YE-XP19 **EUROPE**

Registered
ISO 9001:2015 / ISO 14001:2015

GLOBAL BRAND 2012

YG X-POWER PRO

PERFORMANCE UPGRADE
Y-COATED SOLID CARBIDE END MILLS

for Pre-Hardened Steels up to HRc55
for Mold & Die
for Dry & Wet Cutting

X-POWER PRO

Performance Upgrade

- Achieved from several tests to apply the most optimal technology
- New coating, raw material, honing technology

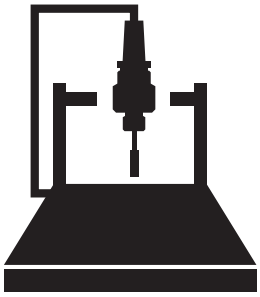
Work Material

- Pre-Hardened Steels up to HRc 55, and Cast Iron

P K

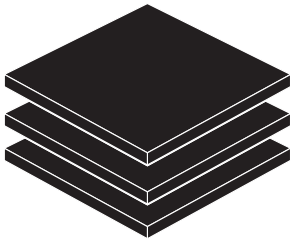
For Mold & Die Industries

- Plastic injection, die casting, military parts, automotive parts, electronic parts, etc.



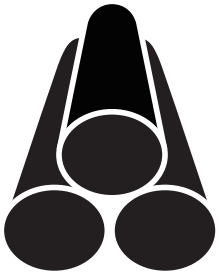
Honing

Advanced honing technology system made from YG-1



Coating

The optimal coating applied, chosen by several tests of different coating technologies

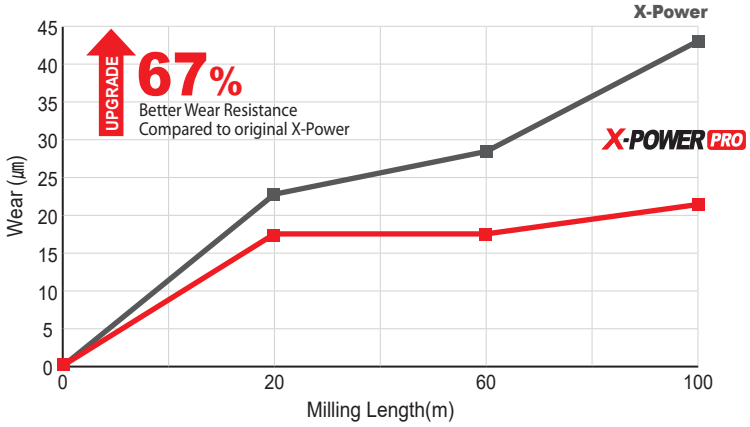


Raw Material

Made from high performance raw material with better quality

CASE STUDY

2 FLUTE SQUARE END MILLS

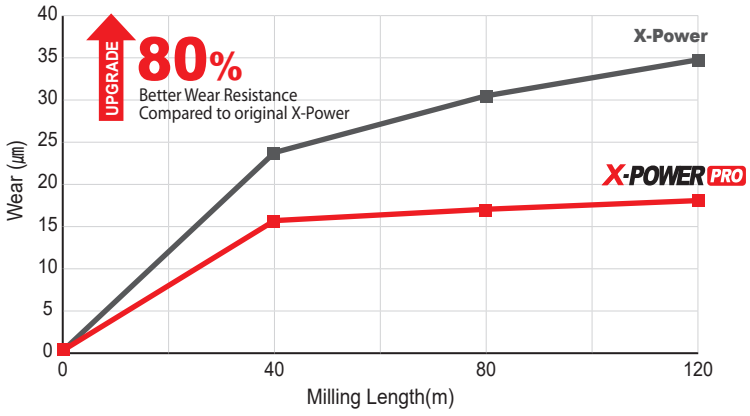


X-POWER PRO — Milling length : 100m

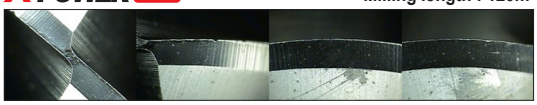
X-Power — Milling length : 100m

Tool	X-POWER PRO	X-Power
Milling Length(m)	100	
Size	Ø10.0 x Ø10.0 x 22 x 70	
Material	KP4M(HRc35) / DIN 1.2311, ANSI P20+Ni	
Vc(m/min)	63	
Feed(mm/min)	300	
Milling Depth(mm)	Ap : 10 ,Ae : 0.5	
Coolant	Oil Mist	
Milling Method	Down & Side Cutting	

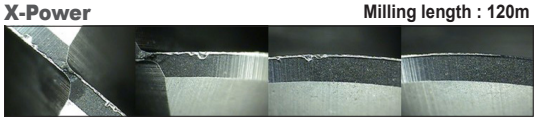
2 FLUTE BALL END MILLS



X-POWER PRO — Milling length : 120m

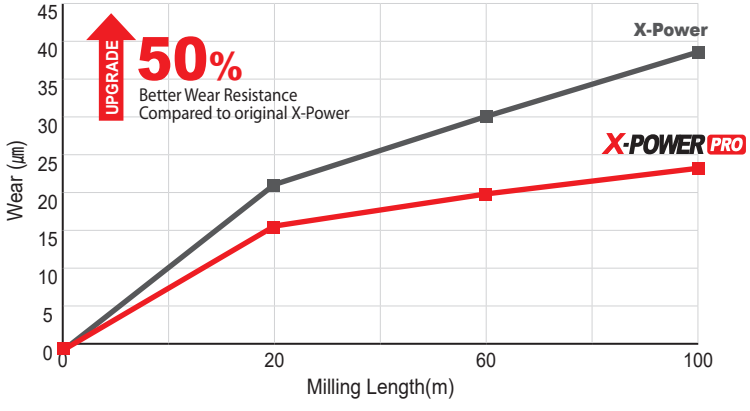


X-Power — Milling length : 120m

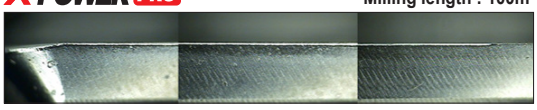


Tool	X-POWER PRO	X-Power
Milling Length(m)	120	
Size	Ø6.0 x Ø6.0 x 12 x 90	
Material	KP4M(HRc35) / DIN 1.2311, ANSI P20+Ni	
Vc(m/min)	130	
Feed(mm/min)	830	
Milling Depth(mm)	Ap : 0.2 , Ae : 1.2	
Coolant	Oil Mist	
Milling Method	Profile Cutting	

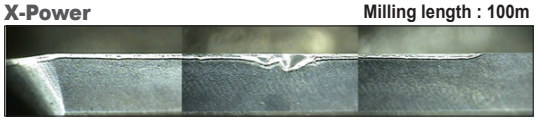
4 FLUTE CORNER RADIUS END MILLS



X-POWER PRO — Milling length : 100m



X-Power — Milling length : 100m



Tool	X-POWER PRO	X-Power
Milling Length(m)	100	
Size	Ø10.0(R0.5) x Ø10.0 x 30 x 90	
Material	KP4M(HRc35) / DIN 1.2311, ANSI P20+Ni	
Vc(m/min)	52	
Feed(mm/min)	180	
Milling Depth(mm)	Ap : 25 , Ae : 0.5	
Coolant	Oil Mist	
Milling Method	Down & Side Cutting	

SELECTION GUIDE

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
GM876		CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE	R0.5	R8.0	6
GM813		CARBIDE, 2 FLUTE LONG LENGTH BALL NOSE	R0.5	R10.0	7
GM886		CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING	R0.25	R3.0	8
GM902		CARBIDE, 2 FLUTE BALL NOSE with TAPER NECK	R0.5	R4.0	10
GM815		CARBIDE, 4 FLUTE LONG LENGTH BALL NOSE	R1.0	R8.0	11
GM818		CARBIDE, 2 FLUTE LONG LENGTH CORNER RADIUS	D4.0	D12.0	12
GM8A1		CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING	D1.0	D6.0	13
GM839		CARBIDE, 4 FLUTE STUB LENGTH CORNER RADIUS	D2.0	D12.0	14
GM819		CARBIDE, 4 FLUTE LONG LENGTH CORNER RADIUS	D3.0	D20.0	15
GM810		CARBIDE, 2 FLUTE SHORT LENGTH	D0.4	D20.0	16
GM883		CARBIDE, 2 FLUTE for RIB PROCESSING	D0.4	D6.0	17
GM895		CARBIDE, 3 FLUTE 38° HELIX SHORT LENGTH	D1.0	D16.0	19
GM811		CARBIDE, 4 FLUTE SHORT LENGTH	D2.0	D25.0	20
GM817		CARBIDE, 4 FLUTE LONG LENGTH	D2.0	D20.0	21
GM812		CARBIDE, 6&8 FLUTE 45° HELIX LONG LENGTH	D6.0	D20.0	22
GM834		CARBIDE, 6 FLUTE 45° HELIX EXTRA LONG LENGTH	D6.0	D25.0	23
GM814		CARBIDE, MULTI FLUTE 20° HELIX LONG LENGTH ROUGHING - FINE	D6.0	D20.0	24
		RECOMMENDED CUTTING CONDITIONS			25

◎ : Excellent ○ : Good

P					H	M	K	N			S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
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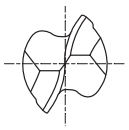
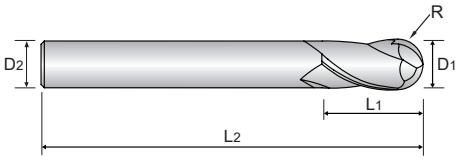
Y-COATED SOLID CARBIDE END MILLS

2 FLUTE SHORT LENGTH BALL NOSE

GM876 PLAIN SHANK

▶ Economic type with short overall length
▶ Radius tolerance ±0.02mm & short length of cut





MG HM | 2 | 30° | R ±0.02 | PLAIN | P.25

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.03	h6

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R(±0.02)	D1	D2	L1	L2
GM876010	R0.5	**1.0**	3	3	38
GM876020	R1.0	**2.0**	6	3	50
GM876030	R1.5	**3.0**	6	4	50
GM876040	R2.0	**4.0**	6	5	54
GM876060	R.3.0	**6.0**	6	7	54
GM876080	R4.0	**8.0**	8	9	58
GM876100	R5.0	**10.0**	10	11	66
GM876120	R6.0	**12.0**	12	12	73
GM876160	R8.0	**16.0**	16	16	82

◎ : Excellent ○ : Good

P					H	M	K	N			S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
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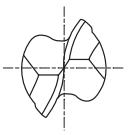
Y-COATED SOLID CARBIDE END MILLS

2 FLUTE LONG LENGTH BALL NOSE

GM813 PLAIN SHANK

▶ Designed to machine tool steel, alloy steel, mold steel and other high hardened materials
▶ For copy - milling machines



MG HM | 2 | 30° | R ±0.02 | PLAIN | P.25

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.03	h6

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R(±0.02)	D_1	D_2	L_1	L_2
GM813010	R0.5	**1.0**	4	2.5	50
GM813020	R1.0	**2.0**	6	5	50
GM813030	R1.5	**3.0**	6	8	60
GM813040	R2.0	**4.0**	6	8	70
GM813050	R2.5	**5.0**	6	10	80
GM813060	R3.0	**6.0**	6	12	90
GM813080	R4.0	**8.0**	8	14	100
GM813100	R5.0	**10.0**	10	18	100
GM813120	R6.0	**12.0**	12	22	110
GM813160	R8.0	**16.0**	16	30	140
GM813200	R10.0	**20.0**	20	38	160

◎ : Excellent ○ : Good

P					H	M	K	N			S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
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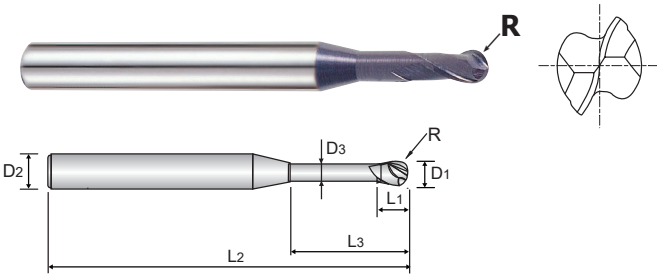
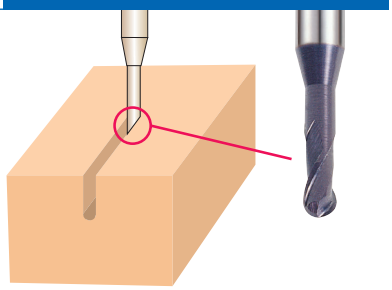
Y-COATED SOLID CARBIDE END MILLS

