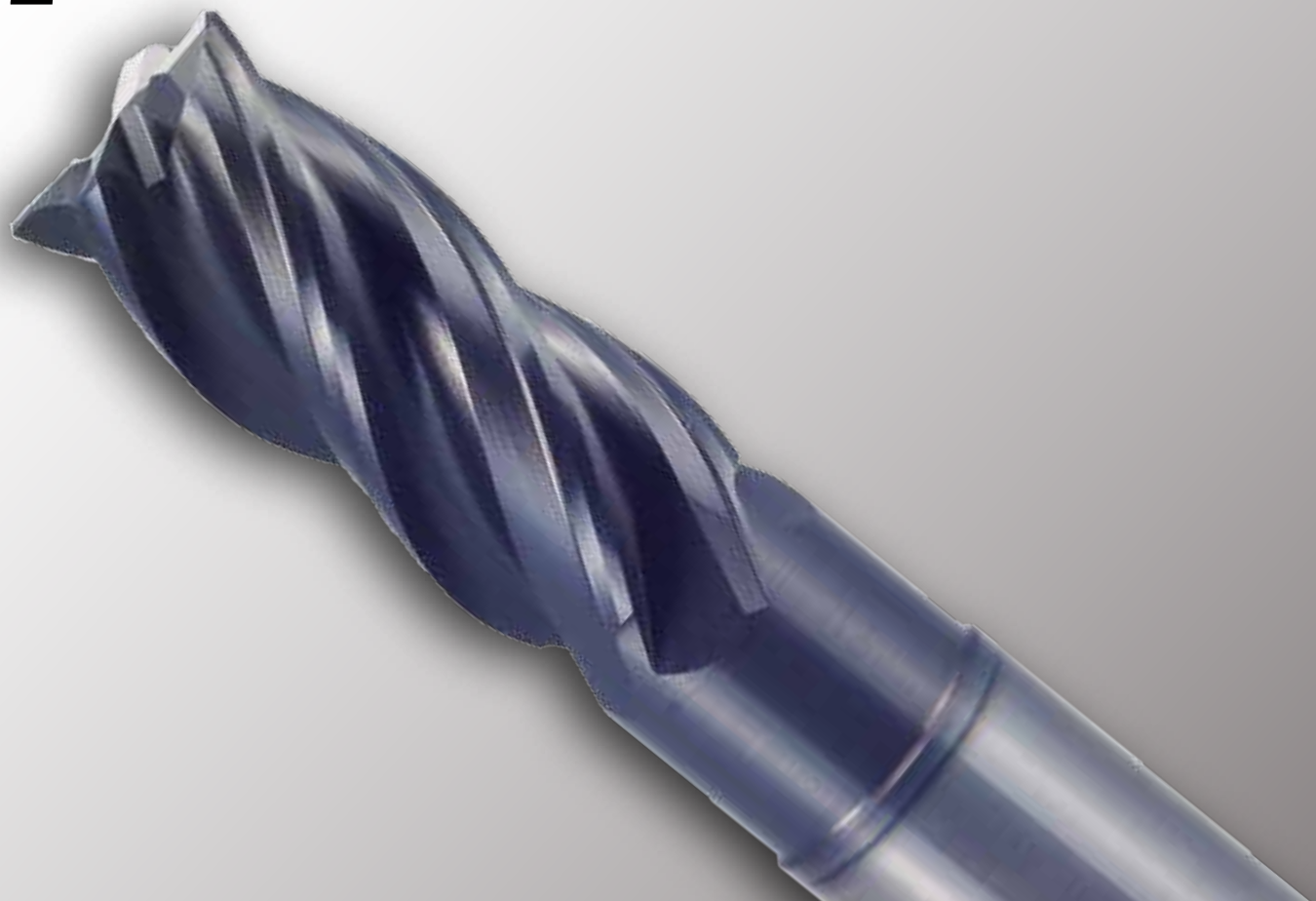


V7 Plus
ТВЕРДОСПЛАВНЫЕ КОНЦЕВЫЕ ФРЕЗЫ



**“ПЛЮС” К ПРОИЗВОДИТЕЛЬНОСТИ
ПРИ ОБРАБОТКЕ СТАЛИ, ЧУГУНА,
НЕРЖАВЕЮЩИХ СТАЛЕЙ**



Лидерство через Инновации

- ▶ Твердый сплав: Мелкозернистый
- ▶ Покрытие: Разработанное YG-1
- ▶ Диаметр: от $\varnothing 3\text{мм}$ до $\varnothing 25\text{мм}$
- ▶ Длина: Короткая, Длинная, Удлиненная шейка
- ▶ Тип торца : Плоский, Угловой радиус
- ▶ Угол наклона спирали: Переменный с неравным шагом между зубьями

Нержавеющие стали
Мягкие стали и чугуны
Материалы твердостью < 40 HRC

Улучшенная геометрия угла для увеличения стойкости



Покрытие YG-1 для снижения износа и отличной термостойкости

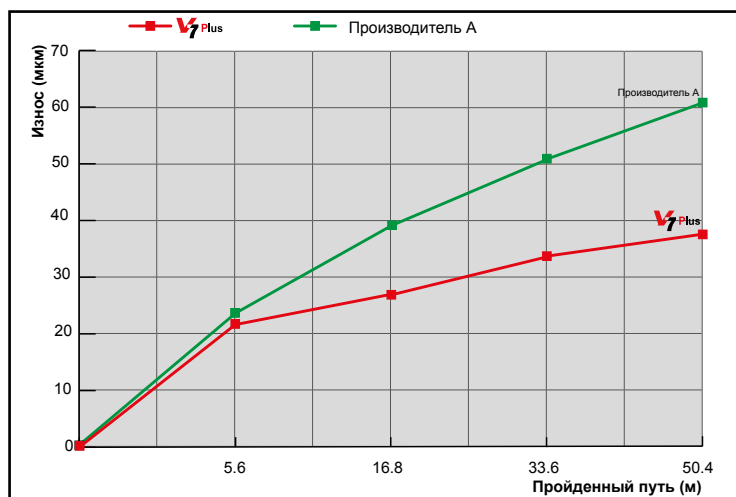
Специальная геометрия канавок для оптимального формирования и эвакуации стружки

Неравный шаг между зубьями и переменный угол спирали снижает вибрации для лучшей стабильности при тяжелой обработке и улучшения качества поверхности

Значительное увеличение производительности при обработке паза, контурной обработке с большими припусками и высокоскоростной обработке
Отличная производительность при обработке Стали, Чугуна и Нержавеющей Стали

ПРИМЕР ПРИМЕНЕНИЯ

	V7 Plus	Производитель А
Износ (мкм)	37.509	60.685
Пройденный путь (м)	50.4	50.4
Размер инструмента (мм)	$\varnothing 10 \times \varnothing 10 \times 22 \times 72$	
Материал заготовки	Нержавеющая сталь 08X18H10 DIN: X5CrNi18-10 (X4CrNi18-10) WR: 1.4303 ANSI: 304	
Скорость резания	100 мм/мин	
Частота вращения	3,183 об/мин	
Подача	509 мм/мин	
Подача на зуб	0.04мм/зуб	
Метод обработки	Попутное контурное фрезерование	
Глубина обработки	Осевая: 10мм Радиальная: 5мм	
Охлаждение	полив СОЖ	
Вылет из патрона	34мм	



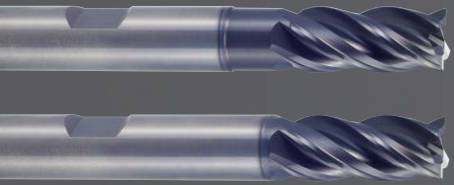
	Состояние режущей кромки			Стружка
V7 Plus				
Производитель А				

За более подробной информацией обращайтесь к представителю YG-1 или дистрибьютеру

YE-VP15



V7 Plus
SOLID CARBIDE END MILLS



V7 Plus
SOLID CARBIDE END MILLS

HIGH PERFORMANCE CARBIDE END MILLS
FOR STEEL, CAST IRON, STAINLESS STEEL



YG-1 CO., LTD.

HEAD OFFICE

211, Sewolcheon-ro, Bupyeong-gu, Incheon, Korea

PHONE : +82-32-526-0909, FAX : +82-32-526-4373

<http://www.yg1.kr>

E-mail: yg1@yg1.kr

Tool specifications are subject to change without prior notice.

YG1YEV150216

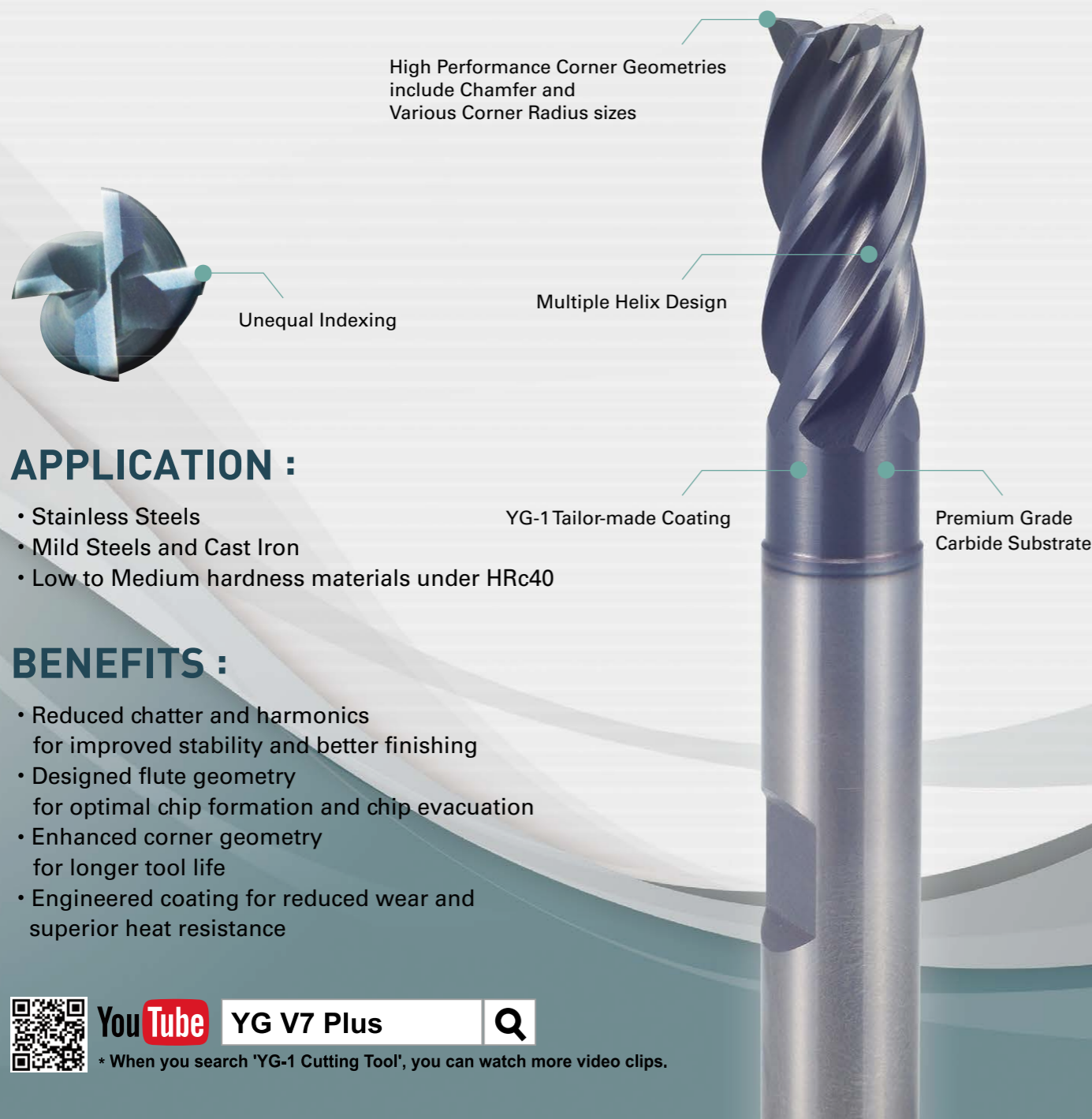
YG-1 CO., LTD.

