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**Note** The information is Provided for reference only. Tool specifications are subject to change without prior notice. Although we endeavor to supply accurate and timely information, there can be no guarantee to cover every particular application. YG-1 or publishers are not liable for any damage for use of the information.



Search 'YG-1' on social media outlets

YG1YUYB2208180001

**YU-YB22**

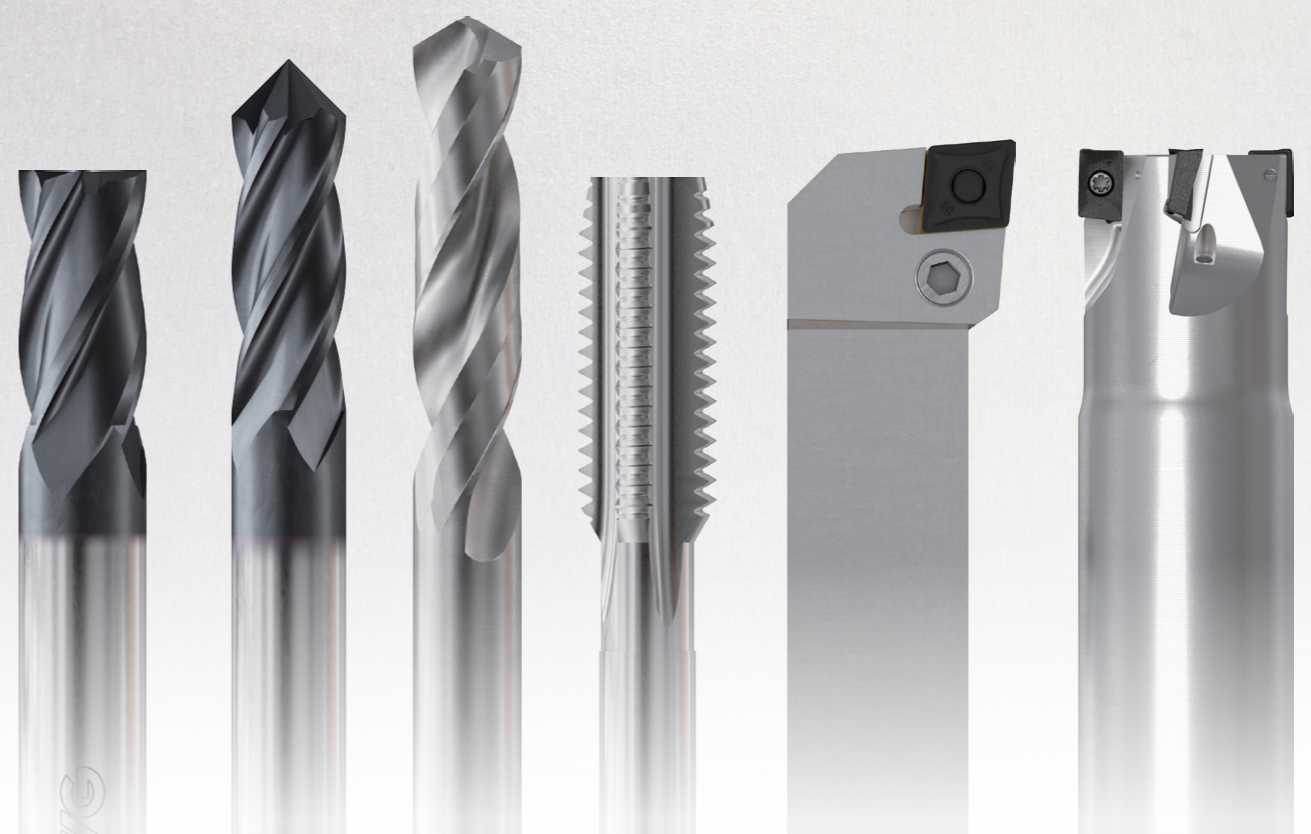
**BEST VALUE IN THE WORLD OF CUTTING TOOLS**

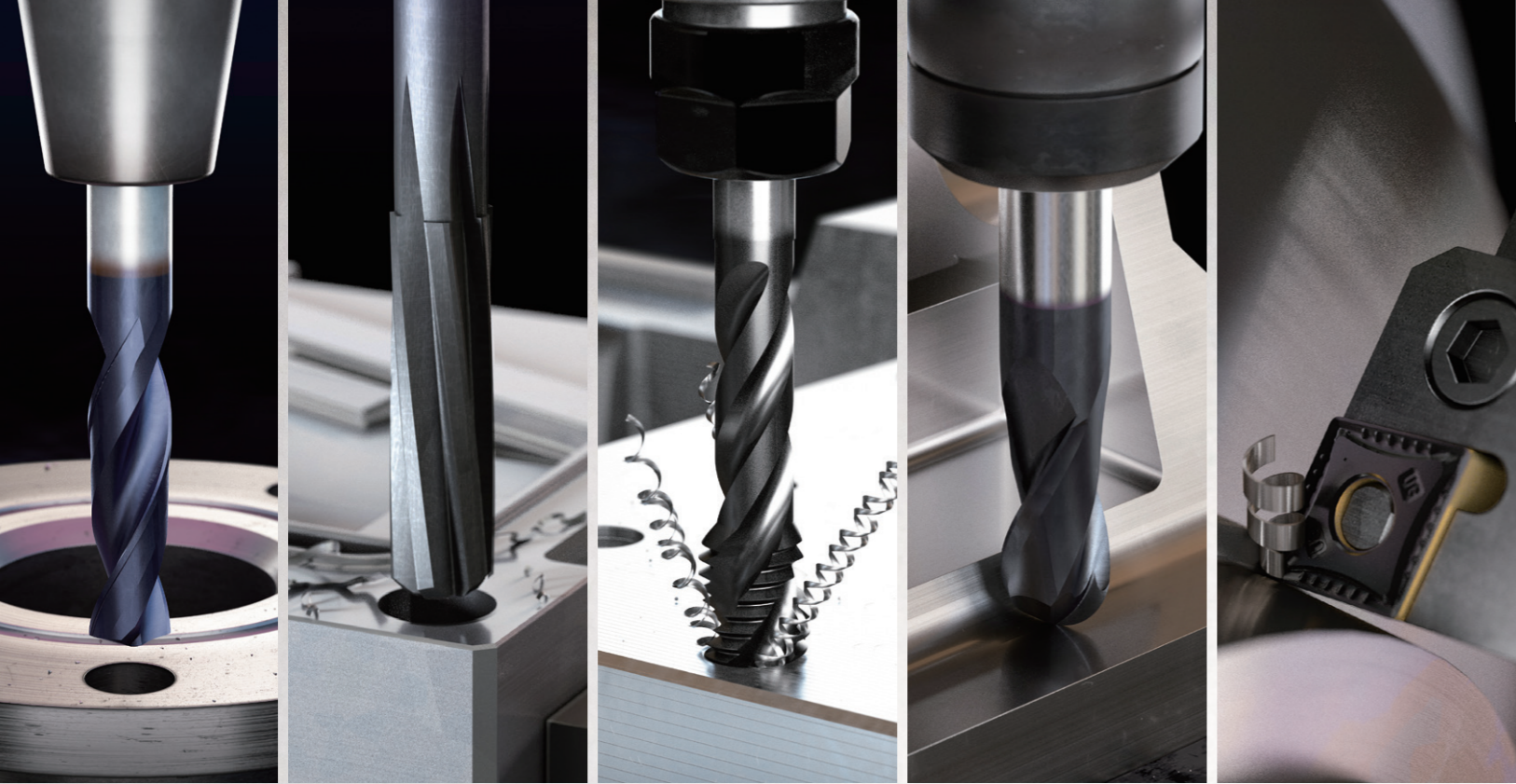


# **YG**

# **YGBasiX**

**Holemaking | Threading | Milling | Indexable Inserts**





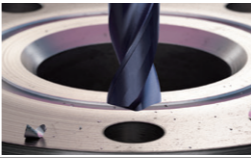

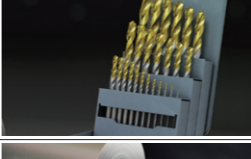

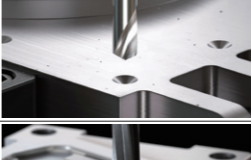





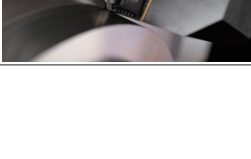
## General Purpose Tooling Solutions for General Purpose Applications

YG-1 is well known for delivering the best value in the world in cutting tools. As our product portfolio has continued to expand to address the full range of general purpose to high performance to material specific solutions, we have created this YGBasiX catalog to make it easy for you to select the right general purpose tools for your general purpose applications.

This catalog only represents a small portion of our overall standard product portfolio. If you can't find what you need here, please visit [www.YG1USA.com](http://www.YG1USA.com) to explore our full range of product offerings. If you need a custom engineered solution or product reconditioning, we can provide that as well. Just contact one of our Distribution Partners or Sales Managers, and we will be there to develop the solution you need.

With our extensive inventory and high service levels, we look forward to getting you the right product when you need it!

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## GUIDE LINE TO ICONS

### Tool Material

<b>CARBIDE</b>	Carbide
<b>HSS PM</b>	YG-1 Premium Powder Metallurgy HSS
<b>PM 60</b>	Powder Metallurgy HSS
<b>HSS Co8</b>	8% Cobalt HSS
<b>HSS-E</b>	5% Cobalt HSS
<b>HSS</b>	High Speed Steel

### Cutting Condition

	Milling		Drills
	Reamers		Taps

### Helix Angle

		End mills
		Drills
		Taps

### The Type of Shank

	Plain shank (with DIN Standard)
	Flat shank (with DIN Standard)

### Tolerance of Radius

		Tolerance of Ball Radius ±0.008, ±0.02 mm
		Tolerance of Corner Radius ±0.001 mm

### Standard of Tools


### No. of Flute


### Surface Treatment

	Titanium Aluminum Nitride Coating
	TiAlN + WC/C Coating
	Titanium Nitride Coating
	Titanium Carbon Nitride Coating
	Bright Finish
	Steam Oxide

### Point Angle


### Chamfer Angle

	Reamers
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### Chamfer Lead Acc.

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### Tolerance of Dimension

			Tolerance of Outside Diameter
			Tolerance of Shank Diameter

### Thread Angle

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### Working Material

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Global Cutting Tool Leader **YG-1**

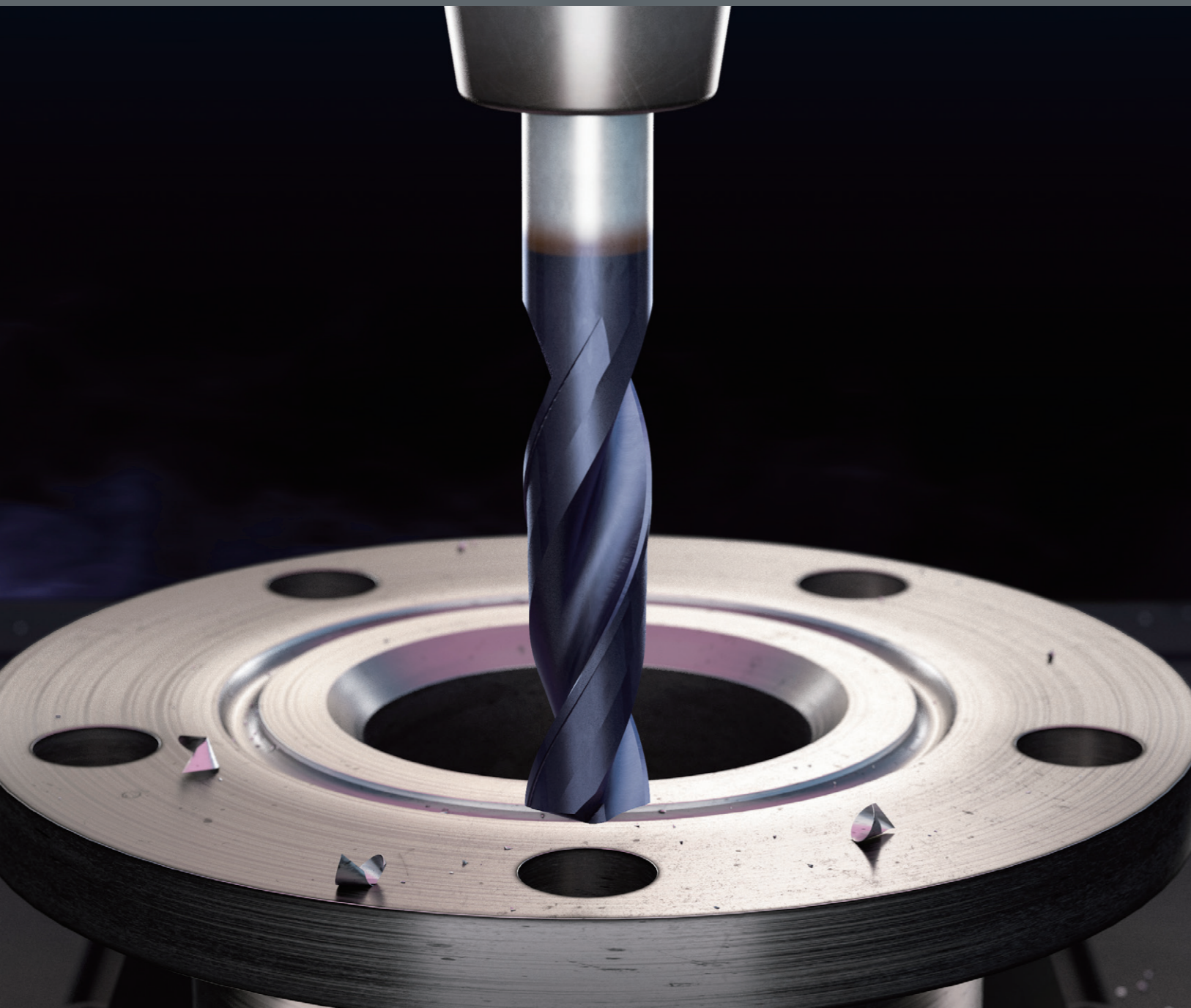


# HOLEMAKING



# SOLID CARBIDE YGBasiX DRILLS

- For General Purpose



## YGBasiX DRILLS



### SELECTION GUIDE

## SOLID CARBIDE YGBasiX DRILLS

- For General Purpose

SERIES	DB301	DB501
DRILLING DEPTH / STANDARD	3XD	5XD
LENGTH	SHORT	LONG
SIZE MIN	D.1181	D.0394
SIZE MAX	D.7874	D.7874
PAGE	8	10
SURFACE TREATMENT	TiAlN	



Please visit  
[globalyg1.com/mat](http://globalyg1.com/mat)  
for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : P. 12

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRC	DB301	DB501	
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎	
	2		About 0.45% C	Annealed	190	13	◎	◎	
	3		About 0.45% C	Quenched & Tempered	250	25	◎	◎	
	4		About 0.75% C	Annealed	270	28	◎	◎	
	5		About 0.75% C	Quenched & Tempered	300	32	○	○	
	6	Low alloy steel		Annealed	180	10	◎	◎	
	7			Quenched & Tempered	275	29	◎	◎	
	8			Quenched & Tempered	300	32	○	○	
	9			Quenched & Tempered	350	38	○	○	
	10		High alloyed steel, and tool steel		Annealed	200	15	◎	◎
	11				Quenched & Tempered	325	35	○	○
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	○	○	
	13		Martensitic	Quenched & Tempered	240	23	○	○	
	14	Austenitic		180	10				
K	15	Grey cast iron	Pearlitic / ferritic		180	10	◎	◎	
	16		Pearlitic (Martensitic)		260	26	○	○	
	17	Nodular cast iron	Ferritic		160	3	◎	◎	
	18		Pearlitic		250	25	○	○	
	19	Malleable cast iron	Ferritic		130		◎	◎	
20	Pearlitic			230	21	○	○		
N	21	Aluminum- wrought alloy	Not Curable		60				
	22		Curable	Hardened	100				
	23	Aluminum- cast, alloyed	≤ 12% Si, Not Curable		75				
	24		≤ 12% Si, Curable	Hardened	90				
	25		> 12% Si, Not Curable		130				
	26		Cutting Alloys, PB>1%		110				
	27	Copper and Copper Alloys (Bronze / Brass)	CuZn, CuSnZn (Brass)		90				
	28		CuSn, lead-free copper and electrolytic copper		100				
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic						
	30		Rubber, Wood, etc.						
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15			
	32			Cured	280	30			
	33		Ni or Co Based	Annealed	250	25			
	34			Cured	350	38			
	35			Cast	320	34			
	36	Titanium Alloys	Pure Titanium		400 Rm				
37	Alpha + Beta Alloys		Hardened	1050 Rm					
H	38	Hardened steel		Hardened	550	55			
	39			Hardened	630	60			
	40	Chilled Cast Iron		Cast	400	42			
	41	Hardened Cast Iron		Hardened	550	55			

Holemaking

Threading

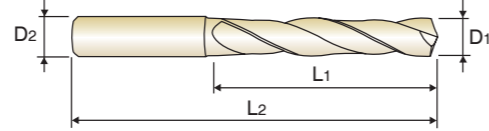
Milling

Indexable Inserts

**DB301** SERIES

**TiAIN-COATED SOLID CARBIDE YGBasiX DRILLS FOR GENERAL PURPOSE (3XD)**

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



**STUB**

D1=D2 3 x D

Unit : mm

EDP No.	Drill Diameter			Flute Length L1	Overall Length L2
	Metric	Fractional	Decimal		
TiAIN	D1=D2				
DB301030	3		.1181	16	46
DB301031	3.1		.1220	18	49
DB301008F	3.18	1/8	.1250	20	62
DB301032	3.2		.1260	18	49
DB301033	3.3		.1299	18	49
DB301034	3.4		.1339	20	52
DB301035	3.5		.1378	20	52
DB301009F	3.57	9/64	.1406	20	62
DB301036	3.6		.1417	20	52
DB301037	3.7		.1457	20	52
DB301038	3.8		.1496	22	55
DB301039	3.9		.1535	22	55
DB301010F	3.97	5/32	.1562	24	66
DB301040	4		.1575	22	55
DB301041	4.1		.1614	22	55
DB301042	4.2		.1654	22	55
DB301043	4.3		.1693	24	58
DB301011F	4.37	11/64	.1719	24	66
DB301044	4.4		.1732	24	58
DB301045	4.5		.1772	24	58
DB301046	4.6		.1811	24	58
DB301047	4.7		.1850	24	58
DB301012F	4.76	3/16	.1875	28	66
DB301048	4.8		.189	26	62
DB301049	4.9		.1929	26	62
DB301050	5		.1969	26	62
DB301051	5.1		.2008	26	62
DB301013F	5.16	13/64	.2031	28	66
DB301052	5.2		.2047	26	62
DB301053	5.3		.2087	26	62
DB301054	5.4		.2126	28	66
DB301055	5.5		.2165	28	66
DB301014F	5.56	7/32	.2188	28	66
DB301056	5.6		.2205	28	66
DB301057	5.7		.2244	28	66
DB301058	5.8		.2283	28	66
DB301059	5.9		.2323	28	66
DB301015F	5.95	15/64	.2344	28	66
DB301060	6		.2362	28	66
DB301061	6.1		.2402	31	70
DB301062	6.2		.2441	31	70
DB301063	6.3		.2480	31	70
DB301016F	6.35	1/4	.2500	34	79
DB301064	6.4		.2520	31	70

EDP No.	Drill Diameter			Flute Length L1	Overall Length L2
	Metric	Fractional	Decimal		
TiAIN	D1=D2				
DB301065	6.5		.2559	31	70
DB301066	6.6		.2598	31	70
DB301067	6.7		.2638	31	70
DB301017F	6.75	17/64	.2656	34	79
DB301068	6.8		.2677	34	74
DB301069	6.9		.2717	34	74
DB301070	7		.2756	34	74
DB301071	7.1		.2795	34	74
DB301018F	7.14	9/32	.2812	41	79
DB301072	7.2		.2835	34	74
DB301073	7.3		.2874	34	74
DB301074	7.4		.2913	34	74
DB301075	7.5		.2953	34	74
DB301019F	7.54	19/64	.2969	41	79
DB301076	7.6		.2992	37	79
DB301077	7.7		.3031	37	79
DB301078	7.8		.3071	37	79
DB301079	7.9		.3110	37	79
DB301020F	7.94	5/16	.3125	41	79
DB301080	8		.3150	37	79
DB301081	8.1		.3189	37	79
DB301082	8.2		.3228	37	79
DB301083	8.3		.3268	37	79
DB301021F	8.33	21/64	.3281	47	89
DB301084	8.4		.3307	37	79
DB301085	8.5		.3346	37	79
DB301086	8.6		.3386	40	84
DB301087	8.7		.3425	40	84
DB301022F	8.73	11/32	.3438	47	89
DB301088	8.8		.3465	40	84
DB301089	8.9		.3504	40	84
DB301090	9		.3543	40	84
DB301091	9.1		.3583	40	84
DB301023F	9.13	23/64	.3594	47	89
DB301092	9.2		.3622	40	84
DB301093	9.3		.3661	40	84
DB301094	9.4		.3701	40	84
DB301095	9.5		.3740	40	84
DB301024F	9.53	3/8	.3750	47	89
DB301096	9.6		.3780	43	89
DB301097	9.7		.3819	43	89
DB301098	9.8		.3858	43	89
DB301099	9.9		.3898	43	89
DB301025F	9.92	25/64	.3906	47	89

▶ NEXT PAGE

Unit : mm

EDP No.	Drill Diameter			Flute Length L1	Overall Length L2
	Metric	Fractional	Decimal		
TiAIN	D1=D2				
DB301100	10		.3937	43	89
DB301102	10.2		.4016	43	89
DB301026F	10.32	13/32	.4062	55	102
DB301105	10.5		.4134	43	89
DB301027F	10.72	27/64	.4219	55	102
DB301110	11		.4331	47	95
DB301028F	11.11	7/16	.4375	55	102
DB301115	11.5		.4528	47	95
DB301029F	11.51	29/64	.4531	55	102
DB301030F	11.91	15/32	.4688	55	102
DB301120	12		.4724	51	102
DB301031F	12.3	31/64	.4844	60	107
DB301032F	12.7	1/2	.5000	60	107
DB301130	13		.5118	51	102
DB301135	13.5		.5314	54	107
DB301140	14		.5512	54	107

▶ Other shank types are available on your request.

EDP No.	Drill Diameter			Flute Length L1	Overall Length L2
	Metric	Fractional	Decimal		
TiAIN	D1=D2				
DB301036F	14.29	9/16	.5625	65	115
DB301145	14.5		.5708	56	111
DB301150	15		.5905	56	111
DB301155	15.5		.6102	58	115
DB301040F	15.88	5/8	.6250	65	115
DB301160	16		.6299	58	115
DB301165	16.5		.6495	60	119
DB301170	17		.6692	60	119
DB301044F	17.46	11/16	.6875	73	123
DB301175	17.5		.6889	62	123
DB301180	18		.7087	62	123
DB301185	18.5		.7283	64	127
DB301190	19		.1220	64	127
DB301048F	19.05	3/4	.7500	79	131
DB301195	19.5		.7676	66	131
DB301200	20		.7874	66	131



## RECOMMENDED CUTTING CONDITIONS

SFM : ft/min.  
FEED(IPR) : Inch/rev.

### YGBasiX Drills without Coolant Holes

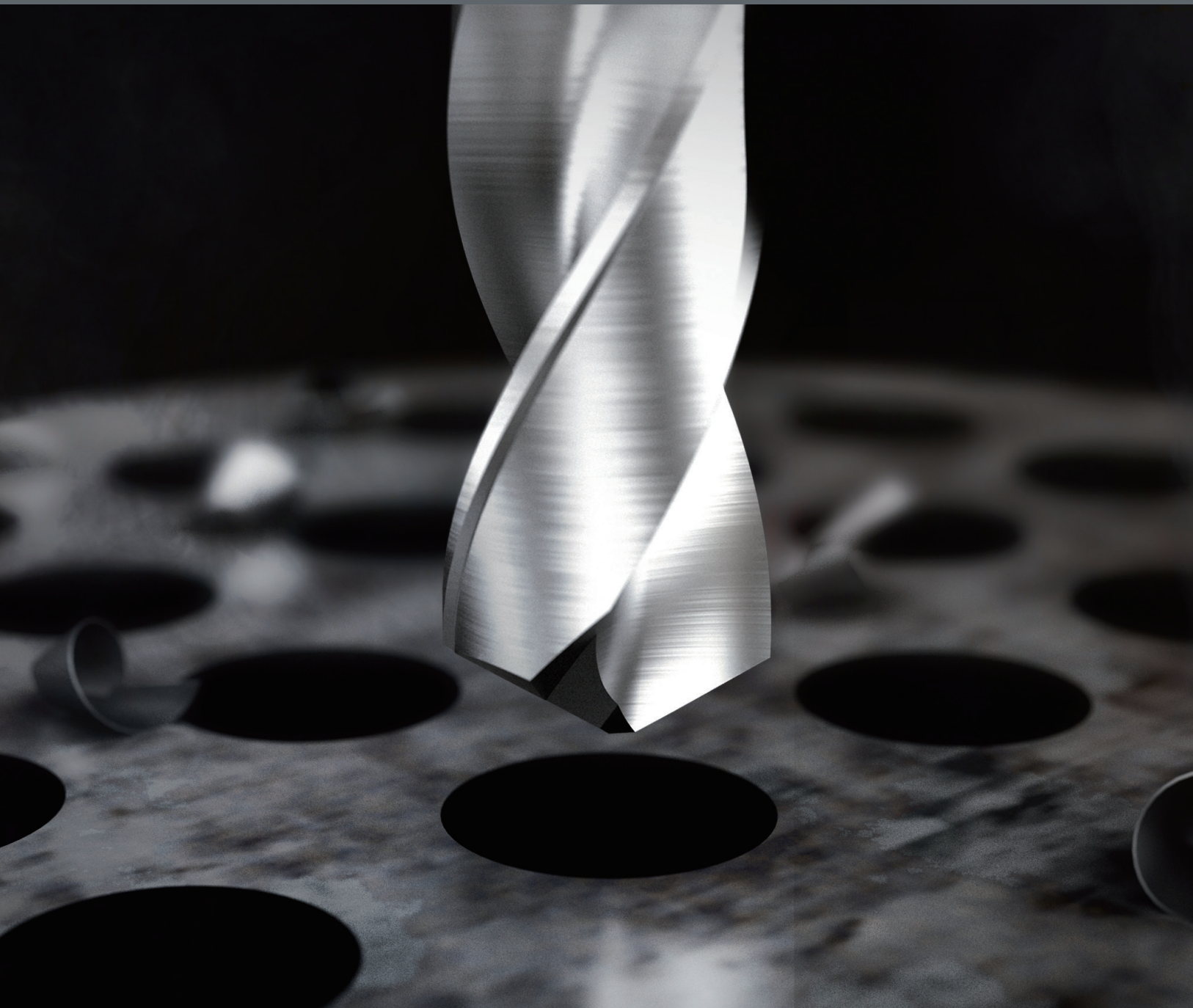
	ISO	VDI 3323	Material Description	SFM	Drill Diameter											
				3.0 ~ 20.0	METRIC	3.0	-	4.0	-	5.0	6.0	-	-	8.0	-	10.0
				1/8 ~ 3/4	FRACTIONAL	-	1/8	-	3/16	-	-	1/4	5/16	-	3/8	-
				.1181 ~ .7874	DECIMAL	.1181	.1250	.1575	.1875	.1969	.2362	.2500	.3125	.3150	.3750	.3937
Holmaking	P	2	Non-alloy steel	230 ~ 265	FEED	.0024-.0047	.0031-.0055	.0055-.0079	.0063-.0087	.0071-.0094	.0087-.011					
		3		230 ~ 265	FEED	.0024-.0047	.0031-.0055	.0055-.0079	.0063-.0087	.0071-.0094	.0087-.011					
		4		230 ~ 265	FEED	.0016-.0039	.0028-.0051	.0039-.0063	.0047-.0071	.0055-.0079	.0071-.0094					
		5		180 ~ 210	FEED	.0016-.0039	.0028-.0051	.0039-.0063	.0047-.0071	.0055-.0079	.0071-.0094					
		6	Low alloy steel	230 ~ 265	FEED	.0024-.0047	.0031-.0055	.0055-.0079	.0063-.0087	.0071-.0094	.0087-.011					
		7		190 ~ 230	FEED	.0024-.0047	.0031-.0055	.0039-.0079	.0047-.0094	.0063-.011	.0079-.0118					
		8		190 ~ 230	FEED	.0016-.0039	.0028-.0051	.0039-.0063	.0047-.0071	.0055-.0079	.0071-.0094					
		9	High alloyed steel, and tool steel	85 ~ 105	FEED	.0012-.0031	.002-.0043	.0031-.0055	.0039-.0063	.0047-.0071	.0055-.0079	.0071-.0094				
		10		160 ~ 200	FEED	.0016-.0039	.0028-.0051	.0039-.0063	.0047-.0071	.0055-.0079	.0071-.0094					
		11		85 ~ 105	FEED	.0012-.0031	.002-.0043	.0031-.0055	.0039-.0063	.0047-.0071	.0055-.0079	.0071-.0094				
		M	12	Stainless steel	160 ~ 190	FEED	.0024-.0047	.0031-.0055	.0055-.0079	.0063-.0087	.0071-.0094	.0087-.011				
13	100 ~ 120		FEED		.0016-.0039	.0028-.0051	.0039-.0063	.0047-.0071	.0055-.0079	.0071-.0094						
Milling	K	15	Grey cast iron	230 ~ 265	FEED	.0031-.0055	.0047-.0071	.0071-.0094	.0055-.0102	.0063-.011	.0094-.0134					
		16		190 ~ 210	FEED	.0024-.0047	.0031-.0055	.0055-.0079	.0063-.0087	.0071-.0094	.0087-.011					
		17	Nodular cast iron	230 ~ 265	FEED	.0031-.0055	.0047-.0071	.0071-.0094	.0055-.0102	.0063-.011	.0094-.0134					
		18		160 ~ 185	FEED	.0024-.0047	.0031-.0055	.0055-.0079	.0063-.0087	.0071-.0094	.0087-.011					
		19	Malleable cast iron	190 ~ 210	FEED	.0031-.0055	.0047-.0071	.0071-.0094	.0055-.0102	.0063-.011	.0094-.0134					
20	160 ~ 185	FEED	.0024-.0047	.0031-.0055	.0055-.0079	.0063-.0087	.0071-.0094	.0087-.011								
Indexable Inserts	P	2	Non-alloy steel	230 ~ 265	FEED	.0079-.0118	.0079-.0118	.0087-.0126	.0094-.0134	.011-.015	.011-.015	.0118-.0157				
		3		230 ~ 265	FEED	.0079-.0118	.0079-.0118	.0087-.0126	.0094-.0134	.011-.015	.011-.015	.0118-.0157				
		4		230 ~ 265	FEED	.0055-.0094	.0055-.0094	.0063-.0102	.0071-.011	.0079-.0118	.0079-.0118	.0087-.0126				
		5		180 ~ 210	FEED	.0055-.0094	.0055-.0094	.0063-.0102	.0071-.011	.0079-.0118	.0079-.0118	.0087-.0126				
		6	Low alloy steel	230 ~ 265	FEED	.0079-.0118	.0079-.0118	.0087-.0126	.0094-.0134	.011-.015	.011-.015	.0118-.0157				
		7		190 ~ 230	FEED	.0083-.0118	.0083-.0118	.0087-.0138	.0098-.0142	.011-.015	.011-.015	.0118-.0157				
		8		190 ~ 230	FEED	.0055-.0094	.0055-.0094	.0063-.0102	.0071-.011	.0079-.0118	.0079-.0118	.0087-.0126				
		9	High alloyed steel, and tool steel	85 ~ 105	FEED	.0047-.0087	.0047-.0087	.0051-.0091	.0055-.0094	.0063-.0102	.0063-.0102	.0071-.011				
		10		160 ~ 200	FEED	.0055-.0094	.0055-.0094	.0063-.0102	.0071-.011	.0079-.0118	.0079-.0118	.0087-.0126				
		11		85 ~ 105	FEED	.0047-.0087	.0047-.0087	.0051-.0091	.0055-.0094	.0063-.0102	.0063-.0102	.0071-.011				
		M	12	Stainless steel	160 ~ 190	FEED	.0079-.0118	.0079-.0118	.0087-.0126	.0094-.0134	.011-.015	.011-.015	.0118-.0157			
	13		100 ~ 120		FEED	.0055-.0094	.0055-.0094	.0063-.0102	.0071-.011	.0079-.0118	.0079-.0118	.0087-.0126				
	K	15	Grey cast iron	230 ~ 265	FEED	.0102-.0142	.0102-.0142	.011-.015	.0118-.0157	.0126-.0165	.0126-.0165	.0134-.0173				
		16		190 ~ 210	FEED	.0079-.0118	.0079-.0118	.0087-.0126	.0094-.0134	.011-.015	.011-.015	.0118-.0157				
		17	Nodular cast iron	230 ~ 265	FEED	.0102-.0142	.0102-.0142	.011-.015	.0118-.0157	.0126-.0165	.0126-.0165	.0134-.0173				
		18		160 ~ 185	FEED	.0079-.0118	.0079-.0118	.0087-.0126	.0094-.0134	.011-.015	.011-.015	.0118-.0157				
		19	Malleable cast iron	190 ~ 210	FEED	.0102-.0142	.0102-.0142	.011-.015	.0118-.0157	.0126-.0165	.0126-.0165	.0134-.0173				
	20	160 ~ 185	FEED	.0079-.0118	.0079-.0118	.0087-.0126	.0094-.0134	.011-.015	.011-.015	.0118-.0157						



# GENERAL CARBIDE DRILLS

*- For General Purpose*

*- 118° Point*





# GENERAL CARBIDE DRILLS



## SELECTION GUIDE

# GENERAL CARBIDE DRILLS

- For General Purpose  
- 118° Point

SERIES	D5412 DH412	D5413 DH413	D5417 DH417
DRILLING DEPTH	D1=D2	D1=D2	D1=D2
LENGTH	JOBBER	JOBBER	JOBBER
SIZE MIN	#56	A	D3/64
SIZE MAX	#1	Z	D1/2
PAGE	15	16	16
SURFACE TREATMENT	Bright/TiAIN		



Please visit  
[globalyg1.com/mat](http://globalyg1.com/mat)  
for material search

◎ : Excellent ○ : Good

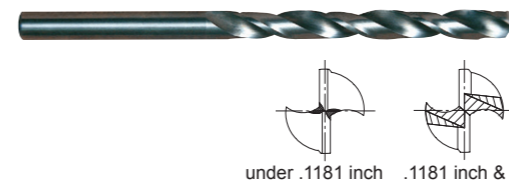
Recommended cutting conditions : P.17

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc			
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎	◎	◎
	2		About 0.45% C Annealed	190	13	○	○	○
	3		About 0.45% C Quenched & Tempered	250	25			
	4		About 0.75% C Annealed	270	28			
	5		About 0.75% C Quenched & Tempered	300	32			
	6	Low alloy steel	Annealed	180	10	○	○	○
	7		Quenched & Tempered	275	29			
	8		Quenched & Tempered	300	32			
	9		Quenched & Tempered	350	38			
	10		High alloyed steel, and tool steel	Annealed	200	15		
	11	Quenched & Tempered	325	35				
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	○	○	○
	13		Martensitic Quenched & Tempered	240	23			
	14		Austenitic	180	10			
K	15	Grey cast iron	Pearlitic / ferritic	180	10	○	○	○
	16		Pearlitic (Martensitic)	260	26			
	17	Nodular cast iron	Ferritic	160	3			
	18		Pearlitic	250	25			
	19	Malleable cast iron	Ferritic	130				
	20		Pearlitic	230	21			
N	21	Aluminum-wrought alloy	Not Curable	60		◎	◎	◎
	22		Curable Hardened	100		◎	◎	◎
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		◎	◎	◎
	24		≤ 12% Si, Curable Hardened	90		◎	◎	◎
	25		> 12% Si, Not Curable	130				
	26	Copper and Copper Alloys	Cutting Alloys, PB>1%	110				
	27		CuZn, CuSnZn (Brass)	90				
	28	(Bronze / Brass)	CuSn, lead-free copper and electrolytic copper	100				
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic					
	30		Rubber, Wood, etc.					
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15			
	32		Cured	280	30			
	33		Annealed	250	25			
	34		Ni or Co Based Cured	350	38			
	35	Cast	320	34				
	36	Titanium Alloys	Pure Titanium	400 Rm		○	○	○
37	Alpha + Beta Alloys Hardened		1050 Rm					
H	38	Hardened steel	Hardened	550	55			
	39		Hardened	630	60			
	40	Hardened Cast Iron	Cast	400	42			
	41		Hardened	550	55			

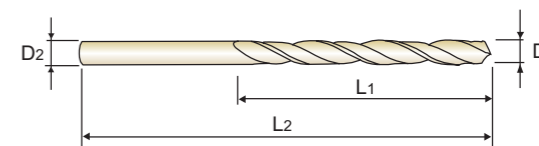
# GENERAL CARBIDE DRILLS



► Application : Drilling steels in general, cast steels, cast iron, chilled cast iron, malleable cast iron, non-ferrous heavy metals, non-ferrous light metals, abrasive plastics.



under .1181 inch .1181 inch & over



D1=D2



DH412 SERIES  
D5412 SERIES

## CARBIDE DRILLS

JOBBER

### ► Wire gauge sizes

EDP No.	Diameter	Flute Length	Overall Length	
			L1	L2
Bright Finish	TiAIN	D1 = D2		
D5412101	DH412101	1	.2280	1-3/4 3
D5412102	DH412102	2	.2210	1-3/4 3
D5412103	DH412103	3	.2130	1-3/4 3
D5412104	DH412104	4	.2090	1-3/4 3
D5412105	DH412105	5	.2055	1-3/4 3
D5412106	DH412106	6	.2040	1-3/4 3
D5412107	DH412107	7	.2010	1-3/4 3
D5412108	DH412108	8	.1990	1-3/4 3
D5412109	DH412109	9	.1960	1-3/4 3
D5412110	DH412110	10	.1935	1-5/8 2-3/4
D5412111	DH412111	11	.1910	1-5/8 2-3/4
D5412112	DH412112	12	.1890	1-5/8 2-3/4
D5412113	DH412113	13	.1850	1-5/8 2-3/4
D5412114	DH412114	14	.1820	1-5/8 2-3/4
D5412115	DH412115	15	.1800	1-5/8 2-3/4
D5412116	DH412116	16	.1770	1-5/8 2-3/4
D5412117	DH412117	17	.1730	1-5/8 2-3/4
D5412118	DH412118	18	.1695	1-5/8 2-3/4
D5412119	DH412119	19	.1660	1-5/8 2-3/4
D5412120	DH412120	20	.1610	1-3/8 2-1/2
D5412121	DH412121	21	.1590	1-3/8 2-1/2
D5412122	DH412122	22	.1570	1-3/8 2-1/2
D5412123	DH412123	23	.1540	1-3/8 2-1/2
D5412124	DH412124	24	.1520	1-3/8 2-1/2
D5412125	DH412125	25	.1495	1-3/8 2-1/2
D5412126	DH412126	26	.1470	1-3/8 2-1/2
D5412127	DH412127	27	.1440	1-3/8 2-1/2
D5412128	DH412128	28	.1405	1-3/8 2-1/2

► Other coating is available on you request.

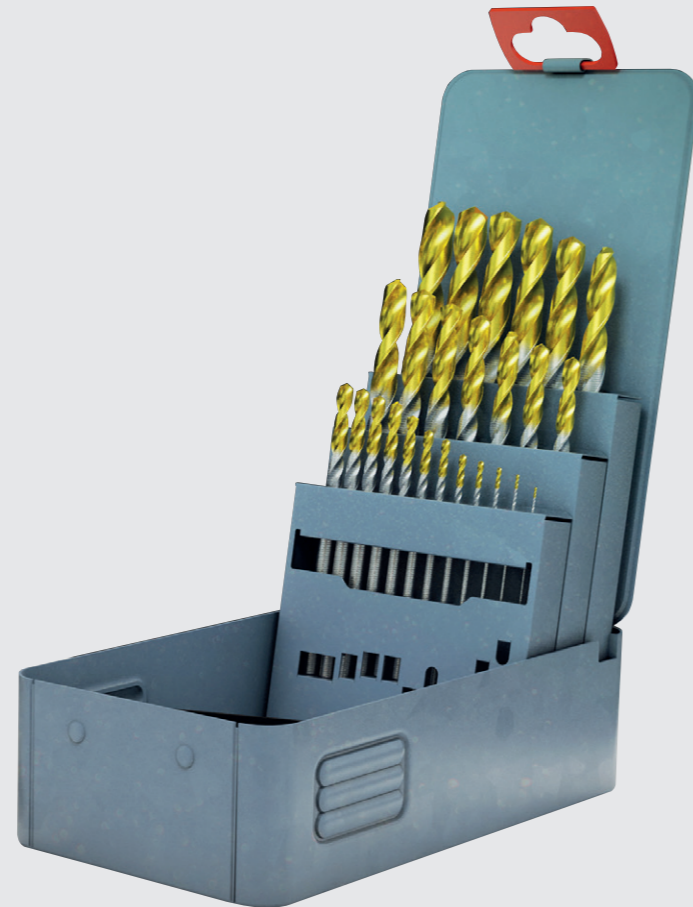
EDP No.	Diameter	Flute Length	Overall Length	
			L1	L2
Bright Finish	TiAIN	D1 = D2		
D5412129	DH412129	29	.1360	1-3/8 2-1/2
D5412130	DH412130	30	.1285	1-1/4 2-1/4
D5412131	DH412131	31	.1200	1-1/4 2-1/4
D5412132	DH412132	32	.1160	1-1/4 2-1/4
D5412133	DH412133	33	.1130	1-1/4 2-1/4
D5412134	DH412134	34	.1110	1-1/4 2-1/4
D5412135	DH412135	35	.1100	1-1/4 2-1/4
D5412136	DH412136	36	.1065	1-1/4 2-1/4
D5412137	DH412137	37	.1040	1-1/4 2-1/4
D5412138	DH412138	38	.1015	1-1/4 2-1/4
D5412139	DH412139	39	.0995	1-1/4 2-1/4
D5412140	DH412140	40	.0980	1 2
D5412141	DH412141	41	.0960	1 2
D5412142	DH412142	42	.0935	1 2
D5412143	DH412143	43	.0890	1 2
D5412144	DH412144	44	.0860	1 2
D5412145	DH412145	45	.0820	7/8 1-3/4
D5412146	DH412146	46	.0810	7/8 1-3/4
D5412147	DH412147	47	.0785	7/8 1-3/4
D5412148	DH412148	48	.0760	7/8 1-3/4
D5412149	DH412149	49	.0730	7/8 1-3/4
D5412150	DH412150	50	.0700	7/8 1-3/4
D5412151	DH412151	51	.0670	3/4 1-1/2
D5412152	DH412152	52	.0635	3/4 1-1/2
D5412153	DH412153	53	.0595	3/4 1-1/2
D5412154	DH412154	54	.0550	3/4 1-1/2
D5412155	DH412155	55	.0520	3/4 1-1/2
D5412156	DH412156	56	.0465	3/4 1-1/2





# GOLD-P AND SET

- Gold-P Coated
- Competitive Price and Same Performance as Full TiN Coating



## GOLD-P AND SET



### SELECTION GUIDE

# GOLD-P AND SET

- Gold-P Coated
- Competitive Price and Same Performance as Full TiN Coating
- Jobber Length



Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : P.33

SERIES	D1GP182	D1GP139	D1GP138	D2GP185	D2GP186
STANDARD	ANSI				
MATERIAL	HSS			HSS Co8	
SIZE MIN	D3/64	A	#80	D3/64	A
SIZE MAX	D3/4	Z	#1	D1/2	Z
PAGE	21	22	23	24	25
SURFACE TREATMENT	TiN				



ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc	D1GP182	D1GP139	D1GP138	D2GP185	D2GP186
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎	◎	◎	◎	◎
	2		About 0.45% C Annealed	190	13	◎	◎	◎	◎	◎
	3		About 0.45% C Quenched & Tempered	250	25	◎	◎	◎	◎	◎
	4		About 0.75% C Annealed	270	28	○	○	○	○	○
	5		About 0.75% C Quenched & Tempered	300	32					
	6	Low alloy steel	Annealed	180	10	◎	◎	◎	◎	◎
	7		Quenched & Tempered	275	29	○	○	○	○	○
	8		Quenched & Tempered	300	32	○	○	○	○	○
	9		Quenched & Tempered	350	38					
	10		High alloyed steel, and tool steel	Annealed	200	15	○	○	○	○
	11	Quenched & Tempered		325	35					
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	◎	◎	◎	◎	◎
	13		Martensitic Quenched & Tempered	240	23	○	○	○	○	○
	14	Austenitic	180	10	○	○	○	○	○	
K	15	Grey cast iron	Pearlitic / ferritic	180	10	○	○	○	○	○
	16		Pearlitic (Martensitic)	260	26	○	○	○	○	○
	17	Nodular cast iron	Ferritic	160	3	○	○	○	○	○
	18		Pearlitic	250	25					
	19	Malleable cast iron	Ferritic	130		○	○	○	○	○
20	Pearlitic		230	21						
N	21	Aluminum-wrought alloy	Not Curable	60		○	○	○	○	○
	22		Curable Hardened	100		○	○	○	○	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		○	○	○	○	○
	24		≤ 12% Si, Curable Hardened	90						
	25		> 12% Si, Not Curable	130						
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110						
	27		CuZn, CuSnZn (Brass)	90						
	28		CuSn, lead-free copper and electrolytic copper	100						
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic			○	○	○	○	○
	30		Rubber, Wood, etc.							
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15					
	32		Cured	280	30					
	33		Annealed	250	25					
	34		Ni or Co Based Cured	350	38					
	35	Cast	320	34						
	36	Titanium Alloys	Pure Titanium	400 Rm		○	○	○	○	○
37	Alpha + Beta Alloys Hardened		1050 Rm							
H	38	Hardened steel	Hardened	550	55					
	39		Hardened	630	60					
	40	Hardened Cast Iron	Cast	400	42					
	41		Hardened	550	55					

Holemaking

Threading

Milling

Indexable Inserts

# GOLD-P AND SET



## SELECTION GUIDE

# GOLD-P AND SET

- Gold-P Coated
- Competitive Price and Same Performance as Full TiN Coating
- Jobber Length

SERIES	D2GP187	DLGP195	DLGP511	DLGP512	DLGP513	DLGP506
STANDARD	ANSI	DIN338	ANSI			DIN338
MATERIAL	HSS Co8		HSS Co5			
SIZE MIN	#80	D1.0	D5/64	#47	A	D2.0
SIZE MAX	#1	D13.0	D1/2	#1	Z	D13.0
PAGE	26	27	29	29	30	31
SURFACE TREATMENT	TiN					



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◎ : Excellent ○ : Good  
Recommended cutting conditions: P.33

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRC	D2GP187	DLGP195	DLGP511	DLGP512	DLGP513	DLGP506	
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎	◎	◎	◎	◎	◎	
	2		About 0.45% C Annealed	190	13	◎	◎	◎	◎	◎	◎	
	3		About 0.45% C Quenched & Tempered	250	25	○	○	○	○	○	○	
	4		About 0.75% C Annealed	270	28	○	○	○	○	○	○	
	5		About 0.75% C Quenched & Tempered	300	32	○	○	○	○	○	○	
	6	Low alloy steel	Annealed	180	10	◎	◎	◎	◎	◎	◎	
	7		Quenched & Tempered	275	29	○	○	○	○	○	○	
	8		Quenched & Tempered	300	32	○	○	○	○	○	○	
	9		Quenched & Tempered	350	38	○	○	○	○	○	○	
	10		High alloyed steel, and tool steel	Annealed	200	15	○	○	○	○	○	○
	11			Quenched & Tempered	325	35	○	○	○	○	○	○
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	◎	◎					
	13		Martensitic Quenched & Tempered	240	23	○	○					
	14		Austenitic	180	10	○	○					
K	15	Grey cast iron	Pearlitic / ferritic	180	10	○	○	○	○	○	○	
	16		Pearlitic (Martensitic)	260	26	○	○	○	○	○	○	
	17	Nodular cast iron	Ferritic	160	3	○	○	○	○	○	○	
	18		Pearlitic	250	25	○	○	○	○	○	○	
	19		Ferritic	130		○	○	○	○	○	○	
20	Malleable cast iron	Pearlitic	230	21	○	○	○	○	○	○		
N	21	Aluminum-wrought alloy	Not Curable	60		○	○					
	22		Curable Hardened	100		○	○					
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		○	○					
	24		≤ 12% Si, Curable Hardened	90								
	25		> 12% Si, Not Curable	130								
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110								
	27		CuZn, CuSnZn (Brass)	90								
	28		CuSn, lead-free copper and electrolytic copper	100								
	29		Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic			○	○				
	30	Rubber, Wood, etc.										
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15							
	32		Fe Based Cured	280	30							
	33		Ni or Co Based Annealed	250	25							
	34		Ni or Co Based Cured	350	38							
	35	Ni or Co Based Cast	320	34								
	36	Titanium Alloys	Pure Titanium	400 Rm		○	○					
	37		Alpha + Beta Alloys Hardened	1050 Rm								
H	38	Hardened steel	Hardened	550	55							
	39		Hardened	630	60							
	40	Chilled Cast Iron	Cast	400	42							
	41	Hardened Cast Iron	Hardened	550	55							

# GOLD-P AND SET

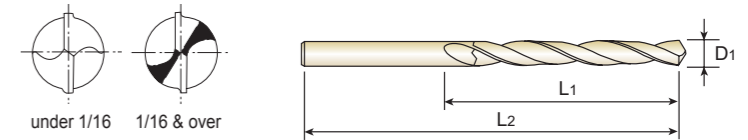


## D1GP182 SERIES

## HSS, STRAIGHT SHANK, GOLD-P COATED

JOBBER

- Flute Geometry : Right hand helix, wider flutes
- Point Angle : 135°  
under 1/16 : Normal point  
1/16 & over : Split point
- Surface treatment : Bright body TiN coating on working part  
over TiN coating on flute length
- Application : Drilling in steel, cast steel alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron



D1 Ø3/64, 118°

### Fractional sizes

EDP No.	Diameter		Flute Length L1	Overall Length L2
	Fractional	Decimal		
	D1			
D1GP182001	1/64	.0156	3/16	3/4
D1GP182002	1/32	.0313	1/2	1-3/8
*D1GP113003	3/64	.0469	3/4	1-3/4
*D1GP182004	1/16	.0625	7/8	1-7/8
*D1GP182005	5/64	.0781	1	2
*D1GP182006	3/32	.0938	1-1/4	2-1/4
*D1GP182007	7/64	.1094	1-1/2	2-5/8
*D1GP182008	1/8	.1250	1-5/8	2-3/4
*D1GP182009	9/64	.1406	1-3/4	2-7/8
*D1GP182010	5/32	.1563	2	3-1/8
*D1GP182011	11/64	.1719	2-1/8	3-1/4
*D1GP182012	3/16	.1875	2-5/16	3-1/2
*D1GP182013	13/64	.2031	2-7/16	3-5/8
*D1GP182014	7/32	.2188	2-1/2	3-3/4
*D1GP182015	15/64	.2344	2-5/8	3-7/8
*D1GP182016	1/4	.2500	2-3/4	4
*D1GP182017	17/64	.2656	2-7/8	4-1/8
*D1GP182018	9/32	.2813	2-15/16	4-1/4
*D1GP182019	19/64	.2969	3-1/16	4-3/8
*D1GP182020	5/16	.3125	3-3/16	4-1/2
**D1GP182021	21/64	.3281	3-5/16	4-5/8
**D1GP182022	11/32	.3438	3-7/16	4-3/4
**D1GP182023	23/64	.3594	3-1/2	4-7/8
**D1GP182024	3/8	.3750	3-5/8	5

Unit : Inch

EDP No.	Diameter		Flute Length L1	Overall Length L2
	Fractional	Decimal		
	D1			
**D1GP182025	25/64	.3906	3-3/4	5-1/8
**D1GP182026	13/32	.4063	3-7/8	5-1/4
**D1GP182027	27/64	.4219	3-15/16	5-3/8
**D1GP182028	7/16	.4375	4-1/16	5-1/2
**D1GP182029	29/64	.4531	4-3/16	5-5/8
**D1GP182030	15/32	.4688	4-5/16	5-3/4
**D1GP182031	31/64	.4844	4-3/8	5-7/8
**D1GP182032	1/2	.5000	4-1/2	6
**D8182033	33/64	.5156	4-13/16	6-5/8
**D8182034	17/32	.5312	4-13/16	6-5/8
**D8182035	35/64	.5469	4-13/16	6-5/8
**D8182036	9/16	.5625	4-13/16	6-5/8
**D8182037	37/64	.5781	4-13/16	6-5/8
**D8182038	19/32	.5937	5-3/16	7-1/8
**D8182039	39/64	.6094	5-3/16	7-1/8
**D8182040	5/8	.6250	5-3/16	7-1/8
**D8182042	21/32	.6563	5-3/16	7-1/8
**D8182044	11/16	.6875	5-5/8	7-5/8
**D8182045	45/64	.7031	5-5/8	9-1/2
**D8182046	23/32	.7188	5-5/8	9-1/2
**D8182047	47/64	.7344	5-5/8	9-3/4
**D8182048	3/4	.7500	5-7/8	9-3/4

- \* 10pcs per package
- \*\* 5pcs per package
- \*\* 3pcs per package

Tolerance Diameter (Inch)	
up to 1/8(.1250)	0 ~ -.0005
over 1/8(.1250) up to 1/4(.2500)	0 ~ -.0007
over 1/4(.2500) up to 1/2(.5000)	0 ~ -.0010

# GOLD-P AND SET

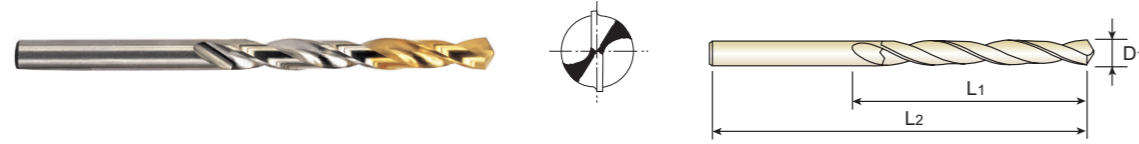


## D1GP139 SERIES

HSS, STRAIGHT SHANK, GOLD-P COATED

JOBBER

- ▶ **Flute Geometry** : Right hand helix, wider flutes
- ▶ **Point Angle** : 135° Split point
- ▶ **Surface treatment** : Bright body TiN coating on working part
- ▶ **Application** : Drilling in steel, cast steel alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron



### ▶ Letter sizes

EDP No.	Diameter		Flute Length L <sub>1</sub>	Overall Length L <sub>2</sub>
	Letter	Decimal		
* D1GP139101	A	.2340	2-5/8	3-7/8
* D1GP139102	B	.2380	2-3/4	4
* D1GP139103	C	.2420	2-3/4	4
* D1GP139104	D	.2460	2-3/4	4
* D1GP139105	E	.2500	2-3/4	4
* D1GP139106	F	.2570	2-7/8	4-1/8
* D1GP139107	G	.2610	2-7/8	4-1/8
* D1GP139108	H	.2660	2-7/8	4-1/8
* D1GP139109	I	.2720	2-7/8	4-1/8
* D1GP139110	J	.2770	2-7/8	4-1/8
* D1GP139111	K	.2810	2-15/16	4-1/4
* D1GP139112	L	.2900	2-15/16	4-1/4
* D1GP139113	M	.2950	3-1/16	4-3/8

EDP No.	Diameter		Flute Length L <sub>1</sub>	Overall Length L <sub>2</sub>
	Letter	Decimal		
* D1GP139114	N	.3020	3-1/16	4-3/8
* D1GP139115	O	.3160	3-3/16	4-1/2
* D1GP139116	P	.3230	3-5/16	4-5/8
** D1GP139117	Q	.3320	3-7/16	4-3/4
** D1GP139118	R	.3390	3-7/16	4-3/4
** D1GP139119	S	.3480	3-1/2	4-7/8
** D1GP139120	T	.3580	3-1/2	4-7/8
** D1GP139121	U	.3680	3-5/8	5
** D1GP139122	V	.3770	3-5/8	5
** D1GP139123	W	.3860	3-3/4	5-1/8
** D1GP139124	X	.3970	3-3/4	5-1/8
** D1GP139125	Y	.4040	3-7/8	5-1/4
** D1GP139126	Z	.4130	3-7/8	5-1/4

\* 10pcs per package  
\*\* 5pcs per package

Tolerance Diameter (Inch)	
up to 1/8(.1250)	0 ~ -.0005
over 1/8(.1250) up to 1/4(.2500)	0 ~ -.0007
over 1/4(.2500) up to 1/2(.5000)	0 ~ -.0010

# GOLD-P AND SET

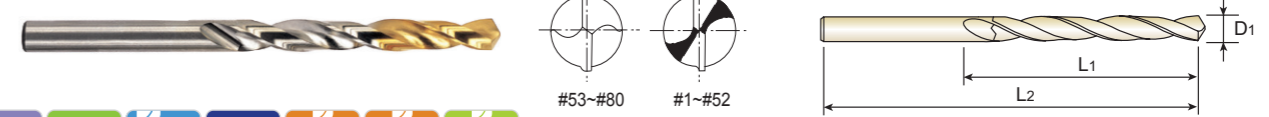


## D1GP138 SERIES

HSS, STRAIGHT SHANK, GOLD-P COATED

JOBBER

- ▶ **Flute Geometry** : Right hand helix, wider flutes
- ▶ **Point Angle** : 135°, Split point  
Wire gauge size #53~#80 : Normal point  
Wire gauge size #1~#52 : Split point
- ▶ **Surface treatment** : Bright body TiN coating on working part
- ▶ **Application** : Drilling in steel, cast steel alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron



### ▶ Wire gauge sizes

EDP No.	Diameter		Flute Length L <sub>1</sub>	Overall Length L <sub>2</sub>
	Wire gauge	Decimal		
* D1GP138256	1	.2280	2-5/8	3-7/8
* D1GP138255	2	.2210	2-5/8	3-7/8
* D1GP138254	3	.2130	2-1/2	3-3/4
* D1GP138253	4	.2090	2-1/2	3-3/4
* D1GP138252	5	.2055	2-1/2	3-3/4
* D1GP138251	6	.2040	2-1/2	3-3/4
* D1GP138250	7	.2010	2-7/16	3-5/8
* D1GP138249	8	.1990	2-7/16	3-5/8
* D1GP138248	9	.1960	2-7/16	3-5/8
* D1GP138247	10	.1935	2-7/16	3-5/8
* D1GP138246	11	.1910	2-5/16	3-1/2
* D1GP138245	12	.1890	2-5/16	3-1/2
* D1GP138244	13	.1850	2-5/16	3-1/2
* D1GP138243	14	.1820	2-3/16	3-3/8
* D1GP138242	15	.1800	2-3/16	3-3/8
* D1GP138241	16	.1770	2-3/16	3-3/8
* D1GP138240	17	.1730	2-3/16	3-3/8
* D1GP138239	18	.1695	2-1/8	3-1/4
* D1GP138238	19	.1660	2-1/8	3-1/4
* D1GP138237	20	.1610	2-1/8	3-1/4
* D1GP138236	21	.1590	2-1/8	3-1/4
* D1GP138235	22	.1570	2	3-1/8
* D1GP138234	23	.1540	2	3-1/8
* D1GP138233	24	.1520	2	3-1/8
* D1GP138232	25	.1495	1-7/8	3
** D1GP138231	26	.1470	1-7/8	3
** D1GP138230	27	.1440	1-7/8	3
** D1GP138229	28	.1405	1-3/4	2-7/8
* D1GP138228	29	.1360	1-3/4	2-7/8
* D1GP138227	30	.1285	1-5/8	2-3/4
* D1GP138226	31	.1200	1-5/8	2-3/4
* D1GP138225	32	.1160	1-5/8	2-3/4
* D1GP138224	33	.1130	1-1/2	2-5/8
* D1GP138223	34	.1110	1-1/2	2-5/8
* D1GP138222	35	.1100	1-1/2	2-5/8
* D1GP138221	36	.1065	1-7/16	2-1/2
* D1GP138220	37	.1040	1-7/16	2-1/2
* D1GP138219	38	.1015	1-7/16	2-1/2
* D1GP138218	39	.0995	1-3/8	2-3/8
* D1GP138217	40	.0980	1-3/8	2-3/8
* D1GP138216	41	.0960	1-3/8	2-3/8
* D1GP138215	42	.0935	1-1/4	2-1/4
* D1GP138214	43	.0890	1-1/4	2-1/4
* D1GP138213	44	.0860	1-1/8	2-1/8

EDP No.	Diameter		Flute Length L <sub>1</sub>	Overall Length L <sub>2</sub>
	Wire gauge	Decimal		
* D1GP138212	45	.0820	1-1/8	2-1/8
* D1GP138211	46	.0810	1-1/8	2-1/8
* D1GP138210	47	.0785	1	2
* D1GP138209	48	.0760	1	2
* D1GP138208	49	.0730	1	2
* D1GP138207	50	.0700	1	2
* D1GP138206	51	.0670	1	2
* D1GP138205	52	.0635	7/8	1-7/8
* D1GP134204	53	.0595	7/8	1-7/8
* D1GP134203	54	.0550	7/8	1-7/8
* D1GP134202	55	.0520	7/8	1-7/8
* D1GP134201	56	.0465	3/4	1-3/4
* D1GP138200	57	.0430	3/4	1-3/4
* D1GP138199	58	.0420	11/16	1-5/8
* D1GP138198	59	.0410	11/16	1-5/8
* D1GP138197	60	.0400	11/16	1-5/8
* D1GP138196	61	.0390	11/16	1-5/8
* D1GP138195	62	.0380	5/8	1-1/2
* D1GP138194	63	.0370	5/8	1-1/2
* D1GP138193	64	.0360	5/8	1-1/2
* D1GP138192	65	.0350	5/8	1-1/2
* D1GP138191	66	.0330	1/2	1-3/8
* D1GP138190	67	.0320	1/2	1-3/8
* D1GP138189	68	.0310	1/2	1-3/8
* D1GP138188	69	.0292	1/2	1-3/8
* D1GP138187	70	.0280	3/8	1-1/4
* D1GP138186	71	.0260	3/8	1-1/4
* D1GP138185	72	.0250	5/16	1-1/8
* D1GP138184	73	.0240	5/16	1-1/8
* D1GP138183	74	.0225	1/4	1
* D1GP138182	75	.0210	1/4	1
* D1GP138181	76	.0200	3/16	7/8
* D1GP138180	77	.0180	3/16	7/8
* D1GP138179	78	.0160	3/16	7/8
* D1GP138178	79	.0145	1/8	3/4
* D1GP138177	80	.0135	1/8	3/4

\* 10pcs per package

Tolerance Diameter (Inch)	
up to 1/8(.1250)	0 ~ -.0005
over 1/8(.1250) up to 1/4(.2500)	0 ~ -.0007
over 1/4(.2500) up to 1/2(.5000)	0 ~ -.0010

# GOLD-P AND SET

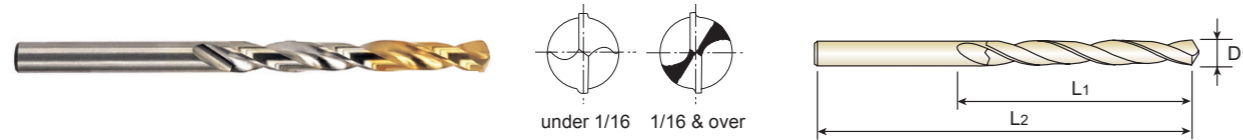


## D2GP185 SERIES

### HSSCo8, STRAIGHT SHANK, GOLD-P COATED

JOBBER

- **Flute Geometry** : Right hand helix, wider flutes
- **Point Angle** : 135°  
under 1/16 : Normal point  
1/16 & over : Split point
- **Surface treatment** : Bright body TiN coating on working part
- **Application** : Drilling in steel, cast steel alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron



#### ► Fractional sizes

EDP No.	Diameter		Flute Length L1	Overall Length L2
	Fractional	Decimal		
	D1			
D2GP185001	1/64	.0156	3/16	3/4
D2GP185002	1/32	.0313	1/2	1-3/8
* D2GP185003	3/64	.0469	3/4	1-3/4
* D2GP185004	1/16	.0625	7/8	1-7/8
* D2GP185005	5/64	.0781	1	2
* D2GP185006	3/32	.0938	1-1/4	2-1/4
* D2GP185007	7/64	.1094	1-1/2	2-5/8
* D2GP185008	1/8	.1250	1-5/8	2-3/4
* D2GP185009	9/64	.1406	1-3/4	2-7/8
* D2GP185010	5/32	.1563	2	3-1/8
* D2GP185011	11/64	.1719	2-1/8	3-1/4
* D2GP185012	3/16	.1875	2-5/16	3-1/2
* D2GP185013	13/64	.2031	2-7/16	3-5/8
* D2GP185014	7/32	.2188	2-1/2	3-3/4
* D2GP185015	15/64	.2344	2-5/8	3-7/8
* D2GP185016	1/4	.2500	2-3/4	4

Tolerance Diameter (Inch)	
up to 1/8(.1250)	0 ~ -.0005
over 1/8(.1250) up to 1/4(.2500)	0 ~ -.0007
over 1/4(.2500) up to 1/2(.5000)	0 ~ -.0010

Unit : Inch

EDP No.	Diameter		Flute Length L1	Overall Length L2
	Fractional	Decimal		
	D1			
* D2GP185017	17/64	.2656	2-7/8	4-1/8
* D2GP185018	9/32	.2813	2-15/16	4-1/4
* D2GP185019	19/64	.2969	3-1/16	4-3/8
* D2GP185020	5/16	.3125	3-3/16	4-1/2
** D2GP185021	21/64	.3281	3-5/16	4-5/8
** D2GP185022	11/32	.3438	3-7/16	4-3/4
** D2GP185023	23/64	.3594	3-1/2	4-7/8
** D2GP185024	3/8	.3750	3-5/8	5
** D2GP185025	25/64	.3906	3-3/4	5-1/8
** D2GP185026	13/32	.4063	3-7/8	5-1/4
** D2GP185027	27/64	.4219	3-15/16	5-3/8
** D2GP185028	7/16	.4375	4-1/16	5-1/2
** D2GP185029	29/64	.4531	4-3/16	5-5/8
** D2GP185030	15/32	.4688	4-5/16	5-3/4
** D2GP185031	31/64	.4844	4-3/8	5-7/8
** D2GP185032	1/2	.5000	4-1/2	6

\* 10pcs per package  
\*\* 5pcs per package

# GOLD-P AND SET



## D2GP186 SERIES

### HSSCo8, STRAIGHT SHANK, GOLD-P COATED

JOBBER

- **Flute Geometry** : Right hand helix, wider flutes
- **Point Angle** : 135° : Split point
- **Surface treatment** : Bright body TiN coating on working part
- **Application** : Drilling in steel, cast steel alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron



#### ► Letter sizes

Unit : Inch

EDP No.	Diameter		Flute Length L1	Overall Length L2
	Letter	Decimal		
	D1			
* D2GP186101	A	.2340	2-5/8	3-7/8
* D2GP186102	B	.2380	2-3/4	4
* D2GP186103	C	.2420	2-3/4	4
* D2GP186104	D	.2460	2-3/4	4
* D2GP186105	E	.2500	2-3/4	4
* D2GP186106	F	.2570	2-7/8	4-1/8
* D2GP186107	G	.2610	2-7/8	4-1/8
* D2GP186108	H	.2660	2-7/8	4-1/8
* D2GP186109	I	.2720	2-7/8	4-1/8
* D2GP186110	J	.2770	2-7/8	4-1/8
* D2GP186111	K	.2810	2-15/16	4-1/4
* D2GP186112	L	.2900	2-15/16	4-1/4
* D2GP186113	M	.2950	3-1/16	4-3/8

Tolerance Diameter (Inch)	
up to 1/8(.1250)	0 ~ -.0005
over 1/8(.1250) up to 1/4(.2500)	0 ~ -.0007
over 1/4(.2500) up to 1/2(.5000)	0 ~ -.0010

Unit : Inch

EDP No.	Diameter		Flute Length L1	Overall Length L2
	Letter	Decimal		
	D1			
* D2GP186114	N	.3020	3-1/16	4-3/8
* D2GP186115	O	.3160	3-3/16	4-1/2
* D2GP186116	P	.3230	3-5/16	4-5/8
** D2GP186117	Q	.3320	3-7/16	4-3/4
** D2GP186118	R	.3390	3-7/16	4-3/4
** D2GP186119	S	.3480	3-1/2	4-7/8
** D2GP186120	T	.3580	3-1/2	4-7/8
** D2GP186121	U	.3680	3-5/8	5
** D2GP186122	V	.3770	3-5/8	5
** D2GP186123	W	.3860	3-3/4	5-1/8
** D2GP186124	X	.3970	3-3/4	5-1/8
** D2GP186125	Y	.4040	3-7/8	5-1/4
** D2GP186126	Z	.4130	3-7/8	5-1/4

\* 10pcs per package  
\*\* 5pcs per package

# GOLD-P AND SET

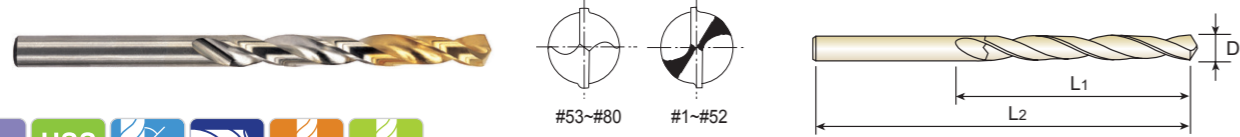


## D2GP187 SERIES

### HSSCo8, STRAIGHT SHANK, GOLD-P COATED

JOBBER

- ▶ **Flute Geometry** : Right hand helix, wider flutes
- ▶ **Point Angle** : 135° : Split point  
Wire gauge size #53~#80 : Normal point  
Wire gauge size #1~#52 : Split point
- ▶ **Surface treatment** : Bright body TiN coating on working part
- ▶ **Application** : Drilling in steel, cast steel alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron



### ▶ Wire gauge sizes

EDP No.	Diameter		Flute Length L1	Overall Length L2
	Wire gauge	Decimal		
* D2GP187256	1	.2280	2-5/8	3-7/8
* D2GP187255	2	.2210	2-5/8	3-7/8
* D2GP187254	3	.2130	2-1/2	3-3/4
* D2GP187253	4	.2090	2-1/2	3-3/4
* D2GP187252	5	.2055	2-1/2	3-3/4
* D2GP187251	6	.2040	2-1/2	3-3/4
* D2GP187250	7	.2010	2-7/16	3-5/8
* D2GP187249	8	.1990	2-7/16	3-5/8
* D2GP187248	9	.1960	2-7/16	3-5/8
* D2GP187247	10	.1935	2-7/16	3-5/8
* D2GP187246	11	.1910	2-5/16	3-1/2
* D2GP187245	12	.1890	2-5/16	3-1/2
* D2GP187244	13	.1850	2-5/16	3-1/2
* D2GP187243	14	.1820	2-3/16	3-3/8
* D2GP187242	15	.1800	2-3/16	3-3/8
* D2GP187241	16	.1770	2-3/16	3-3/8
* D2GP187240	17	.1730	2-3/16	3-3/8
* D2GP187239	18	.1695	2-1/8	3-1/4
* D2GP187238	19	.1660	2-1/8	3-1/4
* D2GP187237	20	.1610	2-1/8	3-1/4
* D2GP187236	21	.1590	2-1/8	3-1/4
* D2GP187235	22	.1570	2	3-1/8
* D2GP187234	23	.1540	2	3-1/8
* D2GP187233	24	.1520	2	3-1/8
* D2GP187232	25	.1495	1-7/8	3
* D2GP187231	26	.1470	1-7/8	3
* D2GP187230	27	.1440	1-7/8	3
* D2GP187229	28	.1405	1-3/4	2-7/8
* D2GP187228	29	.1360	1-3/4	2-7/8
* D2GP187227	30	.1285	1-5/8	2-3/4
* D2GP187226	31	.1200	1-5/8	2-3/4
* D2GP187225	32	.1160	1-5/8	2-3/4
* D2GP187224	33	.1130	1-1/2	2-5/8
* D2GP187223	34	.1110	1-1/2	2-5/8
* D2GP187222	35	.1100	1-1/2	2-5/8
* D2GP187221	36	.1065	1-7/16	2-1/2
* D2GP187220	37	.1040	1-7/16	2-1/2
* D2GP187219	38	.1015	1-7/16	2-1/2
* D2GP187218	39	.0995	1-3/8	2-3/8
* D2GP187217	40	.0980	1-3/8	2-3/8
* D2GP187216	41	.0960	1-3/8	2-3/8
* D2GP187215	42	.0935	1-1/4	2-1/4
* D2GP187214	43	.0890	1-1/4	2-1/4
* D2GP187213	44	.0860	1-1/8	2-1/8