2 FLUTE BALL NOSE for RIB PROCESSING

GM886 PLAIN SHANK





MG HM | 2 | 30° | R ±0.01 | PLAIN P.26

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.02	h6

Unit : mm

EDP No.	Radius of Ball Nose R(±0.01)	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
GM886005	R0.25	0.5	4	0.7	2	45	0.45
GM886962	R0.25	0.5	4	0.7	4	45	0.45
GM886957	R0.3	0.6	4	0.9	2	45	0.55
GM886915	R0.3	0.6	4	0.9	4	45	0.55
GM886916	R0.3	0.6	4	0.9	6	45	0.55
GM886919	R0.4	0.8	4	1.2	4	45	0.75
GM886008	R0.4	0.8	4	1.2	6	45	0.75
GM886921	R0.5	1.0	4	1.5	4	45	0.95
GM886923	R0.5	1.0	4	1.5	5	45	0.95
GM886010	R0.5	1.0	4	1.5	6	45	0.95
GM886902	R0.5	1.0	4	1.5	8	45	0.95
GM886903	R0.5	1.0	4	1.5	10	45	0.95
GM886904	R0.5	1.0	4	1.5	12	45	0.95
GM886927	R0.5	1.0	4	1.5	16	50	0.95
GM886012	R0.6	1.2	4	1.8	8	45	1.15
GM886930	R0.75	1.5	4	2.3	6	45	1.45
GM886015	R0.75	1.5	4	2.3	8	45	1.45
GM886931	R0.75	1.5	4	2.3	10	45	1.45
GM886906	R0.75	1.5	4	2.3	12	45	1.45
GM886940	R1.0	2.0	4	3	6	45	1.95
GM886020	R1.0	2.0	4	3	8	45	1.95
GM886941	R1.0	2.0	4	3	10	45	1.95
GM886942	R1.0	2.0	4	3	12	50	1.95
GM886909	R1.0	2.0	4	3	16	50	1.95
GM886910	R1.0	2.0	4	3	20	55	1.95
GM886945	R1.0	2.0	4	3	25	60	1.95
GM886967	R1.0	2.0	4	3	30	70	1.95

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N			S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
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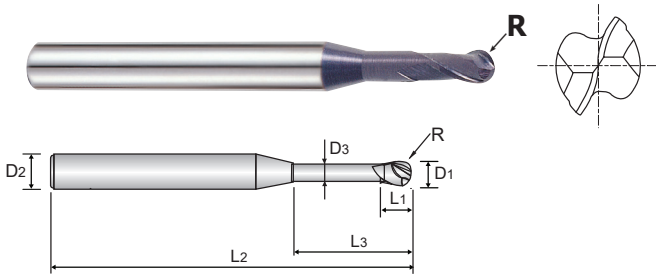
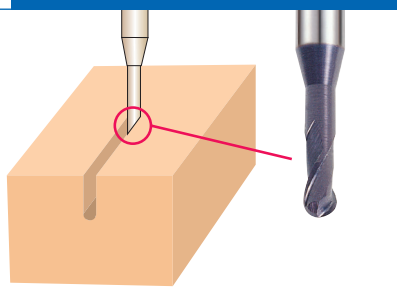
Y-COATED SOLID CARBIDE END MILLS

2 FLUTE BALL NOSE for RIB PROCESSING

GM886 PLAIN SHANK





MG HM | 2 | 30° | R ±0.01 | PLAIN

P.26

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.02	h6

Unit : mm

EDP No.	Radius of Ball Nose R(±0.01)	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
GM886947	R1.5	**3.0**	6	4.5	10	50	2.85
GM886948	R1.5	**3.0**	6	4.5	12	50	2.85
GM886030	R1.5	**3.0**	6	4.5	16	55	2.85
GM886911	R1.5	**3.0**	6	4.5	20	60	2.85
GM886968	R1.5	**3.0**	6	4.5	25	65	2.85
GM886040	R2.0	**4.0**	6	6	16	60	3.85
GM886912	R2.0	**4.0**	6	6	20	65	3.85
GM886913	R2.0	**4.0**	6	6	25	70	3.85
GM886971	R2.0	**4.0**	6	6	30	70	3.85
GM886972	R2.0	**4.0**	6	6	35	80	3.85
GM886050	R2.5	**5.0**	6	7.5	16	60	4.85
GM886060	R3.0	**6.0**	6	9	20	80	5.85
GM886954	R3.0	**6.0**	6	9	30	90	5.85

◎ : Excellent ○ : Good

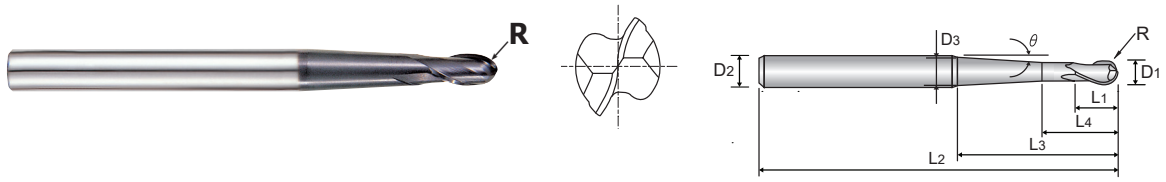
P					H	M	K	N			S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○			○					

Y-COATED SOLID CARBIDE END MILLS

2 FLUTE BALL NOSE with TAPER NECK

GM902 PLAIN SHANK

▶ High efficiency milling in deep slotting due to long projection of the end mills



MG HM | 2 | 30° | R ±0.01 | PLAIN | P.27

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.03	h6

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Under Neck Parallel Length	Length Below Shank	Overall Length	Neck Diameter	Taper Neck Angle
	R(±0.01)	D_1	D_2	L_1	L_4	L_3	L_2	D_3	θ
GM902010	R0.5	**1.0**	6	2	4	23	60	2	1° 30′
GM902901	R0.5	**1.0**	6	2	4	23	60	4.3	5°
GM902902	R0.5	**1.0**	6	2	4	42	80	5	3°
GM902020	R1.0	**2.0**	6	4	6	23	60	2.9	1° 30′
GM902903	R1.0	**2.0**	6	4	6	23	60	5	5°
GM902904	R1.0	**2.0**	6	4	6	41	80	5.7	3°
GM902030	R1.5	**3.0**	6	6	8	32	70	5.6	3°
GM902905	R1.5	**3.0**	6	6	8	52	90	5.3	1° 30′
GM902040	R2.0	**4.0**	6	8	10	28	70	5.9	3°
GM902906	R2.0	**4.0**	6	8	10	49	90	6	1° 30′
GM902060	R3.0	**6.0**	8	12	15	34	90	8	3°
GM902908	R3.0	**6.0**	8	12	15	53	110	8	1° 30′
GM902080	R4.0	**8.0**	10	14	17	36	100	10	3°
GM902909	R4.0	**8.0**	10	14	17	55	120	10	1° 30′

◎ : Excellent ○ : Good

P					H	M	K	N			S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
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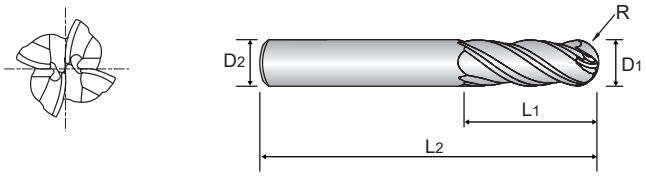
Y-COATED SOLID CARBIDE END MILLS

4 FLUTE LONG LENGTH BALL NOSE

GM815 PLAIN SHANK

- ▶ Designed to machine tool steels, alloy steels, mold steels and other high hardened materials
- ▶ For copy - milling machines
- ▶ 4 Flute design - higher feed than GM813 series



MG HM | 4 | 30° | R ±0.02 | PLAIN

P.28

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.03	h6

Unit : mm

EDP No.	Radius of Ball Nose R(±0.02)	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
GM815020	R1.0	**2.0**	6	5	50
GM815030	R1.5	**3.0**	6	8	60
GM815040	R2.0	**4.0**	6	8	70
GM815050	R2.5	**5.0**	6	10	80
GM815060	R3.0	**6.0**	6	12	90
GM815080	R4.0	**8.0**	8	14	100
GM815100	R5.0	**10.0**	10	18	100
GM815120	R6.0	**12.0**	12	22	110
GM815160	R8.0	**16.0**	16	30	140

◎ : Excellent ○ : Good

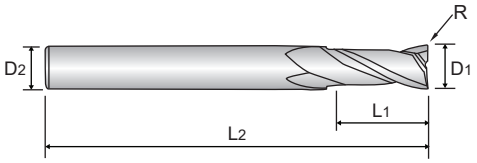
P					H	M	K	N			S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○			○					

Y-COATED SOLID CARBIDE END MILLS

2 FLUTE LONG LENGTH CORNER RADIUS

GM818 PLAIN SHANK

- ▶ Designed to machine tool steels, alloy steels, mold steels and other hardened materials
- ▶ Superior workpiece finishes
- ▶ Increased feed rates



MG HM | 2 | 30° | PLAIN P.29

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
	R	D1	D2	L1	L2
GM818911	R0.5	**4.0**	6	15	50
GM818060	R0.5	**6.0**	6	20	60
GM818901	R1.0	**6.0**	6	20	60
GM818080	R0.5	**8.0**	8	25	70
GM818902	R1.0	**8.0**	8	25	70
GM818100	R0.5	**10.0**	10	30	90
GM818905	R1.0	**10.0**	10	30	90
GM818908	R1.0	**12.0**	12	30	90

◎ : Excellent ○ : Good

P					H	M	K	N			S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○			○					

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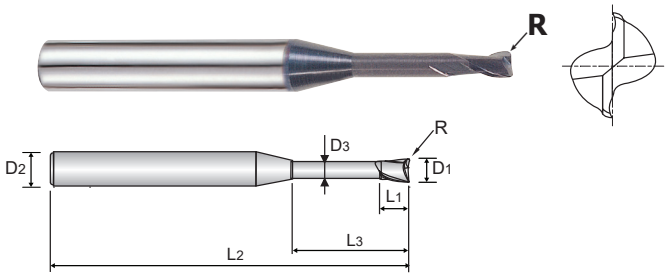
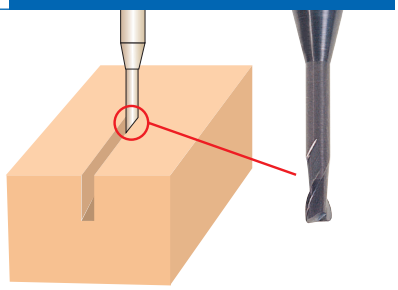
Y-COATED SOLID CARBIDE END MILLS

2 FLUTE CORNER RADIUS for RIB PROCESSING

GM8A1 PLAIN SHANK





MG HM | 2 | 30° | PLAIN P.30

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
	R	D1	D2	L1	L3	L2	D3
GM8A1010	R0.1	1.0	4	1.5	6	45	0.95
GM8A1920	R0.1	1.0	4	1.5	8	45	0.95
GM8A1921	R0.1	1.0	4	1.5	10	45	0.95
GM8A1012	R0.2	1.2	4	1.8	6	45	1.15
GM8A1015	R0.2	1.5	4	2.3	6	45	1.45
GM8A1937	R0.2	1.5	4	2.3	8	45	1.45
GM8A1938	R0.2	1.5	4	2.3	10	45	1.45
GM8A1939	R0.2	1.5	4	2.3	12	45	1.45
GM8A1941	R0.2	1.5	4	2.3	16	50	1.45
GM8A1018	R0.2	1.8	4	2.7	6	45	1.75
GM8A1960	R0.2	2.0	4	3	6	45	1.95
GM8A1020	R0.2	2.0	4	3	8	45	1.95
GM8A1962	R0.2	2.0	4	3	12	45	1.95
GM8A1961	R0.2	2.0	4	3	10	45	1.95
GM8A1964	R0.2	2.0	4	3	16	50	1.95
GM8A1966	R0.2	2.0	4	3	20	55	1.95
GM8A1967	R0.2	2.0	4	3	25	60	1.95
GM8A1969	R0.2	2.5	4	3.7	12	45	2.40
GM8A1981	R0.3	3.0	6	4.5	16	55	2.85
GM8A1983	R0.3	3.0	6	4.5	20	60	2.85
GM8A1984	R0.3	3.0	6	4.5	25	65	2.85
GM8A1976	R0.3	3.0	6	4.5	30	70	2.85
GM8A1985	R0.3	3.0	6	4.5	40	90	2.85
GM8A1040	R0.3	4.0	6	6	12	50	3.85
GM8A1986	R0.3	4.0	6	6	16	60	3.85
GM8A1987	R0.3	4.0	6	6	20	60	3.85
GM8A1060	R0.5	6.0	6	9	20	80	5.85
GM8A1802	R0.5	6.0	6	9	40	100	5.85

