.15	0.20
TCGW110204-FF	0.50	2.00	3.50	0.10	0.15	0.20
TCGW110204-LRG	0.40	1.20	2.00	0.10	0.15	0.20
TCGW110208	0.40	1.00	1.60	0.15	0.20	0.25
TCGW110208-LRG	0.40	1.50	2.60	0.10	0.15	0.20
TCGW16T304	0.40	1.00	1.60	0.10	0.15	0.20
TCGW16T304-FF	0.50	3.00	5.50	0.10	0.15	0.20
TCGW16T304-LRG	0.40	1.20	2.00	0.10	0.15	0.20
TCGW16T308	0.40	1.00	1.60	0.15	0.20	0.25
TCGW16T308-LRG	0.40	1.50	2.60	0.10	0.15	0.20
TCGX090202-CBF	0.20	0.60	1.00	0.04	0.08	0.12
TCGX090204-1S	0.50	1.50	2.50	0.10	0.15	0.20
TCGX090204-CBG	0.40	1.20	2.00	0.10	0.15	0.20
TCGX110202-CBF	0.20	0.60	1.00	0.04	0.08	0.12
TCGX110204-1S	0.50	2.00	3.50	0.10	0.15	0.20
TCGX110204-CBF	0.20	0.60	1.00	0.05	0.10	0.15
TCGX110204-CBG	0.50	1.50	2.50	0.10	0.15	0.20
TCGX110204-CBU	0.20	1.50	2.80	0.04	0.12	0.20
TCGX110208-CBG	0.50	1.50	2.50	0.15	0.20	0.25
TCGX16T304-1S	0.50	3.00	5.50	0.10	0.15	0.20
TCGX16T304-CBF	0.20	0.60	1.00	0.05	0.10	0.15
TCGX16T304-CBG	0.50	1.50	2.50	0.10	0.15	0.20
TCGX16T304-CBU	0.20	1.50	2.80	0.04	0.12	0.20
TCGX16T308-CBG	0.50	1.50	2.50	0.15	0.20	0.25
TCGX16T308-CBU	0.20	1.50	2.80	0.08	0.18	0.26
TNGA160404	0.40	1.00	1.60	0.10	0.15	0.20
TNGA160404-LRG	0.40	1.20	2.00	0.10	0.15	0.20
TNGA160408	0.40	1.00	1.60	0.15	0.20	0.25
TNGA160408-LRG	0.40	1.50	2.60	0.10	0.15	0.20
TNGM160404	0.40	1.00	1.60	0.10	0.15	0.20
TNGM160404-LRG	0.40	1.20	2.00	0.10	0.15	0.20
TNGM160408	0.40	1.00	1.60	0.15	0.20	0.25
TNGM160408-LRG	0.40	1.50	2.60	0.10	0.15	0.20
TPGT080202	0.40	1.00	1.60	0.05	0.10	0.15
TPGT080204	0.40	1.00	1.60	0.10	0.15	0.20
TPGT090202	0.40	1.00	1.60	0.05	0.10	0.15
TPGT090204	0.40	1.00	1.60	0.10	0.15	0.20
TPGT110302	0.40	1.00	1.60	0.05	0.10	0.15
TPGT110304	0.40	1.00	1.60	0.10	0.15	0.20
TPGW080202	0.40	1.00	1.60	0.05	0.10	0.15
TPGW080204	0.40	1.00	1.60	0.10	0.15	0.20
TPGW090202	0.40	1.00	1.60	0.05	0.10	0.15
TPGW090204	0.40	1.00	1.60	0.10	0.15	0.20
TPGW110302	0.40	1.00	1.60	0.05	0.10	0.15
TPGW110304	0.40	1.00	1.60	0.10	0.15	0.20
TPGX090202-CBF	0.20	0.60	1.00	0.04	0.08	0.12
TPGX090204-CBF	0.20	0.60	1.00	0.05	0.10	0.15
TPGX090204-CBG	0.50	1.50	2.50	0.10	0.15	0.20
TPGX110302-CBF	0.20	0.60	1.00	0.04	0.08	0.12
TPGX110304-CBF	0.20	0.60	1.00	0.05	0.10	0.15
TPGX110304-CBG	0.50	1.50	2.50	0.10	0.15	0.20
TPGX110308-CBF	0.20	0.60	1.00	0.10	0.15	0.20
VBGT110302	0.40	1.00	1.60	0.05	0.10	0.15
VBGT110304	0.40	1.00	1.60	0.10	0.15	0.20
