

YU-XS12

BEST VALUE IN THE WORLD OF CUTTING TOOLS



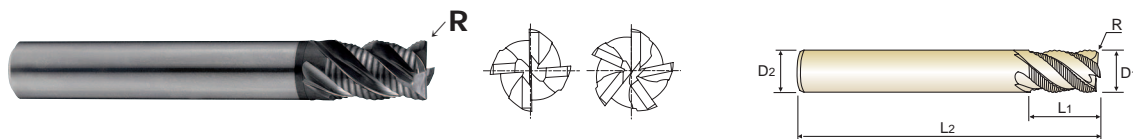
X-SPEED ROUGHER SOLID CARBIDE ROUGHING END MILL

Vibration free roughing of Many alloys including
Alloy Steels under HRc40 and cast iron



YG YG-1 CO., LTD.

4&5 FLUTE MULTIPLE HELIX STUB & REGULAR LENGTH CORNER RADIUS



STUB LENGTH G907, G928 series

Unit : inch

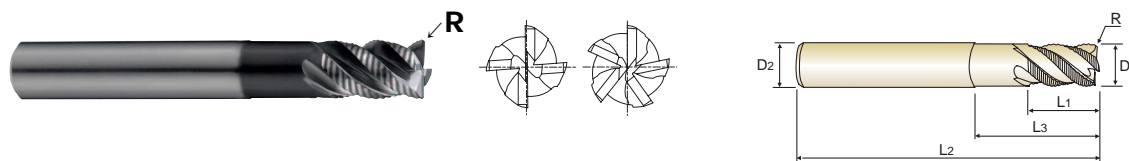
EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
PLAIN	FLAT	R	D1	D2	L1	L2	
G90716	-	R.020	1/4	1/4	3/8	2	4
G90720	-	R.020	5/16	5/16	7/16	2	4
G90724	G92824	R.020	3/8	3/8	1/2	2-1/4	4
G90732	G92832	R.020	1/2	1/2	5/8	2-1/2	4
G90740	G92840	R.040	5/8	5/8	3/4	3	5
G90748	G92848	R.040	3/4	3/4	1	3-1/4	5
G90764	G92864	R.040	1	1	1-1/4	4	5

REGULAR LENGTH G908, G929 series

Unit : inch

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
PLAIN	FLAT	R	D1	D2	L1	L2	
G90816	-	R.020	1/4	1/4	5/8	2-1/2	4
G90820	-	R.020	5/16	5/16	3/4	2-1/2	4
G90824	G92924	R.020	3/8	3/8	7/8	2-1/2	4
G90832	G92932	R.020	1/2	1/2	1	3	4
G90840	G92940	R.040	5/8	5/8	1-1/4	3-1/2	5
G90848	G92948	R.040	3/4	3/4	1-5/8	4	5
G90864	G92964	R.040	1	1	1-3/4	4-1/4	5

4&5 FLUTE MULTIPLE HELIX EXTENDED REACH CORNER RADIUS



EXTENDED REACH G909, G930 series

Unit : inch

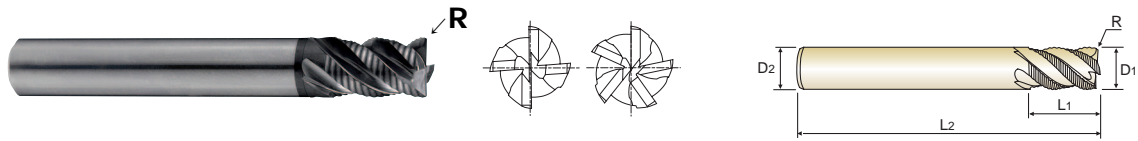
EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	No. of Flute
PLAIN	FLAT	R	D1	D2	L1	L3	L2	
G90916	-	R.020	1/4	1/4	3/8	2-1/2	7/8	4
G90920	-	R.020	5/16	5/16	7/16	2-1/2	1	4
G90924	G93024	R.020	3/8	3/8	1/2	2-3/4	1	4
G90932	G93032	R.020	1/2	1/2	5/8	3-1/4	1-1/4	4
G90940	G93040	R.040	5/8	5/8	3/4	4	2	5
G90948	G93048	R.040	3/4	3/4	1	4-1/2	2-3/8	5