V7 Plus

SOLID CARBIDE END MILLS

NEW ENGINEERED DESIGN!

The **V7 Plus** for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRC40 has a unique design that maximizes chip removal and improves productivity in slotting and heavy profiling operations. The **V7 Plus** advanced geometry reduces chatter for increased tool life and increased productivity.



APPLICATION :

- Stainless Steels
- Mild Steels and Cast Iron
- Low to Medium hardness materials under HRC40

BENEFITS :

- Reduced chatter and harmonics for improved stability and better finishing
- Designed flute geometry for optimal chip formation and chip evacuation
- Enhanced corner geometry for longer tool life
- Engineered coating for reduced wear and superior heat resistance

◎:Excellent ○:Good

ITEM	MODEL	DESCRIPTION	SIZE		Carbon Steels ~HB225	Alloy Steels HB225~352	Prehardened Steels HRC30~40	Hardened Steels HRC40~55	High Temperature Alloy HRC55~	Cast Iron	Titanium	Stainless Steels	PAGE
			Min.	Max.									
GMF52 GMF53		CARBIDE, 4 FLUTE SHORT	3.0	20.0	◎	◎	◎	○	○	◎	○	◎	6
GMF54 GMF55		CARBIDE, 4 FLUTE SHORT, CORNER RADIUS	3.0	20.0	◎	◎	◎	○	○	◎	○	◎	7
GMF56 GMF57		CARBIDE, 4 FLUTE LONG	3.0	25.0	◎	◎	◎	○	○	◎	○	◎	8
GMF58 GMF59		CARBIDE, 4 FLUTE LONG, CORNER RADIUS	3.0	25.0	◎	◎	◎	○	○	◎	○	◎	9
GMF60 GMF61		CARBIDE, 4 FLUTE with EXTENDED NECK	3.0	20.0	◎	◎	◎	○	○	◎	○	◎	10
GMF62 GMF63		CARBIDE, 4 FLUTE with EXTENDED NECK, CORNER RADIUS	3.0	20.0	◎	◎	◎	○	○	◎	○	◎	11

ICON GUIDE

	The tool is made of Micro grain carbide.
	4 - flute tool
	Multiple helix
	Type of shank
	Chamfer Angle
	Cutting condition of tool see the page 000

