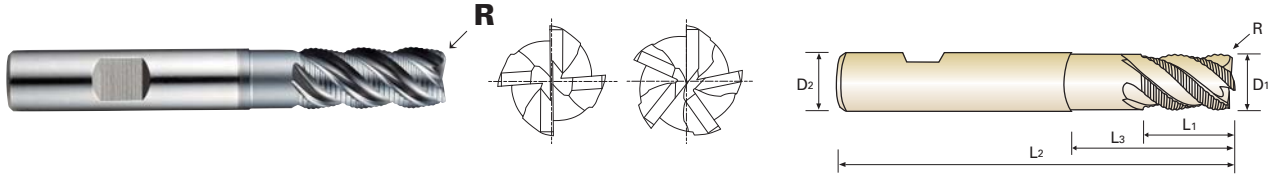


MULTI FLUTE MULTIPLE HELIX SHORT LENGTH CORNER RADIUS ROUGHING - FINE (Center Cut)

ONLY ONE

COATED **PM60**
END MILLS



PM
60

4-5

M-Helix

FINE

FLAT



P. 22

GYF95 SERIES

Unit : mm

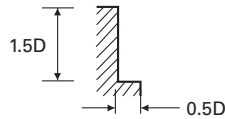
EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	No. of Flute
	R	D1	D2	L1	L3	L2	
GYF95060	R 0.5	6.0	6	13	-	57	4
GYF95070	R 0.5	7.0	10	16	-	66	4
GYF95080	R 0.5	8.0	10	19	-	69	4
GYF95090	R 0.5	9.0	10	19	-	69	4
GYF95100	R 0.5	10.0	10	22	31	72	4
GYF95120	R 0.5	12.0	12	26	37	83	4
GYF95140	R 1.0	14.0	12	26	-	83	5
GYF95160	R 1.0	16.0	16	32	44	92	5
GYF95180	R 1.0	18.0	16	32	-	92	5
GYF95200	R 1.0	20.0	20	38	54	104	5
GYF95250	R 1.0	25.0	25	45	63	121	5

Tolerances according to DIN 7160 & 7161

Tolerance range in μm			
Nominal-Diameter in μm			
	over 6 to 10	over 10 to 18	over 18 to 30
js12	± 75	± 90	± 105
h6	0 -9	0 -11	0 -13

GYF95 SERIES
ONLY ONE COATED PM60, MULTI FLUTE MULTIPLE HELIX SHORT ROUGHING (Center Cut)

Material	P																M			
	Structural Steels Carbon Steels				Structural Steels Carbon Steels Cast Irons				Carbon Steels Alloy Steels Tool Steels				Prehardened Steels Alloy Steels Tool Steels				Stainless Steels			
Hardness					~ HRC20				HRC20 ~ HRC30				HRC30 ~ HRC40							
Strength	~ 500N/mm ²				500 ~ 800N/mm ²				800 ~ 1000N/mm ²				1000 ~ 1300N/mm ²							
Diameter	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz	RPM	FEED	Vc	Fz
6.0	4030	330	76	0.020	3170	260	60	0.021	2300	170	43	0.018	1870	150	35	0.020	2090	155	39	0.019
8.0	3460	420	87	0.030	2740	330	69	0.030	2020	230	51	0.028	1510	180	38	0.030	1730	205	43	0.030
10.0	2740	600	86	0.055	2160	455	68	0.053	1510	280	47	0.046	1280	230	40	0.045	1370	245	43	0.045
12.0	2300	600	87	0.065	1730	475	65	0.069	1300	330	49	0.063	1070	260	40	0.061	1150	295	43	0.064
14.0	2020	600	89	0.059	1510	475	66	0.063	1090	330	48	0.061	910	260	40	0.057	1000	295	44	0.059
16.0	1730	600	87	0.069	1370	475	69	0.069	950	330	48	0.069	790	260	40	0.066	860	295	43	0.069
18.0	1510	600	85	0.079	1280	475	72	0.074	880	330	50	0.075	710	260	40	0.073	790	295	45	0.075
20.0	1380	610	87	0.088	1090	475	68	0.087	770	330	48	0.086	640	260	40	0.081	700	295	44	0.084
25.0	1140	600	90	0.105	860	455	68	0.106	600	320	47	0.107	520	260	41	0.100	560	290	44	0.104



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

- A. The ONLY ONE material is based on powder metallurgy that ensures **High Toughness** performance which is one of the advantages of Cobalt HSS.
- B. The ONLY ONE has **Exceptional Wear Resistance** which is another advantage of the micro-grain carbide tools.
- C. The ONLY ONE has **very strong toughness which can bring out better performances also on machines with unstable conditions such as vibration and irregular composition of work materials.**
- D. The ONLY ONE performs better without causing chipping than Normal coated carbide end mills under the same carbide cutting conditions.
- E. Excellent performance for Stainless Steels
Pre-hardened Steels, Carbon steels,
Alloy steels and Cast Iron.