Unit : Inch

EDP No.	Diameter		Flute Length L1	Overall Length L2
	Wire gauge	Decimal		
* D2GP187212	45	.0820	1-1/8	2-1/8
* D2GP187211	46	.0810	1-1/8	2-1/8
* D2GP187210	47	.0785	1	2
* D2GP187209	48	.0760	1	2
* D2GP187208	49	.0730	1	2
* D2GP187207	50	.0700	1	2
* D2GP187206	51	.0670	1	2
* D2GP187205	52	.0635	7/8	1-7/8
* D2GP187204	53	.0595	7/8	1-7/8
* D2GP187203	54	.0550	7/8	1-7/8
* D2GP187202	55	.0520	7/8	1-7/8
* D2GP187201	56	.0465	3/4	1-3/4
* D2GP187200	57	.0430	3/4	1_3/4
* D2GP187199	58	.0420	11/16	1_5/8
* D2GP187198	59	.0410	11/16	1_5/8
* D2GP187197	60	.0400	11/16	1_5/8
* D2GP187196	61	.0390	11/16	1_5/8
* D2GP187195	62	.0380	5/8	1_1/2
* D2GP187194	63	.0370	5/8	1_1/2
* D2GP187193	64	.0360	5/8	1_1/2
* D2GP187192	65	.0350	5/8	1_1/2
* D2GP187191	66	.0330	1/2	1_3/8
* D2GP187190	67	.0320	1/2	1_3/8
* D2GP187189	68	.0310	1/2	1_3/8
* D2GP187188	69	.0292	1/2	1_3/8
* D2GP187187	70	.0280	3/8	1_1/4
* D2GP187186	71	.0260	3/8	1_1/4
* D2GP187185	72	.0250	5/16	1_1/8
* D2GP187184	73	.0240	5/16	1_1/8
* D2GP187183	74	.0225	1/4	1
* D2GP187182	75	.0210	1/4	1
* D2GP187181	76	.0200	3/16	7/8
* D2GP187180	77	.0180	3/16	7/8
* D2GP187179	78	.0160	3/16	7/8
* D2GP187178	79	.0145	1/8	3/4
* D2GP187177	80	.0135	1/8	3/4

\* 10pcs per package

Tolerance Diameter (Inch)	
up to 1/8(.1250)	0 ~ -.0005
over 1/8(.1250) up to 1/4(.2500)	0 ~ -.0007
over 1/4(.2500) up to 1/2(.5000)	0 ~ -.0010

# GOLD-P AND SET

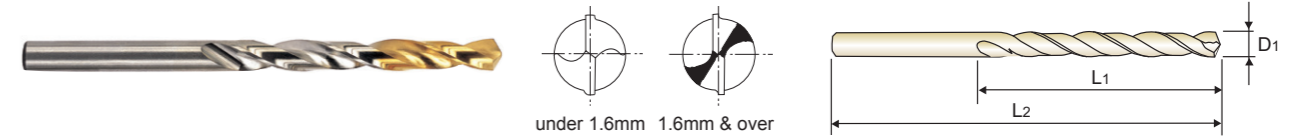


## DLGP195 SERIES

### HSSCo5, STRAIGHT SHANK DRILLS, GOLD-P COATED

JOBBER

- ▶ **Flute Geometry** : Right hand helix
- ▶ **Point Angle** : 135°  
under 1.6mm : Normal point  
1.6mm & over : Split point
- ▶ **Surface treatment** : Bright body, TiN coating on working area
- ▶ **Application** : Drilling to steels, cast steels alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron



Unit : Inch

EDP No.	Diameter		Flute Length L1	Overall Length L2
	Metric	Inch		
* DLGP195010	1.0	.0394	12	34
* DLGP195011	1.1	.0433	14	36
* DLGP195012	1.2	.0472	16	38
* DLGP195013	1.3	.0512	16	38
* DLGP195014	1.4	.0551	18	40
* DLGP195015	1.5	.0591	18	40
* DLGP195016	1.6	.0630	20	43
* DLGP195017	1.7	.0669	20	43
* DLGP195018	1.8	.0709	22	46
* DLGP195019	1.9	.0748	22	46
* DLGP195020	2.0	.0787	24	49
* DLGP195021	2.1	.0827	24	49
* DLGP195022	2.2	.0866	27	53
* DLGP195023	2.3	.0906	27	53
* DLGP195024	2.4	.0945	30	57
* DLGP195025	2.5	.0984	30	57
* DLGP195026	2.6	.1024	30	57
* DLGP195027	2.7	.1063	33	61
* DLGP195028	2.8	.1102	33	61
* DLGP195029	2.9	.1142	33	61
* DLGP195030	3.0	.1181	33	61
* DLGP195031	3.1	.1220	36	65
* DLGP195032	3.2	.1260	36	65
* DLGP195033	3.3	.1299	36	65
* DLGP195034	3.4	.1339	39	70
* DLGP195035	3.5	.1378	39	70
* DLGP195036	3.6	.1417	39	70
* DLGP195037	3.7	.1457	39	70
* DLGP195038	3.8	.1496	43	75
* DLGP195039	3.9	.1535	43	75
* DLGP195040	4.0	.1575	43	75
* DLGP195041	4.1	.1614	43	75
* DLGP195042	4.2	.1654	43	75
* DLGP195043	4.3	.1693	47	80
* DLGP195044	4.4	.1732	47	80
* DLGP195045	4.5	.1772	47	80
* DLGP195046	4.6	.1811	47	80
* DLGP195047	4.7	.1850	47	80
* DLGP195048	4.8	.1890	52	86
* DLGP195049	4.9	.1929	52	86

\* 10pcs per package      \*\* 5pcs per package

▶ NEXT PAGE











# HSS COMBINATION DRILLS & COUNTER SINK/CENTER DRILLS

- Regular and Long Length



## COMBINATION DRILLS & COUNTER SINK/CENTER DRILLS



### SELECTION GUIDE

## HSS COMBINATION DRILLS & COUNTER SINK/ CENTER DRILLS

- Regular and Long Length

SERIES	D1C90
STANDARD	60°
LENGTH	LONG
SIZE MIN	D3/64
SIZE MAX	D7/32
PAGE	36
SURFACE TREATMENT	Bright



Please visit  
[globalyg1.com/mat](http://globalyg1.com/mat)  
for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : P.36

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRC	
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎
	2		About 0.45% C Annealed	190	13	◎
	3		About 0.45% C Quenched & Tempered	250	25	○
	4		About 0.75% C Annealed	270	28	
	5		About 0.75% C Quenched & Tempered	300	32	
	6	Low alloy steel	Annealed	180	10	◎
	7		Quenched & Tempered	275	29	○
	8		Quenched & Tempered	300	32	
	9		Quenched & Tempered	350	38	
	10		High alloyed steel, and tool steel	Annealed	200	15
	11		Quenched & Tempered	325	35	
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	○
	13		Martensitic Quenched & Tempered	240	23	
	14		Austenitic	180	10	
K	15	Grey cast iron	Pearlitic / ferritic	180	10	◎
	16		Pearlitic (Martensitic)	260	26	○
	17	Nodular cast iron	Ferritic	160	3	○
	18		Pearlitic	250	25	
	19	Malleable cast iron	Ferritic	130		
	20		Pearlitic	230	21	○
N	21	Aluminum-wrought alloy	Not Curable	60		
	22		Curable Hardened	100		
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		
	24		≤ 12% Si, Curable Hardened	90		
	25		> 12% Si, Not Curable	130		
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110		
	27		CuZn, CuSnZn (Brass)	90		
	28		CuSn, lead-free copper and electrolytic copper	100		
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic			
	30		Rubber, Wood, etc.			
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15	
	32		Cured	280	30	
	33		Annealed	250	25	
	34		Ni or Co Based Cured	350	38	
	35	Cast	320	34		
	36	Titanium Alloys	Pure Titanium	400 Rm		
	37		Alpha + Beta Alloys Hardened	1050 Rm		
H	38	Hardened steel	Hardened	550	55	
	39		Hardened	630	60	
	40	Chilled Cast Iron	Cast	400	42	
	41	Hardened Cast Iron	Hardened	550	55	

Holemaking

Threading

Milling

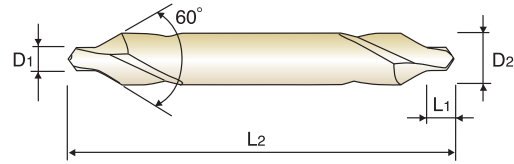
Indexable Inserts

# COMBINATION DRILLS & COUNTER SINK/CENTER DRILLS



**D1C90** SERIES

## HSS(M2), COMBINATION DRILL & COUNTER SINK / CENTER DRILL



60°

EDP No.	Size	Diameter	Shank Diameter	Drill Length	Overall Length
		D1	D2	L1	L2
* D1C90079	1	3/64	1/8	1/16	1-1/2
* D1C90080	2	1/16	3/16	5/64	1-3/4
* D1C90081	3	3/32	1/4	1/8	2
* D1C90082	4	1/8	5/16	5/32	2-1/4
* D1C90083	5	3/16	7/16	1/4	2-1/2
★ D1C90084	6	7/32	1/2	7/32	3

\* 10pcs per package  
★ Individually package

60°

EDP No.	Size	Diameter	Shank Diameter	Drill Length	Overall Length
		D1	D2	L1	L2
* D1C90141	1	3/64	1/8	3/64	1-1/4
* D1C90142	2	5/64	3/16	5/64	1-7/8
* D1C90143	3	7/64	1/4	7/64	2
* D1C90144	4	1/8	5/16	1/8	2-1/8
* D1C90145	5	3/16	7/16	3/16	2-3/4

\* 10pcs per package

LONG LENGTH (60°)

Unit : Inch

EDP No.	Size	Diameter	Shank Diameter	Drill Length	Overall Length
		D1	D2	L1	L2
D1C90085	1	3/64	1/8	3/64	3
D1C90086	1	3/64	1/8	3/64	4
D1C90087	1	3/64	1/8	3/64	5
D1C90088	1	3/64	1/8	3/64	6
D1C90089	2	5/64	3/16	5/64	3
D1C90090	2	5/64	3/16	5/64	4
D1C90091	2	5/64	3/16	5/64	5
D1C90092	2	5/64	3/16	5/64	6
D1C90093	3	7/64	1/4	7/64	4
D1C90094	3	7/64	1/4	7/64	5
D1C90095	3	7/64	1/4	7/64	6
D1C90096	4	1/8	5/16	1/8	4
D1C90097	4	1/8	5/16	1/8	5
D1C90098	4	1/8	5/16	1/8	6
D1C90099	5	3/16	7/16	3/16	4
D1C90100	5	3/16	7/16	3/16	5
D1C90101	5	3/16	7/16	3/16	6
D1C90102	6	7/32	1/2	7/32	4
D1C90103	6	7/32	1/2	7/32	5
D1C90104	6	7/32	1/2	7/32	6

## HSS CENTER DRILLS

SFM : ft/min.  
FEED(IPR) : Inch/rev.

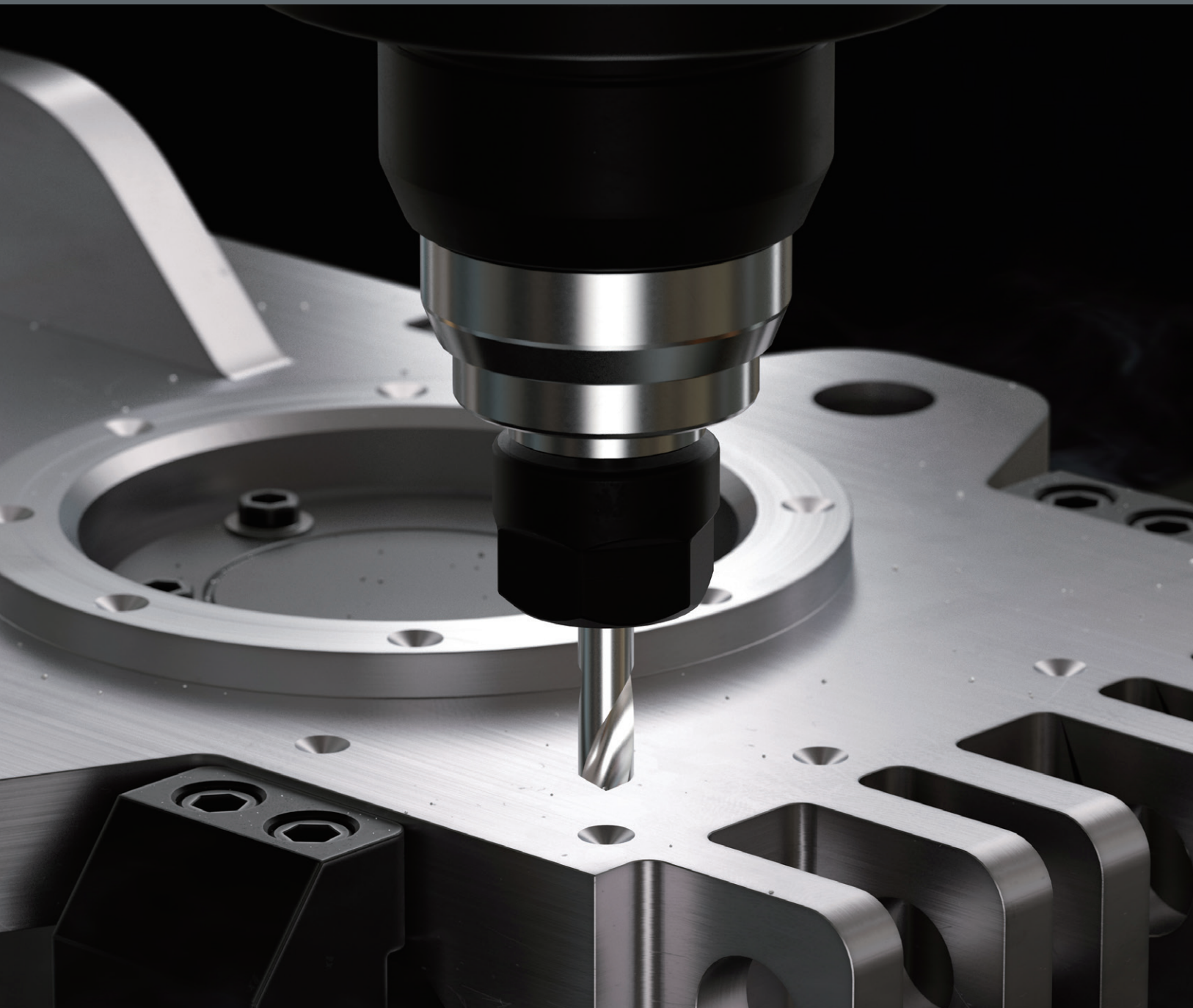
ISO	VDI 3323	Material Description	SFM	Drill Diameter											
				METRIC	1.0	2.0	3.0	-	4.0	6.0	-	-	8.0	-	10.0
				FRACTIONAL	-	-	1/8	-	-	1/4	5/16	-	3/8	-	
P	1	Non-alloy steel	132	RPM	12730	6370	4240	3180	2120	1590	1270				
			FEED	.0008-.0016	.0012-.0024	.0016-.0031	.0020-.0035	.0028-.0047	.0035-.0059	.0047-.0071					
			99	RPM	9550	4770	3180	2390	1590	1190	950				
	2		FEED	.0008-.0016	.0012-.0024	.0016-.0031	.0020-.0035	.0028-.0047	.0035-.0059	.0047-.0071					
			82	RPM	7960	3980	2650	1990	1330	990	800				
			FEED	.0004-.0012	.0004-.0014	.0004-.0020	.0008-.0024	.0016-.0031	.0024-.0047	.0031-.0055					
6	FEED	.0008-.0016	.0012-.0024	.0016-.0031	.0020-.0035	.0028-.0047	.0035-.0059	.0047-.0071							
	7	99	RPM	9550	4770	3180	2390	1590	1190	950					
		FEED	.0008-.0016	.0012-.0024	.0016-.0031	.0020-.0035	.0028-.0047	.0035-.0059	.0047-.0071						
86		RPM	6370	3180	2120	1590	1060	800	640						
FEED	.0004-.0012	.0004-.0014	.0004-.0020	.0008-.0024	.0016-.0031	.0024-.0047	.0031-.0055								
M	12	Stainless steel	33	RPM	3180	1590	1060	800	530	400	320				
FEED	.0004-.0012	.0004-.0014	.0004-.0020	.0008-.0024	.0016-.0031	.0024-.0047	.0031-.0055								
K	15	Grey cast iron	132	RPM	12730	6370	4240	3180	2120	1590	1270				
			FEED	.0008-.0016	.0012-.0024	.0016-.0031	.0020-.0035	.0028-.0047	.0035-.0059	.0047-.0071					
	99		RPM	9550	4770	3180	2390	1590	1190	950					
	FEED		.0004-.0012	.0004-.0014	.0004-.0020	.0008-.0024	.0016-.0031	.0024-.0047	.0031-.0055						
17	Nodular cast iron	132	RPM	12730	6370	4240	3180	2120	1590	1270					
		FEED	.0008-.0016	.0012-.0024	.0016-.0031	.0020-.0035	.0028-.0047	.0035-.0059	.0047-.0071						
19	Malleable cast iron	82	RPM	7960	3980	2650	1990	1330	990	800					
		FEED	.0008-.0016	.0012-.0024	.0016-.0031	.0020-.0035	.0028-.0047	.0024-.0047	.0047-.0071						



# HSS NC SPOTTING DRILLS

- HSS(8% Cobalt)

- Centering and Chamfering of Holes



# NC SPOTTING DRILLS



## SELECTION GUIDE

# HSS NC SPOTTING DRILLS

- HSS(8% Cobalt)
- Centering and Chamfering of Holes

SERIES	D2N90	
POINT ANGLE	90°	120°
SIZE MIN	D1/8	D1/8
SIZE MAX	D1	D1
PAGE	39	39
SURFACE TREATMENT	Bright	



Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : P.40

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRC	90°	120°
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎	◎
	2		About 0.45% C Annealed	190	13	◎	◎
	3		About 0.45% C Quenched & Tempered	250	25	◎	◎
	4		About 0.75% C Annealed	270	28		
	5		About 0.75% C Quenched & Tempered	300	32		
	6	Low alloy steel	Annealed	180	10	◎	◎
	7		Quenched & Tempered	275	29	○	○
	8		Quenched & Tempered	300	32		
	9		Quenched & Tempered	350	38		
	10		High alloyed steel, and tool steel	Annealed	200	15	
	11	Quenched & Tempered		325	35		
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	○	○
	13		Martensitic Quenched & Tempered	240	23		
	14		Austenitic	180	10		
K	15	Grey cast iron	Pearlitic / ferritic	180	10	◎	◎
	16		Pearlitic (Martensitic)	260	26	○	○
	17	Nodular cast iron	Ferritic	160	3	○	○
	18		Pearlitic	250	25		
	19		Ferritic	130		○	○
20	Malleable cast iron	Pearlitic	230	21			
N	21	Aluminum-wrought alloy	Not Curable	60		○	○
	22		Curable Hardened	100		○	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		○	○
	24		≤ 12% Si, Curable Hardened	90			
	25		> 12% Si, Not Curable	130			
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110			
	27		CuZn, CuSnZn (Brass)	90			
	28		CuSn, lead-free copper and electrolytic copper	100			
	29		Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic Rubber, Wood, etc.			
	30						
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15		
	32		Cured	280	30		
	33		Annealed	250	25		
	34		Ni or Co Based Cured	350	38		
	35	Cast	320	34			
	36	Titanium Alloys	Pure Titanium	400 Rm			
	37		Alpha + Beta Alloys Hardened	1050 Rm			
H	38	Hardened steel	Hardened	550	55		
	39		Hardened	630	60		
	40	Chilled Cast Iron	Cast	400	42		
	41	Hardened Cast Iron	Hardened	550	55		

# NC SPOTTING DRILLS



## D2N90 SERIES

## HSSCo8, NC SPOTTING DRILLS

► **Application** : For more precise centering work on NC/CNC machine. A larger diameter in respect to the subsequent drilling tool permit to obtain the centering and chamfering simultaneously.



### NC Spotting drills 90°

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
0081L	1/8	.472	1.93
0121L	3/16	.590	2.44
0161L	1/4	.669	2.76
0201L	5/16	.984	3.11
0241L	3/8	.827	3.50
0321L	1/2	.984	4.02
0401L	5/8	1.575	4.53
0481L	3/4	1.968	5.16
0641L	1	1.968	6.14

### NC Spotting drills 120°

EDP No.	Drill Diameter	Flute Length	Overall Length
	D1	L1	L2
2081L	1/8	.472	1.93
2121L	3/16	.590	2.44
2161L	1/4	.669	2.76
2201L	5/16	.984	3.11
2241L	3/8	.827	3.50
2321L	1/2	.984	4.02
2401L	5/8	1.575	4.53
2481L	3/4	1.968	5.16
2641L	1	1.968	6.14

## RECOMMENDED CUTTING CONDITIONS

### D2N90 SERIES

### HSSCo8, NC-SPOTTING DRILLS

SFM : ft/min.  
FEED(IPR) : Inch/rev.

ISO	VDI 3323	Material Description	SFM	Parameter	Drill Diameter								
					2.0	3.0	4.0	6.0	8.0	10.0	12.0	16.0	20.0
P	1	Non-alloy steel	82	RPM	3980	2650	1990	1330	990	800	660	500	400
				FEED	.0008 - .0016	.0016 - .0024	.002 - .0031	.0028 - .0039	.0031 - .0047	.0035 - .0055	.0043 - .0067	.0051 - .0075	.0059 - .0083
	2		82	RPM	3980	2650	1990	1330	990	800	660	500	400
				FEED	.0008 - .0016	.0016 - .0024	.002 - .0031	.0028 - .0039	.0031 - .0047	.0035 - .0055	.0043 - .0067	.0051 - .0075	.0059 - .0083
	3		49	RPM	2390	1590	1190	800	600	480	400	300	240
				FEED	.0004 - .0012	.0012 - .002	.0016 - .0028	.002 - .0031	.0028 - .0039	.0031 - .0047	.0035 - .0055	.0043 - .0067	.0051 - .0075
6	66	RPM	3180	2120	1590	1060	800	640	530	400	320		
		FEED	.0008 - .0016	.0016 - .0024	.002 - .0031	.0028 - .0039	.0031 - .0047	.0035 - .0055	.0043 - .0067	.0051 - .0075	.0059 - .0083		
7	49	RPM	2390	1590	1190	800	600	480	400	300	240		
		FEED	.0004 - .0012	.0012 - .002	.0016 - .0028	.002 - .0031	.0028 - .0039	.0031 - .0047	.0035 - .0055	.0043 - .0067	.0051 - .0075		
M	12	Stainless steel	49	RPM	2390	1590	1190	800	600	480	400	300	240
				FEED	.0008 - .0016	.0016 - .0024	.002 - .0031	.0028 - .0039	.0031 - .0047	.0035 - .0055	.0043 - .0067	.0051 - .0075	.0059 - .0083
K	15	Grey cast iron	99	RPM	4770	3180	2390	1590	1190	950	800	600	480
				FEED	.0012 - .002	.002 - .0028	.0024 - .0035	.0031 - .0043	.0039 - .0051	.0047 - .0063	.0059 - .0079	.0071 - .0094	.0087 - .011
	82		RPM	3980	2650	1990	1330	990	800	660	500	400	
			FEED	.0004 - .0012	.0012 - .002	.0016 - .0028	.002 - .0031	.0028 - .0039	.0031 - .0047	.0035 - .0055	.0043 - .0067	.0051 - .0075	
	17	99	RPM	4770	3180	2390	1590	1190	950	800	600	480	
			FEED	.0012 - .002	.002 - .0028	.0024 - .0035	.0031 - .0043	.0039 - .0051	.0047 - .0063	.0059 - .0079	.0071 - .0094	.0087 - .011	
	19	66	RPM	3180	2120	1590	1060	800	640	530	400	320	
			FEED	.0012 - .002	.002 - .0028	.0024 - .0035	.0031 - .0043	.0039 - .0051	.0047 - .0063	.0059 - .0079	.0071 - .0094	.0087 - .011	
N	21	Aluminum-wrought alloy	214	RPM	10350	6900	5170	3450	2590	2070	1720	1290	1030
				FEED	.0016 - .0024	.0024 - .0035	.0031 - .0043	.0039 - .0051	.0047 - .0059	.0059 - .0075	.0071 - .0091	.0083 - .0106	.0098 - .0122
	197		RPM	9550	6370	4770	3180	2390	1910	1590	1190	950	
			FEED	.0016 - .0024	.0024 - .0035	.0031 - .0043	.0039 - .0051	.0047 - .0059	.0059 - .0075	.0071 - .0091	.0083 - .0106	.0098 - .0122	
	23	165	RPM	7960	5310	3980	2650	1990	1590	1330	990	800	
			FEED	.0016 - .0024	.0024 - .0035	.0031 - .0043	.0039 - .0051	.0047 - .0059	.0059 - .0075	.0071 - .0091	.0083 - .0106	.0098 - .0122	

Holmaking

Threading

Milling

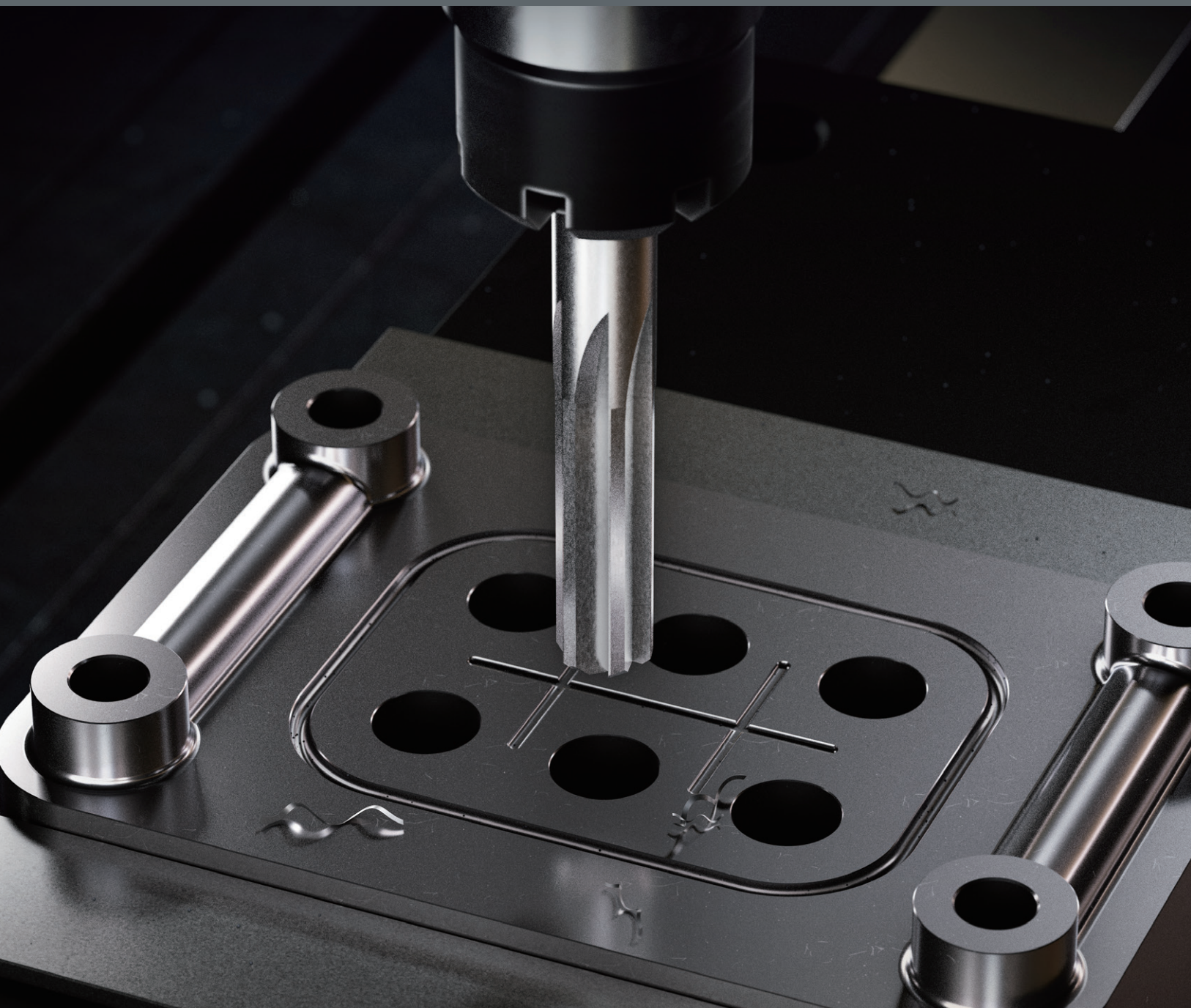
Indexable Inserts



## HSS & CARBIDE Reamers

*- Straight Shank Chucking Reamers - Straight Flute*

*Precision reamers for a variety of materials, applications and sizes that ensure close hole tolerance and excellent surface finish*





SELECTION GUIDE

**HSS & CARBIDE Reamers**

- Straight Shank Chucking Reamers - Straight Flute

Precision reamers for a variety of materials, applications and sizes that ensure close hole tolerance and excellent surface finish

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : P.58-59

SERIES	K6106	K6101/K6105
TOOL MATERIAL	HSS	
FLUTE TYPE	Straight Flute	
CHAMFER ANGLE	45°	
HAND CUT	Right Hand Cut	
SIZE MIN	.0135	
SIZE MAX	.7500	
SURFACE TREATMENT	Bright	
PAGE	44	



ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRC	K6106	K6101/K6105
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎
	2		About 0.45% C	Annealed	190	13	◎	◎
	3		About 0.45% C	Quenched & Tempered	250	25	○	○
	4		About 0.75% C	Annealed	270	28	○	○
	5		About 0.75% C	Quenched & Tempered	300	32	○	○
	6	Low alloy steel		Annealed	180	10	◎	◎
	7		Quenched & Tempered	275	29	○	○	
	8		Quenched & Tempered	300	32			
	9		Quenched & Tempered	350	38			
	10	High alloyed steel, and tool steel		Annealed	200	15	○	○
	11		Quenched & Tempered	325	35			
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	○	○
	13		Martensitic	Quenched & Tempered	240	23	○	○
	14		Austenitic		180	10	○	○
K	15	Grey cast iron	Pearlitic / ferritic		180	10	○	○
	16		Pearlitic (Martensitic)		260	26	○	○
	17	Nodular cast iron	Ferritic		160	3	○	○
	18		Pearlitic		250	25	○	○
	19		Ferritic		130			
20	Malleable cast iron	Pearlitic		230	21	○	○	
N	21	Aluminum-wrought alloy	Not Curable		60		○	○
	22		Curable	Hardened	100		○	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		○	○
	24		≤ 12% Si, Curable	Hardened	90		○	○
	25		> 12% Si, Not Curable		130			
	26		Cutting Alloys, PB>1%		110		○	○
	27	Copper and Copper Alloys (Bronze / Brass)	CuZn, CuSnZn (Brass)		90		○	○
	28		CuSn, lead-free copper and electrolytic copper		100		○	○
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic					
	30		Rubber, Wood, etc.					
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15		
	32			Cured	280	30		
	33		Ni or Co Based	Annealed	250	25		
	34			Cured	350	38		
	35			Cast	320	34		
	36	Titanium Alloys	Pure Titanium		400 Rm			
37	Alpha + Beta Alloys		Hardened	1050 Rm				
H	38	Hardened steel		Hardened	550	55		
	39		Hardened	630	60			
	40	Chilled Cast Iron		Cast	400	42		
	41	Hardened Cast Iron		Hardened	550	55		

K6103	K6102	K9106	K9101	K9103	K9102	K9104	K9107	
HSS		Carbide						
Straight Flute		Straight Flute						
45°		45°						
Right Hand Cut		Right Hand Cut						
.0135						.0280		.0355
.7500						.6299		.5020
Bright								
44		48				51		



◎	◎	◎	◎	◎	◎	◎	◎
◎	◎	◎	◎	◎	◎	◎	◎
○	○	○	○	○	○	○	○
○	○	○	○	○	○	○	○
○	○	○	○	○	○	○	○
◎	◎	◎	◎	◎	◎	◎	◎
○	○	○	○	○	○	○	○
○	○	○	○	○	○	○	○
○	○	○	○	○	○	○	○
○	○	○	○	○	○	○	○
○	○	○	○	○	○	○	○
○	○	○	○	○	○	○	○
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○	○	○	○	○	○	○	○
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○	○	○	○	○	○	○	○
○	○	○	○	○	○	○	○
○	○	○	○	○	○	○	○
○	○	○	○	○	○	○	○







# Reamers



Unit : inch

Metric	Nominal Size				Shank Diameter	Flute Length	Overall Length		No. of Flute	EDP No.
	Fractional	Letter	Wire Gauge	Decimal			L1	L2		
8.00		N		.3020	.3020	1-1/8	3-1/4	6	K910303020	
				.3150	.3150	1-1/8	3-1/4	6	K910603150	
		O		.3160	.3160	1-1/8	3-1/4	6	K910303160	
		P		.3230	.3230	1-1/4	3-1/2	6	K910303230	
8.50	21/64			.3281	.3281	1-1/4	3-1/2	6	K910103281	
		Q		.3320	.3320	1-1/4	3-1/2	6	K910303320	
				.3346	.3346	1-1/4	3-1/2	6	K910603346	
		R		.3390	.3390	1-1/4	3-1/2	6	K910303390	
9.00		S		.3480	.3480	1-1/4	3-1/2	6	K910303480	
		T		.3543	.3543	1-1/4	3-1/2	6	K910603543	
	23/64			.3580	.3580	1-1/4	3-1/2	6	K910303580	
		U		.3594	.3594	1-1/4	3-1/2	6	K910103594	
9.50				.3680	.3680	1-1/4	3-1/2	6	K910303680	
		V		.3740	.3740	1-1/4	3-1/2	6	K910603740	
		W		.3770	.3770	1-1/4	3-1/2	6	K910303770	
				.3860	.3860	1-1/4	3-1/2	6	K910303860	
10.00	25/64			.3906	.3906	1-1/4	3-1/2	6	K910103906	
				.3937	.3937	1-1/4	3-1/2	6	K910603937	
		X		.3970	.3970	1-1/4	3-1/2	6	K910303970	
		Y		.4040	.4040	1-1/4	3-1/2	6	K910304040	
10.50	13/32			.4062	.4062	1-1/4	3-1/2	6	K910104062	
		Z		.4130	.4130	1-1/4	3-1/2	6	K910304130	
				.4134	.4134	1-1/4	3-1/2	6	K910604134	
	27/64			.4219	.4219	1-3/8	4	6	K910104219	
11.00				.4331	.4331	1-3/8	4	6	K910604331	
				.4528	.4528	1-3/8	4	6	K910604528	
	29/64			.4531	.4531	1-3/8	4	6	K910104531	
	15/32			.4688	.4688	1-3/8	4	6	K910104688	
12.00				.4724	.4724	1-3/8	4	6	K910604724	
				.4844	.4844	1-1/2	4	6	K910104844	
	31/64			.4921	.4921	1-1/2	4	6	K910604921	
				.5118	.5118	1-1/2	4	6	K910605118	
13.00				.5118	.5118	1-1/2	4	6	K910605118	
				.5512	.5512	1-1/2	4	6	K910605512	
	9/16			.5625	.5625	1-1/2	4	6	K910105625	
	5/8			.6250	.6250	1-3/4	4	6	K910106250	
16.00				.6250	.6250	1-3/4	4	6	K910106250	
				.6299	.6299	1-3/4	4	6	K910606299	

O.D. Tolerance	Shank Dia. Tolerance
Up to 1/4 Inch : +.0000"/-.0002" Over 1/4 Inch : +.0000"/-.0003"	+.0000"/-.0010"

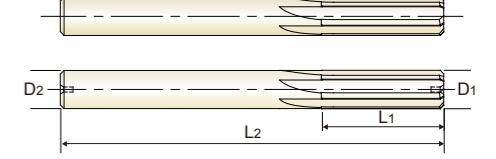
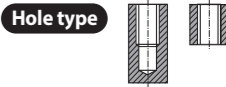
# Reamers



Decimal **K9107** SERIES

## CARBIDE, STRAIGHT SHANK CHUCKING REAMERS - STRAIGHT FLUTE

- Precision reamers for a variety of materials, applications and sizes that ensure close hole tolerance and excellent surface finish
- Straight Flute, Right Hand Cut
- Shank Diameter ≈ Nominal Reamer Diameter
- Type of Center  
Up to .1175" : Non-Center  
Over .1175" : Internal



Nominal Size	Shank Diameter	Flute Length	Overall Length	No. of Flute	EDP No.
Decimal	D2	L1	L2		
.0355	.0355	1/4	1-1/2	4	K910700355
.0365	.0365	1/4	1-1/2	4	K910700365
.0375	.0375	1/4	1-1/2	4	K910700375
.0385	.0385	1/4	1-1/2	4	K910700385
.0395	.0395	1/4	1-1/2	4	K910700395
.0405	.0405	3/8	1-1/2	4	K910700405
.0425	.0425	3/8	1-1/2	4	K910700425
.0435	.0435	3/8	1-1/2	4	K910700435
.0440	.0440	3/8	1-1/2	4	K910700440
.0450	.0450	3/8	1-1/2	4	K910700450
.0460	.0460	3/8	1-1/2	4	K910700460
.0469	.0469	3/8	1-1/2	4	K910700469
.0470	.0470	3/8	1-1/2	4	K910700470
.0475	.0475	3/8	1-1/2	4	K910700475
.0480	.0480	3/8	1-1/2	4	K910700480
.0485	.0485	3/8	1-1/2	4	K910700485
.0490	.0490	3/8	1-1/2	4	K910700490
.0500	.0500	3/8	1-1/2	4	K910700500
.0505	.0505	3/8	1-1/2	4	K910700505
.0510	.0510	3/8	1-1/2	4	K910700510
.0515	.0515	3/8	1-1/2	4	K910700515
.0525	.0525	3/8	1-1/2	4	K910700525
.0530	.0530	3/8	1-1/2	4	K910700530
.0540	.0540	3/8	1-1/2	4	K910700540
.0560	.0560	3/8	1-1/2	4	K910700560
.0570	.0570	3/8	1-1/2	4	K910700570
.0580	.0580	3/8	1-1/2	4	K910700580
.0590	.0590	3/8	1-1/2	4	K910700590
.0600	.0600	3/8	1-1/2	4	K910700600
.0605	.0605	3/8	1-1/2	4	K910700605
.0610	.0610	3/8	1-1/2	4	K910700610
.0615	.0615	3/8	1-1/2	4	K910700615
.0620	.0620	3/8	1-1/2	4	K910700620
.0625	.0625	3/8	1-1/2	4	K910700625
.0630	.0630	3/8	1-1/2	4	K910700630
.0640	.0640	3/8	1-1/2	4	K910700640
.0645	.0645	3/8	1-1/2	4	K910700645
.0650	.0650	3/8	1-1/2	4	K910700650
.0655	.0655	3/8	1-1/2	4	K910700655
.0660	.0660	1/2	1-3/4	4	K910700660
.0675	.0675	1/2	1-3/4	4	K910700675
.0680	.0680	1/2	1-3/4	4	K910700680
.0690	.0690	1/2	1-3/4	4	K910700690
.0705	.0705	1/2	1-3/4	4	K910700705
.0710	.0710	1/2	1-3/4	4	K910700710
.0720	.0720	1/2	1-3/4	4	K910700720
.0740	.0740	1/2	1-3/4	4	K910700740
.0750	.0750	1/2	1-3/4	4	K910700750
.0765	.0765	1/2	1-3/4	4	K910700765
.0770	.0770	1/2	1-3/4	4	K910700770
.0775	.0775	1/2	1-3/4	4	K910700775
.0780	.0780	1/2	1-3/4	4	K910700780
.0781	.0781	1/2	1-3/4	4	K910700781
.0790	.0790	1/2	1-3/4	4	K910700790
.0795	.0795	1/2	1-3/4	4	K910700795
.0800	.0800	1/2	1-3/4	4	K910700800

► NEXT PAGE









## RECOMMENDED CUTTING CONDITIONS

## HSS, Straight Shank Chucking Reamers - Straight Flute

SFM = ft/min.  
IPR = inch/rev.

ISO	VDI 3323	Material Description	SFM (ft/min.)	IPR(inch/rev.)					
				<Ø.0394	Ø.0394	Ø.0787	Ø.1575	Ø.2362	Ø.315
P	1	Non-alloy steel	46	.0004~.0012	.0012~.002	.002~.0028	.0028~.0035	.0035~.0043	.0043~.0055
	2		46	.0004~.0012	.0012~.002	.002~.0028	.0028~.0035	.0035~.0043	.0043~.0055
	3		33	.0004~.0012	.0012~.002	.002~.0028	.0028~.0035	.0035~.0043	.0043~.0051
	4		26	.0004~.0012	.0012~.002	.002~.0028	.0028~.0035	.0035~.0043	.0043~.0051
	6	Low alloy steel	39	.0004~.0012	.0012~.002	.002~.0028	.0028~.0035	.0035~.0043	.0043~.0051
	7		26	.0004~.0012	.0012~.002	.002~.0028	.0028~.0035	.0035~.0043	.0043~.0051
	10	High alloyed steel, and tool steel	20	.0004~.0008	.0008~.0012	.0012~.0016	.0016~.002	.002~.0024	.0024~.0028
	M	12	Stainless steel	20	.0004~.0008	.0008~.0012	.0012~.0016	.0016~.002	.002~.0024
13		16		.0004~.0008	.0008~.0012	.0012~.0016	.0016~.002	.002~.0024	.0024~.0028
14		13		.0004~.0008	.0008~.0012	.0012~.0016	.0016~.002	.002~.0024	.0024~.0028
K	15	Grey cast iron	46	.0004~.0012	.0012~.002	.002~.0028	.0028~.0035	.0035~.0043	.0043~.0055
	16		36	.0004~.0012	.0012~.002	.002~.0028	.0028~.0035	.0035~.0043	.0043~.0051
	17	Nodular cast iron	39	.0004~.0012	.0012~.002	.002~.0028	.0028~.0035	.0035~.0043	.0043~.0055
	18		33	.0004~.0012	.0012~.002	.002~.0028	.0028~.0035	.0035~.0043	.0043~.0051
	19	Malleable cast iron	39	.0004~.0012	.0012~.002	.002~.0028	.0028~.0035	.0035~.0043	.0043~.0055
	20		33	.0004~.0012	.0012~.002	.002~.0028	.0028~.0035	.0035~.0043	.0043~.0051
N	21	Aluminum-wrought alloy	59	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0075	.0075~.0087
	22		59	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0075	.0075~.0087
	23	Aluminum-cast, alloyed	59	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0075	.0075~.0087
	24		56	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0075	.0075~.0087
	26	Copper and Copper Alloys (Bronze / Brass)	59	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0075	.0075~.0087
	27		52	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0075	.0075~.0087
	28		66	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0075	.0075~.0087

ISO	VDI 3323	Material Description	SFM (ft/min.)	IPR(inch/rev.)				
				Ø.3937	Ø.4724	Ø.5512	Ø.6299	Ø.7874
P	1	Non-alloy steel	46	.0055~.0067	.0067~.0079	.0079~.0091	.0091~.0102	.0102~.0114
	2		46	.0055~.0067	.0067~.0079	.0079~.0091	.0091~.0102	.0102~.0114
	3		33	.0051~.0059	.0059~.0067	.0067~.0075	.0075~.0083	.0083~.0091
	4		26	.0051~.0059	.0059~.0067	.0067~.0075	.0075~.0083	.0083~.0091
	6	Low alloy steel	39	.0051~.0059	.0059~.0067	.0067~.0075	.0075~.0083	.0083~.0091
	7		26	.0051~.0059	.0059~.0067	.0067~.0075	.0075~.0083	.0083~.0091
	10	High alloyed steel, and tool steel	20	.0028~.0031	.0031~.0039	.0039~.0047	.0047~.0055	.0055~.0063
	M	12	Stainless steel	20	.0028~.0031	.0031~.0039	.0039~.0047	.0047~.0055
13		16		.0028~.0031	.0031~.0039	.0039~.0047	.0047~.0055	.0055~.0063
14		13		.0028~.0031	.0031~.0039	.0039~.0047	.0047~.0055	.0055~.0063
K	15	Grey cast iron	46	.0055~.0067	.0067~.0079	.0079~.0091	.0091~.0102	.0102~.0114
	16		36	.0051~.0059	.0059~.0067	.0067~.0075	.0075~.0083	.0083~.0091
	17	Nodular cast iron	39	.0055~.0067	.0067~.0079	.0079~.0091	.0091~.0102	.0102~.0114
	18		33	.0051~.0059	.0059~.0067	.0067~.0075	.0075~.0083	.0083~.0091
	19	Malleable cast iron	39	.0055~.0067	.0067~.0079	.0079~.0091	.0091~.0102	.0102~.0114
	20		33	.0051~.0059	.0059~.0067	.0067~.0075	.0075~.0083	.0083~.0091
N	21	Aluminum-wrought alloy	59	.0087~.0098	.0098~.011	.011~.0122	.0122~.0134	.0134~.0146
	22		59	.0087~.0098	.0098~.011	.011~.0122	.0122~.0134	.0134~.0146
	23	Aluminum-cast, alloyed	59	.0087~.0098	.0098~.011	.011~.0122	.0122~.0134	.0134~.0146
	24		56	.0087~.0098	.0098~.011	.011~.0122	.0122~.0134	.0134~.0146
	26	Copper and Copper Alloys (Bronze / Brass)	59	.0087~.0098	.0098~.011	.011~.0122	.0122~.0134	.0134~.0146
	27		52	.0087~.0098	.0098~.011	.011~.0122	.0122~.0134	.0134~.0146
	28		66	.0087~.0098	.0098~.011	.011~.0122	.0122~.0134	.0134~.0146

## RECOMMENDED CUTTING CONDITIONS

## CARBIDE, Straight Shank Chucking Reamers - Straight Flute

SFM = ft/min.  
IPR = inch/rev.

ISO	VDI 3323	Material Description	SFM (ft/min.)	IPR(inch/rev.)				
				<Ø.0394	Ø.0394	Ø.0787	Ø.1575	Ø.2362
P	1	Non-alloy steel	59	.0008~.002	.002~.0031	.0031~.0039	.0039~.0047	.0047~.0063
	2		56	.0008~.002	.002~.0031	.0031~.0039	.0039~.0047	.0047~.0063
	3		49	.0008~.002	.002~.0031	.0031~.0039	.0039~.0047	.0047~.0063
	4		49	.0008~.002	.002~.0031	.0031~.0039	.0039~.0047	.0047~.0063
	5		49	.0008~.002	.002~.0031	.0031~.0039	.0039~.0047	.0047~.0063
	6	Low alloy steel	56	.0008~.0016	.0016~.0024	.0024~.0031	.0031~.0039	.0039~.0047
	7		46	.0008~.0016	.0016~.0024	.0024~.0031	.0031~.0039	.0039~.0047
	8		46	.0008~.0016	.0016~.0024	.0024~.0031	.0031~.0039	.0039~.0047
	10	High alloyed steel, and tool steel	43	.0008~.0016	.0016~.0024	.0024~.0031	.0031~.0039	.0039~.0047
	M	12	Stainless steel	26	.0008~.0016	.0016~.0024	.0024~.0031	.0031~.0039
13		23		.0008~.0016	.0016~.0024	.0024~.0031	.0031~.0039	.0039~.0047
14		20		.0008~.0016	.0016~.0024	.0024~.0031	.0031~.0039	.0039~.0047
15		66		.0008~.002	.002~.0031	.0031~.0039	.0039~.0047	.0047~.0063
K	16	Grey cast iron	49	.0008~.002	.002~.0031	.0031~.0039	.0039~.0047	.0047~.0063
	17		59	.0008~.002	.002~.0031	.0031~.0039	.0039~.0047	.0047~.0063
	18	Nodular cast iron	43	.0008~.002	.002~.0031	.0031~.0039	.0039~.0047	.0047~.0063
	19		59	.0008~.002	.002~.0031	.0031~.0039	.0039~.0047	.0047~.0063
	20	Malleable cast iron	43	.0008~.002	.002~.0031	.0031~.0039	.0039~.0047	.0047~.0063
	21		98	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0079
N	22	Aluminum-wrought alloy	98	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0079
	23		98	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0079
	24	Aluminum-cast, alloyed	82	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0079
	26		82	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0079
	27	Copper and Copper Alloys (Bronze / Brass)	72	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0079
	28		75	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0079

ISO	VDI 3323	Material Description	SFM (ft/min.)	IPR(inch/rev.)				
				Ø.315	Ø.3937	Ø.4724	Ø.5512	Ø.6299
P	1	Non-alloy steel	59	.0063~.0079	.0079~.0094	.0094~.011	.011~.0126	.0126~.0142
	2		56	.0063~.0079	.0079~.0094	.0094~.011	.011~.0126	.0126~.0142
	3		49	.0063~.0079	.0079~.0094	.0094~.011	.011~.0126	.0126~.0142
	4		49	.0063~.0079	.0079~.0094	.0094~.011	.011~.0126	.0126~.0142
	5		49	.0063~.0079	.0079~.0094	.0094~.011	.011~.0126	.0126~.0142
	6	Low alloy steel	56	.0047~.0059	.0059~.0071	.0071~.0083	.0083~.0094	.0094~.0106
	7		46	.0047~.0059	.0059~.0071	.0071~.0083	.0083~.0094	.0094~.0106
	8		46	.0047~.0059	.0059~.0071	.0071~.0083	.0083~.0094	.0094~.0106
	10	High alloyed steel, and tool steel	43	.0047~.0059	.0059~.0071	.0071~.0083	.0083~.0094	.0094~.0106
	M	12	Stainless steel	26	.0047~.0059	.0059~.0071	.0071~.0083	.0083~.0094
13		23		.0047~.0059	.0059~.0071	.0071~.0083	.0083~.0094	.0094~.0106
14		20		.0047~.0059	.0059~.0071	.0071~.0083	.0083~.0094	.0094~.0106
15		66		.0063~.0079	.0079~.0094	.0094~.011	.011~.0126	.0126~.0142
K	16	Grey cast iron	49	.0063~.0079	.0079~.0094	.0094~.011	.011~.0126	.0126~.0142
	17		59	.0063~.0079	.0079~.0094	.0094~.011	.011~.0126	.0126~.0142
	18	Nodular cast iron	43	.0063~.0079	.0079~.0094	.0094~.011	.011~.0126	.0126~.0142
	19		59	.0063~.0079	.0079~.0094	.0094~.011	.011~.0126	.0126~.0142
	20	Malleable cast iron	43	.0063~.0079	.0079~.0094	.0094~.011	.011~.0126	.0126~.0142
	21		98	.0079~.0098	.0098~.0118	.0118~.0138	.0138~.0157	.0157~.0177
N	22	Aluminum-wrought alloy	98	.0079~.0098	.0098~.0118	.0118~.0138	.0138~.0157	.0157~.0177
	23		98	.0079~.0098	.0098~.0118	.0118~.0138	.0138~.0157	.0157~.0177
	24	Aluminum-cast, alloyed	82	.0079~.0098	.0098~.0118	.0118~.0138	.0138~.0157	.0157~.0177
	26		82	.0079~.0098	.0098~.0118	.0118~.0138	.0138~.0157	.0157~.0177
	27	Copper and Copper Alloys (Bronze / Brass)	72	.0079~.0098	.0098~.0118	.0118~.0138	.0138~.0157	.0157~.0177
	28		75	.0079~.0098	.0098~.0118	.0118~.0138	.0138~.0157	.0157~.0177



Global Cutting Tool Leader **YG-1**

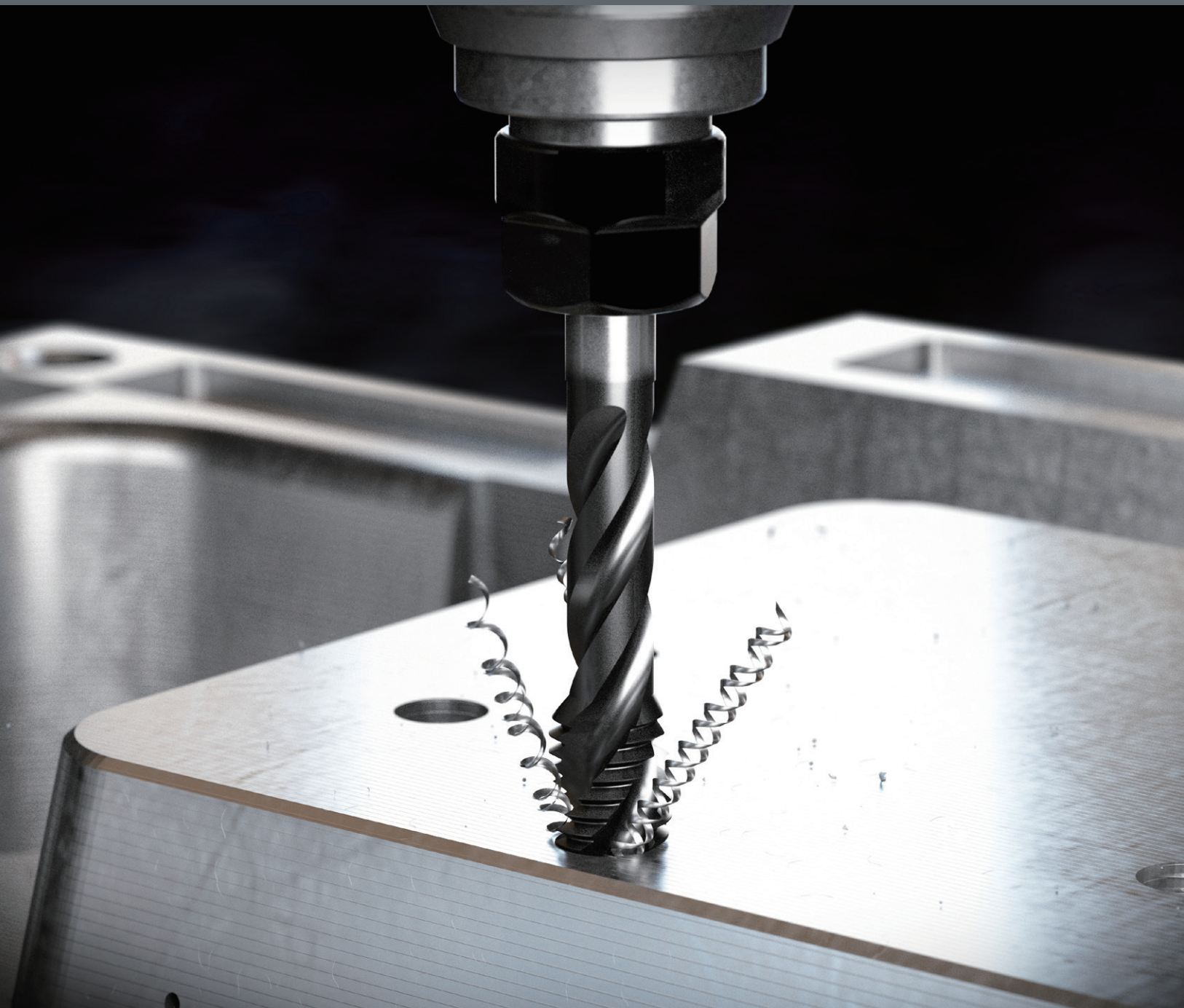


# THREADING



# HSS & HSS-E Taps

*- Suitable for Tapping Blind  
- Through Holes due to Flute Geometry and Excellent Chip Evacuation*





SELECTION GUIDE

HSS & HSS-E Taps

- Suitable for Tapping Blind
- Through Holes due to Flute Geometry and Excellent Chip Evacuation

Table with columns: HOLE TYPE, TOOL MATERIAL, CHAMFER LEAD ACC. TO DIN2197, FLUTE TYPE, SPIRAL FLUTE ANGLE, SERIES, SURFACE TREATMENT / COATING, MODEL, and a grid of hole types (25-50, 50-80, etc.) with performance indicators (circles).



Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Table with columns: ISO, VDI 3323, Material Description, Composition / Structure / Heat Treatment, HB, HRC, and a vertical index (1-41).

Holemaking

Threading

Milling

Indexable Inserts



Table with columns: HSS-E, HSS, HSS-E, and a grid of hole types (25-50, 50-80, etc.) with performance indicators (circles).

Holemaking

Threading

Milling

Indexable Inserts



## SELECTION GUIDE

### HSS & HSS-E Taps

- Suitable for Tapping Blind
- Through Holes due to Flute Geometry and Excellent Chip Evacuation

HOLE TYPE	Max. 3.0xD Through Hole				
	HSS				
TOOL MATERIAL	HSS				
CHAMFER LEAD ACC. TO DIN2197	4P-5P	1.5P-2P	4P-5P		
FLUTE TYPE	Spiral Point				
SPIRAL FLUTE ANGLE					
SERIES	M				
	M/MF			T7217 T6217	T8217
	UNC				
	UNC/UNF	T7216/T6216 T7C16/T6C16	T8216 T8C16	T7256 T6256	
	UNC/UNF/UNS				
	UNC/UN8				
	NPT				
	NPTF				
SURFACE TREATMENT / COATING	Bright Steam Oxide	TiN	Bright Steam Oxide	Bright Steam Oxide	TiN
MODEL					



© : Excellent ○ : Good

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRC	①	②	③	④	⑤	
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎ 25-50	◎ 50-80	◎ 25-50	◎ 25-50	◎ 50-80	
	2		About 0.45% C Annealed	190	13	◎ 25-50	◎ 50-80	◎ 25-50	◎ 25-50	◎ 50-80	
	3		About 0.45% C Quenched & Tempered	250	25	◎ 25-50	◎ 50-80	◎ 25-50	◎ 25-50	◎ 50-80	
	4		About 0.75% C Annealed	270	28	○ 6-30	○ 10-35	○ 6-30	○ 6-30	○ 10-35	
	5		About 0.75% C Quenched & Tempered	300	32	○ 6-30	○ 10-35	○ 6-30	○ 6-30	○ 10-35	
	6	Low alloy steel	Annealed	180	10	◎ 6-30	◎ 10-35	◎ 6-30	◎ 6-30	◎ 10-35	
	7		Quenched & Tempered	275	29	○ 6-30	○ 10-35	○ 6-30	○ 6-30	○ 10-35	
	8		Quenched & Tempered	300	32	○ 6-30	○ 10-35	○ 6-30	○ 6-30	○ 10-35	
	9		Quenched & Tempered	350	38						
	10		High alloyed steel, and tool steel	Annealed	200	15					
	11		Quenched & Tempered	325	35						
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	○ 12-35	○ 20-50	○ 12-35	○ 12-35	○ 20-50	
	13		Martensitic Quenched & Tempered	240	23						
	14	Austenitic	180	10							
	K	15	Grey cast iron	Pearlitic / ferritic	180	10					
16		Pearlitic (Martensitic)		260	26						
17		Nodular cast iron	Ferritic	160	3	○ 12-45	○ 25-55	○ 12-45	○ 12-45	○ 25-55	
18			Pearlitic	250	25	○ 12-45	○ 25-55	○ 12-45	○ 12-45	○ 25-55	
19			Ferritic	130							
20	Malleable cast iron	Pearlitic	230	21							
N	21	Aluminum-wrought alloy	Not Curable	60							
	22		Curable Hardened	100		○ 40-65	○ 45-90	○ 40-65	○ 40-65	○ 45-90	
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		○ 40-65	○ 45-90	○ 40-65	○ 40-65	○ 45-90	
	24		≤ 12% Si, Curable Hardened	90							
	25		> 12% Si, Not Curable	130							
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110		○ 50-60	○ 65-100	○ 50-60	○ 50-60	○ 65-100	
	27		CuZn, CuSnZn (Brass)	90		○ 30-50	○ 50-65	○ 30-50	○ 30-50	○ 50-65	
	28		CuSn, lead-free copper and electrolytic copper	100							
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic								
	30		Rubber, Wood, etc.								
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15						
	32		Cured	280	30						
	33		Annealed	250	25						
	34		Ni or Co Based Cured	350	38						
	35	Cast	320	34							
	36	Titanium Alloys	Pure Titanium	400 Rm							
37	Alpha + Beta Alloys Hardened		1050 Rm								
H	38	Hardened steel	Hardened	550	55						
	39		Hardened	630	60						
	40	Chilled Cast Iron	Cast	400	42						
	41	Hardened Cast Iron	Hardened	550	55						



HOLE TYPE	Max. 3.0xD Through Hole					Max. 2.0xD Blind / Through Hole									
	HSS					HSS									
TOOL MATERIAL	HSS					HSS									
CHAMFER LEAD ACC. TO DIN2197	4P-5P		1.5P-2P			4P-5P		9P/5P/2P			5P/2P				
FLUTE TYPE	Spiral Point					Spiral Point					Straight Flute				
SPIRAL FLUTE ANGLE															

HOLE TYPE	Max. 3.0xD Through Hole					Max. 2.0xD Blind / Through Hole										
	HSS					HSS										
TOOL MATERIAL	HSS					HSS										
CHAMFER LEAD ACC. TO DIN2197	4P-5P		1.5P-2P			4P-5P		9P/5P/2P			5P/2P					
FLUTE TYPE	Spiral Point					Spiral Point					Straight Flute					
SPIRAL FLUTE ANGLE																
SERIES	M															
	M/MF				T7B17 T6B17	T8B17							T7315 T6315	T8315		T7B15
	UNC															
	UNC/UNF	T7226 T6226	T8226			T7236/T6236 T7G36/T6G36	T8236 T8G36						T7316/T7A16 T7B16/T6316	T8316		T7326
	UNC/UNF/UNS															
	UNC/UN8															
	NPT															
	NPTF															
SURFACE TREATMENT / COATING	Bright Steam Oxide	TiN	Bright Steam Oxide	TiN	Bright Steam Oxide	TiN	Bright Steam Oxide	TiN	Bright Steam Oxide	TiN	Bright Steam Oxide	TiN	Bright Steam Oxide	TiN	Bright	Bright
MODEL																

## SELECTION GUIDE

### HSS & HSS-E Taps

- Suitable for Tapping Blind
- Through Holes due to Flute Geometry and Excellent Chip Evacuation

HOLE TYPE		Max. 2.5xD Blind Hole			
TOOL MATERIAL		HSS			
CHAMFER LEAD ACC. TO DIN2197		5P/2P		4P-5P	
FLUTE TYPE		Straight Flute			
SPIRAL FLUTE ANGLE					
SERIES	M				
	M/MF				
	UNC				
	UNC/UNF	T7336	T7A15	T7616 T6616	T8616
	UNC/UNF/UNS				
	UNC/UN8				
	NPT				
	NPTF				
NPS/NPSF					
SURFACE TREATMENT / COATING		Bright	Bright	Bright Steam Oxide	TiN
MODEL					



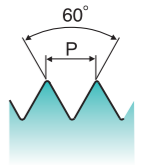
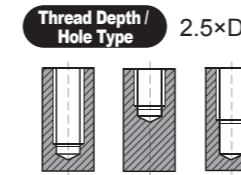
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◎ : Excellent ○ : Good

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRC	○ 25-50	○ 25-50	◎ 25-50	◎ 50-80
P	1	Non-alloy steel	About 0.15% C Annealed	125		○ 25-50	○ 25-50	◎ 25-50	◎ 50-80
	2		About 0.45% C Annealed	190	13	○ 25-50	○ 25-50	◎ 25-50	◎ 50-80
	3		About 0.45% C Quenched & Tempered	250	25	○ 25-50	○ 25-50	◎ 25-50	◎ 50-80
	4		About 0.75% C Annealed	270	28				
	5		About 0.75% C Quenched & Tempered	300	32				
	6	Low alloy steel	Annealed	180	10	○ 6-30	○ 6-30	◎ 6-30	◎ 10-35
M	7	Stainless steel	Quenched & Tempered	275	29				
	8		Quenched & Tempered	300	32				
	9		Quenched & Tempered	350	38				
K	10	High alloyed steel, and tool steel	Annealed	200	15				
	11		Quenched & Tempered	325	35				
	12		Ferritic / Martensitic Annealed	200	15	○ 12-35	○ 12-35	○ 12-35	○ 20-50
	13		Martensitic Quenched & Tempered	240	23				
N	14	Aluminum-wrought alloy	Austenitic	180	10				
	15		Pearlitic / ferritic	180	10				
	16		Pearlitic (Martensitic)	260	26				
	17		Ferritic	160	3	○ 12-45	○ 12-45	○ 12-45	○ 25-55
S	18	Nodular cast iron	Pearlitic	250	25	○ 12-45	○ 12-45	○ 12-45	○ 25-55
	19		Ferritic	130					
	20		Pearlitic	230	21				
	21		Malleable cast iron						
H	22	Aluminum-cast, alloyed	Not Curable	60		○ 50-65	○ 50-65	○ 50-65	○ 50-65
	23		Curable Hardened	100		○ 50-65	○ 50-65	○ 50-65	○ 50-65
	24		≤ 12% Si, Not Curable	75		○ 40-65	○ 40-65	○ 40-65	○ 45-90
	25		≤ 12% Si, Curable Hardened	90					
	26		> 12% Si, Not Curable	130					
	27		Cutting Alloys, PB>1%	110		○ 50-60	○ 50-60	○ 50-60	○ 65-100
	28		Copper and Copper Alloys (Bronze / Brass)	90		○ 30-50	○ 30-50	○ 30-50	○ 50-65
	29		CuZn, CuSnZn (Brass)	100					
	30		CuSn, lead-free copper and electrolytic copper						
	31		Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic Rubber, Wood, etc.					
H	32	Heat Resistant Super Alloys	Fe Based Annealed	200	15				
	33		Cured	280	30				
	34		Annealed	250	25				
	35		Ni or Co Based Cured	350	38				
	36		Cast	320	34				
H	37	Titanium Alloys	Pure Titanium	400 Rm					
	38		Alpha + Beta Alloys Hardened	1050 Rm					
H	39	Hardened steel	Hardened	550	55				
	40		Hardened	630	60				
	41		Cast	400	42				
H	42	Hardened Cast Iron	Cast	550	55				
	43		Hardened	550	55				

## C2/C3/C4/D9 SERIES

### SPIRAL FLUTE TAPS BOTTOMING STYLE for General Purpose



SIZE	Thread Per Inch		Limit	No of Flute	EDP No.			
	UNC	UNF			Steam Oxide	Bright	TiN	Hardslick
#4	40	-	H2	2	C2162	C3162	C4162	D9162
#5	40	-	H2	3	C2202	C3202	C4202	D9202
#6	32	-	H3	3	C2243	C3243	C4243	D9243
#8	32	-	H3	3	C2283	C3283	C4283	D9283
#10	24	-	H3	3	C2323	C3323	C4323	D9323
#10	-	32	H3	3	C2343	C3343	C4343	D9343
1/4	20	-	H3	3	C2403	C3403	C4403	D9403
1/4	20	-	H5	3	C2405	C3405	C4405	D9405
1/4	-	28	H3	3	C2423	C3423	C4423	D9423
5/16	18	-	H3	3	C2443	C3443	C4443	D9443
5/16	18	-	H5	3	C2445	C3445	C4445	D9445
5/16	-	24	H3	3	C2463	C3463	C4463	D9463
3/8	16	-	H3	3	C2483	C3483	C4483	D9483
3/8	16	-	H5	3	C2485	C3485	C4485	D9485
3/8	-	24	H3	3	C2503	C3503	C4503	D9503
7/16	14	-	H3	3	C2523	C3523	C4523	D9523
7/16	14	-	H5	3	C2525	C3525	C4525	D9525
7/16	-	20	H3	3	C2543	C3543	C4543	D9543
7/16	-	20	H5	3	C2545	C3545	C4545	D9545
1/2	13	-	H3	3	C2563	C3563	C4563	D9563
1/2	13	-	H5	3	C2565	C3565	C4565	D9565
1/2	-	20	H3	3	C2583	C3583	C4583	D9583
1/2	-	20	H5	3	C2585	C3585	C4585	D9585
9/16	12	-	H5	3	C2605	C3605	C4605	D9605
9/16	-	18	H5	3	C2625	C3625	C4625	D9625
5/8	11	-	H3	4	C2643	C3643	C4643	D9643
5/8	11	-	H5	4	C2645	C3645	C4645	D9645
5/8	-	18	H3	4	C2663	C3663	C4663	D9663
3/4	10	-	H3	4	C2703	C3703	C4703	D9703
3/4	10	-	H5	4	C2705	C3705	C4705	D9705
3/4	-	16	H3	4	C2723	C3723	C4723	D9723
7/8	9	-	H4	4	C2744	C3744	C4744	D9744
7/8	-	14	H6	4	C2766	C3766	C4766	D9766
1	8	-	H4	4	C2784	C3784	C4784	D9784

▶ Refer to technical data on page 62-66.

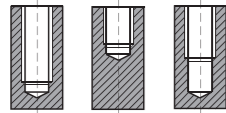
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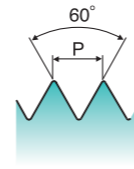
F4/F8/F6 SERIES

## SPIRAL FLUTE TAPS BOTTOMING STYLE for General Purpose

Thread Depth / Hole Type 2.5×D



USCTI



SIZE	Thread Per Inch		Limit	No. of Flute	EDP No.		
	UNC	UNF			Steam Oxide	TiN	Hardslick
#2	56	-	H2	2	F4082	F8082	F6082
#4	40	-	H2	2	F4162	F8162	F6162
#5	40	-	H2	2	F4202	F8202	F6202
#6	32	-	H3	3	F4243	F8243	F6243
#8	32	-	H3	3	F4283	F8283	F6283
#10	24	-	H3	3	F4323	F8323	F6323
#10	-	32	H3	3	F4343	F8343	F6343
1/4	20	-	H3	3	F4403	F8403	F6403
1/4	20	-	H5	3	F4405	F8405	F6405
1/4	-	28	H3	3	F4423	F8423	F6423
5/16	18	-	H3	3	F4443	F8443	F6443
5/16	18	-	H5	3	F4445	F8445	F6445
5/16	-	24	H3	3	F4463	F8463	F6463
3/8	16	-	H3	3	F4483	F8483	F6483
3/8	16	-	H5	3	F4485	F8485	F6485
3/8	-	24	H3	3	F4503	F8503	F6503
7/16	14	-	H3	3	F4523	F8523	F6523
7/16	14	-	H5	3	F4525	F8525	F6525
7/16	-	20	H3	3	F4543	F8543	F6543
7/16	-	20	H5	3	F4545	F8545	F6545
1/2	13	-	H3	3	F4563	F8563	F6563
1/2	13	-	H5	3	F4565	F8565	F6565
1/2	-	20	H3	3	F4583	F8583	F6583
1/2	-	20	H5	3	F4585	F8585	F6585
9/16	12	-	H3	3	F4603	F8603	F6603
9/16	12	-	H5	3	F4605	F8605	F6605
9/16	-	18	H3	3	F4623	F8623	F6623
9/16	-	18	H5	3	F4625	F8625	F6625
5/8	11	-	H3	4	F4643	F8643	F6643
5/8	11	-	H5	4	F4645	F8645	F6645
5/8	-	18	H3	4	F4663	F8663	F6663
5/8	-	18	H5	4	F4665	F8665	F6665
3/4	10	-	H3	4	F4703	F8703	F6703
3/4	10	-	H5	4	F4705	F8705	F6705
3/4	-	16	H3	4	F4723	F8723	F6723
3/4	-	16	H5	4	F4725	F8725	F6725
7/8	9	-	H4	4	F4744	F8744	F6744
7/8	9	-	H6	4	F4746	F8746	F6746
7/8	-	14	H4	4	F4764	F8764	F6764
7/8	-	14	H6	4	F4766	F8766	F6766
1	8	-	H4	4	F4784	F8784	F6784
1	8	-	H6	4	F4786	F8786	F6786
1	-	12	H6	4	F4806	F8806	F6806

Refer to technical data on page 62-66.