◎ : Excellent ○ : Good

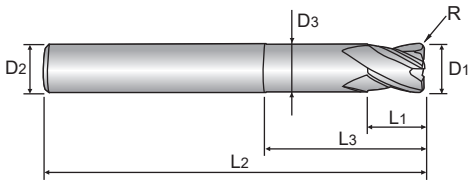
P					H	M	K	N			S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○			○					

Y-COATED SOLID CARBIDE END MILLS

4 FLUTE STUB LENGTH CORNER RADIUS

GM839 PLAIN SHANK

- ▶ Designed to machine tool steels, alloy steels, mold steels and other hardened materials
- ▶ Superior workpiece finishes
- ▶ Increased feed rates



MG HM | 4 | 30° | PLAIN

P.31

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
	R	D1	D2	L1	L3	L2	D3
GM839020	R0.2	**2.0**	6	2.5	5	50	1.9
GM839030	R0.3	**3.0**	6	4	7	50	2.8
GM839040	R0.4	**4.0**	6	5	9	50	3.7
GM839060	R0.6	**6.0**	6	7	14	55	5.6
GM839080	R0.8	**8.0**	8	10	18	60	7.4
GM839100	R1.0	**10.0**	10	12	25	70	9.4
GM839120	R1.2	**12.0**	12	15	30	80	11.4

◎ : Excellent ○ : Good

P					H	M	K	N			S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○			○					

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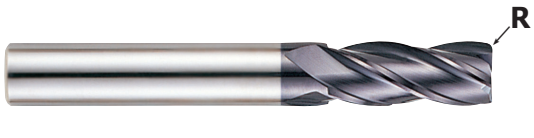
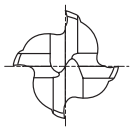
Y-COATED SOLID CARBIDE END MILLS

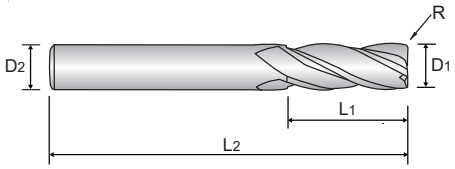
4 FLUTE LONG LENGTH CORNER RADIUS

GM819 PLAIN SHANK

- Designed to machine tool steels, alloy steels, mold steels and other hardened materials
- 4 flute allows for better workpiece finishes
- Increased production







P.32

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
	R	D_1	D_2	L_1	L_2
GM819030	R0.3	**3.0**	6	12	50
GM819040	R0.3	**4.0**	6	15	50
GM819911	R0.5	**4.0**	6	15	50
GM819912	R0.5	**5.0**	6	20	60
GM819060	R0.5	**6.0**	6	20	60
GM819901	R1.0	**6.0**	6	20	60
GM819080	R0.5	**8.0**	8	25	70
GM819902	R1.0	**8.0**	8	25	70
GM819904	R2.0	**8.0**	8	25	70
GM819100	R0.5	**10.0**	10	30	90
GM819905	R1.0	**10.0**	10	30	90
GM819906	R1.5	**10.0**	10	30	90
GM819907	R2.0	**10.0**	10	30	90
GM819120	R0.5	**12.0**	12	30	90
GM819908	R1.0	**12.0**	12	30	90
GM819909	R1.5	**12.0**	12	30	90
GM819910	R2.0	**12.0**	12	30	90
GM819160	R0.5	**16.0**	16	50	110
GM819916	R1.0	**16.0**	16	50	110
GM819918	R2.0	**16.0**	16	50	110
GM819921	R2.0	**20.0**	20	55	110

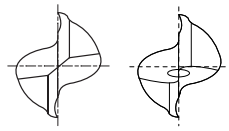
◎ : Excellent ○ : Good

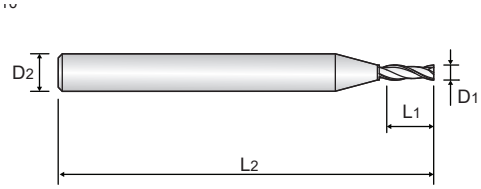
P					H	M	K	N			S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○		○	○					

Y-COATED SOLID CARBIDE END MILLS
2 FLUTE SHORT LENGTH

GM810 PLAIN SHANK

▶ High precision milling in medical, optical, electronics and aerospace industries
▶ Excellent performance on hardened steel





MG HM | 2 | 30° | PLAIN | P.33

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.03	h6

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
GM810004	0.4	3	0.8	40
GM810005	0.5	3	1	40
GM810006	0.6	3	1.2	40
GM810007	0.7	3	1.4	40
GM810008	0.8	3	1.6	40
GM810009	0.9	3	2	40
GM810010	1.0	4	2.5	40
GM810901	1.0	6	2.5	40
GM810012	1.2	4	4	40
GM810014	1.4	4	4	40
GM810015	1.5	4	4	40
GM810902	1.5	6	4	40
GM810020	2.0	4	6	40
GM810903	2.0	6	6	40
GM810025	2.5	4	8	40
GM810030	3.0	6	8	45
GM810035	3.5	6	10	45
GM810040	4.0	6	11	45
GM810050	5.0	6	13	50
GM810060	6.0	6	13	50
GM810070	7.0	8	16	60
GM810080	8.0	8	19	60
GM810090	9.0	10	19	70
GM810100	10.0	10	22	70
GM810110	11.0	12	22	75
GM810120	12.0	12	26	75
GM810140	14.0	14	26	85
GM810160	16.0	16	32	100
GM810180	18.0	18	32	100
GM810200	20.0	20	38	105

◎ : Excellent ○ : Good

P					H	M	K	N			S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○		○	○					

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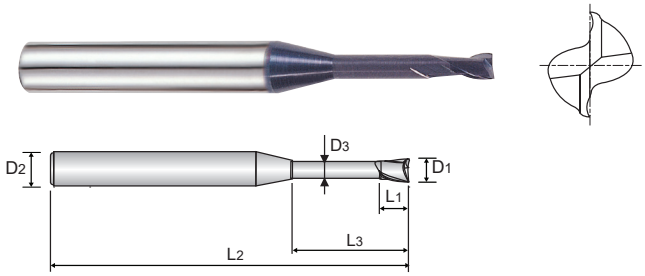
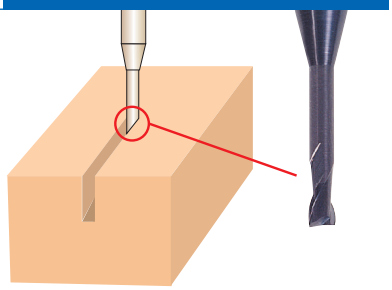
Y-COATED SOLID CARBIDE END MILLS

2 FLUTE for RIB PROCESSING

GM883 PLAIN SHANK





MG HM | 2 | 30° | PLAIN

P.34

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.015	h6

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
GM883004	0.4	4	0.6	2	45	0.37
GM883005	0.5	4	0.7	2	45	0.45
GM883988	0.5	4	0.7	4	45	0.45
GM883820	0.7	4	1	3	45	0.65
GM883008	0.8	4	1.2	4	45	0.75
GM883908	0.8	4	1.2	6	45	0.75
GM883996	1.0	4	1.5	4	45	0.95
GM883010	1.0	4	1.5	6	45	0.95
GM883912	1.0	4	1.5	8	45	0.95
GM883913	1.0	4	1.5	10	45	0.95
GM883914	1.0	4	1.5	12	45	0.95
GM883997	1.0	4	1.5	16	50	0.95
GM883998	1.0	4	1.5	20	55	0.95
GM883012	1.2	4	1.8	6	45	1.15
GM883015	1.5	4	2.3	6	45	1.45
GM883923	1.5	4	2.3	8	45	1.45
GM883924	1.5	4	2.3	10	45	1.45
GM883925	1.5	4	2.3	12	45	1.45
GM883927	1.5	4	2.3	16	50	1.45
GM883810	1.5	4	2.3	20	55	1.45
GM883946	1.8	4	2.7	12	45	1.75
GM883958	2.0	4	3	6	45	1.95
GM883020	2.0	4	3	8	45	1.95
GM883959	2.0	4	3	10	45	1.95
GM883960	2.0	4	3	12	45	1.95
GM883961	2.0	4	3	14	50	1.95
GM883962	2.0	4	3	16	50	1.95
GM883964	2.0	4	3	20	55	1.95

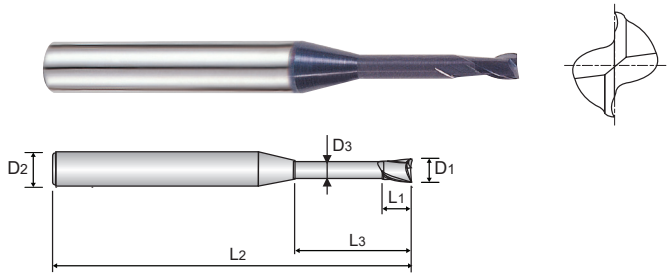
▶ NEXT PAGE

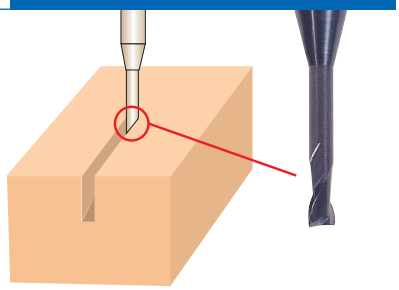
◎ : Excellent ○ : Good

P					H	M	K	N			S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○			○					

Y-COATED SOLID CARBIDE END MILLS
2 FLUTE for RIB PROCESSING

GM883 PLAIN SHANK





MG HM | 2 | 30° | PLAIN P.34

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.015	h6

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
GM883966	2.0	4	3	25	60	1.95
GM883814	2.0	4	3	30	70	1.95
GM883970	2.5	4	3.7	16	55	2.40
GM883975	3.0	6	4.5	10	45	2.85
GM883976	3.0	6	4.5	12	45	2.85
GM883978	3.0	6	4.5	16	55	2.85
GM883979	3.0	6	4.5	18	55	2.85
GM883980	3.0	6	4.5	20	60	2.85
GM883981	3.0	6	4.5	25	65	2.85
GM883832	3.0	6	4.5	30	70	2.85
GM883983	3.0	6	4.5	40	90	2.85
GM883801	4.0	6	6	16	60	3.85
GM883802	4.0	6	6	20	60	3.85
GM883803	4.0	6	6	25	70	3.85
GM883834	4.0	6	6	30	70	3.85
GM883836	4.0	6	6	40	90	3.85
GM883838	4.0	6	6	50	100	3.85
GM883807	6.0	6	9	30	90	5.85
GM883809	6.0	6	9	50	110	5.85

◎ : Excellent ○ : Good

P					H	M	K	N			S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○			○					

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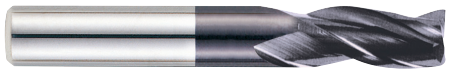
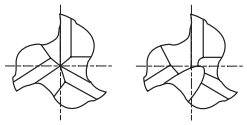
Y-COATED SOLID CARBIDE END MILLS

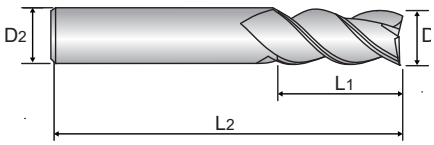
3 FLUTE 38° HELIX SHORT LENGTH

GM895 PLAIN SHANK

- ▶ Designed to machine tool steels, alloy steels, mold steels and other hardened materials
- ▶ Possesses the advantage of 2 flute and 4 flute end mill
- ▶ Superior workpiece finishes







MG HM | 3 | 38° | PLAIN

P.35-36

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.03	h6

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
GM895010	1.0	3	2.5	38
GM895015	1.5	4	5	50
GM895025	2.5	3	7	38
GM895030	3.0	3	10	38
GM895901	3.0	6	10	50
GM895040	4.0	4	12	50
GM895903	4.0	6	12	50
GM895050	5.0	5	14	50
GM895904	5.0	6	14	57
GM895060	6.0	6	16	57
GM895080	8.0	8	20	63
GM895100	10.0	10	22	72
GM895120	12.0	12	25	73
GM895160	16.0	16	32	82