VBGT160404	0.40	1.00	1.60	0.10	0.15	0.20

DESIGNATION	DEPTH OF CUT			FEED RATE		
	ap (mm)			fn (mm/rev)		
	min	start	max	min	start	max
VBGT160404-LRG	0.40	1.20	2.00	0.10	0.15	0.20
VBGT160408	0.40	1.00	1.60	0.15	0.20	0.25
VBGT160408-LRG	0.40	1.50	2.60	0.10	0.15	0.20
VBGW110302	0.40	1.00	1.60	0.05	0.10	0.15
VBGW110304	0.40	1.00	1.60	0.10	0.15	0.20
VBGW160404	0.40	1.00	1.60	0.10	0.15	0.20
VBGW160404-LRG	0.40	1.20	2.00	0.10	0.15	0.20
VBGW160408	0.40	1.00	1.60	0.15	0.20	0.25
VBGW160408-LRG	0.40	1.50	2.60	0.10	0.15	0.20
VBGX110302-CBF	0.20	0.60	1.00	0.04	0.08	0.12
VBGX110304-CBF	0.20	0.60	1.00	0.05	0.10	0.15
VBGX110304-CBG	0.50	1.50	2.50	0.10	0.15	0.20
VBGX160404-CBF	0.20	0.60	1.00	0.05	0.10	0.15
VBGX160404-CBG	0.50	1.50	2.50	0.10	0.15	0.20
VBGX160408-CBG	0.50	1.50	2.50	0.15	0.20	0.25
VCGT110302	0.40	1.00	1.60	0.05	0.10	0.15
VCGT110304	0.40	1.00	1.60	0.10	0.15	0.20
VCGT160402	0.40	1.00	1.60	0.05	0.10	0.15
VCGT160404	0.40	1.00	1.60	0.10	0.15	0.20
VCGT160404-LRG	0.40	1.20	2.00	0.10	0.15	0.20
VCGT160408	0.40	1.00	1.60	0.15	0.20	0.25
VCGT160408-LRG	0.40	1.50	2.60	0.10	0.15	0.20
VCGW110302	0.40	1.00	1.60	0.05	0.10	0.15
VCGW110304	0.40	1.00	1.60	0.10	0.15	0.20
VCGW110304-LRG	0.40	1.20	2.00	0.10	0.15	0.20
VCGW160404	0.40	1.00	1.60	0.10	0.15	0.20
VCGW160404-LRG	0.40	1.20	2.00	0.10	0.15	0.20
VCGW160408	0.40	1.00	1.60	0.15	0.20	0.25
VCGW160408-LRG	0.40	1.50	2.60	0.10	0.15	0.20
VCGW160412-LRG	0.40	1.50	2.60	0.20	0.25	0.30
VCGX110302-CBF	0.20	0.60	1.00	0.04	0.08	0.12
VCGX110302-CBU	0.20	1.50	2.80	0.04	0.08	0.12
VCGX110304-CBF	0.20	0.60	1.00	0.05	0.10	0.15
VCGX110304-CBG	0.50	1.50	2.50	0.10	0.15	0.20
VCGX110304-CBU	0.20	1.50	2.80	0.04	0.12	0.20
VCGX110304-1/8-1S	0.50	2.00	3.50	0.10	0.15	0.20
VCGX160404-CBF	0.20	0.60	1.00	0.05	0.10	0.15
VCGX160404-CBG	0.50	1.50	2.50	0.10	0.15	0.20
VCGX160404-CBU	0.20	1.50	2.80	0.04	0.12	0.20
VCGX160404-1/8-1S	0.50	3.00	5.50	0.10	0.15	0.20
VCGX160408-CBG	0.50	1.50	2.50	0.15	0.20	0.25
VCGX160408-CBU	0.20	1.50	2.80	0.08	0.18	0.26
WNGA080404	0.40	1.00	1.60	0.10	0.15	0.20
WNGA080404-LRG	0.40	1.20	2.00	0.10	0.15	0.20
WNGA080408	0.40	1.00	1.60	0.15	0.20	0.25
WNGA080408-LRG	0.40	1.50	2.60	0.10	0.15	0.20
WNGM080404	0.40	1.00	1.60	0.10	0.15	0.20
WNGM080404-LRG	0.40	1.20	2.00	0.10	0.15	0.20
WNGM080408	0.40	1.00	1.60	0.15	0.20	0.25
WNGM080408-LRG	0.40	1.50	2.60	0.10	0.15	0.20