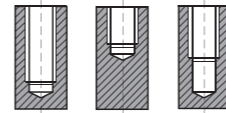
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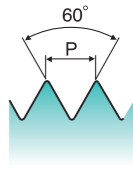
G4/G5/G6 SERIES

## METRIC SPIRAL FLUTE TAPS BOTTOMING STYLE for General Purpose

Thread Depth / Hole Type 2.5×D



USCTI



SIZE	PITCH	Limit	No. of Flute	EDP No.		
				Bright	TiCN	Hardslick
M3	0.5	D3	2	G4203	G5203	G6203
M3.5	0.6	D4	2	G4224	G5224	G6224
M4	0.7	D4	3	G4244	G5244	G6244
M5	0.8	D4	3	G4284	G5284	G6284
M6	1.0	D5	3	G4315	G5315	G6315
M7	1.0	D5	3	G4345	G5345	G6345
M8	1.25	D5	3	G4365	G5365	G6365
M8	1.0	D5	3	G4375	G5375	G6375
M10	1.5	D6	3	G4426	G5426	G6426
M10	1.25	D5	3	G4435	G5435	G6435
M12	1.75	D6	3	G4506	G5506	G6506
M12	1.25	D5	3	G4525	G5525	G6525

Refer to technical data on page 62-66.

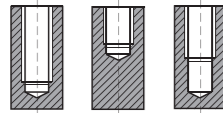
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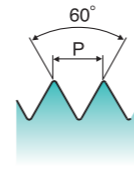
G0/G1/G2 SERIES

## SPIRAL FLUTE TAPS BOTTOMING STYLE for General Purpose

Thread Depth / Hole Type 2.5×D



DIN Length-ANSI Shank



SIZE	Thread Per Inch		Limit	No. of Flute	EDP No.		
	UNC	UNF			Bright	TiN	Hardslick
#2	56	-	H2	2	G0082	G1082	G2082
#4	40	-	H2	2	G0162	G1162	G2162
#5	40	-	H2	3	G0202	G1202	G2202
#6	32	-	H3	3	G0243	G1243	G2243
#8	32	-	H3	3	G0283	G1283	G2283
#10	24	-	H3	3	G0323	G1323	G2323
#10	-	32	H3	3	G0343	G1343	G2343
1/4	20	-	H3	3	G0403	G1403	G2403
1/4	20	-	H5	3	G0405	G1405	G2405
1/4	-	28	H3	3	G0423	G1423	G2423
5/16	18	-	H3	3	G0443	G1443	G2443
5/16	18	-	H5	3	G0445	G1445	G2445
5/16	-	24	H3	3	G0463	G1463	G2463
3/8	16	-	H3	3	G0483	G1483	G2483
3/8	16	-	H5	3	G0485	G1485	G2485
3/8	-	24	H3	3	G0503	G1503	G2503
7/16	14	-	H3	3	G0523	G1523	G2523
7/16	14	-	H5	3	G0525	G1525	G2525
7/16	-	20	H3	3	G0543	G1543	G2543
7/16	-	20	H5	3	G0545	G1545	G2545
1/2	13	-	H3	3	G0563	G1563	G2563
1/2	13	-	H5	3	G0565	G1565	G2565
1/2	-	20	H3	3	G0583	G1583	G2583
1/2	-	20	H5	3	G0585	G1585	G2585
9/16	12	-	H3	3	G0603	G1603	G2603
9/16	12	-	H5	3	G0605	G1605	G2605
9/16	-	18	H3	3	G0623	G1623	G2623
9/16	-	18	H5	3	G0625	G1625	G2625
5/8	11	-	H3	4	G0643	G1643	G2643
5/8	11	-	H5	4	G0645	G1645	G2645
5/8	-	18	H3	4	G0663	G1663	G2663
5/8	-	18	H5	4	G0665	G1665	G2665
3/4	10	-	H3	4	G0703	G1703	G2703
3/4	10	-	H5	4	G0705	G1705	G2705
3/4	-	16	H3	4	G0723	G1723	G2723
3/4	-	16	H5	4	G0725	G1725	G2725
7/8	9	-	H6	4	G0746	G1746	G2746
7/8	-	14	H4	4	G0764	G1764	G2764
7/8	-	14	H6	4	G0766	G1766	G2766
1	8	-	H6	4	G0786	G1786	G2786
1	-	12	H4	4	G0804	G1804	G2804
1	-	12	H6	4	G0806	G1806	G2806

Refer to technical data on page 62~66.

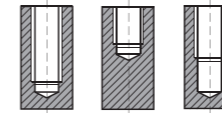
# Taps



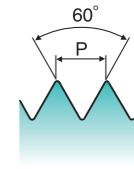
T7A96/T6A96/T8A96  
T7295/T6295/T8295 SERIES

## SPIRAL FLUTE TAPS for General Purpose

Thread Depth / Hole Type 2.5×D



USCTI



SIZE	Thread Per Inch		Limit	No. of Flute	EDP No.					
	UNC	UNF			Plug			Bottoming		
					Bright	Steam Oxide	TiN	Bright	Steam Oxide	TiN
#3	48	-	H2	2	T7A96122	T6A96122	T8A96122	T7295122	T6295122	T8295122
#4	40	-	H2	2	T7A96162	T6A96162	T8A96162	T7295162	T6295162	T8295162
#5	40	-	H2	2	T7A96202	T6A96202	T8A96202	T7295202	T6295202	T8295202
#6	32	-	H2	2	T7A96242	T6A96242	T8A96242	T7295242	T6295242	T8295242
#6	32	-	H3	2	T7A96243	T6A96243	T8A96243	T7295243	T6295243	T8295243
#8	32	-	H2	3	T7A96282	T6A96282	T8A96282	T7295282	T6295282	T8295282
#8	32	-	H3	3	T7A96283	T6A96283	T8A96283	T7295283	T6295283	T8295283
#10	24	-	H3	3	T7A96323	T6A96323	T8A96323	T7295323	T6295323	T8295323
#10	-	32	H2	3	T7A96342	T6A96342	T8A96342	T7295342	T6295342	T8295342
#10	-	32	H3	3	T7A96343	T6A96343	T8A96343	T7295343	T6295343	T8295343
#12	24	-	H3	3	T7A96363	T6A96363	T8A96363	T7295363	T6295363	T8295363
1/4	20	-	H3	3	T7A96403	T6A96403	T8A96403	T7295403	T6295403	T8295403
1/4	20	-	H5	3	T7A96405	T6A96405	T8A96405	T7295405	T6295405	T8295405
1/4	-	28	H3	3	T7A96423	T6A96423	T8A96423	T7295423	T6295423	T8295423
5/16	18	-	H3	3	T7A96443	T6A96443	T8A96443	T7295443	T6295443	T8295443
5/16	18	-	H5	3	T7A96445	T6A96445	T8A96445	T7295445	T6295445	T8295445
5/16	-	24	H3	3	T7A96463	T6A96463	T8A96463	T7295463	T6295463	T8295463
3/8	16	-	H3	3	T7A96483	T6A96483	T8A96483	T7295483	T6295483	T8295483
3/8	16	-	H5	3	T7A96485	T6A96485	T8A96485	T7295485	T6295485	T8295485
3/8	-	24	H3	3	T7A96503	T6A96503	T8A96503	T7295503	T6295503	T8295503
7/16	14	-	H3	3	T7A96523	T6A96523	T8A96523	T7295523	T6295523	T8295523
7/16	14	-	H5	3	-	-	-	T7295525	T6295525	T8295525
7/16	-	20	H3	3	T7A96543	T6A96543	T8A96543	T7295543	T6295543	T8295543
1/2	13	-	H3	3	T7A96563	T6A96563	T8A96563	T7295563	T6295563	T8295563
1/2	13	-	H5	3	T7A96565	T6A96565	T8A96565	T7295565	T6295565	T8295565
1/2	-	20	H3	3	T7A96583	T6A96583	T8A96583	T7295583	T6295583	T8295583
5/8	11	-	H3	4	T7A96643	T6A96643	T8A96643	T7295643	T6295643	T8295643
5/8	-	18	H3	4	T7A96663	T6A96663	T8A96663	T7295663	T6295663	T8295663
3/4	10	-	H3	4	T7A96703	T6A96703	T8A96703	T7295703	T6295703	T8295703
3/4	-	16	H3	4	T7A96723	T6A96723	T8A96723	T7295723	T6295723	T8295723

Refer to technical data on page 62~66.



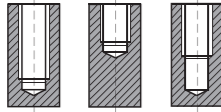
# Taps



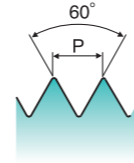
## T7A86/T6A86/T8A86 T7A85/T6A85/T8A85 SERIES

### METRIC SPIRAL FLUTE TAPS for General Purpose

Thread Depth / Hole Type 2.5xD



USCTI



Material groups: **GS** HSS M MF USCTI 302 4P~5P Plug 1.5P~2P Bottoming Bright Steam Oxide TiN R50

SIZE	Pitch	Limit	No. of Flute	EDP No.					
				Plug			Bottoming		
				Bright	Steam Oxide	TiN	Bright	Steam Oxide	TiN
M3	0.5	D3	2	T7A86203	T6A86203	T8A86203	T7A85203	T6A85203	T8A85203
M4	0.7	D4	3	T7A86244	T6A86244	T8A86244	T7A85244	T6A85244	T8A85244
M5	0.8	D4	3	T7A86284	T6A86284	T8A86284	T7A85284	T6A85284	T8A85284
M6	1.0	D5	3	T7A86315	T6A86315	T8A86315	T7A85315	T6A85315	T8A85315
M8	1.25	D5	3	T7A86365	T6A86365	T8A86365	T7A85365	T6A85365	T8A85365
M10	1.5	D6	3	T7A86426	T6A86426	T8A86426	T7A85426	T6A85426	T8A85426
M12	1.75	D6	3	T7A86506	T6A86506	T8A86506	T7A85506	T6A85506	T8A85506

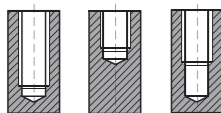
▶ Refer to technical data on page 62~66.

## T7D01/T8D01 T7D02/T8D02 SERIES

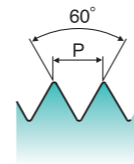
### SPIRAL FLUTE TAP, 6" EXTENSION

Extended length for greater reach

Thread Depth / Hole Type 2.5xD



USCTI Long Shank



Material groups: **GS** HSS UNC UNF USCTI Long Shank 4P~5P Plug 1.5P~2P Bottoming Bright TiN R50

SIZE	UNC	UNF	Limit	Overall Length	No. of Flutes	EDP No.			
						Plug		Bottoming	
						Bright	TiN	Bright	TiN
#6	32	-	H3	6	2	T7D01243	T8D01243	T7D02243	T8D02243
#8	32	-	H3	6	3	T7D01283	T8D01283	T7D02283	T8D02283
#10	24	-	H3	6	3	T7D01323	T8D01323	T7D02323	T8D02323
#10	-	32	H3	6	3	T7D01343	T8D01343	T7D02343	T8D02343
1/4	20	-	H3	6	3	T7D01403	T8D01403	T7D02403	T8D02403
1/4	-	28	H3	6	3	T7D01423	T8D01423	T7D02423	T8D02423
5/16	18	-	H3	6	3	T7D01443	T8D01443	T7D02443	T8D02443
3/8	16	-	H3	6	3	T7D01483	T8D01483	T7D02483	T8D02483
7/16	14	-	H3	6	3	T7D01523	T8D01523	T7D02523	T8D02523
1/2	13	-	H3	6	3	T7D01563	T8D01563	T7D02563	T8D02563
5/8	11	-	H3	6	4	T7D01643	T8D01643	T7D02643	T8D02643

▶ Refer to technical data on page 62~66.

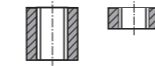
# Taps



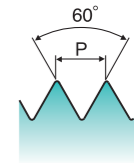
## I9/J0/J1/J7 SERIES

### SPIRAL POINT PLUG STYLE for General Purpose

Thread Depth / Hole Type 3.0xD



USCTI



Material groups: **GS** HSS-E UNC UNF USCTI 302 4P~5P Bright Steam Oxide TiN Hardslick

SIZE	Thread Per Inch		Limit	No. of Flute	EDP No.			
	UNC	UNF			Steam Oxide	Bright	TiN	Hardslick
	#2	56			-	H2	2	I9082
#4	40	-	H2	2	I9162	J0162	J1162	J7162
#5	40	-	H2	2	I9202	J0202	J1202	J7202
#6	32	-	H3	2	I9243	J0243	J1243	J7243
#8	32	-	H3	2	I9283	J0283	J1283	J7283
#10	24	-	H3	2	I9323	J0323	J1323	J7323
#10	-	32	H3	2	I9343	J0343	J1343	J7343
1/4	20	-	H3	2	I9403	J0403	J1403	J7403
1/4	20	-	H5	2	I9405	J0405	J1405	J7405
1/4	-	28	H3	2	I9423	J0423	J1423	J7423
5/16	18	-	H3	2	I9443	J0443	J1443	J7443
5/16	18	-	H5	2	I9445	J0445	J1445	J7445
5/16	-	24	H3	2	I9463	J0463	J1463	J7463
3/8	16	-	H3	3	I9483	J0483	J1483	J7483
3/8	16	-	H5	3	I9485	J0485	J1485	J7485
3/8	-	24	H3	3	I9503	J0503	J1503	J7503
7/16	14	-	H3	3	I9523	J0523	J1523	J7523
7/16	14	-	H5	3	I9525	J0525	J1525	J7525
7/16	-	20	H3	3	I9543	J0543	J1543	J7543
7/16	-	20	H5	3	I9545	J0545	J1545	J7545
1/2	13	-	H3	3	I9563	J0563	J1563	J7563
1/2	13	-	H5	3	I9565	J0565	J1565	J7565
1/2	-	20	H3	3	I9583	J0583	J1583	J7583
1/2	-	20	H5	3	I9585	J0585	J1585	J7585
9/16	12	-	H3	3	I9603	J0603	J1603	J7603
9/16	-	18	H5	3	I9625	J0625	J1625	J7625
5/8	11	-	H3	3	I9643	J0643	J1643	J7643
5/8	11	-	H5	3	I9645	J0645	J1645	J7645
5/8	-	18	H5	3	I9665	J0665	J1665	J7665
3/4	10	-	H3	3	I9703	J0703	J1703	J7703
3/4	10	-	H5	3	I9705	J0705	J1705	J7705
3/4	-	16	H5	3	I9725	J0725	J1725	J7725
7/8	9	-	H4	3	I9744	J0744	J1744	J7744
7/8	-	14	H6	3	I9766	J0766	J1766	J7766
1	8	-	H4	3	I9784	J0784	J1784	J7784

▶ Refer to technical data on page 62~66.

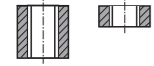
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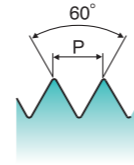
**K9/L0/L1** SERIES

## SPIRAL POINT TAPS PLUG STYLE for General Purpose

Thread Depth / Hole Type 3.0×D



USCTI



Material groups: **GS** HSS-E UNC UNF USCTI 302A 4P-5P Bright **TiN** Hardslick

SIZE	Thread Per Inch		Limit	No. of Flute	EDP No.		
	UNC	UNF			Bright	TiN	Hardslick
#2	56	-	H2	2	K9082	L0082	L1082
#4	40	-	H2	2	K9162	L0162	L1162
#5	40	-	H2	2	K9202	L0202	L1202
#6	32	-	H3	2	K9243	L0243	L1243
#8	32	-	H3	2	K9283	L0283	L1283
#10	24	-	H3	2	K9323	L0323	L1323
#10	-	32	H3	2	K9343	L0343	L1343
1/4	20	-	H3	2	K9403	L0403	L1403
1/4	20	-	H5	2	K9405	L0405	L1405
1/4	-	28	H3	3	K9423	L0423	L1423
5/16	18	-	H3	2	K9443	L0443	L1443
5/16	18	-	H5	3	K9445	L0445	L1445
5/16	-	24	H3	3	K9463	L0463	L1463
3/8	16	-	H3	3	K9483	L0483	L1483
3/8	16	-	H5	3	K9485	L0485	L1485
3/8	-	24	H3	3	K9503	L0503	L1503
7/16	14	-	H3	3	K9523	L0523	L1523
7/16	14	-	H5	3	K9525	L0525	L1525
7/16	-	20	H3	3	K9543	L0543	L1543
7/16	-	20	H5	3	K9545	L0545	L1545
1/2	13	-	H3	3	K9563	L0563	L1563
1/2	13	-	H5	3	K9565	L0565	L1565
1/2	-	20	H3	3	K9583	L0583	L1583
1/2	-	20	H5	3	K9585	L0585	L1585
9/16	12	-	H3	3	K9603	L0603	L1603
9/16	-	18	H3	3	K9623	L0623	L1623
9/16	-	18	H5	3	K9625	L0625	L1625
5/8	11	-	H3	3	K9643	L0643	L1643
5/8	11	-	H5	3	K9645	L0645	L1645
5/8	-	18	H3	3	K9663	L0663	L1663
5/8	-	18	H5	3	K9665	L0665	L1665
3/4	10	-	H3	3	K9703	L0703	L1703
3/4	10	-	H5	3	K9705	L0705	L1705
3/4	-	16	H3	3	K9723	L0723	L1723
3/4	-	16	H5	3	K9725	L0725	L1725
7/8	9	-	H6	3	K9746	L0746	L1746
7/8	-	14	H4	3	K9764	L0764	L1764
7/8	-	14	H6	3	K9766	L0766	L1766
1	8	-	H6	3	K9786	L0786	L1786
1	-	12	H6	3	K9806	L0806	L1806

▶ Refer to technical data on page 62-66.

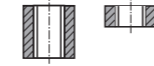
# Taps



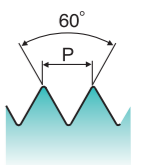
**L7/L8/L9** SERIES

## METRIC SPIRAL POINT TAPS PLUG STYLE for General Purpose

Thread Depth / Hole Type 3.0×D



USCTI



Material groups: **GS** HSS-E M MF USCTI 302A 4P-5P Bright **TiCN** Hardslick

SIZE	Pitch	Limit	No. of Flute	EDP No.		
				Bright	TiCN	Hardslick
M3	0.5	D3	2	L7203	L8203	L9203
M3.5	0.6	D4	2	L7224	L8224	L9224
M4	0.7	D4	2	L7244	L8244	L9244
M5	0.8	D4	2	L7284	L8284	L9284
M6	1.0	D5	3	L7315	L8315	L9315
M7	1.0	D5	3	L7345	L8345	L9345
M8	1.25	D5	3	L7365	L8365	L9365
M8	1.0	D5	3	L7375	L8375	L9375
M10	1.5	D6	3	L7426	L8426	L9426
M10	1.25	D5	3	L7435	L8435	L9435
M12	1.75	D6	3	L7506	L8506	L9506
M12	1.25	D5	3	L7525	L8525	L9525

▶ Refer to technical data on page 62-66.

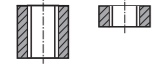
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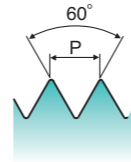
L3/L4/L5 SERIES

## SPIRAL POINT TAPS PLUG STYLE for General Purpose

Thread Depth / Hole Type 3.0xD



DIN Length-ANSI Shank



Material groups: **GS** HSS-E UNC UNF 4P-5P Bright TiN Hardslick

SIZE	Thread Per Inch		Limit	No. of Flute	EDP No.		
	UNC	UNF			Bright	TiN	Hardslick
#2	56	-	H2	2	L3082	L4082	L5082
#4	40	-	H2	2	L3162	L4162	L5162
#5	40	-	H2	3	L3202	L4202	L5202
#6	32	-	H3	3	L3243	L4243	L5243
#8	32	-	H3	3	L3283	L4283	L5283
#10	24	-	H3	3	L3323	L4323	L5323
#10	-	32	H3	3	L3343	L4343	L5343
1/4	20	-	H3	3	L3403	L4403	L5403
1/4	20	-	H5	3	L3405	L4405	L5405
1/4	-	28	H3	3	L3423	L4423	L5423
5/16	18	-	H3	3	L3443	L4443	L5443
5/16	18	-	H5	3	L3445	L4445	L5445
5/16	-	24	H3	3	L3463	L4463	L5463
3/8	16	-	H3	3	L3483	L4483	L5483
3/8	16	-	H5	3	L3485	L4485	L5485
3/8	-	24	H3	3	L3503	L4503	L5503
7/16	14	-	H3	3	L3523	L4523	L5523
7/16	14	-	H5	3	L3525	L4525	L5525
7/16	-	20	H3	3	L3543	L4543	L5543
7/16	-	20	H5	3	L3545	L4545	L5545
1/2	13	-	H3	3	L3563	L4563	L5563
1/2	13	-	H5	3	L3565	L4565	L5565
1/2	-	20	H3	3	L3583	L4583	L5583
1/2	-	20	H5	3	L3585	L4585	L5585
9/16	12	-	H5	3	L3605	L4605	L5605
9/16	-	18	H5	3	L3625	L4625	L5625
5/8	11	-	H3	3	L3643	L4643	L5643
5/8	11	-	H5	3	L3645	L4645	L5645
3/4	10	-	H3	3	L3703	L4703	L5703
3/4	10	-	H5	3	L3705	L4705	L5705
3/4	-	16	H5	3	L3725	L4725	L5725
7/8	9	-	H6	3	L3746	L4746	L5746
7/8	-	14	H6	3	L3766	L4766	L5766
1	8	-	H6	3	L3786	L4786	L5786
1	-	12	H6	3	L3806	L4806	L5806

Refer to technical data on page 62-66.

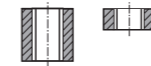
# Taps



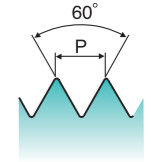
T7216/T6216/T8216  
T7C16/T6C16/T8C16 SERIES

## SPIRAL POINT PLUG STYLE for General Purpose

Thread Depth / Hole Type 3.0xD



USCTI



Material groups: **GS** HSS UNC UNF USCTI 302 4P-5P Bright Steam Oxide TiN

SIZE	Thread Per Inch		Limit	No. of Flute	EDP No.		
	UNC	UNF			Bright	Steam Oxide	TiN
#0	-	80	H1	2	T7216021	T6216021	T8216021
#0	-	80	H2	2	T7216022	T6216022	T8216022
#0	-	80	H3	2	T7216023	T6216023	T8216023
#1	64	-	H1	2	T7216041	T6216041	T8216041
#1	64	-	H2	2	T7216042	T6216042	T8216042
#1	-	72	H1	2	T7216061	T6216061	T8216061
#1	-	72	H2	2	T7216062	T6216062	T8216062
#2	56	-	H1	2	T7216081	T6216081	T8216081
#2	56	-	H2	2	T7216082	T6216082	T8216082
#2	56	-	H3	2	T7216083	T6216083	T8216083
#2	56	-	H5	2	T7216085	T6216085	T8216085
#2	-	64	H1	2	T7216101	T6216101	T8216101
#2	-	64	H2	2	T7216102	T6216102	T8216102
#3	48	-	H1	2	T7216121	T6216121	T8216121
#3	48	-	H2	2	T7216122	T6216122	T8216122
#3	48	-	H3	2	T7216123	T6216123	T8216123
#3	48	-	H5	2	T7216125	T6216125	T8216125
#3	-	56	H1	2	T7216141	T6216141	T8216141
#3	-	56	H2	2	T7216142	T6216142	T8216142
#4	40	-	H1	2	T7216161	T6216161	T8216161
#4	40	-	H2	2	T7216162	T6216162	T8216162
#4	40	-	H3	2	T7216163	T6216163	T8216163
#4	40	-	H5	2	T7216165	T6216165	T8216165
#4	40	-	H7	2	T7216167	T6216167	T8216167
#4	-	48	H1	2	T7216181	T6216181	T8216181
#4	-	48	H2	2	T7216182	T6216182	T8216182
#5	40	-	H1	2	T7216201	T6216201	T8216201
#5	40	-	H2	2	T7216202	T6216202	T8216202
#5	40	-	H5	2	T7216205	T6216205	T8216205
#5	-	44	H2	2	T7216222	T6216222	T8216222
#6	32	-	H1	2	T7216241	T6216241	T8216241
#6	32	-	H2	2	T7216242	T6216242	T8216242
#6	32	-	H3	2	T7216243	T6216243	T8216243
#6	32	-	H4	2	T7216244	T6216244	T8216244
#6	32	-	H5	2	T7216245	T6216245	T8216245
#6	32	-	H7	2	T7216247	T6216247	T8216247
#6	32	-	H3	3	T7C16243	T6C16243	T8C16243
#6	-	40	H1	2	T7216261	T6216261	T8216261
#6	-	40	H2	2	T7216262	T6216262	T8216262
#6	-	40	H5	2	T7216265	T6216265	T8216265
#8	32	-	H1	2	T7216281	T6216281	T8216281
#8	32	-	H2	2	T7216282	T6216282	T8216282
#8	32	-	H3	2	T7216283	T6216283	T8216283
#8	32	-	H4	2	T7216284	T6216284	T8216284
#8	32	-	H5	2	T7216285	T6216285	T8216285
#8	32	-	H7	2	T7216287	T6216287	T8216287
#8	32	-	H3	3	T7C16283	T6C16283	T8C16283
#8	-	36	H1	2	T7216301	T6216301	T8216301
#8	-	36	H2	2	T7216302	T6216302	T8216302
#10	24	-	H1	2	T7216321	T6216321	T8216321
#10	24	-	H2	2	T7216322	T6216322	T8216322
#10	24	-	H3	2	T7216323	T6216323	T8216323
#10	24	-	H4	2	T7216324	T6216324	T8216324
#10	24	-	H5	2	T7216325	T6216325	T8216325
#10	24	-	H7	2	T7216327	T6216327	T8216327
#10	24	-	H3	3	T7C16323	T6C16323	T8C16323

Next Page

# Taps



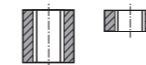
SIZE	Thread Per Inch		Limit	No. of Flute	EDP No.		
	UNC	UNF			Bright	Steam Oxide	TiN
#10	-	32	H1	2	T7216341	T6216341	T8216341
#10	-	32	H2	2	T7216342	T6216342	T8216342
#10	-	32	H3	2	T7216343	T6216343	T8216343
#10	-	32	H4	2	T7216344	T6216344	T8216344
#10	-	32	H5	2	T7216345	T6216345	T8216345
#10	-	32	H7	2	T7216347	T6216347	T8216347
#10	-	32	H3	3	T7C16343	T6C16343	T8C16343
#12	24	-	H1	2	T7216361	T6216361	T8216361
#12	24	-	H3	2	T7216363	T6216363	T8216363
#12	-	28	H3	2	T7216383	T6216383	T8216383
1/4	20	-	H1	2	T7216401	T6216401	T8216401
1/4	20	-	H2	2	T7216402	T6216402	T8216402
1/4	20	-	H3	2	T7216403	T6216403	T8216403
1/4	20	-	H5	2	T7216405	T6216405	T8216405
1/4	20	-	H3	3	T7C16403	T6C16403	T8C16403
1/4	20	-	H5	3	T7C16405	T6C16405	T8C16405
1/4	-	28	H1	2	T7216421	T6216421	T8216421
1/4	-	28	H2	2	T7216422	T6216422	T8216422
1/4	-	28	H3	2	T7216423	T6216423	T8216423
1/4	-	28	H4	2	T7216424	T6216424	T8216424
1/4	-	28	H2	3	T7C16422	T6C16422	T8C16422
1/4	-	28	H4	3	T7C16424	T6C16424	T8C16424
5/16	18	-	H1	2	T7216441	T6216441	T8216441
5/16	18	-	H2	2	T7216442	T6216442	T8216442
5/16	18	-	H3	2	T7216443	T6216443	T8216443
5/16	18	-	H5	2	T7216445	T6216445	T8216445
5/16	18	-	H3	3	T7C16443	T6C16443	T8C16443
5/16	18	-	H5	3	T7C16445	T6C16445	T8C16445
5/16	-	24	H1	2	T7216461	T6216461	T8216461
5/16	-	24	H2	2	T7216462	T6216462	T8216462
5/16	-	24	H3	2	T7216463	T6216463	T8216463
5/16	-	24	H4	2	T7216464	T6216464	T8216464
5/16	-	24	H2	3	T7C16462	T6C16462	T8C16462
5/16	-	24	H4	3	T7C16464	T6C16464	T8C16464
3/8	16	-	H1	3	T7216481	T6216481	T8216481
3/8	16	-	H2	3	T7216482	T6216482	T8216482
3/8	16	-	H3	3	T7216483	T6216483	T8216483
3/8	16	-	H5	3	T7216485	T6216485	T8216485
3/8	-	24	H1	3	T7216501	T6216501	T8216501
3/8	-	24	H2	3	T7216502	T6216502	T8216502
3/8	-	24	H3	3	T7216503	T6216503	T8216503
3/8	-	24	H4	3	T7216504	T6216504	T8216504
7/16	14	-	H2	3	T7216522	T6216522	T8216522
7/16	14	-	H3	3	T7216523	T6216523	T8216523
7/16	14	-	H5	3	T7216525	T6216525	T8216525
7/16	-	20	H2	3	T7216542	T6216542	T8216542
7/16	-	20	H3	3	T7216543	T6216543	T8216543
7/16	-	20	H5	3	T7216545	T6216545	T8216545
1/2	13	-	H1	3	T7216561	T6216561	T8216561
1/2	13	-	H2	3	T7216562	T6216562	T8216562
1/2	13	-	H3	3	T7216563	T6216563	T8216563
1/2	13	-	H5	3	T7216565	T6216565	T8216565
1/2	-	20	H1	3	T7216581	T6216581	T8216581
1/2	-	20	H2	3	T7216582	T6216582	T8216582
1/2	-	20	H3	3	T7216583	T6216583	T8216583
1/2	-	20	H5	3	T7216585	T6216585	T8216585
9/16	12	-	H3	3	T7216603	T6216603	T8216603
9/16	12	-	H5	3	T7216605	T6216605	T8216605
9/16	-	18	H3	3	T7216623	T6216623	T8216623
9/16	-	18	H5	3	T7216625	T6216625	T8216625
5/8	11	-	H3	3	T7216643	T6216643	T8216643
5/8	11	-	H5	3	T7216645	T6216645	T8216645
5/8	-	18	H3	3	T7216663	T6216663	T8216663
5/8	-	18	H5	3	T7216665	T6216665	T8216665
3/4	10	-	H3	3	T7216703	T6216703	T8216703
3/4	10	-	H5	3	T7216705	T6216705	T8216705
3/4	-	16	H3	3	T7216723	T6216723	T8216723
3/4	-	16	H5	3	T7216725	T6216725	T8216725

► Refer to technical data on page 62~66.

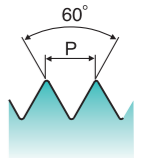
# Taps



Thread Depth / Hole Type 3.0×D



USCTI



**T7256**  
**T6256** SERIES

**SPIRAL POINT BOTTOMING STYLE**  
for General Purpose

Material groups: **GS** **HSS** **UNC UNF** **USCTI 302** **1.5P~2P** **Bright** **Steam Oxide**

SIZE	Thread Per Inch		Limit	No. of Flute	EDP No.	
	UNC	UNF			Bright	Steam Oxide
#0	-	80	H1	2	T7256021	T6256021
#0	-	80	H2	2	T7256022	T6256022
#1	64	-	H2	2	T7256042	T6256042
#1	-	72	H1	2	T7256061	T6256061
#1	-	72	H2	2	T7256062	T6256062
#2	56	-	H1	2	T7256081	T6256081
#2	56	-	H2	2	T7256082	T6256082
#3	48	-	H2	2	T7256122	T6256122
#3	-	56	H2	2	T7256142	T6256142
#4	40	-	H2	2	T7256162	T6256162
#4	-	48	H2	2	T7256182	T6256182
#5	40	-	H2	2	T7256202	T6256202
#5	-	44	H2	2	T7256222	T6256222
#6	32	-	H2	2	T7256242	T6256242
#6	32	-	H3	2	T7256243	T6256243
#6	32	-	H7	2	T7256247	T6256247
#6	-	40	H2	2	T7256262	T6256262
#8	32	-	H2	2	T7256282	T6256282
#8	32	-	H3	2	T7256283	T6256283
#8	32	-	H7	2	T7256287	T6256287
#8	-	36	H2	2	T7256302	T6256302
#10	24	-	H2	2	T7256322	T6256322
#10	24	-	H3	2	T7256323	T6256323
#10	-	32	H1	2	T7256341	T6256341
#10	-	32	H2	2	T7256342	T6256342
#10	-	32	H3	2	T7256343	T6256343
#12	24	-	H3	2	T7256363	T6256363
#12	-	28	H3	2	T7256383	T6256383
1/4	20	-	H3	2	T7256403	T6256403
1/4	-	28	H2	2	T7256422	T6256422
1/4	-	28	H3	2	T7256423	T6256423
5/16	18	-	H3	2	T7256443	T6256443
5/16	-	24	H3	2	T7256463	T6256463
3/8	16	-	H3	3	T7256483	T6256483
3/8	-	24	H3	3	T7256503	T6256503
7/16	14	-	H3	3	T7256523	T6256523
7/16	-	20	H3	3	T7256543	T6256543
1/2	13	-	H3	3	T7256563	T6256563
1/2	-	20	H3	3	T7256583	T6256583
9/16	12	-	H3	3	T7256603	T6256603
9/16	-	18	H3	3	T7256623	T6256623
5/8	11	-	H3	3	T7256643	T6256643
5/8	-	18	H3	3	T7256663	T6256663
3/4	10	-	H3	3	T7256703	T6256703
3/4	-	16	H3	3	T7256723	T6256723

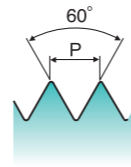
► Refer to technical data on page 62~66.

# Taps



## T7217/T6217 T8217 SERIES

### METRIC SPIRAL POINT PLUG STYLE for General Purpose



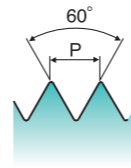
Material groups: **GS** HSS M MF USCTI 302 4P~5P Bright Steam Oxide TiN

SIZE	Pitch	Limit	No. of Flute	EDP No.		
				Bright	Steam Oxide	TiN
M1.6	0.35	D3	2	T7217093	T6217093	T8217093
M2	0.40	D3	2	T7217133	T6217133	T8217133
M2.5	0.45	D3	2	T7217173	T6217173	T8217173
M3	0.50	D3	2	T7217203	T6217203	T8217203
M3.5	0.60	D4	2	T7217224	T6217224	T8217224
M4	0.70	D4	2	T7217244	T6217244	T8217244
M4.5	0.75	D4	2	T7217264	T6217264	T8217264
M5	0.80	D4	2	T7217284	T6217284	T8217284
M6	1.00	D5	2	T7217315	T6217315	T8217315
M7	1.00	D5	2	T7217345	T6217345	T8217345
M8	1.25	D5	2	T7217365	T6217365	T8217365
M8	1.00	D5	3	T7217375	T6217375	T8217375
M10	1.50	D6	3	T7217426	T6217426	T8217426
M10	1.25	D5	3	T7217435	T6217435	T8217435
M12	1.75	D6	3	T7217506	T6217506	T8217506
M12	1.25	D5	3	T7217525	T6217525	T8217525
M14	2.00	D7	3	T7217547	T6217547	T8217547
M14	1.50	D6	3	T7217556	T6217556	T8217556
M16	2.00	D7	3	T7217607	T6217607	T8217607
M16	1.50	D6	3	T7217616	T6217616	T8217616
M18	2.50	D7	3	T7217657	T6217657	T8217657
M20	2.50	D7	3	T7217707	T6217707	T8217707

Refer to technical data on page 62~66.

## T7236/T6236/T8236 T7G36/T6G36/T8G36 SERIES

### SPIRAL POINT TAP, PULLEY TAPS & 6" EXTENSION



Thread Depth / Hole Type 3.0xD



USCTI

Material groups: **GS** HSS UNC UNF USCTI 4P~5P Bright Steam Oxide TiN

SIZE	Thread Per Inch		Limit	Overall Length	No. of Flutes	EDP No.		
	UNC	UNF				Bright	Steam Oxide	TiN
#6	32	-	H3	6	2	T7236243	T6236243	T8236243
#8	32	-	H3	6	2	T7236283	T6236283	T8236283
#10	24	-	H3	6	2	T7236323	T6236323	T8236323
#10	-	32	H3	6	2	T7236343	T6236343	T8236343
1/4	20	-	H3	6	2	T7236403	T6236403	T8236403
1/4	-	28	H3	6	2	T7236423	T6236423	T8236423
5/16	18	-	H3	6	2	T7236443	T6236443	T8236443
5/16	18	-	H3	6	3	T7G36443	T6G36443	T8G36443
5/16	-	24	H3	6	2	T7236463	T6236463	T8236463
5/16	-	24	H3	6	3	T7G36463	T6G36463	T8G36463
3/8	16	-	H3	6	3	T7236483	T6236483	T8236483
3/8	-	24	H3	6	3	T7236503	T6236503	T8236503
7/16	14	-	H3	6	3	T7236523	T6236523	T8236523
7/16	-	20	H3	6	3	T7236543	T6236543	T8236543
1/2	13	-	H3	6	3	T7236563	T6236563	T8236563
1/2	-	20	H3	6	3	T7236583	T6236583	T8236583
5/8	11	-	H3	6	3	T7236643	T6236643	T8236643

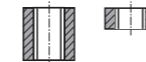
Refer to technical data on page 62~66.

- 6" EXTENSION (#6~#10)
- Pulley Tap (1/4~3/4)

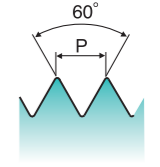
# Taps



Thread Depth / Hole Type 3.0xD



USCTI



## T7226/T6226 T8226 SERIES

### SPIRAL POINT PLUG STYLE Oversize Tap

Material groups: **GS** HSS UNC UNF USCTI 302 4P~5P Bright Steam Oxide TiN +.005" oversize

SIZE	Thread Per Inch		No. of Flute	EDP No.		
	UNC	UNF		Bright	Steam Oxide	TiN
#6	32	-	2	T7226240	T6226240	T8226240
#8	32	-	2	T7226280	T6226280	T8226280
#10	24	-	2	T7226320	T6226320	T8226320
#10	-	32	2	T7226340	T6226340	T8226340
1/4	20	-	2	T7226400	T6226400	T8226400
1/4	-	28	2	T7226420	T6226420	T8226420
5/16	18	-	2	T7226440	T6226440	T8226440
5/16	-	24	2	T7226460	T6226460	T8226460
3/8	16	-	3	T7226480	T6226480	T8226480
3/8	-	24	3	T7226500	T6226500	T8226500
7/16	14	-	3	T7226520	T6226520	T8226520
7/16	-	20	3	T7226540	T6226540	T8226540
1/2	13	-	3	T7226560	T6226560	T8226560
1/2	-	20	3	T7226580	T6226580	T8226580
5/8	11	-	3	T7226640	T6226640	T8226640
3/4	10	-	3	T7226700	T6226700	T8226700
3/4	10	-	3	T7216705	T6216705	T8216705
3/4	-	16	3	T7216723	T6216723	T8216723
3/4	-	16	3	T7216725	T6216725	T8216725

Refer to technical data on page 62~66.

## T7B17/T6B17 T8B17 SERIES

### METRIC SPIRAL POINT PLUG STYLE Oversize Tap

Material groups: **GS** HSS M MF USCTI 302 4P~5P Bright Steam Oxide TiN +.127mm oversize

SIZE	Pitch	No. of Flute	EDP No.		
			Bright	Steam Oxide	TiN
M4	0.7	2	T7B17240	T6B17240	T8B17240
M5	0.8	2	T7B17280	T6B17280	T8B17280
M6	1	2	T7B17310	T6B17310	T8B17310
M8	1.25	2	T7B17360	T6B17360	T8B17360
M8	1	2	T7B17370	T6B17370	T8B17370
M10	1.5	3	T7B17420	T6B17420	T8B17420
M10	1.25	3	T7B17430	T6B17430	T8B17430
M12	1.75	3	T7B17500	T6B17500	T8B17500
M16	2	3	T7B17600	T6B17600	T8B17600

Refer to technical data on page 62~66.

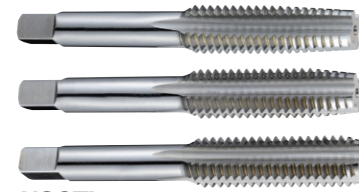
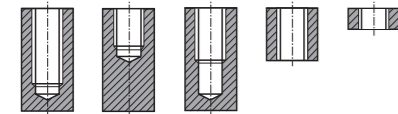
# Taps



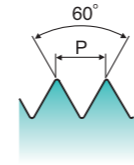
**T7316/T6316/T8316  
T7A16/T7B16** SERIES

**HAND TAP  
TAPER, PLUG & BOTTOMING STYLE**

**Thread Depth / Hole Type** 2.0×D



**USCTI**



Material groups: **GS** HSS **UNC UNF UNS** **USCTI 302** **9P/5P/2P** **Bright** **Steam Oxide** **TiN**

SIZE	Thread Per Inch			Limit	No. of Flute	EDP No.							
	UNC	UNF	UNS			Bright			Steam Oxide			TiN	
						Taper	Plug	Bottoming	Taper	Plug	Bottoming	Plug	Bottoming
#0	-	80	-	H1	2	T7316026	T7316027	T7316028	T6316026	T6316027	T6316028	T8316027	T8316028
#0	-	80	-	H2	2	-	-	-	-	-	-	-	-
#1	64	-	-	H1	2	T7316046	T7316047	T7316048	T6316046	T6316047	T6316048	T8316047	T8316048
#1	64	-	-	H2	2	-	-	-	-	-	-	-	-
#1	-	72	-	H1	2	T7316066	T7316067	T7316068	T6316066	T6316067	T6316068	T8316067	T8316068
#1	-	72	-	H2	2	-	-	-	-	-	-	-	-
#2	56	-	-	H1	2	-	T7A16087H1	T7A16088H1	-	-	-	-	-
#2	56	-	-	H1	3	T7316086H1	T7316087H1	T7316088H1	-	-	-	-	-
#2	56	-	-	H2	2	-	T7A16087	T7A16088	-	-	-	-	-
#2	56	-	-	H2	3	T7316086	T7316087	T7316088	T6316086	T6316087	T6316088	T8316087	T8316088
#2	-	64	-	H2	3	T7316106	T7316107	T7316108	-	-	-	-	-
#3	48	-	-	H1	3	-	T7316127H1	-	-	-	-	-	-
#3	48	-	-	H2	2	-	T7A16127	T7A16128	-	-	-	-	-
#3	48	-	-	H2	3	T7316126	T7316127	T7316128	T6316126	T6316127	T6316128	-	-
#3	-	56	-	H2	3	T7316146	T7316147	T7316148	T6316146	T6316147	T6316148	-	-
#4	-	-	36	H2	3	T7316156	T7316157	T7316158	T6316156	T6316157	T6316158	-	-
#4	40	-	-	H1	2	-	T7A16167H1	T7A16168H1	-	-	-	-	-
#4	40	-	-	H1	3	T7316166H1	T7316167H1	T7316168H1	T6316166H1	T6316167H1	T6316168H1	-	-
#4	40	-	-	H2	2	-	T7A16167	T7A16168	-	-	-	-	-
#4	40	-	-	H2	3	T7316166	T7316167	T7316168	T6316166	T6316167	T6316168	T8316167	T8316168
#4	-	48	-	H1	3	-	T7316187H1	-	-	-	-	-	-
#4	-	48	-	H2	3	T7316186	T7316187	T7316188	-	-	-	-	-
#5	40	-	-	H1	3	-	T7316207H1	T7316208H1	-	-	-	-	-
#5	40	-	-	H2	2	-	T7A16207	T7A16208	-	-	-	-	-
#5	40	-	-	H2	3	T7316206	T7316207	T7316208	T6316206	T6316207	T6316208	T8316207	T8316208
#5	-	44	-	H2	3	T7316226	T7316227	T7316228	T6316226	T6316227	T6316228	-	-
#6	32	-	-	H1	2	-	T7A16247H1	T7A16248H1	-	-	-	-	-
#6	32	-	-	H1	3	T7316246H1	T7316247H1	T7316248H1	T6316246H1	T6316247H1	T6316248H1	-	-
#6	32	-	-	H2	2	-	T7A16247H2	T7A16248H2	-	-	-	-	-
#6	32	-	-	H2	3	T7316246H2	T7316247H2	T7316248H2	T6316246H2	T6316247H2	T6316248H2	-	-
#6	32	-	-	H3	2	-	T7A16247	T7A16248	-	-	-	-	-
#6	32	-	-	H3	3	T7316246	T7316247	T7316248	T6316246	T6316247	T6316248	T8316247	T8316248
#6	32	-	-	H7	3	-	T7B16247H7	T7B16248H7	-	-	-	-	-
#6	-	40	-	H1	3	-	T7B16267H1	-	-	-	-	-	-
#6	-	40	-	H2	2	-	T7A16267	T7A16268	-	-	-	-	-
#6	-	40	-	H2	3	T7316266	T7316267	T7316268	T6316266	T6316267	T6316268	T8316267	T8316268
#8	32	-	-	H1	2	-	T7A16287H1	-	-	-	-	-	-
#8	32	-	-	H1	4	T7316286H1	T7316287H1	T7316288H1	T6316286H1	T6316287H1	T6316288H1	-	-
#8	32	-	-	H2	2	-	T7A16287H2	T7A16288H2	-	-	-	-	-
#8	32	-	-	H2	3	-	T7B16287H2	T7B16288H2	-	-	-	-	-
#8	32	-	-	H2	4	T7316286H2	T7316287H2	T7316288H2	T6316286H2	T6316287H2	T6316288H2	-	-
#8	32	-	-	H3	2	-	T7A16287	T7A16288	-	-	-	-	-
#8	32	-	-	H3	3	-	T7B16287	T7B16288	-	-	-	-	-
#8	32	-	-	H3	4	T7316286	T7316287	T7316288	T6316286	T6316287	T6316288	T8316287	T8316288
#8	32	-	-	H7	3	-	T7B16287H7	T7B16288H7	-	-	-	-	-
#8	32	-	-	H7	4	-	T7316287H7	T7316288H7	-	-	-	-	-
#8	-	36	-	H2	4	T7316306	T7316307	T7316308	T6316306	T6316307	T6316308	T8316307	T8316308
#10	24	-	-	H1	4	T7316326H1	T7316327H1	T7316328H1	T6316326H1	T6316327H1	T6316328H1	-	-

▶ NEXT PAGE

# Taps



SIZE	Thread Per Inch			Limit	No. of Flute	EDP No.							
	UNC	UNF	UNS			Bright			Steam Oxide			TiN	
						Taper	Plug	Bottoming	Taper	Plug	Bottoming	Plug	Bottoming
#10	24	-	-	H2	2	-	T7A16327H2	T7A16328H2	-	-	-	-	-
#10	24	-	-	H2	3	-	T7B16327H2	-	-	-	-	-	-
#10	24	-	-	H2	4	T7316326H2	T7316327H2	T7316328H2	T6316326H2	T6316327H2	T6316328H2	-	-
#10	24	-	-	H3	2	-	T7A16327	T7A16328	-	-	-	-	-
#10	24	-	-	H3	3	-	T7B16327	T7B16328	-	-	-	-	-
#10	24	-	-	H3	4	T7316326	T7316327	T7316328	T6316326	T6316327	T6316328	T8316327	T8316328
#10	24	-	-	H7	3	-	T7B16327H7	T7B16328H7	-	-	-	-	-
#10	24	-	-	H7	4	-	T7316327H7	T7316328H7	-	-	-	-	-
#10	-	32	-	H1	2	-	T7A16347H1	T7A16348H1	-	-	-	-	-
#10	-	32	-	H1	4	T7316346H1	T7316347H1	T7316348H1	T6316346H1	T6316347H1	T6316348H1	-	-
#10	-	32	-	H2	2	-	T7A16347H2	T7A16348H2	-	-	-	-	-
#10	-	32	-	H2	3	-	T7B16347H2	T7B16348H2	-	-	-	-	-
#10	-	32	-	H2	4	T7316346H2	T7316347H2	T7316348H2	T6316346H2	T6316347H2	T6316348H2	-	-
#10	-	32	-	H3	2	-	T7A16347	T7A16348	-	-	-	-	-
#10	-	32	-	H3	3	-	T7B16347	T7B16348	-	-	-	-	-
#10	-	32	-	H3	4	T7316346	T7316347	T7316348	T6316346	T6316347	T6316348	T8316347	T8316348
#10	-	32	-	H7	3	-	T7B16347H7	T7B16348H7	-	-	-	-	-
#10	-	32	-	H7	4	-	T7316347H7	T7316348H7	-	-	-	-	-
#12	24	-	-	H3	4	T7316366	T7316367	T7316368	T6316366	T6316367	T6316368	T8316367	T8316368
#12	-	28	-	H1	4	-	T7316387H1	-	-	-	-	-	-
#12	-	28	-	H3	4	T7316386	T7316387	T7316388	T6316386	T6316387	T6316388	T8316387	T8316388
1/4	20	-	-	H1	3	-	T7B16407H1	-	-	-	-	-	-
1/4	20	-	-	H1	4	T7316406H1	T7316407H1	T7316408H1	-	-	-	-	-
1/4	20	-	-	H2	3	-	T7B16407H2	T7B16408H2	-	-	-	-	-
1/4	20	-	-	H2	4	T7316406H2	T7316407H2	T7316408H2	-	-	-	-	-
1/4	20	-	-	H3	2	-	T7A16407	T7A16408	-	-	-	-	-
1/4	20	-	-	H3	3	-	T7B16407	T7B16408	-	-	-	-	-
1/4	20	-	-	H3	4	T7316406	T7316407	T7316408	T6316406	T6316407	T6316408	T8316407	T8316408
1/4	20	-	-	H5	3	-	T7B16407H5	T7B16408H5	-	-	-	-	-
1/4	20	-	-	H5	4	-	T7316407H5	T7316408H5	-	-	-	-	-
1/4	-	28	-	H1	4	-	T7316427H1	T7316428H1	-	-	-	-	-
1/4	-	28	-	H2	4	-	T7316427H2	T7316428H2	-	-	-	-	-
1/4	-	28	-	H3	2	-	T7A16427	T7A16428	-	-	-	-	-
1/4	-	28	-	H3	3	-	T7B16427	T7B16428	-	-	-	-	-
1/4	-	28	-	H3	4	T7316426	T7316427	T7316428	T6316426	T6316427	T6316428	T8316427	T8316428
1/4	-	28	-	H4	4	-	T7316427H4	T7316428H4	-	-	-	-	-
5/16	18	-	-	H1	4	-	T7316447H1	T7316448H1	-	-	-	-	-
5/16	18	-	-	H2	4	T7316446H2	T7316447H2	T7316448H2	T6316446H2	T6316447H2	T6316448H2	-	-
5/16	18	-	-	H3	2	-	T7A16447	T7A16448	-	-	-	-	-
5/16	18	-	-	H3	3	-	T7B16447	T7B16448	-	-	-	-	-
5/16	18	-	-	H3	4	T7316446	T7316447	T7316448	T6316446	T6316447	T6316448	T8316447	T8316448
5/16	18	-	-	H5	3	-	T7B16447H5	T7B16448H5	-	-	-	-	-
5/16	18	-	-	H5	4	-	T7316447H5	T7316448H5	-	-	-	-	-
5/16	-	24	-	H1	4	-	T7316467H1	T7316468H1	-	-	-	-	-
5/16	-	24	-	H2	4	-	T7316467H2	T7316468H2	-	-	-	-	-
5/16	-	24	-	H3	3	-	T7B16467	T7B16468	-	-	-	-	-
5/16	-	24	-	H3	4	T7316466	T7316467	T7316468	T6316466	T6316467	T6316468	T8316467	T8316468
5/16	-	24	-	H4	4	-	T7316467H4	T7316468H4	-	-	-	-	-
3/8	16	-	-	H1	3	-	T7B16487H1	T7B16488H1	-	-	-	-	-
3/8	16	-	-	H1	4	-	T7316487H1	T7316488H1	-	-	-	-	-
3/8	16	-	-	H2	4	-	T7316487H2	T7316488H2	-	-	-	-	-
3/8	16	-	-	H3	3	-	T7B16487	T7B16488	-	-	-	-	-
3/8	16	-	-	H3	4	T7316486	T7316487	T7316488	T6316486	T6316487	T6316488	T8316487	T8316488
3/8	16	-	-	H5	3	-	T7B16487H5	T7B1					

# Taps



SIZE	Thread Per Inch			Limit	No. of Flute	EDP No.							
	UNC	UNF	UNS			Bright			Steam Oxide			TiN	
						Taper	Plug	Bottoming	Taper	Plug	Bottoming	Plug	Bottoming
7/16	-	20	-	H2	4	-	T7316547H2	-	-	-	-	-	-
7/16	-	20	-	H3	3	-	T7B16547	T7B16548	-	-	-	-	-
7/16	-	20	-	H3	4	T7316546	T7316547	T7316548	T6316546	T6316547	T6316548	T8316547	T8316548
7/16	-	20	-	H5	4	-	T7316547H5	T7316548H5	-	-	-	-	-
1/2	13	-	-	H1	4	-	T7316567H1	T7316568H1	-	-	-	-	-
1/2	13	-	-	H2	4	-	T7316567H2	T7316568H2	-	-	-	-	-
1/2	13	-	-	H3	3	-	T7B16567	T7B16568	-	-	-	-	-
1/2	13	-	-	H3	4	T7316566	T7316567	T7316568	T6316566	T6316567	T6316568	T8316567	T8316568
1/2	13	-	-	H5	4	-	T7316567H5	T7316568H5	-	-	-	-	-
1/2	-	20	-	H1	4	-	T7316587H1	T7316588H1	-	-	-	-	-
1/2	-	20	-	H3	3	-	T7B16587	T7B16588	-	-	-	-	-
1/2	-	20	-	H3	4	T7316586	T7316587	T7316588	T6316586	T6316587	T6316588	T8316587	T8316588
1/2	-	20	-	H5	4	-	T7316587H5	T7316588H5	-	-	-	-	-
9/16	12	-	-	H3	4	T7316606	T7316607	T7316608	T6316606	T6316607	T6316608	T8316607	T8316608
9/16	12	-	-	H5	4	-	T7316607H5	T7316608H5	-	-	-	-	-
9/16	-	18	-	H2	4	-	T7316627H2	-	-	-	-	-	-
9/16	-	18	-	H3	4	T7316626	T7316627	T7316628	T6316626	T6316627	T6316628	T8316627	T8316628
9/16	-	18	-	H5	4	-	T7316627H5	T7316628H5	-	-	-	-	-
5/8	11	-	-	H1	4	-	T7316647H1	-	-	-	-	-	-
5/8	11	-	-	H2	4	-	T7316647H2	T7316648H2	-	-	-	-	-
5/8	11	-	-	H3	4	T7316646	T7316647	T7316648	T6316646	T6316647	T6316648	T8316647	T8316648
5/8	11	-	-	H5	4	-	T7316647H5	T7316648H5	-	-	-	-	-
5/8	-	18	-	H1	4	-	T7316667H1	-	-	-	-	-	-
5/8	-	18	-	H2	4	-	T7316667H2	-	-	-	-	-	-
5/8	-	18	-	H3	4	T7316666	T7316667	T7316668	T6316666	T6316667	T6316668	T8316667	T8316668
5/8	-	18	-	H5	4	-	T7316667H5	T7316668H5	-	-	-	-	-
11/16	-	-	11	H3	4	T7316A06	T7316A07	T7316A08	T6316A06	T6316A07	T6316A08	-	-
11/16	-	-	16	H3	4	T7316A26	T7316A27	T7316A28	T6316A26	T6316A27	T6316A28	-	-
3/4	10	-	-	H1	4	-	T7316707H1	T7316708H1	-	-	-	-	-
3/4	10	-	-	H2	4	-	T7316707H2	-	-	-	-	-	-
3/4	10	-	-	H3	4	T7316706	T7316707	T7316708	T6316706	T6316707	T6316708	T8316707	T8316708
3/4	10	-	-	H5	4	-	T7316707H5	T7316708H5	-	-	-	-	-
3/4	-	16	-	H1	4	-	T7316727H1	-	-	-	-	-	-
3/4	-	16	-	H2	4	-	T7316727H2	-	-	-	-	-	-
3/4	-	16	-	H3	4	T7316726	T7316727	T7316728	T6316726	T6316727	T6316728	T8316727	T8316728
3/4	-	16	-	H5	4	-	T7316727H5	T7316728H5	-	-	-	-	-
7/8	9	-	-	H4	4	T7316746	T7316747	T7316748	T6316746	T6316747	T6316748	T8316747	T8316748
7/8	9	-	-	H6	4	-	T7316747H6	-	-	-	-	-	-
7/8	-	14	-	H2	4	-	T7316767H2	-	-	-	-	-	-
7/8	-	14	-	H4	4	T7316766	T7316767	T7316768	T6316766	T6316767	T6316768	T8316767	T8316768
7/8	-	14	-	H6	4	-	T7316767H6	-	-	-	-	-	-
1	8	-	-	H1	4	-	T7316787H1	T7316788H1	-	-	-	-	-
1	8	-	-	H2	4	-	T7316787H2	-	-	-	-	-	-
1	8	-	-	H4	4	T7316786	T7316787	T7316788	T6316786	T6316787	T6316788	T8316787	T8316788
1	8	-	-	H6	4	-	T7316787H6	-	-	-	-	-	-
1	-	12	-	H4	4	T7316806	T7316807	T7316808	T6316806	T6316807	T6316808	T8316807	T8316808
1	-	-	14	H2	4	-	T7316817H2	-	-	-	-	-	-
1	-	-	14	H4	4	T7316816	T7316817	T7316818	-	-	-	T8316817	T8316818
1-1/8	7	-	-	H4	4	T7316826	T7316827	T7316828	-	-	-	T8316827	T8316828
1-1/8	-	12	-	H4	4	T7316846	T7316847	T7316848	-	-	-	T8316847	T8316848
1-1/4	7	-	-	H4	4	T7316866	T7316867	T7316868	-	-	-	T8316867	T8316868
1-1/4	-	12	-	H4	6	T7316886	T7316887	T7316888	-	-	-	T8316887	T8316888
1-3/8	6	-	-	H4	4	T7316906	T7316907	T7316908	-	-	-	T8316907	T8316908
1-3/8	-	12	-	H4	6	T7316926	T7316927	T7316928	-	-	-	T8316927	T8316928
1-1/2	6	-	-	H4	4	T7316946	T7316947	T7316948	-	-	-	T8316947	T8316948
1-1/2	-	12	-	H4	6	T7316966	T7316967	T7316968	-	-	-	T8316967	T8316968

▶Refer to technical data on page 62~66.

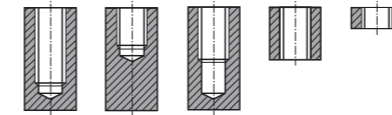
# Taps



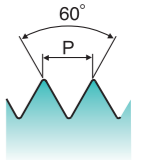
## T7315/T6315 T8315 SERIES

## METRIC HAND TAP TAPER, PLUG & BOTTOMING STYLE

Thread Depth / Hole Type 2.0xD



USCTI



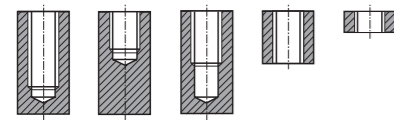
SIZE	Pitch	Limit	No. of Flute	EDP No.							
				Bright			Steam Oxide			TiN	
				Taper	Plug	Bottoming	Taper	Plug	Bottoming	Plug	Bottoming
M1.6	0.35	D3	3	-	T7315097	-	-	-	-	-	-
M2	0.40	D3	3	-	T7315137	T7315138	-	T6315137	T6315138	T8315137	T8315138
M2.5	0.45	D3	3	-	T7315177	T7315178	-	T6315177	T6315178	T8315177	T8315178
M3	0.50	D3	3	T7315206	T7315207	T7315208	T6315206	T6315207	T6315208	T8315207	T8315208
M3.5	0.60	D4	3	-	T7315227	T7315228	-	-	-	-	-
M4	0.70	D4	4	T7315246	T7315247	T7315248	T6315246	T6315247	T6315248	T8315247	T8315248
M4.5	0.75	D4	4	-	T7315267	T7315268	-	T6315267	T6315268	T8315267	T8315268
M5	0.80	D4	4	T7315286	T7315287	T7315288	T6315286	T6315287	T6315288	T8315287	T8315288
M6	1.00	D5	4	T7315316	T7315317	T7315318	T6315316	T6315317	T6315318	T8315317	T8315318
M7	1.00	D5	4	-	T7315347	T7315348	-	T6315347	T6315348	T8315347	T8315348
M8	1.25	D5	4	T7315366	T7315367	T7315368	T6315366	T6315367	T6315368	T8315367	T8315368
M8	1.00	D5	4	-	T7315377	T7315378	-	T6315377	T6315378	T8315377	T8315378
M10	1.00	D5	4	-	T7315447	T7315448	-	-	-	-	-
M10	1.50	D6	4	T7315426	T7315427	T7315428	T6315426	T6315427	T6315428	T8315427	T8315428
M10	1.25	D5	4	T7315436	T7315437	T7315438	T6315436	T6315437	T6315438	T8315437	T8315438
M12	1.50	D6	4	-	T7315517	T7315518	-	-	-	-	-
M12	1.75	D6	4	T7315506	T7315507	T7315508	T6315506	T6315507	T6315508	T8315507	T8315508
M12	1.25	D5	4	T7315526	T7315527	T7315528	T6315526	T6315527	T6315528	T8315527	T8315528
M14	2.00	D7	4	T7315546	T7315547	T7315548	T6315546	T6315547	T6315548	T8315547	T8315548
M14	1.50	D6	4	-	T7315557	T7315558	-	-	-	-	-
M14	1.25	D5	4	-	T7315567	T7315568	-	-	-	-	-
M16	2.00	D7	4	T7315606	T7315607	T7315608	T6315606	T6315607	T6315608	T8315607	T8315608
M16	1.50	D6	4	T7315616	T7315617	T7315618	T6315616	T6315617	T6315618	T8315617	T8315618
M18	2.50	D7	4	-	T7315657	T7315658	-	-	-	-	-
M18	1.50	D6	4	T7315676	T7315677	T7315678	T6315676	T6315677	T6315678	T8315677	T8315678
M20	2.50	D7	4	T7315706	T7315707	T7315708	T6315706	T6315707	T6315708	T8315707	T8315708
M20	1.50	D6	4	T7315726	T7315727	T7315728	T6315726	T6315727	T6315728	T8315727	T8315728
M24	3.00	D8	4	T7315786	T7315787	T7315788	T6315786	T6315787	T6315788	T8315787	T8315788
M30	3.50	D9	4	T7315946	T7315947	T7315948	T6315946	T6315947	T6315948	-	-
M36	4.00	D9	4	-	T7315B37	T7315B38	-	-	-	-	-

▶Refer to technical data on page 62~66.

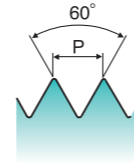
# Taps



Thread Depth / Hole Type 2.0×D



USCTI



## T7326 SERIES

### HAND TAP Oversize Tap

Material groups: **GS** HSS **UNC UNF** **USCTI 302** **5P/2P** **Bright** **+0.005" oversize**

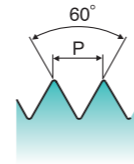
SIZE	Thread Per Inch		No. of Flute	EDP No.	
	UNC	UNF		Bright	
				Plug	Bottoming
#6	32	-	3	T7326247	-
#8	32	-	4	T7326287	-
#10	24	-	4	T7326327	-
#10	-	32	4	T7326347	-
1/4	20	-	4	T7326407	T7326408
1/4	-	28	4	T7326427	-
5/16	18	-	4	T7326447	T7326448
5/16	-	24	4	T7326467	-
3/8	16	-	4	T7326487	T7326488
3/8	-	24	4	T7326507	-
7/16	14	-	4	T7326527	-
1/2	13	-	4	T7326567	-
1/2	-	20	4	T7326587	-
5/8	11	-	4	T7326647	-
3/4	10	-	4	T7326707	-

Refer to technical data on page 62-66.

## T7B15 SERIES

### METRIC HAND TAP Oversize Tap

Material groups: **GS** HSS **M MF** **USCTI 302** **5P/2P** **Bright** **+127mm oversize**



SIZE	Pitch	No. of Flute	EDP No.	
			Bright	
			Plug	Bottoming
M4	0.70	4	T7B15247	T7B15248
M4.5	0.75	4	T7B15267	T7B15268
M5	0.80	4	T7B15287	T7B15288
M6	1.00	4	T7B15317	T7B15318
M7	1.00	4	T7B15347	T7B15348
M8	1.25	4	T7B15367	T7B15368
M8	1.00	4	T7B15377	T7B15378
M10	1.50	4	T7B15427	T7B15428
M10	1.25	4	T7B15437	T7B15438
M12	1.75	4	T7B15507	T7B15508
M12	1.25	4	T7B15527	T7B15528
M16	2.00	4	T7B15607	T7B15608
M20	2.50	4	T7B15707	T7B15708
M24	3.00	4	T7B15787	T7B15788

Refer to technical data on page 62-66.

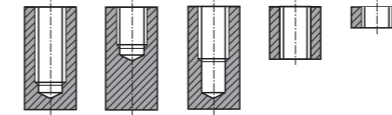
# Taps



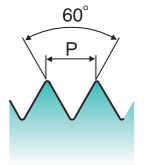
## T7336 SERIES

### LEFT HAND TAP

Thread Depth / Hole Type 2.0×D



USCTI



Material groups: **GS** HSS **UNC UNF** **USCTI 302** **5P/2P** **Bright**

SIZE	Thread Per Inch		Limit	No. of Flute	EDP No.	
	UNC	UNF			Bright	
					Plug	Bottoming
#6	32	-	H3	3	T7336247	T7336248
#6	-	40	H2	3	T7336267	T7336268
#8	32	-	H3	4	T7336287	T7336288
#8	-	36	H2	4	T7336307	T7336308
#10	24	-	H3	4	T7336327	T7336328
#10	-	32	H3	4	T7336347	T7336348
1/4	20	-	H3	4	T7336407	T7336408
1/4	-	28	H3	4	T7336427	T7336428
5/16	18	-	H3	4	T7336447	T7336448
5/16	-	24	H3	4	T7336467	T7336468
3/8	16	-	H3	4	T7336487	T7336488
3/8	-	24	H3	4	T7336507	T7336508
7/16	14	-	H3	4	T7336527	T7336528
7/16	-	20	H3	4	T7336547	T7336548
1/2	13	-	H3	4	T7336567	T7336568
1/2	-	20	H3	4	T7336587	T7336588
9/16	12	-	H3	4	T7336607	T7336608
9/16	-	18	H3	4	T7336627	T7336628
5/8	11	-	H3	4	T7336647	T7336648
5/8	-	18	H3	4	T7336667	T7336668
3/4	10	-	H3	4	T7336707	T7336708
3/4	-	16	H3	4	T7336727	T7336728
7/8	9	-	H4	4	T7336747	T7336748
7/8	-	14	H4	4	T7336767	T7336768
1	8	-	H4	4	T7336787	T7336788
1	-	12	H4	4	T7336807	T7336808

Refer to technical data on page 62-66.



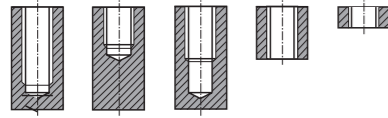
# Taps



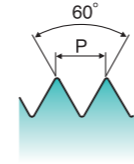
## T7A15 SERIES

## METRIC LEFT HAND TAP

Thread Depth / Hole Type 2.0×D



USCTI



Material groups: **GS** HSS UNC UNF USCTI 302 5P/2P Bright

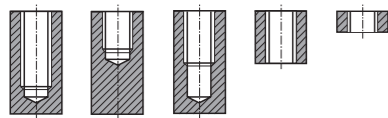
SIZE	Pitch	Limit	No. of Flute	EDP No.	
				Bright	Bright
M3.5	0.6	D4	3	Plug T7A15227	Bottoming T7A15228
M4	0.7	D4	4	T7A15247	T7A15248
M4.5	0.75	D4	4	T7A15267	T7A15268
M5	0.8	D4	4	T7A15287	T7A15288
M6	1.0	D5	4	T7A15317	T7A15318
M7	1.0	D5	4	T7A15347	T7A15348
M8	1.25	D5	4	T7A15367	T7A15368
M8	1.0	D5	4	T7A15377	T7A15378
M10	1.5	D6	4	T7A15427	T7A15428
M10	1.25	D5	4	T7A15437	T7A15438
M12	1.75	D6	4	T7A15507	T7A15508
M12	1.25	D5	4	T7A15527	T7A15528
M14	2.0	D7	4	T7A15547	T7A15548
M14	1.5	D6	4	T7A15557	T7A15558
M16	2.0	D7	4	T7A15607	T7A15608
M16	1.5	D6	4	T7A15617	T7A15618
M18	2.5	D7	4	T7A15657	T7A15658
M18	1.5	D6	4	T7A15677	T7A15678
M20	2.5	D7	4	T7A15707	T7A15708
M20	1.5	D6	4	T7A15727	T7A15728
M22	2.5	D7	4	T7A15747	T7A15748
M22	1.5	D6	4	T7A15767	T7A15768
M24	3.0	D8	4	T7A15787	T7A15788
M24	2.0	D7	4	T7A15797	T7A15798

Refer to technical data on page 62-66.

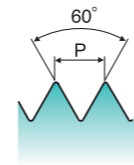
## T7616/T6616 T8616 SERIES

## STRAIGHT FLUTE PULLEY TAPS, 6" LONG LENGTH PLUG STYLE

Thread Depth / Hole Type 2.0×D



ANSI Pulley Tap (ASME B94.9)



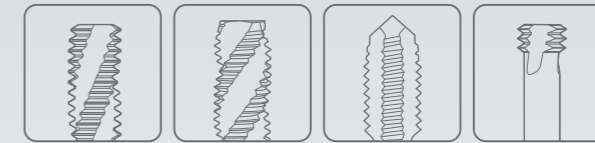
Material groups: **GS** HSS UNC UNF USCTI 4P~5P Bright Steam Oxide TIN

SIZE	UNC	Overall Length	Limit	No. of Flute	EDP No.		
					Bright	Steam Oxide	TIN
1/4	20	6	H3	4	T7616403	T6616403	T8616403
5/16	18	6	H3	4	T7616443	T6616443	T8616443
3/8	16	6	H3	4	T7616483	T6616483	T8616483
7/16	14	6	H3	4	T7616523	T6616523	T8616523
1/2	13	6	H3	4	T7616563	T6616563	T8616563
5/8	11	6	H3	4	T7616643	T6616643	T8616643

Refer to technical data on page 62-66.



