

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

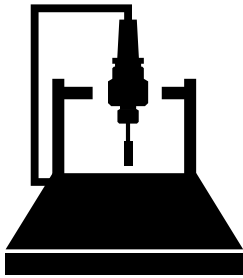
Work Material

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



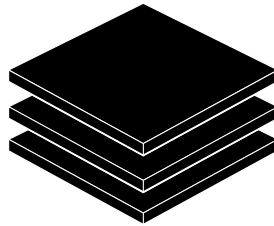
For Mold & Die Industries

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



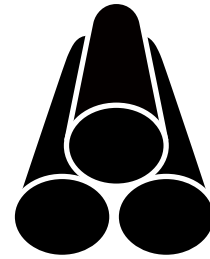
Honing

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

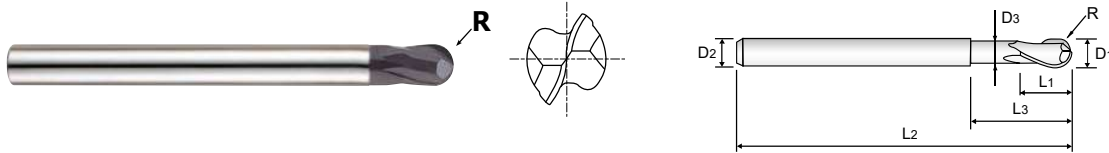


Y-COATED SOLID CARBIDE END MILLS

2 FLUTE 15° HELIX STUB CUT LENGTH BALL NOSE

EM109 PLAIN SHANK

- ▶ Deep slotting milling is possible by reduced neck.
- ▶ High efficiency milling is possible in deep slotting with projection of the end mill being long.



Mill Dia. Tolerance(inch)	Shank Dia. Tolerance
0 ~ -.0012	0 ~ -.0003

INCH

Unit : inch

EDP No.	Radius of Ball Nose R (±.0005)	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
GM109002	R1/64	1/32	1/4	1/32	1/16	2	.029
GM109004	R1/32	1/16	1/4	1/16	1/8	2	.059
GM109006	R3/64	3/32	1/4	3/32	3/16	2	.090
GM109008	R1/16	1/8	1/4	1/8	1/4	2-1/2	.121
GM109012	R3/32	3/16	1/4	3/16	3/8	3	.184
GM109016	R1/8	1/4	1/4	1/4	1/2	3-1/2	.246
GM109020	R5/32	5/16	5/16	5/16	5/8	4	.309
GM109024	R3/16	3/8	3/8	3/8	3/4	4	.371
GM109032	R1/4	1/2	1/2	1/2	1	4-1/2	.496

◎ : 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							
			○	◎							



GM960 Y-COATED SOLID CARBIDE END MILLS 2 FLUTE MINIATURE BALL NOSE

RPM = rev./min.
FEED = inch/min.

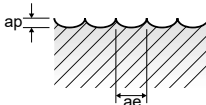
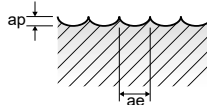
MATERIAL	P		P	
	HARDENED STEELS		HARDENED STEELS	
HARDNESS	HRc30 ~ HRc45		HRc45 ~ HRc55	
STRENGTH	1000 ~ 1500N/mm ²		1500 ~ 2000N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED
R012 x .024	31500	24.8	31500	12.4
R0155 x .031	28350	26.9	28350	15.8
R020 x .040	26250	26.9	26250	16.5
R0235 x .047	25200	27.7	25200	17.3
R031 x .062	24150	29.0	24150	17.7
	$D < .040$ $D \geq .040$ $ap: 0.05 \times D$ $ap: 0.75 \times D$ $ae: 0.15 \times D$ $ae: 0.15 \times D$		$D < .040$ $D \geq .040$ $ap: 0.05 \times D$ $ap: 0.05 \times D$ $ae: 0.1 \times D$ $ae: 0.15 \times D$	

GM109 Y-COATED SOLID CARBIDE END MILLS 2 FLUTE 15° HELIX STUB CUT LENGTH BALL NOSE

RPM = rev./min.
FEED = inch/min.

NORMAL SPEED

HIGH SPEED

MATERIAL	P				P			
	HARDENED STEELS		HARDENED STEELS		HARDENED STEELS		HARDENED STEELS	
HARDNESS	HRC45 ~ HRC50		HRC50 ~ HRC55		HRC45 ~ HRC50		HRC50 ~ HRC55	
STRENGTH	1500 ~ 1750N/mm²		1750 ~ 2000N/mm²		1500 ~ 1750N/mm²		1750 ~ 2000N/mm²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R1/16 × 1/8	13970	47.6	13530	45.4	13970	75.8	13530	72.3
R3/32 × 3/16	10340	47.6	9960	45.4	10340	71.5	9960	68.0
R1/8 × 1/4	9460	49.8	9080	47.6	9460	75.8	9080	72.3
R5/32 × 5/16	7700	45.4	7370	43.3	7700	67.1	7370	63.3
R3/16 × 3/8	6660	43.3	6380	41.6	6660	62.8	6380	58.9
R1/4 × 1/2	6000	43.3	5720	41.6	6000	61.5	5720	57.6
R5/16 × 5/8	4790	37.7	4570	36.0	4790	53.2	4570	49.0
R3/8 × 3/4	3850	29.9	3630	28.2	3850	43.3	3630	38.9
R1/2 × 1	3080	29.9	2920	28.2	3080	43.3	2900	38.9
	 ap: D/8 = .006 D3/16 ~ D5/16 = .010 D3/8 - D1 = .012 ae: 0.1 x D				 ap: D/8 = .006 D3/16 ~ D5/16 = .010 D3/8 - D1 = .012 ae: 0.05 x D			