

GARR TOOL[®]

High Performance Solid Carbide



WITH A TRUE VARIABLE HELIX geometry and the AlCrN coating, V4 series tools deliver in high performance applications. Exceptional tool life is built into this design with the added benefit of PCT (polish carbide treatment) and AlCrN coating.

Over 250 new tools added!

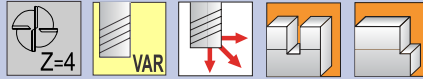
V4S

V4B

V4R

Series V4S

6,000mm - 12,000mm
(.2362" - .4724")



TOLERANCES

d1	+0,000 -0,050mm (+.000" -.002")
d2	h6

Variable Helix End Mill - Square End - AlCrN-based Coated

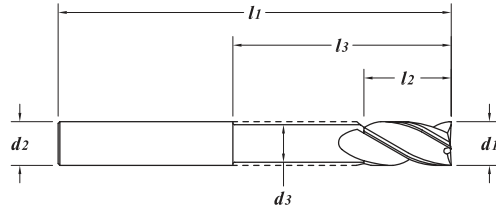
Fräser mit Einer Variablen Spiralgeometrie - Ohne Eckenradius - AlCrN-Basierende Beschichtet

Fresa de Hélice Variable - Extremo Sin Radio - Recubrimiento Basado en AlCrN

Fraise Avec un Angle Hélice Variable - Extrémité Carré - Revêtement à base de AlCrN

Fresa ad Elica Variabile - Piatte - Rivestimento in Base AlCrN

不等螺旋铣刀 - 平头 - 涂层铝氮化铬



Solid submicron grain carbide end mill - center cutting
Helix geometry varies over length of flutes
Variable flute design helps with chip evacuation in slots and pockets
Variable rake aids in chip formation
Recommended for titanium, inconel, and stainless steel (<40 Rc)
PCT (Polish Carbide Treatment) enhances tool life by 20%
Minimizes burr on part
12mm and larger tools offered with weldon flat
Can be modified with a flat within 48 hours
V4 Corner Radius - page 156
V4 Ball End - page 159
The combination of an extended flute length with a weldon flat may cause the flute washout to reach inside some end mill holders



Hochleistungs-Vollhartmetallfräser aus Feinkornhartmetall - Zentrumschnitt
Empfohlen für Titan, Inconel, und Rostfreien Stahl (<40 HRC)
PCT (Polish Carbide Treatment, Treatment zum Polieren Hartmetall) steigert die Stanzeit bis zu +20%
Reduziert die Gratbildung am Werkstück
Spiralgeometrie variiert auf der gesamten Schneidlänge
Variable Spannutgeometrie für eine bessere Spanabfuhr beim Schlitz- und Taschenfräsen
Variabler Winkel für bessere Spangeometrie
Ab Durchmesser 12 mm und grösser können die Werkzeuge mit Weldon-Spannfläche angeboten werden
Kleinere Durchmesser können innerhalb 48 Stunden mit einer Spannfläche geliefert werden
V4 Schrafffräser mit Eckenradius - Seite 156
V4 Vollradiusfräser - Seite 159
Die Kombination einer verlängerten Spannüllänge mit einer Weldon-Spannfläche kann die Ursache bei Spannut-Auswaschungen bei einigen Fräseerspannfuttern sein



Fresa de submicrono sólido carburo de alto rendimiento - corte centrado
Recomendado para Titanio, Inconel, y Acero inoxidable (<40 HRC)
PCT (Polish Carbide Treatment, Tratamiento de pulido) aumenta la vida de la hta. hasta un 20%
Minimiza las rebabas en la pieza
La geometría de la hélice varía a lo largo de la longitud del labio
El diseño del labio variable contribuye a la evacuación de la viruta en ranuras y cajeras
El labio con filo variable que contribuye a la buena formación de la viruta
Htas de Ø12 mm, y mayores disponibles con mango Weldon
Es posible añadir un plano Weldon en diámetros menores en 48 horas
V4 Fresa de vástago con radio de cantos - Página 156
V4 Fresadora de radios - Página 159
La combinación de una gran longitud de corte con un mango con plano Weldon puede causar que del labio alcance el interior de algunos portaherramientas



Fraises carbure submicron grain - coupe au centre
Recommandé pour les titane, inconel, et aciers inoxydables (<40 HRC)
PCT (le traitement pour polir le carbure) améliore la durée de vie de l'outil de 20 %
Minimise les bavures sur la pièce
La géométrie de l'hélice varie sur la longueur de l'hélice
Variable des dents de coupe est d'aider à l'évacuation des copeaux de fentes et des poches
Un pas variable améliore la formation des copeaux
Des outils d'un dia. 12 mm ou supérieur sont disponibles avec une queue weldon
Les petits diamètres peuvent être modifiés avec une queue Weldon endéans 48 heures
V4 Rayon de Coin - Page 156
V4 Hemisphérique - Page 159
La combinaison d'une grande longueur de goujure avec une queue Weldon peut causer des vibrations qui peuvent se prolonger dans le mandrin



Fresa sub-microno metallo duro - taglio al centro
Raccomandata per lavorazioni su titanio, inconel, e inox (<40 Hrc)
PCT (Polish Carbide Treatment, trattamento di lucidatura del metallo duro) incrementa la vita utensile del 20%
Non crea beva sul pezzo
La geometria dell'elica varia sulla lunghezza del tagliente
La geometria variabile del tagliente aiuta l'evacuazione del truciolo negli svuotamenti e nelle cave
L'angolo di spoglia variabile aiuta la formazione del truciolo
Dal diametro 12 mm in su disponibili con attacco weldon
Diametri più piccoli possono essere modificati in 48 ore
VRX Toriche - Pagina 156
VRX Sferiche - Pagina 159
Estendere la lunghezza del tagliente su un attacco Weldon può causare la rottura dell'utensile in alcune applicazioni



超细晶粒整体硬质合金立铣刀 - 中心切削
推荐的加工材: 钛合金, 镍基合金, 不锈钢 (<40HRC)
PCT (硬质合金抛光处理) 使刀具寿命提高20%
使工件的毛刺最少
整个切削刃的螺旋角可变
切削刃螺旋角可变的设计有利于碎屑在加工槽和型腔中排出
可变的前角有利于碎屑的形成
12mm及以上刀具提供侧固槽位设计
可在48小时内生产小直径的平底刀具
V4圆弧角 - 156页
V4球头 - 159页
过长的刀刃结合侧固槽的刀具可能会导致刀具夹头受到冲击而损坏