Global Cutting Tool Leader **YG-1**

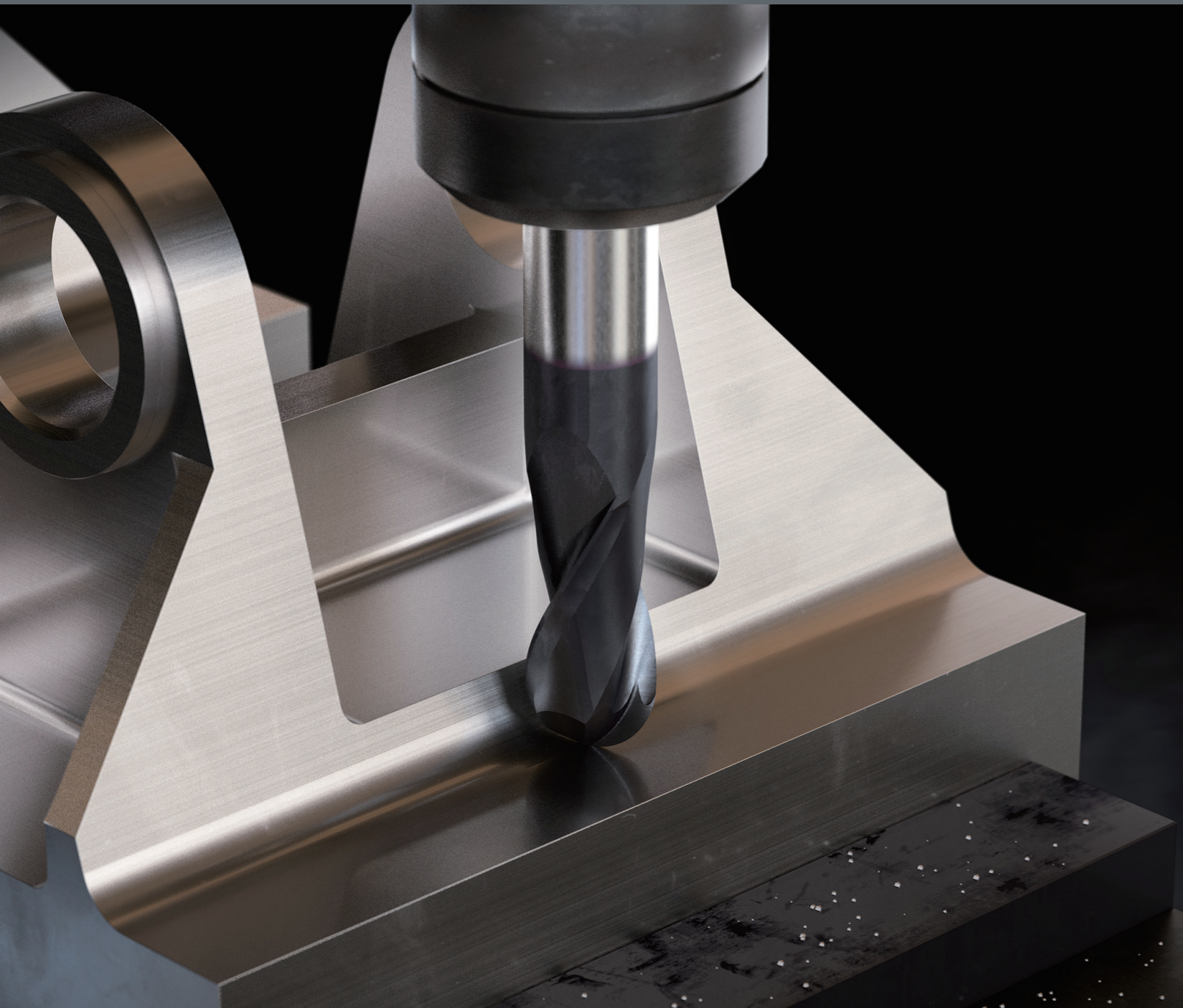


# MILLING



# SOLID CARBIDE YGBasiX END MILLS

- X-Coated & Uncoated
- For General Purpose
- Variety of Types & Diameters



## YGBasiX END MILLS



### SELECTION GUIDE

## SOLID CARBIDE YGBasiX END MILLS

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### INCH

SERIES	G9H80 E5H80	G9H81 E5H81	G9H85 E5H85	G9H87 E5H87
FLUTE	2	2	2	2
HELIX ANGLE	30°	30°	30°	30°
CUTTING EDGE SHAPE	SQUARE	SQUARE	SQUARE	SQUARE
SIZE MIN	D1/32	D1/32	D1/64	D1/8
SIZE MAX	D3/4	D1/2	D1	D1/2
PAGE	97	98	99	100
LENGTH	STUB	STUB DOUBLE	REGULAR	REGULAR DOUBLE



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[globalyg1.com/mat](http://globalyg1.com/mat)  
for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : P.134-163

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRC	G9H80 E5H80	G9H81 E5H81	G9H85 E5H85	G9H87 E5H87
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎	◎	◎	◎
	2		About 0.45% C Annealed	190	13	◎	◎	◎	◎
	3		About 0.45% C Quenched & Tempered	250	25	◎	◎	◎	◎
	4		About 0.75% C Annealed	270	28	◎	◎	◎	◎
	5		About 0.75% C Quenched & Tempered	300	32	◎	◎	◎	◎
	6	Low alloy steel	Annealed	180	10	◎	◎	◎	◎
	7		Quenched & Tempered	275	29	◎	◎	◎	◎
	8		Quenched & Tempered	300	32	◎	◎	◎	◎
	9		Quenched & Tempered	350	38	◎	◎	◎	◎
	10		High alloyed steel, and tool steel	Annealed	200	15	◎	◎	◎
	11	Quenched & Tempered		325	35	◎	◎	◎	◎
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15				
	13		Martensitic Quenched & Tempered	240	23				
	14	Austenitic	180	10	○	○	○	○	
K	15	Grey cast iron	Pearlitic / ferritic	180	10	○	○	○	○
	16		Pearlitic (Martensitic)	260	26	○	○	○	○
	17	Nodular cast iron	Ferritic	160	3	○	○	○	○
	18		Pearlitic	250	25	○	○	○	○
	19	Malleable cast iron	Ferritic	130		○	○	○	○
	20		Pearlitic	230	21	○	○	○	○
N	21	Aluminum- wrought alloy	Not Curable	60		○	○	○	○
	22		Curable Hardened	100		○	○	○	○
	23	Aluminum- cast, alloyed	≤ 12% Si, Not Curable	75		○	○	○	○
	24		≤ 12% Si, Curable Hardened	90		○	○	○	○
	25		> 12% Si, Not Curable	130		○	○	○	○
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110		○	○	○	○
	27		CuZn, CuSnZn (Brass)	90		○	○	○	○
	28		CuSn, lead-free copper and electrolytic copper	100		○	○	○	○
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic			○	○	○	○
	30		Rubber, Wood, etc.						
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15			
	32			Cured	280	30			
	33		Annealed	250	25				
	34		Cured	350	38				
	35	Titanium Alloys	Ni or Co Based	Cast	320	34			
	36			Pure Titanium	400 Rm				
	37			Alpha + Beta Alloys	Hardened	1050 Rm			
H	38	Hardened steel		Hardened	550	55			
	39			Hardened	630	60			
	40	Hardened Cast Iron		Cast	400	42			
	41			Hardened	550	55			

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# YGBasiX END MILLS



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## INCH



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◎ : Excellent ○ : Good

Recommended cutting conditions : P.134-163

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRC	G9H91 E5H91	G9H93 E5H93	G9H82 E5H82	G9I10 E5I10
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎	◎	◎	◎
	2		About 0.45% C Annealed	190	13	◎	◎	◎	◎
	3		About 0.45% C Quenched & Tempered	250	25	◎	◎	◎	◎
	4		About 0.75% C Annealed	270	28	◎	◎	◎	◎
	5		About 0.75% C Quenched & Tempered	300	32	◎	◎	◎	◎
	6	Low alloy steel	Annealed	180	10	◎	◎	◎	◎
	7		Quenched & Tempered	275	29	◎	◎	◎	◎
	8		Quenched & Tempered	300	32	◎	◎	◎	◎
	9		Quenched & Tempered	350	38	◎	◎	◎	◎
	10		High alloyed steel, and tool steel	Annealed	200	15	◎	◎	◎
	11	Quenched & Tempered		325	35	◎	◎	◎	◎
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15				
	13		Martensitic Quenched & Tempered	240	23				
	14	Austenitic	180	10	○	○	○	○	
K	15	Grey cast iron	Pearlitic / ferritic	180	10	○	○	○	○
	16		Pearlitic (Martensitic)	260	26	○	○	○	○
	17	Nodular cast iron	Ferritic	160	3	○	○	○	○
	18		Pearlitic	250	25	○	○	○	○
	19		Ferritic	130		○	○	○	○
20	Malleable cast iron	Pearlitic	230	21	○	○	○	○	
N	21	Aluminum-wrought alloy	Not Curable	60		○	○	○	○
	22		Curable Hardened	100		○	○	○	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		○	○	○	○
	24		≤ 12% Si, Curable Hardened	90		○	○	○	○
	25		> 12% Si, Not Curable	130		○	○	○	○
	26		Cutting Alloys, PB>1%	110		○	○	○	○
	27	Copper and Copper Alloys (Bronze / Brass)	CuZn, CuSnZn (Brass)	90		○	○	○	○
	28		CuSn, lead-free copper and electrolytic copper	100		○	○	○	○
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic			○	○	○	○
	30		Rubber, Wood, etc.						
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15			
	32			Cured	280	30			
	33		Ni or Co Based	Annealed	250	25			
	34			Cured	350	38			
	35	Titanium Alloys	Pure Titanium	Cast	320	34			
	36			400 Rm					
37	Alpha + Beta Alloys	Hardened	1050 Rm						
H	38	Hardened steel		Hardened	550	55			
	39			Hardened	630	60			
	40	Chilled Cast Iron	Cast	400	42				
	41	Hardened Cast Iron	Hardened	550	55				

# YGBasiX END MILLS



G9H83 E5H83	G9H84 E5H84	G9H88 E5H88	G9H90 E5H90	G9H92 E5H92	G9H94 E5H94	G9H96 E5H96	G9H97 E5H97	G9H98 E5H98	G9I02 E5I02	G9I04 E5I04	G9I07 E5I07
4	4	4	4	4	4	2	4	2	2	2	2
30°	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°
SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	CORNER RADIUS	CORNER RADIUS	BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE
D1/64	D1/32	D1/64	D1/8	D1/8	D1/8	D1/8	D1/8	R1/64	R.0078	R1/16	R1/16
D1	D1/2	D1-1/4	D1/2	D1	D1	D3/4	D1	R1/4	R1/2	R1/4	R1/2
105	106	107	109	110	111	112	114	116	117	118	119
STUB	STUB DOUBLE	REGULAR	REGULAR DOUBLE	LONG	EXTRA LONG	REGULAR	REGULAR	STUB DOUBLE	REGULAR	REGULAR DOUBLE	LONG



# YGBasiX END MILLS



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## INCH

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◎ : Excellent ○ : Good

Recommended cutting conditions: P. 134-163

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRC	G9152 E5152	G9153 E5153	G9154 E5154	G9155 E5155	G9156 E5156	G9157 E5157	
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎	◎	◎	◎	◎	◎	
	2		About 0.45% C Annealed	190	13	◎	◎	◎	◎	◎	◎	
	3		About 0.45% C Quenched & Tempered	250	25	◎	◎	◎	◎	◎	◎	
	4		About 0.75% C Annealed	270	28	◎	◎	◎	◎	◎	◎	
	5	Low alloy steel	About 0.75% C Quenched & Tempered	300	32	◎	◎	◎	◎	◎	◎	
	6		Annealed	180	10	◎	◎	◎	◎	◎	◎	
	7		Quenched & Tempered	275	29	◎	◎	◎	◎	◎	◎	
	8		Quenched & Tempered	300	32	◎	◎	◎	◎	◎	◎	
	9		Quenched & Tempered	350	38	◎	◎	◎	◎	◎	◎	
	10		High alloyed steel, and tool steel	Annealed	200	15	◎	◎	◎	◎	◎	◎
	11	Quenched & Tempered		325	35	◎	◎	◎	◎	◎	◎	
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15							
	13		Martensitic Quenched & Tempered	240	23							
	14	Austenitic	180	10	○	○	○	○	○	○	○	
K	15	Grey cast iron	Pearlitic / ferritic	180	10	○	○	○	○	○	○	
	16		Pearlitic (Martensitic)	260	26	○	○	○	○	○	○	
	17	Nodular cast iron	Ferritic	160	3	○	○	○	○	○	○	
	18		Pearlitic	250	25	○	○	○	○	○	○	
	19		Ferritic	130		○	○	○	○	○	○	
20	Malleable cast iron	Pearlitic	230	21	○	○	○	○	○	○		
N	21	Aluminum-wrought alloy	Not Curable	60		○	○	○	○	○	○	
	22		Curable Hardened	100		○	○	○	○	○	○	
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		○	○	○	○	○	○	
	24		≤ 12% Si, Curable Hardened	90		○	○	○	○	○	○	
	25		> 12% Si, Not Curable	130		○	○	○	○	○	○	
	26		Cutting Alloys, PB>1%	110								
	27		Copper and Copper Alloys (Bronze / Brass)	CuZn, CuSnZn (Brass)	90							
	28			CuSn, lead-free copper and electrolytic copper	100							
	29		Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic								
	30			Rubber, Wood, etc.								
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15						
	32			Cured	280	30						
	33		Ni or Co Based	Annealed	250	25						
	34			Cured	350	38						
	35			Cast	320	34						
	36	Titanium Alloys	Pure Titanium	400 Rm								
37	Alpha + Beta Alloys Hardened		1050 Rm									
H	38	Hardened steel		Hardened	550	55						
	39			Hardened	630	60						
	40	Chilled Cast Iron	Cast	400	42							
	41	Hardened Cast Iron	Hardened	550	55							

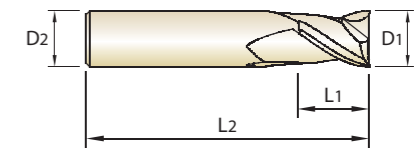
# YGBasiX END MILLS



X-Coated **G9H80** SERIES  
Uncoated **E5H80** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
2 FLUTE SQUARE STUB LENGTH

- Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.



Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9H80002N	E5H80002	1/32	1/8	1/16	1-1/2
G9H80003N	E5H80003	3/64	1/8	3/32	1-1/2
G9H80004N	E5H80004	1/16	1/8	1/8	1-1/2
G9H80005N	E5H80005	5/64	1/8	5/32	1-1/2
G9H80006N	E5H80006	3/32	1/8	3/16	1-1/2
G9H80007N	E5H80007	7/64	1/8	7/32	1-1/2
G9H80008N	E5H80008	1/8	1/8	1/4	1-1/2
G9H80009N	E5H80009	9/64	3/16	9/32	2
G9H80010N	E5H80010	5/32	3/16	5/16	2
G9H80011N	E5H80011	11/64	3/16	5/16	2
G9H80012N	E5H80012	3/16	3/16	3/8	2
G9H80013N	E5H80013	13/64	1/4	3/8	2
G9H80014N	E5H80014	7/32	1/4	7/16	2
G9H80015N	E5H80015	15/64	1/4	7/16	2
G9H80016N	E5H80016	1/4	1/4	1/2	2
G9H80018N	E5H80018	9/32	5/16	1/2	2
G9H80020N	E5H80020	5/16	5/16	1/2	2
G9H80024N	E5H80024	3/8	3/8	5/8	2
G9H80028N	E5H80028	7/16	7/16	5/8	2-1/2
G9H80032N	E5H80032	1/2	1/2	5/8	2-1/2
G9H80040N	E5H80040	5/8	5/8	3/4	3
G9H80048N	E5H80048	3/4	3/4	1	3

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
+0/-0.0012	+0/-0.0005

\*Only Coated Tools in this series are recommended for stainless steel machining

# YGBasiX END MILLS



X-Coated **G9H81** SERIES  
Uncoated **E5H81** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
**2 FLUTE SQUARE STUB LENGTH DOUBLE**

- Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.
- Same construction features as single end mill in a more economical version



Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9H81002N	E5H81002	1/32	1/8	1/16	1-1/2
G9H81003N	E5H81003	3/64	1/8	3/32	1-1/2
G9H81004N	E5H81004	1/16	1/8	1/8	1-1/2
G9H81005N	E5H81005	5/64	1/8	1/8	1-1/2
G9H81006N	E5H81006	3/32	1/8	3/16	1-1/2
G9H81007N	E5H81007	7/64	1/8	3/16	1-1/2
G9H81008N	E5H81008	1/8	1/8	1/4	1-1/2
G9H81009N	E5H81009	9/64	3/16	5/16	2
G9H81010N	E5H81010	5/32	3/16	5/16	2
G9H81011N	E5H81011	11/64	3/16	5/16	2
G9H81012N	E5H81012	3/16	3/16	3/8	2
G9H81013N	E5H81013	13/64	1/4	1/2	2-1/2
G9H81014N	E5H81014	7/32	1/4	1/2	2-1/2
G9H81015N	E5H81015	15/64	1/4	1/2	2-1/2
G9H81016N	E5H81016	1/4	1/4	1/2	2-1/2
G9H81017N	E5H81017	17/64	5/16	1/2	2-1/2
G9H81018N	E5H81018	9/32	5/16	1/2	2-1/2
G9H81019N	E5H81019	19/64	5/16	1/2	2-1/2
G9H81020N	E5H81020	5/16	5/16	1/2	2-1/2
G9H81022N	E5H81022	11/32	3/8	9/16	2-1/2
G9H81024N	E5H81024	3/8	3/8	9/16	2-1/2
G9H81028N	E5H81028	7/16	7/16	9/16	2-3/4
G9H81032N	E5H81032	1/2	1/2	5/8	3

Mill Dia. Tolerance (inch)	
D1=D2	+0/-0.002
D1≠D2	+0/-0.0012

\*Only Coated Tools in this series are recommended for stainless steel machining

# YGBasiX END MILLS



X-Coated **G9H85** SERIES  
Uncoated **E5H85** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
**2 FLUTE SQUARE REGULAR LENGTH**

- Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.



Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9H85001N	E5H85001	1/64	1/8	3/64	1-1/2
G9H85002N	E5H85002	1/32	1/8	5/64	1-1/2
G9H85003N	E5H85003	3/64	1/8	7/64	1-1/2
G9H85004N	E5H85004	1/16	1/8	3/16	1-1/2
G9H85005N	E5H85005	5/64	1/8	3/16	1-1/2
G9H85006N	E5H85006	3/32	1/8	3/8	1-1/2
G9H85007N	E5H85007	7/64	1/8	3/8	1-1/2
G9H85008N	E5H85008	1/8	1/8	1/2	1-1/2
G9H85009N	E5H85009	9/64	3/16	1/2	2
G9H85010N	E5H85010	5/32	3/16	9/16	2
G9H85011N	E5H85011	11/64	3/16	9/16	2
G9H85012N	E5H85012	3/16	3/16	5/8	2
G9H85013N	E5H85013	13/64	1/4	5/8	2-1/2
G9H85014N	E5H85014	7/32	1/4	5/8	2-1/2
G9H85015N	E5H85015	15/64	1/4	3/4	2-1/2
G9H85016N	E5H85016	1/4	1/4	3/4	2-1/2
G9H85017N	E5H85017	17/64	5/16	3/4	2-1/2
G9H85018N	E5H85018	9/32	5/16	3/4	2-1/2
G9H85019N	E5H85019	19/64	5/16	13/16	2-1/2
G9H85020N	E5H85020	5/16	5/16	13/16	2-1/2
G9H85021N	E5H85021	21/64	3/8	1	2-1/2
G9H85022N	E5H85022	11/32	3/8	1	2-1/2
G9H85023N	E5H85023	23/64	3/8	1	2-1/2
G9H85024N	E5H85024	3/8	3/8	1	2-1/2
G9H85025N	E5H85025	25/64	7/16	1	2-3/4
G9H85026N	E5H85026	13/32	7/16	1	2-3/4
G9H85027N	E5H85027	27/64	7/16	1	2-3/4
G9H85028N	E5H85028	7/16	7/16	1	2-3/4
G9H85029N	E5H85029	29/64	1/2	1	3
G9H85030N	E5H85030	15/32	1/2	1	3
G9H85031N	E5H85031	31/64	1/2	1	3
G9H85032N	E5H85032	1/2	1/2	1	3
G9H85033N	E5H85033	33/64	9/16	1-1/4	3-1/2
G9H85034N	E5H85034	17/32	9/16	1-1/4	3-1/2
G9H85036N	E5H85036	9/16	9/16	1-1/4	3-1/2
G9H85040N	E5H85040	5/8	5/8	1-1/4	3-1/2
G9H85044N	E5H85044	11/16	3/4	1-1/2	4
G9H85048N	E5H85048	3/4	3/4	1-1/2	4
G9H85056N	E5H85056	7/8	7/8	1-1/2	4
G9H85064N	E5H85064	1	1	1-1/2	4

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
+0/-0.012	+0/-0.0005

\*Only Coated Tools in this series are recommended for stainless steel machining

# YGBasiX END MILLS

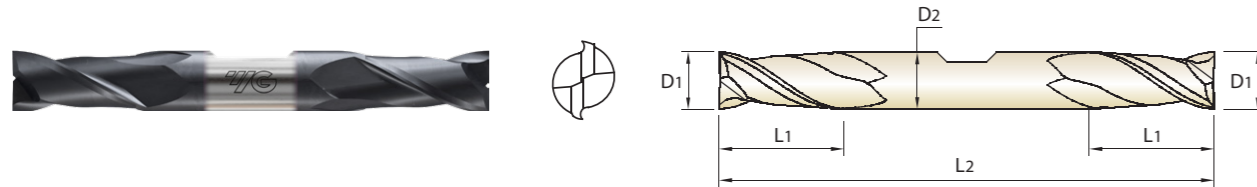


X-Coated **G9H87** SERIES

Uncoated **E5H87** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
2 FLUTE SQUARE REGULAR LENGTH DOUBLE

- Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.
- Same construction features as single end mill in a more economical version



Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut		Overall Length
X-Coated	Uncoated	D1	D2	L1	L2	
G9H87008N	E5H87008	1/8	3/8	3/8		3
G9H87010N	E5H87010	5/32	3/8	7/16		3
G9H87012N	E5H87012	3/16	3/8	1/2		3
G9H87014N	E5H87014	7/32	3/8	9/16		3-1/2
G9H87016N	E5H87016	1/4	3/8	5/8		3-1/2
G9H87018N	E5H87018	9/32	3/8	11/16		3-1/2
G9H87020N	E5H87020	5/16	3/8	3/4		3-1/2
G9H87022N	E5H87022	11/32	3/8	3/4		3-1/2
G9H87024N	E5H87024	3/8	3/8	3/4		3-1/2
G9H87028N	E5H87028	7/16	1/2	7/8		4
G9H87032N	E5H87032	1/2	1/2	1		4

Mill Dia. Tolerance (inch)	
D1=D2	+0/-0.002
D1≠D2	+0/-0.0012

\*Only Coated Tools in this series are recommended for stainless steel machining

# YGBasiX END MILLS



X-Coated **G9H91** SERIES

Uncoated **E5H91** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
2 FLUTE SQUARE LONG LENGTH

- Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.



Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut		Overall Length
X-Coated	Uncoated	D1	D2	L1	L2	
G9H91008N	E5H91008	1/8	1/8	3/4		2-1/4
G9H91010N	E5H91010	5/32	3/16	3/4		2-1/2
G9H91012N	E5H91012	3/16	3/16	3/4		2-1/2
G9H91016N	E5H91016	1/4	1/4	1-1/8		3
G9H91020N	E5H91020	5/16	5/16	1-1/8		3
G9H91024N	E5H91024	3/8	3/8	1-1/8		3
G9H91028N	E5H91028	7/16	7/16	2		4
G9H91032N	E5H91032	1/2	1/2	2		4
G9H91040N	E5H91040	5/8	5/8	2-1/4		5
G9H91048N	E5H91048	3/4	3/4	2-1/4		5
G9H91064N	E5H91064	1	1	2-1/4		5

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
+0/-0.0012	+0/-0.0005

\*Only Coated Tools in this series are recommended for stainless steel machining

# YGBasiX END MILLS



X-Coated **G9H93** SERIES

Uncoated **E5H93** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
2 FLUTE SQUARE EXTRA LONG LENGTH

- Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.



Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut		Overall Length
X-Coated	Uncoated	D1	D2	L1	L2	
G9H93008N	E5H93008	1/8	1/8	1		3
G9H93010N	E5H93010	5/32	3/16	1-1/8		3
G9H93011N	E5H93011	3/16	3/16	1		4
G9H93012N	E5H93012	3/16	3/16	1-1/8		3
G9H93016N	E5H93016	1/4	1/4	1-1/2		4
G9H9302N	E5H9302	1/4	1/4	1-1/2		6
G9H9303N	E5H9303	5/16	5/16	1-1/2		6
G9H93020N	E5H93020	5/16	5/16	1-5/8		4
G9H9304N	E5H9304	3/8	3/8	1-1/2		6
G9H93024N	E5H93024	3/8	3/8	1-3/4		4
G9H93028N	E5H93028	7/16	7/16	3		6
G9H9305N	E5H9305	1/2	1/2	1-1/2		6
G9H93032N	E5H93032	1/2	1/2	3		6
G9H93040N	E5H93040	5/8	5/8	3		6
G9H9306N	E5H9306	3/4	3/4	1-1/2		6
G9H93048N	E5H93048	3/4	3/4	3		6
G9H9307N	E5H9307	3/4	3/4	4		7
G9H93064N	E5H93064	1	1	1-1/2		6
G9H9308N	E5H9308	1	1	3		6
G9H9309N	E5H9309	1	1	4		7

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
+0/-0.0012	+0/-0.0005

\*Only Coated Tools in this series are recommended for stainless steel machining

# YGBasiX END MILLS

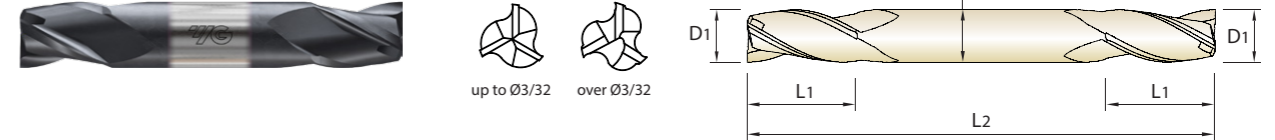


X-Coated **G9H82** SERIES

Uncoated **E5H82** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
3 FLUTE SQUARE STUB LENGTH DOUBLE

- Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.
- Same construction features as single end mill in a more economical version



Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut		Overall Length
X-Coated	Uncoated	D1	D2	L1	L2	
G9H82002N	E5H82002	1/32	1/8	1/16		1-1/2
G9H82003N	E5H82003	3/64	1/8	3/32		1-1/2
G9H82004N	E5H82004	1/16	1/8	1/8		1-1/2
G9H82006N	E5H82006	3/32	1/8	3/16		1-1/2
G9H82008N	E5H82008	1/8	1/8	1/4		1-1/2
G9H82010N	E5H82010	5/32	3/16	5/16		2
G9H82012N	E5H82012	3/16	3/16	3/8		2
G9H82014N	E5H82014	7/32	1/4	1/2		2-1/2
G9H82016N	E5H82016	1/4	1/4	1/2		2-1/2
G9H82020N	E5H82020	5/16	5/16	1/2		2-1/2
G9H82024N	E5H82024	3/8	3/8	9/16		2-1/2
G9H82028N	E5H82028	7/16	7/16	9/16		2-3/4
G9H82032N	E5H82032	1/2	1/2	5/8		3

Mill Dia. Tolerance (inch)	
D1=D2	+0/-0.002
D1≠D2	+0/-0.0012



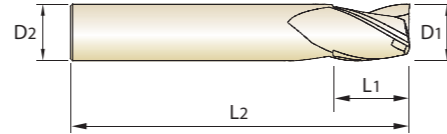
# YGBasiX END MILLS



X-Coated **G9110** SERIES  
Uncoated **E5110** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
**3 FLUTE SQUARE REGULAR LENGTH**

► Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.



Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9110002N	E5110002	1/32	1/8	1/8	1-1/2
G9110003N	E5110003	3/64	1/8	1/8	1-1/2
G9110004N	E5110004	1/16	1/8	1/4	1-1/2
G9110005N	E5110005	5/64	1/8	1/4	1-1/2
G9110006N	E5110006	3/32	1/8	3/8	1-1/2
G9110007N	E5110007	7/64	1/8	3/8	1-1/2
G9110008N	E5110008	1/8	1/8	1/2	1-1/2
G9110010N	E5110010	5/32	3/16	9/16	2
G9110011N	E5110011	11/64	3/16	5/16	2
G9110012N	E5110012	3/16	3/16	5/8	2
G9110013N	E5110013	13/64	1/4	5/8	2-1/2
G9110014N	E5110014	7/32	1/4	5/8	2-1/2
G9110015N	E5110015	15/64	1/4	3/4	2-1/2
G9110016N	E5110016	1/4	1/4	3/4	2-1/2
G9110017N	E5110017	17/64	5/16	3/4	2-1/2
G9110018N	E5110018	9/32	5/16	3/4	2-1/2
G9110019N	E5110019	19/64	5/16	13/16	2-1/2
G9110020N	E5110020	5/16	5/16	13/16	2-1/2
G9110021N	E5110021	21/64	3/8	1	2-1/2
G9110022N	E5110022	11/32	3/8	1	2-1/2
G9110023N	E5110023	23/64	3/8	1	2-1/2
G9110024N	E5110024	3/8	3/8	7/8	2-1/2
G9110901N	E5110901	3/8	3/8	1	2-1/2
G9110025N	E5110025	25/64	7/16	1	2-3/4
G9110026N	E5110026	13/32	7/16	1	2-3/4
G9110028N	E5110028	7/16	7/16	1	2-3/4
G9110032N	E5110032	1/2	1/2	1	3
G9110036N	E5110036	9/16	9/16	1-1/4	3-1/2
G9110040N	E5110040	5/8	5/8	1-1/4	3-1/2
G9110044N	E5110044	11/16	3/4	1-1/2	4
G9110048N	E5110048	3/4	3/4	1-1/2	4
G9110056N	E5110056	7/8	7/8	1-1/2	4
G9110064N	E5110064	1	1	1-1/2	4

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
+0/-0.0012	+0/-0.0005

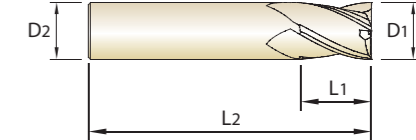
# YGBasiX END MILLS



X-Coated **G9H83** SERIES  
Uncoated **E5H83** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
**4 FLUTE SQUARE STUB LENGTH**

► Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.



Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9H83001N	E5H83001	1/64	1/8	0.046	1-1/2
G9H83002N	E5H83002	1/32	1/8	1/16	1-1/2
G9H83003N	E5H83003	3/64	1/8	3/32	1-1/2
G9H83004N	E5H83004	1/16	1/8	1/8	1-1/2
G9H83005N	E5H83005	5/64	1/8	5/32	1-1/2
G9H83006N	E5H83006	3/32	1/8	3/16	1-1/2
G9H83007N	E5H83007	7/64	1/8	7/32	1-1/2
G9H83008N	E5H83008	1/8	1/8	1/4	1-1/2
G9H83009N	E5H83009	9/64	3/16	9/32	2
G9H83010N	E5H83010	5/32	3/16	5/16	2
G9H83011N	E5H83011	11/64	3/16	5/16	2
G9H83012N	E5H83012	3/16	3/16	3/8	2
G9H83013N	E5H83013	13/64	1/4	3/8	2
G9H83014N	E5H83014	7/32	1/4	7/16	2
G9H83015N	E5H83015	15/64	1/4	7/16	2
G9H83016N	E5H83016	1/4	1/4	1/2	2
G9H83018N	E5H83018	9/32	5/16	1/2	2
G9H83020N	E5H83020	5/16	5/16	1/2	2
G9H83024N	E5H83024	3/8	3/8	5/8	2
G9H83028N	E5H83028	7/16	7/16	5/8	2-1/2
G9H83032N	E5H83032	1/2	1/2	5/8	2-1/2
G9H83040N	E5H83040	5/8	5/8	3/4	3
G9H83048N	E5H83048	3/4	3/4	1	3
G9H83064N	E5H83064	1	1	1	3

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
+0/-0.0012	+0/-0.0005

\*Uncoated Tools in this series are not recommended for slotting in stainless steel.

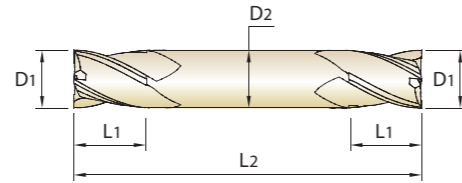
# YGBasiX END MILLS



X-Coated **G9H84** SERIES  
Uncoated **E5H84** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
**4 FLUTE SQUARE STUB LENGTH DOUBLE**

- Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.
- Same construction features as single end mill in a more economical version



Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9H84002N	E5H84002	1/32	1/8	1/16	1-1/2
G9H84003N	E5H84003	3/64	1/8	3/32	1-1/2
G9H84004N	E5H84004	1/16	1/8	1/8	1-1/2
G9H84005N	E5H84005	5/64	1/8	1/8	1-1/2
G9H84006N	E5H84006	3/32	1/8	3/16	1-1/2
G9H84007N	E5H84007	7/64	1/8	3/16	1-1/2
G9H84008N	E5H84008	1/8	1/8	1/4	1-1/2
G9H84009N	E5H84009	9/64	3/16	5/16	2
G9H84010N	E5H84010	5/32	3/16	5/16	2
G9H84011N	E5H84011	11/64	3/16	5/16	2
G9H84012N	E5H84012	3/16	3/16	3/8	2
G9H84013N	E5H84013	13/64	1/4	1/2	2-1/2
G9H84014N	E5H84014	7/32	1/4	1/2	2-1/2
G9H84015N	E5H84015	15/64	1/4	1/2	2-1/2
G9H84016N	E5H84016	1/4	1/4	1/2	2-1/2
G9H84017N	E5H84017	17/64	5/16	1/2	2-1/2
G9H84018N	E5H84018	9/32	5/16	1/2	2-1/2
G9H84019N	E5H84019	19/64	5/16	1/2	2-1/2
G9H84020N	E5H84020	5/16	5/16	1/2	2-1/2
G9H84021N	E5H84021	21/64	3/8	1/2	2-1/2
G9H84022N	E5H84022	11/32	3/8	9/16	2-1/2
G9H84024N	E5H84024	3/8	3/8	9/16	2-1/2
G9H84028N	E5H84028	7/16	7/16	9/16	2-3/4
G9H84032N	E5H84032	1/2	1/2	5/8	3

Mill Dia. Tolerance (inch)	
D1=D2	+0/-0.002
D1≠D2	+0/-0.0012

\*Uncoated Tools in this series are not recommended for slotting in stainless steel.

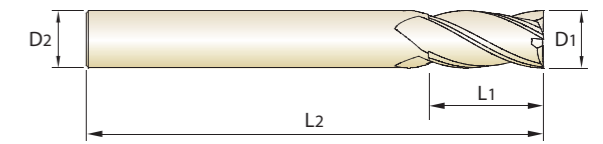
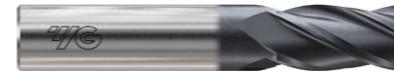
# YGBasiX END MILLS



X-Coated **G9H88** SERIES  
Uncoated **E5H88** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
**4 FLUTE SQUARE REGULAR LENGTH**

- Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.



Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9H88001N	E5H88001	1/64	1/8	3/64	1-1/2
G9H88002N	E5H88002	1/32	1/8	5/64	1-1/2
G9H88901N	E5H88901	1/32	1/8	1/8	1-1/2
G9H88003N	E5H88003	3/64	1/8	1/8	1-1/2
G9H88004N	E5H88004	1/16	1/8	3/16	1-1/2
G9H88902N	E5H88902	1/16	1/8	1/4	1-1/2
G9H88005N	E5H88005	5/64	1/8	3/16	1-1/2
G9H88903N	E5H88903	5/64	1/8	1/4	1-1/2
G9H88006N	E5H88006	3/32	1/8	3/8	1-1/2
G9H88007N	E5H88007	7/64	1/8	3/8	1-1/2
G9H88008N	E5H88008	1/8	1/8	1/2	1-1/2
G9H88009N	E5H88009	9/64	3/16	1/2	2
G9H88904N	E5H88904	9/64	3/16	9/16	2
G9H88010N	E5H88010	5/32	3/16	9/16	2
G9H88011N	E5H88011	11/64	3/16	9/16	2
G9H88905N	E5H88905	11/64	3/16	5/8	2
G9H88012N	E5H88012	3/16	3/16	5/8	2
G9H88013N	E5H88013	13/64	1/4	5/8	2-1/2
G9H88014N	E5H88014	7/32	1/4	5/8	2-1/2
G9H88015N	E5H88015	15/64	1/4	3/4	2-1/2
G9H88016N	E5H88016	1/4	1/4	3/4	2-1/2
G9H88017N	E5H88017	17/64	5/16	3/4	2-1/2
G9H88018N	E5H88018	9/32	5/16	3/4	2-1/2
G9H88019N	E5H88019	19/64	5/16	13/16	2-1/2
G9H88020N	E5H88020	5/16	5/16	13/16	2-1/2
G9H88021N	E5H88021	21/64	3/8	1	2-1/2
G9H88022N	E5H88022	11/32	3/8	1	2-1/2
G9H88023N	E5H88023	23/64	3/8	1	2-1/2
G9H88024N	E5H88024	3/8	3/8	1	2-1/2
G9H88025N	E5H88025	25/64	7/16	1	2-3/4
G9H88026N	E5H88026	13/32	7/16	1	2-3/4
G9H88027N	E5H88027	27/64	7/16	1	2-3/4
G9H88028N	E5H88028	7/16	7/16	1	2-3/4
G9H88029N	E5H88029	29/64	1/2	1	3
G9H88030N	E5H88030	15/32	1/2	1	3
G9H88031N	E5H88031	31/64	1/2	1	3
G9H88032N	E5H88032	1/2	1/2	1	3
G9H88906N	E5H88906	1/2	1/2	1-1/4	3
G9H88033N	E5H88033	33/64	9/16	1-1/4	3-1/2
G9H88034N	E5H88034	17/32	9/16	1-1/4	3-1/2
G9H88036N	E5H88036	9/16	9/16	1-1/4	3-1/2

# YGBasiX END MILLS



Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9H88038N	E5H88038	19/32	5/8	1-1/4	3-1/2
G9H88040N	E5H88040	5/8	5/8	1-1/4	3-1/2
G9H88041N	E5H88041	41/64	3/4	1-1/2	4
G9H88042N	E5H88042	21/32	3/4	1-1/2	4
G9H88044N	E5H88044	11/16	3/4	1-1/2	4
G9H88047N	E5H88047	47/64	3/4	1-1/2	4
G9H88048N	E5H88048	3/4	3/4	1	4
G9H88907N	E5H88907	3/4	3/4	1-1/2	4
G9H88052N	E5H88052	13/16	7/8	1-1/2	4
G9H88056N	E5H88056	7/8	7/8	1-1/2	4
G9H88060N	E5H88060	15/16	1	1-1/2	4
G9H88064N	E5H88064	1	1	1	4
G9H88908N	E5H88908	1	1	1-1/2	4
G9H88080N	E5H88080	1-1/4	1-1/4	2	4-1/2

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
+0/-0.0012	+0/-0.0005

\*Uncoated Tools in this series are not recommended for slotting in stainless steel.

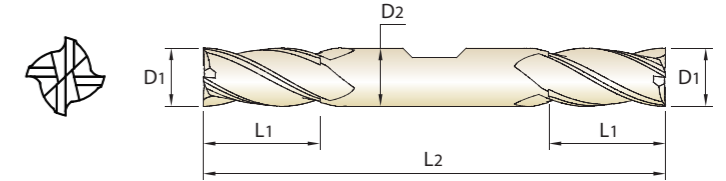
# YGBasiX END MILLS



X-Coated **G9H90** SERIES  
Uncoated **E5H90** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
**4 FLUTE SQUARE REGULAR LENGTH DOUBLE**

- Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.
- Same construction features as single end mill in a more economical version



Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9H90008N	E5H90008	1/8	3/8	3/8	3
G9H90901N	E5H90901	1/8	3/8	3/8	3-1/16
G9H90010N	E5H90010	5/32	3/8	7/16	3
G9H90902N	E5H90902	5/32	3/8	7/16	3-1/8
G9H90012N	E5H90012	3/16	3/8	1/2	3
G9H90903N	E5H90903	3/16	3/8	1/2	3-1/4
G9H90014N	E5H90014	7/32	3/8	9/16	3-3/8
G9H90904N	E5H90904	7/32	3/8	9/16	3-1/2
G9H90016N	E5H90016	1/4	3/8	5/8	3-3/8
G9H90905N	E5H90905	1/4	3/8	5/8	3-1/2
G9H90018N	E5H90018	9/32	3/8	11/16	3-3/8
G9H90906N	E5H90906	9/32	3/8	11/16	3-1/2
G9H90020N	E5H90020	5/16	3/8	3/4	3-1/2
G9H90022N	E5H90022	11/32	3/8	3/4	3-1/2
G9H90024N	E5H90024	3/8	3/8	3/4	3-1/2
G9H90028N	E5H90028	7/16	1/2	7/8	4
G9H90032N	E5H90032	1/2	1/2	1	4

Mill Dia. Tolerance (inch)	
D1=D2	+0/-0.002
D1≠D2	+0/-0.0012

\*Uncoated Tools in this series are not recommended for slotting in stainless steel.

Holemaking

Threading

Milling

Indexable Inserts

Holemaking

Threading

Milling

Indexable Inserts

# YGBasiX END MILLS



X-Coated **G9H92** SERIES  
Uncoated **E5H92** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
4 FLUTE SQUARE LONG LENGTH

► Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.



Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9H92008N	E5H92008	1/8	1/8	3/4	2-1/4
G9H92010N	E5H92010	5/32	3/16	3/4	2-1/2
G9H92012N	E5H92012	3/16	3/16	3/4	2-1/2
G9H92016N	E5H92016	1/4	1/4	1-1/8	3
G9H92020N	E5H92020	5/16	5/16	1-1/8	3
G9H92024N	E5H92024	3/8	3/8	1-1/8	3
G9H92028N	E5H92028	7/16	7/16	2	4
G9H92032N	E5H92032	1/2	1/2	1	4
G9H92901N	E5H92901	1/2	1/2	1-1/2	4
G9H92902N	E5H92902	1/2	1/2	2	4
G9H92040N	E5H92040	5/8	5/8	2-1/4	5
G9H92048N	E5H92048	3/4	3/4	2-1/4	5
G9H92064N	E5H92064	1	1	2-1/4	5

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
+0/-0.0012	+0/-0.0005

\*Uncoated Tools in this series are not recommended for slotting in stainless steel.

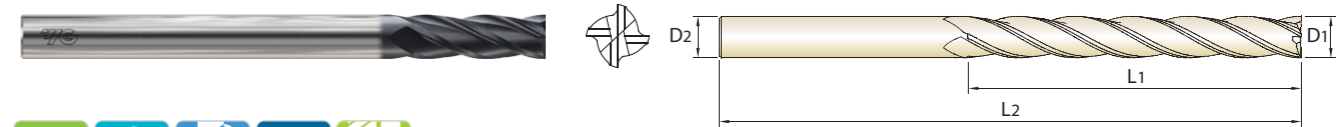
# YGBasiX END MILLS



X-Coated **G9H94** SERIES  
Uncoated **E5H94** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
4 FLUTE SQUARE EXTRA LONG LENGTH

► Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.



Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9H94008N	E5H94008	1/8	1/8	1	3
G9H94010N	E5H94010	5/32	3/16	1-1/8	3
G9H94901N	E5H94901	3/16	3/16	1	4
G9H94012N	E5H94012	3/16	3/16	1-1/8	3
G9H94016N	E5H94016	1/4	1/4	1	4
G9H94902N	E5H94902	1/4	1/4	1-1/2	4
G9H94903N	E5H94903	1/4	1/4	1-1/2	6
G9H94904N	E5H94904	5/16	5/16	1-1/2	6
G9H94020N	E5H94020	5/16	5/16	1-5/8	4
G9H94024N	E5H94024	3/8	3/8	1	4
G9H94906N	E5H94906	3/8	3/8	1-1/2	6
G9H94905N	E5H94905	3/8	3/8	1-3/4	4
G9H94028N	E5H94028	7/16	7/16	3	6
G9H94032N	E5H94032	1/2	1/2	1-1/2	6
G9H94907N	E5H94907	1/2	1/2	3	6
G9H94908N	E5H94908	1/2	1/2	4	7
G9H94909N	E5H94909	1/2	1/2	5	8
G9H94040N	E5H94040	5/8	5/8	1-1/2	6
G9H94910N	E5H94910	5/8	5/8	3	6
G9H94911N	E5H94911	5/8	5/8	4	7
G9H94912N	E5H94912	5/8	5/8	5	8
G9H94913N	E5H94913	5/8	5/8	6	9
G9H94048N	E5H94048	3/4	3/4	1-1/2	6
G9H94914N	E5H94914	3/4	3/4	3	6
G9H94915N	E5H94915	3/4	3/4	4	7
G9H94916N	E5H94916	3/4	3/4	5	8
G9H94917N	E5H94917	3/4	3/4	6	9
G9H94918N	E5H94918	3/4	3/4	8	12
G9H94064N	E5H94064	1	1	1-1/2	6
G9H94919N	E5H94919	1	1	3	6
G9H94920N	E5H94920	1	1	4	7
G9H94921N	E5H94921	1	1	5	8
G9H94922N	E5H94922	1	1	6	9
G9H94923N	E5H94923	1	1	7	10
G9H94924N	E5H94924	1	1	8	12

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
+0/-0.0012	+0/-0.0005

\*Uncoated Tools in this series are not recommended for slotting in stainless steel.

# YGBasiX END MILLS

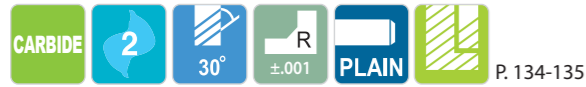


X-Coated **G9H96** SERIES

Uncoated **E5H96** SERIES

## X-COATED & UNCOATED SOLID CARBIDE END MILLS 2 FLUTE CORNER RADIUS REGULAR LENGTH

► Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.



Unit : inch

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	R	D1	D2	L1	L2
G9H96008N	E5H96008	R.010	1/8	1/8	1/2	1-1/2
G9H96901N	E5H96901	R.015	1/8	1/8	1/2	1-1/2
G9H96902N	E5H96902	R.020	1/8	1/8	1/2	1-1/2
G9H96903N	E5H96903	R.030	1/8	1/8	1/2	1-1/2
G9H96012N	E5H96012	R.010	3/16	3/16	5/8	2
G9H96904N	E5H96904	R.015	3/16	3/16	5/8	2
G9H96905N	E5H96905	R.020	3/16	3/16	5/8	2
G9H96906N	E5H96906	R.025	3/16	3/16	5/8	2
G9H96907N	E5H96907	R.045	3/16	3/16	5/8	2
G9H96908N	E5H96908	R.060	3/16	3/16	5/8	2
G9H96016N	E5H96016	R.015	1/4	1/4	3/4	2-1/2
G9H96909N	E5H96909	R.020	1/4	1/4	3/4	2-1/2
G9H96910N	E5H96910	R.025	1/4	1/4	3/4	2-1/2
G9H96911N	E5H96911	R.030	1/4	1/4	3/4	2-1/2
G9H96912N	E5H96912	R.045	1/4	1/4	3/4	2-1/2
G9H96913N	E5H96913	R.060	1/4	1/4	3/4	2-1/2
G9H96914N	E5H96914	R.090	1/4	1/4	3/4	2-1/2
G9H96020N	E5H96020	R.015	5/16	5/16	13/16	2-1/2
G9H96915N	E5H96915	R.020	5/16	5/16	13/16	2-1/2
G9H96916N	E5H96916	R.025	5/16	5/16	13/16	2-1/2
G9H96917N	E5H96917	R.030	5/16	5/16	13/16	2-1/2
G9H96918N	E5H96918	R.045	5/16	5/16	13/16	2-1/2
G9H96919N	E5H96919	R.060	5/16	5/16	13/16	2-1/2
G9H96920N	E5H96920	R.090	5/16	5/16	13/16	2-1/2
G9H96024N	E5H96024	R.015	3/8	3/8	1	2-1/2
G9H96921N	E5H96921	R.020	3/8	3/8	1	2-1/2
G9H96922N	E5H96922	R.025	3/8	3/8	1	2-1/2
G9H96923N	E5H96923	R.030	3/8	3/8	1	2-1/2
G9H96924N	E5H96924	R.045	3/8	3/8	1	2-1/2
G9H96925N	E5H96925	R.060	3/8	3/8	1	2-1/2
G9H96926N	E5H96926	R.090	3/8	3/8	1	2-1/2
G9H96028N	E5H96028	R.015	7/16	7/16	1	2-3/4
G9H96927N	E5H96927	R.020	7/16	7/16	1	2-3/4
G9H96928N	E5H96928	R.025	7/16	7/16	1	2-3/4
G9H96929N	E5H96929	R.030	7/16	7/16	1	2-3/4
G9H96930N	E5H96930	R.045	7/16	7/16	1	2-3/4
G9H96931N	E5H96931	R.060	7/16	7/16	1	2-3/4
G9H96932N	E5H96932	R.090	7/16	7/16	1	2-3/4
G9H96032N	E5H96032	R.015	1/2	1/2	1	3
G9H96933N	E5H96933	R.020	1/2	1/2	1	3
G9H96934N	E5H96934	R.025	1/2	1/2	1	3
G9H96935N	E5H96935	R.030	1/2	1/2	1	3
G9H96936N	E5H96936	R.045	1/2	1/2	1	3
G9H96937N	E5H96937	R.060	1/2	1/2	1	3
G9H96938N	E5H96938	R.090	1/2	1/2	1	3
G9H96939N	E5H96939	R.125	1/2	1/2	1	3

► NEXT PAGE

# YGBasiX END MILLS



Unit : inch

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	R	D1	D2	L1	L2
G9H96040N	E5H96040	R.015	5/8	5/8	1-1/4	3-1/2
G9H96940N	E5H96940	R.020	5/8	5/8	1-1/4	3-1/2
G9H96941N	E5H96941	R.025	5/8	5/8	1-1/4	3-1/2
G9H96942N	E5H96942	R.030	5/8	5/8	1-1/4	3-1/2
G9H96943N	E5H96943	R.045	5/8	5/8	1-1/4	3-1/2
G9H96944N	E5H96944	R.060	5/8	5/8	1-1/4	3-1/2
G9H96945N	E5H96945	R.090	5/8	5/8	1-1/4	3-1/2
G9H96946N	E5H96946	R.125	5/8	5/8	1-1/4	3-1/2
G9H96947N	E5H96947	R.250	5/8	5/8	1-1/4	3-1/2
G9H96048N	E5H96048	R.015	3/4	3/4	1-1/2	4
G9H96948N	E5H96948	R.020	3/4	3/4	1-1/2	4
G9H96949N	E5H96949	R.025	3/4	3/4	1-1/2	4
G9H96950N	E5H96950	R.030	3/4	3/4	1-1/2	4
G9H96951N	E5H96951	R.045	3/4	3/4	1-1/2	4
G9H96952N	E5H96952	R.060	3/4	3/4	1-1/2	4
G9H96953N	E5H96953	R.090	3/4	3/4	1-1/2	4
G9H96954N	E5H96954	R.125	3/4	3/4	1-1/2	4
G9H96955N	E5H96955	R.190	3/4	3/4	1-1/2	4
G9H96956N	E5H96956	R.250	3/4	3/4	1-1/2	4

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
+0/-0.0012	+0/-0.0005

\*Only Coated Tools in this series are recommended for stainless steel machining

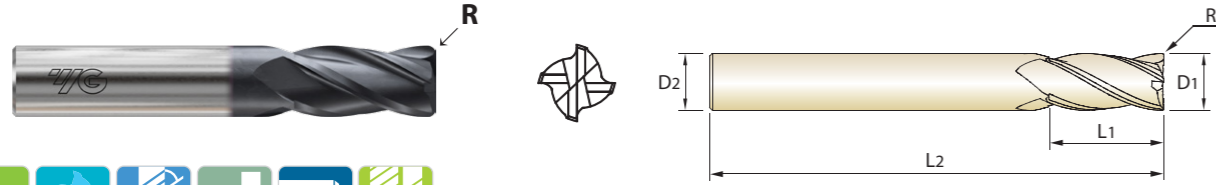
# YGBasiX END MILLS



X-Coated **G9H97** SERIES  
Uncoated **E5H97** SERIES

## X-COATED & UNCOATED SOLID CARBIDE END MILLS 4 FLUTE CORNER RADIUS REGULAR LENGTH

► Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.



Unit : inch

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	R	D1	D2	L1	L2
G9H97008N	E5H97008	R.005	1/8	1/8	1/2	1-1/2
G9H97901N	E5H97901	R.010	1/8	1/8	1/2	1-1/2
G9H97902N	E5H97902	R.015	1/8	1/8	1/2	1-1/2
G9H97903N	E5H97903	R.020	1/8	1/8	1/2	1-1/2
G9H97904N	E5H97904	R.030	1/8	1/8	1/2	1-1/2
G9H97012N	E5H97012	R.010	3/16	3/16	5/8	2
G9H97905N	E5H97905	R.015	3/16	3/16	5/8	2
G9H97906N	E5H97906	R.020	3/16	3/16	5/8	2
G9H97907N	E5H97907	R.030	3/16	3/16	5/8	2
G9H97908N	E5H97908	R.045	3/16	3/16	5/8	2
G9H97909N	E5H97909	R.050	3/16	3/16	5/8	2
G9H97910N	E5H97910	R.060	3/16	3/16	5/8	2
G9H97016N	E5H97016	R.005	1/4	1/4	3/4	2-1/2
G9H97911N	E5H97911	R.010	1/4	1/4	3/4	2-1/2
G9H97912N	E5H97912	R.015	1/4	1/4	3/4	2-1/2
G9H97913N	E5H97913	R.020	1/4	1/4	3/4	2-1/2
G9H97914N	E5H97914	R.025	1/4	1/4	3/4	2-1/2
G9H97915N	E5H97915	R.030	1/4	1/4	3/4	2-1/2
G9H97916N	E5H97916	R.045	1/4	1/4	3/4	2-1/2
G9H97917N	E5H97917	R.060	1/4	1/4	3/4	2-1/2
G9H97918N	E5H97918	R.090	1/4	1/4	3/4	2-1/2
G9H97020N	E5H97020	R.015	5/16	5/16	13/16	2-1/2
G9H97919N	E5H97919	R.020	5/16	5/16	13/16	2-1/2
G9H97920N	E5H97920	R.025	5/16	5/16	13/16	2-1/2
G9H97921N	E5H97921	R.030	5/16	5/16	13/16	2-1/2
G9H97922N	E5H97922	R.045	5/16	5/16	13/16	2-1/2
G9H97923N	E5H97923	R.060	5/16	5/16	13/16	2-1/2
G9H97924N	E5H97924	R.090	5/16	5/16	13/16	2-1/2
G9H97925N	E5H97925	R.125	5/16	5/16	13/16	2-1/2
G9H97024N	E5H97024	R.015	3/8	3/8	1	2-1/2
G9H97926N	E5H97926	R.020	3/8	3/8	1	2-1/2
G9H97927N	E5H97927	R.025	3/8	3/8	1	2-1/2
G9H97928N	E5H97928	R.030	3/8	3/8	1	2-1/2
G9H97929N	E5H97929	R.045	3/8	3/8	1	2-1/2
G9H97930N	E5H97930	R.060	3/8	3/8	1	2-1/2
G9H97931N	E5H97931	R.090	3/8	3/8	1	2-1/2
G9H97932N	E5H97932	R.125	3/8	3/8	1	2-1/2
G9H97028N	E5H97028	R.015	7/16	7/16	1	2-3/4
G9H97933N	E5H97933	R.020	7/16	7/16	1	2-3/4
G9H97934N	E5H97934	R.025	7/16	7/16	1	2-3/4
G9H97935N	E5H97935	R.030	7/16	7/16	1	2-3/4
G9H97936N	E5H97936	R.045	7/16	7/16	1	2-3/4
G9H97937N	E5H97937	R.060	7/16	7/16	1	2-3/4
G9H97938N	E5H97938	R.090	7/16	7/16	1	2-3/4
G9H97939N	E5H97939	R.125	7/16	7/16	1	2-3/4
G9H97032N	E5H97032	R.015	1/2	1/2	1	3

► NEXT PAGE

# YGBasiX END MILLS



Unit : inch

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	R	D1	D2	L1	L2
G9H97940N	E5H97940	R.020	1/2	1/2	1	3
G9H97941N	E5H97941	R.025	1/2	1/2	1	3
G9H97942N	E5H97942	R.030	1/2	1/2	1	3
G9H97943N	E5H97943	R.045	1/2	1/2	1	3
G9H97944N	E5H97944	R.060	1/2	1/2	1	3
G9H97945N	E5H97945	R.090	1/2	1/2	1	3
G9H97946N	E5H97946	R.125	1/2	1/2	1	3
G9H97040N	E5H97040	R.015	5/8	5/8	1-1/4	3-1/2
G9H97947N	E5H97947	R.020	5/8	5/8	1-1/4	3-1/2
G9H97948N	E5H97948	R.025	5/8	5/8	1-1/4	3-1/2
G9H97949N	E5H97949	R.030	5/8	5/8	1-1/4	3-1/2
G9H97950N	E5H97950	R.045	5/8	5/8	1-1/4	3-1/2
G9H97951N	E5H97951	R.060	5/8	5/8	1-1/4	3-1/2
G9H97952N	E5H97952	R.090	5/8	5/8	1-1/4	3-1/2
G9H97953N	E5H97953	R.125	5/8	5/8	1-1/4	3-1/2
G9H97048N	E5H97048	R.015	3/4	3/4	1-1/2	4
G9H97954N	E5H97954	R.020	3/4	3/4	1-1/2	4
G9H97955N	E5H97955	R.025	3/4	3/4	1-1/2	4
G9H97956N	E5H97956	R.030	3/4	3/4	1-1/2	4
G9H97957N	E5H97957	R.045	3/4	3/4	1-1/2	4
G9H97958N	E5H97958	R.060	3/4	3/4	1-1/2	4
G9H97959N	E5H97959	R.090	3/4	3/4	1-1/2	4
G9H97960N	E5H97960	R.125	3/4	3/4	1-1/2	4
G9H97961N	E5H97961	R.190	3/4	3/4	1-1/2	4
G9H97962N	E5H97962	R.250	3/4	3/4	1-1/2	4
G9H97064N	E5H97064	R.015	1	1	1-1/2	4
G9H97963N	E5H97963	R.020	1	1	1-1/2	4
G9H97964N	E5H97964	R.025	1	1	1-1/2	4
G9H97965N	E5H97965	R.030	1	1	1-1/2	4
G9H97966N	E5H97966	R.045	1	1	1-1/2	4
G9H97967N	E5H97967	R.060	1	1	1-1/2	4
G9H97968N	E5H97968	R.090	1	1	1-1/2	4
G9H97969N	E5H97969	R.125	1	1	1-1/2	4
G9H97970N	E5H97970	R.190	1	1	1-1/2	4
G9H97971N	E5H97971	R.250	1	1	1-1/2	4

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
+0/-0.0012	+0/-0.0005

\*Only Coated Tools in this series are recommended for stainless steel machining

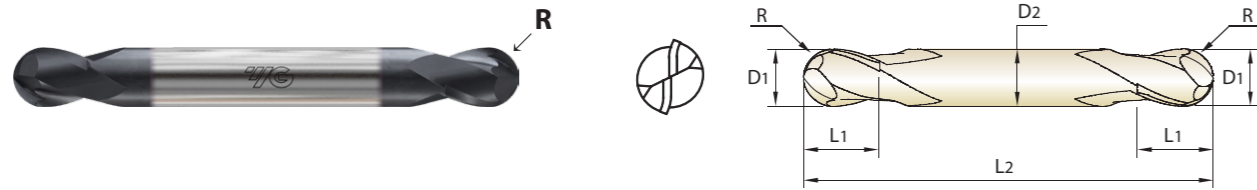
# YGBasiX END MILLS



X-Coated **G9H98** SERIES  
Uncoated **E5H98** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
2 FLUTE BALL NOSE STUB LENGTH DOUBLE

- Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.
- Same construction features as single end mill in a more economical version



Unit : inch

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	R	D1	D2	L1	L2
G9H98002N	E5H98002	R1/64	1/32	1/8	1/16	1-1/2
G9H98003N	E5H98003	R.0234	3/64	1/8	3/32	1-1/2
G9H98004N	E5H98004	R1/32	1/16	1/8	1/8	1-1/2
G9H98005N	E5H98005	R.0391	5/64	1/8	1/8	1-1/2
G9H98006N	E5H98006	R3/64	3/32	1/8	3/16	1-1/2
G9H98007N	E5H98007	R.0547	7/64	1/8	3/16	1-1/2
G9H98008N	E5H98008	R1/16	1/8	1/8	1/4	1-1/2
G9H98009N	E5H98009	R.0703	9/64	3/16	5/16	2
G9H98010N	E5H98010	R5/64	5/32	3/16	5/16	2
G9H98011N	E5H98011	R.0859	11/64	3/16	5/16	2
G9H98012N	E5H98012	R3/32	3/16	3/16	3/8	2
G9H98013N	E5H98013	R.1016	13/64	1/4	1/2	2-1/2
G9H98014N	E5H98014	R7/64	7/32	1/4	1/2	2-1/2
G9H98015N	E5H98015	R.1172	15/64	1/4	1/2	2-1/2
G9H98016N	E5H98016	R1/8	1/4	1/4	1/2	2-1/2
G9H98018N	E5H98018	R9/64	9/32	5/16	1/2	2-1/2
G9H98020N	E5H98020	R5/32	5/16	5/16	1/2	2-1/2
G9H98022N	E5H98022	R11/64	11/32	3/8	9/16	2-1/2
G9H98024N	E5H98024	R3/16	3/8	3/8	9/16	2-1/2
G9H98028N	E5H98028	R7/32	7/16	7/16	9/16	2-3/4
G9H98032N	E5H98032	R1/4	1/2	1/2	5/8	3

Mill Dia. Tolerance (inch)	
D1=D2	+0/-0.002
D1≠D2	+0/-0.0012

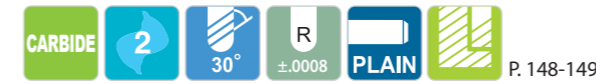
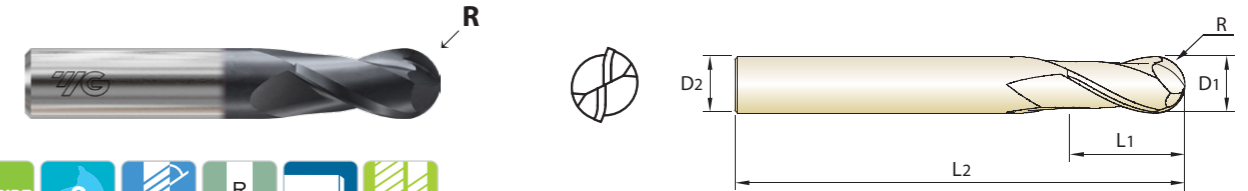
# YGBasiX END MILLS



X-Coated **G9I02** SERIES  
Uncoated **E5I02** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
2 FLUTE BALL NOSE REGULAR LENGTH

- Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.



Unit : inch

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	R	D1	D2	L1	L2
G9I02001N	E5I02001	R.0078	1/64	1/8	3/64	1-1/2
G9I02002N	E5I02002	R1/64	1/32	1/8	1/8	1-1/2
G9I02003N	E5I02003	R.0234	3/64	1/8	1/8	1-1/2
G9I02004N	E5I02004	R1/32	1/16	1/8	1/8	1-1/2
G9I02901N	E5I02901	R1/32	1/16	1/8	1/4	1-1/2
G9I02005N	E5I02005	R.0391	5/64	1/8	1/4	1-1/2
G9I02006N	E5I02006	R3/64	3/32	1/8	3/8	1-1/2
G9I02007N	E5I02007	R.0547	7/64	1/8	3/8	1-1/2
G9I02008N	E5I02008	R1/16	1/8	1/8	1/2	1-1/2
G9I02009N	E5I02009	R.0703	9/64	3/16	9/16	2
G9I02010N	E5I02010	R5/64	5/32	3/16	9/16	2
G9I02011N	E5I02011	R.0859	11/64	3/16	9/16	2
G9I02012N	E5I02012	R3/32	3/16	3/16	5/8	2
G9I02013N	E5I02013	R.1016	13/64	1/4	5/8	2-1/2
G9I02014N	E5I02014	R7/64	7/32	1/4	5/8	2-1/2
G9I02015N	E5I02015	R.1172	15/64	1/4	3/4	2-1/2
G9I02016N	E5I02016	R1/8	1/4	1/4	3/4	2-1/2
G9I02017N	E5I02017	R.1328	17/64	5/16	3/4	2-1/2
G9I02018N	E5I02018	R9/64	9/32	5/16	3/4	2-1/2
G9I02019N	E5I02019	R.1484	19/64	5/16	13/16	2-1/2
G9I02020N	E5I02020	R5/32	5/16	5/16	13/16	2-1/2
G9I02021N	E5I02021	R.1641	21/64	3/8	1	2-1/2
G9I02022N	E5I02022	R11/64	11/32	3/8	1	2-1/2
G9I02023N	E5I02023	R.1797	23/64	3/8	1	2-1/2
G9I02024N	E5I02024	R3/16	3/8	3/8	1	2-1/2
G9I02025N	E5I02025	R.1953	25/64	7/16	1	2-3/4
G9I02026N	E5I02026	R13/64	13/32	7/16	1	2-3/4
G9I02027N	E5I02027	R.2109	27/64	7/16	1	2-3/4
G9I02028N	E5I02028	R7/32	7/16	7/16	1	2-3/4
G9I02029N	E5I02029	R.2266	29/64	1/2	1	3
G9I02030N	E5I02030	R15/64	15/32	1/2	1	3
G9I02031N	E5I02031	R.2422	31/64	1/2	1	3
G9I02032N	E5I02032	R1/4	1/2	1/2	1	3
G9I02036N	E5I02036	R9/32	9/16	9/16	1-1/4	3-1/2
G9I02040N	E5I02040	R5/16	5/8	5/8	1-1/4	3-1/2
G9I02044N	E5I02044	R11/32	11/16	3/4	1-1/2	4
G9I02048N	E5I02048	R3/8	3/4	3/4	1-1/2	4
G9I02056N	E5I02056	R7/16	7/8	7/8	1-1/2	4
G9I02064N	E5I02064	R1/2	1	1	1-1/2	4

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
+0/-0.0012	+0/-0.0005

# YGBasiX END MILLS

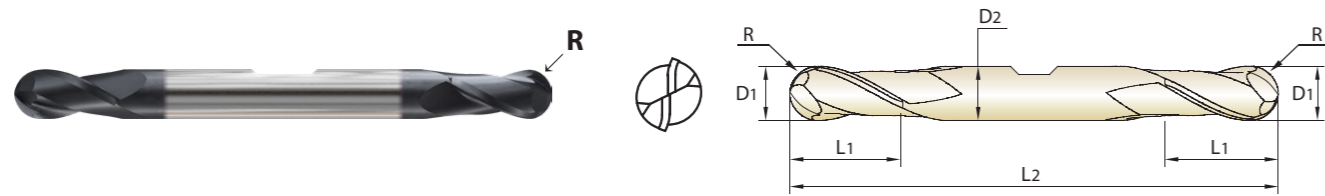


X-Coated **G9104** SERIES

Uncoated **E5104** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
2 FLUTE BALL NOSE REGULAR LENGTH DOUBLE

- Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.
- Same construction features as single end mill in a more economical version



Unit : inch

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	R	D1	D2	L1	L2
G9104008N	E5104008	R1/16	1/8	3/8	3/8	3
G9104010N	E5104010	R5/64	5/32	3/8	7/16	3
G9104012N	E5104012	R3/32	3/16	3/8	1/2	3
G9104014N	E5104014	R7/64	7/32	3/8	9/16	3-1/2
G9104016N	E5104016	R1/8	1/4	3/8	5/8	3-1/2
G9104018N	E5104018	R9/64	9/32	3/8	11/16	3-1/2
G9104020N	E5104020	R5/32	5/16	3/8	3/4	3-1/2
G9104022N	E5104022	R11/64	11/32	3/8	3/4	3-1/2
G9104024N	E5104024	R3/16	3/8	3/8	3/4	3-1/2
G9104028N	E5104028	R7/32	7/16	1/2	7/8	4
G9104032N	E5104032	R1/4	1/2	1/2	1	4

Mill Dia. Tolerance (inch)	
D1=D2	+0/-0.002
D1≠D2	+0/-0.0012

# YGBasiX END MILLS

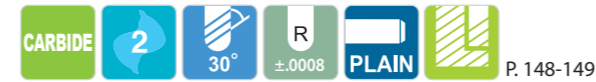


X-Coated **G9107** SERIES

Uncoated **E5107** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
2 FLUTE BALL NOSE LONG LENGTH

- Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.



Unit : inch

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	R	D1	D2	L1	L2
G9107008N	E5107008	R1/16	1/8	1/8	3/4	2-1/4
G9107010N	E5107010	R5/64	5/32	3/16	3/4	2-1/2
G9107012N	E5107012	R3/32	3/16	3/16	3/4	2-1/2
G9107016N	E5107016	R1/8	1/4	1/4	3/4	2-1/2
G9107901N	E5107901	R1/8	1/4	1/4	1-1/8	3
G9107020N	E5107020	R5/32	5/16	5/16	1-1/8	3
G9107024N	E5107024	R3/16	3/8	3/8	1	2-1/2
G9107902N	E5107902	R3/16	3/8	3/8	1-1/8	3
G9107028N	E5107028	R7/32	7/16	7/16	2	4
G9107032N	E5107032	R1/4	1/2	1/2	2	4
G9107040N	E5107040	R5/16	5/8	5/8	2-1/4	5
G9107048N	E5107048	R3/8	3/4	3/4	2-1/4	5
G9107064N	E5107064	R1/2	1	1	2-1/4	5

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
+0/-0.0012	+0/-0.0005



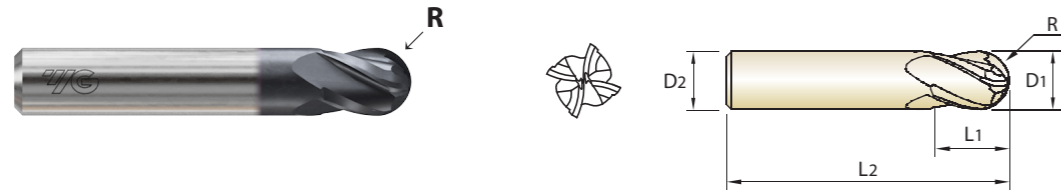
# YGBasiX END MILLS



X-Coated **G9H99** SERIES  
Uncoated **E5H99** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
4 FLUTE BALL NOSE STUB LENGTH

► Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.