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
0~-.002	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
-HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	◎	○			○		◎		○		

4&5 FLUTE MULTIPLE HELIX SHORT & LONG LENGTH CORNER RADIUS



SHORT LENGTH G9D75 series

Unit : mm

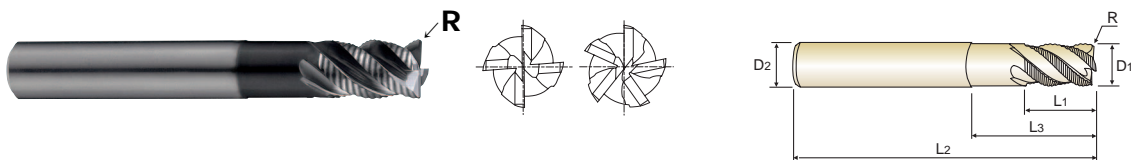
EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
PLAIN	R	D1	D2	L1	L2	
G9D75060	R0.5	6.0	6	9	57	4
G9D75080	R0.5	8.0	8	12	63	4
G9D75100	R0.5	10.0	10	15	72	4
G9D75120	R0.5	12.0	12	18	83	4
G9D75160	R1.0	16.0	16	24	92	5
G9D75200	R1.0	20.0	20	30	104	5

LONG LENGTH G9D76 series

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
PLAIN	R	D1	D2	L1	L2	
G9D76060	R0.5	6.0	6	12	57	4
G9D76080	R0.5	8.0	8	16	63	4
G9D76100	R0.5	10.0	10	20	72	4
G9D76120	R0.5	12.0	12	24	83	4
G9D76160	R1.0	16.0	16	32	92	5
G9D76200	R1.0	20.0	20	40	104	5

4&5 FLUTE MULTIPLE HELIX LONG REACH CORNER RADIUS



LONG REACH G9D77 series

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	No. of Flute
PLAIN	R	D1	D2	L1	L3	L2	
G9D77060	R0.5	6.0	6	9	18	57	4
G9D77080	R0.5	8.0	8	12	24	63	4
G9D77100	R0.5	10.0	10	15	30	72	4
G9D77120	R0.5	12.0	12	18	36	83	4
G9D77160	R1.0	16.0	16	24	48	100	5
G9D77200	R1.0	20.0	20	30	60	110	5

Mill Dia. Tolerance(inch)	Shank Dia. Tolerance
0~-.002	h6

◎ : Excellent ○ : Good

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Copper	Graphite	Cast Iron	Aluminum	Stainless Steels	Titanium	Inconel
-HB225	HB225~325	HRC30~40	HRc40~45	HRc45~55	HRc55~70							
◎	◎	◎	○			○		◎		○		

CUTTING CONDITION

SLOTTING

SIDE CUTTING

MATERIAL		ALLOY STEELS, CARBON STEELS, TOOL STEELS, CAST IRON		ALLOY STEELS, CARBON STEELS, TOOL STEELS, CAST IRON, PREHARDENED STEELS		ALLOY STEELS, CARBON STEELS, TOOL STEELS, CAST IRON		ALLOY STEELS, CARBON STEELS, TOOL STEELS, CAST IRON, PREHARDENED STEELS	
HARDNESS		~ HRc 25		HRc 25 ~ HRc 40		~ HRc 25		HRc 25 ~ HRc 40	
DIAMETER		RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
METRIC	INCH								
6.0	1/4	12000	61.02	10600	43.31	15800	101.18	14300	72.83
8.0	5/16	9000	64.96	8100	46.46	11900	106.30	10700	76.77
10.0	3/8	7200	64.96	6400	46.46	9500	106.30	8500	76.77
12.0	1/2	6000	60.63	5400	44.88	8000	101.18	7100	72.83
16.0	5/8	4500	59.06	4100	41.34	6000	96.46	5400	69.90
20.0	3/4	3600	52.36	3200	35.43	4800	84.25	4300	59.06
-	1	2900	46.40	2600	32.50	3800	75.25	3400	49.30