EDP#	(plain)	(weldon)	d1 † Diameter		d2 Shank Diameter	l1 Overall Length	l2 Flute Length	l3 Reach Length	d3 Neck Diameter	
			Decimal	Metric						
50236	-	-	.2362	6.000	6.0	65	12	-	-	
50237	-	-	.2362	6.000	6.0	65	19	-	-	
50540	-	-	.2500	1/4"	6.350	1/4"	2"	3/8"	-	-
50645	-	-	.2500	1/4"	6.350	1/4"	2"	1/2"	-	-
50238	-	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	-	-
NEW 50653	-	-	.2500	1/4"	6.350	1/4"	3"	1-1/8"	-	-
NEW 50654	-	-	.2500	1/4"	6.350	1/4"	4"	1-1/2"	-	-
NEW 50655	-	-	.2500	1/4"	6.350	1/4"	4"	1-3/4"	-	-
NEW 50656	-	-	.2500	1/4"	6.350	1/4"	4"	2"	-	-
NEW 50651	-	-	.2500	1/4"	6.350	1/4"	3"	3/8"	1-1/8"	.237"
50600	-	-	.2500	1/4"	6.350	1/4"	4"	3/8"	1-1/8"	.237"
NEW 50652	-	-	.2500	1/4"	6.350	1/4"	4"	3/8"	2"	.237"
50541	-	-	.3125	5/16"	7.937	5/16"	2"	7/16"	-	-
50239	-	-	.3125	5/16"	7.937	5/16"	2-1/2"	13/16"	-	-
NEW 50657	-	-	.3125	5/16"	7.937	5/16"	3"	1-1/4"	-	-
NEW 50658	-	-	.3125	5/16"	7.937	5/16"	3"	7/16"	1-1/2"	.295"
50602	-	-	.3150	8.000	8.0	50	12	-	-	
50240	-	-	.3150	8.000	8.0	65	22	-	-	
NEW 50659	-	-	.3150	8.000	8.0	75	32	-	-	
NEW 50660	-	-	.3150	8.000	8.0	100	12	50	7.50	
50542	-	-	.3750	3/8"	9.525	3/8"	2"	1/2"	-	-
50241	-	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	-	-
NEW 50661	-	-	.3750	3/8"	9.525	3/8"	3"	1-1/4"	-	-
NEW 50662	-	-	.3750	3/8"	9.525	3/8"	4"	1-1/2"	-	-
50604	-	-	.3750	3/8"	9.525	3/8"	4"	1/2"	1-1/8"	.355"
50606	-	-	.3937	10.000	10.0	50	14	-	-	
50242	-	-	.3937	10.000	10.0	70	22	-	-	
50608	-	-	.3937	10.000	10.0	70	26	-	-	
NEW 50663	-	-	.3937	10.000	10.0	70	30	-	-	
50450	50449	-	.4724	12.000	12.0	75	26	-	-	
50243	50283	-	.4724	12.000	12.0	75	32	-	-	
NEW 50664	-	-	.4724	12.000	12.0	88	36	-	-	
50564	-	-	.4724	12.000	12.0	100	42	-	-	
NEW 50665	-	-	.4724	12.000	12.0	100	48	-	-	

70

35

0

EDP#		$d1$ †			$d2$	$l1$	$l2$	$l3$	$d3$
(plain)	(weldon)	Decimal	Diameter		Shank Diameter	Overall Length	Flute Length	Reach Length	Neck Diameter
50543	-	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	-	-
50452	50453	.5000	1/2"	12.700	1/2"	3"	1"	-	-
50244	50284	.5000	1/2"	12.700	1/2"	3"	1-1/4"	-	-
NEW	50666	-	.5000	1/2"	12.700	1/2"	3-1/2"	1-1/2"	-
	50578	50579	.5000	1/2"	12.700	1/2"	4"	1-5/8"	-
	50646	-	.5000	1/2"	12.700	1/2"	4"	1-3/4"	-
	50647	-	.5000	1/2"	12.700	1/2"	4"	2"	-
	50245	50285	.5000	1/2"	12.700	1/2"	4"	2-1/8"	-
NEW	50668	-	.5000	1/2"	12.700	1/2"	6"	3"	-
	50610	-	.5000	1/2"	12.700	1/2"	4"	5/8"	2-1/4"
NEW	50667	-	.5000	1/2"	12.700	1/2"	6"	5/8"	3-1/8"
	50235	-	.5000	1/2"	12.700	1/2"	6"	5/8"	4-1/8"
	50545	50546	.6250	5/8"	15.875	5/8"	3"	3/4"	-
	50246	50286	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	-
NEW	50669	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	-
	50612	-	.6250	5/8"	15.875	5/8"	4"	1-5/8"	-
NEW	50670	-	.6250	5/8"	15.875	5/8"	4"	1-3/4"	-
	50547	-	.6299	16.000	16.0	75	19	-	-
	50247	50287	.6299	16.000	16.0	88	32	-	-
NEW	50671	-	.6299	16.000	16.0	100	48	-	-
	50548	-	.7500	3/4"	19.050	3/4"	3"	7/8"	-
	50549	50550	.7500	3/4"	19.050	3/4"	4"	1"	-
	50248	50288	.7500	3/4"	19.050	3/4"	4"	1-1/2"	-
	50551	50552	.7500	3/4"	19.050	3/4"	4"	1-3/4"	-
	50553	50554	.7500	3/4"	19.050	3/4"	5"	2-1/8"	-
NEW	50672	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	-
	50555	-	.7874	20.000	20.0	100	25	-	-
	50249	50289	.7874	20.000	20.0	100	38	-	-
NEW	50673	-	.7874	20.000	20.0	100	48	-	-
NEW	50674	-	.7874	20.000	20.0	150	60	-	-
	50250	50290	1.000	1"	25.400	1"	4"	1-1/2"	-
NEW	50675	-	1.000	1"	25.400	1"	4-1/2"	2"	-
NEW	50676	-	1.000	1"	25.400	1"	5"	2-1/2"	-

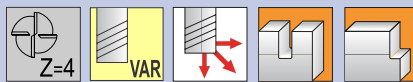
70

35

0

Series V4R

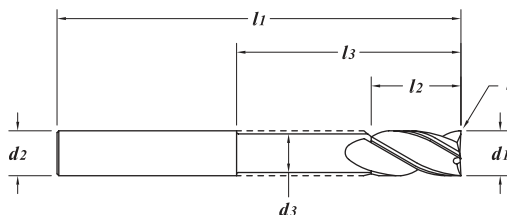
6,000mm - 6,350mm
(.2362" - .2500")



TOLERANCES

d1	+0,000 -0,050mm (+.000" -.002")
d2	h6
r	+0,025 -0,025mm (+.001" -.001")

Variable Helix End Mill - Corner Radius - AlCrN-based Coated
Fräser mit Einer Variablen Spiralgeometrie - Eckenradius - AlCrN-Basierende Beschichtet
Fresa de Hélice Variable - Ángulo Redondeado - Recubrimiento Basado en AlCrN
Fraise Avec un Angle Hélice Variable - Rayon de Coin - Revêtement à base de AlCrN
Fresa ad Elica Variabile - Torico - Rivestimento in Base AlCrN
不等螺旋铣刀 - 圆角半径 - 涂层铝氮化铬



Solid submicron grain carbide end mill - center cutting
 Helix geometry varies of length of flutes
 Variable flute design helps with chip evacuation in slots and pockets
 Variable rake aids in chip formation
Recommended for titanium, Inconel, and stainless steel (<40 Rc)
 PCT (Polish Carbide Treatment) enhances tool life by 20%
 Minimizes burr on part
 12mm and larger tools offered with weldon flat
 Smaller diameters can be modified with a flat within 48 hours
 V4 Square End - page 155
 V4 Ball End - page 159
The combination of an extended flute length with a weldon flat may cause the flute washout to reach inside some end mill holders



Hochleistungs-Vollhartmetallfräser aus Feinkornhartmetall - Zentrumschnitt
Empfohlen für Titan, Inconel, und Rostfreien Stahl (<40 Hrc)
 PCT (Polish Carbide Treatment, Treatment zum Polieren Hartmetall) steigert die Stanzeit bis zu +20%
 Reduziert die Gratbildung am Werkstück
 Spiralgeometrie variiert auf der gesamten Schneidlänge
 Variable Spannungsgeometrie für eine bessere Spanabfuhr beim Schlitz- und Taschenfräsen
 Variabler Winkel für bessere Spangeometrie
 Ab Durchmesser 12 mm und größer können die Werkzeuge mit Weldon-Spannfläche angeboten werden
 Kleinere Durchmesser können innerhalb 48 Stunden mit einer Spannfläche geliefert werden
 V4 Schaftfräser ohne Eckenradius - Seite 155
 V4 Vollradiusfräser - Seite 159
Die Kombination einer verlängerten Spannflänge mit einer Weldon-Spannfläche kann die Ursache bei Spannut-Auswaschungen bei einigen Fräsespannhaltern sein