Unit : inch

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	R	D1	D2	L1	L2
G9H99002N	E5H99002	R1/64	1/32	1/8	1/16	1-1/2
G9H99003N	E5H99003	R.0234	3/64	1/8	3/32	1-1/2
G9H99004N	E5H99004	R1/32	1/16	1/8	1/8	1-1/2
G9H99005N	E5H99005	R.0391	5/64	1/8	1/8	1-1/2
G9H9901N	E5H9901	R.0391	5/64	1/8	5/32	1-1/2
G9H99006N	E5H99006	R3/64	3/32	1/8	3/16	1-1/2
G9H99007N	E5H99007	R.0547	7/64	1/8	3/16	1-1/2
G9H99002N	E5H99002	R.0547	7/64	1/8	7/32	1-1/2
G9H99008N	E5H99008	R1/16	1/8	1/8	1/4	1-1/2
G9H99009N	E5H99009	R.0703	9/64	3/16	9/32	2
G9H9903N	E5H9903	R.0703	9/64	3/16	5/16	2
G9H99010N	E5H99010	R5/64	5/32	3/16	5/16	2
G9H99011N	E5H99011	R.0859	11/64	3/16	5/16	2
G9H99012N	E5H99012	R3/32	3/16	3/16	3/8	2
G9H99013N	E5H99013	R.1016	13/64	1/4	3/8	2
G9H9904N	E5H9904	R.1016	13/64	1/4	1/2	2-1/2
G9H99014N	E5H99014	R7/64	7/32	1/4	7/16	2
G9H9906N	E5H9906	R7/64	7/32	1/4	1/2	2-1/2
G9H99015N	E5H99015	R.1172	15/64	1/4	7/16	2
G9H9905N	E5H9905	R.1172	15/64	1/4	1/2	2-1/2
G9H99016N	E5H99016	R1/8	1/4	1/4	1/2	2
G9H9907N	E5H9907	R1/8	1/4	1/4	1/2	2-1/2
G9H99017N	E5H99017	R.1328	17/64	5/16	1/2	2-1/2
G9H99018N	E5H99018	R9/64	9/32	5/16	1/2	2
G9H99019N	E5H99019	R.1484	19/64	5/16	1/2	2-1/2
G9H99020N	E5H99020	R5/32	5/16	5/16	1/2	2
G9H9908N	E5H9908	R5/32	5/16	5/16	1/2	2-1/2
G9H99022N	E5H99022	R11/64	11/32	3/8	9/16	2-1/2
G9H99024N	E5H99024	R3/16	3/8	3/8	5/8	2
G9H9909N	E5H9909	R3/16	3/8	3/8	9/16	2-1/2
G9H99028N	E5H99028	R7/32	7/16	7/16	5/8	2-1/2
G9H9910N	E5H9910	R7/32	7/16	7/16	9/16	2-3/4
G9H99032N	E5H99032	R1/4	1/2	1/2	5/8	2-1/2
G9H9911N	E5H9911	R1/4	1/2	1/2	5/8	3
G9H99040N	E5H99040	R5/16	5/8	5/8	3/4	3
G9H99048N	E5H99048	R3/8	3/4	3/4	1	3

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
+0/-0.0012	+0/-0.0005

# YGBasiX END MILLS



X-Coated **G9I01** SERIES  
Uncoated **E5I01** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
4 FLUTE BALL NOSE STUB LENGTH DOUBLE

► Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.  
► Same construction features as single end mill in a more economical version



Unit : inch

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	R	D1	D2	L1	L2
G9I01002N	E5I01002	R1/64	1/32	1/8	1/16	1-1/2
G9I01003N	E5I01003	R.0234	3/64	1/8	3/32	1-1/2
G9I01004N	E5I01004	R1/32	1/16	1/8	1/8	1-1/2
G9I01005N	E5I01005	R.0391	5/64	1/8	1/8	1-1/2
G9I01901N	E5I01901	R.0391	5/64	1/8	5/32	1-1/2
G9I01006N	E5I01006	R3/64	3/32	1/8	3/16	1-1/2
G9I01007N	E5I01007	R.0547	7/64	1/8	3/16	1-1/2
G9I01902N	E5I01902	R.0547	7/64	1/8	7/32	1-1/2
G9I01008N	E5I01008	R1/16	1/8	1/8	1/4	1-1/2
G9I01903N	E5I01903	R.0703	9/64	3/16	9/32	2
G9I01009N	E5I01009	R.0703	9/64	3/16	5/16	2
G9I01010N	E5I01010	R5/64	5/32	3/16	5/16	2
G9I01011N	E5I01011	R.0859	11/64	3/16	5/16	2
G9I01012N	E5I01012	R3/32	3/16	3/16	3/8	2
G9I01013N	E5I01013	R.1016	13/64	1/4	3/8	2
G9I01904N	E5I01904	R.1016	13/64	1/4	1/2	2-1/2
G9I01014N	E5I01014	R7/64	7/32	1/4	7/16	2
G9I01905N	E5I01905	R7/64	7/32	1/4	1/2	2-1/2
G9I01015N	E5I01015	R.1172	15/64	1/4	7/16	2
G9I01906N	E5I01906	R.1172	15/64	1/4	1/2	2-1/2
G9I01016N	E5I01016	R1/8	1/4	1/4	1/2	2
G9I01907N	E5I01907	R1/8	1/4	1/4	1/2	2-1/2
G9I01017N	E5I01017	R.1328	17/64	5/16	1/2	2-1/2
G9I01018N	E5I01018	R9/64	9/32	5/16	1/2	2
G9I01908N	E5I01908	R9/64	9/32	5/16	1/2	2-1/2
G9I01019N	E5I01019	R.1484	19/64	5/16	1/2	2-1/2
G9I01020N	E5I01020	R5/32	5/16	5/16	1/2	2
G9I01909N	E5I01909	R5/32	5/16	5/16	1/2	2-1/2
G9I01022N	E5I01022	R11/64	11/32	3/8	9/16	2-1/2
G9I01910N	E5I01910	R3/16	3/8	3/8	9/16	2-1/2
G9I01028N	E5I01028	R7/32	7/16	7/16	5/8	2-3/4
G9I01911N	E5I01911	R7/32	7/16	7/16	5/8	2-1/2
G9I01032N	E5I01032	R1/4	1/2	1/2	5/8	2-1/2
G9I01912N	E5I01912	R1/4	1/2	1/2	5/8	3
G9I01040N	E5I01040	R5/16	5/8	5/8	3/4	3
G9I01048N	E5I01048	R3/8	3/4	3/4	1	3

Mill Dia. Tolerance (inch)	
D1=D2	+0/-0.002
D1≠D2	+0/-0.0012

# YGBasiX END MILLS



X-Coated **G9105** SERIES  
Uncoated **E5105** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
4 FLUTE BALL NOSE REGULAR LENGTH

► Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.



Unit : inch

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	R	D1	D2	L1	L2
G9105001N	E5105001	R.0078	1/64	1/8	3/64	1-1/2
G9105002N	E5105002	R1/64	1/32	1/8	3/32	1-1/2
G9105901N	E5105901	R1/64	1/32	1/8	1/8	1-1/2
G9105003N	E5105003	R.0234	3/64	1/8	1/8	1-1/2
G9105004N	E5105004	R1/32	1/16	1/8	1/4	1-1/2
G9105005N	E5105005	R.0391	5/64	1/8	1/4	1-1/2
G9105006N	E5105006	R3/64	3/32	1/8	3/8	1-1/2
G9105007N	E5105007	R.0547	7/64	1/8	3/8	1-1/2
G9105008N	E5105008	R1/16	1/8	1/8	1/2	1-1/2
G9105009N	E5105009	R.0703	9/64	3/16	9/16	2
G9105010N	E5105010	R5/64	5/32	3/16	9/16	2
G9105011N	E5105011	R.0859	11/64	3/16	9/16	2
G9105902N	E5105902	R.0859	11/64	3/16	5/8	2
G9105012N	E5105012	R3/32	3/16	3/16	5/8	2
G9105013N	E5105013	R.1016	13/64	1/4	5/8	2-1/2
G9105014N	E5105014	R7/64	7/32	1/4	5/8	2-1/2
G9105015N	E5105015	R.1172	15/64	1/4	3/4	2-1/2
G9105016N	E5105016	R1/8	1/4	1/4	3/4	2-1/2
G9105017N	E5105017	R.1328	17/64	5/16	3/4	2-1/2
G9105018N	E5105018	R9/64	9/32	5/16	3/4	2-1/2
G9105019N	E5105019	R.1484	19/64	5/16	13/16	2-1/2
G9105020N	E5105020	R5/32	5/16	5/16	13/16	2-1/2
G9105021N	E5105021	R.1641	21/64	3/8	1	2-1/2
G9105022N	E5105022	R11/64	11/32	3/8	7/8	2-1/2
G9105903N	E5105903	R11/64	11/32	3/8	1	2-1/2
G9105023N	E5105023	R.1797	23/64	3/8	1	2-1/2
G9105024N	E5105024	R3/16	3/8	3/8	1	2-1/2
G9105025N	E5105025	R.1953	25/64	7/16	1	2-3/4
G9105026N	E5105026	R13/64	13/32	7/16	1	2-3/4
G9105027N	E5105027	R.2109	27/64	7/16	1	2-3/4
G9105028N	E5105028	R7/32	7/16	7/16	1	2-3/4
G9105029N	E5105029	R.2266	29/64	1/2	1	3
G9105030N	E5105030	R15/64	15/32	1/2	1	3
G9105031N	E5105031	R.2422	31/64	1/2	1	3
G9105032N	E5105032	R1/4	1/2	1/2	1	3
G9105036N	E5105036	R9/32	9/16	9/16	1-1/4	3-1/2
G9105040N	E5105040	R5/16	5/8	5/8	1-1/4	3-1/2
G9105044N	E5105044	R11/32	11/16	3/4	1-1/2	4
G9105048N	E5105048	R3/8	3/4	3/4	1-1/2	4
G9105056N	E5105056	R7/16	7/8	7/8	1-1/2	4
G9105064N	E5105064	R1/2	1	1	1-1/2	4

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
+0/-0.012	+0/-0.005

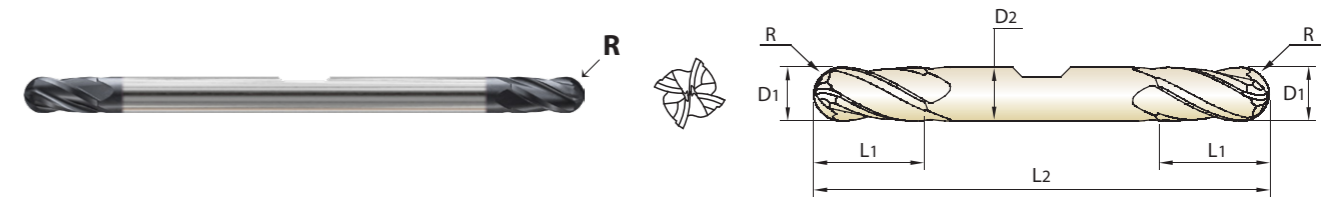
# YGBasiX END MILLS



X-Coated **G9106** SERIES  
Uncoated **E5106** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
4 FLUTE BALL NOSE REGULAR LENGTH DOUBLE

► Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.  
► Same construction features as single end mill in a more economical version



Unit : inch

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	R	D1	D2	L1	L2
G9106008N	E5106008	R1/16	1/8	3/8	3/8	3
G9106010N	E5106010	R5/64	5/32	3/8	7/16	3
G9106012N	E5106012	R3/32	3/16	3/8	1/2	3
G9106014N	E5106014	R7/64	7/32	3/8	9/16	3-1/2
G9106016N	E5106016	R1/8	1/4	3/8	5/8	3-1/2
G9106018N	E5106018	R9/64	9/32	3/8	11/16	3-1/2
G9106020N	E5106020	R5/32	5/16	3/8	3/4	3-1/2
G9106022N	E5106022	R11/64	11/32	3/8	3/4	3-1/2
G9106024N	E5106024	R3/16	3/8	3/8	3/4	3-1/2
G9106028N	E5106028	R7/32	7/16	1/2	7/8	4
G9106032N	E5106032	R1/4	1/2	1/2	1	4

Mill Dia. Tolerance (inch)	
D1=D2	+0/-0.002
D1≠D2	+0/-0.0012

# YGBasiX END MILLS

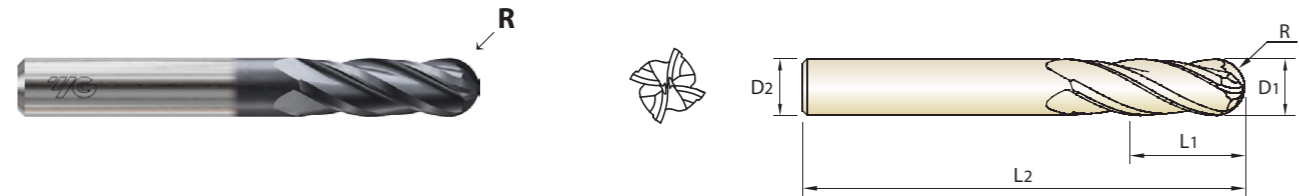


X-Coated **G9108** SERIES

Uncoated **E5108** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
4 FLUTE BALL NOSE LONG LENGTH

► Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.



Unit : inch

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	R	D1	D2	L1	L2
G9108008N	E5108008	R1/16	1/8	1/8	3/4	2-1/4
G9108010N	E5108010	R5/64	5/32	3/16	3/4	2-1/2
G9108012N	E5108012	R3/32	3/16	3/16	3/4	2-1/2
G9108016N	E5108016	R1/8	1/4	1/4	1-1/8	3
G9108020N	E5108020	R5/32	5/16	5/16	1-1/8	3
G9108024N	E5108024	R3/16	3/8	3/8	1-1/8	3
G9108028N	E5108028	R7/32	7/16	7/16	2	4
G9108032N	E5108032	R1/4	1/2	1/2	1-1/2	4
G9108901N	E5108901	R1/4	1/2	1/2	2	4
G9108040N	E5108040	R5/16	5/8	5/8	2-1/4	5
G9108048N	E5108048	R3/8	3/4	3/4	2-1/4	5
G9108064N	E5108064	R1/2	1	1	2-1/4	5

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
+0/-0.0012	+0/-0.0005

# YGBasiX END MILLS

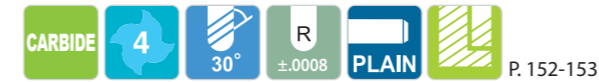
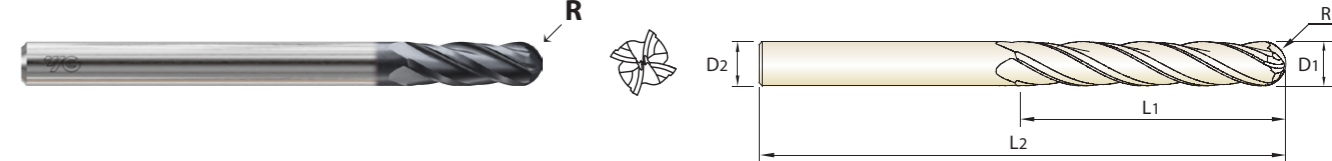


X-Coated **G9109** SERIES

Uncoated **E5109** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
4 FLUTE BALL NOSE EXTRA LONG LENGTH

► Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.



Unit : inch

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	R	D1	D2	L1	L2
G9109008N	E5109008	R1/16	1/8	1/8	1	3
G9109010N	E5109010	R5/64	5/32	3/16	1-1/8	3
G9109012N	E5109012	R3/32	3/16	3/16	1-1/8	3
G9109016N	E5109016	R1/8	1/4	1/4	1	4
G9109901N	E5109901	R1/8	1/4	1/4	1-1/2	4
G9109902N	E5109902	R1/8	1/4	1/4	1-1/2	6
G9109903N	E5109903	R5/32	5/16	5/16	1-1/2	6
G9109020N	E5109020	R5/32	5/16	5/16	1-5/8	4
G9109904N	E5109904	R3/16	3/8	3/8	1-1/2	6
G9109024N	E5109024	R3/16	3/8	3/8	1-3/4	4
G9109028N	E5109028	R7/32	7/16	7/16	3	6
G9109032N	E5109032	R1/4	1/2	1/2	1-1/2	6
G9109905N	E5109905	R1/4	1/2	1/2	3	6
G9109040N	E5109040	R5/16	5/8	5/8	1-1/2	6
G9109906N	E5109906	R5/16	5/8	5/8	3	6
G9109048N	E5109048	R3/8	3/4	3/4	1-1/2	6
G9109907N	E5109907	R3/8	3/4	3/4	3	6
G9109908N	E5109908	R1/2	1	1	1-1/2	6
G9109064N	E5109064	R1/2	1	1	3	6

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
+0/-0.0012	+0/-0.0005

# YGBasiX END MILLS



X-Coated **G9I31** SERIES  
Uncoated **E5I31** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
2 FLUTE DRILL MILL(60°) REGULAR LENGTH



Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9I31008N	E5I31008	1/8	1/8	1/2	1-1/2
G9I31012N	E5I31012	3/16	3/16	5/8	2
G9I31016N	E5I31016	1/4	1/4	3/4	2-1/2
G9I31020N	E5I31020	5/16	5/16	13/16	2-1/2
G9I31024N	E5I31024	3/8	3/8	1	2-1/2
G9I31028N	E5I31028	7/16	7/16	1	2-3/4
G9I31032N	E5I31032	1/2	1/2	1	3
G9I31040N	E5I31040	5/8	5/8	1-1/4	3-1/2
G9I31048N	E5I31048	3/4	3/4	1-1/2	4

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
+0/-0.0020	+0/-0.0005

# YGBasiX END MILLS



X-Coated **G9I32** SERIES  
Uncoated **E5I32** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
4 FLUTE DRILL MILL(60°) REGULAR LENGTH



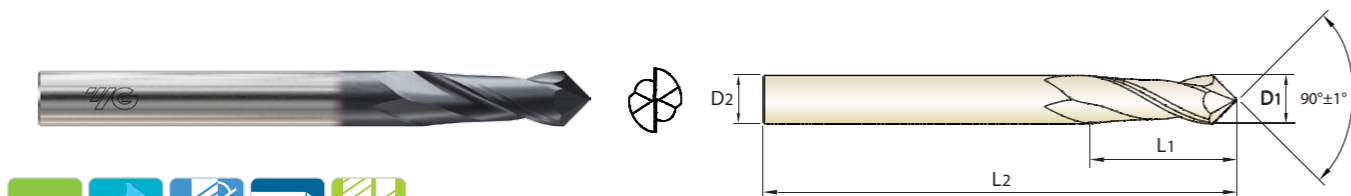
Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9I32008N	E5I32008	1/8	1/8	1/2	1-1/2
G9I32012N	E5I32012	3/16	3/16	5/8	2
G9I32016N	E5I32016	1/4	1/4	3/4	2-1/2
G9I32020N	E5I32020	5/16	5/16	13/16	2-1/2
G9I32024N	E5I32024	3/8	3/8	1	2-1/2
G9I32028N	E5I32028	7/16	7/16	1	2-3/4
G9I32032N	E5I32032	1/2	1/2	1	3
G9I32040N	E5I32040	5/8	5/8	1-1/4	3-1/2
G9I32048N	E5I32048	3/4	3/4	1-1/2	4

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
+0/-0.0020	+0/-0.0005

X-Coated **G9I33** SERIES  
Uncoated **E5I33** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
2 FLUTE DRILL MILL(90°) REGULAR LENGTH



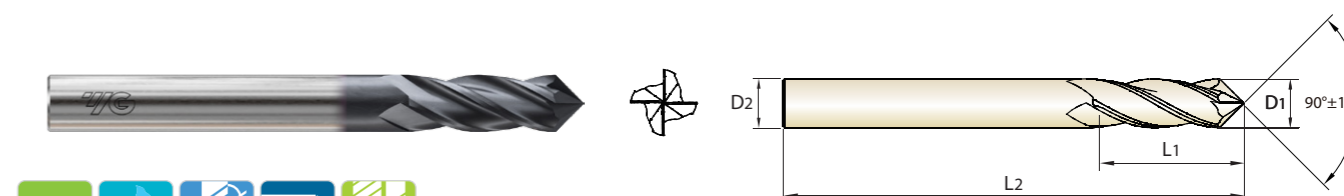
Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9I33008N	E5I33008	1/8	1/8	1/2	1-1/2
G9I33012N	E5I33012	3/16	3/16	5/8	2
G9I33016N	E5I33016	1/4	1/4	3/4	2-1/2
G9I33020N	E5I33020	5/16	5/16	13/16	2-1/2
G9I33024N	E5I33024	3/8	3/8	1	2-1/2
G9I33028N	E5I33028	7/16	7/16	1	2-3/4
G9I33032N	E5I33032	1/2	1/2	1	3
G9I33040N	E5I33040	5/8	5/8	1-1/4	3-1/2
G9I33048N	E5I33048	3/4	3/4	1-1/2	4

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
+0/-0.0020	+0/-0.0005

X-Coated **G9I34** SERIES  
Uncoated **E5I34** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
4 FLUTE DRILL MILL(90°) REGULAR LENGTH



Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9I34008N	E5I34008	1/8	1/8	1/2	1-1/2
G9I34012N	E5I34012	3/16	3/16	5/8	2
G9I34016N	E5I34016	1/4	1/4	3/4	2-1/2
G9I34020N	E5I34020	5/16	5/16	13/16	2-1/2
G9I34024N	E5I34024	3/8	3/8	1	2-1/2
G9I34028N	E5I34028	7/16	7/16	1	2-3/4
G9I34032N	E5I34032	1/2	1/2	1	3
G9I34040N	E5I34040	5/8	5/8	1-1/4	3-1/2
G9I34048N	E5I34048	3/4	3/4	1-1/2	4

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
+0/-0.0020	+0/-0.0005

# YGBasiX END MILLS



X-Coated **G9H86** SERIES  
Uncoated **E5H86** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
**2 FLUTE SQUARE REGULAR LENGTH - METRIC**

► Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.



Unit : metric

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9H86010N	E5H86010	1	3	4	39
G9H86015N	E5H86015	1.5	3	5	39
G9H86020N	E5H86020	2	3	8	39
G9H86025N	E5H86025	2.5	3	9.5	39
G9H86030N	E5H86030	3	3	12	39
G9H86035N	E5H86035	3.5	4	12	51
G9H86040N	E5H86040	4	4	14	51
G9H86045N	E5H86045	4.5	5	16	51
G9H86050N	E5H86050	5	5	16	51
G9H86060N	E5H86060	6	6	19	63
G9H86070N	E5H86070	7	8	19	63
G9H86080N	E5H86080	8	8	20	63
G9H86090N	E5H86090	9	10	22	63
G9H86100N	E5H86100	10	10	22	76
G9H86110N	E5H86110	11	12	25	76
G9H86120N	E5H86120	12	12	25	76
G9H86140N	E5H86140	14	14	32	90
G9H86160N	E5H86160	16	16	32	102
G9H86180N	E5H86180	18	18	38	102
G9H86200N	E5H86200	20	20	38	102
G9H86250N	E5H86250	25	25	38	102

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

\*Only Coated Tools in this series are recommended for stainless steel machining

# YGBasiX END MILLS



X-Coated **G9H89** SERIES  
Uncoated **E5H89** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
**4 FLUTE SQUARE REGULAR LENGTH - METRIC**

► Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.



Unit : metric

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9H8902N	E5H8902	1	3	3	1-1/2"
G9H89010N	E5H89010	1	3	4	1-1/2"
G9H8901N	E5H8901	1	3	4	39
G9H89015N	E5H89015	1.5	3	5	39
G9H89020N	E5H89020	2	3	8	39
G9H89025N	E5H89025	2.5	3	9.5	39
G9H89030N	E5H89030	3	3	12	1-1/2"
G9H8903N	E5H8903	3	3	12	39
G9H89035N	E5H89035	3.5	4	12	51
G9H89040N	E5H89040	4	4	14	51
G9H89045N	E5H89045	4.5	5	16	51
G9H89050N	E5H89050	5	5	16	51
G9H89060N	E5H89060	6	6	19	63
G9H89070N	E5H89070	7	8	19	63
G9H89080N	E5H89080	8	8	20	63
G9H89090N	E5H89090	9	10	22	63
G9H89100N	E5H89100	10	10	22	76
G9H89110N	E5H89110	11	12	25	76
G9H89120N	E5H89120	12	12	25	76
G9H89140N	E5H89140	14	14	32	90
G9H89160N	E5H89160	16	16	32	102
G9H89180N	E5H89180	18	18	38	102
G9H89200N	E5H89200	20	20	38	102
G9H89250N	E5H89250	25	25	38	102

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

\*Uncoated Tools in this series are not recommended for slotting in stainless steel.

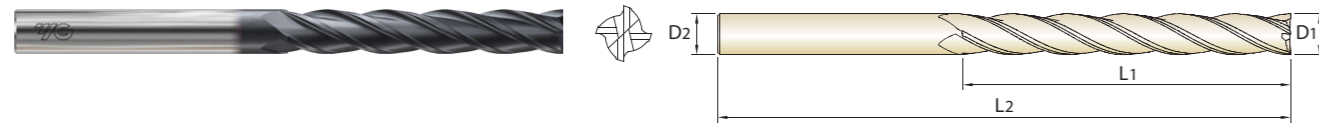
# YGBasiX END MILLS



X-Coated **G9H95** SERIES  
Uncoated **E5H95** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
**4 FLUTE SQUARE EXTRA LONG LENGTH - METRIC**

► Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.



P. 144-147

Unit : metric

EDP No.		Mill Diameter	Shank Diameter	Length of Cut		Overall Length
X-Coated	Uncoated	D1	D2	L1	L2	
G9H95040N	E5H95040	4	4	25		76
G9H95050N	E5H95050	5	5	25		76
G9H95060N	E5H95060	6	6	40		100
G9H95070N	E5H95070	7	8	40		100
G9H95080N	E5H95080	8	8	44		100
G9H95090N	E5H95090	9	10	50		100
G9H95100N	E5H95100	10	10	50		100
G9H95110N	E5H95110	11	12	76		152
G9H95120N	E5H95120	12	12	76		152
G9H95140N	E5H95140	14	14	76		152
G9H95160N	E5H95160	16	16	76		152
G9H95200N	E5H95200	20	20	76		152

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

\*Uncoated Tools in this series are not recommended for slotting in stainless steel.

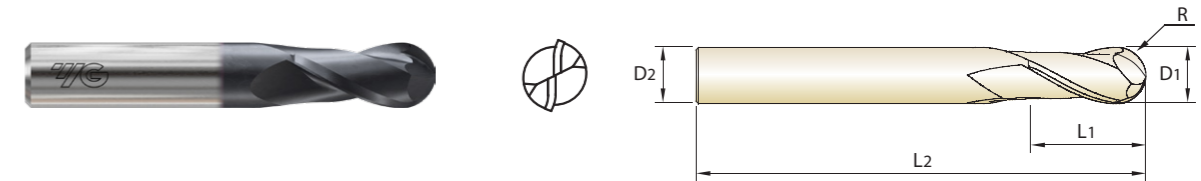
# YGBasiX END MILLS



X-Coated **G9I03** SERIES  
Uncoated **E5I03** SERIES

X-COATED & UNCOATED SOLID CARBIDE END MILLS  
**2 FLUTE BALL NOSE REGULAR LENGTH - METRIC**

► Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.



P. 150-151

Unit : metric

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	
X-Coated	Uncoated	R	D1	D2	L1	L2
G9I03010N	E5I03010	R0.5	1	3	4	39
G9I03901N	E5I03901	R0.5	1	3	5.5	39
G9I03015N	E5I03015	R0.75	1.5	3	5	39
G9I03020N	E5I03020	R1.0	2	3	8	39
G9I03025N	E5I03025	R1.25	2.5	3	9.5	39
G9I03030N	E5I03030	R1.5	3	3	12	39
G9I03035N	E5I03035	R1.75	3.5	4	12	51
G9I03040N	E5I03040	R2.0	4	4	14	51
G9I03045N	E5I03045	R2.25	4.5	5	16	51
G9I03050N	E5I03050	R2.5	5	5	16	51
G9I03060N	E5I03060	R3.0	6	6	19	63
G9I03070N	E5I03070	R3.5	7	8	19	63
G9I03080N	E5I03080	R4.0	8	8	20	63
G9I03090N	E5I03090	R4.5	9	10	22	63
G9I03100N	E5I03100	R5.0	10	10	22	76
G9I03110N	E5I03110	R5.5	11	12	25	76
G9I03120N	E5I03120	R6.0	12	12	25	76
G9I03140N	E5I03140	R7.0	14	14	32	90
G9I03160N	E5I03160	R8.0	16	16	32	102
G9I03180N	E5I03180	R9.0	18	18	38	102
G9I03200N	E5I03200	R10.0	20	20	38	102
G9I03250N	E5I03250	R12.5	25	25	38	102

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

# YGBasiX END MILLS

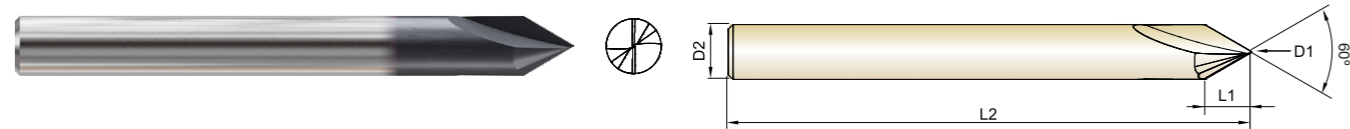


► Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.



## X-Coated **G9152** SERIES Uncoated **E5152** SERIES

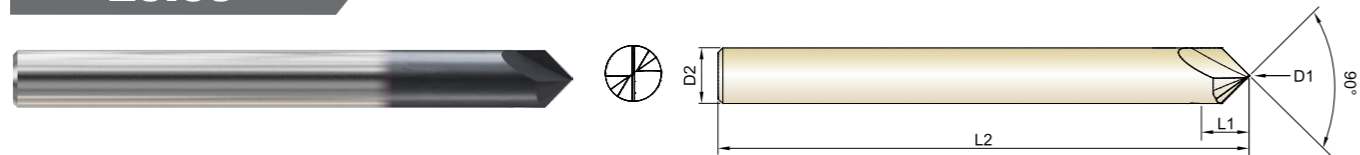
### X-COATED & UNCOATED SOLID CARBIDE END MILLS 2 FLUTE CHAMFER MILL



60° Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9152008N	E5152008	0	1/8	.108"	1-1/2
G9152016N	E5152016	0	1/4	.217"	2-1/2
G9152024N	E5152024	0	3/8	.325"	2-1/2
G9152032N	E5152032	0	1/2	.433"	3"

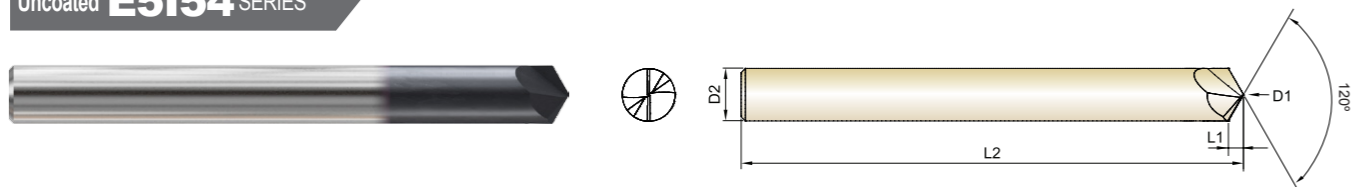
## X-Coated **G9153** SERIES Uncoated **E5153** SERIES



90° Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9153008N	E5153008	0	1/8	.063"	1-1/2
G9153016N	E5153016	0	1/4	.125"	2-1/2
G9153024N	E5153024	0	3/8	.188"	2-1/2
G9153032N	E5153032	0	1/2	.250"	3"

## X-Coated **G9154** SERIES Uncoated **E5154** SERIES



120° Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9154008N	E5154008	0	1/8	.036"	1-1/2
G9154016N	E5154016	0	1/4	.072"	2-1/2
G9154024N	E5154024	0	3/8	.108"	2-1/2
G9154032N	E5154032	0	1/2	.144"	3"

# YGBasiX END MILLS

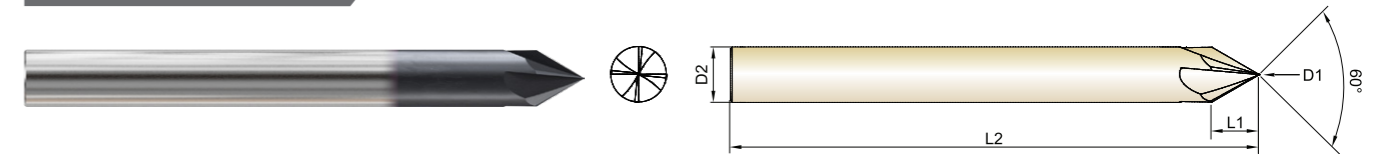


► Suitable for cutting high alloy steels, steel casting, chill casting, malleable cast iron, CrNi-steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics.



## X-Coated **G9155** SERIES Uncoated **E5155** SERIES

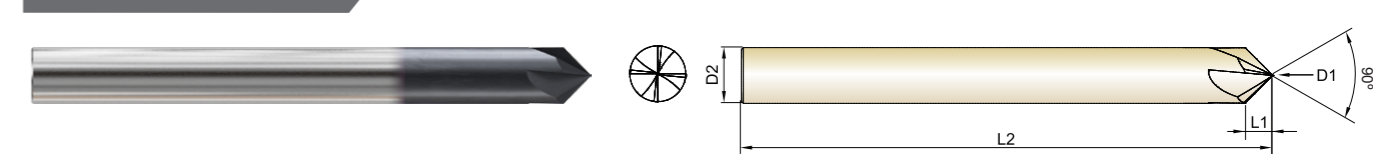
### X-COATED & UNCOATED SOLID CARBIDE END MILLS 4 FLUTE CHAMFER MILL



60° Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9155008N	E5155008	0	1/8	.108"	1-1/2
G9155016N	E5155016	0	1/4	.217"	2-1/2
G9155024N	E5155024	0	3/8	.325"	2-1/2
G9155032N	E5155032	0	1/2	.433"	3"

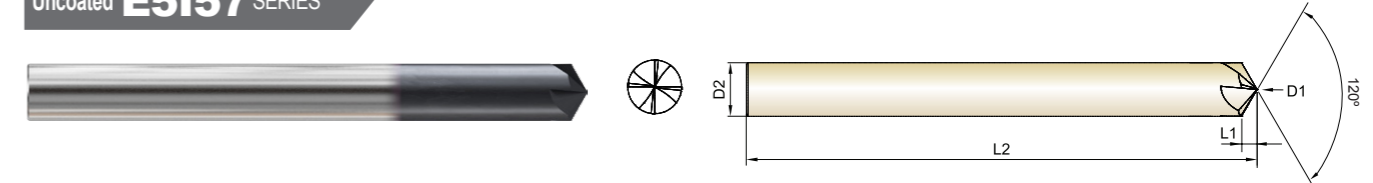
## X-Coated **G9156** SERIES Uncoated **E5156** SERIES



90° Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9156008N	E5156008	0	1/8	.063"	1-1/2
G9156016N	E5156016	0	1/4	.125"	2-1/2
G9156024N	E5156024	0	3/8	.188"	2-1/2
G9156032N	E5156032	0	1/2	.250"	3"

## X-Coated **G9157** SERIES Uncoated **E5157** SERIES



120° Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9157016N	E5157016	0	1/4	.072"	2-1/2
G9157024N	E5157024	0	3/8	.108"	2-1/2
G9157032N	E5157032	0	1/2	.144"	3"

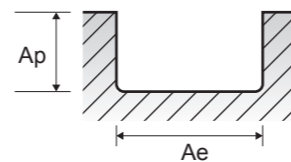
RECOMMENDED CUTTING CONDITIONS

**G9H80, G9H81, G9H85, G9H87, G9H91, G9H93, G9H96**

SQUARE / CORNER RADIUS / 2 Flute / SLOTTING / INCH / **X-Coated**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)													
						1/8	5/32	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	1			
P	1-2	Non-alloy steel	1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	170	170	170	170	170	170	170	170	170	170	170	170	170	
					IPT	.0005	.0006	.0008	.0009	.0012	.0015	.0017	.0018	.0025	.0029	.0037	.0037		
					RPM	5190	4160	3460	2600	2080	1730	1480	1300	1040	870	650	650		
	3-4		1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	145	145	145	145	145	145	145	145	145	145	145	145	145	
					IPT	.0005	.0006	.0008	.0009	.0013	.0016	.0017	.0019	.0024	.0029	.0039	.0039		
					RPM	4430	3540	2950	2220	1770	1480	1270	1110	890	740	550	550		
	5		1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	120	120	120	120	120	120	120	120	120	120	120	120	120	
					IPT	.0004	.0006	.0007	.0008	.0011	.0014	.0015	.0017	.0027	.0032	.0041	.0041		
					RPM	3670	2930	2440	1830	1470	1220	1050	920	730	610	460	460		
	6		1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	170	170	170	170	170	170	170	170	170	170	170	170	170	
IPT		.0005			.0006	.0008	.0009	.0012	.0015	.0017	.0018	.0025	.0029	.0037	.0037				
RPM		5190			4160	3460	2600	2080	1730	1480	1300	1040	870	650	650				
7	1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	145	145	145	145	145	145	145	145	145	145	145	145	145			
			IPT	.0005	.0006	.0008	.0009	.0013	.0016	.0017	.0019	.0024	.0029	.0039	.0039				
			RPM	4430	3540	2950	2220	1770	1480	1270	1110	890	740	550	550				
8-9	1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	120	120	120	120	120	120	120	120	120	120	120	120	120			
			IPT	.0004	.0006	.0007	.0008	.0011	.0014	.0015	.0017	.0027	.0032	.0041	.0041				
			RPM	3670	2930	2440	1830	1470	1220	1050	920	730	610	460	460				
10	1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	170	170	170	170	170	170	170	170	170	170	170	170	170			
			IPT	.0005	.0006	.0008	.0009	.0012	.0015	.0017	.0018	.0025	.0029	.0037	.0037				
			RPM	5190	4160	3460	2600	2080	1730	1480	1300	1040	870	650	650				
11.1	1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	120	120	120	120	120	120	120	120	120	120	120	120	120			
			IPT	.0004	.0006	.0007	.0008	.0011	.0014	.0015	.0017	.0027	.0032	.0041	.0041				
			RPM	3670	2930	2440	1830	1470	1220	1050	920	730	610	460	460				
M	14.1	Stainless steel	1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	120	120	120	120	120	120	120	120	120	120	120			
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	195	195	195	195	195	195	195	195	195	195	195	195		
					IPT	.0006	.0008	.0011	.0015	.0022	.0027	.0032	.0037	.0051	.0061	.0080	.0080		
					RPM	5960	4770	3970	2980	2380	1990	1700	1490	1190	990	740	740		
N	21-25	Aluminum-wrought alloy Aluminum-cast, alloyed	1.0D	1.0D	SFM	490	490	490	490	490	490	490	490	490	490	490	490		
					IPT	.0005	.0008	.0009	.0011	.0015	.0019	.0021	.0023	.0030	.0036	.0048	.0048		
					RPM	14970	11980	9980	7490	5990	4990	4280	3740	2990	2500	1870	1870		
	26-29.1		1.0D	Copper and Copper Alloys (Bronze / Brass) Non Metallic Materials	1.0D	1.0D	SFM	370	370	370	370	370	370	370	370	370	370	370	370
							IPT	.0006	.0007	.0009	.0012	.0015	.0020	.0021	.0023	.0030	.0036	.0047	.0047
							RPM	11310	9050	7540	5650	4520	3770	3230	2830	2260	1880	1410	1410

SFM = ft./min.  
IPT = In./tooth  
RPM = rev./min.  
IPM = In./min.



Slotting

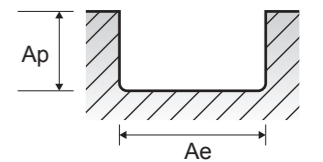
RECOMMENDED CUTTING CONDITIONS

**E5H80, E5H81, E5H85, E5H87, E5H91, E5H93, E5H96**

SQUARE / CORNER RADIUS / 2 FLUTE / SLOTTING / INCH / **Uncoated**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)												
						1/8	5/32	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	1		
P	1-2	Non-alloy steel	1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	110	110	110	110	110	110	110	110	110	110	110	110	
					IPT	.0004	.0006	.0007	.0009	.0011	.0014	.0016	.0018	.0025	.0029	.0039	.0039	
					RPM	3360	2690	2240	1680	1340	1120	960	840	670	560	420	420	
	3-4		1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	95	95	95	95	95	95	95	95	95	95	95	95	95
					IPT	.0005	.0006	.0008	.0009	.0012	.0015	.0017	.0018	.0026	.0030	.0038	.0038	
					RPM	2900	2320	1940	1450	1160	970	830	730	580	480	360	360	
	5		1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	80	80	80	80	80	80	80	80	80	80	80	80	80
					IPT	.0004	.0005	.0007	.0008	.0011	.0014	.0015	.0016	.0027	.0032	.0041	.0041	
					RPM	2440	1960	1630	1220	980	810	700	610	490	410	310	310	
	6		1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	110	110	110	110	110	110	110	110	110	110	110	110	110
IPT		.0004			.0006	.0007	.0009	.0011	.0014	.0016	.0018	.0025	.0030	.0039	.0039			
RPM		3360			2690	2240	1680	1340	1120	960	840	670	560	420	420			
7	1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	95	95	95	95	95	95	95	95	95	95	95	95	95		
			IPT	.0005	.0006	.0008	.0009	.0012	.0015	.0017	.0018	.0026	.0030	.0038	.0038			
			RPM	2900	2320	1940	1450	1160	970	830	730	580	480	360	360			
8-9	1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	80	80	80	80	80	80	80	80	80	80	80	80	80		
			IPT	.0004	.0005	.0007	.0008	.0011	.0014	.0015	.0016	.0027	.0032	.0041	.0041			
			RPM	2440	1960	1630	1220	980	810	700	610	490	410	310	310			
10	1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	110	110	110	110	110	110	110	110	110	110	110	110	110		
			IPT	.0004	.0006	.0007	.0009	.0011	.0014	.0016	.0018	.0025	.0030	.0039	.0039			
			RPM	3360	2690	2240	1680	1340	1120	960	840	670	560	420	420			
11.1	1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	80	80	80	80	80	80	80	80	80	80	80	80	80		
			IPT	.0004	.0005	.0007	.0008	.0011	.0014	.0015	.0016	.0027	.0032	.0041	.0041			
			RPM	2440	1960	1630	1220	980	810	700	610	490	410	310	310			
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	125	125	125	125	125	125	125	125	125	125	125		
N	21-25	Aluminum-wrought alloy Aluminum-cast, alloyed	1.0D	1.0D	SFM	315	315	315	315	315	315	315	315	315	315	315	315	
					IPT	.0005	.0007	.0009	.0011	.0015	.0019	.0021	.0023	.0030	.0035	.0045	.0045	
					RPM	9630	7700	6420	4810	3850	3210	2750	2410	1930	1600	1200	1200	
26-29.1	1.0D	Copper and Copper Alloys (Bronze / Brass) Non Metallic Materials	1.0D	1.0D	SFM	235	235	235	235	235	235	235	235	235	235	235	235	
					IPT	.0005	.0007	.0009	.0012	.0015	.0019	.0021	.0023	.0031	.0036	.0046	.0046	
					RPM	7180	5740	4790	3590	2870	2390	2050	1800	1440	1200	900	900	

SFM = ft./min.  
IPT = In./tooth  
RPM = rev./min.  
IPM = In./min.



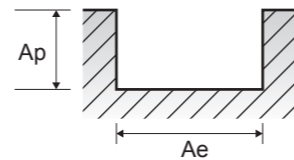
Slotting



**G9H86**  
SQUARE / 2 FLUTE / SLOTING / METRIC / **X-Coated**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)												
						3	4	5	6	8	10	12	16	18	20	25		
P	1-2	Non-alloy steel	1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	170	170	170	170	170	170	170	170	170	170	170	170	
					IPT	.0004	.0006	.0008	.0008	.0012	.0016	.0017	.0026	.0028	.0030	.0036		
					RPM	5500	4120	3300	2750	2060	1650	1370	1030	920	820	660		
	3-4		1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	145	145	145	145	145	145	145	145	145	145	145	145	
					IPT	.0004	.0006	.0008	.0009	.0013	.0016	.0018	.0025	.0028	.0031	.0038		
					RPM	4690	3520	3300	2750	2060	1650	1410	1170	880	780	700	560	
	5		1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	120	120	120	120	120	120	120	120	120	120	120	120	
					IPT	.0004	.0006	.0008	.0008	.0011	.0015	.0016	.0027	.0030	.0033	.0041		
					RPM	3880	2910	2330	1940	1460	1160	970	730	650	580	470		
	6		1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	170	170	170	170	170	170	170	170	170	170	170	170	
					IPT	.0004	.0006	.0008	.0008	.0012	.0016	.0017	.0026	.0028	.0030	.0036		
RPM		5500			4120	3300	2750	2060	1650	1370	1030	920	820	660				
7	1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	145	145	145	145	145	145	145	145	145	145	145	145			
			IPT	.0004	.0006	.0008	.0009	.0013	.0016	.0018	.0025	.0028	.0031	.0038				
			RPM	4690	3520	3300	2750	2060	1650	1410	1170	880	780	700	560			
8-9	1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	120	120	120	120	120	120	120	120	120	120	120	120			
			IPT	.0004	.0006	.0008	.0008	.0011	.0015	.0016	.0027	.0030	.0033	.0041				
			RPM	3880	2910	2330	1940	1460	1160	970	730	650	580	470				
10	1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	170	170	170	170	170	170	170	170	170	170	170	170			
			IPT	.0004	.0006	.0008	.0008	.0012	.0016	.0017	.0026	.0028	.0030	.0036				
			RPM	5500	4120	3300	2750	2060	1650	1370	1030	920	820	660				
11.1	1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	120	120	120	120	120	120	120	120	120	120	120	120			
			IPT	.0004	.0006	.0008	.0008	.0011	.0015	.0016	.0027	.0030	.0033	.0041				
			RPM	3880	2910	2330	1940	1460	1160	970	730	650	580	470				
M	14.1	Stainless steel	1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	120	120	120	120	120	120	120	120	120	120	120		
IPT	.0004	.0006	.0008	.0008	.0011	.0015	.0016	.0027	.0030	.0033	.0041							
RPM	3880	2910	2330	1940	1460	1160	970	730	650	580	470							
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	195	195	195	195	195	195	195	195	195	195	195		
IPT	.0006	.0009	.0011	.0014	.0022	.0029	.0035	.0052	.0058	.0064	.0079							
RPM	6310	4730	3780	3150	2360	1890	1580	1180	1050	950	760							
N	21-25	Aluminum-wrought alloy Aluminum-cast, alloyed	1.0D	1.0D	SFM	490	490	490	490	490	490	490	490	490	490	490		
					IPT	.0005	.0008	.0009	.0011	.0015	.0020	.0022	.0030	.0034	.0038	.0047		
					RPM	15850	11890	9510	7920	5940	4750	3960	2970	2640	2380	1900		
	26-29.1		1.0D	Copper and Copper Alloys (Bronze / Brass) Non Metallic Materials	1.0D	1.0D	SFM	370	370	370	370	370	370	370	370	370	370	370
							IPT	.0005	.0007	.0009	.0011	.0015	.0020	.0022	.0030	.0034	.0038	.0047
							RPM	11970	8970	7180	5980	4490	3590	2990	2240	1990	1790	1440

SFM = ft./min.  
IPT = In./tooth  
RPM = rev./min.  
IPM = In./min.

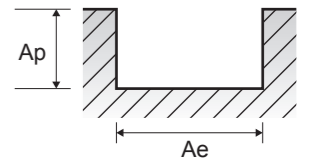


Slotting

**E5H86**  
SQUARE / 2 FLUTE / SLOTING / METRIC / **Uncoated**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)												
						3	4	5	6	8	10	12	16	18	20	25		
P	1-2	Non-alloy steel	1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	110	110	110	110	110	110	110	110	110	110	110		
					IPT	.0004	.0006	.0008	.0008	.0011	.0015	.0017	.0025	.0028	.0031	.0038		
					RPM	3560	2670	2130	1780	1330	1070	890	670	590	530	430		
	3-4		1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	95	95	95	95	95	95	95	95	95	95	95	95	
					IPT	.0004	.0006	.0008	.0009	.0012	.0016	.0017	.0026	.0028	.0031	.0038		
					RPM	3070	2300	1840	1540	1150	920	770	580	510	460	370		
	5		1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	80	80	80	80	80	80	80	80	80	80	80	80	
					IPT	.0004	.0005	.0007	.0008	.0011	.0014	.0016	.0027	.0030	.0033	.0040		
					RPM	2590	1940	1550	1290	970	780	650	490	430	390	310		
	6		1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	110	110	110	110	110	110	110	110	110	110	110	110	
					IPT	.0004	.0006	.0008	.0008	.0011	.0015	.0017	.0025	.0028	.0031	.0038		
RPM		3560			2670	2130	1780	1330	1070	890	670	590	530	430				
7	1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	95	95	95	95	95	95	95	95	95	95	95	95			
			IPT	.0004	.0006	.0008	.0009	.0012	.0016	.0017	.0026	.0028	.0031	.0038				
			RPM	3070	2300	1840	1540	1150	920	770	580	510	460	370				
8-9	1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	80	80	80	80	80	80	80	80	80	80	80	80			
			IPT	.0004	.0005	.0007	.0008	.0011	.0014	.0016	.0027	.0030	.0033	.0040				
			RPM	2590	1940	1550	1290	970	780	650	490	430	390	310				
10	1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	110	110	110	110	110	110	110	110	110	110	110	110			
			IPT	.0004	.0006	.0008	.0008	.0011	.0015	.0017	.0025	.0028	.0031	.0038				
			RPM	3560	2670	2130	1780	1330	1070	890	670	590	530	430				
11.1	1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	80	80	80	80	80	80	80	80	80	80	80	80			
			IPT	.0004	.0005	.0007	.0008	.0011	.0014	.0016	.0027	.0030	.0033	.0040				
			RPM	2590	1940	1550	1290	970	780	650	490	430	390	310				
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	upto Ø1/2 : 0.5D over Ø1/2 : 0.3D	SFM	125	125	125	125	125	125	125	125	125	125	125		
IPT	.0006	.0008	.0011	.0014	.0021	.0029	.0035	.0051	.0058	.0065	.0082							
RPM	4040	3030	2430	2020	1520	1210	1010	760	670	610	490							
N	21-25	Aluminum-wrought alloy Aluminum-cast, alloyed	1.0D	1.0D	SFM	315	315	315	315	315	315	315	315	315	315	315		
					IPT	.0005	.0007	.0009	.0011	.0015	.0020	.0022	.0030	.0033	.0037	.0045		
					RPM	10190	7640	6110	5090	3820	3060	2550	1910	1700	1530	1220		
	26-29.1		1.0D	Copper and Copper Alloys (Bronze / Brass) Non Metallic Materials	1.0D	1.0D	SFM	235	235	235	235	235	235	235	235	235	235	235
							IPT	.0005	.0007	.0009	.0011	.0015	.0020	.0022	.0031	.0034	.0037	.0045
							RPM	7600	5700	4560	3800	2850	2280	1900	1420	1270	1140	910

SFM = ft./min.  
IPT = In./tooth  
RPM = rev./min.  
IPM = In./min.



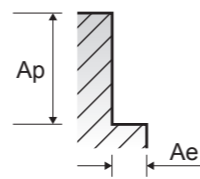
Slotting

**G9H82, G9I10**

SQUARE / 3 FLUTE / SIDE CUTTING / INCH / **X-Coated**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)												
						1/8	5/32	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	1		
P	1-2	Non-alloy steel	0.1D	1.5D	SFM	170	170	170	170	170	170	170	170	170	170	170	170	170
					IPT	.0006	.0009	.0011	.0013	.0017	.0022	.0024	.0026	.0038	.0044	.0056		
					RPM	5190	4160	3460	2600	2080	1730	1480	1300	1040	870	650		
	3-4		0.1D	1.5D	SFM	145	145	145	145	145	145	145	145	145	145	145	145	145
					IPT	.0007	.0009	.0011	.0014	.0018	.0023	.0025	.0027	.0038	.0045	.0060		
					RPM	4430	3540	2950	2220	1770	1480	1270	1110	890	740	550		
	5		0.1D	1.5D	SFM	120	120	120	120	120	120	120	120	120	120	120	120	120
					IPT	.0006	.0008	.0010	.0012	.0016	.0020	.0022	.0024	.0040	.0046	.0060		
					RPM	3670	2930	2440	1830	1470	1220	1050	920	730	610	460		
	6		0.1D	1.5D	SFM	170	170	170	170	170	170	170	170	170	170	170	170	170
					IPT	.0006	.0009	.0011	.0013	.0017	.0022	.0024	.0026	.0038	.0044	.0056		
RPM		5190			4160	3460	2600	2080	1730	1480	1300	1040	870	650				
7	0.1D	1.5D	SFM	145	145	145	145	145	145	145	145	145	145	145	145	145		
			IPT	.0007	.0009	.0011	.0014	.0018	.0023	.0025	.0027	.0038	.0045	.0060				
			RPM	4430	3540	2950	2220	1770	1480	1270	1110	890	740	550				
8-9	0.1D	1.5D	SFM	120	120	120	120	120	120	120	120	120	120	120	120	120		
			IPT	.0006	.0008	.0010	.0012	.0016	.0020	.0022	.0024	.0040	.0046	.0060				
			RPM	3670	2930	2440	1830	1470	1220	1050	920	730	610	460				
10	0.1D	1.5D	SFM	170	170	170	170	170	170	170	170	170	170	170	170	170		
			IPT	.0006	.0009	.0011	.0013	.0017	.0022	.0024	.0026	.0038	.0044	.0056				
			RPM	5190	4160	3460	2600	2080	1730	1480	1300	1040	870	650				
11.1	0.1D	1.5D	SFM	120	120	120	120	120	120	120	120	120	120	120	120	120		
			IPT	.0006	.0008	.0010	.0012	.0016	.0020	.0022	.0024	.0040	.0046	.0060				
			RPM	3670	2930	2440	1830	1470	1220	1050	920	730	610	460				
M	14.1	Stainless steel	0.1D	1.5D	SFM	160	160	160	160	160	160	160	160	160	160	160		
					IPT	.0003	.0004	.0006	.0007	.0009	.0012	.0013	.0014	.0020	.0025	.0035		
					RPM	4890	3910	3260	2440	1960	1630	1400	1220	980	810	610		
					IPM	5	5	5	5	5	6	5	5	6	6	6		
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.1D	1.5D	SFM	195	195	195	195	195	195	195	195	195	195	195		
					IPT	.0009	.0012	.0016	.0023	.0033	.0041	.0048	.0056	.0078	.0081	.0088		
					RPM	5960	4770	3970	2980	2380	1990	1700	1490	1190	990	740		
					IPM	17	17	19	21	23	24	25	25	28	24	20		
N	21-25	Aluminum-wrought alloy Aluminum-cast, alloyed	0.1D	1.5D	SFM	490	490	490	490	490	490	490	490	490	490	490		
					IPT	.0008	.0011	.0013	.0017	.0022	.0027	.0031	.0034	.0044	.0053	.0071		
					RPM	14970	11980	9980	7490	5990	4990	4280	3740	2990	2500	1870		
					IPM	34	38	38	37	40	41	39	38	40	40	40		
	26-29.1	Copper and Copper Alloys (Bronze / Brass) Non Metallic Materials	0.1D	1.5D	SFM	370	370	370	370	370	370	370	370	370	370	370		
					IPT	.0008	.0010	.0013	.0017	.0022	.0029	.0031	.0034	.0044	.0053	.0069		
					RPM	11310	9050	7540	5650	4520	3770	3230	2830	2260	1880	1410		
					IPM	28	28	30	29	30	32	30	29	30	30	29		

SFM = ft./min.  
IPT = In./tooth  
RPM = rev./min.  
IPM = In./min.



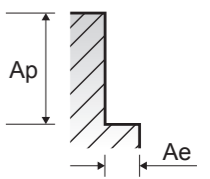
Side Cutting

**E5H82, E5I10**

SQUARE / 3 FLUTE / SIDE CUTTING / INCH / **Uncoated**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)											
						1/8	5/32	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	1	
P	1-2	Non-alloy steel	0.1D	1.5D	SFM	110	110	110	110	110	110	110	110	110	110	110	110
					IPT	.0006	.0009	.0011	.0013	.0017	.0022	.0024	.0026	.0038	.0044	.0059	
					RPM	3360	2690	2240	1680	1340	1120	960	840	670	560	420	
	3-4		0.1D	1.5D	SFM	95	95	95	95	95	95	95	95	95	95	95	95
					IPT	.0007	.0009	.0011	.0013	.0018	.0023	.0025	.0027	.0038	.0045	.0057	
					RPM	2900	2320	1940	1450	1160	970	830	730	580	480	360	
	5		0.1D	1.5D	SFM	80	80	80	80	80	80	80	80	80	80	80	80
					IPT	.0006	.0008	.0010	.0012	.0016	.0020	.0022	.0024	.0039	.0046	.0059	
					RPM	2440	1960	1630	1220	980	810	700	610	490	410	310	
	6		0.1D	1.5D	SFM	110	110	110	110	110	110	110	110	110	110	110	110
					IPT	.0006	.0009	.0011	.0013	.0017	.0022	.0024	.0026	.0038	.0045	.0059	
RPM		3360			2690	2240	1680	1340	1120	960	840	670	560	420			
7	0.1D	1.5D	SFM	95	95	95	95	95	95	95	95	95	95	95	95		
			IPT	.0007	.0009	.0011	.0013	.0018	.0023	.0025	.0027	.0038	.0045	.0057			
			RPM	2900	2320	1940	1450	1160	970	830	730	580	480	360			
8-9	0.1D	1.5D	SFM	80	80	80	80	80	80	80	80	80	80	80	80		
			IPT	.0006	.0008	.0010	.0012	.0016	.0020	.0022	.0024	.0039	.0046	.0059			
			RPM	2440	1960	1630	1220	980	810	700	610	490	410	310			
10	0.1D	1.5D	SFM	110	110	110	110	110	110	110	110	110	110	110	110		
			IPT	.0006	.0009	.0011	.0013	.0017	.0022	.0024	.0026	.0038	.0045	.0059			
			RPM	3360	2690	2240	1680	1340	1120	960	840	670	560	420			
11.1	0.1D	1.5D	SFM	80	80	80	80	80	80	80	80	80	80	80	80		
			IPT	.0006	.0008	.0010	.0012	.0016	.0020	.0022	.0024	.0039	.0046	.0059			
			RPM	2440	1960	1630	1220	980	810	700	610	490	410	310			
M	14.1	Stainless steel	0.1D	1.5D	SFM	100	100	100	100	100	100	100	100	100	100	100	
					IPT	.0003	.0004	.0006	.0007	.0009	.0011	.0012	.0014	.0020	.0025	.0033	
					RPM	3060	2440	2040	1530	1220	1020	870	760	610	510	380	
					IPM	3	3	3	3	3	3	3	3	4	4	4	
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.1D	1.5D	SFM	125	125	125	125	125	125	125	125	125	125	125	
					IPT	.0010	.0012	.0016	.0023	.0032	.0041	.0048	.0056	.0075	.0092	.0124	
					RPM	3820	3060	2550	1910	1530	1270	1090	950	760	640	480	
					IPM	11	11	12	13	14	16	16	16	17	18	18	
N	21-25	Aluminum-wrought alloy Aluminum-cast, alloyed	0.1D	1.5D	SFM	315	315	315	315	315	315	315	315	315	315	315	
					IPT	.0008	.0011	.0013	.0017	.0023	.0028	.0032	.0035	.0045	.0053	.0068	
					RPM	9630	7700	6420	4810	3850	3210	2750	2410	1930	1600	1200	
					IPM	22	24	26	25	26	27	26	25	26	25	24	
	26-29.1	Copper and Copper Alloys (Bronze / Brass) Non Metallic Materials	0.1D	1.5D	SFM	235	235	235	235	235	235	235	235	235	235	235	
					IPT	.0007	.0010	.0012	.0017	.0023	.0029	.0032	.0035	.0046	.0054	.0069	
					RPM	7180	5740	4790	3590	2870	2390	2050	1800	1440	1200	900	
					IPM	15	16	17	19	20	21	19	19	20	19	19	

SFM = ft./min.  
IPT = In./tooth  
RPM = rev./min.  
IPM = In./min.



Side Cutting

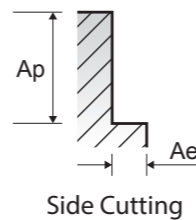


## RECOMMENDED CUTTING CONDITIONS

**G9H83, G9H84, G9H88, G9H90, G9H92, G9H94, G9H97**  
SQUARE / CORNER RADIUS / 4 FLUTE / SIDE CUTTING / INCH / **X-Coated**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)												
						1/8	5/32	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	1		
P	1-2	Non-alloy steel	0.1D	1.5D	SFM	170	170	170	170	170	170	170	170	170	170	170	170	170
					IPT	.0006	.0009	.0011	.0013	.0017	.0022	.0024	.0026	.0038	.0044	.0056		
					RPM	5190	4160	3460	2600	2080	1730	1480	1300	1040	870	650		
	3-4		SFM	145	145	145	145	145	145	145	145	145	145	145	145			
			IPT	.0007	.0009	.0011	.0014	.0018	.0023	.0025	.0027	.0038	.0045	.0060				
			RPM	4430	3540	2950	2220	1770	1480	1270	1110	890	740	550				
	5		SFM	120	120	120	120	120	120	120	120	120	120	120	120			
			IPT	.0006	.0008	.0010	.0012	.0016	.0020	.0022	.0024	.0040	.0046	.0060				
			RPM	3670	2930	2440	1830	1470	1220	1050	920	730	610	460				
	6		SFM	170	170	170	170	170	170	170	170	170	170	170	170			
IPT		.0006	.0009	.0011	.0013	.0017	.0022	.0024	.0026	.0038	.0044	.0056						
RPM		5190	4160	3460	2600	2080	1730	1480	1300	1040	870	650						
7	SFM	145	145	145	145	145	145	145	145	145	145	145						
	IPT	.0007	.0009	.0011	.0014	.0018	.0023	.0025	.0027	.0038	.0045	.0060						
	RPM	4430	3540	2950	2220	1770	1480	1270	1110	890	740	550						
8-9	SFM	120	120	120	120	120	120	120	120	120	120	120						
	IPT	.0006	.0008	.0010	.0012	.0016	.0020	.0022	.0024	.0040	.0046	.0060						
	RPM	3670	2930	2440	1830	1470	1220	1050	920	730	610	460						
10	SFM	170	170	170	170	170	170	170	170	170	170	170						
	IPT	.0006	.0009	.0011	.0013	.0017	.0022	.0024	.0026	.0038	.0044	.0056						
	RPM	5190	4160	3460	2600	2080	1730	1480	1300	1040	870	650						
11.1	SFM	120	120	120	120	120	120	120	120	120	120	120						
	IPT	.0006	.0008	.0010	.0012	.0016	.0020	.0022	.0024	.0040	.0046	.0060						
	RPM	3670	2930	2440	1830	1470	1220	1050	920	730	610	460						
M	14.1	Stainless steel	0.1D	1.5D	SFM	160	160	160	160	160	160	160	160	160	160	160		
					IPT	.0003	.0004	.0006	.0007	.0009	.0012	.0013	.0014	.0020	.0025	.0035		
					RPM	4890	3910	3260	2440	1960	1630	1400	1220	980	810	610		
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.1D	1.5D	SFM	195	195	195	195	195	195	195	195	195	195	195		
					IPT	.0009	.0012	.0016	.0023	.0033	.0041	.0048	.0056	.0078	.0081	.0088		
					RPM	5960	4770	3970	2980	2380	1990	1700	1490	1190	990	740		
N	21-25	Aluminum-wrought alloy Aluminum-cast, alloyed	0.1D	1.5D	SFM	490	490	490	490	490	490	490	490	490	490	490		
					IPT	.0008	.0011	.0013	.0017	.0022	.0027	.0031	.0034	.0044	.0053	.0071		
					RPM	14970	11980	9980	7490	5990	4990	4280	3740	2990	2500	1870		
	26-29.1		Copper and Copper Alloys (Bronze / Brass) Non Metallic Materials	SFM	370	370	370	370	370	370	370	370	370	370	370	370		
				IPT	.0008	.0010	.0013	.0017	.0022	.0029	.0031	.0034	.0044	.0053	.0069			
				RPM	11310	9050	7540	5650	4520	3770	3230	2830	2260	1880	1410			
	11.1		High alloyed steel, and tool steel	SFM	120	120	120	120	120	120	120	120	120	120	120			
				IPT	.0006	.0008	.0010	.0012	.0016	.0020	.0022	.0024	.0040	.0046	.0060			
				RPM	3670	2930	2440	1830	1470	1220	1050	920	730	610	460			

SFM = ft./min.  
IPT = In./tooth  
RPM = rev./min.  
IPM = In./min.

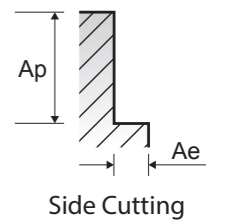


## RECOMMENDED CUTTING CONDITIONS

**E5H83, E5H84, E5H88, E5H90, E5H92, E5H94, E5H97**  
SQUARE / CORNER RADIUS / 4 FLUTE / SIDE CUTTING / INCH / **Uncoated**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)												
						1/8	5/32	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	1		
P	1-2	Non-alloy steel	0.1D	1.5D	SFM	110	110	110	110	110	110	110	110	110	110	110		
					IPT	.0006	.0009	.0011	.0013	.0017	.0022	.0024	.0026	.0038	.0045	.0059		
					RPM	3360	2690	2240	1680	1340	1120	960	840	670	560	420		
	3-4		SFM	95	95	95	95	95	95	95	95	95	95	95				
			IPT	.0007	.0009	.0011	.0013	.0018	.0023	.0025	.0027	.0038	.0045	.0057				
			RPM	2900	2320	1940	1450	1160	970	830	730	580	480	360				
	5		SFM	80	80	80	80	80	80	80	80	80	80	80				
			IPT	.0006	.0008	.0010	.0012	.0016	.0020	.0022	.0024	.0039	.0046	.0059				
			RPM	2440	1960	1630	1220	980	810	700	610	490	410	310				
	6		SFM	110	110	110	110	110	110	110	110	110	110	110				
IPT		.0006	.0009	.0011	.0013	.0017	.0022	.0024	.0026	.0038	.0045	.0059						
RPM		3360	2690	2240	1680	1340	1120	960	840	670	560	420						
7	SFM	95	95	95	95	95	95	95	95	95	95	95						
	IPT	.0007	.0009	.0011	.0013	.0018	.0023	.0025	.0027	.0038	.0045	.0057						
	RPM	2900	2320	1940	1450	1160	970	830	730	580	480	360						
8-9	SFM	80	80	80	80	80	80	80	80	80	80	80						
	IPT	.0006	.0008	.0010	.0012	.0016	.0020	.0022	.0024	.0039	.0046	.0059						
	RPM	2440	1960	1630	1220	980	810	700	610	490	410	310						
10	SFM	110	110	110	110	110	110	110	110	110	110	110						
	IPT	.0006	.0009	.0011	.0013	.0017	.0022	.0024	.0026	.0038	.0045	.0059						
	RPM	3360	2690	2240	1680	1340	1120	960	840	670	560	420						
11.1	SFM	80	80	80	80	80	80	80	80	80	80	80						
	IPT	.0006	.0008	.0010	.0012	.0016	.0020	.0022	.0024	.0039	.0046	.0059						
	RPM	2440	1960	1630	1220	980	810	700	610	490	410	310						
M	14.1	Stainless steel	0.1D	1.5D	SFM	100	100	100	100	100	100	100	100	100	100			
					IPT	.0003	.0004	.0006	.0007	.0009	.0011	.0012	.0014	.0020	.0025	.0033		
					RPM	3060	2440	2040	1530	1220	1020	870	760	610	510	380		
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.1D	1.5D	SFM	125	125	125	125	125	125	125	125	125	125			
					IPT	.0010	.0012	.0016	.0023	.0032	.0041	.0048	.0056	.0075	.0092	.0124		
					RPM	3820	3060	2550	1910	1530	1270	1090	950	760	640	480		
N	21-25	Aluminum-wrought alloy Aluminum-cast, alloyed	0.1D	1.5D	SFM	315	315	315	315	315	315	315	315	315	315			
					IPT	.0008	.0011	.0013	.0017	.0023	.0028	.0032	.0035	.0045	.0053	.0068		
					RPM	9630	7700	6420	4810	3850	3210	2750	2410	1930	1600	1200		
	26-29.1		Copper and Copper Alloys (Bronze / Brass) Non Metallic Materials	SFM	235	235	235	235	235	235	235	235	235	235				
				IPT	.0007	.0010	.0012	.0017	.0023	.0029	.0032	.0035	.0046	.0054	.0069			
				RPM	7180	5740	4790	3590	2870	2390	2050	1800	1440	1200	900			
	11.1		High alloyed steel, and tool steel	SFM	100	100	100	100	100	100	100	100	100	100				
				IPT	.0003	.0004	.0006	.0007	.0009	.0011	.0012	.0014	.0020	.0025	.0033			
				RPM	3060	2440	2040	1530	1220	1020	870	760	610	510	380			

SFM = ft./min.  
IPT = In./tooth  
RPM = rev./min.  
IPM = In./min.





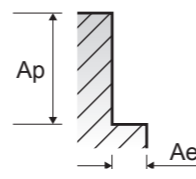


G9H89, G9H95

SQUARE / 4 FLUTE / SIDE CUTTING / METRIC / X-Coated

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)											
						3	4	5	6	8	10	12	16	18	20	25	
P	1-2	Non-alloy steel	0.1D	1.5D	SFM	170	170	170	170	170	170	170	170	170	170	170	170
					IPT	.0006	.0009	.0011	.0012	.0017	.0023	.0024	.0039	.0042	.0046	.0055	
					RPM	5500	4120	3300	2750	2060	1650	1370	1030	920	820	660	
	3-4		0.1D	1.5D	SFM	145	145	145	145	145	145	145	145	145	145	145	
					IPT	.0006	.0009	.0012	.0013	.0018	.0024	.0026	.0038	.0043	.0047	.0059	
					RPM	4690	3520	2810	2340	1760	1410	1170	880	780	700	560	
	5		0.1D	1.5D	SFM	120	120	120	120	120	120	120	120	120	120	120	
					IPT	.0006	.0008	.0011	.0011	.0016	.0022	.0023	.0040	.0044	.0048	.0059	
					RPM	3880	2910	2330	1940	1460	1160	970	730	650	580	470	
	6		0.1D	1.5D	SFM	170	170	170	170	170	170	170	170	170	170	170	
					IPT	.0006	.0009	.0011	.0012	.0017	.0023	.0024	.0039	.0042	.0046	.0055	
					RPM	5500	4120	3300	2750	2060	1650	1370	1030	920	820	660	
7	0.1D	1.5D	SFM	145	145	145	145	145	145	145	145	145	145	145			
			IPT	.0006	.0009	.0012	.0013	.0018	.0024	.0026	.0038	.0043	.0047	.0059			
			RPM	4690	3520	2810	2340	1760	1410	1170	880	780	700	560			
8-9	0.1D	1.5D	SFM	120	120	120	120	120	120	120	120	120	120	120			
			IPT	.0006	.0008	.0011	.0011	.0016	.0022	.0023	.0040	.0044	.0048	.0059			
			RPM	3880	2910	2330	1940	1460	1160	970	730	650	580	470			
10	0.1D	1.5D	SFM	170	170	170	170	170	170	170	170	170	170	170			
			IPT	.0006	.0009	.0011	.0012	.0017	.0023	.0024	.0039	.0042	.0046	.0055			
			RPM	5500	4120	3300	2750	2060	1650	1370	1030	920	820	660			
11.1	0.1D	1.5D	SFM	120	120	120	120	120	120	120	120	120	120	120			
			IPT	.0006	.0008	.0011	.0011	.0016	.0022	.0023	.0040	.0044	.0048	.0059			
			RPM	3880	2910	2330	1940	1460	1160	970	730	650	580	470			
M	14.1	Stainless steel	0.1D	1.5D	SFM	160	160	160	160	160	160	160	160	160	160	160	
					IPT	.0003	.0005	.0006	.0006	.0009	.0012	.0013	.0020	.0024	.0027	.0034	
					RPM	5170	3880	3100	2590	1940	1550	1290	970	860	780	620	
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.1D	1.5D	SFM	195	195	195	195	195	195	195	195	195	195	195	
					IPT	.0009	.0012	.0016	.0022	.0033	.0043	.0053	.0079	.0077	.0081	.0087	
					RPM	6310	4730	3780	3150	2360	1890	1580	1180	1050	950	760	
N	21-25	Aluminum-wrought alloy Aluminum-cast, alloyed	0.1D	1.5D	SFM	490	490	490	490	490	490	490	490	490	490	490	
					IPT	.0007	.0011	.0013	.0016	.0022	.0029	.0032	.0045	.0050	.0056	.0070	
					RPM	15850	11890	9510	7920	5940	4750	3960	2970	2640	2380	1900	
N	26-29.1	Copper and Copper Alloys (Bronze / Brass) Non Metallic Materials	0.1D	1.5D	SFM	370	370	370	370	370	370	370	370	370	370	370	
					IPT	.0008	.0011	.0014	.0016	.0022	.0030	.0032	.0045	.0050	.0055	.0068	
					RPM	11970	8970	7180	5980	4490	3590	2990	2240	1990	1790	1440	

SFM = ft./min.  
IPT = In./tooth  
RPM = rev./min.  
IPM = In./min.



