

YU-XP19 INCH / METRIC



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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

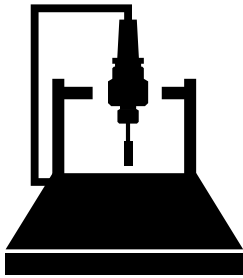
Work Material

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



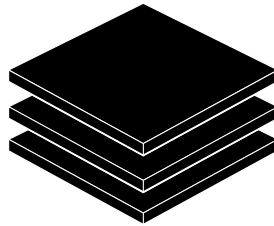
For Mold & Die Industries

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



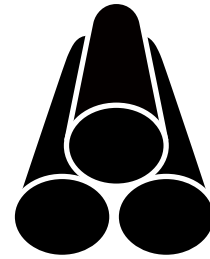
Honing

Advanced honing technology system made from YG-1



Coating

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



Raw Material

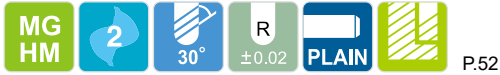
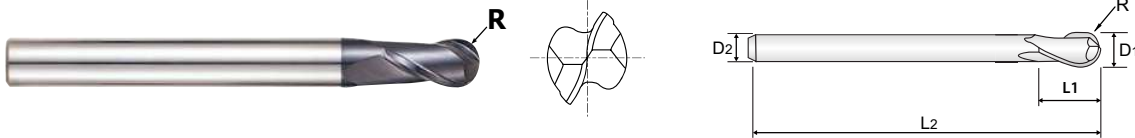
Made from high performance raw material with better quality



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



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

METRIC

Unit : mm

EDP No.	Radius of Ball Nose R(±0.02)	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
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

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							
○	◎	◎	◎	○			○					

◎ : Excellent ○ : Good



GM876, GM813

Y-COATED SOLID CARBIDE END MILLS
2 FLUTE BALL NOSE

NORMAL SPEED

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~HRC40				HRC45~HRC55							
STRENGTH	~1000N/mm ²				1000 ~ 1250N/mm ²				1500 ~ 2000N/mm ²							
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/mm ²				1500N/mm ² ~							
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