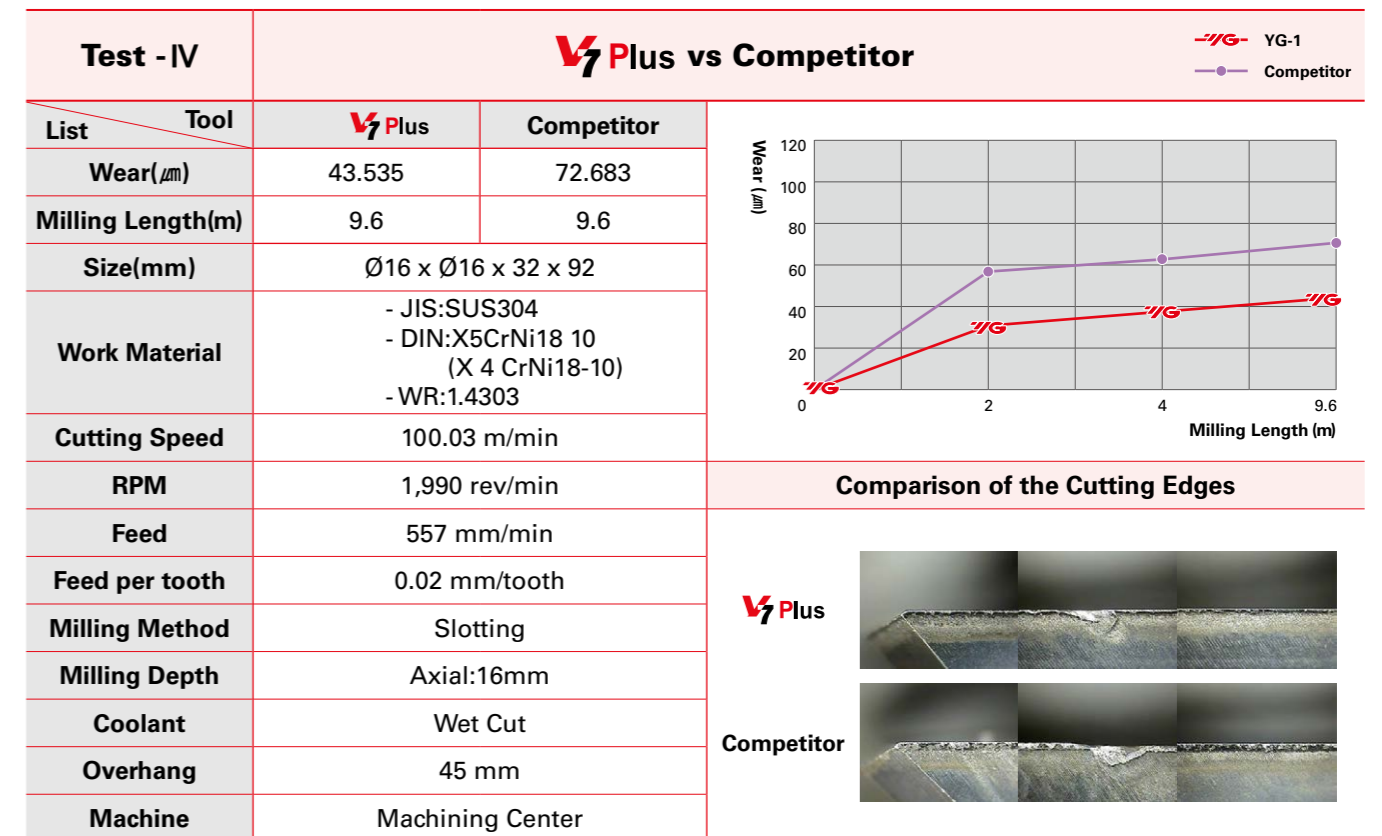
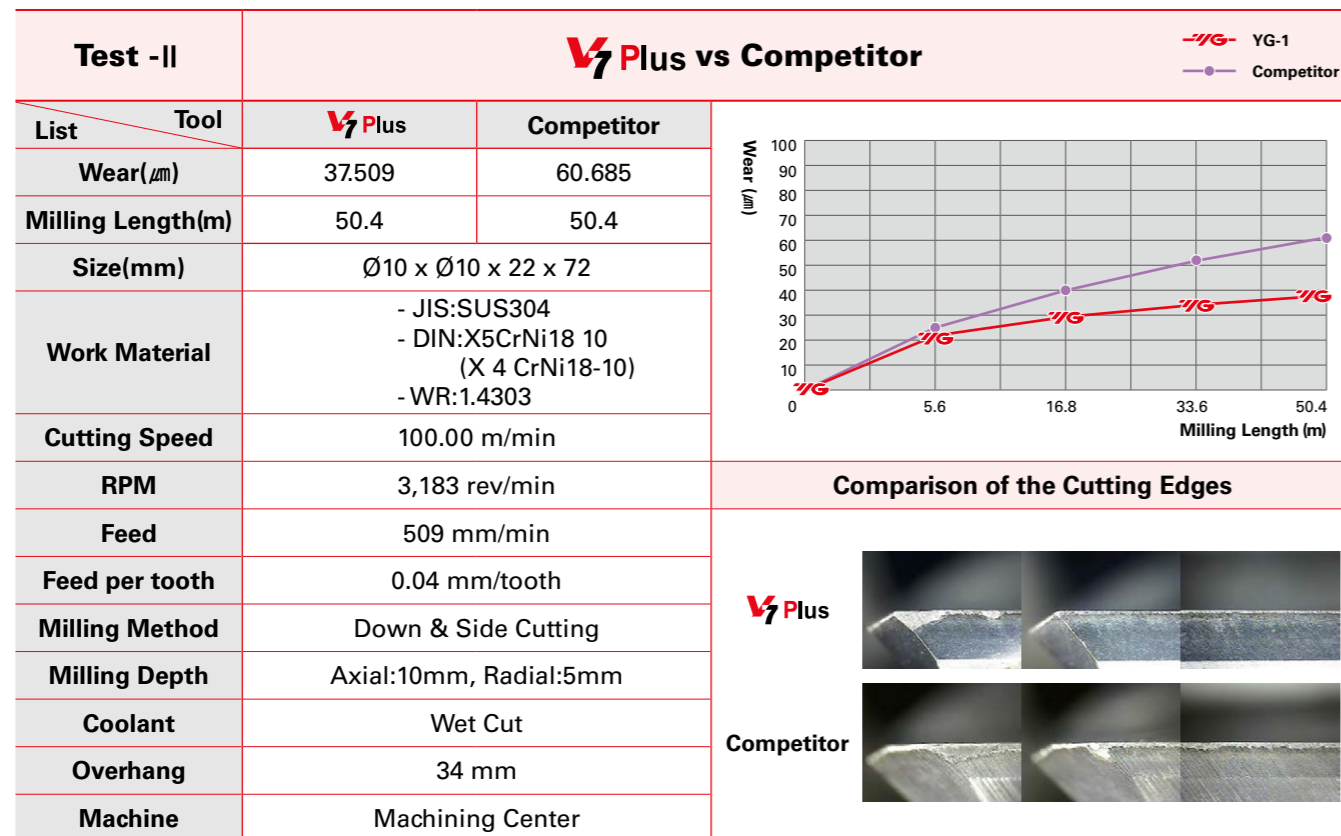
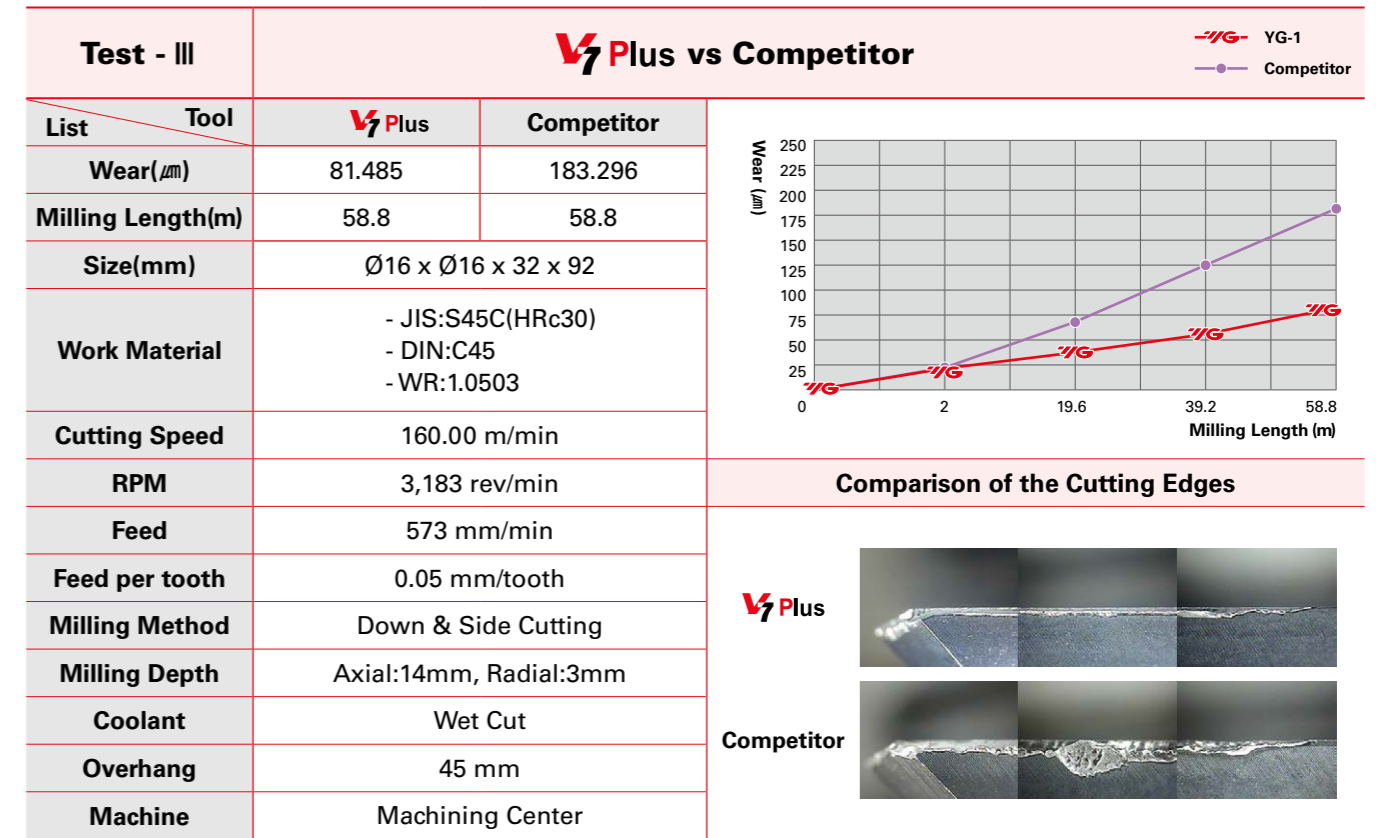
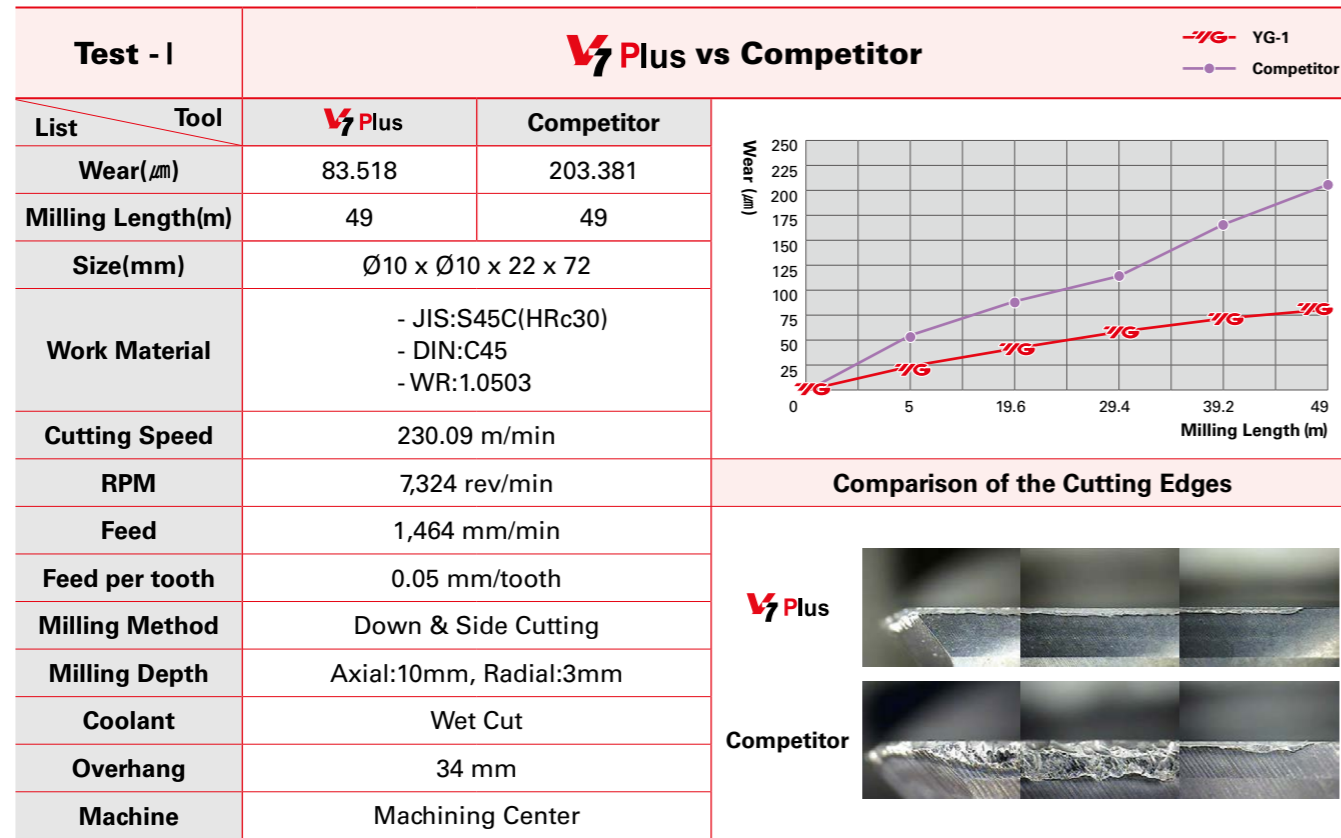


YouTube

YG V7 Plus

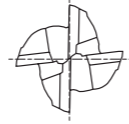


* When you search 'YG-1 Cutting Tool', you can watch more video clips.



YG CARBIDE, 4 FLUTE SHORT

- ▶ Special flute geometry and multiple helix eliminate vibrations
- ▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40



GMF52 / PLAIN SHANK
GMF53 / FLAT SHANK



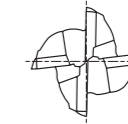
MILL DIA. TOLERANCE (mm)	SHANK DIA. TOLERANCE
0~-0.03	h6

Unit : mm

EDP No.		MILL DIAMETER	SHANK DIAMETER	LENGTH OF CUT	OVERALL LENGTH	CHAMFER
PLAIN	FLAT					
GMF52030	GMF53030	3.0	6	7	54	0.10
GMF52040	GMF53040	4.0	6	8	54	0.15
GMF52050	GMF53050	5.0	6	10	54	0.15
GMF52060	GMF53060	6.0	6	10	54	0.20
GMF52080	GMF53080	8.0	8	12	58	0.20
GMF52100	GMF53100	10.0	10	14	66	0.30
GMF52120	GMF53120	12.0	12	16	73	0.35
GMF52140	GMF53140	14.0	14	18	75	0.40
GMF52160	GMF53160	16.0	16	22	82	0.40
GMF52180	GMF53180	18.0	18	24	84	0.50
GMF52200	GMF53200	20.0	20	26	92	0.50

YG CARBIDE, 4 FLUTE SHORT CORNER RADIUS

- ▶ Special flute geometry and multiple helix eliminate vibrations
- ▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40



GMF54 / PLAIN SHANK
GMF55 / FLAT SHANK



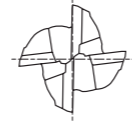
MILL DIA. TOLERANCE (mm)	SHANK DIA. TOLERANCE
0~-0.03	h6

Unit : mm

EDP No.		CORNER RADIUS	MILL DIAMETER	SHANK DIAMETER	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT					
GMF54030	GMF55030	R0.3	3.0	6	7	54
GMF54040	GMF55040	R0.3	4.0	6	8	54
GMF54050	GMF55050	R0.3	5.0	6	10	54
GMF54060	GMF55060	R0.3	6.0	6	10	54
GMF54904	GMF55904	R0.5		6	10	54
GMF54080	GMF55080	R0.5	8.0	8	12	58
GMF54100	GMF55100	R0.5	10.0	10	14	66
GMF54120	GMF55120	R0.5	12.0	12	16	73
GMF54140	GMF55140	R0.5	14.0	14	18	75
GMF54160	GMF55160	R1.0	16.0	16	22	82
GMF54180	GMF55180	R1.0	18.0	18	24	84
GMF54200	GMF55200	R1.0	20.0	20	26	92