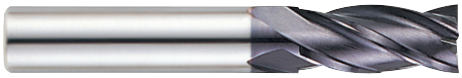
◎ : Excellent ○ : Good

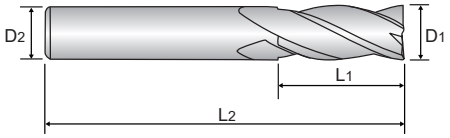
P					H	M	K	N			S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○		○	○					

Y-COATED SOLID CARBIDE END MILLS
4 FLUTE SHORT LENGTH

GM811 PLAIN SHANK

▶ Designed to machine tool steels, alloy steels, mold steels and other hardened materials
▶ 4 flute allows for better workpiece finishes
▶ Increased production





MG HM | 4 | 30° | PLAIN P.37

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.03	h6

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
GM811020	2.0	4	6	40
GM811901	2.0	6	6	40
GM811025	2.5	4	8	40
GM811902	2.5	6	8	40
GM811030	3.0	6	8	45
GM811035	3.5	6	10	45
GM811040	4.0	6	11	45
GM811045	4.5	6	11	45
GM811050	5.0	6	13	50
GM811060	6.0	6	13	50
GM811080	8.0	8	19	60
GM811100	10.0	10	22	70
GM811120	12.0	12	26	75
GM811140	14.0	14	26	85
GM811160	16.0	16	32	100
GM811200	20.0	20	38	105
GM811250	25.0	25	45	120

◎ : Excellent ○ : Good

P					H	M	K	N			S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○		○	○					

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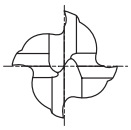
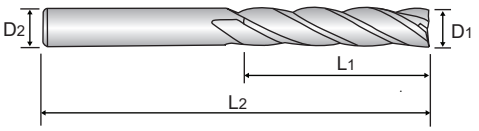
Y-COATED SOLID CARBIDE END MILLS

4 FLUTE LONG LENGTH

GM817 PLAIN SHANK

- Designed to machine tool steels, alloy steels, mold steels and other hardened materials
- 4 flute allows for better workpiece finishes
- Increased production





MG HM | 4 | 30° | PLAIN | P.38

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.03	h6

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
GM817020	2.0	4	8	40
GM817030	3.0	6	12	50
GM817040	4.0	6	15	50
GM817050	5.0	6	20	60
GM817060	6.0	6	20	60
GM817080	8.0	8	25	70
GM817100	10.0	10	30	90
GM817120	12.0	12	30	90
GM817140	14.0	16	40	110
GM817160	16.0	16	50	110
GM817200	20.0	20	55	110

◎ : Excellent ○ : Good

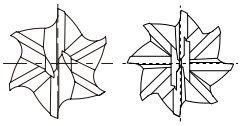
P					H	M	K	N			S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○			○					

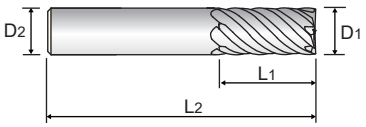
Y-COATED SOLID CARBIDE END MILLS

6&8 FLUTE 45° HELIX LONG LENGTH

GM812 PLAIN SHANK

- ▶ Designed to machine hardened materials
- ▶ High speed cutting and finish milling with high feed rates
- ▶ Superior workpiece finishes
- ▶ Superior wear resistant
- ▶ Suitable for dry milling



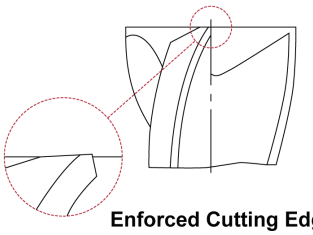


MG HM | 6&8 | 45° | PLAIN P.39

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.03	h6

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	No. of Flute
GM812060	6.0	6	13	57	6
GM812080	8.0	8	19	63	6
GM812100	10.0	10	22	72	6
GM812120	12.0	12	26	83	6
GM812160	16.0	16	32	92	6
GM812200	20.0	20	38	104	8



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N			S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○			○					

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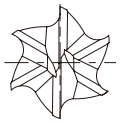
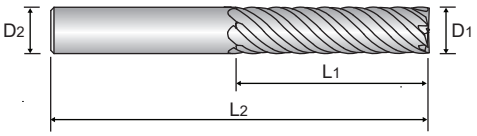
Y-COATED SOLID CARBIDE END MILLS

6 FLUTE 45° HELIX EXTRA LONG LENGTH

GM834 PLAIN SHANK

- ▶ Designed to machine hardened materials
- ▶ High speed cutting and finish milling with high feed rates
- ▶ Superior workpiece finishes
- ▶ Superior wear resistant
- ▶ Suitable for dry milling



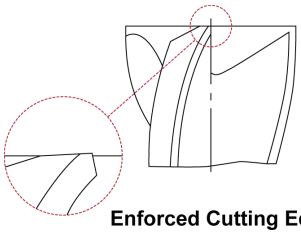


MG HM | 6 | 45° | PLAIN | P.40

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ -0.03	h6

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
GM834060	**6.0**	6	26	70
GM834080	**8.0**	8	36	90
GM834100	**10.0**	10	46	100
GM834120	**12.0**	12	56	110
GM834160	**16.0**	16	66	130
GM834200	**20.0**	20	76	140
GM834250	**25.0**	25	92	180



Enforced Cutting Edge

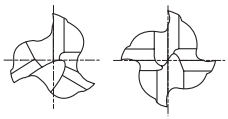
◎ : Excellent ○ : Good

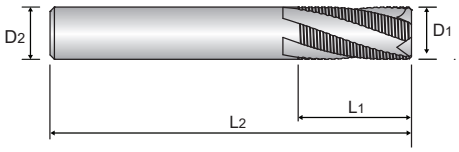
P					H	M	K	N			S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○			○					

Y-COATED SOLID CARBIDE END MILLS

MULTI FLUTE 20° HELIX LONG LENGTH ROUGHING - FINE GM814 PLAIN SHANK

- ▶ Designed to machine tool steels, alloy steels, mold steels and other hardened materials
- ▶ High velocity milling of hardened steels
- ▶ For dry and wet milling
- ▶ Fast chip ejection





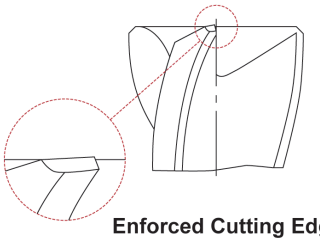
MG HM | FINE | 3&4 | 20° | PLAIN | C x 45° | P.41

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	No. of Flute	Chamfer
GM814060	**6.0**	6	16	57	3	0.38
GM814080	**8.0**	8	16	63	3	0.38
GM814100	**10.0**	10	22	72	4	0.6
GM814120	**12.0**	12	26	83	4	0.6
GM814160	**16.0**	16	32	92	4	0.6
GM814200	**20.0**	20	38	104	4	0.6

Tolerances according to DIN 7160 & 7161

Tolerance range in ㎛					
Nominal-Diameter in ㎛					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N			S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Titanium	Inconel
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
○	◎	◎	◎	○		○	○					

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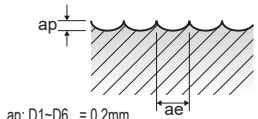
GM876, GM813

Y-COATED SOLID CARBIDE END MILLS
2 FLUTE BALL NOSE

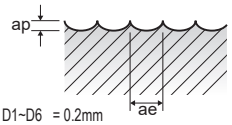
RPM = rev./min. Vc = m/min.
FEED = mm/min. Fz = mm/tooth

NORMAL SPEED

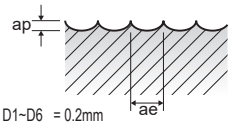
MATERIAL	P												K			
	NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS				CAST IRON			
HARDNESS	~HRc30				HRc30~HRc40				HRc45~HRc55							
STRENGTH	~1000N/mm²				1000 ~ 1250N/mm²				1500 ~ 2000N/mm²							
DIAMETER	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz
R0.5 × 1.0	17650	280	55	0.008	14250	225	45	0.008	6500	100	20	0.008	17490	280	55	0.008
R0.75 × 1.5	17650	390	85	0.011	13600	300	65	0.011	5960	135	30	0.011	17490	390	80	0.011
R1.0 × 2.0	16130	840	100	0.026	11980	550	75	0.023	5240	170	35	0.016	15980	835	100	0.026
R1.25 × 2.5	16130	840	125	0.026	11980	550	95	0.023	5240	170	40	0.016	15980	835	125	0.026
R1.5 × 3.0	14670	760	140	0.026	11200	515	105	0.023	5060	170	50	0.017	14540	755	135	0.026
R2.0 × 4.0	11760	830	150	0.035	9410	595	120	0.032	4700	200	60	0.021	11660	820	145	0.035
R2.5 × 5.0	10240	920	160	0.045	8180	650	130	0.040	4120	200	65	0.024	10150	910	160	0.045
R3.0 × 6.0	9510	1140	180	0.060	7730	930	145	0.060	3560	215	65	0.030	9420	1130	180	0.060
R4.0 × 8.0	8020	1445	200	0.090	6460	1030	160	0.080	2770	245	70	0.044	7950	1430	200	0.090
R5.0 × 10.0	7130	1715	225	0.120	5700	1140	180	0.100	2280	250	70	0.055	7070	1700	220	0.120
R6.0 × 12.0	6540	1960	245	0.150	5200	1245	195	0.120	1960	275	75	0.070	6480	1945	245	0.150
R8.0 × 16.0	5340	1925	270	0.180	4230	1185	215	0.140	1510	275	75	0.091	5290	1910	265	0.181
R10.0 × 20.0	4640	1860	290	0.200	3650	1165	230	0.160	1240	280	80	0.113	4600	1845	290	0.201



ap: D1~D6 = 0.2mm
D8~D20 = 0.3mm
ae: 0.2 x D



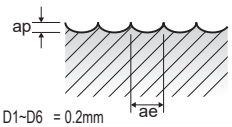
ap: D1~D6 = 0.2mm
D8~D20 = 0.3mm
ae: 0.1 x D



ap: D1~D6 = 0.2mm
D8~D20 = 0.3mm
ae: 0.2 x D

HIGH SPEED

MATERIAL	P								K			
	NON-ALLOYED STEELS ALLOY STEELS				HARDENED STEELS				CAST IRON			
HARDNESS	~HRc45				HRc45~HRc55							
STRENGTH	~1500N/mm²				1500N/mm² ~							
DIAMETER	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz
R0.5 × 1.0	28000	1455	90	0.026	28000	895	90	0.016	28000	1455	90	0.026
R0.75 × 1.5	25760	1570	120	0.030	25760	965	120	0.019	25760	1570	120	0.030
R1.0 × 2.0	23520	1660	150	0.035	23520	1055	150	0.022	23520	1660	150	0.035
R1.25 × 2.5	23520	1970	185	0.042	21280	1100	165	0.026	23520	1970	185	0.042
R1.5 × 3.0	23520	2240	220	0.048	19040	1165	180	0.031	23520	2240	220	0.048
R2.0 × 4.0	23520	3295	295	0.070	15300	1300	190	0.042	23520	3295	295	0.070
R2.5 × 5.0	23520	4030	370	0.086	13440	1345	210	0.050	23520	4030	370	0.086
R3.0 × 6.0	23520	4480	445	0.095	11760	1400	220	0.060	23520	4480	445	0.095
R4.0 × 8.0	18700	4480	470	0.120	9360	1400	235	0.075	18700	4480	470	0.120
R5.0 × 10.0	15680	4370	495	0.139	7840	1345	245	0.086	15680	4370	495	0.139
R6.0 × 12.0	13660	4370	515	0.160	6830	1300	255	0.095	13660	4370	515	0.160
R8.0 × 16.0	10700	3865	540	0.181	5340	1120	270	0.105	10700	3865	540	0.181
R10.0 × 20.0	8920	3560	560	0.200	4460	1030	280	0.115	8920	3560	560	0.200



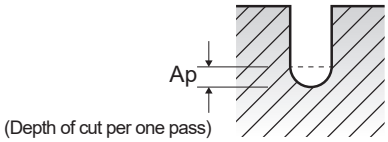
ap: D1~D6 = 0.2mm
D8~D20 = 0.3mm
ae: 0.05 x D