Note Limited performance can occur under the rigid clamping, high speed machining and/or high hardness materials above HRc45.



YG PRODUCT PHILOSOPHY

- A. For whom did we develop 'ONLY ONE'?
 - For every CNC machining center & Conventional milling machine, **for users who pursue to Increase productivity.**
 - **'Only One' can replace all of both Coated Solid Carbide & HSS Co8 End Mills.**
- B. It can replace;
 - **Both Coated and uncoated Solid Carbide End Mills.**
 - **Better Tool Life & Cheaper Price than Coated Solid Carbide End Mills.**
 - All of **HSS Co8(M42) End Mills.**
- C. High Technologies applied;
 - YG-1's advanced "Y" coating technology applied, which is an AlCrN based coating
 - 4 flutes and roughers are with multiple helix (from Ø3mm to Ø25mm)

Parameters	HSS Co8	Only One (Coated PM60)	Coated Normal Carbide
Cutting Speed	(↓)	(↑)	(↑)
Toughness		(↑)	(↑)
Price	(↓)(↓) Low	(↓) Medium	(↑) High

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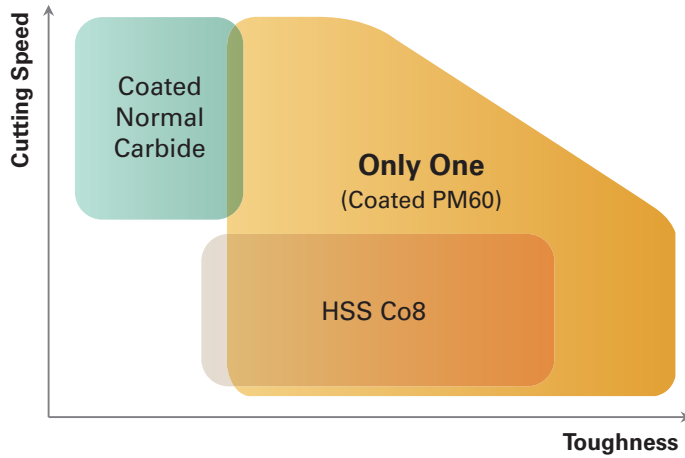


YG PRODUCT PHILOSOPHY

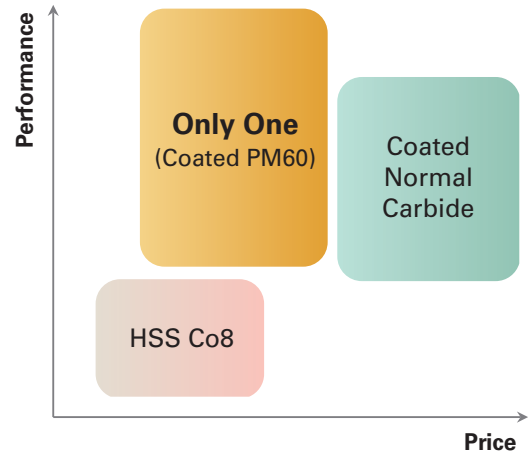
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Parameters	HSS Co8	Only One (Coated PM60)	Coated Normal Carbide
Cutting Speed	(↓)	(↑)	(↑)
Toughness		(↑)	(↑)
Price	(↓)(↓) Low	(↓) Medium	(↑) High

To protect chipping problems under the unstable machining conditions with vibration,



Higher Toughness than HSS Co8,
Cutting Speed (Vc) is as high as Coated Normal Carbide.



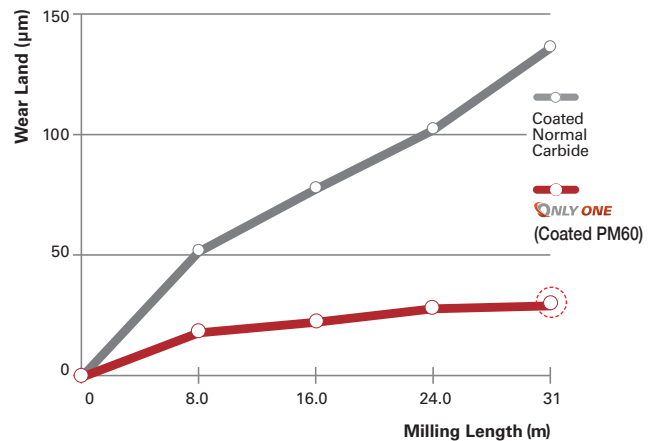
Better performance than HSS Co8,
Better price than Coated Normal Carbide.