YG CARBIDE, 4 FLUTE LONG

- ▶ Special flute geometry and multiple helix eliminate vibrations
- ▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40



GMF56 / PLAIN SHANK
GMF57 / FLAT SHANK



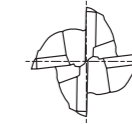
MILL DIA. TOLERANCE (mm)	SHANK DIA. TOLERANCE
0~-0.03	h6

Unit : mm

EDP No.		MILL DIAMETER	SHANK DIAMETER	LENGTH OF CUT	OVERALL LENGTH	CHAMFER
PLAIN	FLAT					
GMF56030	GMF57030	3.0	6	8	57	0.10
GMF56040	GMF57040	4.0	6	11	57	0.15
GMF56050	GMF57050	5.0	6	13	57	0.15
GMF56060	GMF57060	6.0	6	13	57	0.20
GMF56080	GMF57080	8.0	8	19	63	0.20
GMF56100	GMF57100	10.0	10	22	72	0.30
GMF56120	GMF57120	12.0	12	26	83	0.35
GMF56140	GMF57140	14.0	14	26	83	0.40
GMF56160	GMF57160	16.0	16	32	92	0.40
GMF56180	GMF57180	18.0	18	32	92	0.50
GMF56200	GMF57200	20.0	20	38	104	0.50
GMF56250	GMF57250	25.0	25	38	104	0.50

YG CARBIDE, 4 FLUTE LONG CORNER RADIUS

- ▶ Special flute geometry and multiple helix eliminate vibrations
- ▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40



GMF58 / PLAIN SHANK
GMF59 / FLAT SHANK



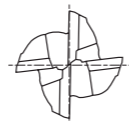
MILL DIA. TOLERANCE (mm)	SHANK DIA. TOLERANCE
0~-0.03	h6

Unit : mm

EDP No.		CORNER RADIUS	MILL DIAMETER	SHANK DIAMETER	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT					
GMF58030	GMF59030	R0.3	3.0	6	8	57
GMF58040	GMF59040	R0.3	4.0	6	11	57
GMF58050	GMF59050	R0.3	5.0	6	13	57
GMF58060	GMF59060	R0.3	6.0	6	13	57
GMF58904	GMF59904	R0.5		6	13	57
GMF58905	GMF59905	R1.0	8.0	6	13	57
GMF58080	GMF59080	R0.5		8	19	63
GMF58906	GMF59906	R1.0	10.0	8	19	63
GMF58100	GMF59100	R0.5		10	22	72
GMF58120	GMF59120	R0.5	12.0	12	26	83
GMF58140	GMF59140	R0.5	14.0	14	26	83
GMF58160	GMF59160	R1.0	16.0	16	32	92
GMF58913	GMF59913	R3.0		16	32	92
GMF58180	GMF59180	R1.0	18.0	18	32	92
GMF58200	GMF59200	R1.0	20.0	20	38	104
GMF58250	GMF59250	R1.0	25.0	25	38	104

YG CARBIDE, 4 FLUTE with EXTENDED NECK

- ▶ Special flute geometry and multiple helix eliminate vibrations
- ▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40



GMF60 / PLAIN SHANK
GMF61 / FLAT SHANK



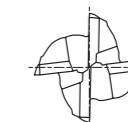
MILL DIA. TOLERANCE (mm)	SHANK DIA. TOLERANCE
0~0.03	h6

Unit : mm

EDP No.		MILL DIAMETER	SHANK DIAMETER	LENGTH OF CUT	LENGTH BELOW SHANK	OVERALL LENGTH	NECK DIAMETER	CHAMFER
PLAIN	FLAT							
GMF60030	GMF61030	3.0	6	7	12	54	2.7	0.10
GMF60901	GMF61901		6	7	17	57	2.7	0.10
GMF60902	GMF61902		6	8	14	57	2.7	0.10
GMF60040	GMF61040	4.0	6	8	15	57	3.7	0.15
GMF60903	GMF61903		6	8	22	63	3.7	0.15
GMF60904	GMF61904		6	11	16	57	3.7	0.15
GMF60050	GMF61050	5.0	6	10	17	57	4.7	0.15
GMF60905	GMF61905		6	10	27	67	4.7	0.15
GMF60906	GMF61906		6	13	18	57	4.7	0.15
GMF60060	GMF61060	6.0	6	10	15	57	5.5	0.20
GMF60907	GMF61907		6	10	20	62	5.5	0.20
GMF60908	GMF61908		6	10	32	74	5.5	0.20
GMF60909	GMF61909	8.0	6	13	21	57	5.5	0.20
GMF60080	GMF61080		8	12	20	63	7.5	0.20
GMF60910	GMF61910		8	12	30	73	7.5	0.20
GMF60911	GMF61911	10.0	8	12	46	90	7.5	0.20
GMF60912	GMF61912		8	19	27	63	7.5	0.20
GMF60100	GMF61100		10	14	25	72	9.2	0.30
GMF60913	GMF61913	12.0	10	14	35	82	9.2	0.30
GMF60914	GMF61914		10	14	55	102	9.2	0.30
GMF60915	GMF61915		10	22	32	72	9.2	0.30
GMF60120	GMF61120	16.0	12	16	30	83	11.0	0.35
GMF60916	GMF61916		12	16	40	93	11.0	0.35
GMF60917	GMF61917		12	16	64	117	11.0	0.35
GMF60918	GMF61918	20.0	12	26	38	83	11.0	0.35
GMF60160	GMF61160		16	22	38	92	15.0	0.40
GMF60919	GMF61919		16	22	55	109	15.0	0.40
GMF60920	GMF61920	20.0	16	22	87	141	15.0	0.40
GMF60921	GMF61921		16	32	44	92	15.0	0.40
GMF60200	GMF61200		20	26	50	104	19.0	0.50
GMF60922	GMF61922	20.0	20	26	70	124	19.0	0.50
GMF60923	GMF61923		20	26	110	164	19.0	0.50
GMF60924	GMF61924	20	38	54	104	19.0	0.50	

YG CARBIDE, 4 FLUTE with EXTENDED NECK CORNER RADIUS

- ▶ Special flute geometry and multiple helix eliminate vibrations
- ▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40



GMF62 / PLAIN SHANK
GMF63 / FLAT SHANK



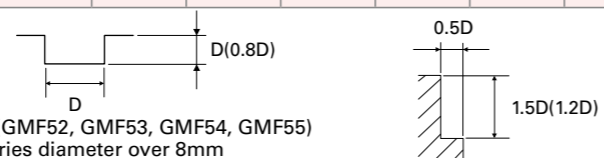
MILL DIA. TOLERANCE (mm)	SHANK DIA. TOLERANCE
0~0.03	h6

Unit : mm

EDP No.		CORNER RADIUS	MILL DIAMETER	SHANK DIAMETER	LENGTH OF CUT	LENGTH BELOW SHANK	OVERALL LENGTH	NECK DIAMETER
PLAIN	FLAT							
GMF62030	GMF63030	R0.3	3.0	6	7	12	54	2.7
GMF62902	GMF63902	R0.3		6	7	17	57	2.7
GMF62040	GMF63040	R0.3		6	8	15	57	3.7
GMF62905	GMF63905	R0.3	4.0	6	8	22	63	3.7
GMF62050	GMF63050	R0.3		6	10	17	57	4.7
GMF62908	GMF63908	R0.3		6	10	27	67	4.7
GMF62910	GMF63910	R0.5	5.0	6	10	15	57	5.5
GMF62913	GMF63913	R0.5		6	10	20	62	5.5
GMF62916	GMF63916	R0.5		6	10	32	74	5.5
GMF62080	GMF63080	R0.5	6.0	8	12	20	63	7.5
GMF62919	GMF63919	R0.5		8	12	30	73	7.5
GMF62921	GMF63921	R0.5		8	12	46	90	7.5
GMF62100	GMF63100	R0.5	8.0	10	14	25	72	9.2
GMF62924	GMF63924	R0.5		10	14	35	82	9.2
GMF62926	GMF63926	R0.5		10	14	55	102	9.2
GMF62120	GMF63120	R0.5	10.0	12	16	30	83	11.0
GMF62930	GMF63930	R0.5		12	16	40	93	11.0
GMF62933	GMF63933	R0.5		12	16	64	117	11.0
GMF62160	GMF63160	R1.0	12.0	16	22	38	92	15.0
GMF62938	GMF63938	R1.0		16	22	55	109	15.0
GMF62941	GMF63941	R1.0		16	22	87	141	15.0
GMF62200	GMF63200	R1.0	16.0	20	26	50	104	19.0
GMF62946	GMF63946	R1.0		20	26	70	124	19.0
GMF62949	GMF63949	R1.0		20	26	110	164	19.0

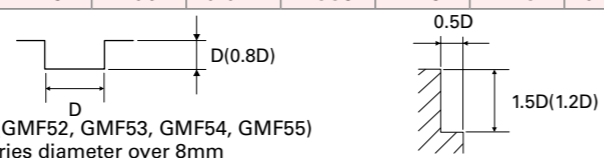
MATERIAL	P											
	CARBON STEEL 1.1191(C45) 1.0726(35 S 20) 1.0715(9 SMn 28) 1.0718(9 SMnPb 28)				ALLOY STEEL 1.2330(35 CrMo 4) 1.6565(40NiCrMo6) 1.7033(34Cr4) 1.6523(2 NiCrMo2)				TOOL STEEL 1.2363(X100 CrMoV 5 1) 1.2379(X 155 CrVMo 12 1) 1.2344(X 40 CrMoV 5 1) 1.3243(S 6-5-2-5)			
HARDNESS	~ HB 300				HB 300 ~ HB 380				~ HB 380			
STRENGTH	~ 1000N/mm ²				1000N/mm ² ~ 1300N/mm ²				~ 1300N/mm ²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
3.0	16170	330	152	0.005	11315	230	107	0.005	6790	95	64	0.003
4.0	12125	395	152	0.008	8485	275	107	0.008	5090	115	64	0.006
5.0	9700	445	152	0.011	6790	310	107	0.011	4075	130	64	0.008
6.0	8080	520	152	0.016	5655	365	107	0.016	3395	150	64	0.011
8.0	6060	665	152	0.027	4240	460	107	0.027	2545	190	64	0.019
10.0	5345	820	168	0.038	3740	575	117	0.038	2240	240	70	0.027
12.0	4450	835	168	0.047	3100	580	117	0.047	1860	240	70	0.032
14.0	3815	745	168	0.049	2670	520	117	0.049	1600	215	70	0.034
16.0	3340	710	168	0.053	2330	490	117	0.053	1400	205	70	0.037
18.0	2970	700	168	0.059	2075	490	117	0.059	1245	205	70	0.041
20.0	2670	695	168	0.065	1870	485	117	0.065	1120	200	70	0.045
25.0	2140	550	168	0.064	1495	380	117	0.064	895	160	70	0.045