GM886

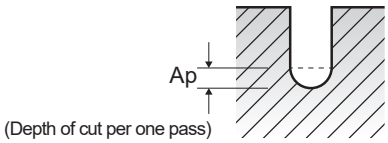
Y-COATED SOLID CARBIDE END MILLS
2 FLUTE BALL NOSE for RIB PROCESSING

RPM = rev./min. Vc = m/min.
FEED = mm/min. Fz = mm/tooth

MATERIAL	P					P				
	NON-ALLOYED STEELS ALLOY STEELS					ALLOY STEELS HEAT RESISTANT STEELS				
HARDNESS	~HRc30					HRc30~HRc45				
STRENGTH	~1000N/mm²					1000 ~ 1500N/mm²				
DIAMETER	RPM	FEED	ap (mm)	Vc	Fz	RPM	FEED	ap (mm)	Vc	Fz
0.5	32550~42000	185~515	0.023~0.045	49~63	0.003~0.006	23630~29930	90~285	0.023~0.045	35~45	0.002~0.005
0.6	32550~42000	235~660	0.027~0.054	58~75	0.004~0.008	23630~29930	115~370	0.027~0.054	42~54	0.002~0.006
0.8	32550~42000	235~660	0.036~0.072	78~101	0.004~0.008	23630~29930	115~370	0.036~0.072	57~72	0.002~0.006
1.0	30450~38330	265~735	0.045~0.090	91~115	0.004~0.010	21530~27300	130~410	0.045~0.090	64~82	0.003~0.008
1.2	25200~32030	265~820	0.055~0.100	90~115	0.005~0.013	17850~22580	130~410	0.055~0.100	64~81	0.004~0.009
1.4	22050~27300	265~820	0.062~0.125	92~114	0.006~0.015	15750~18900	130~410	0.062~0.125	66~79	0.004~0.011
1.5	19950~25200	265~820	0.070~0.135	90~113	0.007~0.016	14180~18380	130~410	0.070~0.135	64~82	0.005~0.011
1.6	18900~24680	265~820	0.075~0.145	90~118	0.007~0.017	13860~17330	130~410	0.075~0.145	66~83	0.005~0.012
1.8	17850~22580	265~820	0.080~0.160	96~122	0.007~0.018	12600~15750	130~410	0.080~0.160	68~85	0.005~0.013
2.0	16280~19950	265~820	0.090~0.180	97~119	0.008~0.021	11550~14180	130~410	0.090~0.180	69~85	0.006~0.014
3.0	11030~13650	265~820	0.135~0.270	99~123	0.012~0.030	7350~9450	130~410	0.135~0.270	66~85	0.009~0.022
4.0	8930~11550	265~820	0.180~0.360	107~138	0.015~0.035	6090~8190	130~410	0.180~0.360	73~98	0.011~0.025
5.0	7140~9240	265~820	0.225~0.450	107~138	0.018~0.044	4830~6510	130~410	0.225~0.450	72~97	0.014~0.031
6.0	5990~7670	265~820	0.270~0.540	107~138	0.022~0.053	4100~5460	130~410	0.270~0.540	74~98	0.016~0.038



MATERIAL	P					K				
	HARDENED STEELS					CAST IRON				
HARDNESS	HRc45~HRc55									
STRENGTH	1500 ~ 2000N/mm²									
DIAMETER	RPM	FEED	ap (mm)	Vc	Fz	RPM	FEED	ap (mm)	Vc	Fz
0.5	15020~18900	90~185	0.005~0.009	22~28	0.003~0.005	32550~42000	185~515	0.023~0.045	49~63	0.003~0.006
0.6	15020~18900	115~235	0.005~0.011	27~34	0.004~0.006	32550~42000	235~660	0.027~0.054	58~75	0.004~0.008
0.8	15020~18900	115~235	0.007~0.014	36~45	0.004~0.006	32550~42000	235~660	0.036~0.072	78~101	0.004~0.008
1.0	13650~17120	130~265	0.009~0.018	41~51	0.005~0.008	30450~38330	265~735	0.045~0.090	91~115	0.004~0.010
1.2	11340~14390	130~265	0.010~0.022	41~52	0.006~0.009	25200~32030	265~820	0.055~0.100	90~115	0.005~0.013
1.4	9870~12290	130~265	0.012~0.025	41~51	0.007~0.011	22050~27300	265~820	0.062~0.125	92~114	0.006~0.015
1.5	9140~11240	130~265	0.014~0.028	41~50	0.007~0.012	19950~25200	265~820	0.070~0.135	90~113	0.007~0.016
1.6	8720~10920	130~265	0.015~0.030	42~52	0.008~0.012	18900~24680	265~820	0.075~0.145	90~118	0.007~0.017
1.8	7770~9870	130~265	0.016~0.032	42~53	0.008~0.013	17850~22580	265~820	0.080~0.160	96~122	0.007~0.018
2.0	7250~9030	130~265	0.018~0.035	43~54	0.009~0.015	16280~19950	265~820	0.090~0.180	97~119	0.008~0.021
3.0	4830~5990	130~265	0.028~0.055	43~54	0.014~0.022	11030~13650	265~820	0.135~0.270	99~123	0.012~0.030
4.0	4100~5150	130~265	0.035~0.070	49~62	0.016~0.026	8930~11550	265~820	0.180~0.360	107~138	0.015~0.035
5.0	3260~4100	130~265	0.044~0.088	49~61	0.020~0.032	7140~9240	265~820	0.225~0.450	107~138	0.018~0.044
6.0	2730~3470	130~265	0.053~0.105	49~62	0.024~0.038	5990~7670	265~820	0.270~0.540	107~138	0.022~0.053



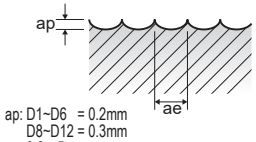
GM902

Y-COATED SOLID CARBIDE END MILLS
2 FLUTE BALL NOSE with TAPER NECK

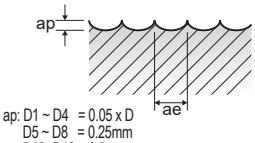
RPM = rev./min. Vc = m/min.
FEED = mm/min. Fz = mm/tooth

NORMAL SPEED

MATERIAL	P											
	NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS			
HARDNESS	HRc30~HRc40				HRc40~HRc50				HRc50~HRc55			
STRENGTH	1000 ~ 1250N/mm²				1250 ~ 1500N/mm²				1750 ~ 2000N/mm²			
DIAMETER	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz
R0.5 × 1.0	10690	170	35	0.008	16800	390	55	0.012	16800	335	55	0.010
R1.0 × 2.0	9710	275	60	0.014	12080	670	75	0.028	11870	620	75	0.026
R1.5 × 3.0	8400	390	80	0.023	10710	925	100	0.043	10290	895	95	0.043
R2.0 × 4.0	7060	440	90	0.031	8930	925	110	0.052	8610	895	110	0.052
R2.5 × 5.0	6130	485	95	0.040	7880	925	125	0.059	7560	895	120	0.059
R3.0 × 6.0	5780	695	110	0.060	7250	965	135	0.067	6830	925	130	0.068
R4.0 × 8.0	4830	775	120	0.080	5880	880	150	0.075	5570	840	140	0.075
R5.0 × 10.0	4270	860	135	0.101	5090	840	160	0.083	4880	810	155	0.083



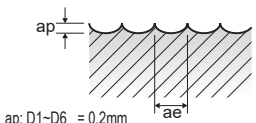
ap: D1~D6 = 0.2mm
D8~D12 = 0.3mm
ae: 0.2 x D



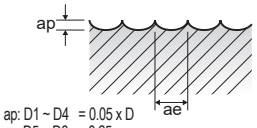
ap: D1 ~ D4 = 0.05 x D
D5 ~ D8 = 0.25mm
D10~D12 = 0.3 mm
ae: 0.1 x D

HIGH SPEED

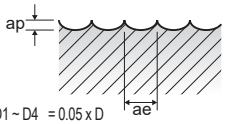
MATERIAL	P												K			
	NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS				CAST IRON			
HARDNESS	~HRc45				HRc45~HRc50				HRc45~HRc55							
STRENGTH	~1500N/mm²				1250 ~ 1750N/mm²				1500 ~ 2000N/mm²							
DIAMETER	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz
R0.5 × 1.0	21000	1090	65	0.026	16800	650	55	0.019	16800	580	55	0.017	21000	1090	65	0.026
R1.0 × 2.0	17640	1260	110	0.036	12080	895	75	0.037	11970	1030	75	0.043	17640	1260	110	0.036
R1.5 × 3.0	17640	1680	165	0.048	10710	1470	100	0.069	10290	1365	95	0.066	17640	1680	165	0.048
R2.0 × 4.0	17640	2470	220	0.070	8930	1420	110	0.080	8610	1365	110	0.079	17640	2470	220	0.070
R2.5 × 5.0	17640	3025	275	0.086	7880	1385	125	0.088	7560	1315	120	0.087	17640	3025	275	0.086
R3.0 × 6.0	17640	3360	335	0.095	7250	1470	135	0.101	6930	1420	130	0.102	17640	3360	335	0.095
R4.0 × 8.0	14070	3360	355	0.119	5880	1315	150	0.112	5570	1210	140	0.109	14070	3360	355	0.119
R5.0 × 10.0	11760	3255	370	0.138	5040	1210	160	0.120	4830	1155	150	0.120	11760	3255	370	0.138



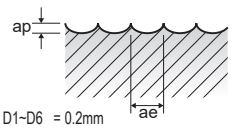
ap: D1~D6 = 0.2mm
D8~D12 = 0.3mm
ae: 0.05 x D



ap: D1 ~ D4 = 0.05 x D
D5 ~ D8 = 0.25mm
D10~D20 = 0.3 mm
ae: 0.05 x D



ap: D1 ~ D4 = 0.05 x D
D5 ~ D8 = 0.25mm
D10~D20 = 0.3 mm
ae: 0.05 x D



ap: D1~D6 = 0.2mm
D8~D12 = 0.3mm
ae: 0.05 x D

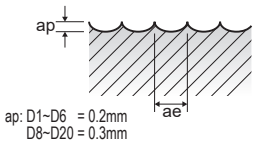
GM815

Y-COATED SOLID CARBIDE END MILLS
4 FLUTE LONG LENGTH BALL NOSE

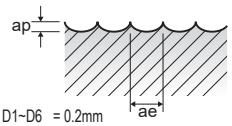
RPM = rev./min. Vc = m/min.
FEED = mm/min. Fz = mm/tooth

NORMAL SPEED

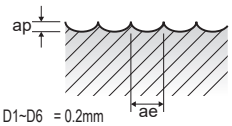
MATERIAL	P												K			
	NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS				CAST IRON			
HARDNESS	~HRc30				HRc30~HRc40				HRc45~HRc55							
STRENGTH	~1000N/mm²				1000 ~ 1250N/mm²				1500N/mm²							
DIAMETER	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz
R1.0 × 2.0	16550	840	105	0.013	12140	505	75	0.010	5080	170	30	0.008	16550	840	105	0.013
R1.5 × 3.0	13760	1070	130	0.019	10500	725	100	0.017	4750	230	45	0.012	13760	1070	130	0.019
R2.0 × 4.0	11030	1165	140	0.026	8820	840	110	0.024	4410	285	55	0.016	11030	1165	140	0.026
R2.5 × 5.0	9600	1290	150	0.034	7670	915	120	0.030	3860	285	60	0.018	9600	1290	150	0.034
R3.0 × 6.0	8910	1605	170	0.045	7250	1315	135	0.045	3340	295	65	0.022	8910	1605	170	0.045
R4.0 × 8.0	7520	2050	190	0.068	6060	1450	150	0.060	2590	345	65	0.033	7520	2050	190	0.068
R5.0 × 10.0	6690	2415	210	0.090	5340	1605	170	0.075	2140	355	65	0.041	6690	2415	210	0.090
R6.0 × 12.0	6130	2730	230	0.111	4870	1735	185	0.089	1840	390	70	0.053	6130	2730	230	0.111
R8.0 × 16.0	5010	2730	250	0.136	3970	1680	200	0.106	1420	390	70	0.069	5010	2730	250	0.136



ap: D1~D6 = 0.2mm
D8~D20 = 0.3mm
ae: 0.2 x D



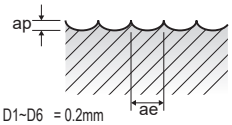
ap: D1~D6 = 0.2mm
D8~D20 = 0.3mm
ae: 0.1 x D



ap: D1~D6 = 0.2mm
D8~D20 = 0.3mm
ae: 0.2 x D

HIGH SPEED

MATERIAL	P								K			
	NON-ALLOYED STEELS ALLOY STEELS				HARDENED STEELS				CAST IRON			
HARDNESS	~HRc30				HRc45~HRc55							
STRENGTH	~1000N/mm^2				1500N/mm^2 ~							
DIAMETER	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz
R1.0 × 2.0	22050	2310	140	0.026	22050	1470	140	0.017	22050	2310	140	0.026
R1.5 × 3.0	22050	3150	210	0.036	17850	1640	170	0.023	22050	3150	210	0.036
R2.0 × 4.0	22050	4620	275	0.052	14340	1825	180	0.032	22050	4620	275	0.052
R2.5 × 5.0	22050	5670	345	0.064	12600	1890	200	0.038	22050	5670	345	0.064
R3.0 × 6.0	22050	6300	415	0.071	11030	1975	210	0.045	22050	6300	415	0.071
R4.0 × 8.0	17540	6300	440	0.090	8780	1975	220	0.056	17540	6300	440	0.090
R5.0 × 10.0	14700	6145	460	0.105	7350	1890	230	0.064	14700	6145	460	0.105
R6.0 × 12.0	12810	6145	485	0.120	6410	1825	240	0.071	12810	6145	485	0.120
R8.0 × 16.0	10030	5440	505	0.136	5010	1575	250	0.079	10030	5440	505	0.136