YG CASE STUDY 1


- 4 Flute Square End Mill, S45C – Carbide Cutting Condition

Result	Only One Coated PM60 > Coated Normal Carbide	
Tool List	Only One Coated PM60	Coated Normal Carbide
Size	Ø10xØ10x22x72	Ø10xØ10x22x70
Work Material	- JIS : S45C - DIN : C45	- KS : SM45C - AISI : 1045
RPM	2750 rev/min.	
Feed	520 mm/rev.	
Milling Method	Down & Side Cutting	
Milling Depth	Axial : 3 mm	Radial : 1 mm
Coolant	Wet Cut	
Machine	Machining Center	

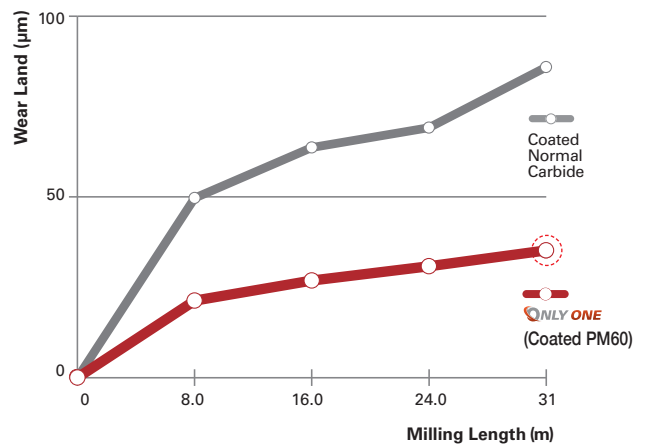
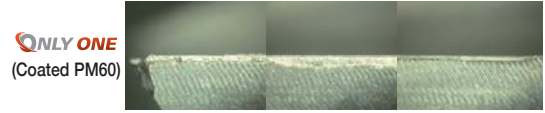
Cutting Edges Condition



• 4 Flute Square End Mill, S45C(HRc30) – Carbide Cutting Condition

Result	Only One Coated PM60 > Coated Normal Carbide	
Tool List	Only One Coated PM60	Coated Normal Carbide
Size	Ø10xØ10x22x72	Ø10xØ10x22x70
Work Material	- JIS : S45C - DIN : C45	- KS : SM45C - AISI : 1045
RPM	2750 rev/min.	
Feed	520 mm/rev.	
Milling Method	Down & Side Cutting 	
Milling Depth	Axial : 10 mm	Radial : 1 mm
Coolant	Wet Cut	
Machine	Machining Center	

Cutting Edges Condition



ICON GUIDE



Powder Metallurgy HSS



No. of Flute



Helix Angle



Tolerance of Ball Radius



Type of Shank













Type of Periphery



Cutting condition of tool see the page 000

◎:Excellent ○:Good

ITEM	MODEL	DESCRIPTION	SIZE		P			M	N		S	PAGE	
					Carbon Steels	Alloy Steels	Hardened Steels	Stainless Steels	Copper	Cast Iron	Aluminum		Titanium
					Min. ~HB225	Max. HB225~352	Max. HRC30~40						
GYF99		PM60, 2 FLUTE SHORT LENGTH (Center Cut)	D1.0	D25.0	◎	◎	○	◎	○	◎		6	
GYG01		PM60, 3 FLUTE SHORT LENGTH (Center Cut)	D1.0	D25.0	◎	◎	○	◎	○	◎		7	
GYF96		PM60, 4 FLUTE SHORT LENGTH (Center Cut)	D1.0	D25.0	◎	◎	○	◎	○	◎		8	
GYG52		PM60, 4 FLUTE MULTIPLE HELIX SHORT LENGTH (Center Cut)	D3.0	D25.0	◎	◎	○	◎	○	◎		9	
GYG02		PM60, 4 FLUTE LONG LENGTH (Center Cut)	D2.0	D25.0	◎	◎	○	◎	○	◎		10	
GYF97		PM60, 2 FLUTE SHORT LENGTH BALL NOSE	R0.5	R12.5	◎	◎	○	◎	○	◎		11	
GYF94		PM60, MULTI FLUTE SHORT LENGTH ROUGHING - FINE (Center Cut)	D6.0	D25.0	◎	◎	○	◎	○	◎		12	
GYF98		PM60, MULTI FLUTE LONG LENGTH ROUGHING - FINE (Center Cut)	D6.0	D25.0	◎	◎	○	◎	○	◎		13	
GYG03		PM60, MULTI FLUTE SHORT LENGTH ROUGHING - COARSE (Center Cut)	D6.0	D25.0	◎	◎	○	◎	○	◎		14	
GYF95		PM60, MULTI FLUTE MULTIPLE HELIX SHORT LENGTH CORNER RADIUS ROUGHING - FINE (Center Cut)	D6.0	D25.0	◎	◎	○	◎	○	◎		15	