Side Cutting

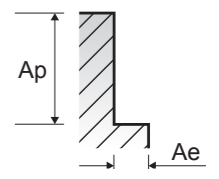


E5H89, E5H95

SQUARE / 4 FLUTE / SIDE CUTTING / METRIC / Uncoated

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)										
						3	4	5	6	8	10	12	16	18	20	25
P	1-2	Non-alloy steel	0.1D	1.5D	SFM	110	110	110	110	110	110	110	110	110	110	110
					IPT	.0006	.0009	.0011	.0013	.0017	.0023	.0025	.0038	.0042	.0047	.0058
					RPM	3560	2670	2130	1780	1330	1070	890	670	590	530	430
	3-4		0.1D	1.5D	SFM	95	95	95	95	95	95	95	95	95	95	95
					IPT	.0006	.0009	.0012	.0013	.0018	.0024	.0025	.0039	.0042	.0046	.0057
					RPM	3070	2300	1840	1540	1150	920	770	580	510	460	370
	5		0.1D	1.5D	SFM	80	80	80	80	80	80	80	80	80	80	80
					IPT	.0006	.0008	.0011	.0012	.0016	.0021	.0023	.0040	.0043	.0047	.0058
					RPM	2590	1940	1550	1290	970	780	650	490	430	390	310
	6		0.1D	1.5D	SFM	110	110	110	110	110	110	110	110	110	110	110
					IPT	.0006	.0009	.0011	.0013	.0017	.0023	.0025	.0038	.0042	.0047	.0058
					RPM	3560	2670	2130	1780	1330	1070	890	670	590	530	430
7	0.1D	1.5D	SFM	95	95	95	95	95	95	95	95	95	95	95		
			IPT	.0006	.0009	.0012	.0013	.0018	.0024	.0025	.0039	.0042	.0046	.0057		
			RPM	3070	2300	1840	1540	1150	920	770	580	510	460	370		
8-9	0.1D	1.5D	SFM	80	80	80	80	80	80	80	80	80	80	80		
			IPT	.0006	.0008	.0011	.0012	.0016	.0021	.0023	.0040	.0043	.0047	.0058		
			RPM	2590	1940	1550	1290	970	780	650	490	430	390	310		
10	0.1D	1.5D	SFM	110	110	110	110	110	110	110	110	110	110	110		
			IPT	.0006	.0009	.0011	.0013	.0017	.0023	.0025	.0038	.0042	.0047	.0058		
			RPM	3560	2670	2130	1780	1330	1070	890	670	590	530	430		
11.1	0.1D	1.5D	SFM	80	80	80	80	80	80	80	80	80	80	80		
			IPT	.0006	.0008	.0011	.0012	.0016	.0021	.0023	.0040	.0043	.0047	.0058		
			RPM	2590	1940	1550	1290	970	780	650	490	430	390	310		
M	14.1	Stainless steel	0.1D	1.5D	SFM	100	100	100	100	100	100	100	100	100	100	100
					IPT	.0003	.0005	.0006	.0007	.0009	.0012	.0013	.0020	.0024	.0027	.0034
					RPM	3230	2430	1940	1620	1210	970	810	610	540	490	390
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.1D	1.5D	SFM	125	125	125	125	125	125	125	125	125	125	125
					IPT	.0009	.0013	.0017	.0022	.0032	.0043	.0053	.0076	.0087	.0097	.0122
					RPM	4040	3030	2430	2020	1520	1210	1010	760	670	610	490
N	21-25	Aluminum-wrought alloy Aluminum-cast, alloyed	0.1D	1.5D	SFM	315	315	315	315	315	315	315	315	315	315	315
					IPT	.0007	.0011	.0014	.0016	.0023	.0030	.0033	.0046	.0050	.0055	.0067
					RPM	10190	7640	6110	5090	3820	3060	2550	1910	1700	1530	1220
N	26-29.1	Copper and Copper Alloys (Bronze / Brass) Non Metallic Materials	0.1D	1.5D	SFM	235	235	235	235	235	235	235	235	235	235	235
					IPT	.0007	.0010	.0013	.0016	.0023	.0030	.0033	.0046	.0051	.0056	.0068
					RPM	7600	5700	4560	3800	2850	2280	1900	1420	1270	1140	910

SFM = ft./min.  
IPT = In./tooth  
RPM = rev./min.  
IPM = In./min.



Side Cutting

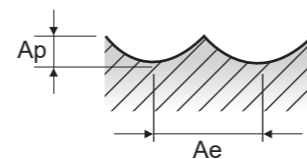


G9H98, G9I02, G9I04, G9I07

BALL NOSE / 2 FLUTE / SIDE CUTTING / INCH / **X-Coated**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)													
						1/8	5/32	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	1			
<b>P</b>	1-4	Non-alloy steel	0.7D	0.3D	SFM	160	160	160	160	160	160	160	160	160	160	160	160		
					IPT	.0005	.0007	.0009	.0010	.0013	.0016	.0017	.0018	.0023	.0028	.0036			
	RPM				4890	3910	3260	2440	1960	1630	1400	1220	980	810	610				
	IPM				5	5	6	5	5	5	5	4	4	5	4				
	SFM				130	130	130	130	130	130	130	130	130	130	130				
	IPT				.0003	.0004	.0005	.0006	.0008	.0010	.0010	.0011	.0015	.0018	.0022				
	5	Low alloy steel	0.7D	0.3D	SFM	130	130	130	130	130	130	130	130	130	130	130			
					IPT	.0003	.0004	.0005	.0006	.0008	.0010	.0010	.0011	.0015	.0018	.0022			
	RPM				3970	3180	2650	1990	1590	1320	1140	990	790	660	500				
	IPM				2	2	3	2	2	3	2	2	2	2	2				
	SFM				160	160	160	160	160	160	160	160	160	160	160				
	IPT				.0005	.0007	.0009	.0010	.0013	.0016	.0017	.0018	.0023	.0028	.0036				
6-7	High alloyed steel, and tool steel	0.7D	0.3D	SFM	160	160	160	160	160	160	160	160	160	160	160				
				IPT	.0005	.0007	.0009	.0010	.0013	.0016	.0017	.0018	.0023	.0028	.0036				
RPM				4890	3910	3260	2440	1960	1630	1400	1220	980	810	610					
IPM				5	5	6	5	5	5	5	4	4	5	4					
SFM				130	130	130	130	130	130	130	130	130	130	130					
IPT				.0003	.0004	.0005	.0006	.0008	.0010	.0010	.0011	.0015	.0018	.0022					
8-9	Grey cast iron, Nodular cast iron, Malleable cast iron	0.7D	0.3D	SFM	130	130	130	130	130	130	130	130	130	130	130				
				IPT	.0003	.0004	.0005	.0006	.0008	.0010	.0010	.0011	.0015	.0018	.0022				
RPM				3970	3180	2650	1990	1590	1320	1140	990	790	660	500					
IPM				2	2	3	2	2	3	2	2	2	2	2					
SFM				160	160	160	160	160	160	160	160	160	160	160					
IPT				.0005	.0007	.0009	.0010	.0013	.0016	.0017	.0018	.0023	.0028	.0036					
10	Aluminum-wrought alloy, Aluminum-cast, alloyed	0.7D	0.3D	SFM	220	220	220	220	220	220	220	220	220	220	220				
				IPT	.0006	.0010	.0014	.0019	.0032	.0053	.0050	.0047	.0062	.0073	.0066				
RPM				6720	5380	4480	3360	2690	2240	1920	1680	1340	1120	840					
IPM				8	11	13	13	17	24	19	16	17	16	11					
SFM				660	660	660	660	660	660	660	660	660	660	660					
IPT				.0003	.0005	.0007	.0008	.0012	.0016	.0019	.0022	.0025	.0030	.0039					
11.1	Aluminum-wrought alloy, Aluminum-cast, alloyed	0.7D	0.3D	SFM	660	660	660	660	660	660	660	660	660	660	660				
				IPT	.0003	.0005	.0007	.0008	.0012	.0016	.0019	.0022	.0025	.0030	.0039				
RPM				20170	16130	13450	10080	8070	6720	5760	5040	4030	3360	2520					
IPM				14	15	19	16	19	21	21	22	20	20	19					
SFM				220	220	220	220	220	220	220	220	220	220	220					
IPT				.0006	.0010	.0014	.0019	.0032	.0053	.0050	.0047	.0062	.0073	.0066					
<b>K</b>	15-20	Grey cast iron, Nodular cast iron, Malleable cast iron	0.7D	0.3D	SFM	425	425	425	425	425	425	425	425	425	425				
					IPT	.0004	.0005	.0007	.0008	.0012	.0016	.0019	.0022	.0025	.0030	.0038			
RPM					12990	10390	8660	6490	5190	4330	3710	3250	2600	2160	1620				
IPM					9	9	11	11	13	14	14	14	13	13	12				
SFM					140	140	140	140	140	140	140	140	140	140	140				
IPT					.0006	.0010	.0014	.0019	.0032	.0040	.0044	.0047	.0063	.0071	.0069				
<b>N</b>	21-25	Aluminum-wrought alloy, Aluminum-cast, alloyed	0.7D	0.3D	SFM	140	140	140	140	140	140	140	140	140	140				
					IPT	.0006	.0010	.0014	.0019	.0032	.0040	.0044	.0047	.0063	.0071	.0069			
RPM					4280	3420	2850	2140	1710	1430	1220	1070	860	710	530				
IPM					5	7	8	8	11	11	10	11	10	7	7				
SFM					425	425	425	425	425	425	425	425	425	425	425				
IPT					.0004	.0005	.0007	.0008	.0012	.0016	.0019	.0022	.0025	.0030	.0038				

SFM = ft./min.  
IPT = In./tooth  
RPM = rev./min.  
IPM = In./min.

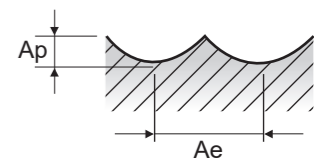


E5H98, E5I02, E5I04, E5I07

BALL NOSE / 2 FLUTE / SIDE CUTTING / INCH / **Uncoated**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)													
						1/8	5/32	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	1			
<b>P</b>	1-4	Non-alloy steel	0.7D	0.3D	SFM	100	100	100	100	100	100	100	100	100	100	100			
					IPT	.0005	.0007	.0009	.0010	.0013	.0017	.0017	.0018	.0024	.0029	.0037			
	RPM				3060	2440	2040	1530	1220	1020	870	760	610	510	380				
	IPM				3	3	4	3	3	3	3	3	3	3	3				
	SFM				85	85	85	85	85	85	85	85	85	85	85				
	IPT				.0003	.0004	.0005	.0006	.0007	.0009	.0010	.0011	.0015	.0018	.0022				
	5	Low alloy steel	0.7D	0.3D	SFM	100	100	100	100	100	100	100	100	100	100	100			
					IPT	.0005	.0007	.0009	.0010	.0013	.0017	.0017	.0018	.0024	.0029	.0037			
	RPM				3060	2440	2040	1530	1220	1020	870	760	610	510	380				
	IPM				3	3	4	3	3	3	3	3	3	3	3				
	SFM				85	85	85	85	85	85	85	85	85	85	85				
	IPT				.0003	.0004	.0005	.0006	.0007	.0009	.0010	.0011	.0015	.0018	.0022				
6-7	High alloyed steel, and tool steel	0.7D	0.3D	SFM	100	100	100	100	100	100	100	100	100	100	100				
				IPT	.0005	.0007	.0009	.0010	.0013	.0017	.0017	.0018	.0024	.0029	.0037				
RPM				3060	2440	2040	1530	1220	1020	870	760	610	510	380					
IPM				3	3	4	3	3	3	3	3	3	3	3					
SFM				85	85	85	85	85	85	85	85	85	85	85					
IPT				.0003	.0004	.0005	.0006	.0007	.0009	.0010	.0011	.0015	.0018	.0022					
8-9	Grey cast iron, Nodular cast iron, Malleable cast iron	0.7D	0.3D	SFM	100	100	100	100	100	100	100	100	100	100	100				
				IPT	.0005	.0007	.0009	.0010	.0013	.0017	.0017	.0018	.0024	.0029	.0037				
RPM				3060	2440	2040	1530	1220	1020	870	760	610	510	380					
IPM				3	3	4	3	3	3	3	3	3	3	3					
SFM				85	85	85	85	85	85	85	85	85	85	85					
IPT				.0003	.0004	.0005	.0006	.0007	.0009	.0010	.0011	.0015	.0018	.0022					
10	Aluminum-wrought alloy, Aluminum-cast, alloyed	0.7D	0.3D	SFM	100	100	100	100	100	100	100	100	100	100	100				
				IPT	.0005	.0007	.0009	.0010	.0013	.0017	.0017	.0018	.0024	.0029	.0037				
RPM				3060	2440	2040	1530	1220	1020	870	760	610	510	380					
IPM				3	3	4	3	3	3	3	3	3	3	3					
SFM				85	85	85	85	85	85	85	85	85	85	85					
IPT				.0003	.0004	.0005	.0006	.0007	.0009	.0010	.0011	.0015	.0018	.0022					
11.1	Aluminum-wrought alloy, Aluminum-cast, alloyed	0.7D	0.3D	SFM	140	140	140	140	140	140	140	140	140	140	140				
				IPT	.0006	.0010	.0014	.0019	.0032	.0040	.0044	.0047	.0063	.0071	.0069				
RPM				4280	3420	2850	2140	1710	1430	1220	1070	860	710	530					
IPM				5	7	8	8	11	11	10	11	10	7	7					
SFM				425	425	425	425	425	425	425	425	425	425	425					
IPT				.0004	.0005	.0007	.0008	.0012	.0016	.0019	.0022	.0025	.0030	.0038					
<b>K</b>	15-20	Grey cast iron, Nodular cast iron, Malleable cast iron	0.7D	0.3D	SFM	425	425	425	425	425	425	425	425	425	425				
					IPT	.0004	.0005	.0007	.0008	.0012	.0016	.0019	.0022	.0025	.0030	.0038			
RPM					12990	10390	8660	6490	5190	4330	3710	3250	2600	2160	1620				
IPM					9	9	11	11	13	14	14	14	13	13	12				
SFM					140	140	140	140	140	140	140	140	140	140	140				
IPT					.0006	.0010	.0014	.0019	.0032	.0040	.0044	.0047	.0063	.0071	.0069				
<b>N</b>	21-25	Aluminum-wrought alloy, Aluminum-cast, alloyed	0.7D	0.3D	SFM	425	425	425	425	425	425	425	425	425	425				
					IPT	.0004	.0005	.0007	.0008	.0012	.0016	.0019	.0022	.0025	.0030	.0038			
RPM					12990	10390	8660	6490	5190	4330	3710	3250	2600	2160	1620				
IPM					9	9	11	11	13	14	14	14	13	13	12				

SFM = ft./min.  
IPT = In./tooth  
RPM = rev./min.  
IPM = In./min.

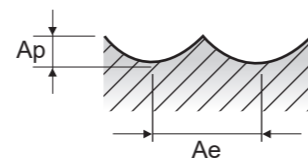


**G9103**

BALL NOSE / 2 FLUTE / SIDE CUTTING / METRIC / **X-Coated**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)										
						3	4	5	6	8	10	12	16	18	20	25
<b>P</b>	1-4	Non-alloy steel	0.7D	0.3D	SFM	160	160	160	160	160	160	160	160	160	160	160
					IPT	.0005	.0007	.0009	.0010	.0014	.0017	.0023	.0027	.0029	.0035	
	RPM				5170	3880	3100	2590	1940	1550	1290	970	860	780	620	
	IPM				5	5	6	5	5	5	4	4	5	5	4	
	SFM				130	130	130	130	130	130	130	130	130	130	130	
	IPT				.0003	.0004	.0005	.0005	.0008	.0010	.0010	.0015	.0018	.0018	.0021	
	RPM	4200	3150	2520	2100	1580	1260	1050	790	700	630	500				
	IPM	2	2	3	2	2	3	2	2	2	2	2				
	6-7	Low alloy steel	0.7D	0.3D	SFM	160	160	160	160	160	160	160	160	160	160	
					IPT	.0005	.0007	.0009	.0010	.0014	.0017	.0023	.0027	.0029	.0035	
	RPM				5170	3880	3100	2590	1940	1550	1290	970	860	780	620	
	IPM				5	5	6	5	5	5	4	4	5	5	4	
SFM	130				130	130	130	130	130	130	130	130	130	130		
IPT	.0003				.0004	.0005	.0005	.0008	.0010	.0010	.0015	.0018	.0018	.0021		
RPM	4200	3150	2520	2100	1580	1260	1050	790	700	630	500					
IPM	2	2	3	2	2	3	2	2	2	2	2					
8-9	High alloyed steel, and tool steel	0.7D	0.3D	SFM	160	160	160	160	160	160	160	160	160	160		
				IPT	.0005	.0007	.0009	.0010	.0014	.0017	.0023	.0027	.0029	.0035		
RPM				5170	3880	3100	2590	1940	1550	1290	970	860	780	620		
IPM				5	5	6	5	5	5	4	4	5	5	4		
SFM				130	130	130	130	130	130	130	130	130	130	130		
IPT				.0003	.0004	.0005	.0005	.0008	.0010	.0010	.0015	.0018	.0018	.0021		
RPM	4200	3150	2520	2100	1580	1260	1050	790	700	630	500					
IPM	2	2	3	2	2	3	2	2	2	2	2					
10	High alloyed steel, and tool steel	0.7D	0.3D	SFM	160	160	160	160	160	160	160	160	160	160		
				IPT	.0005	.0007	.0009	.0010	.0014	.0017	.0023	.0027	.0029	.0035		
RPM				5170	3880	3100	2590	1940	1550	1290	970	860	780	620		
IPM				5	5	6	5	5	5	4	4	5	5	4		
SFM				130	130	130	130	130	130	130	130	130	130	130		
IPT				.0003	.0004	.0005	.0005	.0008	.0010	.0010	.0015	.0018	.0018	.0021		
RPM	4200	3150	2520	2100	1580	1260	1050	790	700	630	500					
IPM	2	2	3	2	2	3	2	2	2	2	2					
11.1	High alloyed steel, and tool steel	0.7D	0.3D	SFM	130	130	130	130	130	130	130	130	130	130		
				IPT	.0003	.0004	.0005	.0005	.0008	.0010	.0010	.0015	.0018	.0018	.0021	
RPM				4200	3150	2520	2100	1580	1260	1050	790	700	630	500		
IPM				2	2	3	2	2	3	2	2	2	2	2		
SFM				220	220	220	220	220	220	220	220	220	220	220		
IPT				.0006	.0010	.0015	.0018	.0033	.0056	.0044	.0063	.0077	.0069	.0065		
RPM	7110	5340	4270	3560	2670	2130	1780	1330	1190	1070	850					
IPM	8	11	13	13	17	24	16	17	18	15	11					
<b>N</b>	21-25	Aluminum-wrought alloy Aluminum-cast, alloyed	0.7D	0.3D	SFM	660	660	660	660	660	660	660	660	660	660	
					IPT	.0003	.0005	.0007	.0008	.0012	.0016	.0020	.0025	.0029	.0031	.0038
RPM					21340	16010	12810	10670	8000	6400	5340	4000	3560	3200	2560	
IPM					14	15	19	16	19	21	22	20	21	20	19	
SFM					425	425	425	425	425	425	425	425	425	425	425	
IPT					.0003	.0005	.0007	.0008	.0012	.0017	.0020	.0025	.0029	.0031	.0038	
RPM	13740	10310	8250	6870	5150	4120	3440	2580	2290	2060	1650					
IPM	9	9	12	10	13	14	14	13	13	13	12					

SFM = ft./min.  
IPT = In./tooth  
RPM = rev./min.  
IPM = In./min.

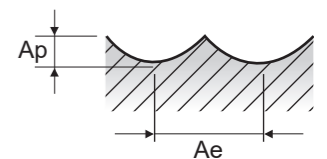


**E5103**

BALL NOSE / 2 FLUTE / SIDE CUTTING / METRIC / **Uncoated**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						3	4	5	6	8	10	12	16	18	20
<b>P</b>	1-4	Non-alloy steel	0.7D	0.3D	SFM	100	100	100	100	100	100	100	100	100	100
					IPT	.0005	.0007	.0009	.0010	.0013	.0018	.0017	.0024	.0027	.0030
	RPM				3230	2430	1940	1620	1210	970	810	610	540	490	390
	IPM				3	3	4	3	3	3	3	3	3	3	3
	SFM				85	85	85	85	85	85	85	85	85	85	85
	IPT				.0003	.0004	.0005	.0005	.0007	.0010	.0011	.0015	.0017	.0018	.0021
	RPM	2750	2060	1650	1370	1030	820	690	520	460	410	330			
	IPM	1	2	2	1	2	2	1	2	2	2	1			
	6-7	Low alloy steel	0.7D	0.3D	SFM	100	100	100	100	100	100	100	100	100	100
					IPT	.0005	.0007	.0009	.0010	.0013	.0018	.0017	.0024	.0027	.0030
	RPM				3230	2430	1940	1620	1210	970	810	610	540	490	390
	IPM				3	3	4	3	3	3	3	3	3	3	3
SFM	85				85	85	85	85	85	85	85	85	85	85	
IPT	.0003				.0004	.0005	.0005	.0007	.0010	.0011	.0015	.0017	.0018	.0021	
RPM	2750	2060	1650	1370	1030	820	690	520	460	410	330				
IPM	1	2	2	1	2	2	1	2	2	2	1				
8-9	High alloyed steel, and tool steel	0.7D	0.3D	SFM	100	100	100	100	100	100	100	100	100	100	
				IPT	.0005	.0007	.0009	.0010	.0013	.0018	.0017	.0024	.0027	.0030	.0036
RPM				3230	2430	1940	1620	1210	970	810	610	540	490	390	
IPM				3	3	4	3	3	3	3	3	3	3	3	
SFM				85	85	85	85	85	85	85	85	85	85	85	
IPT				.0003	.0004	.0005	.0005	.0007	.0010	.0011	.0015	.0017	.0018	.0021	
RPM	2750	2060	1650	1370	1030	820	690	520	460	410	330				
IPM	1	2	2	1	2	2	1	2	2	2	1				
10	High alloyed steel, and tool steel	0.7D	0.3D	SFM	100	100	100	100	100	100	100	100	100	100	
				IPT	.0005	.0007	.0009	.0010	.0013	.0018	.0017	.0024	.0027	.0030	.0036
RPM				3230	2430	1940	1620	1210	970	810	610	540	490	390	
IPM				3	3	4	3	3	3	3	3	3	3	3	
SFM				85	85	85	85	85	85	85	85	85	85	85	
IPT				.0003	.0004	.0005	.0005	.0007	.0010	.0011	.0015	.0017	.0018	.0021	
RPM	2750	2060	1650	1370	1030	820	690	520	460	410	330				
IPM	1	2	2	1	2	2	1	2	2	2	1				
<b>K</b>	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.7D	0.3D	SFM	140	140	140	140	140	140	140	140	140	140
					IPT	.0006	.0010	.0015	.0018	.0032	.0042	.0045	.0063	.0073	.0068
RPM					4530	3400	2720	2260	1700	1360	1130	850	750	680	540
IPM					5	7	8	8	11	11	10	11	11	9	7
SFM					425	425	425	425	425	425	425	425	425	425	425
IPT					.0003	.0005	.0007	.0008	.0012	.0017	.0020	.0025	.0029	.0031	.0038
RPM	13740	10310	8250	6870	5150	4120	3440	2580	2290	2060	1650				
IPM	9	9	12	10	13	14	14	13	13	13	12				

SFM = ft./min.  
IPT = In./tooth  
RPM = rev./min.  
IPM = In./min.







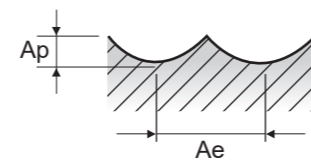
RECOMMENDED CUTTING CONDITIONS

**G9H99, G9I01, G9I05, G9I06, G9I08, G9I09**

BALL NOSE / 4 FLUTE / SIDE CUTTING / INCH / **X-Coated**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)													
						1/8	5/32	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	1			
<b>P</b>	1-4	Non-alloy steel	0.7D	0.3D	SFM	160	160	160	160	160	160	160	160	160	160	160	160	160	
					IPT	.0004	.0005	.0007	.0008	.0010	.0012	.0013	.0014	.0018	.0022	.0028			
					RPM	4890	3910	3260	2440	1960	1630	1400	1220	980	810	610			
	IPM				8	8	9	8	8	8	7	7	7	7	7				
	SFM				130	130	130	130	130	130	130	130	130	130	130				
	IPT				.0002	.0003	.0004	.0004	.0006	.0007	.0008	.0009	.0012	.0014	.0017				
	RPM	3970	3180	2650	1990	1590	1320	1140	990	790	660	500							
	IPM	3	4	4	3	4	4	4	3	4	4	3							
	6-7	Low alloy steel	0.7D	0.3D	SFM	160	160	160	160	160	160	160	160	160	160	160	160		
					IPT	.0004	.0005	.0007	.0008	.0010	.0012	.0013	.0014	.0018	.0022	.0028			
					RPM	4890	3910	3260	2440	1960	1630	1400	1220	980	810	610			
	IPM				8	8	9	8	8	8	7	7	7	7	7				
SFM	130				130	130	130	130	130	130	130	130	130	130					
IPT	.0002				.0003	.0004	.0004	.0006	.0007	.0008	.0009	.0012	.0014	.0017					
RPM	3970	3180	2650	1990	1590	1320	1140	990	790	660	500								
IPM	3	4	4	3	4	4	4	3	4	4	3								
8-9	High alloyed steel, and tool steel	0.7D	0.3D	SFM	160	160	160	160	160	160	160	160	160	160	160				
				IPT	.0004	.0005	.0007	.0008	.0010	.0012	.0013	.0014	.0018	.0022	.0028				
				RPM	4890	3910	3260	2440	1960	1630	1400	1220	980	810	610				
IPM				8	8	9	8	8	8	7	7	7	7	7					
SFM				130	130	130	130	130	130	130	130	130	130	130					
IPT				.0002	.0003	.0004	.0004	.0006	.0007	.0008	.0009	.0012	.0014	.0017					
RPM	3970	3180	2650	1990	1590	1320	1140	990	790	660	500								
IPM	3	4	4	3	4	4	4	3	4	4	3								
10	High alloyed steel, and tool steel	0.7D	0.3D	SFM	160	160	160	160	160	160	160	160	160	160	160				
				IPT	.0004	.0005	.0007	.0008	.0010	.0012	.0013	.0014	.0018	.0022	.0028				
				RPM	4890	3910	3260	2440	1960	1630	1400	1220	980	810	610				
IPM				8	8	9	8	8	8	7	7	7	7	7					
SFM				130	130	130	130	130	130	130	130	130	130	130					
IPT				.0002	.0003	.0004	.0004	.0006	.0007	.0008	.0009	.0012	.0014	.0017					
RPM	3970	3180	2650	1990	1590	1320	1140	990	790	660	500								
IPM	3	4	4	3	4	4	4	3	4	4	3								
11.1	High alloyed steel, and tool steel	0.7D	0.3D	SFM	130	130	130	130	130	130	130	130	130	130	130				
				IPT	.0002	.0003	.0004	.0004	.0006	.0007	.0008	.0009	.0012	.0014	.0017				
				RPM	3970	3180	2650	1990	1590	1320	1140	990	790	660	500				
IPM				3	4	4	3	4	4	4	3	4	4	3					
<b>K</b>				15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.7D	0.3D	SFM	220	220	220	220	220	220	220	220	220	220	220
								IPT	.0004	.0007	.0011	.0014	.0024	.0029	.0032	.0034	.0047	.0055	.0048
	RPM	6720	5380					4480	3360	2690	2240	1920	1680	1340	1120	840			
IPM	12	16	19					19	26	26	24	23	25	25	16				
SFM	660	660	660					660	660	660	660	660	660	660	660				
IPT	.0003	.0004	.0005					.0006	.0009	.0012	.0014	.0016	.0019	.0023	.0029				
RPM	20170	16130	13450	10080	8070	6720	5760	5040	4030	3360	2520								
IPM	21	22	28	25	29	32	32	33	30	31	29								
<b>N</b>	21-25	Aluminum-wrought alloy Aluminum-cast, alloyed	0.7D	0.3D	SFM	660	660	660	660	660	660	660	660	660	660	660			
					IPT	.0003	.0004	.0005	.0006	.0009	.0012	.0014	.0016	.0019	.0023	.0029			
					RPM	20170	16130	13450	10080	8070	6720	5760	5040	4030	3360	2520			
IPM					21	22	28	25	29	32	32	33	30	31	29				

SFM = ft./min.  
IPT = In./tooth  
RPM = rev./min.  
IPM = In./min.



RECOMMENDED CUTTING CONDITIONS

**E5H99, E5I01, E5I05, E5I06, E5I08, E5I09**

BALL NOSE / 4 FLUTE / SIDE CUTTING / INCH / **Uncoated**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)												
						1/8	5/32	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	1		
<b>P</b>	1-4	Non-alloy steel	0.7D	0.3D	SFM	100	100	100	100	100	100	100	100	100	100	100	100	
					IPT	.0004	.0005	.0007	.0008	.0010	.0012	.0013	.0014	.0018	.0022	.0028		
					RPM	3060	2440	2040	1530	1220	1020	870	760	610	510	380		
	IPM				5	5	5	5	5	5	4	4	4	4	4			
	SFM				85	85	85	85	85	85	85	85	85	85	85			
	IPT				.0002	.0003	.0004	.0004	.0006	.0007	.0008	.0009	.0012	.0014	.0017			
	RPM	2600	2080	1730	1300	1040	870	740	650	520	430	320						
	IPM	2	2	3	2	2	3	2	2	2	2	2						
	6-7	Low alloy steel	0.7D	0.3D	SFM	100	100	100	100	100	100	100	100	100	100	100		
					IPT	.0004	.0005	.0007	.0008	.0010	.0012	.0013	.0014	.0018	.0021	.0028		
					RPM	3060	2440	2040	1530	1220	1020	870	760	610	510	380		
	IPM				5	5	5	5	5	5	4	4	4	4	4			
SFM	85				85	85	85	85	85	85	85	85	85	85				
IPT	.0002				.0003	.0004	.0004	.0006	.0007	.0008	.0009	.0012	.0014	.0017				
RPM	2600	2080	1730	1300	1040	870	740	650	520	430	320							
IPM	2	2	3	2	2	3	2	2	2	2	2							
8-9	High alloyed steel, and tool steel	0.7D	0.3D	SFM	100	100	100	100	100	100	100	100	100	100	100			
				IPT	.0004	.0005	.0007	.0008	.0010	.0012	.0013	.0014	.0018	.0021	.0028			
				RPM	3060	2440	2040	1530	1220	1020	870	760	610	510	380			
IPM				5	5	5	5	5	5	4	4	4	4	4				
SFM				85	85	85	85	85	85	85	85	85	85	85				
IPT				.0002	.0003	.0004	.0004	.0006	.0007	.0008	.0009	.0012	.0014	.0017				
RPM	2600	2080	1730	1300	1040	870	740	650	520	430	320							
IPM	2	2	3	2	2	3	2	2	2	2	2							
10	High alloyed steel, and tool steel	0.7D	0.3D	SFM	100	100	100	100	100	100	100	100	100	100	100			
				IPT	.0004	.0005	.0007	.0008	.0010	.0012	.0013	.0014	.0018	.0021	.0028			
				RPM	3060	2440	2040	1530	1220	1020	870	760	610	510	380			
IPM				5	5	5	5	5	5	4	4	4	4	4				
SFM				85	85	85	85	85	85	85	85	85	85	85				
IPT				.0002	.0003	.0004	.0004	.0006	.0007	.0008	.0009	.0012	.0014	.0017				
RPM	2600	2080	1730	1300	1040	870	740	650	520	430	320							
IPM	2	2	3	2	2	3	2	2	2	2	2							
11.1	High alloyed steel, and tool steel	0.7D	0.3D	SFM	100	100	100	100	100	100	100	100	100	100	100			
				IPT	.0004	.0005	.0007	.0008	.0010	.0012	.0013	.0014	.0018	.0021	.0028			
				RPM	3060	2440	2040	1530	1220	1020	870	760	610	510	380			
IPM				5	5	5	5	5	5	4	4	4	4	4				
SFM				85	85	85	85	85	85	85	85	85	85	85				
IPT				.0002	.0003	.0004	.0004	.0006	.0007	.0008	.0009	.0012	.0014	.0017				
RPM	2600	2080	1730	1300	1040	870	740	650	520	430	320							
IPM	2	2	3	2	2	3	2	2	2	2	2							
<b>K</b>	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.7D	0.3D	SFM	140	140	140	140	140	140	140	140	140	140	140		
					IPT	.0004	.0007	.0011	.0014	.0024	.0030	.0033	.0035	.0047	.0054	.0053		
					RPM	4280	3420	2850	2140	1710	1430	1220	1070	860	710	530		
IPM					8	10	12	12	16	17	16	15	16	15	11			
SFM					425	425	425	425	425	425	425	425	425	425	425			
IPT					.0003	.0003	.0005	.0006	.0009	.0012	.0014	.0016	.0019	.0023	.0029			
RPM	12990	10390	8660	6490	5190	4330	3710	3250	2600	2160	1620							
IPM	14	14	17	16	19	20	21	21	19	19	18							
<b>N</b>	21-25	Aluminum-wrought alloy Aluminum-cast, alloyed	0.7D	0.3D	SFM	425	425	425	425	425	425	425	425	425	425	425		
					IPT	.0003	.0003	.0005	.0006	.0009	.0012	.0014	.0016	.0019	.0023	.0029		
					RPM	12990	10390	8660	6490	5190	4330	3710	3250	2600	2160	1620		
IPM					14	14	17	16	19	20	21	21	19	19	18			

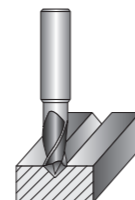
SFM = ft./min.  
IPT = In./tooth  
RPM = rev./min.  
IPM = In./min.

G9I31, G9I33

2 FLUTE / DRILL MILL / V-Grooving / X-Coated

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)									
				1/8	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	
P	1-2	Non-alloy steel	SFM	255	255	255	255	255	255	255	255	255	255
			IPT	.0004	.0006	.0008	.0011	.0013	.0014	.0015	.0018	.0023	
			RPM	7720	5150	3860	3090	2570	2210	1930	1540	1290	
	3-4		SFM	185	185	185	185	185	185	185	185	185	185
			IPT	.0003	.0005	.0006	.0009	.0011	.0013	.0016	.0018	.0023	
			RPM	5610	3740	2810	2250	1870	1600	1400	1120	940	
	5		SFM	160	160	160	160	160	160	160	160	160	
			IPT	.0003	.0005	.0007	.0011	.0012	.0013	.0014	.0018	.0023	
			RPM	4910	3280	2460	1970	1640	1400	1230	980	820	
	6		SFM	255	255	255	255	255	255	255	255	255	
			IPT	.0004	.0006	.0008	.0011	.0013	.0014	.0015	.0018	.0023	
			RPM	7720	5150	3860	3090	2570	2210	1930	1540	1290	
7	SFM	185	185	185	185	185	185	185	185	185			
	IPT	.0003	.0005	.0006	.0009	.0011	.0013	.0016	.0018	.0023			
	RPM	5610	3740	2810	2250	1870	1600	1400	1120	940			
8-9	SFM	160	160	160	160	160	160	160	160				
	IPT	.0003	.0005	.0007	.0011	.0012	.0013	.0014	.0018	.0023			
	RPM	4910	3280	2460	1970	1640	1400	1230	980	820			
10	SFM	255	255	255	255	255	255	255	255				
	IPT	.0004	.0006	.0008	.0011	.0013	.0014	.0015	.0018	.0023			
	RPM	7720	5150	3860	3090	2570	2210	1930	1540	1290			
11.1	SFM	160	160	160	160	160	160	160	160				
	IPT	.0003	.0005	.0007	.0011	.0012	.0013	.0014	.0018	.0023			
	RPM	4910	3280	2460	1970	1640	1400	1230	980	820			
M	14.1	Stainless steel	SFM	140	140	140	140	140	140	140	140		
			IPT	.0003	.0005	.0006	.0007	.0008	.0011	.0015	.0015	.0022	
			RPM	4210	2810	2110	1680	1400	1200	1050	840	700	
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	SFM	185	185	185	185	185	185	185	185		
			IPT	.0003	.0005	.0006	.0009	.0011	.0013	.0016	.0018	.0023	
			RPM	5610	3740	2810	2250	1870	1600	1400	1120	940	
N	21-25	Aluminum-wrought alloy Aluminum-cast, alloyed	SFM	690	690	690	690	690	690	690	690		
			IPT	.0006	.0010	.0013	.0018	.0021	.0022	.0023	.0032	.0041	
			RPM	21060	14040	10530	8420	7020	6020	5260	4210	3510	
			IPM	3	3	3	4	4	4	3	4	4	
			IPM	3	4	3	4	4	4	4	3	4	
			IPM	3	3	3	4	4	4	3	4	4	

SFM = ft./min.  
IPT = In./tooth  
RPM = rev./min.  
IPM = In./min.

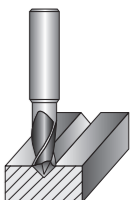


E5I31, E5I33

2 FLUTE / DRILL MILL / V-Grooving / Uncoated

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)								
				1/8	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4
P	1-2	Non-alloy steel	SFM	180	180	180	180	180	180	180	180	180
			IPT	.0004	.0006	.0008	.0011	.0013	.0014	.0015	.0018	.0023
			RPM	5510	3680	2760	2210	1840	1580	1380	1100	920
	3-4		SFM	130	130	130	130	130	130	130	130	
			IPT	.0003	.0005	.0006	.0009	.0011	.0013	.0016	.0018	.0023
			RPM	4010	2670	2010	1600	1340	1150	1000	800	670
	5		SFM	115	115	115	115	115	115	115	115	
			IPT	.0003	.0005	.0007	.0011	.0012	.0013	.0014	.0018	.0023
			RPM	3510	2340	1750	1400	1170	1000	880	700	580
	6		SFM	180	180	180	180	180	180	180	180	
			IPT	.0004	.0006	.0008	.0011	.0013	.0014	.0015	.0018	.0023
			RPM	5510	3680	2760	2210	1840	1580	1380	1100	920
7	SFM	130	130	130	130	130	130	130	130			
	IPT	.0003	.0005	.0006	.0009	.0011	.0013	.0016	.0018	.0023		
	RPM	4010	2670	2010	1600	1340	1150	1000	800	670		
8-9	SFM	115	115	115	115	115	115	115	115			
	IPT	.0003	.0005	.0007	.0011	.0012	.0013	.0014	.0018	.0023		
	RPM	3510	2340	1750	1400	1170	1000	880	700	580		
10	SFM	180	180	180	180	180	180	180	180			
	IPT	.0004	.0006	.0008	.0011	.0013	.0014	.0015	.0018	.0023		
	RPM	5510	3680	2760	2210	1840	1580	1380	1100	920		
11.1	SFM	115	115	115	115	115	115	115	115			
	IPT	.0003	.0005	.0007	.0011	.0012	.0013	.0014	.0018	.0023		
	RPM	3510	2340	1750	1400	1170	1000	880	700	580		
M	14.1	Stainless steel	SFM	100	100	100	100	100	100	100		
			IPT	.0003	.0005	.0006	.0007	.0008	.0011	.0015	.0015	.0022
			RPM	3010	2010	1500	1200	1000	860	750	600	500
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	SFM	130	130	130	130	130	130	130		
			IPT	.0003	.0005	.0006	.0009	.0011	.0013	.0016	.0018	.0023
			RPM	4010	2670	2010	1600	1340	1150	1000	800	670
N	21-25	Aluminum-wrought alloy Aluminum-cast, alloyed	SFM	490	490	490	490	490	490	490		
			IPT	.0006	.0010	.0013	.0018	.0021	.0022	.0023	.0032	.0041
			RPM	15040	10030	7520	6020	5010	4300	3760	3010	2510
			IPM	2	2	2	2	2	2	2	2	
			IPM	2	3	2	3	3	3	3	3	3
			IPM	2	2	2	3	3	3	2	3	3

SFM = ft./min.  
IPT = In./tooth  
RPM = rev./min.  
IPM = In./min.

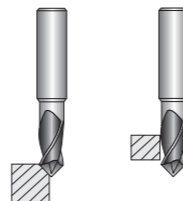


G9I31, G9I33

2 FLUTE / DRILL MILL / CHAMFERING & SIDE CUTTING / **X-Coated**

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)									
				1/8	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	
P	1-2	Non-alloy steel	SFM	250	250	250	250	250	250	250	250	250	250
			IPT	.0005	.0008	.0010	.0015	.0017	.0018	.0019	.0024	.0030	
			RPM	7700	5130	3850	3080	2570	2200	1930	1540	1280	
			IPM	8	8	8	9	9	8	7	7	8	
	3-4		SFM	185	185	185	185	185	185	185	185	185	
			IPT	.0004	.0006	.0008	.0012	.0014	.0017	.0021	.0023	.0029	
			RPM	5600	3740	2800	2240	1870	1600	1400	1120	930	
			IPM	4	5	4	5	5	5	6	5	5	
	5		SFM	160	160	160	160	160	160	160	160	160	
			IPT	.0004	.0006	.0009	.0014	.0015	.0016	.0018	.0023	.0030	
			RPM	4920	3280	2460	1970	1640	1410	1230	980	820	
			IPM	4	4	4	5	5	5	4	5	5	
6	SFM	250	250	250	250	250	250	250	250	250			
	IPT	.0005	.0008	.0010	.0015	.0017	.0018	.0019	.0024	.0030			
	RPM	7700	5130	3850	3080	2570	2200	1930	1540	1280			
	IPM	8	8	8	9	9	8	7	7	8			
7	SFM	185	185	185	185	185	185	185	185	185			
	IPT	.0004	.0006	.0008	.0012	.0014	.0017	.0021	.0023	.0029			
	RPM	5600	3740	2800	2240	1870	1600	1400	1120	930			
	IPM	4	5	4	5	5	5	6	5	5			
8-9	SFM	160	160	160	160	160	160	160	160	160			
	IPT	.0004	.0006	.0009	.0014	.0015	.0016	.0018	.0023	.0030			
	RPM	4920	3280	2460	1970	1640	1410	1230	980	820			
	IPM	4	4	4	5	5	5	4	5	5			
10	SFM	250	250	250	250	250	250	250	250	250			
	IPT	.0005	.0008	.0010	.0015	.0017	.0018	.0019	.0024	.0030			
	RPM	7700	5130	3850	3080	2570	2200	1930	1540	1280			
	IPM	8	8	8	9	9	8	7	7	8			
11.1	SFM	160	160	160	160	160	160	160	160	160			
	IPT	.0004	.0006	.0009	.0014	.0015	.0016	.0018	.0023	.0030			
	RPM	4920	3280	2460	1970	1640	1410	1230	980	820			
	IPM	4	4	4	5	5	5	4	5	5			
M	14.1	Stainless steel	SFM	135	135	135	135	135	135	135	135	135	
			IPT	.0004	.0006	.0007	.0009	.0010	.0015	.0019	.0019	.0029	
			RPM	4190	2800	2100	1680	1400	1200	1050	840	700	
			IPM	4	3	3	3	3	3	4	3	4	
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	SFM	185	185	185	185	185	185	185	185	185	
			IPT	.0004	.0006	.0008	.0012	.0014	.0017	.0021	.0023	.0029	
			RPM	5600	3740	2800	2240	1870	1600	1400	1120	930	
			IPM	4	5	4	5	5	5	6	5	5	
N	21-25	Aluminum-wrought alloy Aluminum-cast, alloyed	SFM	690	690	690	690	690	690	690	690	690	
			IPT	.0008	.0013	.0017	.0023	.0027	.0028	.0030	.0042	.0053	
			RPM	21050	14030	10520	8420	7020	6010	5260	4210	3510	
			IPM	34	36	35	39	37	34	32	35	37	

SFM = ft./min.  
IPT = In./tooth  
RPM = rev./min.  
IPM = In./min.

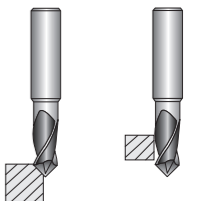


E5I31, E5I33

2 FLUTE / DRILL MILL / CHAMFERING & SIDE CUTTING / **Uncoated**

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)								
				1/8	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4
P	1-2	Non-alloy steel	SFM	180	180	180	180	180	180	180	180	180
			IPT	.0005	.0008	.0010	.0015	.0017	.0018	.0019	.0024	.0030
			RPM	5500	3670	2750	2200	1830	1570	1380	1100	920
			IPM	6	6	6	6	6	6	5	5	6
	3-4		SFM	130	130	130	130	130	130	130	130	130
			IPT	.0004	.0006	.0008	.0012	.0014	.0017	.0021	.0023	.0029
			RPM	4000	2670	2000	1600	1330	1140	1000	800	670
			IPM	3	3	3	4	4	4	4	4	4
	5		SFM	115	115	115	115	115	115	115	115	115
			IPT	.0004	.0006	.0009	.0014	.0015	.0016	.0018	.0023	.0030
			RPM	3510	2340	1760	1410	1170	1000	880	700	590
			IPM	3	3	3	4	3	3	3	3	3
6	SFM	180	180	180	180	180	180	180	180	180		
	IPT	.0005	.0008	.0010	.0015	.0017	.0018	.0019	.0024	.0030		
	RPM	5500	3670	2750	2200	1830	1570	1380	1100	920		
	IPM	6	6	6	6	6	6	5	5	6		
7	SFM	130	130	130	130	130	130	130	130	130		
	IPT	.0004	.0006	.0008	.0012	.0014	.0017	.0021	.0023	.0029		
	RPM	4000	2670	2000	1600	1330	1140	1000	800	670		
	IPM	3	3	3	4	4	4	4	4	4		
8-9	SFM	115	115	115	115	115	115	115	115	115		
	IPT	.0004	.0006	.0009	.0014	.0015	.0016	.0018	.0023	.0030		
	RPM	3510	2340	1760	1410	1170	1000	880	700	590		
	IPM	3	3	3	4	3	3	3	3	3		
10	SFM	180	180	180	180	180	180	180	180	180		
	IPT	.0005	.0008	.0010	.0015	.0017	.0018	.0019	.0024	.0030		
	RPM	5500	3670	2750	2200	1830	1570	1380	1100	920		
	IPM	6	6	6	6	6	6	5	5	6		
11.1	SFM	115	115	115	115	115	115	115	115	115		
	IPT	.0004	.0006	.0009	.0014	.0015	.0016	.0018	.0023	.0030		
	RPM	3510	2340	1760	1410	1170	1000	880	700	590		
	IPM	3	3	3	4	3	3	3	3	3		
M	14.1	Stainless steel	SFM	100	100	100	100	100	100	100	100	
			IPT	.0004	.0006	.0007	.0009	.0010	.0015	.0019	.0019	.0029
			RPM	2990	2000	1500	1200	1000	860	750	600	500
			IPM	3	2	2	2	2	2	3	2	3
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	SFM	130	130	130	130	130	130	130	130	
			IPT	.0004	.0006	.0008	.0012	.0014	.0017	.0021	.0023	.0029
			RPM	4000	2670	2000	1600	1330	1140	1000	800	670
			IPM	3	3	3	4	4	4	4	4	4
N	21-25	Aluminum-wrought alloy Aluminum-cast, alloyed	SFM	490	490	490	490	490	490	490	490	
			IPT	.0008	.0013	.0017	.0023	.0027	.0028	.0030	.0042	.0053
			RPM	15040	10020	7520	6010	5010	4300	3760	3010	2510
			IPM	24	26	25	28	27	24	23	25	27

SFM = ft./min.  
IPT = In./tooth  
RPM = rev./min.  
IPM = In./min.

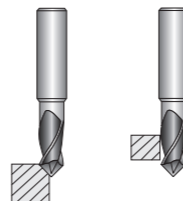


**G9I32, G9I34**

4 FLUTE / DRILL MILL / CHAMFERING & SIDE CUTTING / **X-Coated**

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)									
				1/8	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	
<b>P</b>	1-2	Non-alloy steel	SFM	250	250	250	250	250	250	250	250	250	250
			IPT	.0010	.0016	.0021	.0029	.0033	.0036	.0038	.0048	.0061	
			RPM	7700	5130	3850	3080	2570	2200	1930	1540	1280	
			IPM	16	17	16	18	17	16	15	15	16	
	3-4		SFM	185	185	185	185	185	185	185	185	185	185
			IPT	.0008	.0012	.0015	.0023	.0028	.0034	.0041	.0046	.0059	
			RPM	5600	3740	2800	2240	1870	1600	1400	1120	930	
			IPM	9	9	9	10	10	11	11	10	11	
	5		SFM	160	160	160	160	160	160	160	160	160	160
			IPT	.0008	.0012	.0017	.0028	.0030	.0033	.0036	.0047	.0060	
			RPM	4920	3280	2460	1970	1640	1410	1230	980	820	
			IPM	8	8	8	11	10	9	9	9	10	
6	SFM	250	250	250	250	250	250	250	250	250	250		
	IPT	.0010	.0016	.0021	.0029	.0033	.0036	.0038	.0048	.0061			
	RPM	7700	5130	3850	3080	2570	2200	1930	1540	1280			
	IPM	16	17	16	18	17	16	15	15	16			
7	SFM	185	185	185	185	185	185	185	185	185	185		
	IPT	.0008	.0012	.0015	.0023	.0028	.0034	.0041	.0046	.0059			
	RPM	5600	3740	2800	2240	1870	1600	1400	1120	930			
	IPM	9	9	9	10	10	11	11	10	11			
8-9	SFM	160	160	160	160	160	160	160	160	160	160		
	IPT	.0008	.0012	.0017	.0028	.0030	.0033	.0036	.0047	.0060			
	RPM	4920	3280	2460	1970	1640	1410	1230	980	820			
	IPM	8	8	8	11	10	9	9	9	10			
10	SFM	250	250	250	250	250	250	250	250	250	250		
	IPT	.0010	.0016	.0021	.0029	.0033	.0036	.0038	.0048	.0061			
	RPM	7700	5130	3850	3080	2570	2200	1930	1540	1280			
	IPM	16	17	16	18	17	16	15	15	16			
11.1	SFM	160	160	160	160	160	160	160	160	160	160		
	IPT	.0008	.0012	.0017	.0028	.0030	.0033	.0036	.0047	.0060			
	RPM	4920	3280	2460	1970	1640	1410	1230	980	820			
	IPM	8	8	8	11	10	9	9	9	10			
<b>M</b>	14.1	Stainless steel	SFM	135	135	135	135	135	135	135	135	135	
			IPT	.0009	.0012	.0015	.0019	.0021	.0029	.0038	.0039	.0058	
			RPM	4190	2800	2100	1680	1400	1200	1050	840	700	
			IPM	7	7	6	6	6	7	8	7	8	
<b>K</b>	15-20	Grey cast iron Nodular cast iron Malleable cast iron	SFM	185	185	185	185	185	185	185	185	185	
			IPT	.0008	.0012	.0015	.0023	.0028	.0034	.0041	.0046	.0059	
			RPM	5600	3740	2800	2240	1870	1600	1400	1120	930	
			IPM	9	9	9	10	10	11	11	10	11	
<b>N</b>	21-25	Aluminum-wrought alloy Aluminum-cast, alloyed	SFM	690	690	690	690	690	690	690	690	690	
			IPT	.0016	.0026	.0033	.0046	.0053	.0057	.0061	.0084	.0106	
			RPM	21050	14030	10520	8420	7020	6010	5260	4210	3510	
			IPM	68	73	70	77	75	68	64	71	75	

SFM = ft./min.  
IPT = In./tooth  
RPM = rev./min.  
IPM = In./min.

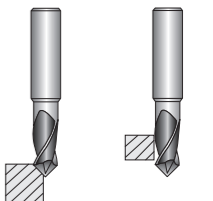


**E5I32, E5I34**

4 FLUTE / DRILL MILL / CHAMFERING & SIDE CUTTING / **Uncoated**

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)								
				1/8	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4
<b>P</b>	1-2	Non-alloy steel	SFM	180	180	180	180	180	180	180	180	180
			IPT	.0005	.0008	.0010	.0015	.0017	.0018	.0019	.0024	.0030
			RPM	5500	3670	2750	2200	1830	1570	1380	1100	920
			IPM	11	12	11	13	12	11	10	10	11
	3-4		SFM	130	130	130	130	130	130	130	130	130
			IPT	.0004	.0006	.0008	.0012	.0014	.0017	.0021	.0023	.0029
			RPM	4000	2670	2000	1600	1330	1140	1000	800	670
			IPM	6	7	6	7	7	8	8	7	8
	5		SFM	115	115	115	115	115	115	115	115	115
			IPT	.0004	.0006	.0009	.0014	.0015	.0016	.0018	.0023	.0030
			RPM	3510	2340	1760	1410	1170	1000	880	700	590
			IPM	5	5	6	8	7	7	6	7	7
6	SFM	180	180	180	180	180	180	180	180	180		
	IPT	.0005	.0008	.0010	.0015	.0017	.0018	.0019	.0024	.0030		
	RPM	5500	3670	2750	2200	1830	1570	1380	1100	920		
	IPM	11	12	11	13	12	11	10	10	11		
7	SFM	130	130	130	130	130	130	130	130	130		
	IPT	.0004	.0006	.0008	.0012	.0014	.0017	.0021	.0023	.0029		
	RPM	4000	2670	2000	1600	1330	1140	1000	800	670		
	IPM	6	7	6	7	7	8	8	7	8		
8-9	SFM	115	115	115	115	115	115	115	115	115		
	IPT	.0004	.0006	.0009	.0014	.0015	.0016	.0018	.0023	.0030		
	RPM	3510	2340	1760	1410	1170	1000	880	700	590		
	IPM	5	5	6	8	7	7	6	7	7		
10	SFM	180	180	180	180	180	180	180	180	180		
	IPT	.0005	.0008	.0010	.0015	.0017	.0018	.0019	.0024	.0030		
	RPM	5500	3670	2750	2200	1830	1570	1380	1100	920		
	IPM	11	12	11	13	12	11	10	10	11		
11.1	SFM	115	115	115	115	115	115	115	115	115		
	IPT	.0004	.0006	.0009	.0014	.0015	.0016	.0018	.0023	.0030		
	RPM	3510	2340	1760	1410	1170	1000	880	700	590		
	IPM	5	5	6	8	7	7	6	7	7		
<b>M</b>	14.1	Stainless steel	SFM	100	100	100	100	100	100	100	100	
			IPT	.0004	.0006	.0007	.0009	.0010	.0015	.0019	.0019	.0029
			RPM	2990	2000	1500	1200	1000	860	750	600	500
			IPM	5	5	4	4	4	5	6	5	6
<b>K</b>	15-20	Grey cast iron Nodular cast iron Malleable cast iron	SFM	130	130	130	130	130	130	130	130	
			IPT	.0004	.0006	.0008	.0012	.0014	.0017	.0021	.0023	.0029
			RPM	4000	2670	2000	1600	1330	1140	1000	800	670
			IPM	6	7	6	7	7	8	8	7	8
<b>N</b>	21-25	Aluminum-wrought alloy Aluminum-cast, alloyed	SFM	490	490	490	490	490	490	490	490	
			IPT	.0008	.0013	.0017	.0023	.0027	.0028	.0030	.0042	.0053
			RPM	15040	10020	7520	6010	5010	4300	3760	3010	2510
			IPM	48	52	50	55	53	49	45	50	53

SFM = ft./min.  
IPT = In./tooth  
RPM = rev./min.  
IPM = In./min.





**G9I52, G9I53, G9I54**

2 FLUTE / CHAMFER MILL / CHAMFERING / **X-Coated**

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)			
				1/8	1/4	3/8	1/2
P	1-2	Non-alloy steel	SFM	250	250	250	250
			IPT	.0005	.0010	.0017	.0019
			RPM	7700	3850	2570	1930
	3-4		IPM	8	8	9	7
			SFM	185	185	185	185
			IPT	.0004	.0008	.0014	.0021
	5		RPM	5600	2800	1870	1400
			IPM	4	4	5	6
			SFM	160	160	160	160
	6		IPT	.0004	.0009	.0015	.0018
			RPM	4920	2460	1640	1230
IPM		4	4	5	4		
7	Low alloy steel	SFM	250	250	250	250	
		IPT	.0005	.0010	.0017	.0019	
		RPM	7700	3850	2570	1930	
8-9		IPM	8	8	9	7	
		SFM	185	185	185	185	
		IPT	.0004	.0008	.0014	.0021	
10		RPM	5600	2800	1870	1400	
		IPM	4	4	5	6	
		SFM	160	160	160	160	
11.1		High alloyed steel, and tool steel	IPT	.0004	.0009	.0015	.0018
			RPM	4920	2460	1640	1230
	IPM		4	4	5	4	
M 14.1	Stainless steel		SFM	135	135	135	135
			IPT	.0004	.0007	.0010	.0019
			RPM	4190	2100	1400	1050
K 15-20	Grey cast iron Nodular cast iron Malleable cast iron		IPM	4	3	3	4
			SFM	185	185	185	185
			IPT	.0004	.0008	.0014	.0021
N 21-25	Aluminum-wrought alloy Aluminum-cast, alloyed		RPM	5600	2800	1870	1400
			IPM	4	4	5	6
		SFM	690	690	690	690	
		IPT	.0008	.0017	.0027	.0030	
		RPM	21050	10520	7020	5260	
		IPM	34	35	37	32	

SFM = ft./min.  
IPT = In./tooth  
RPM = rev./min.  
IPM = In./min.



**E5I52, E5I53, E5I54**

2 FLUTE / CHAMFER MILL / CHAMFERING / **Uncoated**

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)				
				1/8	1/4	3/8	1/2	
P	1-2	Non-alloy steel	SFM	180	180	180	180	
			IPT	.0005	.0010	.0017	.0019	
			RPM	5500	2750	1830	1380	
	3-4		IPM	6	6	6	5	
			SFM	130	130	130	130	
			IPT	.0004	.0008	.0014	.0021	
	5		RPM	4000	2000	1330	1000	
			IPM	3	3	4	4	
			SFM	115	115	115	115	
	6		Low alloy steel	IPT	.0004	.0009	.0015	.0018
				RPM	3510	1760	1170	880
IPM		3		3	3	3		
7	SFM	180		180	180	180		
	IPT	.0005		.0010	.0017	.0019		
	RPM	5500		2750	1830	1380		
8-9	IPM	6		6	6	5		
	SFM	130		130	130	130		
	IPT	.0004		.0008	.0014	.0021		
10	High alloyed steel, and tool steel	RPM		4000	2000	1330	1000	
		IPM		3	3	4	4	
		SFM	115	115	115	115		
11.1		IPT	.0004	.0009	.0015	.0018		
		RPM	3510	1760	1170	880		
		IPM	3	3	3	3		
M 14.1		Stainless steel	SFM	180	180	180	180	
			IPT	.0005	.0010	.0017	.0019	
			RPM	5500	2750	1830	1380	
K 15-20		Grey cast iron Nodular cast iron Malleable cast iron	IPM	6	6	6	5	
			SFM	100	100	100	100	
	IPT		.0004	.0007	.0010	.0019		
N 21-25	Aluminum-wrought alloy Aluminum-cast, alloyed	RPM	2990	1500	1000	750		
		IPM	3	2	2	3		
		SFM	130	130	130	130		
		IPT	.0004	.0008	.0014	.0021		
		RPM	4000	2000	1330	1000		
		IPM	3	3	4	4		
		SFM	490	490	490	490		
		IPT	.0008	.0017	.0027	.0030		
		RPM	15040	7520	5010	3760		
		IPM	24	25	27	23		

SFM = ft./min.  
IPT = In./tooth  
RPM = rev./min.  
IPM = In./min.



**G9I55, G9I56, G9I57**

4 FLUTE / CHAMFER MILL / CHAMFERING / **X-Coated**

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)			
				1/8	1/4	3/8	1/2
P	1-2	Non-alloy steel	SFM	250	250	250	250
			IPT	.0010	.0021	.0033	.0038
			RPM	7700	3850	2570	1930
	3-4		SFM	185	185	185	185
			IPT	.0008	.0015	.0028	.0041
			RPM	5600	2800	1870	1400
	5		SFM	160	160	160	160
			IPT	.0008	.0017	.0030	.0036
			RPM	4920	2460	1640	1230
	6		SFM	250	250	250	250
			IPT	.0010	.0021	.0033	.0038
			RPM	7700	3850	2570	1930
7	SFM	185	185	185	185		
	IPT	.0008	.0015	.0028	.0041		
	RPM	5600	2800	1870	1400		
8-9	SFM	160	160	160	160		
	IPT	.0008	.0017	.0030	.0036		
	RPM	4920	2460	1640	1230		
10	SFM	250	250	250	250		
	IPT	.0010	.0021	.0033	.0038		
	RPM	7700	3850	2570	1930		
11.1	SFM	160	160	160	160		
	IPT	.0008	.0017	.0030	.0036		
	RPM	4920	2460	1640	1230		
M	14.1	Stainless steel	SFM	135	135	135	135
			IPT	.0009	.0015	.0021	.0038
			RPM	4190	2100	1400	1050
			IPM	7	6	6	8
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	SFM	185	185	185	185
			IPT	.0008	.0015	.0028	.0041
			RPM	5600	2800	1870	1400
			IPM	9	9	10	11
N	21-25	Aluminum-wrought alloy Aluminum-cast, alloyed	SFM	690	690	690	690
			IPT	.0016	.0033	.0053	.0061
			RPM	21050	10520	7020	5260
			IPM	68	70	75	64

SFM = ft./min.  
IPT = In./tooth  
RPM = rev./min.  
IPM = In./min.



**E5I55, E5I56, E5I57**

4 FLUTE / CHAMFER MILL / CHAMFERING / **Uncoated**

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)			
				1/8	1/4	3/8	1/2
P	1-2	Non-alloy steel	SFM	180	180	180	180
			IPT	.0005	.0010	.0017	.0019
			RPM	5500	2750	1830	1380
	3-4		SFM	130	130	130	130
			IPT	.0004	.0008	.0014	.0021
			RPM	4000	2000	1330	1000
	5		SFM	115	115	115	115
			IPT	.0004	.0009	.0015	.0018
			RPM	3510	1760	1170	880
	6		SFM	180	180	180	180
			IPT	.0005	.0010	.0017	.0019
			RPM	5500	2750	1830	1380
7	SFM	130	130	130	130		
	IPT	.0004	.0008	.0014	.0021		
	RPM	4000	2000	1330	1000		
8-9	SFM	115	115	115	115		
	IPT	.0004	.0009	.0015	.0018		
	RPM	3510	1760	1170	880		
10	SFM	180	180	180	180		
	IPT	.0005	.0010	.0017	.0019		
	RPM	5500	2750	1830	1380		
11.1	SFM	115	115	115	115		
	IPT	.0004	.0009	.0015	.0018		
	RPM	3510	1760	1170	880		
M	14.1	Stainless steel	SFM	100	100	100	100
			IPT	.0004	.0007	.0010	.0019
			RPM	2990	1500	1000	750
			IPM	5	4	4	6
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	SFM	130	130	130	130
			IPT	.0004	.0008	.0014	.0021
			RPM	4000	2000	1330	1000
			IPM	6	6	7	8
N	21-25	Aluminum-wrought alloy Aluminum-cast, alloyed	SFM	490	490	490	490
			IPT	.0008	.0017	.0027	.0030
			RPM	15040	7520	5010	3760
			IPM	48	50	53	45

SFM = ft./min.  
IPT = In./tooth  
RPM = rev./min.  
IPM = In./min.