* () : Short length & Neck type
0.8xD(Slotting), 1.2xD(Side Cutting) Axial
cutting depth should be applied for Short length(GMF52, GMF53, GMF54, GMF55)
& Neck type(GMF60, GMF61, GMF62, GMF63) series diameter over 8mm



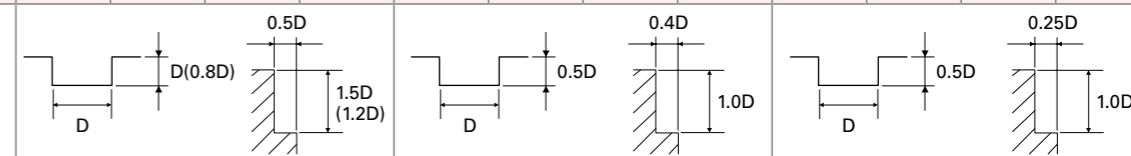
MATERIAL	K				M							
	CAST IRON 0.6020(GG20) 0.8145(GTS-45-06) 0.7060(GGG-60)				STAINLESS STEELS 300 1.4301(X 5 CrNi 18 9) 1.4436(X 5 CrNiMo 17 13 3) 1.4306(X2CrNi18 9) 1.4435(X2 CrNiMo18 14 3)				STAINLESS STEELS 400 1.4005(X12CrS 13) 1.4104(X12CrMoS17)			
HARDNESS	~ HB 260											
STRENGTH	~ 870N/mm ²											
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
3.0	11880	300	112	0.006	11205	210	106	0.005	15690	225	148	0.004
4.0	8910	360	112	0.010	8400	275	106	0.008	11740	280	148	0.006
5.0	7130	405	112	0.014	6725	340	106	0.013	9405	340	148	0.009
6.0	5940	480	112	0.020	5605	395	106	0.018	7845	395	148	0.013
8.0	4455	600	112	0.034	4205	475	106	0.028	5880	510	148	0.022
10.0	3930	755	123	0.048	3365	645	106	0.048	4705	640	148	0.034
12.0	3255	760	123	0.058	2800	620	106	0.055	3925	620	148	0.039
14.0	2805	680	123	0.061	2400	570	106	0.059	3365	570	148	0.042
16.0	2450	640	123	0.065	2105	525	106	0.062	2940	525	148	0.045
18.0	2180	640	123	0.073	1870	520	106	0.070	2615	520	148	0.050
20.0	1965	635	123	0.081	1680	515	106	0.077	2355	515	148	0.055
25.0	1570	495	123	0.079	1345	415	106	0.077	1885	415	148	0.055

* () : Short length & Neck type
0.8xD(Slotting), 1.2xD(Side Cutting) Axial
cutting depth should be applied for Short length(GMF52, GMF53, GMF54, GMF55)
& Neck type(GMF60, GMF61, GMF62, GMF63) series diameter over 8mm



RPM = rev./min., Feed = mm/min.
Vc = m/min., fz = mm/tooth

MATERIAL	M				S							
	STAINLESS STEELS (PH) 1.4545(Z7 CNU15.05)				TITANIUM Ti6Al4V Ti5Al5V5Mo Ti7Al4Mo				HIGH TEMPERATURE ALLOY INCONEL HASTELLOY RENE			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
3.0	10085	185	95	0.005	6165	100	58	0.004	2805	35	26	0.003
4.0	7560	245	95	0.008	4620	135	58	0.007	2100	45	26	0.005
5.0	6055	305	95	0.013	3700	165	58	0.011	1685	55	26	0.008
6.0	5045	355	95	0.018	3085	195	58	0.016	1405	65	26	0.012
8.0	3785	425	95	0.028	2315	235	58	0.025	1050	80	26	0.019
10.0	3030	580	95	0.048	1855	315	58	0.042	840	110	26	0.033
12.0	2520	555	95	0.055	1540	305	58	0.050	700	105	26	0.038
14.0	2160	510	95	0.059	1320	280	58	0.053	600	95	26	0.040
16.0	1895	470	95	0.062	1160	255	58	0.055	525	90	26	0.043
18.0	1685	465	95	0.069	1030	255	58	0.062	465	90	26	0.048
20.0	1515	460	95	0.076	925	250	58	0.068	420	90	26	0.054
25.0	1215	370	95	0.076	740	205	58	0.069	335	70	26	0.052



RPM = rev./min.
Feed = mm/min.
Vc = m/min.
fz = mm/tooth

MEMO

HIGH QUALITY PRODUCTS AND ON TIME DELIVERY FOR WORLD-WIDE CUSTOMERS

Since 1982, our commitment to quality, reliability and striving for constant innovation has allowed us to expand our market share and our partners' global network. As one of the main leading tool manufacturers, we are dedicated in offering a unique customer experience by delivering high quality cutting tool solutions around the world. In order to be responsive and to offer local solutions, YG-1 has established a global network over 75 countries and has set up international logistic centers. This is our pledge to provide the best service in order to satisfy our customers' needs at all time.



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YU-VP15

BEST VALUE IN THE WORLD OF CUTTING TOOLS






V7 Plus *A*

HIGH PERFORMANCE CARBIDE END MILLS
FOR STEEL, CAST IRON, STAINLESS STEEL



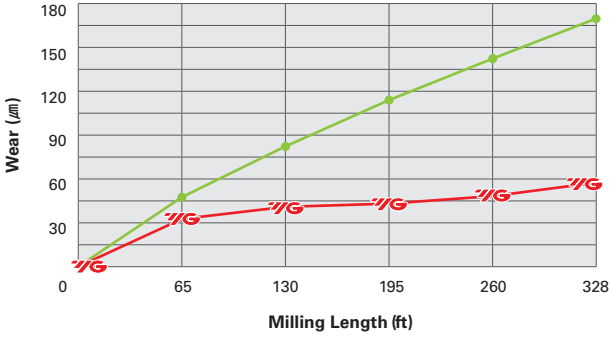


MADE IN
USA ★

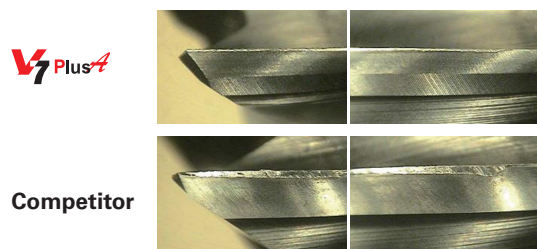
YG YG-1 CO., LTD.

NO.	MODEL	DESCRIPTION
UGMF68 UGMF69		CARBIDE, 4 FLUTE
UGMF70 UGMF71		CARBIDE, 4 FLUTE CORNER RADIUS
UGMF72 UGMF73		CARBIDE, 4 FLUTE with EXTENDED NECK
UGMF74 UGMF75		CARBIDE, 4 FLUTE with EXTENDED NECK, CORNER RADIUS
UGMF76 UGMF77		CARBIDE, 4 FLUTE

CASE STUDY 1

Test - I		 > Competitor		 V7 PLUS A	 Competitor
List	Tool		Competitor		
Wear (µm)		56.26	168.943		
Size		Ø6 x Ø6 x 12 x 50	Ø6 x Ø6 x 15 x 50		
Milling Length		328 ft			
Work Material		- JIS: SKD61 (HRc 30) - DIN: X40CrMoV51 (1.2344)	- AISI: H31		
Cutting Speed		293 ft/min			
RPM		4,750rev/min			
Feed		44.09 inch/min			
Feed per tooth		.002 inch/tooth			
Milling Method		Down & Side Cutting			
Milling Depth		Axial: .236, Radial: .012(inch)			
Coolant		Oil Mist			
Overhang		.787 inch			
Machine		Machining Center			





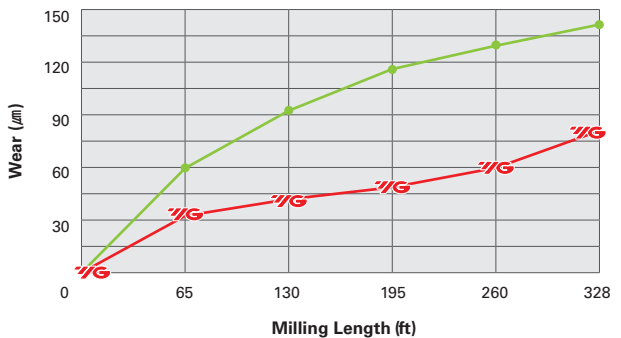
Comparison of the Cutting Edges




◎:Excellent ○:Good

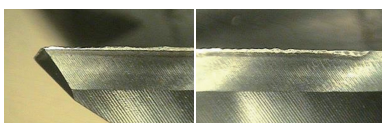
SIZE		Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels	Copper	High Temperature Alloy	Cast Iron	Titanium	Stainless Steels	PAGE
MIN	MAX	~HB225	HB225~352	HRc30~40	HRc40~45						
1/8 11/32	1	◎	◎	◎	○		○	◎	○	◎	5
1/8 3/8	1	◎	◎	◎	○		○	◎	○	◎	6
1/4 3/8	1	◎	◎	◎	○		○	◎	○	◎	8
1/4 3/8	1	◎	◎	◎	○		○	◎	○	◎	9
3/8	1	◎	◎	◎	○		○	◎	○	◎	10

CASE STUDY 2

Test - II		 > Competitor		 V7 PLUS A	 Competitor
List	Tool		Competitor		
Wear (µm)		81.064	140.470		
Size		Ø10 x Ø10 x 20 x 75	Ø10 x Ø10 x 25 x 75		
Milling Length		328 ft			
Work Material		- JIS: SKD61 (HRc 30) - DIN: X40CrMoV51 (1.2344)	- AISI: H31		
Cutting Speed		283 ft/min			
RPM		2,750rev/min			
Feed		40.94 inch/min			
Feed per tooth		.004 inch/tooth			
Milling Method		Down & Side Cutting			
Milling Depth		Axial: .394, Radial: .020(inch)			
Coolant		Oil Mist			
Overhang		1.102 inch			
Machine		Machining Center			

Comparison of the Cutting Edges





Competitor



ICON GUIDE



The tool is made of Micro grain carbide.