Fresa de submicrono sólido carburo de alto rendimiento - corte centrado
Recomendado para Titanio, Inconel, y Acero Inoxidable (<40 Hrc)
 PCT (Polish Carbide Treatment, Tratamiento de pulido) aumenta la vida de la hta. hasta un 20%
 Minimiza las rebabas en la pieza
 La geometría de la hélice varía a lo largo de la longitud del labio
 El diseño del labio variable contribuye a la evacuación de la viruta en ranuras y cajeras
 El labio con filo variable que contribuye a la buena formación de la viruta
 Htas de Ø12 mm. y mayores disponibles con mango Weldon
 Es posible añadir un plano Weldon en diámetros menores en 48 horas
 V4 Fresa de vástago sin radio de cantos - Página 155
 V4 Fresas de radios - Página 159
La combinación de una gran longitud de corte con un mango con plano Weldon puede causar que del labio alcance el interior de algunos portaherramientas



Fraises carbure submicron grain - coupe au centre
Recommandé pour les titane, inconel, et aciers inoxydables (<40 Hrc)
 PCT (le traitement pour polir le carbure) améliore la durée de vie de l'outil de 20 %
 Minimise les bavures sur la pièce
 La géométrie de l'hélice varie sur la longueur de l'hélice
 Variable des dents de coupe est d'aider à l'évacuation des copeaux de fentes et des poches
 Un pas variable améliore la formation des copeaux
 Des outils d'un dia. 12 mm ou supérieur sont disponibles avec une queue weldon
 Les petits diamètres peuvent être modifiés avec une queue Weldon endéans 48 heures
 V4 Rayon de Coin - Page 155
 V4 Hemisphérique - Page 159
La combinaison d'une grande longueur de goujure avec une queue Weldon peut causer des vibrations qui peuvent se prolonger dans le mandrin



Fresa sub-micrograno metallo duro - taglio al centro
Raccomandata per lavorazioni su titanio, inconel, e inox (<40 Hrc)
 PCT (Polish Carbide Treatment, trattamento di lucidatura del metallo duro) incrementa la vita utensile del 20%
 Non crea bava sul pezzo
 La geometria dell'elica varia sulla lunghezza del tagliente
 La geometria variabile del tagliente aiuta l'evacuazione del truciolo negli svuotamenti e nelle cave
 L'angolo di spoglia variabile aiuta la formazione del truciolo
 Dal diametro 12 mm in su disponibili con attacco weldon
 Diametri più piccoli possono essere modificati in 48 ore
 VRX Toriche - Pagina 155
 VRX Sferiche - Pagina 159
Estendere la lunghezza del tagliente su un attacco Weldon può causare la rottura dell'utensile in alcune applicazioni



超细晶粒整体硬质合金立铣刀 - 中心切削
推荐的加工钛, 镍基合金, 不锈钢 (<40HRC)
 PCT (硬质合金抛光处理) 使刀具寿命提高20%
 使工件的毛刺最少
 整个切削刃的螺旋角可变
 切削刃螺旋角可变的设计有利于碎屑在加工槽和型腔中排出
 可变的前角有利于碎屑的形成
 12mm及以上刀具提供侧固槽位设计
 可在48小时内生产小直径的平底刀具
 V4圆弧角 - 155页
 V4球头 - 159页
过长的刀刀结合侧固槽的刀具可能会导致刀具夹头受到冲击而损坏

EDP#	(plain)	(weldon)	d1 †		d2	l1	l2	r	l3	d3	
			Decimal	Metric							
50199	-	-	.2362	6.000	6.0	65	12	0.30	-	-	
50200	-	-	.2362	6.000	6.0	65	12	0.50	-	-	
50201	-	-	.2362	6.000	6.0	65	12	0.75	-	-	
50202	-	-	.2362	6.000	6.0	65	12	1.00	-	-	
50203	-	-	.2362	6.000	6.0	65	12	1.50	-	-	
50204	-	-	.2362	6.000	6.0	65	19	0.30	-	-	
50205	-	-	.2362	6.000	6.0	65	19	0.50	-	-	
50206	-	-	.2362	6.000	6.0	65	19	1.00	-	-	
50489	-	-	.2500	1/4"	6.350	1/4"	2"	3/8"	.010"	-	-
50490	-	-	.2500	1/4"	6.350	1/4"	2"	3/8"	.015"	-	-
50491	-	-	.2500	1/4"	6.350	1/4"	2"	3/8"	.020"	-	-
NEW 50708	-	-	.2500	1/4"	6.350	1/4"	2"	3/8"	.030"	-	-
NEW 50709	-	-	.2500	1/4"	6.350	1/4"	2"	3/8"	.040"	-	-
NEW 50710	-	-	.2500	1/4"	6.350	1/4"	2"	3/8"	.060"	-	-
NEW 50711	-	-	.2500	1/4"	6.350	1/4"	2"	3/8"	.090"	-	-
50614	-	-	.2500	1/4"	6.350	1/4"	2"	1/2"	.010"	-	-
50616	-	-	.2500	1/4"	6.350	1/4"	2"	1/2"	.015"	-	-
50618	-	-	.2500	1/4"	6.350	1/4"	2"	1/2"	.020"	-	-
NEW 50712	-	-	.2500	1/4"	6.350	1/4"	2"	1/2"	.030"	-	-
NEW 50713	-	-	.2500	1/4"	6.350	1/4"	2"	1/2"	.040"	-	-
NEW 50714	-	-	.2500	1/4"	6.350	1/4"	2"	1/2"	.060"	-	-
NEW 50715	-	-	.2500	1/4"	6.350	1/4"	2"	1/2"	.090"	-	-
50207	-	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.010"	-	-
50208	-	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.015"	-	-
50620	-	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.020"	-	-
50209	-	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.030"	-	-
NEW 50716	-	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.040"	-	-
50210	-	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.060"	-	-
NEW 50717	-	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.090"	-	-
50493	-	-	.2500	1/4"	6.350	1/4"	3"	1-1/8"	.030"	-	-
NEW 50718	-	-	.2500	1/4"	6.350	1/4"	4"	1-3/4"	.020"	-	-
50211	-	-	.2500	1/4"	6.350	1/4"	4"	3/8"	.015"	1-1/4"	.230"
NEW 50719	-	-	.2500	1/4"	6.350	1/4"	6"	3/8"	.010"	4"	.230"