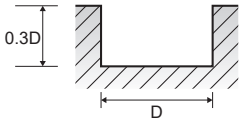
ap: D1~D6 = 0.2mm
D8~D20 = 0.3mm
ae: 0.05 x D

GM818

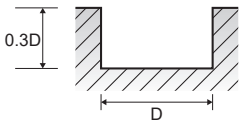
Y-COATED SOLID CARBIDE END MILLS
2 FLUTE LONG LENGTH CORNER RADIUS - SLOTTING

RPM = rev./min. Vc = m/min.
FEED = mm/min. Fz = mm/tooth

MATERIAL	P											
	NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS			
HARDNESS	~HRc45				HRc30~HRc45				HRc45~HRc55			
STRENGTH	~1500N/mm²				1000 ~ 1500N/mm²				1500 ~ 2000N/mm²			
DIAMETER	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz
4.0	5900	185	75	0.016	3750	95	45	0.013	2370	30	30	0.006
5.0	5040	230	80	0.023	3190	110	50	0.017	2090	35	35	0.008
6.0	4350	275	80	0.032	2770	140	50	0.025	1800	35	35	0.010
8.0	3300	295	85	0.045	2090	140	55	0.033	1390	35	35	0.013
10.0	2770	295	85	0.053	1800	140	55	0.039	1110	35	35	0.016
12.0	2270	230	85	0.051	1530	125	60	0.041	920	35	35	0.019



MATERIAL	K			
	CAST IRON			
HARDNESS				
STRENGTH				
DIAMETER	RPM	FEED	Vc	Fz
4.0	5900	185	75	0.016
5.0	5040	230	80	0.023
6.0	4350	275	80	0.032
8.0	3300	295	85	0.045
10.0	2770	295	85	0.053
12.0	2270	230	85	0.051

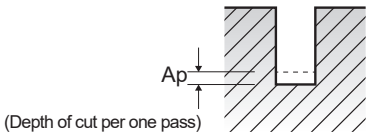


GM8A1

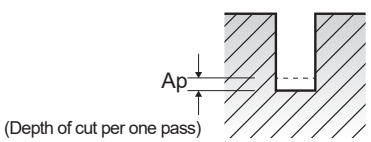
Y-COATED SOLID CARBIDE END MILLS
2 FLUTE CORNER RADIUS for RIB PROCESSING - SLOTTING

RPM = rev./min. Vc = m/min.
FEED = mm/min. Fz = mm/tooth

MATERIAL	P									
	NON-ALLOYED STEELS ALLOY STEELS					ALLOY STEELS HEAT RESISTANT STEELS				
HARDNESS	~HRc30					HRc30~HRc45				
STRENGTH	~1000N/mm²					1000 ~ 1500N/mm²				
DIAMETER	RPM	FEED	ap (mm)	Vc	Fz	RPM	FEED	ap (mm)	Vc	Fz
1.0	23630~29400	295~850	0.045~0.090	71~88	0.006~0.014	16490~21000	200~630	0.045~0.090	49~63	0.006~0.015
1.2	19430~23630	295~945	0.055~0.100	70~85	0.008~0.020	13650~17330	200~630	0.055~0.100	49~62	0.007~0.018
1.4	16800~21000	295~945	0.062~0.125	70~88	0.009~0.023	12080~14700	200~630	0.062~0.125	51~62	0.008~0.021
1.5	15230~19430	295~945	0.070~0.135	68~87	0.010~0.024	11030~14180	200~630	0.070~0.135	49~64	0.009~0.022
1.6	14700~18900	295~945	0.075~0.145	70~90	0.010~0.025	10710~13440	200~630	0.075~0.145	51~64	0.009~0.023
1.8	13650~17330	295~945	0.080~0.160	74~93	0.011~0.027	9660~12080	200~630	0.080~0.160	52~65	0.010~0.026
2.0	12600~15230	295~945	0.090~0.180	75~91	0.012~0.031	8720~11030	200~630	0.090~0.180	52~66	0.011~0.029
2.5	9980~12600	295~945	0.112~0.235	75~94	0.015~0.038	7040~8930	200~630	0.112~0.235	53~67	0.014~0.035
3.0	8400~10500	295~945	0.135~0.270	75~94	0.018~0.045	5780~7350	200~630	0.135~0.270	52~66	0.017~0.043
4.0	6300~7880	295~945	0.180~0.360	75~94	0.023~0.060	4310~5570	200~630	0.180~0.360	52~67	0.023~0.057
5.0	5040~6300	295~945	0.225~0.450	75~94	0.029~0.075	3470~4410	200~630	0.225~0.450	52~66	0.029~0.071
6.0	4200~5250	295~945	0.270~0.540	75~94	0.035~0.090	2940~3680	200~630	0.270~0.540	53~66	0.034~0.086



MATERIAL	P					K				
	HARDENED STEELS					CAST IRON				
HARDNESS	HRc45~HRc55									
STRENGTH	1500 ~ 2000N/mm²									
DIAMETER	RPM	FEED	ap (mm)	Vc	Fz	RPM	FEED	ap (mm)	Vc	Fz
1.0	10500~13130	70~135	0.009~0.018	31~39	0.003~0.005	23630~29400	295~850	0.045~0.090	71~88	0.006~0.014
1.2	8720~11030	70~135	0.010~0.022	31~40	0.004~0.006	19430~23630	295~945	0.055~0.100	70~85	0.008~0.020
1.4	7560~9450	70~135	0.012~0.025	32~40	0.005~0.007	16800~21000	295~945	0.062~0.125	70~88	0.009~0.023
1.5	7040~8610	70~135	0.014~0.028	32~39	0.005~0.008	15230~19430	295~945	0.070~0.135	68~87	0.010~0.024
1.6	6720~8400	70~135	0.015~0.030	32~40	0.005~0.008	14700~18900	295~945	0.075~0.145	70~90	0.010~0.025
1.8	5990~7560	70~135	0.016~0.032	32~41	0.006~0.009	13650~17330	295~945	0.080~0.160	74~93	0.011~0.027
2.0	5570~6930	70~135	0.018~0.035	33~41	0.006~0.010	12600~15230	295~945	0.090~0.180	75~91	0.012~0.031
2.5	4520~5570	70~135	0.022~0.045	34~42	0.008~0.012	9980~12600	295~945	0.112~0.235	75~94	0.015~0.038
3.0	3680~4620	70~135	0.028~0.055	33~41	0.009~0.015	8400~10500	295~945	0.135~0.270	75~94	0.018~0.045
4.0	2730~3470	70~135	0.036~0.072	33~41	0.013~0.020	6300~7880	295~945	0.180~0.360	75~94	0.023~0.060
5.0	2210~2730	70~135	0.045~0.090	33~41	0.015~0.025	5040~6300	295~945	0.225~0.450	75~94	0.029~0.075
6.0	1840~2730	70~135	0.054~0.108	33~49	0.019~0.025	4200~5250	295~945	0.270~0.540	75~94	0.035~0.090

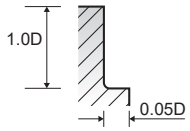


GM839

Y-COATED SOLID CARBIDE END MILLS
4 FLUTE STUB LENGTH CORNER RADIUS - SIDE CUTTING

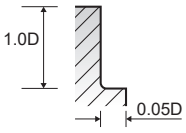
RPM = rev./min. Vc = m/min.
FEED = mm/min. Fz = mm/tooth

MATERIAL	P											
	NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS			
HARDNESS	~HRc30				HRc30~HRc45				HRc45~HRc55			
STRENGTH	~1000N/mm²				1000 ~ 1500N/mm²				1500 ~ 2000N/mm²			
DIAMETER	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz
2.0	15260	375	95	0.006	9980	225	65	0.006	6660	65	40	0.002
3.0	11770	425	110	0.009	7340	265	70	0.009	4430	75	40	0.004
4.0	9980	755	125	0.019	6090	460	75	0.019	3880	75	50	0.005
6.0	7340	870	140	0.030	4430	540	85	0.030	2640	105	50	0.010
8.0	5540	935	140	0.042	3320	500	85	0.038	2220	145	55	0.016
10.0	4300	805	135	0.047	2640	395	85	0.037	1790	120	55	0.017
12.0	3620	690	135	0.048	2220	330	85	0.037	1530	105	60	0.017



MATERIAL	K
	CAST IRON
HARDNESS	
STRENGTH	

DIAMETER	RPM	FEED	Vc	Fz
2.0	15260	375	95	0.006
3.0	11770	425	110	0.009
4.0	9980	755	125	0.019
6.0	7340	870	140	0.030
8.0	5540	935	140	0.042
10.0	4300	805	135	0.047
12.0	3620	690	135	0.048

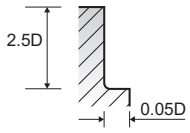


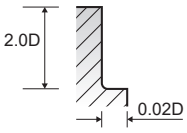
GM819

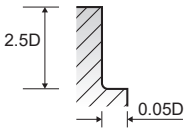
Y-COATED SOLID CARBIDE END MILLS
4 FLUTE LONG LENGTH CORNER RADIUS - SIDE CUTTING

RPM = rev./min. Vc = m/min.
FEED = mm/min. Fz = mm/tooth

MATERIAL	P												K			
	NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS				CAST IRON			
HARDNESS	~HRc30				HRc30~HRc45				HRc45~HRc55							
STRENGTH	~1000N/mm²				1000 ~ 1500N/mm²				1500 ~ 2000N/mm²							
DIAMETER	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz
3.0	7280	185	70	0.006	4710	145	45	0.008	2900	70	25	0.006	7280	185	70	0.006
4.0	5900	230	75	0.010	3750	165	45	0.011	2370	75	30	0.008	5900	230	75	0.010
5.0	5040	235	80	0.012	3190	200	50	0.016	2090	95	35	0.011	5040	235	80	0.012
6.0	4350	235	80	0.014	2770	200	50	0.018	1800	95	35	0.013	4350	235	80	0.014
8.0	3300	255	85	0.019	2090	200	55	0.024	1390	95	35	0.017	3300	255	85	0.019
10.0	2770	255	85	0.023	1800	200	55	0.028	1110	95	35	0.021	2770	255	85	0.023
12.0	2270	200	85	0.022	1530	175	60	0.029	920	75	35	0.020	2270	200	85	0.022
16.0	1910	175	95	0.023	1180	140	60	0.030	740	65	35	0.022	1910	175	95	0.023
20.0	1390	125	85	0.022	900	100	55	0.028	550	50	35	0.023	1390	125	85	0.022



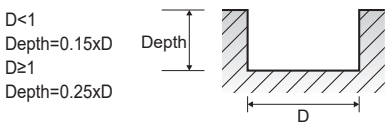


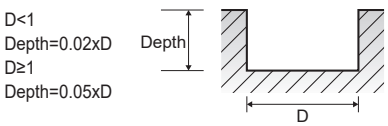


GM810

Y-COATED SOLID CARBIDE END MILLS
2 FLUTE SHORT LENGTH - SLOTTING

MATERIAL	ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS			
HARDNESS	HRc30~HRc45				HRc45~HRc55			
STRENGTH	1000 ~ 1500N/mm²				1500 ~ 2000N/mm²			
DIAMETER	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz
0.4	33000	100	40	0.002	25300	55	30	0.001
0.8	26400	165	65	0.003	19800	70	50	0.002
1	22000	175	70	0.004	16500	85	50	0.003
1.2	17600	175	65	0.005	13200	85	50	0.003
1.5	13200	165	60	0.006	9900	75	45	0.004