1.0D

0.8D

1.0D

0.5D

1.0D

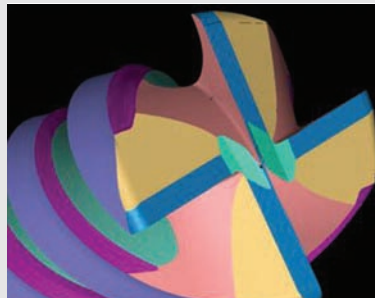
0.35D

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

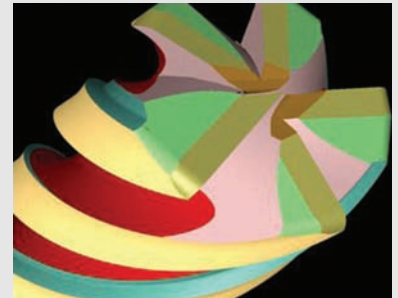
CHARACTERISTICS

- ▶ Unique flute design for excellent chip evacuation and vibration reduction.
- ▶ Optimal roughing tooth profile to reduce cutting forces.
- ▶ Special tool geometry for high feed rate and heavy cutting.
- ▶ Strong end tooth design for plunge and pocket milling.
- ▶ Custom engineered coating to allow long tool life and excellent chip evacuation.

▶ 4 FLUTE



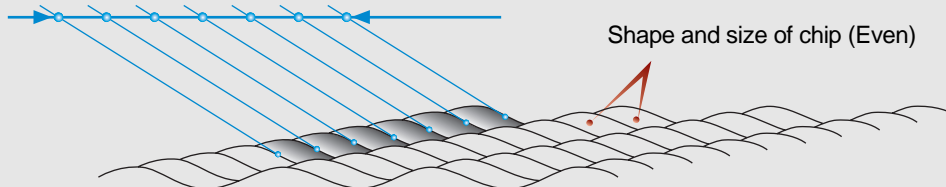
▶ 5 FLUTE



CHIP THICKNESS AND SHAPE

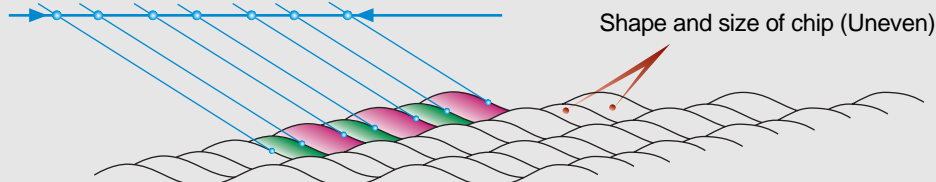
▶ Conventional Roughing End Mills

Even chip thickness and shape

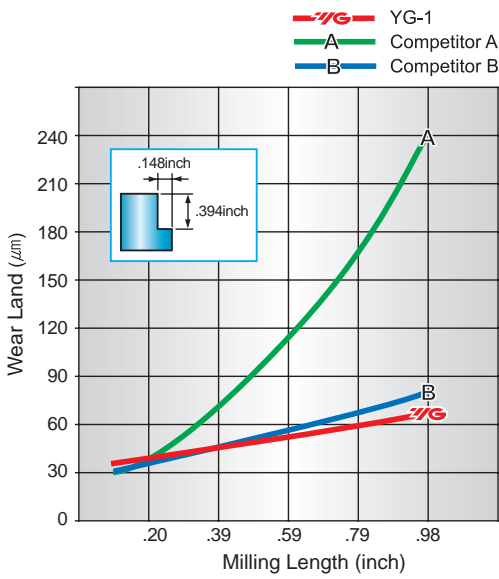


▶ X-SPEED Rougher

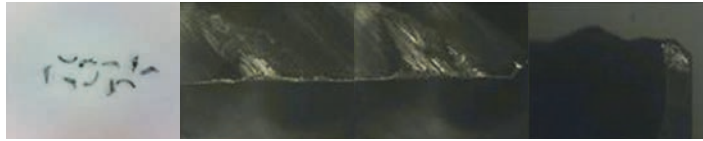
Uneven chip thickness and shape



TEST REPORT (DOWN & SIDE CUTTING)