70

35

0

	EDP#		$d1$ †		$d2$	$l1$	$l2$	r	$l3$	$d3$	
	(plain)	(weldon)	Decimal	Diameter Metric							Shank Diameter
NEW	50720	-	.3125	5/16"	7.937	5/16"	2"	3/8"	.030"	-	-
	50622	-	.3125	5/16"	7.937	5/16"	2"	7/16"	.010"	-	-
	50624	-	.3125	5/16"	7.937	5/16"	2"	7/16"	.015"	-	-
	50492	-	.3125	5/16"	7.937	5/16"	2"	7/16"	.020"	-	-
NEW	50721	-	.3125	5/16"	7.937	5/16"	2"	7/16"	.125"	-	-
	50626	-	.3125	5/16"	7.937	5/16"	2-1/2"	13/16"	.010"	-	-
	50628	-	.3125	5/16"	7.937	5/16"	2-1/2"	13/16"	.015"	-	-
	50212	-	.3125	5/16"	7.937	5/16"	2-1/2"	13/16"	.020"	-	-
	50213	-	.3125	5/16"	7.937	5/16"	2-1/2"	13/16"	.030"	-	-
NEW	50722	-	.3125	5/16"	7.937	5/16"	2-1/2"	13/16"	.060"	-	-
NEW	50723	-	.3125	5/16"	7.937	5/16"	2-1/2"	13/16"	.125"	-	-
NEW	50724	-	.3125	5/16"	7.937	5/16"	3"	1-1/4"	.015"	-	-
NEW	50725	-	.3125	5/16"	7.937	5/16"	3"	1-1/4"	.030"	-	-
NEW	50726	-	.3125	5/16"	7.937	5/16"	3"	1-1/4"	.060"	-	-
	50630	-	.3150		8.000	8.0	50	12	0.50	-	-
	50214	-	.3150		8.000	8.0	65	22	0.50	-	-
	50356	-	.3150		8.000	8.0	65	22	0.75	-	-
	50215	-	.3150		8.000	8.0	65	22	1.00	-	-
NEW	50727	-	.3150		8.000	8.0	65	22	1.20	-	-
	50357	-	.3150		8.000	8.0	65	22	1.50	-	-
	50358	-	.3150		8.000	8.0	65	22	2.00	-	-
NEW	50728	-	.3150		8.000	8.0	65	22	3.00	-	-
	50632	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.010"	-	-
NEW	50729	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.015"	-	-
	50494	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.020"	-	-
	50634	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.030"	-	-
NEW	50730	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.060"	-	-
NEW	50732	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.090"	-	-
NEW	50733	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.120"	-	-
NEW	50734	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.125"	-	-
	50216	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.010"	-	-
NEW	50735	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.015"	-	-
	50217	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.020"	-	-
	50218	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.030"	-	-
NEW	50736	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.040"	-	-
	50219	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.060"	-	-
	50636	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.090"	-	-
NEW	50737	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.120"	-	-
NEW	50738	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.125"	-	-
NEW	50739	-	.3750	3/8"	9.525	3/8"	3"	1-1/4"	.015"	-	-
	50637	-	.3750	3/8"	9.525	3/8"	3"	1-1/4"	.030"	-	-
NEW	50740	-	.3750	3/8"	9.525	3/8"	3"	1-1/4"	.060"	-	-
NEW	50741	-	.3750	3/8"	9.525	3/8"	4"	1-1/2"	.015"	-	-
NEW	50742	-	.3750	3/8"	9.525	3/8"	4"	1-1/2"	.030"	-	-
NEW	50743	-	.3750	3/8"	9.525	3/8"	4"	1-1/2"	.060"	-	-
NEW	50744	-	.3750	3/8"	9.525	3/8"	4"	1-1/2"	.120"	-	-
NEW	50745	-	.3750	3/8"	9.525	3/8"	6"	2-1/2"	.060"	-	-
	50220	-	.3750	3/8"	9.525	3/8"	4"	1/2"	.020"	1-7/8"	.350"

70

35

0

MATERIAL HARDNESS (RC)

continued →

Series V4R (continued)

10,000mm - 12,700mm
(.3937" - .5000")

HIGH PERFORMANCE
END MILLS

70
35
0
MATERIAL HARDNESS (Rc)

	EDP#		d_1 † Diameter		d_2 Shank Diameter	l_1 Overall Length	l_2 Flute Length	r Corner Radius	l_3 Reach Length	d_3 Neck Diameter
	(plain)	(weldon)	Decimal	Metric						
	50638	-	.3937	10.000	10.0	50	14	0.50	-	-
NEW	50746	-	.3937	10.000	10.0	70	22	0.25	-	-
	50221	-	.3937	10.000	10.0	70	22	0.50	-	-
	50359	-	.3937	10.000	10.0	70	22	0.75	-	-
	50360	-	.3937	10.000	10.0	70	22	1.00	-	-
	50361	-	.3937	10.000	10.0	70	22	1.50	-	-
	50362	-	.3937	10.000	10.0	70	22	2.00	-	-
NEW	50747	-	.3937	10.000	10.0	70	22	3.00	-	-
NEW	50748	-	.3937	10.000	10.0	70	26	1.50	-	-
NEW	50749	-	.3937	10.000	10.0	70	22	0.50	30	9.40
NEW	50750	-	.3937	10.000	10.0	100	12	0.30	50	9.40
	50363	50369	.4724	12.000	12.0	75	26	0.30	-	-
	50364	50370	.4724	12.000	12.0	75	26	0.50	-	-
	50365	50366	.4724	12.000	12.0	75	26	0.75	-	-
	50367	50371	.4724	12.000	12.0	75	26	1.00	-	-
	50372	50373	.4724	12.000	12.0	75	26	1.50	-	-
	50374	50375	.4724	12.000	12.0	75	26	2.00	-	-
	50222	50270	.4724	12.000	12.0	75	32	0.50	-	-
	50223	50271	.4724	12.000	12.0	75	32	1.00	-	-
NEW	50751	-	.4724	12.000	12.0	88	36	0.30	-	-
NEW	50752	-	.4724	12.000	12.0	88	36	0.50	-	-
NEW	50753	-	.4724	12.000	12.0	88	36	1.00	-	-
NEW	50754	-	.4724	12.000	12.0	88	36	1.50	-	-
NEW	50755	-	.4724	12.000	12.0	88	36	3.00	-	-
	50566	-	.4724	12.000	12.0	100	42	0.30	-	-
	50568	-	.4724	12.000	12.0	100	42	0.50	-	-
	50570	-	.4724	12.000	12.0	100	42	1.00	-	-
	50572	-	.4724	12.000	12.0	100	42	2.00	-	-
	50574	-	.4724	12.000	12.0	100	42	3.00	-	-
NEW	50756	-	.4724	12.000	12.0	100	48	0.30	-	-
NEW	50757	-	.4724	12.000	12.0	100	48	0.50	-	-
NEW	50758	-	.4724	12.000	12.0	100	48	1.00	-	-
NEW	50759	-	.4724	12.000	12.0	100	48	1.50	-	-
NEW	50760	-	.4724	12.000	12.0	100	48	3.00	-	-
NEW	50761	-	.4724	12.000	12.0	100	48	4.00	-	-
	50640	-	.5000	12.700	1/2"	2-1/2"	5/8"	.010"	-	-
NEW	50762	-	.5000	12.700	1/2"	2-1/2"	5/8"	.015"	-	-
	50496	50497	.5000	12.700	1/2"	2-1/2"	5/8"	.020"	-	-
	50642	-	.5000	12.700	1/2"	2-1/2"	5/8"	.030"	-	-
NEW	50763	-	.5000	12.700	1/2"	2-1/2"	5/8"	.060"	-	-
NEW	50764	-	.5000	12.700	1/2"	2-1/2"	5/8"	.090"	-	-
NEW	50765	-	.5000	12.700	1/2"	2-1/2"	5/8"	.120"	-	-
	50644	-	.5000	12.700	1/2"	2-1/2"	5/8"	.125"	-	-
NEW	50766	-	.5000	12.700	1/2"	2-1/2"	5/8"	.156"	-	-
NEW	50767	-	.5000	12.700	1/2"	2-1/2"	5/8"	.190"	-	-
	50379	50380	.5000	12.700	1/2"	3"	1"	.010"	-	-
NEW	50768	-	.5000	12.700	1/2"	3"	1"	.015"	-	-
	50381	50382	.5000	12.700	1/2"	3"	1"	.020"	-	-
	50383	50384	.5000	12.700	1/2"	3"	1"	.030"	-	-
	50385	50386	.5000	12.700	1/2"	3"	1"	.060"	-	-
NEW	50769	-	.5000	12.700	1/2"	3"	1"	.090"	-	-
NEW	50770	-	.5000	12.700	1/2"	3"	1"	.120"	-	-
NEW	50771	-	.5000	12.700	1/2"	3"	1"	.125"	-	-
NEW	50772	-	.5000	12.700	1/2"	3"	1"	.190"	-	-