# COBALT & HSS END MILLS

- For General Purpose
- Non-Coated, Many Coatings Available
- HSSCo8 & HSS



## COBALT & HSS END MILLS



### SELECTION GUIDE

## COBALT & HSS END MILLS

- For General Purpose
- Non-Coated, Many Coatings Available
- HSSCo8 & HSS

SERIES	E2030	E2080	E2033	E2050	E2110	E2111	E2112
	E1030	E1080	E1033	E1050	E1110	E1111	E1112
FLUTE	2	2	2	2	2	2	2
HELIX ANGLE	30°	30°	30°	30°	30°	30°	30°
CUTTING EDGE SHAPE	SQUARE	SQUARE	SQUARE	SQUARE	BALL NOSE	BALL NOSE	BALL NOSE
SIZE MIN	D1/8	D1/4	D1/8	D1/8	R1/16	R1/16	R1/16
SIZE MAX	D2	D2	D1-1/4	D1	R1	R1/2	R1/2
PAGE	172	173	173	174	176	177	178
LENGTH	REGULAR LENGTH	LONG LENGTH	EXTENDED LENGTH	REGULAR LENGTH DOUBLE	REGULAR LENGTH	EXTENDED LENGTH	REGULAR LENGTH DOUBLE



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◎ : Excellent ○ : Good

Recommended cutting conditions : P.216-245

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRC	E2030	E2080	E2033	E2050	E2110	E2111	E2112
P	1	Non-alloy steel	About 0.15% C Annealed		125		◎	◎	◎	◎	◎	◎	◎
	2		About 0.45% C Annealed		190	13	◎	◎	◎	◎	◎	◎	◎
	3		About 0.45% C Quenched & Tempered		250	25	◎	◎	◎	◎	◎	◎	◎
	4		About 0.75% C Annealed		270	28	◎	◎	◎	◎	◎	◎	◎
	5		About 0.75% C Quenched & Tempered		300	32	○	○	○	○	○	○	○
	6	Low alloy steel	Annealed		180	10	◎	◎	◎	◎	◎	◎	◎
	7		Quenched & Tempered		275	29	◎	◎	◎	◎	◎	◎	◎
	8		Quenched & Tempered		300	32	○	○	○	○	○	○	○
	9		Quenched & Tempered		350	38	○	○	○	○	○	○	○
	10		High alloyed steel, and tool steel	Annealed		200	15	◎	◎	◎	◎	◎	◎
	11	Quenched & Tempered		325	35	○	○	○	○	○	○	○	
M	12	Stainless steel	Ferritic / Martensitic Annealed		200	15							
	13		Martensitic Quenched & Tempered		240	23							
	14		Austenitic		180	10							
K	15	Grey cast iron	Pearlitic / ferritic		180	10							
	16		Pearlitic (Martensitic)		260	26							
	17	Nodular cast iron	Ferritic		160	3							
	18		Pearlitic		250	25							
	19		Ferritic		130								
20	Malleable cast iron	Pearlitic		230	21								
N	21	Aluminum-wrought alloy	Not Curable		60		○	○	○	○	○	○	○
	22		Curable Hardened		100		○	○	○	○	○	○	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		○	○	○	○	○	○	○
	24		≤ 12% Si, Curable Hardened		90		○	○	○	○	○	○	○
	25		> 12% Si, Not Curable		130		○	○	○	○	○	○	○
	26		Cutting Alloys, PB>1%		110		○	○	○	○	○	○	○
	27	Copper and Copper Alloys (Bronze / Brass)	CuZn, CuSnZn (Brass)		90		○	○	○	○	○	○	○
	28		CuSn, lead-free copper and electrolytic copper		100		○	○	○	○	○	○	○
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic										
	30		Rubber, Wood, etc.										
S	31	Heat Resistant Super Alloys	Fe Based Annealed		200	15							
	32		Cured		280	30							
	33		Annealed		250	25							
	34		Ni or Co Based Cured		350	38							
	35		Cast		320	34							
	36	Titanium Alloys	Pure Titanium		400 Rm								
37	Alpha + Beta Alloys Hardened		1050 Rm										
H	38	Hardened steel	Hardened		550	55							
	39		Hardened		630	60							
	40	Hardened Cast Iron	Cast		400	42							
	41		Hardened		550	55							

# COBALT & HSS END MILLS



## SELECTION GUIDE

# COBALT & HSS END MILLS

- For General Purpose
- Non-Coated, Many Coatings Available
- HSSCo8 & HSS

SERIES	E2031	E2032	E2034	E2035	E2036	E2037	E2051
FLUTE	4	6	4	6	4	6	4
HELIX ANGLE	30°	30°	30°	30°	30°	30°	30°
CUTTING EDGE SHAPE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE
SIZE MIN	D1/8	D5/8	D1/4	D1-1/8	D1/4	D1-1/4	D1/8
SIZE MAX	D1	D2	D1	D2	D1	D2	D1
PAGE	179	180	181	181	182	182	183



Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : P.216-245

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRC	E2031	E2032	E2034	E2035	E2036	E2037	E2051	
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎	◎	◎	◎	◎	◎	◎	
	2		About 0.45% C Annealed	190	13	◎	◎	◎	◎	◎	◎	◎	
	3		About 0.45% C Quenched & Tempered	250	25	◎	◎	◎	◎	◎	◎	◎	
	4		About 0.75% C Annealed	270	28	◎	◎	◎	◎	◎	◎	◎	
	5	About 0.75% C Quenched & Tempered	300	32	○	○	○	○	○	○	○	○	
	6	Low alloy steel	Annealed	180	10	◎	◎	◎	◎	◎	◎	◎	
	7		Quenched & Tempered	275	29	◎	◎	◎	◎	◎	◎	◎	
	8		Quenched & Tempered	300	32	○	○	○	○	○	○	○	
	9		Quenched & Tempered	350	38	○	○	○	○	○	○	○	
	10		High alloyed steel, and tool steel	Annealed	200	15	◎	◎	◎	◎	◎	◎	◎
	11	Quenched & Tempered		325	35	○	○	○	○	○	○	○	
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15								
	13		Martensitic Quenched & Tempered	240	23								
	14	Austenitic	180	10									
K	15	Grey cast iron	Pearlitic / ferritic	180	10								
	16	Nodular cast iron	Pearlitic (Martensitic)	260	26								
	17		Ferritic	160	3								
	18	Malleable cast iron	Pearlitic	250	25								
	19		Ferritic	130									
	20	Pearlitic	230	21									
N	21	Aluminum-wrought alloy	Not Curable	60		○	○	○	○	○	○	○	
	22		Curable Hardened	100		○	○	○	○	○	○	○	
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		○	○	○	○	○	○	○	
	24		≤ 12% Si, Curable Hardened	90		○	○	○	○	○	○	○	
	25		> 12% Si, Not Curable	130		○	○	○	○	○	○	○	
	26		Cutting Alloys, PB>1%	110		○	○	○	○	○	○	○	
	27		Copper and Copper Alloys (Bronze / Brass)	CuZn, CuSnZn (Brass)	90		○	○	○	○	○	○	○
	28			CuSn, lead-free copper and electrolytic copper	100		○	○	○	○	○	○	○
	29		Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic									
	30			Rubber, Wood, etc.									
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15								
	32		Cured	280	30								
	33		Annealed	250	25								
	34		Ni or Co Based Cured	350	38								
	35	Cast	320	34									
	36	Titanium Alloys	Pure Titanium	400 Rm									
	37		Alpha + Beta Alloys Hardened	1050 Rm									
H	38	Hardened steel	Hardened	550	55								
	39		Hardened	630	60								
	40	Chilled Cast Iron	Cast	400	42								
	41	Hardened Cast Iron	Hardened	550	55								

# COBALT & HSS END MILLS



E2031	E2032	E2020	E2021	E2069	E2039	E2042	E2039	E2040	E2162	E2041	E2175	E2053	E2100	E2001	E2003
E1031	E1032				E1039	E1042	E2042	E1040	E1162	E1041	E1175	E1053	E1100	E1001	E1003
4	6&8	4	4	4	4	6	4-8	4	6	4	6	4	6	2	2
30°	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°&39°	30°&39°
SQUARE	SQUARE	BALL NOSE	BALL NOSE	BALL NOSE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE	SQUARE
D3/4	D1-1/8	R1/16	R1/8	R1/16	D1/8	D1/2	D1	D1/4	D1/2	D1/4	D1/2	D1/8	D2	D1/32	D1/32
D1	D2	R1	R1/2	R1/2	D1-1/2	D2	D2	D1-1/2	D2	D1-1/4	D2	D1	D2	D3/16	D3/16
184	184	185	185	186	187	188	188	189	189	190	190	191	192	192	193
REGULAR LENGTH 3/4 SHANK	REGULAR LENGTH 3/4 SHANK	REGULAR LENGTH	LONG LENGTH	REGULAR LENGTH DOUBLE	REGULAR LENGTH CENTER CUTTING	REGULAR LENGTH CENTER CUTTING	MEDIUM LENGTH CENTER CUTTING	LONG LENGTH CENTER CUTTING	LONG LENGTH CENTER CUTTING	EXTRA LONG LENGTH CENTER CUTTING	EXTRA LONG LENGTH CENTER CUTTING	REGULAR LENGTH DOUBLE CENTER CUTTING	REGULAR COMBINATION 2' SHANK CENTER CUTTING	STUB LENGTH MINIATURE DOUBLE	REGULAR LENGTH MINIATURE DOUBLE



◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	1
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○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	5
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◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	7
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	8
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	9
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	10
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○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	24
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○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	26
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SELECTION GUIDE

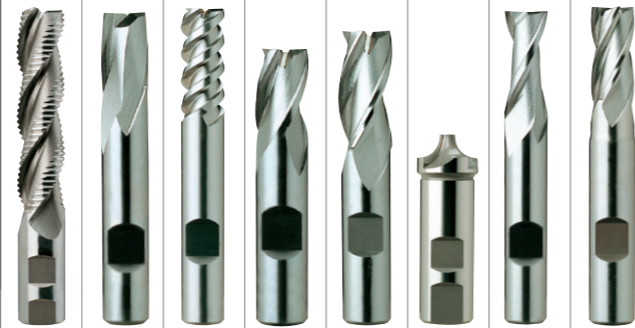
COBALT & HSS END MILLS

- For General Purpose
- Non-Coated, Many Coatings Available
- HSSCo8 & HSS

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

© : Excellent ○ : Good  
Recommended cutting conditions : P.216-245

SERIES	E2226	E2163	E2120	E2160	E2161	E2237	E2482	E2483
	E2192	E1163	E2121			E1237	E1482	E1483
FLUTE	3	2	3&4	3	3	4	4	2
HELIX ANGLE	37°	15°	60°	30°	30°	0°	30°	30°
CUTTING EDGE SHAPE	ROUGHING	SQUARE	SQUARE	SQUARE	SQUARE	CORNER ROUNDING	SQUARE	SQUARE
SIZE MIN	D1/2	D1/8	D1/4 D7/8	D1/16	D1/16	D1/4	D2.0 (.0787)	D2.0 (.0787)
SIZE MAX	D1-1/2	D1	D3/4 D2	D1/4	D1/4	D5/8	D45.0 (1.772)	D45.0 (1.772)
PAGE	208	209	210	211	211	212	213	214
	MEDIUM & LONG LENGTH ALUMINUM	KEYWAY CUTTING	REGULAR LENGTH	SHORT LENGTH THROW AWAY	LONG LENGTH THROW AWAY		REGULAR LENGTH	REGULAR LENGTH



ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRC	E2226	E2163	E2120	E2160	E2161	E2237	E2482	E2483
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎	◎	◎	◎	◎	◎	◎	◎
	2		About 0.45% C Annealed	190	13	◎	◎	◎	◎	◎	◎	◎	◎
	3		About 0.45% C Quenched & Tempered	250	25	◎	◎	◎	◎	◎	◎	◎	◎
	4		About 0.75% C Annealed	270	28	◎	◎	◎	◎	◎	◎	◎	◎
	5	Low alloy steel	About 0.75% C Quenched & Tempered	300	32	○	○	○	○	○	○	○	○
	6		Annealed	180	10	◎	◎	◎	◎	◎	◎	◎	◎
	7		Quenched & Tempered	275	29	◎	◎	◎	◎	◎	◎	◎	◎
	8		Quenched & Tempered	300	32	○	○	○	○	○	○	○	○
	9		Quenched & Tempered	350	38	○	○	○	○	○	○	○	○
	10	High alloyed steel, and tool steel	Annealed	200	15	◎	◎	◎	◎	◎	◎	◎	◎
	11		Quenched & Tempered	325	35	○	○	○	○	○	○	○	○
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15			○					
	13		Martensitic Quenched & Tempered	240	23			○					
	14		Austenitic	180	10			○					
K	15	Grey cast iron	Pearlitic / ferritic	180	10			○					
	16		Pearlitic (Martensitic)	260	26			○					
	17	Nodular cast iron	Ferritic	160	3			○					
	18		Pearlitic	250	25			○					
	19		Ferritic	130				○					
20	Malleable cast iron	Pearlitic	230	21			○						
N	21	Aluminum-wrought alloy	Not Curable	60		◎	○		○	○	○	○	○
	22		Curable Hardened	100		◎	○		○	○	○	○	○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		◎	○		○	○	○	○	○
	24		≤ 12% Si, Curable Hardened	90		◎	○		○	○	○	○	○
	25		> 12% Si, Not Curable	130		◎	○		○	○	○	○	○
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110		○	○		○	○	○	○	○
	27		CuZn, CuSnZn (Brass)	90		○	○		○	○	○	○	○
	28		CuSn, lead-free copper and electrolytic copper	100		○	○		○	○	○	○	○
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic										
30	Rubber, Wood, etc.												
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15							
	32			Cured	280	30							
	33			Annealed	250	25							
	34		Ni or Co Based	Cured	350	38							
	35			Cast	320	34							
	36	Titanium Alloys	Pure Titanium	400 Rm									
37	Alpha + Beta Alloys Hardened		1050 Rm										
H	38	Hardened steel		Hardened	550	55							
	39			Hardened	630	60							
	40	Chilled Cast Iron	Cast	400	42								
	41	Hardened Cast Iron	Hardened	550	55								



SUPER CUTTING END MILLS

TYPE	DESCRIPTION			YG-1	**ANSI	REMARK
	NO. OF FLUTE	LENGTH OF CUT	TYPE OF END			
SINGLE END	2	REGULAR LONG EX. LONG	ALL	+ .0010 .0000 * ( + .0015 ) .0000	+ .0030 .0000	
	MULTIPLE	ALL	ALL	+ .0010 .0000 * ( + .0015 ) .0000	+ .0030 .0000	
KEY WAY	2	ALL	CENTER CUTTING	+ .0010 .0015	+ .0000 - .0015	
DOUBLE END	2	REGULAR	ALL	.0000 - .0010 * ( - .0000 ) - .0020	.0000 - .0015	
	4	ALL	CENTER CUTTING	.0000 - .0010 * ( - .0000 ) - .0020	.0000 - .0015	
	4	ALL	NON CENTER CUTTING	+ .0010 .0000 * ( - .0020 ) - .0020	+ .0030 .0000 * ( - .0025 ) - .0025	
3/16 SHANK DOUBLE END	2	STUB REGULAR	ALL	+ .0010 .0000 * ( - .0020 ) - .0020	.0000 - .0015	
		LONG	ALL	+ .0010 .0000 * ( - .0020 ) - .0020	+ .0030 .0000 * ( - .0025 ) - .0025	
	4	ALL	ALL	+ .0010 .0000 * ( - .0020 ) - .0020	+ .0030 .0000 * ( - .0025 ) - .0025	
ROUGHING	MULTIPLE	ALL	ALL	+ .0060 .0000	+ .025 - .005	
ROUGHING & FINISHING	MULTIPLE	REGULAR	ALL	+ .0025 + .0005		
HELICAL 60°	3-4	REGULAR	CENTER CUTTING	+ .0010 .0000 * ( + .0015 ) .0000		
THROW AWAY 1/4 SHANK	3	ALL	CENTER CUTTING	- .0005 - .0013		

\* The shank of End Mills is the same diameter as the cutting portion.

\*\* ANSI B94-19-1977 published by the American Society of Mechanical Engineers.

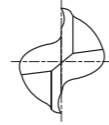
# COBALT & HSS END MILLS



8% COBALT (M42)  
FLAT SHANK **E2030** SERIES  
HSS (M2)  
FLAT SHANK **E1030** SERIES

## HSSCo8 & HSS, 2 FLUTE REGULAR LENGTH

► These end mills are furnished as regular with right-hand cutting and right-hand helical flutes. All shanks are flatted for holder set screw. These are designed for slotting, drilling, pocketing and general-purpose operation.



**HSS Co8** **HSS** **2** **30°** **FLAT** **P. 216-218**

Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)				
01289	01039	1/8	3/8	3/8	2-5/16
01291	01041	5/32	3/8	7/16	2-5/16
01293	01043	3/16	3/8	7/16	2-5/16
01295	01045	7/32	3/8	1/2	2-5/16
01297	01047	1/4	3/8	1/2	2-5/16
01299	01049	9/32	3/8	9/16	2-5/16
01301	01051	5/16	3/8	9/16	2-5/16
01303	01053	11/32	3/8	9/16	2-5/16
01305	01055	3/8	3/8	9/16	2-5/16
01308	01058	13/32	3/8	13/16	2-1/2
01312	01062	7/16	3/8	13/16	2-1/2
01316	01066	15/32	3/8	13/16	2-1/2
01320	01070	1/2	3/8	13/16	2-1/2
01321	01071	1/2	1/2	1	3
01328	01078	9/16	1/2	1-1/8	3-1/8
01336	01086	5/8	1/2	1-1/8	3-1/8
01337	01087	5/8	5/8	1-5/16	3-7/16
01348	01098	11/16	5/8	1-5/16	3-7/16
01357	01107	3/4	1/2	1-5/16	3-5/16
01358	01108	3/4	5/8	1-5/16	3-7/16
01359	01109	3/4	3/4	1-5/16	3-7/16
01373	01123	13/16	5/8	1-1/2	3-5/8
01391	01141	7/8	3/4	1-1/2	3-3/4
01394	01144	7/8	7/8	1-1/2	3-3/4
01409	01159	15/16	7/8	1-1/2	3-3/4
01420	01170	1	5/8	1-1/2	3-5/8
01422	01172	1	3/4	1-1/2	3-3/4
01426	01176	1	1	1-5/8	4-1/8
01435	01185	1-1/8	1	1-5/8	4-1/8
01445	01195	1-1/4	1-1/4	1-5/8	4-1/8
01451	01201	1-3/8	1	1-5/8	4-1/8
01453	01203	1-3/8	1-1/4	1-5/8	4-1/8
01459	01209	1-1/2	1	1-5/8	4-1/8
01461	01211	1-1/2	1-1/4	1-5/8	4-1/8
01469	01219	1-3/4	1-1/4	1-5/8	4-1/8
01477	01227	2	1-1/4	1-5/8	4-1/8
* 01480	* 01230	2	2	2	5-3/4

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coating Codes for HSS  
Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)	
0~+.0010	** 0~+.0015

\*\* The shank of end mills is the same diameter as the cutting portion.

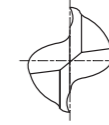
# COBALT & HSS END MILLS



8% COBALT (M42)  
FLAT SHANK **E2080** SERIES  
HSS (M2)  
FLAT SHANK **E1080** SERIES

## HSSCo8 & HSS, 2 FLUTE LONG LENGTH

► Longer flute length than E2030 type and allows deeper cutting.



**HSS Co8** **HSS** **2** **30°** **FLAT** **P. 216-218**

Unit : inch

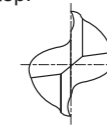
EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)				
02297	02047	1/4	3/8	1-1/4	3-1/8
02301	02051	5/16	3/8	1-3/8	3-1/8
02305	02055	3/8	3/8	1-1/2	3-1/4
02321	02071	1/2	1/2	2	4
02337	02087	5/8	5/8	2	4-1/8
02359	02109	3/4	3/4	2-1/4	4-1/2
02394	02144	7/8	7/8	2-1/2	4-3/4
02426	02176	1	1	3	5-1/2
02435	02185	1-1/8	1	3	5-1/2
02443	02193	1-1/4	1	3	5-1/2
02445	02195	1-1/4	1-1/4	3	5-1/2
02461	02211	1-1/2	1-1/4	3	5-1/2
02469	02219	1-3/4	1-1/4	3	5-1/2
02477	02227	2	1-1/4	3	5-1/2
* 02482	* 02232	2	2	3	6-3/4

\* Combination Shank

8% COBALT (M42)  
FLAT SHANK **E2033** SERIES  
HSS (M2)  
FLAT SHANK **E1033** SERIES

## HSSCo8 & HSS, 2 FLUTE EXTENDED LENGTH

► Provided with the longest flute length and suitable for high accuracy machining of deep step.



**HSS Co8** **HSS** **2** **30°** **FLAT** **P. 216-218**

Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length
8% COBALT (M42)	HSS (M2)					
03289	03039	1/8	3/8	3/8	13/16	2-3/8
03293	03043	3/16	3/8	1/2	1-1/8	2-11/16
03297	03047	1/4	3/8	5/8	1-1/2	3-1/16
03301	03051	5/16	3/8	3/4	1-3/4	3-5/16
03305	03055	3/8	3/8	3/4	1-3/4	3-5/16
03321	03071	1/2	1/2	1	2-7/32	4
03337	03087	5/8	5/8	1-3/8	2-23/32	4-5/8
03359	03109	3/4	3/4	1-5/8	3-11/32	5-3/8
03394	03144	7/8	7/8	2	4	6
03426	03176	1	1	2-1/2	4-31/32	7-1/4
03445	03195	1-1/4	1-1/4	3	4-31/32	7-1/4

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coating Codes for HSS  
Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)	
0~+.0010	** 0~+.0015

\*\* The shank of end mills is the same diameter as the cutting portion.

# COBALT & HSS END MILLS



8% COBALT (M42)  
FLAT SHANK **E2050** SERIES  
HSS (M2)  
FLAT SHANK **E1050** SERIES

**HSSCo8 & HSS,  
2 FLUTE REGULAR LENGTH DOUBLE**

► Series E2050 two flute end mills are the double-end version of E2030 single-end tools. Same excellent tool geometry for slotting, keying and general purpose milling, plus the added economy offered by the double-end design.



P. 216-218

Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)				
11289	11039	1/8	3/8	3/8	3-1/16
11290	11040	9/64	3/8	7/16	3-1/8
11291	11041	5/32	3/8	7/16	3-1/8
11292	11042	11/64	3/8	7/16	3-1/8
11293	11043	3/16	3/8	7/16	3-1/8
11294	11044	13/64	3/8	1/2	3-1/8
11295	11045	7/32	3/8	1/2	3-1/8
11296	11046	15/64	3/8	1/2	3-1/8
11297	11047	1/4	3/8	1/2	3-1/8
11298	11048	17/64	3/8	9/16	3-1/8
11299	11049	9/32	3/8	9/16	3-1/8
11300	11050	19/64	3/8	9/16	3-1/8
11301	11051	5/16	3/8	9/16	3-1/8
11302	11052	21/64	3/8	9/16	3-1/8
11303	11053	11/32	3/8	9/16	3-1/8
11304	11054	23/64	3/8	9/16	3-1/8
11305	11055	3/8	3/8	9/16	3-1/8
11307	11057	25/64	1/2	13/16	3-3/4
11309	11059	13/32	1/2	13/16	3-3/4
11311	11061	27/64	1/2	13/16	3-3/4
11313	11063	7/16	1/2	13/16	3-3/4
11315	11065	29/64	1/2	13/16	3-3/4

► NEXT PAGE

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coating Codes for HSS  
Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)	
0~—.0010	** 0~—.0020

\*\* The shank of end mills is the same diameter as the cutting portion.

# COBALT & HSS END MILLS



8% COBALT (M42)  
FLAT SHANK **E2050** SERIES  
HSS (M2)  
FLAT SHANK **E1050** SERIES

**HSSCo8 & HSS,  
2 FLUTE REGULAR LENGTH DOUBLE**

► Series E2050 two flute end mills are the double-end version of E2030 single-end tools. Same excellent tool geometry for slotting, keying and general purpose milling, plus the added economy offered by the double-end design.



P. 216-218

Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)				
11317	11067	15/32	1/2	13/16	3-3/4
11319	11069	31/64	1/2	13/16	3-3/4
11321	11071	1/2	1/2	13/16	3-3/4
11326	11076	17/32	5/8	1-1/8	4-1/2
11330	11080	9/16	5/8	1-1/8	4-1/2
11334	11084	19/32	5/8	1-1/8	4-1/2
11337	11087	5/8	5/8	1-1/8	4-1/2
11344	11094	21/32	3/4	1-5/16	5
11350	11100	11/16	3/4	1-5/16	5
11354	11104	23/32	3/4	1-5/16	5
11359	11109	3/4	3/4	1-5/16	5
11368	11118	25/32	7/8	1-9/16	5-1/2
11377	11127	13/16	7/8	1-9/16	5-1/2
11384	11134	27/32	7/8	1-9/16	5-1/2
11394	11144	7/8	7/8	1-9/16	5-1/2
11402	11152	29/32	1	1-5/8	5-7/8
11410	11160	15/16	1	1-5/8	5-7/8
11417	11167	31/32	1	1-5/8	5-7/8
11426	11176	1	1	1-5/8	5-7/8

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coating Codes for HSS  
Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)	
0~—.0010	** 0~—.0020

\*\* The shank of end mills is the same diameter as the cutting portion.

# COBALT & HSS END MILLS



8% COBALT (M42)  
FLAT SHANK **E2110** SERIES  
HSS (M2)  
FLAT SHANK **E1110** SERIES

## HSSCo8 & HSS, 2 FLUTE REGULAR LENGTH BALL NOSE

► The two flute ball end mills are designed for milling of radius bottom slots, fillets and special contours. The end teeth are cut to center allowing these end mills to drill into material at the beginning of a slotting cut. The two flute design provides good chip removal ability in slotting.



Unit : inch

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)	R				
41289	41039	R1/16	1/8	3/8	3/8	2-5/16
41293	41043	R3/32	3/16	3/8	1/2	2-3/8
41297	41047	R1/8	1/4	3/8	5/8	2-7/16
41301	41051	R5/32	5/16	3/8	3/4	2-1/2
41305	41055	R3/16	3/8	3/8	3/4	2-1/2
41313	41063	R7/32	7/16	1/2	1	3
41321	41071	R1/4	1/2	1/2	1	3
41328	41078	R9/32	9/16	1/2	1-1/8	3-1/8
41336	41086	R5/16	5/8	1/2	1-1/8	3-1/8
41337	41087	R5/16	5/8	5/8	1-3/8	3-1/2
41357	41107	R3/8	3/4	1/2	1-5/16	3-5/16
41359	41109	R3/8	3/4	3/4	1-5/8	3-7/8
41391	41141	R7/16	7/8	3/4	2	4-1/4
41394	41144	R7/16	7/8	7/8	2	4-1/4
41422	41172	R1/2	1	3/4	2-1/4	4-1/2
41426	41176	R1/2	1	1	2-1/4	4-3/4
41431	41181	R9/16	1-1/8	3/4	1-5/8	3-7/8
41435	41185	R9/16	1-1/8	1	2-1/4	4-3/4
41439	41189	R5/8	1-1/4	3/4	1-5/8	3-7/8
41445	41195	R5/8	1-1/4	1-1/4	2-1/2	5
41449	41199	R11/16	1-3/8	3/4	1-5/8	4-1/8
41453	41203	R11/16	1-3/8	1-1/4	2-1/2	5
41457	41207	R3/4	1-1/2	3/4	1-5/8	4-1/8
41461	41211	R3/4	1-1/2	1-1/4	2-1/2	5
41478	41227	R1	2	1-1/4	2-1/2	5

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coating Codes for HSS  
Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)	
0~+.0010	** 0~+.0015

\*\* The shank of end mills is the same diameter as the cutting portion.

# COBALT & HSS END MILLS



8% COBALT (M42)  
FLAT SHANK **E2111** SERIES  
HSS (M2)  
FLAT SHANK **E1111** SERIES

## HSSCo8 & HSS, 2 FLUTE EXTENDED LENGTH DOUBLE

► Longer flute length than E2110 type and suitable for high efficient copying process and deep cutting of die mold corner radius.



Unit : inch

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length
8% COBALT (M42)	HSS (M2)	R					
42289	42039	R1/16	1/8	3/8	3/8	-	2-3/8
42293	42043	R3/32	3/16	3/8	1/2	1-1/8	2-11/16
42297	42047	R1/8	1/4	3/8	5/8	1-1/2	3-1/16
42301	42051	R5/32	5/16	3/8	3/4	1-3/4	3-5/16
42305	42055	R3/16	3/8	3/8	3/4	1-3/4	3-5/16
42313	42063	R7/32	7/16	1/2	1	1-7/8	3-11/16
42321	42071	R1/4	1/2	1/2	1	2-1/4	4
42337	42087	R5/16	5/8	5/8	1-3/8	2-3/4	4-5/8
42359	42109	R3/8	3/4	3/4	1-5/8	3-3/8	5-3/8
42426	42176	R1/2	1	1	2-1/2	5	7-1/4

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coating Codes for HSS  
Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)	
0~+.0010	** 0~+.0015

\*\* The shank of end mills is the same diameter as the cutting portion.

# COBALT & HSS END MILLS



8% COBALT (M42)  
FLAT SHANK **E2112** SERIES  
HSS (M2)  
FLAT SHANK **E1112** SERIES

## HSSCo8 & HSS, 2 FLUTE REGULAR LENGTH BALL NOSE

► Same construction features as E2110 end mill in a more economical version. Removes more material per grind. Machine ground notch assures positive anchorage in tool holder.



**HSS Co8** **HSS** **2** **30°** **FLAT** P. 225-227

Unit : inch

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)	R				
45289	45039	R1/16	1/8	3/8	3/8	3-1/16
45293	45043	R3/32	3/16	3/8	7/16	3-1/8
45297	45047	R1/8	1/4	3/8	1/2	3-1/8
45301	45051	R5/32	5/16	3/8	9/16	3-1/8
45305	45055	R3/16	3/8	3/8	9/16	3-1/8
45313	45063	R7/32	7/16	1/2	13/16	3-3/4
45321	45071	R1/4	1/2	1/2	13/16	3-3/4
45337	45087	R5/16	5/8	5/8	1-1/8	4-1/2
45359	45109	R3/8	3/4	3/4	1-5/16	5
45426	45176	R1/2	1	1	1-5/8	5-7/8

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coating Codes for HSS  
Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)	
0~-.0010	** 0~-.0020

\*\* The shank of end mills is the same diameter as the cutting portion.

# COBALT & HSS END MILLS



8% COBALT (M42)  
FLAT SHANK **E2031** SERIES  
HSS (M2)  
FLAT SHANK **E1031** SERIES

## HSSCo8 & HSS, 4 FLUTE REGULAR LENGTH

► Possible for high-speed cutting, suitable for high efficiency machining. Easy to regrind.



**HSS Co8** **HSS** **4** **30°** **FLAT** P. 228-230

Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)				
04289	04039	1/8	3/8	3/8	2-5/16
04290	04040	9/64	3/8	7/16	2-3/8
04291	04041	5/32	3/8	7/16	2-3/8
04292	04042	11/64	3/8	1/2	2-3/8
04293	04043	3/16	3/8	1/2	2-3/8
04294	04044	13/64	3/8	9/16	2-7/16
04295	04045	7/32	3/8	9/16	2-7/16
04296	04046	15/64	3/8	5/8	2-7/16
04297	04047	1/4	3/8	5/8	2-7/16
04298	04048	17/64	3/8	11/16	2-1/2
04299	04049	9/32	3/8	11/16	2-1/2
04300	04050	19/64	3/8	3/4	2-1/2
04301	04051	5/16	3/8	3/4	2-1/2
04302	04052	21/64	3/8	3/4	2-1/2
04303	04053	11/32	3/8	3/4	2-1/2
04304	04054	23/64	3/8	3/4	2-1/2
04305	04055	3/8	3/8	3/4	2-1/2
04306	04056	25/64	3/8	1	2-11/16
04308	04058	13/32	3/8	1	2-11/16
04310	04060	27/64	3/8	1	2-11/16
04312	04062	7/16	3/8	1	2-11/16
04315	04065	29/64	1/2	1-1/4	3-1/4
04317	04067	15/32	1/2	1-1/4	3-1/4
04319	04069	31/64	1/2	1-1/4	3-1/4
04320	04070	1/2	3/8	1	2-11/16
04321	04071	1/2	1/2	1-1/4	3-1/4
04324	04074	17/32	1/2	1-3/8	3-3/8
04328	04078	9/16	1/2	1-3/8	3-3/8
04332	04082	19/32	1/2	1-3/8	3-3/8
04336	04086	5/8	1/2	1-3/8	3-3/8
04337	04087	5/8	5/8	1-5/8	3-3/4
04340	04090	21/32	1/2	1-5/8	3-5/8
04348	04098	11/16	5/8	1-5/8	3-3/4
04352	04102	23/32	1/2	1-5/8	3-5/8
04357	04107	3/4	1/2	1-5/8	3-5/8
04358	04108	3/4	5/8	1-5/8	3-3/4
04359	04109	3/4	3/4	1-5/8	3-7/8
04364	04114	25/32	5/8	1-7/8	4
04375	04125	13/16	3/4	1-7/8	4-1/8
04380	04130	27/32	5/8	1-7/8	4
04391	04141	7/8	3/4	1-7/8	4-1/8
04394	04144	7/8	7/8	1-7/8	4-1/8
04399	04149	29/32	3/4	1-7/8	4-1/8
04407	04157	15/16	3/4	1-7/8	4-1/8
04414	04164	31/32	3/4	1-7/8	4-1/8
04420	04170	1	5/8	1-7/8	4
04422	04172	1	3/4	1-7/8	4-1/8
04426	04176	1	1	2	4-1/2

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coating Codes for HSS  
Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)	
0~+.0010	** 0~+.0015

\*\* The shank of end mills is the same diameter as the cutting portion.

# COBALT & HSS END MILLS



8% COBALT (M42)  
FLAT SHANK **E2032** SERIES  
HSS (M2)  
FLAT SHANK **E1032** SERIES

## HSSCo8 & HSS, 6 FLUTE REGULAR LENGTH

► Possible for high-speed cutting, suitable for high efficiency machining. Easy to regrind.



P. 231-233

Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)				
04338	04088	5/8	5/8	1-5/8	3-3/4
04360	04110	3/4	3/4	1-5/8	3-7/8
04376	04126	13/16	3/4	1-7/8	4-1/8
04390	04140	7/8	5/8	1-7/8	4
04395	04145	7/8	7/8	1-7/8	4-1/8
04405	04155	15/16	5/8	1-7/8	4
04421	04171	1	5/8	1-7/8	4
04427	04177	1	1	2	4-1/2
04432	04182	1-1/8	3/4	2	4-1/4
04436	04186	1-1/8	1	2	4-1/2
04440	04190	1-1/4	3/4	2	4-1/4
04444	04194	1-1/4	1	2	4-1/2
04446	04196	1-1/4	1-1/4	2	4-1/2
04452	04202	1-3/8	1	2	4-1/2
04460	04210	1-1/2	1	2	4-1/2
04462	04212	1-1/2	1-1/4	2	4-1/2
04470	04220	1-3/4	1-1/4	2	4-1/2
04478	04228	2	1-1/4	2	4-1/2
04481	04231	2	2	2	5-3/4

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coating Codes for HSS  
Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)	
0~+.0010	** 0~+.0015

\*\* The shank of end mills is the same diameter as the cutting portion.

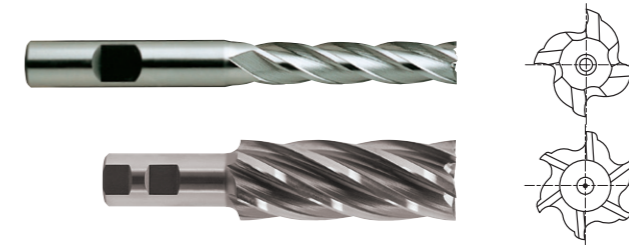
# COBALT & HSS END MILLS



8% COBALT (M42)  
FLAT SHANK **E2034/E2035** SERIES  
HSS (M2)  
FLAT SHANK **E1034/E1035** SERIES

## HSSCo8 & HSS, 4&6 FLUTE LONG LENGTH

► Longer flute length than E2031 type and allows deeper cutting. Easy to regrind.



P. 231-233

Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)				
05297	05047	1/4	3/8	1-1/4	3-1/16
05301	05051	5/16	3/8	1-3/8	3-1/8
05305	05055	3/8	3/8	1-1/2	3-1/4
05313	05063	7/16	1/2	1-3/4	3-3/4
05321	05071	1/2	1/2	2	4
05337	05087	5/8	5/8	2-1/2	4-5/8
05359	05109	3/4	3/4	3	5-1/4
05394	05144	7/8	7/8	3-1/2	5-3/4
05426	05176	1	1	4	6-1/2

### E2035(8% COBALT) , E1035(HSS) Series ■ 6 FLUTE Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)				
05436	05186	1-1/8	1	4	6-1/2
05444	05194	1-1/4	1	4	6-1/2
05446	05196	1-1/4	1-1/4	4	6-1/2
05460	05210	1-1/2	1	4	6-1/2
05462	05212	1-1/2	1-1/4	4	6-1/2
05470	05220	1-3/4	1-1/4	4	6-1/2
05478	05228	2	1-1/4	4	6-1/2
* 05485	* 05235	2	2	4	7-3/4

\* Combination Shank

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coating Codes for HSS  
Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)	
0~+.0010	** 0~+.0015

\*\* The shank of end mills is the same diameter as the cutting portion.

# COBALT & HSS END MILLS



8% COBALT (M42) FLAT SHANK **E2036/E2037** SERIES  
 HSS (M2) FLAT SHANK **E1036/E1037** SERIES

HSSCo8 & HSS,  
 4&6 FLUTE EXTRA LONG LENGTH

► Provided with the longest flute length and suitable for high accuracy machining of deep step. Easy to regrind.



**E2036(8% COBALT) , E1036(HSS) Series ■ 4 FLUTE** Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)				
06297	06047	1/4	3/8	1-3/4	3-9/16
06301	06051	5/16	3/8	2	3-3/4
06305	06055	3/8	3/8	2-1/2	4-1/4
06321	06071	1/2	1/2	3	5
06337	06087	5/8	5/8	4	6-1/8
06359	06109	3/4	3/4	4	6-1/4
06394	06144	7/8	7/8	5	7-1/4
06426	06176	1	1	6	8-1/2

**E2037(8% COBALT) , E1037(HSS) Series ■ 6 FLUTE** Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)				
06446	06196	1-1/4	1-1/4	6	8-1/2
06462	06212	1-1/2	1-1/4	8	10-1/2
06491	06241	2	2	8	11-3/4

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
 Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coating Codes for HSS  
 Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)	
0~+.0010	** 0~+.0015

\*\* The shank of end mills is the same diameter as the cutting portion.

# COBALT & HSS END MILLS



8% COBALT (M42) FLAT SHANK **E2051** SERIES  
 HSS (M2) FLAT SHANK **E1051** SERIES

HSSCo8 & HSS,  
 4 FLUTE REGULAR LENGTH DOUBLE

► Series E2051 four flute end mills are the double-end version of E2031 four flute tools and are used for the same type of finishing operation. Two tools on one shank saves on sharpening set-up as well as on initial tool costs. Easy to regrind.



EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)				
12289	12039	1/8	3/8	3/8	3-1/16
12290	12040	9/64	3/8	7/16	3-1/8
12291	12041	5/32	3/8	7/16	3-1/8
12292	12042	11/64	3/8	1/2	3-1/4
12293	12043	3/16	3/8	1/2	3-1/4
12294	12044	13/64	3/8	9/16	3-1/4
12295	12045	7/32	3/8	9/16	3-1/4
12296	12046	15/64	3/8	5/8	3-3/8
12297	12047	1/4	3/8	5/8	3-3/8
12298	12048	17/64	3/8	11/16	3-3/8
12299	12049	9/32	3/8	11/16	3-3/8
12300	12050	19/64	3/8	3/4	3-1/2
12301	12051	5/16	3/8	3/4	3-1/2
12302	12052	21/64	3/8	3/4	3-1/2
12303	12053	11/32	3/8	3/4	3-1/2
12304	12054	23/64	3/8	3/4	3-1/2
12305	12055	3/8	3/8	3/4	3-1/2
12307	12057	25/64	1/2	1	4-1/8
12309	12059	13/32	1/2	1	4-1/8
12311	12061	27/64	1/2	1	4-1/8
12313	12063	7/16	1/2	1	4-1/8
12315	12065	29/64	1/2	1	4-1/8
12317	12067	15/32	1/2	1	4-1/8
12319	12069	31/64	1/2	1	4-1/8
12321	12071	1/2	1/2	1	4-1/8
12330	12080	9/16	5/8	1-3/8	5
12337	12087	5/8	5/8	1-3/8	5
12350	12100	11/16	3/4	1-5/8	5-5/8
12359	12109	3/4	3/4	1-5/8	5-5/8
12377	12127	13/16	7/8	1-7/8	6-1/8
12394	12144	7/8	7/8	1-7/8	6-1/8
12410	12160	15/16	1	1-7/8	6-3/8
12426	12176	1	1	1-7/8	6-3/8

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
 Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coating Codes for HSS  
 Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)	
0~-.0010	** 0~-.0020

\*\* The shank of end mills is the same diameter as the cutting portion.



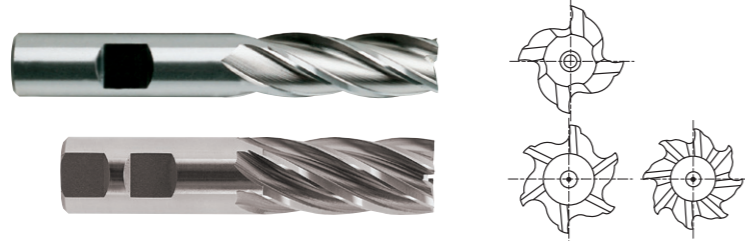
# COBALT & HSS END MILLS



8% COBALT (M42)  
FLAT SHANK **E2031/E2032** SERIES  
HSS (M2)  
FLAT SHANK **E1031/E1032** SERIES

**HSSCo8 & HSS, 4, 6&8 FLUTE  
REGULAR LENGTH 3/4" SHANK**

► E2031(3/4" shank, multi flute, general purpose end mills) are recommended for finishing operations for Bridgeport machines and other similar operations. Easy to regrind.



**HSS Co8** **HSS** **4-8** **30°** **FLAT** P. 228-233

**E2031(8% COBALT) , E1031(HSS) Series ■ 4 FLUTE** Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)				
04359	04109	3/4	3/4	1-5/8	3-7/8
04375	04125	13/16	3/4	1-7/8	4-1/8
04391	04141	7/8	3/4	1-7/8	4-1/8
04407	04157	15/16	3/4	1-7/8	4-1/8
04422	04172	1	3/4	1-7/8	4-1/8

**E2032(8% COBALT) , E1032(HSS) Series ■ 6&8 FLUTE** Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
8% COBALT (M42)	HSS (M2)					
04432	04182	1-1/8	3/4	2	4-1/4	6
04440	04190	1-1/4	3/4	2	4-1/4	6
04458	04208	1-3/4	3/4	2	4-1/4	6
04468	04218	2	3/4	2	4-1/2	6
04476	04226	2	3/4	2	4-1/2	8

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coating Codes for HSS  
Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)	
0~+.0010	** 0~+.0015

\*\* The shank of end mills is the same diameter as the cutting portion.

# COBALT & HSS END MILLS



8% COBALT (M42)  
FLAT SHANK **E2020** SERIES

**HSSCo8,  
4 FLUTE REGULAR LENGTH BALL NOSE**

► The four flute ball end mills are designed for milling of radius bottom slots fillets and special contours. The end teeth are cut to center allowing these end mills to drill into material at the beginning of a slotting cut.



**HSS Co8** **4** **30°** **FLAT** P. 234-236

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	R				
43289	R1/16	1/8	3/8	3/8	2-5/16
43293	R3/32	3/16	3/8	1/2	2-3/8
43297	R1/8	1/4	3/8	5/8	2-7/16
43301	R5/32	5/16	3/8	3/4	2-1/2
43305	R3/16	3/8	3/8	3/4	2-1/2
43312	R7/32	7/16	3/8	1	2-11/16
43321	R1/4	1/2	1/2	1-1/4	3-1/4
43337	R5/16	5/8	5/8	1-5/8	3-3/4
43350	R11/32	11/16	5/8	1-5/8	3-3/4
43359	R3/8	3/4	3/4	1-5/8	3-7/8
43394	R7/16	7/8	7/8	1-7/8	4-1/8
43426	R1/2	1	1	2	4-1/2
43435	R9/16	1-1/8	1	2	4-1/2
43445	R5/8	1-1/4	1-1/4	2	4-1/2
43461	R3/4	1-1/2	1-1/4	2	4-1/2
43477	R1	2	1-1/4	2	4-1/2

8% COBALT (M42)  
FLAT SHANK **E2021** SERIES

**HSSCo8,  
4 FLUTE LONG LENGTH BALL NOSE**

► Longer flute length than E2020 type and suitable for high efficient copying process and deep cutting of die mold corner radius.



**HSS Co8** **4** **30°** **FLAT** P. 234-236

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	R				
44297	R1/8	1/4	3/8	1-1/4	3-1/16
44301	R5/32	5/16	3/8	1-3/8	3-1/8
44305	R3/16	3/8	3/8	1-1/2	3-1/4
44321	R1/4	1/2	1/2	2	4
44337	R5/16	5/8	5/8	2-1/2	4-5/8
44359	R3/8	3/4	3/4	3	5-1/4
44394	R7/16	7/8	7/8	3-1/2	5-3/4
44426	R1/2	1	1	4	6-1/2

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)	
0~+.0010	** 0~+.0015

\*\* The shank of end mills is the same diameter as the cutting portion.

# COBALT & HSS END MILLS



8% COBALT (M42)  
FLAT SHANK **E2069** SERIES

## HSSCo8, 4 FLUTE REGULAR LENGTH BALL NOSE DOUBLE

▶ Same construction features as E2020 end mill in a more economical version. Removes more material per grind. Machine ground notch assures positive anchorage in tool holder.



Unit : inch

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
46289	R1/16	1/8	3/8	3/8	3-1/16
46293	R3/32	3/16	3/8	1/2	3-1/4
46297	R1/8	1/4	3/8	5/8	3-3/8
46301	R5/32	5/16	3/8	3/4	3-1/2
46305	R3/16	3/8	3/8	3/4	3-1/2
46313	R7/32	7/16	1/2	1	4-1/8
46321	R1/4	1/2	1/2	1	4-1/8
46337	R5/16	5/8	5/8	1-3/8	5
46359	R3/8	3/4	3/4	1-5/8	5-5/8
46426	R1/2	1	1	1-7/8	6-3/8

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- ▶ Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)	
0~-.0010	** 0~-.0020

\*\* The shank of end mills is the same diameter as the cutting portion.

# COBALT & HSS END MILLS



8% COBALT (M42)  
FLAT SHANK **E2039** SERIES  
HSS (M2)  
FLAT SHANK **E1039** SERIES

## HSSCo8 & HSS, 4 FLUTE REGULAR LENGTH CENTER CUTTING

▶ Center cutting allows these end mills to drill into the part for the beginning of a slot. These center cutting end mills are recommended for pocketing, tracer milling, cam milling, die sinking and slotting.



Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)				
07289	07039	1/8	3/8	3/8	2-5/16
07291	07041	5/32	3/8	7/16	2-3/8
07293	07043	3/16	3/8	1/2	2-3/8
07295	07045	7/32	3/8	9/16	2-7/16
07297	07047	1/4	3/8	5/8	2-7/16
07299	07049	9/32	3/8	11/16	2-1/2
07301	07051	5/16	3/8	3/4	2-1/2
07303	07053	11/32	3/8	3/4	2-1/2
07305	07055	3/8	3/8	3/4	2-1/2
07308	07058	13/32	3/8	1	2-11/16
07312	07062	7/16	3/8	1	2-11/16
07316	07066	15/32	3/8	1	2-11/16
07320	07070	1/2	3/8	1	2-11/16
07321	07071	1/2	1/2	1-1/4	3-1/4
07336	07086	5/8	1/2	1-3/8	3-3/8
07337	07087	5/8	5/8	1-5/8	3-3/4
07348	07098	11/16	5/8	1-5/8	3-3/4
07357	07107	3/4	1/2	1-5/8	3-5/8
07358	07108	3/4	5/8	1-5/8	3-3/4
07359	07109	3/4	3/4	1-5/8	3-7/8
07391	07141	7/8	3/4	1-7/8	4-1/8
07394	07144	7/8	7/8	1-7/8	4-1/8
07420	07170	1	5/8	1-7/8	4
07422	07172	1	3/4	1-7/8	4-1/8
07426	07176	1	1	2	4-1/2
07435	07185	1-1/8	1	2	4-1/2
07445	07195	1-1/4	1-1/4	2	4-1/2
07461	07211	1-1/2	1-1/4	2	4-1/2

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coating Codes for HSS  
Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)
- ▶ Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)	
0~+.0010	** 0~+.0015

\*\* The shank of end mills is the same diameter as the cutting portion.

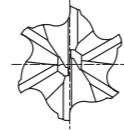
# COBALT & HSS END MILLS



► Center cutting allows these end mills to drill into the part for the beginning of a slot. These center cutting end mills are recommended for pocketing, tracer milling, cam milling, die sinking and slotting.

8% COBALT (M42) FLAT SHANK **E2042** SERIES  
HSS (M2) FLAT SHANK **E1042** SERIES

## HSSCo8 & HSS, 6 FLUTE REGULAR LENGTH CENTER CUTTING



P. 231-233

Unit : inch

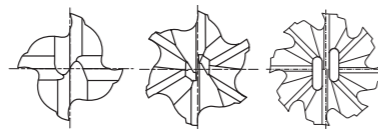
EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)				
07322	07072	1/2	1/2	1-1/4	3-1/4
07338	07088	5/8	5/8	1-5/8	3-3/4
07349	07099	11/16	5/8	1-5/8	3-3/4
07360	07110	3/4	3/4	1-5/8	3-7/8
07395	07145	7/8	7/8	1-7/8	4-1/8
07427	07177	1	1	2	4-1/2
07436	07186	1-1/8	1	2	4-1/2
07446	07196	1-1/4	1-1/4	2	4-1/2
07448		1-5/16	3/4	2	4-1/4
07462	07212	1-1/2	1-1/4	2	4-1/2
07478	07228	2	1-1/4	2	4-1/2
* 07481	* 07231	2	2	2	5-3/4

\* Combination Shank

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coating Codes for HSS  
Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

8% COBALT (M42) FLAT SHANK **E2039** SERIES  
8% COBALT (M42) FLAT SHANK **E2042** SERIES

## HSSCo8 & HSS, MULTI FLUTE MEDIUM LENGTH CENTER CUTTING



P. 228-230 P. 231-233

Unit : inch

**E2039(4 FLUTE), E2042(6&8 FLUTE) Series**

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
07901	1	1	3	5-1/2	4
07902	1-1/4	1-1/4	3	5-1/2	4
07903	1-1/2	1-1/4	3	5-1/2	4
07094	1	1	3	5-1/2	6
07095	1-1/4	1-1/4	3	5-1/2	6
07096	1-1/2	1-1/4	3	5-1/2	6
07097	1-3/4	1-1/4	3	5-1/2	6
99098	2	1-1/4	3	5-1/2	8

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)	
0~+.0010	** 0~+.0015

\*\* The shank of end mills is the same diameter as the cutting portion.

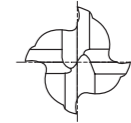
# COBALT & HSS END MILLS



► Longer flute length than E2039 type, E2042 and allows deeper cutting.

8% COBALT (M42) FLAT SHANK **E2040** SERIES  
HSS (M2) FLAT SHANK **E1040** SERIES

## HSSCo8 & HSS, 4 FLUTE LONG LENGTH CENTER CUTTING



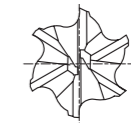
P. 228-230

Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)				
08297	08047	1/4	3/8	1-1/4	3-1/16
08301	08051	5/16	3/8	1-3/8	3-1/8
08305	08055	3/8	3/8	1-1/2	3-1/4
08321	08071	1/2	1/2	2	4
08337	08087	5/8	5/8	2-1/2	4-5/8
08359	08109	3/4	3/4	3	5-1/4
08394	08144	7/8	7/8	3-1/2	5-3/4
08426	08176	1	1	4	6-1/2
08445	08195	1-1/4	1-1/4	4	6-1/2
08461	08211	1-1/2	1-1/4	4	6-1/2

8% COBALT (M42) FLAT SHANK **E2162** SERIES  
HSS (M2) FLAT SHANK **E1162** SERIES

## HSSCo8 & HSS, 6 FLUTE LONG LENGTH CENTER CUTTING



P. 231-233

Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)				
08322	08072	1/2	1/2	2	4
08338	08088	5/8	5/8	2-1/2	4-5/8
08360	08110	3/4	3/4	3	5-1/4
08395	08145	7/8	7/8	3-1/2	5-3/4
08427	08177	1	1	4	6-1/2
08446	08196	1-1/4	1-1/4	4	6-1/2
08462	08212	1-1/2	1-1/4	4	6-1/2
08478	08228	2	1-1/4	4	6-1/2
* 08485	* 08235	2	2	4	7-3/4
* 08489	* 08239	2	2	6	9-3/4

\* Combination Shank

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coating Codes for HSS  
Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)	
0~+.0010	** 0~+.0015

\*\* The shank of end mills is the same diameter as the cutting portion.

# COBALT & HSS END MILLS



► Provided with longest flute length and suitable for high accuracy machining of deep step.

8% COBALT (M42)  
FLAT SHANK **E2041** SERIES  
HSS (M2)  
FLAT SHANK **E1041** SERIES

## HSSCo8 & HSS, 4 FLUTE EXTRA LONG LENGTH CENTER CUTTING



HSS Co8 HSS 4 30° FLAT P. 228-230

Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)				
09297	09047	1/4	3/8	1-3/4	3-9/16
09301	09051	5/16	3/8	2	3-3/4
09305	09055	3/8	3/8	2-1/2	4-1/4
09321	09071	1/2	1/2	3	5
09337	09087	5/8	5/8	4	6-1/8
09359	09109	3/4	3/4	4	6-1/4
09394	09144	7/8	7/8	5	7-1/4
09426	09176	1	1	6	8-1/2
09445	09195	1-1/4	1-1/4	6	8-1/2

8% COBALT (M42)  
FLAT SHANK **E2175** SERIES  
HSS (M2)  
FLAT SHANK **E1175** SERIES

## HSSCo8 & HSS, 6 FLUTE EXTRA LONG LENGTH CENTER CUTTING



HSS Co8 HSS 6 30° FLAT P. 231-233

Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)				
09322	09072	1/2	1/2	3	5
09338	09088	5/8	5/8	4	6-1/8
09360	09110	3/4	3/4	4	6-1/4
09395	09145	7/8	7/8	5	7-1/4
09427	09177	1	1	6	8-1/2
09446	09196	1-1/4	1-1/4	6	8-1/2
09462	09212	1-1/2	1-1/4	8	10-1/2
*09491	*09241	2	2	8	11-3/4

\* Combination Shank

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coating Codes for HSS  
Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)	
0~+.0010	**0~+.0015

\*\* The shank of end mills is the same diameter as the cutting portion.

# COBALT & HSS END MILLS



8% COBALT (M42)  
FLAT SHANK **E2053** SERIES  
HSS (M2)  
FLAT SHANK **E1053** SERIES

## HSSCo8 & HSS, 4 FLUTE REGULAR LENGTH DOUBLE CENTER CUTTING

► Series E2053 end mills are the double-end version of E2039 center cutting single-end tools. They are used for slotting, shallow pocketing, tracer milling or die sinking and similar operation.



HSS Co8 HSS 4 30° FLAT P. 231-233

Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)				
13289	13039	1/8	3/8	3/8	3-1/16
13290	13040	9/64	3/8	7/16	3-1/8
13291	13041	5/32	3/8	7/16	3-1/8
13292	13042	11/64	3/8	1/2	3-1/4
13293	13043	3/16	3/8	1/2	3-1/4
13294	13044	13/64	3/8	9/16	3-1/4
13295	13045	7/32	3/8	9/16	3-1/4
13296	13046	15/64	3/8	5/8	3-3/8
13297	13047	1/4	3/8	5/8	3-3/8
13298	13048	17/64	3/8	11/16	3-3/8
13299	13049	9/32	3/8	11/16	3-3/8
13300	13050	19/64	3/8	3/4	3-1/2
13301	13051	5/16	3/8	3/4	3-1/2
13302	13052	21/64	3/8	3/4	3-1/2
13303	13053	11/32	3/8	3/4	3-1/2
13304	13054	23/64	3/8	3/4	3-1/2
13305	13055	3/8	3/8	3/4	3-1/2
13307	13057	25/64	1/2	1	4-1/8
13309	13059	13/32	1/2	1	4-1/8
13311	13061	27/64	1/2	1	4-1/8
13313	13063	7/16	1/2	1	4-1/8
13315	13065	29/64	1/2	1	4-1/8
13317	13067	15/32	1/2	1	4-1/8
13319	13069	31/64	1/2	1	4-1/8
13321	13071	1/2	1/2	1	4-1/8
13330	13080	9/16	5/8	1-3/8	5
13337	13087	5/8	5/8	1-3/8	5
13350	13100	11/16	3/4	1-5/8	5-5/8
13359	13109	3/4	3/4	1-5/8	5-5/8
13377	13127	13/16	7/8	1-7/8	6-1/8
13394	13144	7/8	7/8	1-7/8	6-1/8
13426	13176	1	1	1-7/8	6-3/8

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coating Codes for HSS  
Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)	
0~+.0010	** 0~-.0020

\*\* The shank of end mills is the same diameter as the cutting portion.

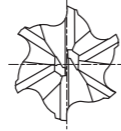
# COBALT & HSS END MILLS



8% COBALT (M42) FLAT SHANK **E2100** SERIES  
HSS (M2) FLAT SHANK **E1100** SERIES

## HSSCo8 & HSS, 6 FLUTE REGULAR with COMBINATION 2" SHANK CENTER CUTTING

► These are to be used for heavy hogging cuts in die-sinking, tape & tracer controlled milling and similar work. The Heavy-Duty end mills are made with toughened Combination shank, heavy web construction, accurate machine-ground end-teeth notching and a special surface treatment to reduce cutting-edge wear.



Mill Dia. Tolerance (inch)
0~+.0030

HSS Co8 HSS 6 30° FLAT P. 231-233

Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)				
10481	10231	2	2	2	5-3/4
10485	10235	2	2	4	7-3/4
10487	10237	2	2	5	8-3/4
10489	10239	2	2	6	9-3/4
10491	10241	2	2	8	11-3/4

8% COBALT (M42) FLAT SHANK **E2001** SERIES  
HSS (M2) FLAT SHANK **E1001** SERIES

## HSSCo8 & HSS, 2 FLUTE MINIATURE STUB LENGTH DOUBLE

► Tools under Miniature end mills have 3/16" shank diameter without flats. They are designed with positive rake angle geometry and a high helix angle to insure free cutting action. The flute design provides good strength behind the cutting edge. Suitable for finishing of precision components such as watch, camera, electronic apparatus molds, etc.



Mill Dia. Tolerance (inch)
0~-.0010    ** 0~-.0020

\*\* The shank of end mills is the same diameter as the cutting portion.

HSS Co8 HSS 2 39° 30° PLAIN P. 237

~Ø3/32 Ø7/64~

Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)				
49252	49002	1/32	3/16	3/64	2
49254	49004	3/64	3/16	1/16	2
49256	49006	1/16	3/16	3/32	2
49258	49008	5/64	3/16	1/8	2
49260	49010	3/32	3/16	9/64	2
49262	49012	7/64	3/16	5/32	2
49264	49014	1/8	3/16	3/16	2
49266	49016	9/64	3/16	7/32	2
49268	49018	5/32	3/16	15/64	2
49270	49020	11/64	3/16	1/4	2
49272	49022	3/16	3/16	9/32	2

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coating Codes for HSS  
Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

# COBALT & HSS END MILLS

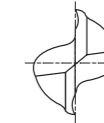


► Suitable for finishing of precision components such as watch, camera electronic apparatus molds, etc.

HSS Co8 HSS 2 39° 30° PLAIN P. 237

8% COBALT (M42) FLAT SHANK **E2003** SERIES  
HSS (M2) FLAT SHANK **E1003** SERIES

## HSSCo8 & HSS, 2 FLUTE MINIATURE REGULAR LENGTH DOUBLE



Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)				
50252	50002	1/32	3/16	3/32	2-1/4
50254	50004	3/64	3/16	9/64	2-1/4
50256	50006	1/16	3/16	3/16	2-1/4
50258	50008	5/64	3/16	15/64	2-1/4
50260	50010	3/32	3/16	9/32	2-1/4
50262	50012	7/64	3/16	21/64	2-1/4
50264	50014	1/8	3/16	3/8	2-1/4
50266	50016	9/64	3/16	13/32	2-1/4
50268	50018	5/32	3/16	7/16	2-1/4
50270	50020	11/64	3/16	1/2	2-1/4
50272	50022	3/16	3/16	1/2	2-1/4

8% COBALT (M42) FLAT SHANK **E2005** SERIES  
HSS (M2) FLAT SHANK **E1005** SERIES

## HSSCo8 & HSS, 2 FLUTE MINIATURE LONG LENGTH DOUBLE



Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)				
51256	51006	1/16	3/16	7/32	2-1/2
51258	51008	5/64	3/16	1/4	2-1/2
51260	51010	3/32	3/16	9/32	2-5/8
51262	51012	7/64	3/16	9/32	2-5/8
51264	51014	1/8	3/16	3/4	3-1/8
51266	51016	9/64	3/16	3/4	3-1/8
51268	51018	5/32	3/16	7/8	3-1/4
51270	51020	11/64	3/16	7/8	3-1/4
51272	51022	3/16	3/16	1	3-3/8

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coating Codes for HSS  
Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)
0~-.0010    ** 0~-.0020

\*\* The shank of end mills is the same diameter as the cutting portion.

# COBALT & HSS END MILLS



► Suitable for finishing of precision components such as watch, camera electronic apparatus molds, etc.

HSS Co8 HSS 4 ~Ø3/32 Ø7/64~ 39° 30° PLAIN P. 237

## 8% COBALT (M42) FLAT SHANK **E2002** SERIES HSS (M2) FLAT SHANK **E1002** SERIES HSSCo8 & HSS, 4 FLUTE MINIATURE STUB LENGTH DOUBLE



Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)				
52256	52006	1/32	3/16	3/32	2
52258	52008	3/64	3/16	1/8	2
52260	52010	1/16	3/16	9/64	2
52262	52012	5/64	3/16	5/32	2
52264	52014	3/32	3/16	3/16	2
52266	52016	9/64	3/16	7/32	2
52268	52018	5/32	3/16	15/64	2
52270	52020	11/64	3/16	1/4	2
52272	52022	3/16	3/16	9/32	2

## 8% COBALT (M42) PLAIN SHANK **E2004** SERIES HSS (M2) PLAIN SHANK **E1004** SERIES HSSCo8 & HSS, 4 FLUTE MINIATURE REGULAR LENGTH DOUBLE



Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)				
53256	53006	1/16	3/16	3/16	2-1/4
53258	53008	5/64	3/16	15/64	2-1/4
53260	53010	3/32	3/16	9/32	2-1/4
53262	53012	7/64	3/16	21/64	2-1/4
53264	53014	1/8	3/16	3/8	2-1/4
53266	53016	9/64	3/16	13/32	2-1/4
53268	53018	5/32	3/16	7/16	2-1/4
53270	53020	11/64	3/16	1/2	2-1/4
53272	53022	3/16	3/16	1/2	2-1/4

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coating Codes for HSS  
Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)	
0~+.0010	** 0~-.0020

\*\* The shank of end mills is the same diameter as the cutting portion.

# COBALT & HSS END MILLS



## 8% COBALT (M42) PLAIN SHANK **E2006** SERIES HSS (M2) PLAIN SHANK **E1006** SERIES HSSCo8 & HSS, 4 FLUTE MINIATURE LONG LENGTH DOUBLE

► Suitable for finishing of precision components such as watch, camera electronic apparatus molds, etc.



HSS Co8 HSS 4 ~Ø3/32 Ø7/64~ 39° 30° PLAIN P. 237

Unit : inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)				
54256	54006	1/16	3/16	7/32	2-1/2
54258	54008	5/64	3/16	1/4	2-1/2
54260	54010	3/32	3/16	9/32	2-5/8
54262	54012	7/64	3/16	9/32	2-5/8
54264	54014	1/8	3/16	3/4	3-1/8
54266	54016	9/64	3/16	3/4	3-1/8
54268	54018	5/32	3/16	7/8	3-1/4
54270	54020	11/64	3/16	7/8	3-1/4
54272	54022	3/16	3/16	1	3-3/8

## 8% COBALT (M42) PLAIN SHANK **E2008** SERIES HSS (M2) PLAIN SHANK **E1008** SERIES HSSCo8 & HSS, 2 FLUTE MINIATURE STUB LENGTH BALL NOSE DOUBLE

► Helical flute in the nose radius.  
Suitable for high efficient copying process and cutting of die mold corner radius.



HSS Co8 HSS 2 ~Ø3/32 Ø7/64~ 39° 30° PLAIN P. 237

Unit : inch

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)	R				
55256	55006	R1/32	1/16	3/16	3/32	2
55260	55010	R3/64	3/32	3/16	9/64	2
55264	55014	R1/16	1/8	3/16	3/16	2
55268	55018	R5/64	5/32	3/16	15/64	2
55272	55022	R3/32	3/16	3/16	9/32	2

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coating Codes for HSS  
Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)	
0~+.0010	** 0~-.0020

\*\* The shank of end mills is the same diameter as the cutting portion.

# COBALT & HSS END MILLS



► Helical flute in the nose radius.  
Suitable for high efficient copying process and cutting of die mold corner radius.

HSS Co8
HSS
2
~Ø3/32
Ø7/64~
39°
30°
PLAIN
P. 237

8% COBALT (M42) PLAIN SHANK **E2013** SERIES  
HSS (M2) PLAIN SHANK **E1013** SERIES

## HSSCo8 & HSS, 2 FLUTE MINIATURE REGULAR LENGTH BALL NOSE DOUBLE



Unit : inch

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	
8% COBALT (M42)	HSS (M2)	R				
56252	56002	R1/64	1/32	3/16	3/32	2-1/4
56254	56004	R3/128	3/64	3/16	9/64	2-1/4
56256	56006	R1/32	1/16	3/16	3/16	2-1/4
56258	56008	R5/128	5/64	3/16	15/64	2-1/4
56260	56010	R3/64	3/32	3/16	9/32	2-1/4
56262	56012	R7/128	7/64	3/16	21/64	2-1/4
56264	56014	R1/16	1/8	3/16	3/8	2-1/4
56266	56016	R9/128	9/64	3/16	13/32	2-1/4
56268	56018	R5/64	5/32	3/16	7/16	2-1/4
56270	56020	R11/128	11/64	3/16	1/2	2-1/4
56272	56022	R3/32	3/16	3/16	1/2	2-1/4

8% COBALT (M42) PLAIN SHANK **E2015** SERIES  
HSS (M2) PLAIN SHANK **E1015** SERIES

## HSSCo8 & HSS, 2 FLUTE MINIATURE LONG LENGTH BALL NOSE DOUBLE



Unit : inch

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	
8% COBALT (M42)	HSS (M2)	R				
57256	57006	R1/32	1/16	3/16	7/32	2-1/2
57260	57010	R3/64	3/32	3/16	9/32	2-5/8
57264	57014	R1/16	1/8	3/16	3/4	3-1/8
57268	57018	R5/64	5/32	3/16	7/8	3-1/4
57272	57022	R3/32	3/16	3/16	1	3-3/8

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coating Codes for HSS  
Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)
0~+.0010
** 0~+.0020

\*\* The shank of end mills is the same diameter as the cutting portion.

# COBALT & HSS END MILLS



HSS (M2) FLAT SHANK **E1070** SERIES

## HSS, 2 FLUTE 42° HELIX REGULAR & MEDIUM LENGTH for ALUMINUM

► The two flute end mills for aluminum have High Helix flute design making them well suited for milling aluminum and other non-ferrous materials. Special rake angles and low micro inch finishes on the primary clearance angles and flute faces insure free cutting action, fine finishes and longer tool life for both non-ferrous materials as well as harder alloys. These tools are made from regular HSS(M2), which is good for aluminum cutting.



HSS
2
42°
FLAT
P. 219

### REGULAR LENGTH

Unit : inch

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
HSS (M2)				
17047	1/4	3/8	5/8	2-7/16
17051	5/16	3/8	3/4	2-1/2
17055	3/8	3/8	3/4	2-1/2
17062	7/16	3/8	1	2-11/16
17071	1/2	1/2	1-1/4	3-1/4
17087	5/8	5/8	1-5/8	3-3/4
17109	3/4	3/4	1-5/8	3-7/8
17141	7/8	3/4	1-7/8	4-1/8
17144	7/8	7/8	1-7/8	4-1/8
17172	1	3/4	1-7/8	4-1/8
17176	1	1	2	4-1/2
17195	1-1/4	1-1/4	2	4-1/2
17211	1-1/2	1-1/4	2	4-1/2
17219	1-3/4	1-1/4	2	4-1/2
17227	2	1-1/4	2	4-1/2

### MEDIUM LENGTH

Unit : inch

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
HSS (M2)				
99089	1	1	3	5-1/2
99090	1-1/4	1-1/4	3	5-1/2
99091	1-1/2	1-1/4	3	5-1/2
99092	1-3/4	1-1/4	3	5-1/2
99093	2	1-1/4	3	5-1/2

Mill Dia. Tolerance (inch)
0~+.0010
** 0~+.0015

\*\* The shank of end mills is the same diameter as the cutting portion.

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for HSS  
Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

# COBALT & HSS END MILLS



HSS (M2) FLAT SHANK **E1071** SERIES  
HSS (M2) FLAT SHANK **E1072** SERIES

## HSSCo8 & HSS, 2 FLUTE 42° HELIX LONG & EXTRA LONG LENGTH for ALUMINUM

► Sharp cutting most suitable flute shape for cutting aluminum alloy, etc.  
These tools are made from regular HSS(M2), which is good for aluminum cutting.



P. 219

### LONG LENGTH

Unit : inch

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
HSS (M2)				
18047	1/4	3/8	1-1/4	3-1/16
18051	5/16	3/8	1-3/8	3-1/8
18055	3/8	3/8	1-1/2	3-1/4
18063	7/16	1/2	1-3/4	3-3/4
18071	1/2	1/2	2	4
18087	5/8	5/8	2-1/2	4-5/8
18109	3/4	3/4	3	5-1/4
18176	1	1	4	6-1/2
18195	1-1/4	1-1/4	4	6-1/2
18211	1-1/2	1-1/4	4	6-1/2
18227	2	1-1/4	4	6-1/2

### EXTRA LONG LENGTH

Unit : inch

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
HSS (M2)				
19047	1/4	3/8	1-3/4	3-9/16
19051	5/16	3/8	2	3-3/4
19055	3/8	3/8	2-1/2	4-1/4
19071	1/2	1/2	3	5
19087	5/8	5/8	4	6-1/8
19109	3/4	3/4	4	6-1/4
19176	1	1	6	8-1/2
19195	1-1/4	1-1/4	6	8-1/2
19211	1-1/2	1-1/4	8	10-1/2

Mill Dia. Tolerance (inch)	
0~+.0010	** 0~+.0015

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for HSS  
Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

\*\* The shank of end mills is the same diameter as the cutting portion.

# COBALT & HSS END MILLS



8% COBALT (M42) FLAT SHANK **E2086** SERIES

## HSSCo8, MULTI FLUTE STUB LENGTH FINE PITCH ROUGHING CENTER CUTTING

► This general purpose rougher is designed for high production metal removal in a wide range of work piece material. It is suitable for a very broad spectrum of materials having up to high tensile strengths. In many cases, the milled surfaces are of acceptable quality.



P. 238-239

Unit : inch

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
8% COBALT (M42)					
75297	1/4	3/8	1/4	2-1/16	4
75305	3/8	3/8	3/8	2-5/32	4
75313	7/16	1/2	1/2	2-1/2	4
75321	1/2	1/2	1/2	2-1/2	4
75337	5/8	5/8	5/8	2-3/4	4
75359	3/4	3/4	3/4	2-7/8	4
75391	7/8	3/4	7/8	3-1/8	5
75426	1	1	1	3-1/2	5

8% COBALT (M42) FLAT SHANK **E2085** SERIES

## HSSCo8, MULTI FLUTE REGULAR LENGTH FINE PITCH ROUGHING CENTER CUTTING

► This general purpose rougher is designed for high production metal removal in a wide range of work piece material. It is suitable for a very broad spectrum of materials having up to high tensile strengths. In many cases, the milled surfaces are of acceptable quality.



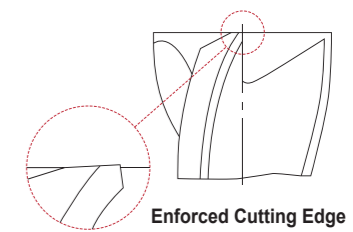
P. 238-239

Unit : inch

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
8% COBALT (M42)					
76297	1/4	3/8	5/8	2-7/16	3
76301	5/16	3/8	3/4	2-1/2	3
76305	3/8	3/8	3/4	2-1/2	4
76312	7/16	3/8	1	2-11/16	4
76321	1/2	1/2	1-1/4	3-1/4	4
76328	9/16	1/2	1-3/8	3-3/8	4
76337	5/8	5/8	1-5/8	3-3/4	4
76359	3/4	3/4	1-5/8	3-7/8	4
76391	7/8	3/4	1-7/8	4-1/8	5
76394	7/8	7/8	1-7/8	4-1/8	5
76422	1	3/4	2	4-1/4	5
76426	1	1	2	4-1/2	5

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)	
up to 1	0~+.0030
over 1	0~+.0060



Enforced Cutting Edge



# COBALT & HSS END MILLS



8% COBALT (M42) FLAT SHANK **E2079** SERIES

## HSSCo8, MULTI FLUTE REGULAR LENGTH FINE PITCH ROUGHING CENTER CUTTING

► This general purpose rougher is designed for high production metal removal in a wide range of work piece material. It is suitable for a very broad spectrum of materials having up to high tensile strengths. In many cases, the milled surfaces are of acceptable quality.

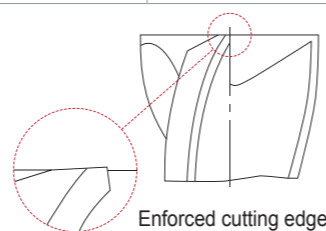


Unit : inch

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
8% COBALT (M42)					
70297	1/4	3/8	5/8	2-7/16	3
70301	5/16	3/8	3/4	2-1/2	3
70305	3/8	3/8	3/4	2-1/2	4
70312	7/16	3/8	1	2-11/16	4
70321	1/2	1/2	1-1/4	3-1/4	4
70328	9/16	1/2	1-3/8	3-3/8	4
70337	5/8	5/8	1-5/8	3-3/4	4
70358	3/4	5/8	1-5/8	3-3/4	4
70359	3/4	3/4	1-5/8	3-7/8	4
70391	7/8	3/4	1-7/8	4-1/8	5
70394	7/8	7/8	1-7/8	4-1/8	5
70422	1	3/4	2	4-1/4	5
70426	1	1	2	4-1/2	5
70431	1-1/8	3/4	2	4-1/4	6
70435	1-1/8	1	2	4-1/2	6
70439	1-1/4	3/4	2	4-1/4	6
70445	1-1/4	1-1/4	2	4-1/2	6
70449	1-3/8	3/4	2	4-1/4	6
70457	1-1/2	3/4	2	4-1/4	6
70461	1-1/2	1-1/4	2	4-1/2	6
70469	1-3/4	1-1/4	2	4-1/2	6
70475	2	3/4	2	4-1/4	6
70477	2	1-1/4	2	4-1/2	6

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)	
up to 1	0~+.0030
over 1	0~+.0060



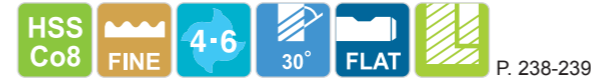
# COBALT & HSS END MILLS



8% COBALT (M42) FLAT SHANK **E2077** SERIES

## HSSCo8, MULTI FLUTE LONG LENGTH FINE PITCH ROUGHING

► This general purpose rougher is designed for high production metal removal in a wide range of work piece material. It is suitable for a very broad spectrum of materials having up to high tensile strengths. In many cases, the milled surfaces are of acceptable quality.



Unit : inch

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
8% COBALT (M42)					
71321	1/2	1/2	2	4	4
71337	5/8	5/8	2-1/2	4-5/8	4
71358	3/4	5/8	3	5-1/4	4
71359	3/4	3/4	3	5-1/4	4
71394	7/8	7/8	3-1/2	5-3/4	5
71426	1	1	4	6-1/2	5
71445	1-1/4	1-1/4	4	6-1/2	6
71457	1-1/2	3/4	4	6-1/4	6
71461	1-1/2	1-1/4	4	6-1/2	6
71469	1-3/4	1-1/4	4	6-1/2	6
71477	2	1-1/4	4	6-1/2	6

8% COBALT (M42) FLAT SHANK **E2086** SERIES

## HSSCo8, 3 FLUTE STUB LENGTH FINE PITCH ROUGHING CENTER CUTTING

► This general purpose rougher is designed for high production metal removal in a wide range of work piece material. It is suitable for a very broad spectrum of materials having up to high tensile strengths. In many cases, the milled surfaces are of acceptable quality.

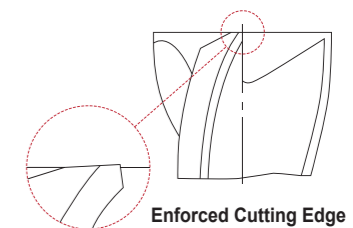


Unit : inch

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)				
72297	1/4	3/8	1/4	2-1/16
72305	3/8	3/8	3/8	2-5/32
72321	1/2	1/2	1/2	2-1/2
72337	5/8	5/8	5/8	2-3/4
72359	3/4	3/4	3/4	2-7/8
72391	7/8	3/4	7/8	3-1/8
72422	1	3/4	1	3-1/4
72426	1	1	1	3-1/2

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)	
up to 1	0~+.0030
over 1	0~+.0060



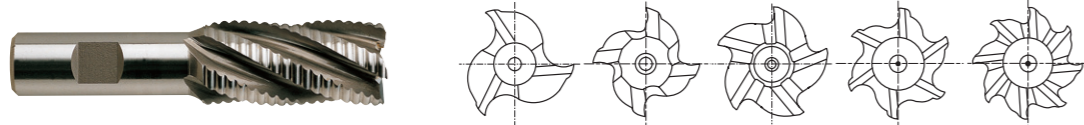
# COBALT & HSS END MILLS



8% COBALT (M42) FLAT SHANK **E2170** SERIES

## HSSCo8, MULTI FLUTE REGULAR LENGTH COARSE PITCH ROUGHING

► This general purpose rougher is designed for high production metal removal in a wide range of work piece material. It is recommended for cutting steel grades and many non-ferrous materials. The end tooth of this tool has a center hole design for many accurate resharpenings between centers.