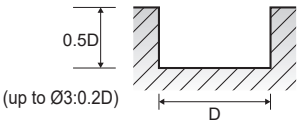
· Phone: +82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr

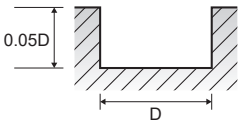
GM810

Y-COATED SOLID CARBIDE END MILLS
2 FLUTE SHORT LENGTH - SLOTTING

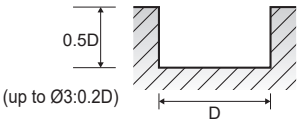
RPM = rev./min. Vc = m/min.
FEED = mm/min. Fz = mm/tooth

MATERIAL	P											
	NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS			
HARDNESS	~HRc30				HRc30~HRc45				HRc45~HRc55			
STRENGTH	~1000N/mm²				1000 ~ 1500N/mm²				1500 ~ 2000N/mm²			
DIAMETER	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz
2.0	10360	215	65	0.010	6780	135	45	0.010	4510	40	30	0.004
3.0	8010	235	75	0.015	4980	155	45	0.016	3010	45	30	0.007
4.0	6780	335	85	0.025	4140	200	50	0.024	2630	45	35	0.009
5.0	5660	360	90	0.032	3380	215	55	0.032	2080	55	35	0.013
6.0	4980	390	95	0.039	3010	245	55	0.041	1790	60	35	0.017
8.0	3760	425	95	0.057	2260	225	55	0.050	1510	85	40	0.028
10.0	2910	370	90	0.064	1790	180	55	0.050	1220	65	40	0.027
12.0	2460	315	95	0.064	1510	145	55	0.048	1040	60	40	0.029
16.0	1970	245	100	0.062	1220	125	60	0.051	810	45	40	0.028
20.0	1510	190	95	0.063	950	90	60	0.047	620	35	40	0.028





MATERIAL	M				K			
	STAINLESS STEELS				CAST IRON			
HARDNESS								
STRENGTH								
DIAMETER	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz
2.0	5660	100	35	0.009	10360	215	65	0.010
3.0	4140	135	40	0.016	8010	235	75	0.015
4.0	3470	170	45	0.024	6780	335	85	0.025
5.0	2830	180	45	0.032	5660	360	90	0.032
6.0	2540	200	50	0.039	4980	390	95	0.039
8.0	1880	200	45	0.053	3760	425	95	0.057
10.0	1510	180	45	0.060	2910	370	90	0.064
12.0	1220	145	45	0.059	2460	315	95	0.064
16.0	950	125	50	0.066	1970	245	100	0.062
20.0	750	90	45	0.060	1510	190	95	0.063

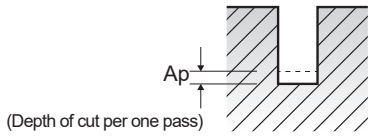


GM883

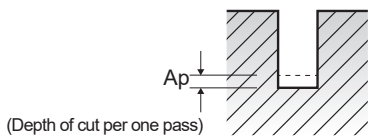
Y-COATED SOLID CARBIDE END MILLS
2 FLUTE for RIB PROCESSING - SLOTTING

RPM = rev./min. Vc = m/min.
FEED = mm/min. Fz = mm/tooth

MATERIAL	P									
	NON-ALLOYED STEELS ALLOY STEELS					ALLOY STEELS HEAT RESISTANT STEELS				
HARDNESS	~HRc30					HRc30~HRc45				
STRENGTH	~1000N/mm²					1000 ~ 1500N/mm²				
DIAMETER	RPM	FEED	ap (mm)	Vc	Fz	RPM	FEED	ap (mm)	Vc	Fz
0.4	32550~42000	210~460	0.007~0.018	39~50	0.003~0.006	23630~29400	90~355	0.007~0.018	28~35	0.002~0.006
0.5	32550~42000	210~460	0.009~0.022	49~63	0.003~0.006	23630~29400	90~355	0.009~0.022	35~44	0.002~0.006
0.6	32550~42000	265~600	0.011~0.026	58~75	0.004~0.007	23630~29400	115~450	0.011~0.026	42~53	0.002~0.008
0.7	32550~42000	265~600	0.012~0.031	68~88	0.004~0.007	23630~29400	115~450	0.012~0.031	49~62	0.002~0.008
0.8	28350~36750	295~660	0.014~0.035	68~88	0.005~0.009	20480~25730	125~505	0.014~0.035	49~62	0.003~0.010
0.9	26250~33080	295~755	0.030~0.060	71~89	0.006~0.011	18380~23630	170~565	0.030~0.060	49~64	0.005~0.012
1.0	23630~29400	295~850	0.045~0.090	71~88	0.006~0.014	16490~21000	200~630	0.045~0.090	49~63	0.006~0.015
1.2	19430~23630	295~945	0.055~0.100	70~85	0.008~0.020	13650~17330	200~630	0.055~0.100	49~62	0.007~0.018
1.4	16800~21000	295~945	0.062~0.125	70~88	0.009~0.023	12080~14700	200~630	0.062~0.125	51~62	0.008~0.021
1.5	15230~19430	295~945	0.070~0.135	68~87	0.010~0.024	11030~14180	200~630	0.070~0.135	49~64	0.009~0.022
1.6	14700~18900	295~945	0.075~0.145	70~90	0.010~0.025	10710~13440	200~630	0.075~0.145	51~64	0.009~0.023
1.8	13650~17330	295~945	0.080~0.160	74~93	0.011~0.027	9660~12080	200~630	0.080~0.160	52~65	0.010~0.026
2.0	12600~15230	295~945	0.090~0.180	75~91	0.012~0.031	8720~11030	200~630	0.090~0.180	52~66	0.011~0.029
2.5	9980~12600	295~945	0.112~0.235	75~94	0.015~0.038	7040~8930	200~630	0.112~0.235	53~67	0.014~0.035
3.0	8400~10500	295~945	0.135~0.270	75~94	0.018~0.045	5780~7350	200~630	0.135~0.270	52~66	0.017~0.043
4.0	6300~7880	295~945	0.180~0.360	75~94	0.023~0.060	4310~5570	200~630	0.180~0.360	52~67	0.023~0.057
5.0	5040~6300	295~945	0.225~0.450	75~94	0.029~0.075	3470~4410	200~630	0.225~0.450	52~66	0.029~0.071
6.0	4200~5250	295~945	0.270~0.540	75~94	0.035~0.090	2940~3680	200~630	0.270~0.540	53~66	0.034~0.086



MATERIAL	P					K				
	HARDENED STEELS					CAST IRON				
HARDNESS	HRc45~HRc55									
STRENGTH	1500 ~ 2000N/mm²									
DIAMETER	RPM	FEED	ap (mm)	Vc	Fz	RPM	FEED	ap (mm)	Vc	Fz
0.4	15020~17850	30~95	0.004~0.008	18~21	0.001~0.003	32550~42000	210~460	0.007~0.018	39~50	0.003~0.006
0.5	15020~17850	30~95	0.004~0.009	22~27	0.001~0.003	32550~42000	210~460	0.009~0.022	49~63	0.003~0.006
0.6	15020~17850	40~115	0.005~0.011	27~32	0.001~0.003	32550~42000	265~600	0.011~0.026	58~75	0.004~0.007
0.7	15020~17850	40~115	0.006~0.013	31~37	0.001~0.003	32550~42000	265~600	0.012~0.031	68~88	0.004~0.007
0.8	13130~15540	45~130	0.007~0.015	31~37	0.002~0.004	28350~36750	295~660	0.014~0.035	68~88	0.005~0.009
0.9	11550~13130	60~135	0.008~0.016	31~35	0.003~0.005	26250~33080	295~755	0.030~0.060	71~89	0.006~0.011
1.0	10500~13130	70~135	0.009~0.018	31~39	0.003~0.005	23630~29400	295~850	0.045~0.090	71~88	0.006~0.014
1.2	8720~11030	70~135	0.010~0.022	31~40	0.004~0.006	19430~23630	295~945	0.055~0.100	70~85	0.008~0.020
1.4	7560~9450	70~135	0.012~0.025	32~40	0.005~0.007	16800~21000	295~945	0.062~0.125	70~88	0.009~0.023
1.5	7040~8610	70~135	0.014~0.028	32~39	0.005~0.008	15230~19430	295~945	0.070~0.135	68~87	0.010~0.024
1.6	6720~8400	70~135	0.015~0.030	32~40	0.005~0.008	14700~18900	295~945	0.075~0.145	70~90	0.010~0.025
1.8	5990~7560	70~135	0.016~0.032	32~41	0.006~0.009	13650~17330	295~945	0.080~0.160	74~93	0.011~0.027
2.0	5570~6930	70~135	0.018~0.035	33~41	0.006~0.010	12600~15230	295~945	0.090~0.180	75~91	0.012~0.031
2.5	4520~5570	70~135	0.022~0.045	34~42	0.008~0.012	9980~12600	295~945	0.112~0.235	75~94	0.015~0.038
3.0	3680~4620	70~135	0.028~0.055	33~41	0.009~0.015	8400~10500	295~945	0.135~0.270	75~94	0.018~0.045
4.0	2730~3470	70~135	0.036~0.072	33~41	0.013~0.020	6300~7880	295~945	0.180~0.360	75~94	0.023~0.060
5.0	2210~2730	70~135	0.045~0.090	33~41	0.015~0.025	5040~6300	295~945	0.225~0.450	75~94	0.029~0.075
6.0	1840~2730	70~135	0.054~0.108	33~49	0.019~0.025	4200~5250	295~945	0.270~0.540	75~94	0.035~0.090

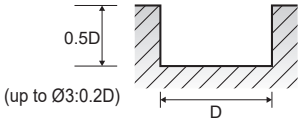


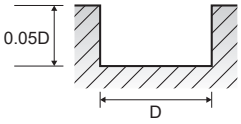
GM895

Y-COATED SOLID CARBIDE END MILLS
3 FLUTE 38° HELIX SHORT LENGTH - SLOTTING

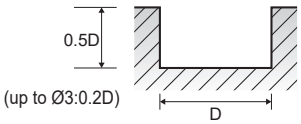
RPM = rev./min. Vc = m/min.
FEED = mm/min. Fz = mm/tooth

MATERIAL	P											
	NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS			
HARDNESS	~HRc30				HRc30~HRc45				HRc45~HRc55			
STRENGTH	~1000N/mm²				1000 ~ 1500N/mm²				1500 ~ 2000N/mm²			
DIAMETER	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz
2.0	12720	185	80	0.005	8320	120	50	0.005	5540	35	35	0.002
3.0	9810	210	90	0.007	6120	145	60	0.008	3700	40	35	0.004
4.0	8320	295	105	0.012	5080	175	65	0.011	3230	40	40	0.004
5.0	6930	310	110	0.015	4160	185	65	0.015	2550	50	40	0.007
6.0	6120	340	115	0.019	3700	220	70	0.020	2200	55	40	0.008
8.0	4620	375	115	0.027	2770	200	70	0.024	1850	70	45	0.013
10.0	3590	330	115	0.031	2200	155	70	0.023	1500	60	45	0.013
12.0	3010	275	115	0.030	1850	130	70	0.023	1280	55	50	0.014
16.0	2420	220	120	0.030	1500	110	75	0.024	990	40	50	0.013





MATERIAL	M				K			
	STAINLESS STEELS				CAST IRON			
HARDNESS								
STRENGTH								
DIAMETER	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz
2.0	6930	90	45	0.004	12720	185	80	0.005
3.0	5080	120	50	0.008	9810	210	90	0.007
4.0	4270	145	55	0.011	8320	295	105	0.012
5.0	3480	155	55	0.015	6930	310	110	0.015
6.0	3120	175	60	0.019	6120	340	115	0.019
8.0	2310	175	60	0.025	4620	375	115	0.027
10.0	1850	160	60	0.029	3590	330	115	0.031
12.0	1500	130	55	0.029	3010	275	115	0.030
16.0	1170	110	60	0.031	2420	220	120	0.030