	EDP#		d_1 †		d_2	l_1	l_2	r	l_3	d_3	
	(plain)	(weldon)	Decimal	Diameter							Metric
	50224	50272	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.010"	-	-
NEW	50773	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.015"	-	-
	50225	50273	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.020"	-	-
	50226	50274	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.030"	-	-
	50227	50275	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.060"	-	-
NEW	50774	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.090"	-	-
NEW	50775	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.120"	-	-
NEW	50776	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.125"	-	-
NEW	50777	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.156"	-	-
NEW	50778	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.190"	-	-
NEW	50779	-	.5000	1/2"	12.700	1/2"	3-1/2"	1-1/2"	.010"	-	-
NEW	50780	-	.5000	1/2"	12.700	1/2"	3-1/2"	1-1/2"	.015"	-	-
NEW	50781	-	.5000	1/2"	12.700	1/2"	3-1/2"	1-1/2"	.020"	-	-
NEW	50782	-	.5000	1/2"	12.700	1/2"	3-1/2"	1-1/2"	.030"	-	-
NEW	50783	-	.5000	1/2"	12.700	1/2"	3-1/2"	1-1/2"	.060"	-	-
NEW	50784	-	.5000	1/2"	12.700	1/2"	3-1/2"	1-1/2"	.090"	-	-
NEW	50785	-	.5000	1/2"	12.700	1/2"	3-1/2"	1-1/2"	.120"	-	-
	50580	50581	.5000	1/2"	12.700	1/2"	4"	1-5/8"	.010"	-	-
	50582	50583	.5000	1/2"	12.700	1/2"	4"	1-5/8"	.020"	-	-
	50584	50585	.5000	1/2"	12.700	1/2"	4"	1-5/8"	.030"	-	-
	50586	50587	.5000	1/2"	12.700	1/2"	4"	1-5/8"	.040"	-	-
	50588	50589	.5000	1/2"	12.700	1/2"	4"	1-5/8"	.060"	-	-
	50590	50591	.5000	1/2"	12.700	1/2"	4"	1-5/8"	.120"	-	-
NEW	50786	-	.5000	1/2"	12.700	1/2"	4"	2-1/8"	.010"	-	-
NEW	50787	-	.5000	1/2"	12.700	1/2"	4"	2-1/8"	.015"	-	-
NEW	50788	-	.5000	1/2"	12.700	1/2"	4"	2-1/8"	.020"	-	-
NEW	50789	-	.5000	1/2"	12.700	1/2"	4"	2-1/8"	.030"	-	-
NEW	50790	-	.5000	1/2"	12.700	1/2"	4"	2-1/8"	.060"	-	-
NEW	50791	-	.5000	1/2"	12.700	1/2"	4"	2-1/8"	.090"	-	-
NEW	50792	-	.5000	1/2"	12.700	1/2"	4"	2-1/8"	.120"	-	-
NEW	50793	-	.5000	1/2"	12.700	1/2"	4"	2-1/8"	.125"	-	-
NEW	50794	-	.5000	1/2"	12.700	1/2"	4"	2-1/8"	.190"	-	-
NEW	50795	-	.5000	1/2"	12.700	1/2"	6"	3"	.020"	-	-
NEW	50796	-	.5000	1/2"	12.700	1/2"	6"	3"	.030"	-	-
NEW	50797	-	.5000	1/2"	12.700	1/2"	6"	3"	.060"	-	-
NEW	50798	-	.5000	1/2"	12.700	1/2"	6"	3"	.120"	-	-
NEW	50799	-	.5000	1/2"	12.700	1/2"	6"	3"	.190"	-	-
	50228	-	.5000	1/2"	12.700	1/2"	4"	5/8"	.020"	2-1/4"	.470"
NEW	50900	-	.5000	1/2"	12.700	1/2"	4"	5/8"	.030"	2-1/4"	.470"
NEW	50901	-	.5000	1/2"	12.700	1/2"	4"	5/8"	.060"	2-1/4"	.470"
NEW	50902	-	.5000	1/2"	12.700	1/2"	4"	5/8"	.120"	2-1/4"	.470"
	50594	-	.5000	1/2"	12.700	1/2"	6"	5/8"	.020"	4-1/8"	.470"
	50596	-	.5000	1/2"	12.700	1/2"	6"	5/8"	.030"	4-1/8"	.470"
NEW	50903	-	.6250	5/8"	15.875	5/8"	3"	3/4"	.010"	-	-
NEW	50904	-	.6250	5/8"	15.875	5/8"	3"	3/4"	.015"	-	-
	50498	50499	.6250	5/8"	15.875	5/8"	3"	3/4"	.020"	-	-
	50500	50501	.6250	5/8"	15.875	5/8"	3"	3/4"	.030"	-	-
	50502	50503	.6250	5/8"	15.875	5/8"	3"	3/4"	.060"	-	-
NEW	50905	-	.6250	5/8"	15.875	5/8"	3"	3/4"	.090"	-	-
NEW	50906	-	.6250	5/8"	15.875	5/8"	3"	3/4"	.120"	-	-
NEW	50907	-	.6250	5/8"	15.875	5/8"	3"	3/4"	.125"	-	-
NEW	50908	-	.6250	5/8"	15.875	5/8"	3"	3/4"	.156"	-	-
NEW	50909	-	.6250	5/8"	15.875	5/8"	3"	3/4"	.190"	-	-
NEW	50910	-	.6250	5/8"	15.875	5/8"	3"	3/4"	.250"	-	-

70

35

0

MATERIAL HARDNESS (RC)

continued →

Series V4R (continued)

15,875mm - 16,000mm
(.6250" - .6299")

HIGH PERFORMANCE
END MILLS

	EDP#		d_1 †			d_2	l_1	l_2	r	l_3	d_3
	(plain)	(weldon)	Decimal	Diameter	Metric	Shank Diameter	Overall Length	Flute Length	Corner Radius	Reach Length	Neck Diameter
NEW	50911	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.010"	-	-
NEW	50912	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.015"	-	-
	50229	50277	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.020"	-	-
	50534	50535	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.030"	-	-
	50536	50537	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.040"	-	-
	50538	50539	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.060"	-	-
NEW	50913	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.090"	-	-
	50230	50278	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.120"	-	-
NEW	50914	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.125"	-	-
NEW	50915	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.156"	-	-
NEW	50916	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.190"	-	-
NEW	50917	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.250"	-	-
NEW	50918	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.010"	-	-
NEW	50919	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.015"	-	-
NEW	50920	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.020"	-	-
NEW	50921	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.030"	-	-
NEW	50922	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.060"	-	-
NEW	50923	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.090"	-	-
NEW	50924	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.120"	-	-
NEW	50925	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.125"	-	-
NEW	50926	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.156"	-	-
NEW	50927	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.190"	-	-
NEW	50928	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.250"	-	-
	50504	-	.6299		16.000	16.0	75	19	0.50	-	-
	50506	-	.6299		16.000	16.0	75	19	1.00	-	-
	50508	-	.6299		16.000	16.0	75	19	3.00	-	-
NEW	50929	-	.6299		16.000	16.0	75	19	4.00	-	-
NEW	50930	-	.6299		16.000	16.0	75	19	5.00	-	-
NEW	50931	-	.6299		16.000	16.0	75	19	6.00	-	-
	50231	50279	.6299		16.000	16.0	88	32	0.50	-	-
	50409	50410	.6299		16.000	16.0	88	32	0.75	-	-
	50411	50412	.6299		16.000	16.0	88	32	1.00	-	-
	50413	50414	.6299		16.000	16.0	88	32	1.50	-	-
	50415	50416	.6299		16.000	16.0	88	32	2.00	-	-
NEW	50932	-	.6299		16.000	16.0	88	32	2.50	-	-
	50417	50418	.6299		16.000	16.0	88	32	3.00	-	-
NEW	50933	-	.6299		16.000	16.0	88	32	4.00	-	-
NEW	50934	-	.6299		16.000	16.0	88	32	5.00	-	-
NEW	50935	-	.6299		16.000	16.0	88	32	6.00	-	-
NEW	50936	-	.6299		16.000	16.0	100	48	0.50	-	-
NEW	50937	-	.6299		16.000	16.0	100	48	1.00	-	-
NEW	50938	-	.6299		16.000	16.0	100	48	1.50	-	-
NEW	50939	-	.6299		16.000	16.0	100	48	2.00	-	-
NEW	50940	-	.6299		16.000	16.0	100	48	3.00	-	-
NEW	50941	-	.6299		16.000	16.0	100	48	4.00	-	-
NEW	50942	-	.6299		16.000	16.0	100	48	5.00	-	-
NEW	50943	-	.6299		16.000	16.0	100	48	6.00	-	-