4 - flute tool



Multiple helix



Type of shank



Chamfer Angle



Cutting condition of tool see page 000

V7 Plus^A NEW ENGINEERED DESIGN!

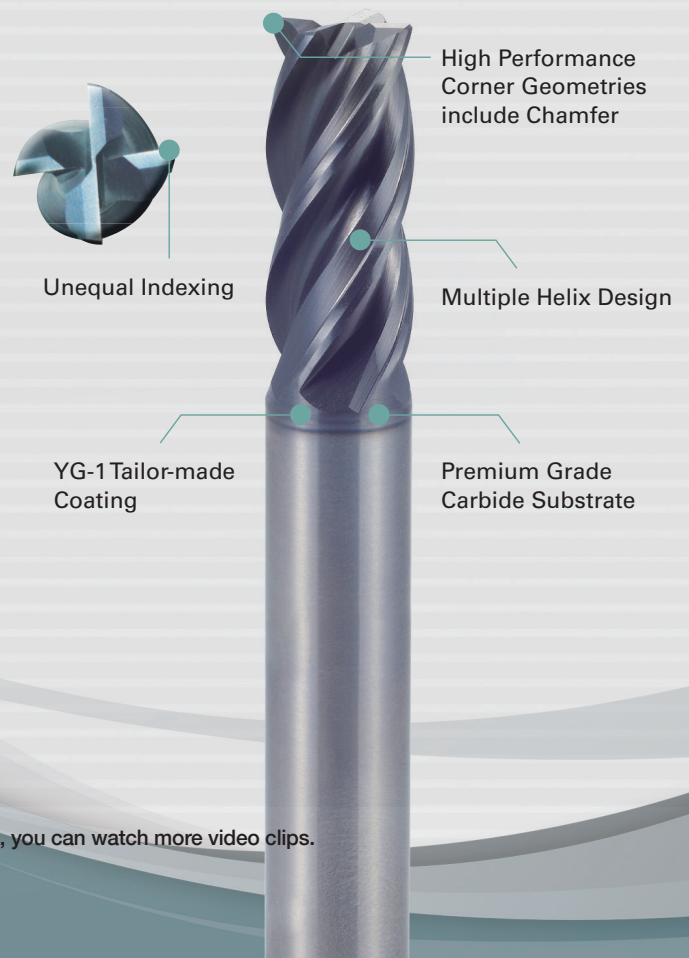
The **V7 Plus^A** for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40 has a unique design that maximizes chip removal and improves productivity in slotting and heavy profiling operations. The **V7 Plus^A** advanced geometry reduces chatter for increased tool life and increased productivity.

APPLICATION :

- Stainless Steels
- Mild Steels and Cast Iron
- Low to Medium hardness materials under HRc40

BENEFITS :

- Reduced chatter and harmonics for improved stability and better finishing
- Designed flute geometry for optimal chip formation and chip evacuation
- Enhanced corner geometry for longer tool life
- Engineered coating for reduced wear and superior heat resistance



YouTube

YG V7 Plus



* When you search 'YG-1 Cutting Tool' or 'YG-1 CO., LTD.', you can watch more video clips.

CARBIDE, 4 FLUTE

- ▶ Special flute geometry and multiple helix eliminate vibrations
- ▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40



UGMF68 / PLAIN SHANK

UGMF69 / FLAT SHANK

**MADE IN
USA**



Mill Dia. Tolerance (inch)	Shank Dia. Tolerance (inch)
0~-.0012	h6

Unit : inch

EDP No.		MILL DIAMETER	SHANK DIAMETER	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT				
UGMF68008	-	1/8	1/8	1/8	1-1/2
UGMF68901	-		1/8	3/8	1-1/2
UGMF68010	-	5/32	3/16	3/16	2
UGMF68902	-		3/16	7/16	2
UGMF68012	-	3/16	3/16	3/16	2
UGMF68903	-		3/16	7/16	2
UGMF68014	-	7/32	1/4	1/4	2
UGMF68904	-		1/4	7/16	2-1/2
UGMF68016	-	1/4	1/4	3/8	2
UGMF68905	-		1/4	3/4	2-1/2
UGMF68018	-	9/32	5/16	5/8	2-1/2
UGMF68020	-		5/16	7/16	2
UGMF68906	-	5/16	5/16	13/16	2-1/2
UGMF68022	UGMF69022	11/32	3/8	1/2	2-1/2
UGMF68024	UGMF69024	3/8	3/8	1/2	2-1/2
UGMF68907	UGMF69907		3/8	7/8	2-1/2
UGMF68028	UGMF69028	7/16	7/16	5/8	2-1/2
UGMF68908	UGMF69908		7/16	1	2-3/4
UGMF68032	UGMF69032	1/2	1/2	5/8	2-1/2
UGMF68909	UGMF69909		1/2	1	3
UGMF68910	UGMF69910	5/8	1/2	1-1/4	3-1/2
UGMF68040	UGMF69040		5/8	3/4	3
UGMF68911	UGMF69911	3/4	5/8	1-1/4	3-1/2
UGMF68048	UGMF69048		3/4	3/4	3
UGMF68912	UGMF69912	1	3/4	1-1/2	4
UGMF68064	UGMF69064		1	1	4
UGMF68913	UGMF69913	1	1	1-1/2	4
UGMF68914	UGMF69914		1	2	5

CARBIDE, 4 FLUTE CORNER RADIUS

- ▶ Special flute geometry and multiple helix eliminate vibrations
- ▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40



UGMF70 / PLAIN SHANK

UGMF71 / FLAT SHANK

**MADE IN
USA**



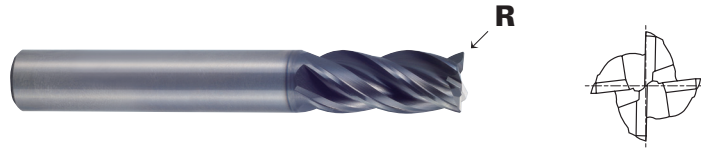
Mill Dia. Tolerance (inch)	Shank Dia. Tolerance (inch)
0~-.0012	h6

Unit : inch

EDP No.		CORNER RADIUS	MILL DIAMETER	SHANK DIAMETER	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT					
UGMF70008	-	R.010	1/8	1/8	1/8	1-1/2
UGMF70901	-			1/8	3/8	1-1/2
UGMF70902	-			R.030	1/8	3/8
UGMF70012	-	R.010	3/16	3/16	3/16	2
UGMF70903	-			3/16	7/16	2
UGMF70904	-			R.030	3/16	7/16
UGMF70016	-	R.010	1/4	1/4	3/8	2
UGMF70905	-	R.030		1/4	3/8	2
UGMF70906	-	R.060		1/4	3/8	2
UGMF70907	-	R.010		1/4	3/4	2-1/2
UGMF70908	-	R.015		1/4	3/4	2-1/2
UGMF70909	-	R.030		1/4	3/4	2-1/2
UGMF70020	-	R.030	5/16	5/16	7/16	2
UGMF70910	-	R.010		5/16	13/16	2-1/2
UGMF70911	-	R.030		5/16	13/16	2-1/2
UGMF70912	-	R.060		5/16	13/16	2-1/2
UGMF70024	UGMF71024	R.010	3/8	3/8	1/2	2-1/2
UGMF70913	UGMF71913	R.030		3/8	1/2	2-1/2
UGMF70914	UGMF71914	R.060		3/8	1/2	2-1/2
UGMF70915	UGMF71915	R.010		3/8	7/8	2-1/2
UGMF70916	UGMF71916	R.030		3/8	7/8	2-1/2
UGMF70917	UGMF71917	R.060		3/8	7/8	2-1/2
UGMF70028	UGMF71028	R.015	7/16	7/16	5/8	2-1/2
UGMF70918	UGMF71918	R.030		7/16	5/8	2-1/2
UGMF70919	UGMF71919	R.010		7/16	1	2-3/4
UGMF70920	UGMF71920	R.030		7/16	1	2-3/4
UGMF70921	UGMF71921	R.060		7/16	1	2-3/4
UGMF70032	UGMF71032	R.010	1/2	1/2	5/8	2-1/2
UGMF70922	UGMF71922	R.015		1/2	5/8	2-1/2
UGMF70923	UGMF71923	R.030		1/2	5/8	2-1/2
UGMF70924	UGMF71924	R.060		1/2	5/8	2-1/2
UGMF70925	UGMF71925	R.010		1/2	1	3

CARBIDE, 4 FLUTE CORNER RADIUS

- ▶ Special flute geometry and multiple helix eliminate vibrations
- ▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40



UGMF70 / PLAIN SHANK

UGMF71 / FLAT SHANK

**MADE IN
USA**



Mill Dia. Tolerance (inch)	Shank Dia. Tolerance (inch)
0~-.0012	h6

Unit : inch

EDP No.		CORNER RADIUS	MILL DIAMETER	SHANK DIAMETER	LENGTH OF CUT	OVERALL LENGTH
PLAIN	FLAT					
UGMF70926	UGMF71926	R.030	1/2	1/2	1	3
UGMF70927	UGMF71927	R.060		1/2	1	3
UGMF70928	UGMF71928	R.125		1/2	1	3
UGMF70929	UGMF71929	R.010		1/2	1-1/4	3-1/2
UGMF70930	UGMF71930	R.015		1/2	1-1/4	3-1/2
UGMF70931	UGMF71931	R.030		1/2	1-1/4	3-1/2
UGMF70932	UGMF71932	R.060		1/2	1-1/4	3-1/2
UGMF70933	UGMF71933	R.125		1/2	1-1/4	3-1/2
UGMF70040	UGMF71040	R.010		5/8	5/8	3/4
UGMF70934	UGMF71934	R.030	5/8		3/4	3
UGMF70935	UGMF71935	R.060	5/8		3/4	3
UGMF70936	UGMF71936	R.010	5/8		1-1/4	3-1/2
UGMF70937	UGMF71937	R.015	5/8		1-1/4	3-1/2
UGMF70938	UGMF71938	R.030	5/8		1-1/4	3-1/2
UGMF70939	UGMF71939	R.060	5/8		1-1/4	3-1/2
UGMF70940	UGMF71940	R.125	5/8		1-1/4	3-1/2
UGMF70048	UGMF71048	R.030	3/4		3/4	3/4
UGMF70941	UGMF71941	R.060		3/4	3/4	3
UGMF70942	UGMF71942	R.015		3/4	1-1/2	4
UGMF70943	UGMF71943	R.030		3/4	1-1/2	4
UGMF70944	UGMF71944	R.060		3/4	1-1/2	4
UGMF70945	UGMF71945	R.125		3/4	1-1/2	4
UGMF70064	UGMF71064	R.015	1	1	1	4
UGMF70946	UGMF71946	R.030		1	1	4
UGMF70947	UGMF71947	R.060		1	1	4
UGMF70948	UGMF71948	R.015		1	1-1/2	4
UGMF70949	UGMF71949	R.030		1	1-1/2	4
UGMF70950	UGMF71950	R.060		1	1-1/2	4
UGMF70951	UGMF71951	R.125		1	1-1/2	4
UGMF70952	UGMF71952	R.015		1	2	5
UGMF70953	UGMF71953	R.030		1	2	5
UGMF70954	UGMF71954	R.060		1	2	5