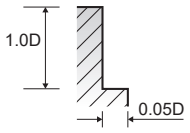


GM895

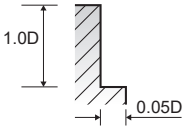
Y-COATED SOLID CARBIDE END MILLS
3 FLUTE 38° HELIX SHORT LENGTH - SIDE CUTTING

RPM = rev./min. Vc = m/min.
FEED = mm/min. Fz = mm/tooth

MATERIAL	P											
	NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS			
HARDNESS	~HRc30				HRc30~HRc45				HRc45~HRc55			
STRENGTH	~1000N/mm²				1000 ~ 1500N/mm²				1500 ~ 2000N/mm²			
DIAMETER	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz
2.0	12720	230	80	0.006	8320	155	50	0.006	5540	35	35	0.002
3.0	9810	265	90	0.009	6120	165	60	0.009	3700	45	35	0.004
4.0	8320	475	105	0.019	5080	285	65	0.019	3230	50	40	0.005
5.0	6930	495	110	0.024	4160	295	65	0.024	2550	60	40	0.008
6.0	6120	550	115	0.030	3700	340	70	0.031	2200	65	40	0.010
8.0	4620	585	115	0.042	2770	320	70	0.039	1850	90	45	0.016
10.0	3590	505	115	0.047	2200	255	70	0.039	1500	75	45	0.017
12.0	3010	430	115	0.048	1850	210	70	0.038	1280	65	50	0.017
16.0	2420	340	120	0.047	1500	165	75	0.037	990	50	50	0.017



MATERIAL	M				K			
	STAINLESS STEELS				CAST IRON			
HARDNESS								
STRENGTH								
DIAMETER	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz
2.0	6930	125	45	0.006	12720	230	80	0.006
3.0	5080	140	50	0.009	9810	265	90	0.009
4.0	4270	230	55	0.018	8320	475	105	0.019
5.0	3480	255	55	0.024	6930	495	110	0.024
6.0	3120	275	60	0.029	6120	550	115	0.030
8.0	2310	290	60	0.042	4620	585	115	0.042
10.0	1850	255	60	0.046	3590	505	115	0.047
12.0	1500	200	55	0.044	3010	430	115	0.048
16.0	1170	165	60	0.047	2420	340	120	0.047

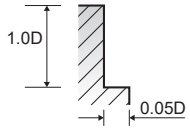


GM811

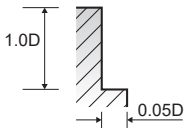
Y-COATED SOLID CARBIDE END MILLS
4 FLUTE SHORT LENGTH - SIDE CUTTING

RPM = rev./min. Vc = m/min.
FEED = mm/min. Fz = mm/tooth

MATERIAL	P											
	NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS			
HARDNESS	~HRc30				HRc30~HRc45				HRc45~HRc55			
STRENGTH	~1000N/mm²				1000 ~ 1500N/mm²				1500 ~ 2000N/mm²			
DIAMETER	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz
2.0	12950	315	80	0.006	8470	190	55	0.006	5640	55	35	0.002
3.0	9990	360	95	0.009	6230	225	60	0.009	3760	65	35	0.004
4.0	8470	640	105	0.019	5170	390	65	0.019	3290	65	40	0.005
5.0	7060	670	110	0.024	4230	405	65	0.024	2600	80	40	0.008
6.0	6230	740	115	0.030	3760	460	70	0.031	2240	90	40	0.010
8.0	4700	795	120	0.042	2820	425	70	0.038	1880	125	45	0.017
10.0	3650	685	115	0.047	2240	335	70	0.037	1520	100	50	0.016
12.0	3070	580	115	0.047	1880	280	70	0.037	1300	90	50	0.017
16.0	2460	460	125	0.047	1520	225	75	0.037	1010	65	50	0.016
20.0	1880	360	120	0.048	1190	180	75	0.038	760	45	50	0.015
25.0	1520	280	120	0.046	940	145	75	0.039	600	35	45	0.015



MATERIAL	M				K			
	STAINLESS STEELS				CAST IRON			
HARDNESS								
STRENGTH								
DIAMETER	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz
2.0	7060	155	45	0.005	12950	315	80	0.006
3.0	5170	190	50	0.009	9990	360	95	0.009
4.0	4350	315	55	0.018	8470	640	105	0.019
5.0	3540	335	55	0.024	7060	670	110	0.024
6.0	3180	370	60	0.029	6230	740	115	0.030
8.0	2350	390	60	0.041	4700	795	120	0.042
10.0	1880	335	60	0.045	3650	685	115	0.047
12.0	1520	270	55	0.044	3070	580	115	0.047
16.0	1230	225	60	0.046	2460	460	125	0.047
20.0	940	170	60	0.045	1880	360	120	0.048
25.0	760	135	60	0.044	1520	280	120	0.046

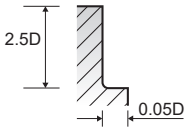


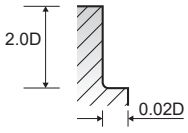
GM817

Y-COATED SOLID CARBIDE END MILLS
4 FLUTE LONG LENGTH - SIDE CUTTING

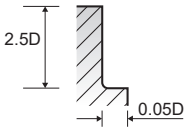
RPM = rev./min. Vc = m/min.
FEED = mm/min. Fz = mm/tooth

MATERIAL	P											
	NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS			
HARDNESS	~HRc30				HRc30~HRc45				HRc45~HRc55			
STRENGTH	~1000N/mm²				1000 ~ 1500N/mm²				1500 ~ 2000N/mm²			
DIAMETER	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz
2.0	9880	225	60	0.006	5640	90	35	0.004	3530	50	20	0.004
3.0	6910	260	65	0.009	4000	110	40	0.007	2460	60	25	0.006
4.0	5600	315	70	0.014	3180	130	40	0.010	2000	65	25	0.008
5.0	4780	405	75	0.021	2710	155	45	0.014	1770	80	30	0.011
6.0	4120	480	80	0.029	2350	200	45	0.021	1530	100	30	0.016
8.0	3140	515	80	0.041	1770	200	45	0.028	1180	100	30	0.021
10.0	2630	515	85	0.049	1530	200	50	0.033	940	100	30	0.027
12.0	2150	405	80	0.047	1300	180	50	0.035	780	80	30	0.026
16.0	1810	360	90	0.050	1000	140	50	0.035	630	65	30	0.026
20.0	1320	260	85	0.049	760	100	50	0.033	470	50	30	0.027





MATERIAL	K			
	CAST IRON			
HARDNESS				
STRENGTH				
DIAMETER	RPM	FEED	Vc	Fz
2.0	9880	225	60	0.006
3.0	6910	260	65	0.009
4.0	5600	315	70	0.014
5.0	4780	405	75	0.021
6.0	4120	480	80	0.029
8.0	3140	515	80	0.041
10.0	2630	515	85	0.049
12.0	2150	405	80	0.047
16.0	1810	360	90	0.050
20.0	1320	260	85	0.049



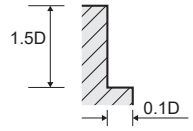
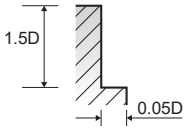
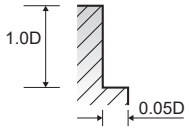
GM812

Y-COATED SOLID CARBIDE END MILLS

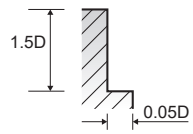
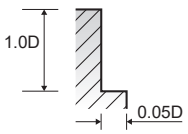
6&8 FLUTE 45° HELIX LONG LENGTH - SIDE CUTTING

RPM = rev./min. Vc = m/min.
FEED = mm/min. Fz = mm/tooth

NORMAL SPEED

MATERIAL	P											
	NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS			
HARDNESS	~HRc30				HRc30~HRc50				HRc50~HRc55			
STRENGTH	~1000N/mm²				1000 ~ 1750N/mm²				1750 ~ 2080N/mm²			
DIAMETER	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz
6.0	5670	2040	105	0.060	3960	1395	75	0.059	1610	215	30	0.022
8.0	4280	2040	110	0.079	3000	1395	75	0.078	1180	215	30	0.030
10.0	3430	2040	110	0.099	2370	1395	75	0.098	1020	215	30	0.035
12.0	2900	1715	110	0.099	2040	1185	75	0.097	860	185	30	0.036
16.0	2140	1285	110	0.100	1510	900	75	0.099	650	135	35	0.035
20.0	1710	1030	105	0.075	1180	705	75	0.075	510	110	30	0.027
												

HIGH SPEED

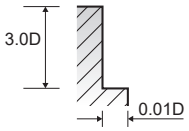
MATERIAL	P							
	NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS			
HARDNESS	~ HRc50				HRc50 ~ HRc55			
STRENGTH	~1750N/mm²				1750 ~ 2080N/mm²			
DIAMETER	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz
6.0	17140	6210	325	0.060	8570	3110	160	0.060
8.0	12850	6210	325	0.081	6430	3110	160	0.081
10.0	10180	6110	320	0.100	5140	3110	160	0.101
12.0	8570	5140	325	0.100	4280	2570	160	0.100
16.0	6430	3855	325	0.100	3220	1930	160	0.100
20.0	5140	3110	325	0.076	2570	1500	160	0.073
								

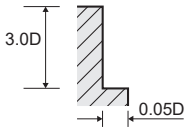
GM834

Y-COATED SOLID CARBIDE END MILLS
6 FLUTE 45° HELIX EXTRA LONG LENGTH - SIDE CUTTING

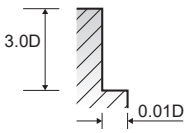
RPM = rev./min. Vc = m/min.
FEED = mm/min. Fz = mm/tooth

MATERIAL	P											
	NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS			
HARDNESS	~HRc30				HRc30~HRc45				HRc45~HRc55			
STRENGTH	~1000N/mm²				1000 ~ 1500N/mm²				1500 ~ 2000N/mm²			
DIAMETER	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz
6.0	2270	480	45	0.035	1700	355	30	0.035	1420	255	25	0.030
8.0	1700	460	45	0.045	1280	335	30	0.044	1070	245	25	0.038
10.0	1360	450	45	0.055	1020	305	30	0.050	860	235	25	0.046
12.0	1130	410	45	0.060	860	275	30	0.053	700	215	25	0.051
16.0	860	335	45	0.065	640	235	30	0.061	540	175	25	0.054
20.0	680	285	45	0.070	510	205	30	0.067	430	155	25	0.060
25.0	550	245	45	0.074	410	175	30	0.071	350	135	25	0.064





MATERIAL	K			
	CAST IRON			
HARDNESS				
STRENGTH				
DIAMETER	RPM	FEED	Vc	Fz
6.0	2270	480	45	0.035
8.0	1700	460	45	0.045
10.0	1360	450	45	0.055
12.0	1130	410	45	0.060
16.0	860	335	45	0.065
20.0	680	285	45	0.070
25.0	550	245	45	0.074



· Phone: +82-32-526-0909, www.yg1.kr, E-mail:yg1@yg1.kr

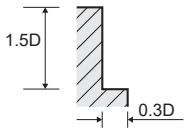
GM814

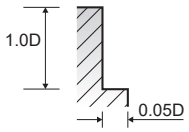
Y-COATED SOLID CARBIDE END MILLS

MULTI FLUTE 20° HELIX LONG LENGTH ROUGHING - SIDE CUTTING

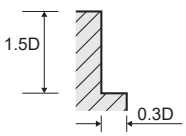
RPM = rev./min. Vc = m/min.
FEED = mm/min. Fz = mm/tooth

MATERIAL	P											
	NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS			
HARDNESS	~HRc30				HRc30~HRc45				HRc45~HRc55			
STRENGTH	~1000N/mm²				1000 ~ 1500N/mm²				1500 ~ 2000N/mm²			
DIAMETER	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz
6.0	16380	2435	310	0.050	13020	880	245	0.023	3570	275	65	0.026
8.0	12180	2435	305	0.067	9660	880	245	0.030	2520	250	65	0.033
10.0	9660	2435	305	0.063	7980	880	250	0.028	2100	305	65	0.036
12.0	8400	2520	315	0.075	6300	840	240	0.033	1760	275	65	0.039
16.0	6300	2520	315	0.100	5040	800	255	0.040	1260	170	65	0.034
20.0	5040	2270	315	0.113	3780	590	240	0.039	1050	160	65	0.038





MATERIAL	M				K			
	STAINLESS STEELS				CAST IRON			
HARDNESS								
STRENGTH								
DIAMETER	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz
6.0	8820	600	165	0.023	16380	2435	310	0.050
8.0	6620	600	165	0.030	12180	2435	305	0.067
10.0	5360	600	170	0.028	9660	2435	305	0.063
12.0	4410	600	165	0.034	8400	2520	315	0.075
16.0	3470	535	175	0.039	6300	2520	315	0.100
20.0	2520	380	160	0.038	5040	2270	315	0.113



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