70

35

MATERIAL HARDNESS (Rc)

0

	EDP#		$d1$ †		$d2$	$l1$	$l2$	r	$l3$	$d3$	
	(plain)	(weldon)	Decimal	Diameter							Metric
NEW	50944	-	.7500	3/4"	19.050	3/4"	3"	7/8"	.010"	-	-
NEW	50945	-	.7500	3/4"	19.050	3/4"	3"	7/8"	.015"	-	-
NEW	50946	-	.7500	3/4"	19.050	3/4"	3"	7/8"	.020"	-	-
	50556	-	.7500	3/4"	19.050	3/4"	3"	7/8"	.030"	-	-
NEW	50947	-	.7500	3/4"	19.050	3/4"	3"	7/8"	.060"	-	-
NEW	50948	-	.7500	3/4"	19.050	3/4"	3"	7/8"	.120"	-	-
NEW	50949	-	.7500	3/4"	19.050	3/4"	4"	1"	.010"	-	-
NEW	50950	-	.7500	3/4"	19.050	3/4"	4"	1"	.015"	-	-
	50510	50511	.7500	3/4"	19.050	3/4"	4"	1"	.020"	-	-
	50512	50513	.7500	3/4"	19.050	3/4"	4"	1"	.030"	-	-
	50514	50515	.7500	3/4"	19.050	3/4"	4"	1"	.060"	-	-
NEW	50951	-	.7500	3/4"	19.050	3/4"	4"	1"	.090"	-	-
NEW	50952	-	.7500	3/4"	19.050	3/4"	4"	1"	.120"	-	-
NEW	50953	-	.7500	3/4"	19.050	3/4"	4"	1"	.190"	-	-
NEW	50954	-	.7500	3/4"	19.050	3/4"	4"	1"	.250"	-	-
NEW	50955	-	.7500	3/4"	19.050	3/4"	4"	1"	.3125"	-	-
NEW	50956	-	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.010"	-	-
NEW	50957	-	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.015"	-	-
	50516	50517	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.020"	-	-
	50232	50280	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.030"	-	-
	50518	50519	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.060"	-	-
NEW	50958	-	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.090"	-	-
	50520	50521	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.120"	-	-
NEW	50959	-	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.125"	-	-
NEW	50960	-	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.156"	-	-
NEW	50961	-	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.190"	-	-
NEW	50962	-	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.250"	-	-
NEW	50963	-	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.3125"	-	-
NEW	50964	-	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.010"	-	-
NEW	50965	-	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.015"	-	-
	50522	50523	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.020"	-	-
	50524	50525	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.030"	-	-
	50526	50527	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.060"	-	-
NEW	50966	-	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.090"	-	-
NEW	50967	-	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.120"	-	-
NEW	50968	-	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.125"	-	-
NEW	50969	-	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.156"	-	-
NEW	50970	-	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.190"	-	-
NEW	50971	-	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.250"	-	-
NEW	50972	-	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.3125"	-	-
NEW	50973	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.010"	-	-
NEW	50974	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.015"	-	-
NEW	50975	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.020"	-	-
NEW	50976	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.030"	-	-
NEW	50977	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.060"	-	-
NEW	50978	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.090"	-	-
NEW	50979	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.120"	-	-
NEW	50980	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.125"	-	-
NEW	50981	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.156"	-	-
NEW	50982	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.190"	-	-
NEW	50983	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.250"	-	-
NEW	50984	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.3125"	-	-

70

35

MATERIAL HARDNESS (RC)

0

continued →

Series V4R (continued)

19,050mm - 25,400mm
(.7500" - 1.000")

HIGH PERFORMANCE
END MILLS

	EDP#		$d1$ † Diameter		$d2$ Shank Diameter	$l1$ Overall Length	$l2$ Flute Length	r Corner Radius	$l3$ Reach Length	$d3$ Neck Diameter	
	(plain)	(weldon)	Decimal	Metric							
NEW	50985	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.010"	-	-
NEW	50986	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.015"	-	-
NEW	50987	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.020"	-	-
NEW	50988	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.030"	-	-
NEW	50989	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.060"	-	-
NEW	50990	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.090"	-	-
NEW	50991	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.120"	-	-
NEW	50992	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.125"	-	-
NEW	50993	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.156"	-	-
NEW	50994	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.190"	-	-
NEW	50995	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.250"	-	-
NEW	50996	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.3125"	-	-
NEW	50997	-	.7874		20.000	20.0	100	38	0.50	-	-
	50528	-	.7874		20.000	20.0	100	38	1.00	-	-
	50530	-	.7874		20.000	20.0	100	38	2.00	-	-
NEW	50998	-	.7874		20.000	20.0	100	38	2.50	-	-
	50532	-	.7874		20.000	20.0	100	38	3.00	-	-
NEW	50999	-	.7874		20.000	20.0	100	38	4.00	-	-
NEW	50121	-	.7874		20.000	20.0	100	38	5.00	-	-
NEW	50122	-	.7874		20.000	20.0	100	38	6.00	-	-
NEW	50123	-	.7874		20.000	20.0	100	38	8.00	-	-
NEW	50124	-	.7874		20.000	20.0	100	48	0.50	-	-
NEW	50125	-	.7874		20.000	20.0	100	48	1.00	-	-
NEW	50126	-	.7874		20.000	20.0	100	48	1.50	-	-
NEW	50127	-	.7874		20.000	20.0	100	48	2.00	-	-
NEW	50128	-	.7874		20.000	20.0	100	48	2.50	-	-
NEW	50129	-	.7874		20.000	20.0	100	48	3.00	-	-
NEW	50131	-	.7874		20.000	20.0	100	48	4.00	-	-
NEW	50132	-	.7874		20.000	20.0	100	48	5.00	-	-
NEW	50133	-	.7874		20.000	20.0	100	48	6.00	-	-
NEW	50134	-	.7874		20.000	20.0	100	48	8.00	-	-
NEW	50135	-	.7874		20.000	20.0	150	60	0.50	-	-
NEW	50136	-	.7874		20.000	20.0	150	60	1.00	-	-
NEW	50137	-	.7874		20.000	20.0	150	60	3.00	-	-
NEW	50138	-	.7874		20.000	20.0	150	60	6.00	-	-
NEW	50139	-	1.000	1"	25.400	1"	4"	1-1/2"	.020"	-	-
	50233	50281	1.000	1"	25.400	1"	4"	1-1/2"	.030"	-	-
NEW	50141	-	1.000	1"	25.400	1"	4"	1-1/2"	.060"	-	-
NEW	50142	-	1.000	1"	25.400	1"	4"	1-1/2"	.090"	-	-
NEW	50143	-	1.000	1"	25.400	1"	4"	1-1/2"	.120"	-	-
	50557	-	1.000	1"	25.400	1"	4"	1-1/2"	.125"	-	-
NEW	50144	-	1.000	1"	25.400	1"	4"	1-1/2"	.156"	-	-
NEW	50145	-	1.000	1"	25.400	1"	4"	1-1/2"	.190"	-	-
NEW	50146	-	1.000	1"	25.400	1"	4"	1-1/2"	.250"	-	-
NEW	50147	-	1.000	1"	25.400	1"	4"	1-1/2"	.3125"	-	-
NEW	50148	-	1.000	1"	25.400	1"	4"	1-1/2"	.375"	-	-