CARBIDE, 4 FLUTE with EXTENDED NECK

- ▶ Special flute geometry and multiple helix eliminate vibrations
- ▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40



UGMF72 / PLAIN SHANK

UGMF73 / FLAT SHANK

**MADE IN
USA**



P.11~12

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance (inch)
0~-0.0012	h6

Unit : inch

EDP No.		MILL DIAMETER	SHANK DIAMETER	LENGTH OF CUT	LENGTH BELOW SHANK	OVERALL LENGTH
PLAIN	FLAT					
UGMF72016	-	1/4	1/4	3/8	3/4	4
UGMF72901	-		1/4	3/8	1-1/8	4
UGMF72902	-		1/4	3/8	2-1/8	4
UGMF72024	UGMF73024	3/8	3/8	1/2	1-1/8	4
UGMF72903	UGMF73903		3/8	1/2	2-1/8	4
UGMF72904	UGMF73904		3/8	1/2	3-1/8	6
UGMF72032	UGMF73032	1/2	1/2	5/8	1-1/2	4
UGMF72905	UGMF73905		1/2	5/8	2-1/4	4
UGMF72906	UGMF73906		1/2	5/8	3-3/8	6
UGMF72040	UGMF73040	5/8	5/8	3/4	1-5/8	4
UGMF72907	UGMF73907		5/8	3/4	2-3/8	6
UGMF72908	UGMF73908		5/8	3/4	3-3/8	6
UGMF72048	UGMF73048	3/4	3/4	1	2	4
UGMF72909	UGMF73909		3/4	1	3	6
UGMF72910	UGMF73910		3/4	1	4	6
UGMF72064	UGMF73064	1	1	1-1/8	2	4
UGMF72911	UGMF73911		1	1-1/8	3	6
UGMF72912	UGMF73912		1	1-1/8	4	6



CARBIDE, 4 FLUTE with EXTENDED NECK, CORNER RADIUS

- ▶ Special flute geometry and multiple helix eliminate vibrations
- ▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40



UGMF74 / PLAIN SHANK

UGMF75 / FLAT SHANK

MADE IN USA



P.11~12

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance (inch)
0~-.0012	h6

Unit : inch

EDP No.		CORNER RADIUS	MILL DIAMETER	SHANK DIAMETER	LENGTH OF CUT	LENGTH BELOW SHANK	OVERALL LENGTH
PLAIN	FLAT						
UGMF74016	-	R.015	1/4	1/4	3/8	3/4	4
UGMF74901	-			1/4	3/8	1-1/8	4
UGMF74902	-			1/4	3/8	2-1/8	4
UGMF74024	UGMF75024	R.030	3/8	3/8	1/2	1-1/8	4
UGMF74903	UGMF75903			3/8	1/2	2-1/8	4
UGMF74904	UGMF75904			3/8	1/2	3-1/8	6
UGMF74032	UGMF75032	R.030	1/2	1/2	5/8	1-1/2	4
UGMF74905	UGMF75905			1/2	5/8	2-1/4	4
UGMF74906	UGMF75906			1/2	5/8	3-3/8	6
UGMF74040	UGMF75040	R.030	5/8	5/8	3/4	1-5/8	4
UGMF74907	UGMF75907			5/8	3/4	2-3/8	6
UGMF74908	UGMF75908			5/8	3/4	3-3/8	6
UGMF74048	UGMF75048	R.030	3/4	3/4	1	2	4
UGMF74909	UGMF75909			3/4	1	3	6
UGMF74910	UGMF75910			3/4	1	4	6
UGMF74064	UGMF75064	R.030	1	1	1-1/8	2	4
UGMF74911	UGMF75911			1	1-1/8	3	6
UGMF74912	UGMF75912			1	1-1/8	4	6

CARBIDE, 4 FLUTE

- ▶ Special flute geometry and multiple helix eliminate vibrations
- ▶ Excellent performance for Stainless Steels, Mild Steels, Cast Iron, Low/Medium hardness materials under HRc40



UGMF76 / PLAIN SHANK

UGMF77 / FLAT SHANK

**MADE IN
USA**



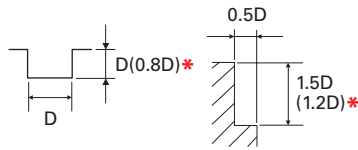
Mill Dia. Tolerance (inch)	Shank Dia. Tolerance (inch)
0~-.0012	h6

Unit : inch

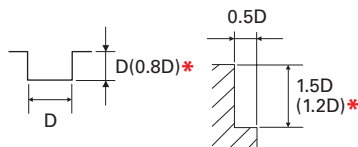
EDP No.		MILL DIAMETER	SHANK DIAMETER	LENGTH OF CUT	OVERALL LENGTH	CHAMFER
PLAIN	FLAT					
UGMF76024	UGMF77024	3/8	3/8	7/8	2-1/2	.011
UGMF76032	UGMF77032	1/2	1/2	5/8	2-1/2	.013
UGMF76901	UGMF77901		1/2	1-1/4	3-1/2	.013
UGMF76040	UGMF77040	5/8	5/8	1-1/4	3-1/2	.015
UGMF76048	UGMF77048	3/4	3/4	1-1/2	4	.019
UGMF76064	UGMF77064	1	1	1-1/2	4	.019

CUTTING CONDITION

MATERIAL	P											
	CARBON STEELS				ALLOY STEELS				TOOL STEELS			
	10**, 11**, 12**, 12L**, 15**				41**, 43**, 51**, 86**				A2, D2, H13, P20, T15			
HARDNESS	~ HB 300				HB 300 ~ HB 380				~ HB 380			
STRENGTH	~ 1000N/mm ²				1000N/mm ² ~ 1300N/mm ²				~ 1300N/mm ²			
DIAMETER	RPM	FEED	SFM	Fz	RPM	FEED	SFM	Fz	RPM	FEED	Vc	Fz
1/8	16170	13.0	500	.0002	11315	9.1	350	.0002	6790	3.7	210	.0001
5/32	12125	15.6	500	.0003	8485	10.8	350	.0003	5090	4.5	210	.0002
3/16	9700	17.5	500	.0005	6790	12.2	350	.0004	4075	5.1	210	.0003
7/32	8890	19.0	509	.0005	6223	13.3	356	.0005	3735	5.5	214	.0004
1/4	8080	20.5	500	.0006	5655	14.4	350	.0006	3395	5.9	210	.0004
9/32	7070	23.3	521	.0009	4948	16.2	364	.0009	2970	6.7	219	.0006
5/16	6060	26.2	500	.0011	4240	18.1	350	.0011	2545	7.5	210	.0007
11/32	5703	29.2	514	.0013	3990	20.4	359	.0013	2393	8.5	215	.0009
3/8	5345	32.3	551	.0015	3740	22.6	386	.0015	2240	9.4	231	.0011
7/16	4898	32.6	561	.0017	3420	22.7	392	.0017	2050	9.4	235	.0012
1/2	4450	32.9	551	.0018	3100	22.8	384	.0018	1860	9.4	230	.0013
5/8	3340	28.0	551	.0021	2330	19.3	385	.0021	1400	8.1	231	.0014
3/4	2670	27.4	551	.0026	1870	19.1	386	.0026	1120	7.9	231	.0018
1	2140	21.7	552	.0025	1495	15.0	386	.0025	895	6.3	231	.0018

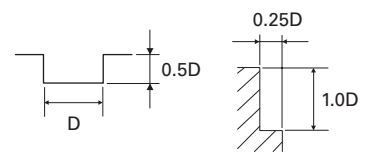
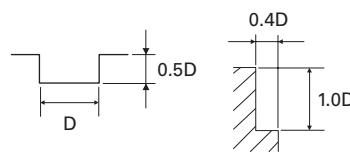
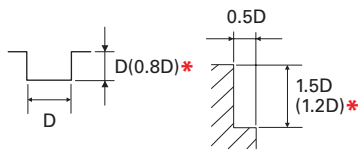


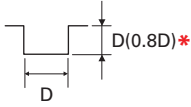
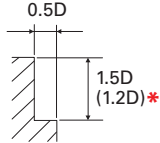
MATERIAL	K				M							
	CAST IRON				STAINLESS STEELS 300				STAINLESS STEELS 400			
	Gray, Malleable, Ductile				304, 316, 304L, 316LSUS316				416, 420F, 430F, 440F			
HARDNESS	~ HB 260											
STRENGTH	~ 870N/mm ²											
DIAMETER	RPM	FEED	SFM	Fz	RPM	FEED	SFM	Fz	RPM	FEED	SFM	Fz
1/8	11880	11.8	368	.0002	11205	8.3	347	.0002	15690	8.9	486	.0001
5/32	8910	14.2	368	.0004	8400	10.8	347	.0003	11740	11.0	484	.0002
3/16	7130	15.9	368	.0006	6725	13.4	347	.0005	9405	13.4	485	.0004
7/32	6535	17.4	374	.0007	6165	14.5	353	.0006	8625	14.5	494	.0004
1/4	5940	18.9	368	.0008	5605	15.6	347	.0006	7845	15.6	486	.0005
9/32	5198	21.3	383	.0011	4905	17.1	361	.0009	6863	17.8	505	.0007
5/16	4455	23.6	368	.0013	4205	18.7	347	.0011	5880	20.1	485	.0009
11/32	4193	26.7	378	.0016	3785	22.0	341	.0015	5293	22.6	477	.0011
3/8	3930	29.7	405	.0019	3365	25.4	347	.0019	4705	25.2	485	.0013
7/16	3593	29.8	412	.0021	3083	24.9	353	.0020	4315	24.8	494	.0014
1/2	3255	29.9	403	.0023	2800	24.4	347	.0022	3925	24.4	486	.0016
5/8	2450	25.2	404	.0026	2105	20.7	347	.0025	2940	20.7	485	.0018
3/4	1965	25.0	405	.0032	1680	20.3	347	.0030	2355	20.3	486	.0022
1	1570	19.5	405	.0031	1345	16.3	347	.0030	1885	16.3	486	.0022