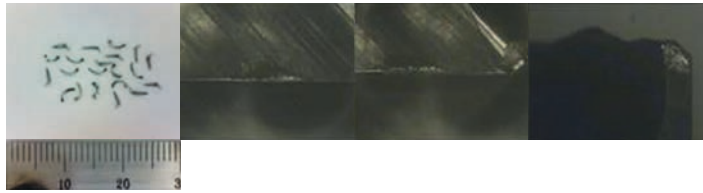
COMPETITOR A



COMPETITOR B



X-SPEED ROUGHER

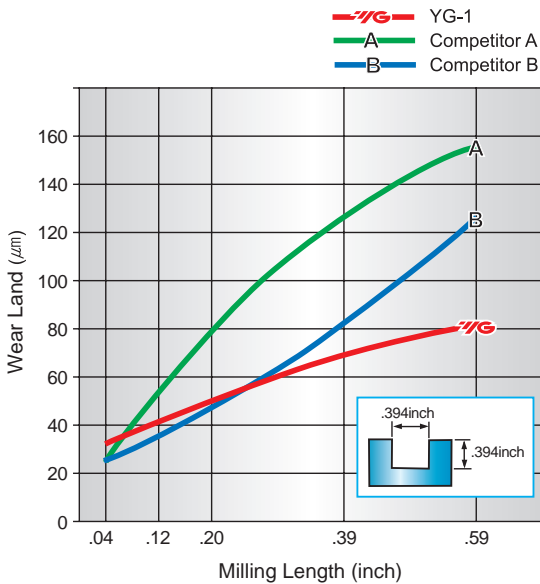


CUTTING CONDITION

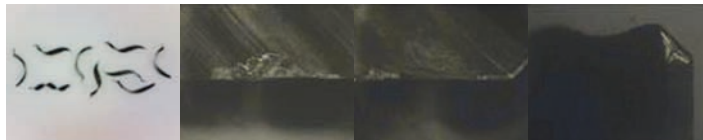
SIZE : X-SPEED ROUGHER : $\varnothing 10 \times 10 \times 15 \times 72$
 COMPETITOR A : $\varnothing 10 \times 10 \times 20 \times 72$
 COMPETITOR B : $\varnothing 10 \times 10 \times 15 \times 80$
Work Material : DIN : X40CrMoV51(1.2344)
 JIS : SKD61 (HRc30)
 AISI : H13

R.P.M : 5000rev./min. (157.08m/min.)
FEED : 51.18inch/min.
Milling Method : Down & Side Cutting
Coolant : Wet Cut
Overhang : 1.26inch
Machine : Machining Center

TEST REPORT (SLOTING)



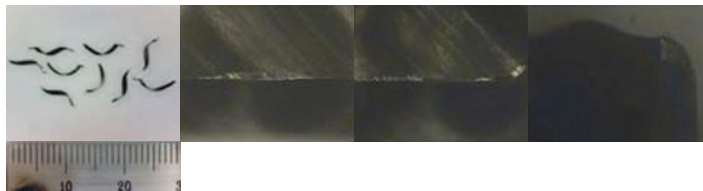
COMPETITOR A



COMPETITOR B



X-SPEED ROUGHER



CUTTING CONDITION

SIZE : X-SPEED ROUGHER : $\varnothing 10 \times 10 \times 15 \times 72$
 COMPETITOR A : $\varnothing 10 \times 10 \times 20 \times 72$
 COMPETITOR B : $\varnothing 10 \times 10 \times 15 \times 80$
Work Material : DIN : X40CrMoV51(1.2344)
 JIS : SKD61 (HRc20)
 AISI : H13

R.P.M : 4000rev./min. (125.66m/min.)
FEED : 39.37inch/min.
Milling Method : Slotting
Coolant : Wet Cut
Overhang : 1.26inch
Machine : Machining Center



X-SPEED ROUGHER

CORNER RADIUS

- ▶ STUB LENGTH / SHORT LENGTH
- ▶ REGULAR LENGTH / LONG LENGTH
- ▶ EXTENDED REACH / LONG REACH

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