70

35

MATERIAL HARDNESS (Rc)

0

	EDP#		$d1^{\dagger}$ Diameter		$d2$ Shank Diameter	$l1$ Overall Length	$l2$ Flute Length	r Corner Radius	$l3$ Reach Length	$d3$ Neck Diameter	
	(plain)	(weldon)	Decimal	Metric							
NEW	50149	-	1.000	1"	25.400	1"	4-1/2"	2"	.020"	-	-
NEW	50151	-	1.000	1"	25.400	1"	4-1/2"	2"	.030"	-	-
NEW	50152	-	1.000	1"	25.400	1"	4-1/2"	2"	.060"	-	-
NEW	50153	-	1.000	1"	25.400	1"	4-1/2"	2"	.090"	-	-
NEW	50154	-	1.000	1"	25.400	1"	4-1/2"	2"	.120"	-	-
NEW	50155	-	1.000	1"	25.400	1"	4-1/2"	2"	.156"	-	-
NEW	50156	-	1.000	1"	25.400	1"	4-1/2"	2"	.190"	-	-
NEW	50157	-	1.000	1"	25.400	1"	4-1/2"	2"	.250"	-	-
NEW	50158	-	1.000	1"	25.400	1"	4-1/2"	2"	.3125"	-	-
	50234	50282	1.000	1"	25.400	1"	5"	2-1/8"	.030"	-	-
NEW	50159	-	1.000	1"	25.400	1"	5"	2-1/2"	.020"	-	-
NEW	50161	-	1.000	1"	25.400	1"	5"	2-1/2"	.030"	-	-
NEW	50162	-	1.000	1"	25.400	1"	5"	2-1/2"	.060"	-	-
NEW	50163	-	1.000	1"	25.400	1"	5"	2-1/2"	.090"	-	-
NEW	50164	-	1.000	1"	25.400	1"	5"	2-1/2"	.120"	-	-
NEW	50165	-	1.000	1"	25.400	1"	5"	2-1/2"	.156"	-	-
NEW	50166	-	1.000	1"	25.400	1"	5"	2-1/2"	.190"	-	-
NEW	50167	-	1.000	1"	25.400	1"	5"	2-1/2"	.250"	-	-
NEW	50168	-	1.000	1"	25.400	1"	5"	2-1/2"	.3125"	-	-

70

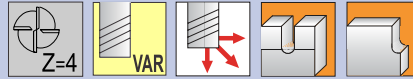
35

0

MATERIAL HARDNESS (RC)

Series V4B

6,000mm - 10,000mm
(.2362" - .3937")



TOLERANCES

d1	+0,000mm -0,050mm (+.000" -.002")
d2	h6
ball radius	+0,000 -0,025mm (+.000" -.001")

Variable Helix End Mill - Ball End - AlCrN-based Coated

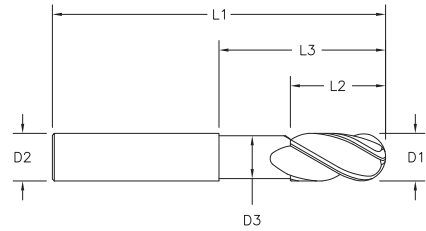
Fräser mit Einer Variablen Spiralgeometrie - Vollradius - AlCrN-Basierende Beschichtet

Fresa de Hélice Variable - Cabeza Esférica - Recubrimiento Basado en AlCrN

Fraise Avec un Angle Hélice Variable - Hemispherique - Revêtement à base de AlCrN

Fresa ad Elica Variabile - Sferica - Rivestimento in Base AlCrN

不等螺旋铣刀 - 球头 - 涂层铝氮化铬



Solid submicron grain carbide end mill - center cutting
Helix geometry varies over length of flutes
Variable flute design helps with chip evacuation in slots and pockets
Variable rake aids in chip formation

Recommended for titanium, inconel, and stainless steel (< 40 Hrc)
PCT (Polish Carbide Treatment) enhances tool life by 20%

Minimizes burr on part
12mm and larger tools offered with weldon flat
Smaller diameters can be modified with a flat within 48 hours
V4 Square End - page 155
V4 Corner Radius - page 156

The combination of an extended flute length with a weldon flat may cause the flute washout to reach inside some end mill holders



Hochleistungs- Vollhartmetallfräser aus Feinkornhartmetall - Zentrumschnitt
Empfohlen für Titan, Inconel, und Rostfreien Stahl (<40 Hrc)

PCT (Polish Carbide Treatment, Treatment zum Polieren Hartmetall) steigert die Stanzeit bis zu +20%

Reduziert die Gratbildung am Werkstück
Spiralgeometrie variiert auf der gesamten Schneidlänge
Variable Spanntgeometrie für eine bessere Spanabfuhr beim Schlitz- und Taschenfräsen
Variabler Winkel für bessere Spangeometrie
Ab Durchmesser 12 mm und grösser können die Werkzeuge mit Weldon-Spannfläche angeboten werden
Kleinere Durchmesser können innerhalb 48 Stunden mit einer Spannfläche geliefert werden
Vollradius Toleranz: +0,000 / -0,025 (+.000" -.001")
V4 Schaftfräser ohne Eckenradius - Seite 155
V4 Schaftfräser mit Eckenradius - Seite 156

Die Kombination einer verlängerten Spannflänge mit einer Weldon-Spannfläche kann die Ursache bei Spannut-Auswaschungen bei einigen Fräsespannlütern sein



Fresa de submicron grano sólido carburo de alto rendimiento - corte centrado

Recomendado para Titanio, Inconel, y Acero inoxidable (<40 Hrc)

PCT (Polish Carbide Treatment, Tratamiento de pulido) aumenta la vida de la hta. hasta un 20%

Minimiza las rebabas en la pieza
La geometría de la hélice varía a lo largo de la longitud del labio
El diseño del labio variable contribuye a la evacuación de la viruta en ranuras y cajeras
El labio con filo variable que contribuye a la buena formación de la viruta
Htas de Ø12 mm, y mayores disponibles con mango Weldon
Es posible añadir un plano Weldon en diámetros menores en 48 horas
Tolerancia de la cabeza esférica +0,000 / -0,025 (+.000" -.001")
V4 Fresa de vástago sin radio de cantos - Página 155
V4 Fresa de vástago con radio de cantos - Página 156

La combinación de una gran longitud de corte con un mango con plano Weldon puede causar que el labio alcance el interior de algunos portaherramientas



Fraises carbure submicron - coupe au centre

Recommandé pour les titane, inconel, et aciers inoxydables (<40 Hrc)