CUTTING CONDITION

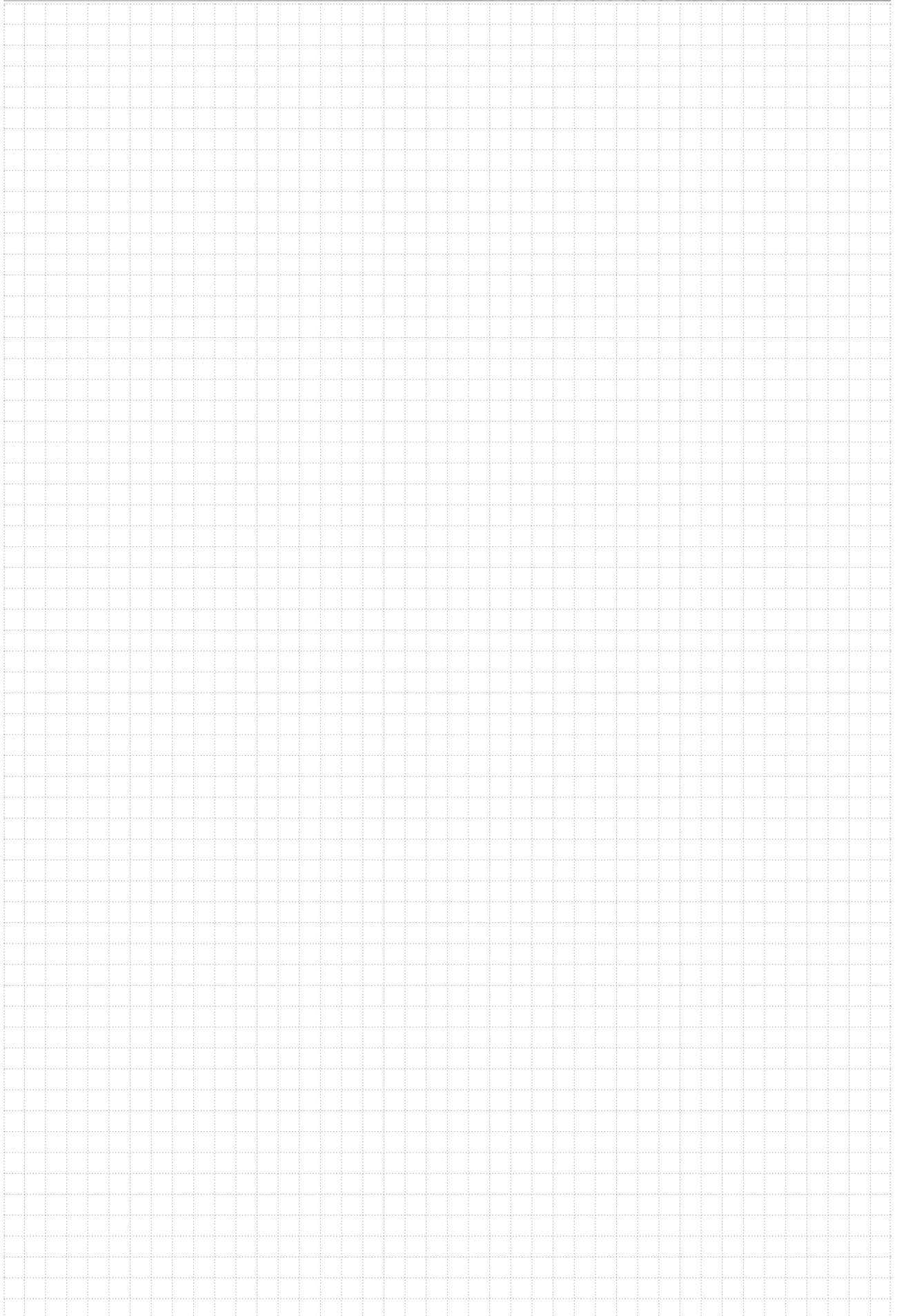
MATERIAL	M					S							
	STAINLESS STEELS (PH)					TITANIUM				HIGH TEMPERATURE ALLOY			
	17-4PH, 15-5PH, 13-8PH					Ti6Al4V, Ti5Al5V5Mo, Ti7Al4Mo				INCONEL, HASTELLOY, RENE			
HARDNESS													
STRENGTH													
DIAMETER	RPM	FEED	SFM	Fz	RPM	FEED	SFM	Fz	RPM	FEED	SFM	Fz	
1/8	10085	7.3	312	.0002	6165	3.9	191	.0002	2805	1.4	87	.0001	
5/32	7560	9.6	312	.0003	4620	5.3	191	.0003	2100	1.8	87	.0002	
3/16	6055	12.0	312	.0005	3700	6.5	191	.0004	1685	2.2	87	.0003	
7/32	5550	13.0	318	.0006	3393	7.1	194	.0005	1545	2.4	88	.0004	
1/4	5045	14.0	312	.0007	3085	7.7	191	.0006	1405	2.6	87	.0005	
9/32	4415	15.4	325	.0009	2700	8.5	199	.0008	1228	2.9	90	.0006	
5/16	3785	16.7	312	.0011	2315	9.3	191	.0010	1050	3.1	87	.0007	
11/32	3408	19.8	307	.0015	2085	10.8	188	.0013	945	3.7	85	.0010	
3/8	3030	22.8	313	.0019	1855	12.4	191	.0017	840	4.3	87	.0013	
7/16	2775	22.3	318	.0020	1698	12.2	195	.0018	770	4.2	88	.0014	
1/2	2520	21.9	312	.0022	1540	12.0	191	.0019	700	4.1	87	.0015	
5/8	1895	18.5	313	.0024	1160	10.0	191	.0022	525	3.5	87	.0017	
3/4	1515	18.1	313	.0030	925	9.8	191	.0027	420	3.5	87	.0021	
1	1215	14.6	313	.0030	740	8.1	191	.0027	335	2.8	86	.0021	



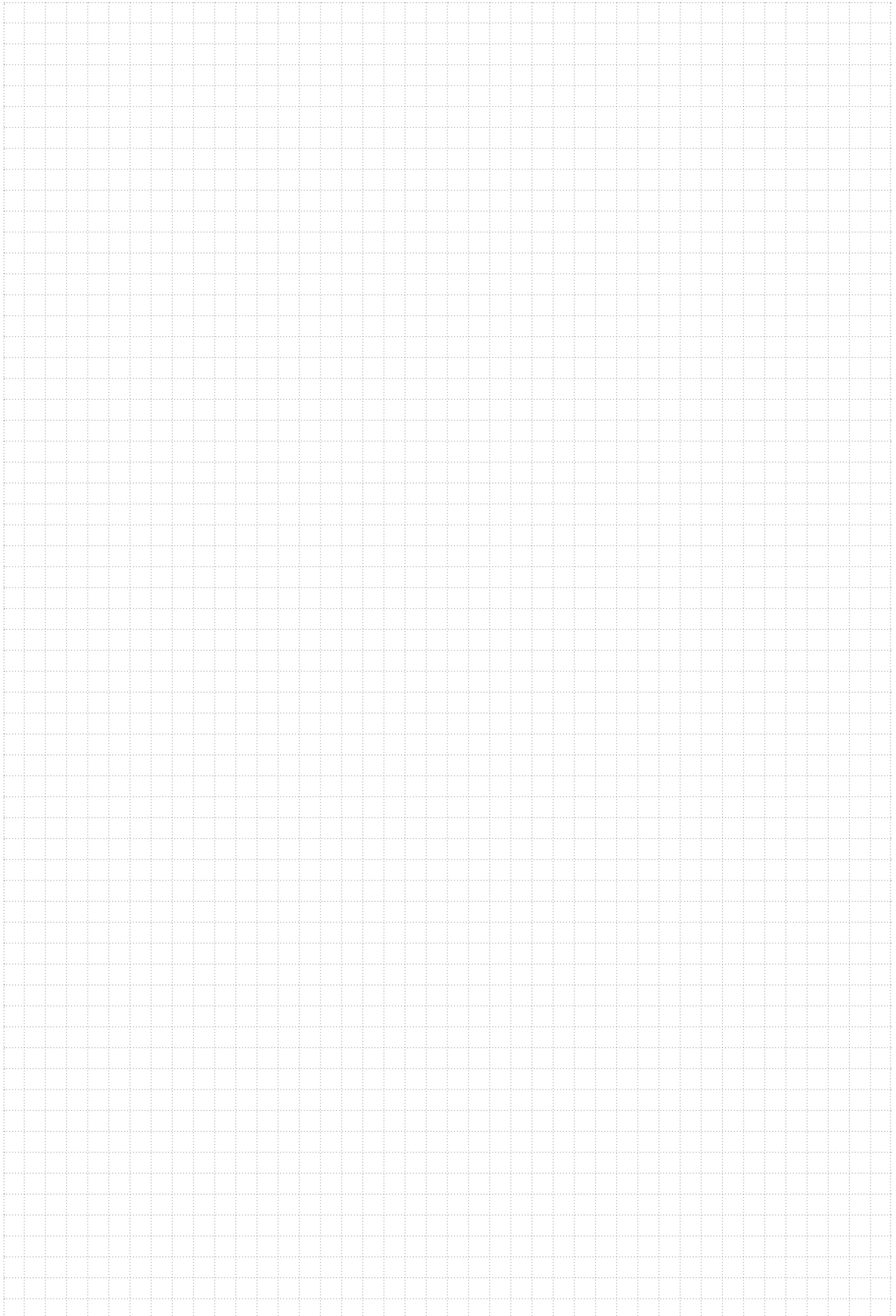
*Axial cutting depth			
Length of Cut	<1.5D	0.8D	1.2D
	≥1.5D	D	1.5D

RPM = rev./min.
 FEED = inch/min.
 SFM = ft/min
 Fz = inch/tooth

MEMO



MEMO



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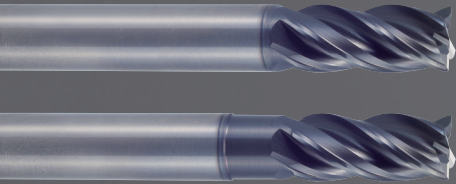
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