PCT (le traitement pour polir le carbure) améliore la durée de vie de l'outil de 20%

Minimise les bavures sur la pièce
La géométrie de l'hélice varie sur la longueur de l'hélice
Variable des dents de coupe est d'aider à l'évacuation des copeaux de fentes et des poches
Un pas variable améliore la formation des copeaux
Des outils d'un dia. 12 mm ou supérieur sont disponibles avec une queue weldon
Les petits diamètres peuvent être modifiés avec une queue Weldon endéans 48 heures
Tolerance au rayon de hemispherique +0,000 / -0,025 (+.000" -.001")
V4 Rayon de Coin - Page 155
V4 Hemispherique - Page 156

La combinaison d'une grande longueur de goujure avec une queue Weldon peut causer des vibrations qui peuvent se prolonger dans le mandrin



Fresa sub-microno metallo duro - taglio al centro

Raccomandata per lavorazioni su titanio, inconel, e inox (<40 Hrc)

PCT (Polish Carbide Treatment, trattamento di lucidatura del metallo duro) incrementa la vita utensile del 20%

Non crea bavure sul pezzo
La geometria dell'elica varia sulla lunghezza del tagliente
La geometria variabile del tagliente aiuta l'evacuazione del truciolo negli svuotamenti e nelle cave
L'angolo di spoglia variabile aiuta la formazione del truciolo
Dal diametro 12 mm in su disponibili con attacco weldon
Diametri più piccoli possono essere modificati in 48 ore
Tolleranza del raggio +0,000 / -0,025 (+.000" -.001")
VRX Torche - Pagina 155
VRX Sferiche - Pagina 156

Estendere la lunghezza del tagliente su un attacco Weldon può causare la rottura dell'utensile in alcune applicazioni



超细晶粒整体硬质合金立铣刀 - 中心切削

推荐的加工材: 钛合金, 镍基合金, 不锈钢 (<40HRC)

PCT (硬质合金抛光处理) 使刀具寿命提高20%

使工件的毛刺最少
整个切削刃的螺旋角可变
切削刃螺旋角可变的设计有利于碎屑在加工槽和型腔中排出
可变的前角有利于碎屑的形成
12mm及以上刀具提供侧刃槽位设计
可在48小时内生产小直径的平底刀具
半径公差 +0,000 / -0,025 (+.000" -.001")
V4圆弧角 - 155页
V4球头 - 156页

过长的刃结合侧刃槽的刀具可能会导致刀具夹头受到冲击而损坏

EDP#		d1 †		d2	l1	l2	l3	d3
		(plain)	(weldon)					
50252	-	.2362		6.000	6.0	65	12	-
50253	-	.2362		6.000	6.0	65	19	-
50560	-	.2500	1/4"	6.350	1/4"	2"	3/8"	-
50254	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	-
NEW	50677	-	.2500	1/4"	6.350	1/4"	3"	1-1/8"
NEW	50681	-	.2500	1/4"	6.350	1/4"	4"	1-1/2"
NEW	50682	-	.2500	1/4"	6.350	1/4"	4"	1-3/4"
NEW	50683	-	.2500	1/4"	6.350	1/4"	4"	2"
NEW	50678	-	.2500	1/4"	6.350	1/4"	3"	3/8"
	50474	-	.2500	1/4"	6.350	1/4"	4"	3/8"
NEW	50679	-	.2500	1/4"	6.350	1/4"	4"	3/8"
NEW	50680	-	.2500	1/4"	6.350	1/4"	4"	3/8"
NEW	50684	-	.2500	1/4"	6.350	1/4"	6"	3/8"
	50561	-	.3125	5/16"	7.937	5/16"	2"	7/16"
	50255	-	.3125	5/16"	7.937	5/16"	2-1/2"	13/16"
NEW	50685	-	.3125	5/16"	7.937	5/16"	3"	1-1/4"
NEW	50686	-	.3125	5/16"	7.937	5/16"	3"	7/16"
	50256	-	.3150	8.000	8.0	65	22	-
NEW	50687	-	.3150	8.000	8.0	75	32	-
NEW	50688	-	.3150	8.000	8.0	100	12	50
	50562	-	.3750	3/8"	9.525	3/8"	2"	1/2"
	50257	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"
NEW	50689	-	.3750	3/8"	9.525	3/8"	3"	1-1/4"
NEW	50690	-	.3750	3/8"	9.525	3/8"	4"	1-1/2"
	50476	-	.3750	3/8"	9.525	3/8"	4"	1/2"
	50258	-	.3937	10.000	10.0	70	22	-
NEW	50691	-	.3937	10.000	10.0	70	30	-
NEW	50692	-	.3937	10.000	10.0	100	14	50

70

35

0

	EDP#		$d1$ † Diameter		$d2$	$l1$	$l2$	$l3$	$d3$
	(plain)	(weldon)	Decimal	Metric	Shank Diameter	Overall Length	Flute Length	Reach Length	Neck Diameter
	50470	-	.4724	12.000	12.0	75	26	-	-
	50259	50291	.4724	12.000	12.0	75	32	-	-
NEW	50693	-	.4724	12.000	12.0	88	36	-	-
	50576	-	.4724	12.000	12.0	100	42	-	-
NEW	50694	-	.4724	12.000	12.0	100	48	-	-
NEW	50695	-	.4724	12.000	12.0	100	14	50	11.40
	50563	-	.5000	12.700	1/2"	2-1/2"	5/8"	-	-
	50472	50473	.5000	12.700	1/2"	3"	1"	-	-
	50260	50292	.5000	12.700	1/2"	3"	1-1/4"	-	-
NEW	50696	-	.5000	12.700	1/2"	3-1/2"	1-1/2"	-	-
	50592	50593	.5000	12.700	1/2"	4"	1-5/8"	-	-
	50261	50293	.5000	12.700	1/2"	4"	2-1/8"	-	-
NEW	50699	-	.5000	12.700	1/2"	6"	3"	-	-
	50478	-	.5000	12.700	1/2"	4"	5/8"	2-1/4"	.475"
NEW	50697	-	.5000	12.700	1/2"	6"	5/8"	3-1/8"	.475"
	50598	-	.5000	12.700	1/2"	6"	5/8"	4-1/8"	.475"
NEW	50698	-	.5000	12.700	1/2"	6"	1"	4-1/2"	.475"
	50262	50294	.6250	15.875	5/8"	3-1/2"	1-1/4"	-	-
NEW	50700	-	.6250	15.875	5/8"	4"	1-1/2"	-	-
NEW	50701	-	.6250	15.875	5/8"	4"	1-3/4"	-	-
	50263	50295	.6299	16.000	16.0	88	32	-	-
NEW	50702	-	.6299	16.000	16.0	100	48	-	-
	50264	50296	.7500	19.050	3/4"	4"	1-1/2"	-	-
NEW	50703	-	.7500	19.050	3/4"	5"	2-1/2"	-	-
	50265	50297	.7874	20.000	20.0	100	38	-	-
NEW	50704	-	.7874	20.000	20.0	100	48	-	-
NEW	50705	-	.7874	20.000	20.0	150	60	-	-
	50266	50298	1.000	25.400	1"	4"	1-1/2"	-	-
NEW	50706	-	1.000	25.400	1"	4-1/2"	2"	-	-
NEW	50707	-	1.000	25.400	1"	5"	2-1/2"	-	-

70

35

0

GARR TOOL®

High Performance Solid Carbide

7800 N Alger Road
Alma, Michigan 48801
Toll Free: 800-248-9003
Tele: 989-463-6171
Fax: 989-463-3609

www.garrtool.com



**Sold through select industrial distributors
Prices subject to change without notice**