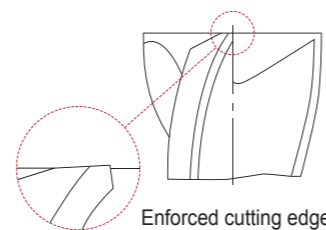
HSS Co8 COARSE 3-8 30° FLAT P. 238-239

Unit : inch

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
8% COBALT (M42)					
60297	1/4	3/8	5/8	2-7/16	3
60301	5/16	3/8	3/4	2-1/2	3
60305	3/8	3/8	3/4	2-1/2	4
60312	7/16	3/8	1	2-11/16	4
60321	1/2	1/2	1-1/4	3-1/4	4
60328	9/16	1/2	1-3/8	3-3/8	4
60337	5/8	5/8	1-5/8	3-3/4	4
60348	11/16	5/8	1-5/8	3-3/4	4
60358	3/4	5/8	1-5/8	3-3/4	4
60359	3/4	3/4	1-5/8	3-3/4	4
60375	13/16	3/4	1-7/8	4-1/8	4
60391	7/8	3/4	1-7/8	4-1/8	5
60394	7/8	7/8	1-7/8	4-1/8	5
60409	15/16	7/8	1-7/8	4-1/8	5
60422	1	3/4	2	4-1/4	5
60426	1	1	2	4-1/2	5
60431	1-1/8	3/4	2	4-1/4	6
60435	1-1/8	1	2	4-1/2	6
60439	1-1/4	3/4	2	4-1/4	6
60445	1-1/4	1-1/4	2	4-1/2	6
60449	1-3/8	3/4	2	4-1/4	6
60457	1-1/2	3/4	2	4-1/4	6
60461	1-1/2	1-1/4	2	4-1/2	6
60467	1-3/4	3/4	2	4-1/4	6
60469	1-3/4	1-1/4	2	4-1/2	6
60475	2	3/4	2	4-1/4	6
60477	2	1-1/4	2	4-1/2	6
* 60480	2	2	2	5-3/4	8
* 60482	2	2	3	6-3/4	8
* 60484	2	2	4	7-3/4	8

\* Combination Shank

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.



Mill Dia.	Tolerance (inch)
up to 1	0~+.0030
over 1	0~+.0060

# COBALT & HSS END MILLS



8% COBALT (M42) FLAT SHANK **E2171** SERIES

## HSSCo8, MULTI FLUTE MEDIUM LENGTH COARSE PITCH ROUGHING

► This general purpose rougher is designed for high production metal removal in a wide range of work piece material. It is recommended for cutting steel grades and many non-ferrous materials. The end tooth of this tool has a center hole design for many accurate resharpenings between centers.



HSS Co8 COARSE 5-8 30° FLAT P. 238-239

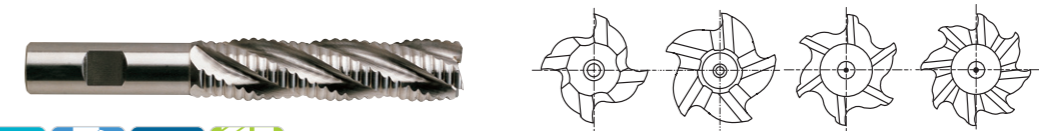
Unit : inch

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
8% COBALT (M42)					
61426	1	1	3	5-1/2	5
61445	1-1/4	1-1/4	3	5-1/2	6
61461	1-1/2	1-1/4	3	5-1/2	6
61488	2	2	6	9-3/4	8

8% COBALT (M42) FLAT SHANK **E2172** SERIES

## HSSCo8, MULTI FLUTE LONG LENGTH COARSE PITCH ROUGHING

► This general purpose rougher is designed for high production metal removal in a wide range of work piece material. It is recommended for cutting steel grades and many non-ferrous materials. The end tooth of this tool has a center hole design for many accurate resharpenings between centers.



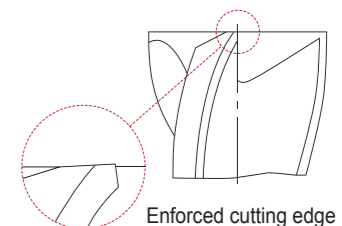
HSS Co8 COARSE 4-8 30° FLAT P. 238-239

Unit : inch

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
8% COBALT (M42)					
62321	1/2	1/2	2	4	4
62337	5/8	5/8	2-1/2	4-5/8	4
62358	3/4	5/8	3	5-1/8	4
62359	3/4	3/4	3	5-1/4	4
62391	7/8	3/4	3-1/2	5-3/4	5
62422	1	3/4	4	6-1/4	5
62426	1	1	4	6-1/2	5
62439	1-1/4	3/4	4	6-1/4	6
62445	1-1/4	1-1/4	4	6-1/2	6
62457	1-1/2	3/4	4	6-1/4	6
62461	1-1/2	1-1/4	4	6-1/2	6
62469	1-3/4	1-1/4	4	6-1/2	6
62477	2	1-1/4	4	6-1/2	6
* 62490	2	2	8	11-3/4	8

\* Combination Shank

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.



Mill Dia.	Tolerance (inch)
up to 1	0~+.0030
over 1	0~+.0060

# COBALT & HSS END MILLS



8% COBALT (M42)  
FLAT SHANK **E2241** SERIES

## HSSCo8, 3FLUTE STUB LENGTH COARSE PITCH ROUGHING CENTER CUTTING

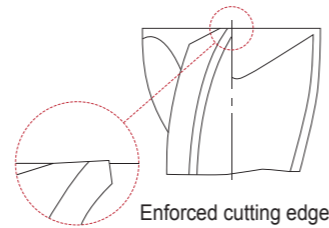
► This general purpose rougher is designed for high production metal removal in a wide range of work piece material. It is recommended for cutting steel grades and many non-ferrous materials. The end tooth of this tool has a center hole design for many accurate resharpenings between centers.



Unit : inch

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)				
63297	1/4	3/8	1/4	2-1/16
63305	3/8	3/8	3/8	2-5/32
63321	1/2	1/2	1/2	2-1/2
63337	5/8	5/8	5/8	2-3/4
63359	3/4	3/4	3/4	2-7/8
63426	1	1	1	3-1/2

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.



Mill Dia. Tolerance (inch)	
up to 1	0~+.0030
over 1	0~+.0060

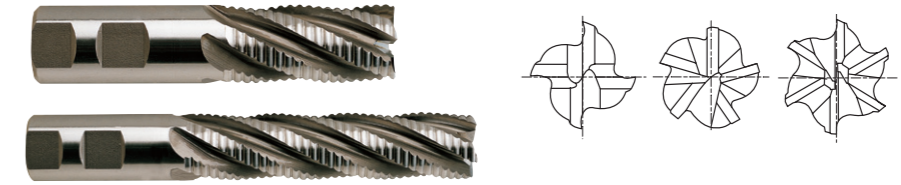
# COBALT & HSS END MILLS



8% COBALT (M42)  
FLAT SHANK **E2195** SERIES  
8% COBALT (M42)  
FLAT SHANK **E2197** SERIES

## HSSCo8, MULTI FLUTE REGULAR & LONG LENGTH COARSE PITCH ROUGHING CENTER CUTTING

► This general purpose rougher is designed for high production metal removal in a wide range of work piece material. It is recommended for cutting steel grades and many non-ferrous materials.

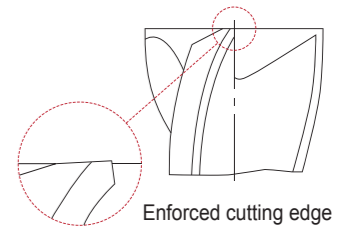


Unit : inch

E2195 Series ■ REGULAR LENGTH					
EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
8% COBALT (M42)					
64321	1/2	1/2	1-1/4	3-1/4	4
64337	5/8	5/8	1-5/8	3-3/4	4
64359	3/4	3/4	1-5/8	3-7/8	4
64426	1	1	2	4-1/2	5
64445	1-1/4	1-1/4	2	4-1/2	6
64461	1-1/2	1-1/4	2	4-1/2	6

E2197 Series ■ LONG LENGTH					
EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
8% COBALT (M42)					
65321	1/2	1/2	2	4	4
65337	5/8	5/8	2-1/2	4-5/8	4
65359	3/4	3/4	3	5-1/4	4
65426	1	1	4	6-1/2	5
65445	1-1/4	1-1/4	4	6-1/2	6
65461	1-1/2	1-1/4	4	6-1/2	6

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.



Mill Dia. Tolerance (inch)	
up to 1	0~+.0030
over 1	0~+.0060

# COBALT & HSS END MILLS



8% COBALT (M42) FLAT SHANK **E2193** SERIES  
 8% COBALT (M42) FLAT SHANK **E2125** SERIES

## HSSCo8, MULTI FLUTE REGULAR & LONG LENGTH COARSE PITCH ROUGHING BALL NOSE

► This general purpose rougher is designed for high production metal removal in a wide range of work piece material. It is recommended for cutting steel grades and many non-ferrous materials.



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### E2193 Series ■ REGULAR LENGTH

Unit : inch

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
8% COBALT (M42)						
	R					
68297	R1/8	1/4	3/8	5/8	2-7/16	3
68301	R5/32	5/16	3/8	3/4	2-1/2	3
68305	R3/16	3/8	3/8	3/4	2-1/2	4
68321	R1/4	1/2	1/2	1-1/4	3-1/4	4
68337	R5/16	5/8	5/8	1-5/8	3-3/4	4
68359	R3/8	3/4	3/4	1-3/4	4	4
68422	R1/2	1	3/4	2	4-1/2	5
68426	R1/2	1	1	2	4-1/2	5
68439	R5/8	1-1/4	3/4	2	4-1/2	6
68445	R5/8	1-1/4	1-1/4	2	4-1/2	6
68457	R3/4	1-1/2	3/4	2	4-1/2	6
68461	R3/4	1-1/2	1-1/4	2	4-1/2	6

### E2125 Series ■ LONG LENGTH

Unit : inch

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
8% COBALT (M42)						
	R					
69321	R1/4	1/2	1/2	2-1/2	4-1/2	4
69337	R5/16	5/8	5/8	2-1/2	4-5/8	4
69359	R3/8	3/4	3/4	3	5-1/4	4
69426	R1/2	1	1	4	6-1/2	5
69445	R5/8	1-1/4	1-1/4	4	6-1/2	6
69461	R3/4	1-1/2	1-1/4	4	6-1/2	6

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
 Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)	
up to 1	0~+.0030
over 1	0~+.0060

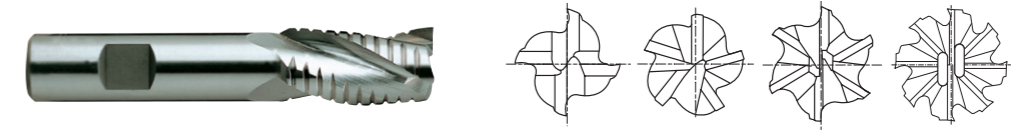
# COBALT & HSS END MILLS



8% COBALT (M42) FLAT SHANK **E2248** SERIES

## HSSCo8, MULTI FLUTE REGULAR LENGTH ROUGHING & FINISHING

► This general purpose rougher is designed for high production metal removal in a wide range of work piece material. It is suitable for a very broad spectrum of materials having up to high tensile strengths. In many cases, the milled surfaces are of acceptable quality.



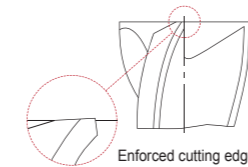
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Unit : inch

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
8% COBALT (M42)					
73297	1/4	3/8	5/8	2-7/16	4
73301	5/16	3/8	3/4	2-1/2	4
73305	3/8	3/8	3/4	2-1/2	4
73312	7/16	3/8	1	2-11/16	4
73321	1/2	1/2	1-1/4	3-1/4	4
73328	9/16	1/2	1-3/8	3-3/8	4
73337	5/8	5/8	1-5/8	3-3/4	4
73348	11/16	5/8	1-5/8	3-3/4	4
73358	3/4	5/8	1-5/8	3-3/4	4
73359	3/4	3/4	1-5/8	3-3/4	4
73391	7/8	3/4	1-7/8	4-1/8	5
73394	7/8	7/8	1-7/8	4-1/8	5
73422	1	3/4	2	4-1/4	5
73426	1	1	2	4-1/2	5
73431	1-1/8	3/4	2	4-1/4	6
73435	1-1/8	1	2	4-1/2	6
73439	1-1/4	3/4	2	4-1/4	6
73445	1-1/4	1-1/4	2	4-1/2	6
73457	1-1/2	3/4	2	4-1/4	6
73461	1-1/2	1-1/4	2	4-1/2	6
73467	1-3/4	3/4	2	4-1/4	6
73469	1-3/4	1-1/4	2	4-1/2	6
73475	2	3/4	2	4-1/4	6
73477	2	1-1/4	2	4-1/2	6
* 73480	2	2	2	5-3/4	8
* 73482	2	2	3	6-3/4	8
* 73484	2	2	4	7-3/4	8

\* Combination Shank

Mill Dia. Tolerance (inch)
+ .0025
+ .0005



- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
 Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

# COBALT & HSS END MILLS



► This general purpose rougher is designed for high production metal removal in a wide range of work piece material. It is suitable for a very broad spectrum of materials having up to high tensile strengths. In many cases, the milled surfaces are of acceptable quality.

HSS Co8
ALU
3
37°
FLAT
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8% COBALT (M42) FLAT SHANK **E2191** SERIES

## HSSCo8, 3 FLUTE 37° HELIX REGULAR LENGTH ROUGHING for ALUMINUM



Unit : inch

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)				
66297	1/4	3/8	5/8	2-7/16
66301	5/16	3/8	3/4	2-1/2
66305	3/8	3/8	3/4	2-1/2
66321	1/2	1/2	1-1/4	3-1/4
66337	5/8	5/8	1-5/8	3-3/4
66359	3/4	3/4	1-5/8	3-7/8
66391	7/8	3/4	1-7/8	4-1/8
66426	1	1	2	4-1/2
66445	1-1/4	1-1/4	2	4-1/2
66461	1-1/2	1-1/4	2	4-1/2

8% COBALT (M42) FLAT SHANK **E2226** SERIES  
8% COBALT (M42) FLAT SHANK **E2192** SERIES

## HSSCo8, 3 FLUTE 37° HELIX MEDIUM & LONG LENGTH ROUGHING for ALUMINUM



Unit : inch

**E2226 Series** ■ MEDIUM LENGTH

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)				
66901	1	1	3	5-1/2
66902	1-1/4	1-1/4	3	5-1/2

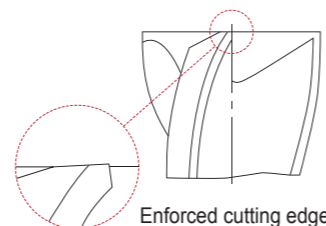
**E2192 Series** ■ LONG LENGTH

Unit : inch

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)				
67321	1/2	1/2	2	4
67337	5/8	5/8	2-1/2	4-5/8
67359	3/4	3/4	3	5-1/4
67426	1	1	4	6-1/2
67445	1-1/4	1-1/4	4	6-1/2
67461	1-1/2	1-1/4	4	6-1/2

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

Mill Dia.	Tolerance (inch)
up to 1	0~+.0030
over 1	0~+.0060



# COBALT & HSS END MILLS



8% COBALT (M42) FLAT SHANK **E2163** SERIES  
HSS (M2) FLAT SHANK **E1163** SERIES

## HSSCo8 & HSS, 2 FLUTE 15° HELIX for KEYWAY CUTTING

► E2163(E1163) are keyway cutting end mills that have the same design as the general purpose of two flute single end mill, but are held to a mill diameter tolerance of +.0000 -.0015. These close tolerance end mills are recommended for cutting keyway which must be held close to nominal size.



HSS Co8
HSS
2
15°
FLAT
P. 216-218

Unit : inch

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)				
14289	1/8	3/8	3/8	2-5/16
14293	3/16	3/8	7/16	2-5/16
14297	1/4	3/8	1/2	2-5/16
14301	5/16	3/8	9/16	2-5/16
14305	3/8	3/8	9/16	2-5/16
14312	7/16	3/8	13/16	2-1/2
14321	1/2	1/2	1	3
14337	5/8	5/8	1-5/16	3-7/16
14359	3/4	3/4	1-5/16	3-9/16
14394	7/8	7/8	1-1/2	3-3/4
14426	1	1	1-5/8	4-1/8

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coating Codes for HSS  
Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

Mill Dia.	Tolerance (inch)
0~1	0~-.0015

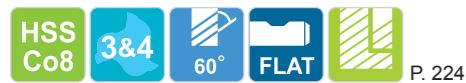
# COBALT & HSS END MILLS



8% COBALT (M42) FLAT SHANK **E2120** SERIES  
 8% COBALT (M42) FLAT SHANK **E2121** SERIES

HSSCo8,  
 3&4 FLUTE 60° HELIX REGULAR LENGTH

- Provided with high helix angle(60°).  
 Smooth cutting and small cutting resistance.  
 Suitable for machining of difficult-to-cut materials.



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## E2120 Series ■ 3 FLUTE

Unit : inch

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)				
20297	1/4	3/8	5/8	2-7/16
20301	5/16	3/8	3/4	2-1/2
20305	3/8	3/8	3/4	2-1/2
20312	7/16	3/8	1	2-11/16
20321	1/2	1/2	1-1/4	3-1/4
20337	5/8	5/8	1-5/8	3-3/4
20359	3/4	3/4	1-5/8	3-7/8

## E2121 Series ■ 4 FLUTE

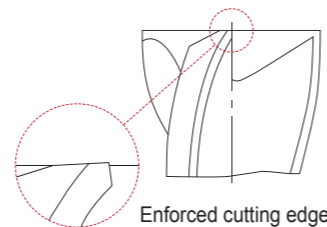
Unit : inch

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)				
20394	7/8	7/8	1-7/8	4-1/8
20426	1	1	2	4-1/2
20445	1-1/4	1-1/4	2	4-1/2
20461	1-1/2	1-1/4	2	4-1/2
20477	2	1-1/4	2	4-1/2

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
 Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)	
0~+.0010	** 0~+.0015

\*\* The shank of end mills is the same diameter as the cutting portion.



Enforced cutting edge

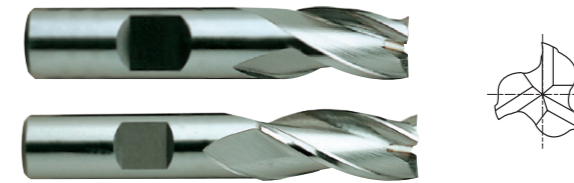
# COBALT & HSS END MILLS



8% COBALT (M42) FLAT SHANK **E2160** SERIES  
 8% COBALT (M42) FLAT SHANK **E2161** SERIES

HSSCo8 & HSS, 3 FLUTE SHORT &  
 LONG LENGTH THROW AWAY

- Well balanced web design to minimize deflection & chattering. High accuracy for O.D. is guaranteed under the strict tolerance control.  
 Much higher(50%) table speed than 2 Flute is allowed.



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## E2160 Series ■ SHORT LENGTH

Unit : inch

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)				
22257	1/16	1/4	3/32	31/32
22261	3/32	1/4	5/32	1-1/64
22265	1/8	1/4	3/16	1-3/32
22269	5/32	1/4	1/4	1-9/32
22273	3/16	1/4	9/32	1-11/32
22277	7/32	1/4	5/16	1-13/32
22281	1/4	1/4	3/8	1-13/32

## E2161 Series ■ LONG LENGTH

Unit : inch

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)				
23257	1/16	1/4	5/32	1-3/32
23261	3/32	1/4	1/4	1-1/4
23265	1/8	1/4	5/16	1-11/32
23269	5/32	1/4	3/8	1-17/32
23273	3/16	1/4	7/16	1-21/32
23277	7/32	1/4	1/2	1-3/4
23281	1/4	1/4	5/8	1-3/4

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
 Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)
-.0005
-.0013

# COBALT & HSS END MILLS



8% COBALT (M42)  
FLAT SHANK **E2237** SERIES  
HSS (M2)  
FLAT SHANK **E1237** SERIES

## HSSCo8 & HSS, 4 FLUTE CORNER ROUNDING

► This general corner rounding end mills are designed for machining fillets on work piece.



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Unit : inch

EDP No.		Radius	Pilot Diameter	Outside Diameter	Shank Diameter	Overall Length
8% COBALT (M42)	HSS (M2)					
29251	29001	1/16	1/4	7/16	3/8	2-1/2
29252	29002	3/32	1/4	1/2	3/8	2-1/2
29253	29003	1/8	1/4	5/8	1/2	3
29254	29004	5/32	5/16	3/4	1/2	3
29255	29005	3/16	3/8	7/8	1/2	3
29256	29006	3/16	3/8	7/8	3/4	3-1/8
29257	29007	7/32	5/16	7/8	1/2	3-1/4
29258	29008	1/4	3/8	1	1/2	3
29259	29009	9/32	3/8	1	5/8	3
29260	29010	1/4	3/8	1	3/4	3-1/4
29261	29011	5/16	3/8	1-1/8	1/2	3-1/4
29262	29012	5/16	3/8	1-1/8	5/8	3-1/2
29263	29013	5/16	3/8	1-1/8	3/4	3-1/2
29264	29014	5/16	3/8	1-1/8	7/8	3-1/2
29265	29015	3/8	3/8	1-1/4	1/2	3-1/2
29266	29016	3/8	3/8	1-1/4	3/4	3-3/4
29267	29017	3/8	3/8	1-1/4	7/8	3-3/4
29268	29018	7/16	3/8	1-3/8	3/4	3-3/4
29269	29019	7/16	3/8	1-3/8	1	4
29270	29020	1/2	3/8	1-1/2	3/4	3-7/8
29271	29021	1/2	3/8	1-1/2	1	4-1/8
29272	29022	5/8	5/16	1-5/8	3/4	4
29273	29023	5/8	5/16	1-5/8	1	4
29274	29024	5/8	9/16	1-15/16	3/4	4
29275	29025	5/8	9/16	1-15/16	1	4-1/4
29276	29026	3/4	5/16	1-7/8	3/4	4
29277	29027	3/4	5/16	1-7/8	1	4
29278	29028	3/4	5/8	2-1/4	3/4	4-1/8
29279	29029	3/4	5/8	2-1/4	1	4-5/16
29280	29030	7/8	5/8	2-1/2	3/4	4-1/2
29281	29031	1	5/8	2-5/8	3/4	4-1/2
29282	29032	1	5/8	2-3/4	1	4-3/4

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coating Codes for HSS  
Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

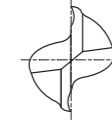
# COBALT & HSS END MILLS



8% COBALT (M42)  
FLAT SHANK **E2482** SERIES  
HSS (M2)  
FLAT SHANK **E1482** SERIES

## HSSCo8 & HSS, 2 FLUTE REGULAR LENGTH

► Two flute end mills with metric cutting diameter are especially recommended for slotting operation, pocketing keyway cutting and other general purpose work including plunge cutting.



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Unit : inch

EDP No.		Mill Diameter		Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)	Metric	Inch			
15252	15002	2.0	.0787	3/8	5/16	2-5/16
15253	15003	2.5	.0984	3/8	5/16	2-5/16
15254	15004	3.0	.1181	3/8	5/16	2-5/16
15255	15005	3.5	.1378	3/8	7/16	2-5/16
15256	15006	4.0	.1575	3/8	7/16	2-5/16
15257	15007	4.5	.1772	3/8	1/2	2-5/16
15258	15008	5.0	.1969	3/8	1/2	2-5/16
15259	15009	5.5	.2165	3/8	1/2	2-5/16
15260	15010	6.0	.2362	3/8	1/2	2-5/16
15261	15011	7.0	.2756	3/8	9/16	2-5/16
15262	15012	8.0	.3150	3/8	9/16	2-5/16
15263	15013	9.0	.3543	3/8	9/16	2-5/16
15264	15014	10.0	.3937	3/8	13/16	2-1/2
15265	15015	11.0	.4330	3/8	13/16	2-1/2
15266	15016	12.0	.4724	3/8	13/16	2-1/2
15267	15017	12.5	.4921	1/2	1-1/8	3-1/8
15268	15018	13.0	.5118	1/2	1-1/8	3-1/8
15270	15020	14.0	.5512	1/2	1-1/8	3-1/8
15276	15026	16.0	.6299	5/8	1-5/16	3-7/16
15280	15030	18.0	.7087	5/8	1-5/16	3-7/16
15282	15032	20.0	.7874	5/8	1-1/2	3-3/4
15284	15034	22.0	.8661	3/4	1-1/2	3-3/4
15288	15038	24.0	.9449	3/4	2	4-1/2
15290	15040	25.0	.9843	1	2	4-1/2
15296	15046	32.0	1.2598	1	2	4-1/2
15298	15048	36.0	1.4173	1	2	4-1/2
15300	15050	40.0	1.5748	1-1/4	2	4-1/2
15302	15052	45.0	1.7717	1-1/4	2	4-1/2

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coating Codes for HSS  
Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)
- Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)	
0~+.0010	** 0~+.0015

\*\* The shank of end mills is the same diameter as the cutting portion.

# COBALT & HSS END MILLS



8% COBALT (M42) FLAT SHANK **E2483** SERIES  
 HSS (M2) FLAT SHANK **E1483** SERIES

## HSSCo8 & HSS, 4 FLUTE REGULAR LENGTH

- ▶ E2483 have an extensive range of standard regular length in metric diameter.
- End mills with center cutting are recommended for a wide range of cutting jobs, including slotting, shallow pocketing and tracer milling.



P. 245

Unit : inch

EDP No.		Mill Diameter		Shank Diameter	Length of Cut	Overall Length
8% COBALT (M42)	HSS (M2)	Metric	Inch			
16252	16002	2.0	.0787	3/8	3/8	2-5/16
16253	16003	2.5	.0984	3/8	3/8	2-5/16
16254	16004	3.0	.1181	3/8	3/8	2-5/16
16255	16005	3.5	.1378	3/8	1/2	2-3/8
16256	16006	4.0	.1575	3/8	1/2	2-3/8
16257	16007	4.5	.1772	3/8	9/16	2-1/2
16258	16008	5.0	.1969	3/8	9/16	2-1/2
16259	16009	5.5	.2165	3/8	5/8	2-1/2
16260	16010	6.0	.2362	3/8	5/8	2-1/2
16261	16011	7.0	.2756	3/8	11/16	2-1/2
16262	16012	8.0	.3150	3/8	3/4	2-1/2
16263	16013	9.0	.3543	3/8	3/4	2-1/2
16264	16014	10.0	.3937	3/8	1	2-11/16
16265	16015	11.0	.4330	3/8	1	2-11/16
16266	16016	12.0	.4724	3/8	1	2-11/16
16267	16017	12.5	.4921	1/2	1-1/4	3-1/4
16268	16018	13.0	.5118	1/2	1-1/4	3-1/4
16270	16020	14.0	.5512	1/2	1-3/8	3-3/8
16276	16026	16.0	.6299	5/8	1-5/8	3-3/4
16280	16030	18.0	.7087	5/8	1-5/8	3-3/4
16282	16032	20.0	.7874	5/8	1-7/8	4-1/8
16284	16034	22.0	.8661	3/4	1-7/8	4-1/8
16288	16038	24.0	.9449	3/4	2	4-1/2
16290	16040	25.0	.9843	1	2	4-1/2
16296	16046	32.0	1.2598	1	2	4-1/2
16298	16048	36.0	1.4173	1	2	4-1/2
16300	16050	40.0	1.5748	1-1/4	2	4-1/2
16302	16052	45.0	1.7717	1-1/4	2	4-1/2

- The TiN coated, TiCN coated or TiAlN coated is available on your request.
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coating Codes for HSS  
Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)
- ▶ Coated Price Shown in Price List. Call for Availability.

Mill Dia. Tolerance (inch)	
0~+.0010	** 0~+.0015

\*\* The shank of end mills is the same diameter as the cutting portion.

# COBALT & HSS END MILLS



## END MILL SET SERIES

- ▶ Various range of sizes in these end mill sets gives you plenty of opportunities to reduce manufacturing costs and improve productivity.

### ■ SET OF MINIATURE, (3/16" SHANK) DOUBLE

EDP No.	ITEM No.	EDP No.	ITEM No.	Type	Length	Mill Diameter	No. of Flute
8% COBALT (M42)		HSS (M2)					
96002	CMR211	96001	MR211	Sq. END (11PCS.)	REGULAR	1/32, 3/64, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 11/64, 3/16	2
96004	CMR409	96003	MR409	Sq. END (9PCS.)	REGULAR	1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 11/64, 3/16	4
96006	CMS211	96005	MS211	Sq. END (11PCS.)	STUB	1/32, 3/64, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 11/64, 3/16	2
96008	CMS409	96007	MS409	Sq. END (9PCS.)	STUB	1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 11/64, 3/16	4

- The TiN coated, TiCN coated or TiAlN coated is available on your request. \* WITH TRANSPARENT PLASTIC CASE
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coating Codes for HSS  
Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)
- ▶ Coated Price Shown in Price List. Call for Availability.

### ■ SET OF 3/8" SHANK, (WELDON) SINGLE

EDP No.	ITEM No.	EDP No.	ITEM No.	Type	Length	Mill Diameter	No. of Flute
8% COBALT (M42)		HSS (M2)					
96010	CWR205	96009	WR205	Sq. END (5PCS.)	REGULAR	1/8, 3/16, 1/4, 5/16, 3/8	2
96012	CWR405	96011	WR405	Sq. END (5PCS.)	REGULAR	1/8, 3/16, 1/4, 5/16, 3/8	4
96014	CWRC05	96013	WRC05	CENTER CUT (5PCS.)	REGULAR	1/8, 3/16, 1/4, 5/16, 3/8	04

- The TiN coated, TiCN coated or TiAlN coated is available on your request. \* WITH TRANSPARENT PLASTIC CASE
- Coating Codes for Cobalt  
Uncoated EDP NO. + CN(TiN), CC(TiCN), CF(TiAlN F), CE(TiAlN E), CH(Hardslick)
- Coating Codes for HSS  
Uncoated EDP NO. + HN(TiN), HC(TiCN), HF(TiAlN F), HE(TiAlN E), HH(Hardslick)
- ▶ Coated Price Shown in Price List. Call for Availability.



# COBALT & HSS END MILLS



## E2030, E1030, E2080, E1080, E2033, E1033, E2050, E1050, E2163, E1163 2FLUTE / SLOTTING / INCH

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)													
						1/8	1/4	3/8	1/2	5/8	3/4	7/8	1	1-1/8	1-3/8	1-1/2	1-3/4	2	
P	1	Non-alloy steel	1.0D	0.5D	SFM	115	120	110	120	115	125	115	120	120	110	120	130	130	
					IPT	.0003	.0010	.0018	.0024	.0031	.0032	.0040	.0039	.0039	.0039	.0039	.0043	.0040	
					RPM	3500	1800	1100	900	700	630	500	450	400	310	310	280	250	
					IPM	2	4	4	4	4	4	4	3	2	2	2	2	2	
	2		1.0D	0.5D	SFM	105	105	90	105	90	100	105	105	90	100	100	100		
					IPT	.0003	.0010	.0019	.0025	.0031	.0035	.0039	.0039	.0040	.0040	.0040	.0045	.0047	
					RPM	3200	1600	900	800	560	500	450	400	350	250	250	220	190	
					IPM	2	3	4	4	4	4	4	3	2	2	2	2	2	
	3-4		1.0D	0.5D	SFM	80	80	80	80	75	80	80	80	80	70	80	80	60	
					IPT	.0003	.0010	.0019	.0025	.0031	.0035	.0040	.0039	.0039	.0040	.0040	.0044	.0045	
					RPM	2500	1200	800	630	450	400	350	310	280	200	200	180	110	
IPM		2			2	3	3	3	3	3	2	2	2	2	2	1			
5	1.0D	0.5D	SFM	50	50	45	50	45	50	50	45	45	45	50	40				
			IPT	.0003	.0010	.0020	.0025	.0032	.0036	.0041	.0039	.0038	.0042	.0042	.0045	.0050			
			RPM	1600	800	450	400	280	250	220	180	160	120	120	110	80			
			IPM	1	2	2	2	2	2	2	1	1	1	1	1	1			
6	1.0D	0.5D	SFM	105	105	90	105	90	100	105	105	90	100	100	100				
			IPT	.0003	.0010	.0019	.0025	.0031	.0035	.0039	.0039	.0040	.0040	.0040	.0045	.0047			
			RPM	3200	1600	900	800	560	500	450	400	350	250	250	220	190			
			IPM	2	3	4	4	4	4	4	3	3	2	2	2	2			
7	1.0D	0.5D	SFM	80	80	80	80	75	80	80	80	70	80	80	60				
			IPT	.0003	.0010	.0019	.0025	.0031	.0035	.0040	.0039	.0039	.0040	.0040	.0044	.0045			
			RPM	2500	1200	800	630	450	400	350	310	280	200	200	180	110			
			IPM	2	2	3	3	3	3	3	2	2	2	2	2	1			
8-9	1.0D	0.5D	SFM	50	50	45	50	45	50	50	45	45	45	50	40				
			IPT	.0003	.0010	.0020	.0025	.0032	.0036	.0041	.0039	.0038	.0042	.0042	.0045	.0050			
			RPM	1600	800	450	400	280	250	220	180	160	120	120	110	80			
			IPM	1	2	2	2	2	2	2	1	1	1	1	1	1			
10	1.0D	0.5D	SFM	105	105	90	105	90	100	105	105	90	100	100	100				
			IPT	.0003	.0010	.0019	.0025	.0031	.0035	.0039	.0039	.0040	.0040	.0040	.0045	.0047			
			RPM	3200	1600	900	800	560	500	450	400	350	250	250	220	190			
			IPM	2	3	4	4	4	4	4	3	3	2	2	2	2			
11.1	1.0D	0.5D	SFM	50	50	45	50	45	50	50	45	45	45	50	40				
			IPT	.0003	.0010	.0020	.0025	.0032	.0036	.0041	.0039	.0038	.0042	.0042	.0045	.0050			
			RPM	1600	800	450	400	280	250	220	180	160	120	120	110	80			
			IPM	1	2	2	2	2	2	2	1	1	1	1	1	1			
21-22	1.0D	0.5D	SFM	360	365	305	325	325	355	320	315	325	325	355	365	330			
			IPT	.0004	.0011	.0025	.0030	.0035	.0038	.0042	.0046	.0048	.0048	.0048	.0049	.0050			
			RPM	11000	5600	3100	2500	2000	1800	1400	1200	1100	900	900	800	630			
			IPM	10	12	16	15	14	14	12	11	11	9	9	8	6			
23-25	1.0D	0.5D	SFM	360	365	305	325	325	355	320	315	325	325	355	365	330			
			IPT	.0004	.0011	.0025	.0030	.0035	.0038	.0042	.0046	.0048	.0048	.0048	.0049	.0050			
			RPM	11000	5600	3100	2500	2000	1800	1400	1200	1100	900	900	800	630			
			IPM	10	12	16	15	14	14	12	11	11	9	9	8	6			

SFM = Surface Feet per Minute  
 RPM = Revolutions Per Minute  
 IPT = Inches Per Tooth  
 IPM = Inches Per Minute  
 Ap : Inch (Axial Depth of Cut)  
 Ae : Inch (Radial Depth of Cut)

※ The Feed, in long & extra long types, should be reduced by around 50%.

# COBALT & HSS END MILLS



## E2030, E1030, E2080, E1080, E2033, E1033, E2050, E1050, E2163, E1163 2FLUTE / SLOTTING / INCH / TiN Coated

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)													
						1/8	1/4	3/8	1/2	5/8	3/4	7/8	1	1-1/8	1-3/8	1-1/2	1-3/4	2	
P	1	Non-alloy steel	1.0D	0.5D	SFM	135	140	130	145	135	150	135	140	140	130	145	155	155	
					IPT	.0003	.0010	.0018	.0024	.0031	.0032	.0040	.0039	.0039	.0039	.0039	.0043	.0040	
					RPM	4200	2160	1320	1090	840	760	600	540	480	370	370	340	300	
					IPM	3	4	5	5	5	5	4	4	3	3	3	3	2	
	2		1.0D	0.5D	SFM	125	125	105	125	110	120	125	125	110	120	120	120		
					IPT	.0003	.0010	.0019	.0025	.0031	.0035	.0039	.0039	.0040	.0040	.0040	.0045	.0048	
					RPM	3840	1920	1080	960	670	600	540	480	420	300	300	260	230	
					IPM	2	4	4	5	4	4	4	3	2	2	2	2	2	
	3-4		1.0D	0.5D	SFM	100	95	95	100	90	95	95	95	100	85	95	100	70	
					IPT	.0003	.0010	.0019	.0024	.0034	.0035	.0040	.0039	.0039	.0040	.0040	.0044	.0045	
					RPM	3000	1440	960	760	540	480	420	370	340	240	240	220	130	
IPM		2			3	4	4	4	3	3	3	3	2	2	2	1			
5	1.0D	0.5D	SFM	65	65	55	65	55	60	60	70	125	50	55	60	50			
			IPT	.0003	.0010	.0020	.0025	.0033	.0037	.0042	.0042	.0020	.0042	.0042	.0045	.0052			
			RPM	1920	960	540	480	340	300	260	260	430	140	140	130	100			
			IPM	1	2	2	2	2	2	2	2	2	1	1	1	1			
6	1.0D	0.5D	SFM	125	125	105	125	110	120	125	125	110	120	120	120				
			IPT	.0003	.0010	.0019	.0025	.0031	.0035	.0039	.0039	.0040	.0040	.0040	.0045	.0048			
			RPM	3840	1920	1080	960	670	600	540	480	420	300	300	260	230			
			IPM	2	4	4	5	4	4	4	3	2	2	2	2	2			
7	1.0D	0.5D	SFM	100	95	95	100	90	95	95	95	100	85	95	100	70			
			IPT	.0003	.0010	.0019	.0024	.0034	.0035	.0040	.0039	.0039	.0040	.0040	.0044	.0045			
			RPM	3000	1440	960	760	540	480	420	370	340	240	240	220	130			
			IPM	2	3	4	4	4	3	3	3	3	2	2	2	1			
8-9	1.0D	0.5D	SFM	65	65	55	65	55	60	60	70	125	50	55	60	50			
			IPT	.0003	.0010	.0020	.0025	.0033	.0037	.0042	.0042	.0020	.0042	.0042	.0045	.0052			
			RPM	1920	960	540	480	340	300	260	260	430	140	140	130	100			
			IPM	1	2	2	2	2	2	2	2	2	1	1	1	1			
10	1.0D	0.5D	SFM	125	125	105	125	110	120	125	125	110	120	120	120				
			IPT	.0003	.0010	.0019	.0025	.0031	.0035	.0039	.0039	.0040	.0040	.0040	.0045	.0048			
			RPM	3840	1920	1080	960	670	600	540	480	420	300	300	260	230			
			IPM	2	4	4	5	4	4	4	3	2	2	2	2	2			
11.1	1.0D	0.5D	SFM	65	65	55	65	55	60	60	70	125	50	55	60	50			
			IPT	.0003	.0010	.0020	.0025	.0033	.0037	.0042	.0042	.0020	.0042	.0042	.0045	.0052			
			RPM	1920	960	540	480	340	300	260	260	430	140	140	130	100			
			IPM	1	2	2	2	2	2	2	2	2	1	1	1	1			
21-22	1.0D	0.5D	SFM	430	440	365	395	395	425	385	375	390	390	425	440	395			
			IPT	.0004	.0011	.0026	.0030	.0035	.0038	.0042	.0046	.0048	.0048	.0048	.0049	.0050			
			RPM	13200	6720	3720	3000	2400	2160	1680	1440	1320	1080	1080	960	760			
			IPM	12	15	19	18	17	17	14	13	13	10	10	10	8			
23-25	1.0D	0.5D	SFM	430	440	365	395	395	425	385	375	390	390	425	440	395			
			IPT	.0004	.0011	.0026	.0030	.0035	.0038	.0042	.0046	.0048	.0048	.0048	.0049	.0050			
			RPM	13200	6720	3720	3000	2400	2160	1680	1440	1320	1080	1080	960	760			
			IPM	12	15	19	18	17	17	14	13	13	10	10	10	8			

SFM = Surface Feet per Minute  
 RPM = Revolutions Per Minute  
 IPT = Inches Per Tooth  
 IPM = Inches Per Minute  
 Ap : Inch (Axial Depth of Cut)  
 Ae : Inch (Radial Depth of Cut)

※ The Feed, in long & extra long types, should be reduced by around 50%.





**E2160, E2161**  
3FLUTE / SLOTTING / INCH / TiN Coated

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)												
						3/32	1/8	1/4	3/8	1/2	9/16	5/8	7/8	1	1-1/8	1-3/16		
P	1	Non-alloy steel	1.0D	0.5D	SFM	165	135	140	130	140	125	125	135	140	125	130		
					IPT	.0001	.0003	.0010	.0018	.0024	.0031	.0032	.0040	.0043	.0039			
					RPM	6720	4200	2160	1320	1080	840	760	600	540	430	420		
	2		1.0D	0.5D	SFM	135	125	125	105	125	100	100	125	125	110			
					IPT	.0001	.0003	.0010	.0020	.0025	.0032	.0036	.0040	.0039	.0039	.0038		
					RPM	5400	3840	1920	1080	960	670	600	540	480	420	370		
	3-4		1.0D	0.5D	SFM	120	100	95	95	100	80	80	95	95	100	90		
					IPT	.0002	.0003	.0010	.0019	.0025	.0030	.0034	.0039	.0038	.0037	.0040		
					RPM	4800	3000	1440	960	760	540	480	420	370	340	300		
	5		1.0D	0.5D	SFM	65	65	65	55	65	50	50	60	55	55	55		
					IPT	.0001	.0002	.0010	.0019	.0025	.0031	.0034	.0039	.0037	.0038	.0038		
RPM		2640			1920	960	540	480	340	300	260	220	190	190				
6	1.0D	0.5D	SFM	135	125	125	105	125	100	100	125	125	125	110				
			IPT	.0001	.0003	.0010	.0020	.0025	.0032	.0036	.0040	.0039	.0039	.0038				
			RPM	5400	3840	1920	1080	960	670	600	540	480	420	370				
7	1.0D	0.5D	SFM	120	100	95	95	100	80	80	95	95	100	90				
			IPT	.0002	.0003	.0010	.0019	.0025	.0030	.0034	.0039	.0038	.0037	.0040				
			RPM	4800	3000	1440	960	760	540	480	420	370	340	300				
8-9	1.0D	0.5D	SFM	65	65	65	55	65	50	50	60	55	55	55				
			IPT	.0001	.0002	.0010	.0019	.0025	.0031	.0034	.0039	.0037	.0038	.0038				
			RPM	2640	1920	960	540	480	340	300	260	220	190	190				
10	1.0D	0.5D	SFM	135	125	125	105	125	100	100	125	125	125	110				
			IPT	.0001	.0003	.0010	.0020	.0025	.0032	.0036	.0040	.0039	.0039	.0038				
			RPM	5400	3840	1920	1080	960	670	600	540	480	420	370				
11.1	1.0D	0.5D	SFM	65	65	65	55	65	50	50	60	55	55	55				
			IPT	.0001	.0002	.0010	.0019	.0025	.0031	.0034	.0039	.0037	.0038	.0038				
			RPM	2640	1920	960	540	480	340	300	260	220	190	190				
21-22	1.0D	0.5D	SFM	355	430	440	365	395	355	355	385	375	390	390				
			IPT	.0003	.0005	.0011	.0025	.0030	.0035	.0039	.0042	.0046	.0048	.0048				
			RPM	14400	13200	6720	3720	3000	2400	2160	1680	1440	1320	1320				
23-25	1.0D	0.5D	SFM	355	430	440	365	395	355	355	385	375	390	390				
			IPT	.0003	.0005	.0011	.0025	.0030	.0035	.0039	.0042	.0046	.0048	.0048				
			RPM	14400	13200	6720	3720	3000	2400	2160	1680	1440	1320	1320				

SFM = Surface Feet per Minute  
RPM = Revolutions Per Minute  
IPT = Inches Per Tooth  
IPM = Inches Per Minute  
Ap : Inch (Axial Depth of Cut)  
Ae : Inch (Radial Depth of Cut)

※ The Feed, in long & extra long types, should be reduced by around 50%.



**E2160, E2161**  
3FLUTE / SLOTTING / INCH / TiCN Coated

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)												
						3/32	1/8	1/4	3/8	1/2	9/16	5/8	7/8	1	1-1/8	1-3/16		
P	1	Non-alloy steel	1.0D	0.5D	SFM	180	150	155	140	155	155	155	150	155	155			
					IPT	.0001	.0003	.0010	.0018	.0024	.0027	.0031	.0040	.0039	.0044			
					RPM	7280	4550	2340	1430	1170	1040	910	650	590	520	520		
	2		1.0D	0.5D	SFM	145	75	135	115	135	135	135	120	135	135	135		
					IPT	.0001	.0005	.0010	.0020	.0025	.0025	.0032	.0039	.0039	.0039	.0039		
					RPM	5850	2340	2080	1170	1040	910	730	590	520	460	460		
	3-4		1.0D	0.5D	SFM	130	105	100	100	105	105	95	105	105	105	105		
					IPT	.0001	.0003	.0010	.0020	.0025	.0028	.0030	.0039	.0038	.0039	.0039		
					RPM	5200	3250	1560	1040	820	730	590	460	400	360	360		
	5		1.0D	0.5D	SFM	70	70	70	55	70	65	60	65	60	60	60		
					IPT	.0001	.0003	.0010	.0019	.0024	.0028	.0031	.0040	.0040	.0037	.0037		
RPM		2860			2080	1040	590	520	460	360	290	230	210	210				
6	1.0D	0.5D	SFM	145	75	135	115	135	135	120	135	135	135	135				
			IPT	.0001	.0005	.0010	.0020	.0025	.0025	.0032	.0039	.0039	.0039	.0039				
			RPM	5850	2340	2080	1170	1040	910	730	590	520	460	460				
7	1.0D	0.5D	SFM	130	105	100	100	105	105	95	105	105	105	105				
			IPT	.0001	.0003	.0010	.0020	.0025	.0028	.0030	.0039	.0038	.0038	.0039				
			RPM	5200	3250	1560	1040	820	730	590	460	400	360	360				
8-9	1.0D	0.5D	SFM	70	70	70	55	70	65	60	65	60	60	60				
			IPT	.0001	.0003	.0010	.0019	.0024	.0028	.0031	.0040	.0040	.0037	.0037				
			RPM	2860	2080	1040	590	520	460	360	290	230	210	210				
10	1.0D	0.5D	SFM	145	75	135	115	135	135	120	135	135	135	135				
			IPT	.0001	.0005	.0010	.0020	.0025	.0025	.0032	.0039	.0039	.0039	.0039				
			RPM	5850	2340	2080	1170	1040	910	730	590	520	460	460				
11.1	1.0D	0.5D	SFM	70	70	70	55	70	65	60	65	60	60	60				
			IPT	.0001	.0003	.0010	.0019	.0024	.0028	.0031	.0040	.0040	.0037	.0037				
			RPM	2860	2080	1040	590	520	460	360	290	230	210	210				
21-22	1.0D	0.5D	SFM	385	470	475	395	425	420	425	415	410	420	420				
			IPT	.0003	.0005	.0011	.0025	.0030	.0032	.0035	.0042	.0046	.0048	.0048				
			RPM	15600	14300	7280	4030	3250	2860	2600	1820	1560	1430	1430				
23-25	1.0D	0.5D	SFM	385	470	475	395	425	420	425	415	410	420	420				
			IPT	.0003	.0005	.0011	.0025	.0030	.0032	.0035	.0042	.0046	.0048	.0048				
			RPM	15600	14300	7280	4030	3250	2860	2600	1820	1560	1430	1430				

SFM = Surface Feet per Minute  
RPM = Revolutions Per Minute  
IPT = Inches Per Tooth  
IPM = Inches Per Minute  
Ap : Inch (Axial Depth of Cut)  
Ae : Inch (Radial Depth of Cut)

※ The Feed, in long & extra long types, should be reduced by around 50%.





E2160, E2161 3FLUTE / SIDE CUTTING / INCH / TiCN Coated

Table with columns: ISO, VDI 3323, Material Description, Ae, Ap, Parameter, Diameter (Ø) [3/32, 1/8, 1/4, 5/16, 1/2, 9/16, 5/8, 11/16, 7/8, 1, 1-1/8]. Rows include Non-alloy steel, Low alloy steel, High alloyed steel, and Aluminum-wrought/alloyed.

Holemaking

Threading

Milling

Indexable inserts

E2120, E2121 MULTI FLUTE / SIDE CUTTING / INCH

Table with columns: ISO, VDI 3323, Material Description, Parameter (Ae, Ap), Diameter (Ø) [1/4, 1/4, 5/8, 5/8, 3/4, 1, 1-1/2, 1-1/2, 2, 2]. Rows include Non-alloy steel, Low alloy steel, High alloyed steel, Stainless steel, Grey cast iron, Nodular cast iron, and Low alloy steel.

※ The Feed, in long & extra long types, should be reduced by around 50%.



E2110, E1110, E2111, E1111, E2112, E1112

2 FLUTE / PROFILE MILLING / INCH

Table with columns: ISO, VDI 3323, Material Description, Ae, Ap, Parameter, Diameter (Ø) [1/8, 5/32, 1/4, 5/6, 3/8, 1/2, 5/8, 3/4, 1]. Rows include Non-alloy steel, Low alloy steel, High alloyed steel, and Aluminum-wrought/alloyed.

Holemaking

Threading

Milling

Indexable inserts

SFM = Surface Feet per Minute
RPM = Revolutions Per Minute
IPT = Inches Per Tooth
IPM = Inches Per Minute
Ae : Inch (Axial Depth of Cut)
Ap : Inch (Radial Depth of Cut)

※ The Feed, in long & extra long types, should be reduced by around 50%.



## E2110, E1110, E2111, E1111, E2112, E1112 2 FLUTE / PROFILE MILLING / INCH / TiN Coated

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)								
						1/8	5/32	1/4	5/6	3/8	1/2	5/8	3/4	1
P	1	Non-alloy steel	0.7D	0.3D	SFM	175	155	175	420	155	155	190	165	155
					IPT	.0004	.0007	.0012	.0020	.0027	.0034	.0038	.0046	.0051
					RPM	5400	3840	2640	1920	1560	1200	960	720	600
	2		0.7D	0.3D	SFM	135	120	135	315	120	125	140	135	125
					IPT	.0004	.0006	.0010	.0017	.0023	.0026	.0033	.0034	.0035
					RPM	4080	2880	2040	1440	1200	960	720	600	480
	3-4		0.7D	0.3D	SFM	80	70	80	185	65	70	80	80	70
					IPT	.0003	.0005	.0009	.0014	.0022	.0024	.0031	.0033	.0036
					RPM	2400	1680	1200	840	672	540	420	360	264
	5		0.7D	0.3D	SFM	55	50	55	130	45	50	60	55	50
					IPT	.0003	.0005	.0007	.0012	.0018	.0022	.0028	.0035	.0036
RPM		1680			1200	840	600	480	384	300	240	192		
6	0.7D	0.3D	SFM	135	120	135	315	120	125	140	135	125		
			IPT	.0004	.0006	.0010	.0017	.0023	.0026	.0033	.0034	.0035		
			RPM	4080	2880	2040	1440	1200	960	720	600	480		
7	0.7D	0.3D	SFM	80	70	80	185	65	70	80	80	70		
			IPT	.0003	.0005	.0009	.0014	.0022	.0024	.0031	.0033	.0036		
			RPM	2400	1680	1200	840	672	540	420	360	264		
8-9	0.7D	0.3D	SFM	55	50	55	130	45	50	60	55	50		
			IPT	.0003	.0005	.0007	.0012	.0018	.0022	.0028	.0035	.0036		
			RPM	1680	1200	840	600	480	384	300	240	192		
10	0.7D	0.3D	SFM	135	120	135	315	120	125	140	135	125		
			IPT	.0004	.0006	.0010	.0017	.0023	.0026	.0033	.0034	.0035		
			RPM	4080	2880	2040	1440	1200	960	720	600	480		
11.1	0.7D	0.3D	SFM	55	50	55	130	45	50	60	55	50		
			IPT	.0003	.0005	.0007	.0012	.0018	.0022	.0028	.0035	.0036		
			RPM	1680	1200	840	600	480	384	300	240	192		
21-22	0.7D	0.3D	SFM	430	395	440	1045	375	395	470	440	410		
			IPT	.0004	.0006	.0010	.0017	.0023	.0026	.0033	.0034	.0035		
			RPM	13200	9600	6720	4800	3840	3000	2400	1920	1560		
23-25	0.7D	0.3D	SFM	430	395	440	1045	375	395	470	440	410		
			IPT	.0004	.0006	.0010	.0017	.0023	.0026	.0033	.0034	.0035		
			RPM	13200	9600	6720	4800	3840	3000	2400	1920	1560		

SFM = Surface Feet per Minute  
RPM = Revolutions Per Minute  
IPT = Inches Per Tooth  
IPM = Inches Per Minute  
Ap : Inch (Axial Depth of Cut)  
Ae : Inch (Radial Depth of Cut)

※ The Feed, in long & extra long types, should be reduced by around 50%.



## E2110, E1110, E2111, E1111, E2112, E1112 2 FLUTE / PROFILE MILLING / INCH / TiCN Coated

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)								
						1/8	5/32	1/4	5/6	3/8	1/2	5/8	3/4	1
P	1	Non-alloy steel	0.7D	0.3D	SFM	190	170	185	455	165	170	170	155	170
					IPT	.0004	.0007	.0012	.0020	.0027	.0034	.0038	.0046	.0051
					RPM	5850	4160	2860	2080	1690	1300	1040	780	650
	2		0.7D	0.3D	SFM	145	130	145	340	130	135	130	130	135
					IPT	.0004	.0006	.0010	.0017	.0023	.0025	.0033	.0034	.0035
					RPM	4420	3120	2210	1560	1300	1040	780	650	520
	3-4		0.7D	0.3D	SFM	85	75	85	200	70	75	75	75	75
					IPT	.0003	.0005	.0009	.0014	.0021	.0025	.0032	.0033	.0037
					RPM	2600	1820	1300	910	730	590	460	390	290
	5		0.7D	0.3D	SFM	60	55	60	140	50	55	55	50	55
					IPT	.0003	.0005	.0007	.0012	.0017	.0022	.0028	.0034	.0038
RPM		1820			1300	910	650	520	420	330	260	210		
6	0.7D	0.3D	SFM	145	130	145	340	130	135	130	130	135		
			IPT	.0004	.0006	.0010	.0017	.0023	.0025	.0033	.0034	.0035		
			RPM	4420	3120	2210	1560	1300	1040	780	650	520		
7	0.7D	0.3D	SFM	85	75	85	200	70	75	75	75	75		
			IPT	.0003	.0005	.0009	.0014	.0021	.0025	.0032	.0033	.0037		
			RPM	2600	1820	1300	910	730	590	460	390	290		
8-9	0.7D	0.3D	SFM	60	55	60	140	50	55	55	50	55		
			IPT	.0003	.0005	.0007	.0012	.0017	.0022	.0028	.0034	.0038		
			RPM	1820	1300	910	650	520	420	330	260	210		
10	0.7D	0.3D	SFM	145	130	145	340	130	135	130	130	135		
			IPT	.0004	.0006	.0010	.0017	.0023	.0025	.0033	.0034	.0035		
			RPM	4420	3120	2210	1560	1300	1040	780	650	520		
11.1	0.7D	0.3D	SFM	60	55	60	140	50	55	55	50	55		
			IPT	.0003	.0005	.0007	.0012	.0017	.0022	.0028	.0034	.0038		
			RPM	1820	1300	910	650	520	420	330	260	210		
21-22	0.7D	0.3D	SFM	470	425	475	1135	410	425	425	410	440		
			IPT	.0004	.0006	.0010	.0017	.0023	.0025	.0033	.0034	.0035		
			RPM	14300	10400	7280	5200	4160	3250	2600	2080	1690		
23-25	0.7D	0.3D	SFM	470	425	475	1135	410	425	425	410	440		
			IPT	.0004	.0006	.0010	.0017	.0023	.0025	.0033	.0034	.0035		
			RPM	14300	10400	7280	5200	4160	3250	2600	2080	1690		

SFM = Surface Feet per Minute  
RPM = Revolutions Per Minute  
IPT = Inches Per Tooth  
IPM = Inches Per Minute  
Ap : Inch (Axial Depth of Cut)  
Ae : Inch (Radial Depth of Cut)

※ The Feed, in long & extra long types, should be reduced by around 50%.

# COBALT & HSS END MILLS



E2031, E1031, E2034, E1034, E2036, E1036, E2051, E1051, E2039, E1039, E2040, E1040, E2041, E1041, E2053, E1053 4FLUTE / SIDE CUTTING / INCH

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)																										
						1/8	1/4	3/8	1/2	5/8	3/4	13/16	15/16	1	1 1/2	1 3/4	2															
P	1	Non-alloy steel	0.1D	1.5D	SFM	115	120	110	120	115	125	105	125	120	130	145	0.1D	1.5D	SFM	135	140	130	140	135	150	130	145	140	155	175		
					IPT	.0003	.0010	.0018	.0025	.0032	.0032	.0040	.0040	.0039	.0040	.0045			.0045	IPT	.0003	.0010	.0019	.0023	.0030	.0033	.0042	.0042	.0041	.0044	.0044	
					RPM	3500	1800	1100	900	700	630	500	500	450	310	280			280	RPM	4200	2160	1320	1080	840	760	600	600	540	370	340	340
					IPM	4	7	8	9	9	8	8	7	5	5	5			5	IPM	5	10	10	10	10	10	10	9	6	6	6	6
	2		0.1D	1.5D	SFM	105	105	90	105	90	100	95	110	105	100	100	100	0.1D	1.5D	SFM	125	125	105	125	110	120	115	135	125	120	120	120
					IPT	.0002	.0009	.0017	.0022	.0027	.0030	.0033	.0033	.0038	.0040	.0045	.0053			IPT	.0003	.0009	.0019	.0023	.0030	.0033	.0037	.0037	.0036	.0033	.0038	.0043
					RPM	3200	1600	900	800	560	500	450	450	400	250	220	190			RPM	3840	1920	1080	960	670	600	540	540	480	300	260	230
					IPM	3	6	6	7	6	6	6	6	4	4	4	4			IPM	4	7	8	9	8	8	8	8	7	4	4	4
	3-4		0.1D	1.5D	SFM	80	80	80	80	75	80	75	85	80	80	70	60	0.1D	1.5D	SFM	100	95	95	100	90	95	90	105	95	95	80	70
					IPT	.0002	.0008	.0016	.0020	.0022	.0025	.0029	.0029	.0032	.0025	.0033	.0045			IPT	.0003	.0007	.0016	.0020	.0023	.0026	.0030	.0030	.0027	.0031	.0042	.0038
					RPM	2500	1200	800	630	450	400	350	350	310	200	150	110			RPM	3000	1440	960	760	540	480	420	420	370	240	180	130
IPM		2			4	5	5	4	4	4	4	2	2	2	2	IPM	3			4	6	6	5	5	5	5	4	3	3	2		
5	0.1D	1.5D	SFM	50	50	45	50	45	50	45	55	45	45	50	40	0.1D	1.5D	SFM	65	65	55	65	55	60	55	65	55	55	60	50		
			IPT	.0002	.0006	.0017	.0019	.0027	.0030	.0034	.0034	.0028	.0021	.0023	.0031			IPT	.0001	.0008	.0014	.0021	.0022	.0025	.0029	.0029	.0023	.0036	.0038	.0025		
			RPM	1600	800	450	400	280	250	220	220	180	120	110	80			RPM	1920	960	540	480	340	300	260	260	220	140	130	100		
			IPM	1	2	3	3	3	3	3	3	2	1	1	1			IPM	1	3	3	4	3	3	3	3	2	2	2	1		
6	0.1D	1.5D	SFM	105	105	90	105	90	100	95	110	105	100	100	100	0.1D	1.5D	SFM	125	125	105	125	110	120	115	135	125	120	120	120		
			IPT	.0002	.0009	.0017	.0022	.0027	.0030	.0033	.0033	.0038	.0040	.0045	.0053			IPT	.0003	.0009	.0019	.0023	.0030	.0033	.0037	.0037	.0036	.0033	.0038	.0043		
			RPM	3200	1600	900	800	560	500	450	450	400	250	220	190			RPM	3840	1920	1080	960	670	600	540	540	480	300	260	230		
			IPM	3	6	6	7	6	6	6	6	4	4	4	4			IPM	4	7	8	9	8	8	8	8	7	4	4	4		
7	0.1D	1.5D	SFM	80	80	80	80	75	80	75	85	80	80	70	60	0.1D	1.5D	SFM	100	95	95	100	90	95	90	105	95	95	80	70		
			IPT	.0002	.0008	.0016	.0020	.0022	.0025	.0029	.0029	.0032	.0025	.0033	.0045			IPT	.0003	.0007	.0016	.0020	.0023	.0026	.0030	.0030	.0027	.0031	.0042	.0038		
			RPM	2500	1200	800	630	450	400	350	350	310	200	150	110			RPM	3000	1440	960	760	540	480	420	420	370	240	180	130		
			IPM	2	4	5	5	4	4	4	4	2	2	2	2			IPM	3	4	6	6	5	5	5	5	4	3	3	2		
8-9	0.1D	1.5D	SFM	50	50	45	50	45	50	45	55	45	45	50	40	0.1D	1.5D	SFM	65	65	55	65	55	60	55	65	55	55	60	50		
			IPT	.0002	.0006	.0017	.0019	.0027	.0030	.0034	.0034	.0028	.0021	.0023	.0031			IPT	.0001	.0008	.0014	.0021	.0022	.0025	.0029	.0029	.0023	.0036	.0038	.0025		
			RPM	1600	800	450	400	280	250	220	220	180	120	110	80			RPM	1920	960	540	480	340	300	260	260	220	140	130	100		
			IPM	1	2	3	3	3	3	3	3	2	1	1	1			IPM	1	3	3	4	3	3	3	3	2	2	2	1		
10	0.1D	1.5D	SFM	105	105	90	105	90	100	95	110	105	100	100	100	0.1D	1.5D	SFM	125	125	105	125	110	120	115	135	125	120	120	120		
			IPT	.0002	.0009	.0017	.0022	.0027	.0030	.0033	.0033	.0038	.0040	.0045	.0053			IPT	.0003	.0009	.0019	.0023	.0030	.0033	.0037	.0037	.0036	.0033	.0038	.0043		
			RPM	3200	1600	900	800	560	500	450	450	400	250	220	190			RPM	3840	1920	1080	960	670	600	540	540	480	300	260	230		
			IPM	3	6	6	7	6	6	6	6	4	4	4	4			IPM	4	7	8	9	8	8	8	8	7	4	4	4		
11.1	0.1D	1.5D	SFM	50	50	45	50	45	50	45	55	45	45	50	40	0.1D	1.5D	SFM	65	65	55	65	55	60	55	65	55	55	60	50		
			IPT	.0002	.0006	.0017	.0019	.0027	.0030	.0034	.0034	.0028	.0021	.0023	.0031			IPT	.0001	.0008	.0014	.0021	.0022	.0025	.0029	.0029	.0023	.0036	.0038	.0025		
			RPM	1600	800	450	400	280	250	220	220	180	120	110	80			RPM	1920	960	540	480	340	300	260	260	220	140	130	100		
			IPM	1	2	3	3	3	3	3	3	2	1	1	1			IPM	1	3	3	4	3	3	3	3	2	2	2	1		
21-22	0.1D	1.5D	SFM	360	365	305	325	325	355	300	345	315	355	365	330	0.1D	1.5D	SFM	430	440	365	395	395	425	355	410	375	425	440	395		
			IPT	.0003	.0008	.0019	.0022	.0026	.0029	.0032	.0032	.0035	.0036	.0038	.0048			IPT	.0003	.0008	.0019	.0023	.0026	.0029	.0031	.0031	.0035	.0037	.0036	.0046		
			RPM	11000	5600	3100	2500	2000	1800	1400	1400	1200	900	800	630			RPM	13200	6720	3720	3000	2400	2160	1680	1680	1440	1080	960	760		
			IPM	15	19	24	22	21	21	18	18	17	13	12	12			IPM	18	22	28	27	25	25	21	21	20	16	14	14		
23-25	0.1D	1.5D	SFM	360	365	305	325	325	355	300	345	315	355	365	330	0.1D	1.5D	SFM	430	440	365	395	395	425	355	410	375	425	440	395		
			IPT	.0003	.0008	.0019	.0022	.0026	.0029	.0032	.0032	.0035	.0036	.0038	.0048			IPT	.0003	.0008	.0019	.0023	.0026	.0029	.0031	.0031	.0035	.0037	.0036	.0046		
			RPM	11000	5600	3100	2500	2000	1800	1400	1400	1200	900	800	630			RPM	13200	6720	3720	3000	2400	2160	1680	1680	1440	1080	960	760		
			IPM	15	19	24	22	21	21	18	18	17	13	12	12			IPM	18	22	28	27	25	25	21	21	20	16	14	14		

SFM = Surface Feet per Minute  
 RPM = Revolutions Per Minute  
 IPT = Inches Per Tooth  
 IPM = Inches Per Minute  
 Ap : Inch (Axial Depth of Cut)  
 Ae : Inch (Radial Depth of Cut)

※ The Feed, in long & extra long types, should be reduced by around 50%.

# COBALT & HSS END MILLS



E2031, E1031, E2034, E1034, E2036, E1036, E2051, E1051, E2039, E1039, E2040, E1040, E2041, E1041, E2053, E1053 4FLUTE / SIDE CUTTING / INCH / TiN Coated

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)																										
						1/8	1/4	3/8	1/2	5/8	3/4	13/16	15/16	1	1 1/2	1 3/4	2															
P	1	Non-alloy steel	0.1D	1.5D	SFM	135	140	130	140	135	150	130	145	140	155	175	0.1D	1.5D	SFM	135	140	130	140	135	150	130	145	140	155	175		
					IPT	.0003	.0010	.0019	.0023	.0030	.0033	.0042	.0042	.0041	.0044	.0044			IPT	.0003	.0010	.0019	.0023	.0030	.0033	.0042	.0042	.0041	.0044	.0044		
					RPM	4200	2160	1320	1080	840	760	600	600	540	370	340			340	RPM	4200	2160	1320	1080	840	760	600	600	540	370	340	340
					IPM	5	10	10	10	10	10	10	10	9	6	6			6	IPM	5	10	10	10	10	10	10	9	6	6	6	6
	2		0.1D	1.5D	SFM	125	125	105	125	110	120	115	135	125	120	120	120	0.1D	1.5D	SFM	125	125	105	125	110	120	115	135	125	120	120	120
					IPT	.0003	.0009	.0019	.0023	.0030	.0033	.0037	.0037	.0036	.0033	.0038	.0043			IPT	.0003	.0009</										

# COBALT & HSS END MILLS



**E2031, E1031, E2034, E1034, E2036, E1036, E2051, E1051, E2039, E1039, E2040, E1040, E2041, E1041, E2053, E1053** 4FLUTE / SIDE CUTTING / INCH / TiCN Coated

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)																								
						1/8	1/4	3/8	1/2	5/8	3/4	13/16	15/16	1	1 1/2	1 3/4	2													
P	1	Non-alloy steel	0.1D	1.5D	SFM	150	155	140	155	150	160	140	160	155	160	165	190	SFM	135	135	115	135	120	130	125	145	135	130	130	
					IPT	.0003	.0010	.0017	.0024	.0030	.0030	.0038	.0038	.0038	.0042	.0042	IPT	.0002	.0008	.0017	.0022	.0027	.0031	.0034	.0034	.0034	.0038	.0043	.0050	
					RPM	4550	2340	1430	1170	910	820	650	650	590	400	360	360	RPM	4160	2090	1170	1040	730	650	590	590	520	330	290	250
	IPM		6	9	10	11	11	10	10	10	9	6	6	6	IPM	4	7	8	9	8	8	8	7	5	5	5	5			
	2		0.1D	1.5D	SFM	105	100	100	105	95	100	95	110	105	100	105	75	SFM	80	80	80	80	75	80	75	85	80	80	70	60
					IPT	.0002	.0008	.0014	.0018	.0021	.0024	.0027	.0027	.0031	.0029	.0033	.0036	IPT	.0001	.0006	.0010	.0013	.0015	.0017	.0019	.0019	.0022	.0017	.0022	.0030 / .0023
					RPM	3250	1560	1040	820	590	520	460	460	400	260	230	140	RPM	2500	1200	800	630	450	400	350	350	310	200	150	110
	IPM		3	5	6	6	5	5	5	5	5	3	3	2	IPM	2	4	5	5	4	4	4	4	2	2	2	2			
	3-4		0.1D	1.5D	SFM	70	70	55	70	60	65	60	70	60	60	65	55	SFM	50	50	45	50	45	50	45	55	45	45	50	40
					IPT	.0002	.0007	.0013	.0019	.0021	.0023	.0026	.0026	.0033	.0031	.0036	.0025	IPT	.0001	.0004	.0011	.0013	.0018	.0020	.0023	.0023	.0019	.0014	.0015	.0021 / .0016
					RPM	2080	1040	590	520	360	330	290	290	230	160	140	100	RPM	1600	800	450	400	280	250	220	220	180	120	110	80
IPM	2	3	3	4	3	3	3	3	3	2	2	1	IPM	1	2	3	3	3	3	3	3	2	1	1	1					
5	0.1D	1.5D	SFM	135	135	115	135	120	130	125	145	135	130	130	130	SFM	105	105	90	105	90	100	95	110	105	100	100	100		
			IPT	.0002	.0008	.0017	.0022	.0027	.0031	.0034	.0034	.0034	.0038	.0043	.0050	IPT	.0001	.0006	.0011	.0015	.0018	.0020	.0022	.0022	.0025	.0027	.0030	.0035 / .0026		
			RPM	4160	2090	1170	1040	730	650	590	590	520	330	290	250	RPM	3200	1600	900	800	560	500	450	450	400	250	220	190		
IPM	4	7	8	9	8	8	8	8	7	5	5	5	IPM	3	6	6	7	6	6	6	6	4	4	4	4					
6	0.1D	1.5D	SFM	105	100	100	105	95	100	95	110	105	100	105	75	SFM	80	80	80	80	75	80	75	85	80	80	70	60		
			IPT	.0002	.0008	.0014	.0018	.0021	.0024	.0027	.0027	.0031	.0029	.0033	.0036	IPT	.0001	.0006	.0010	.0013	.0015	.0017	.0019	.0019	.0022	.0017	.0022	.0030 / .0023		
			RPM	3250	1560	1040	820	590	520	460	460	400	260	230	140	RPM	2500	1200	800	630	450	400	350	350	310	200	150	110		
IPM	3	5	6	6	5	5	5	5	5	3	3	2	IPM	2	4	5	5	4	4	4	4	2	2	2	2					
7	0.1D	1.5D	SFM	70	70	55	70	60	65	60	70	60	60	65	55	SFM	50	50	45	50	45	50	45	55	45	45	50	40		
			IPT	.0002	.0007	.0013	.0019	.0021	.0023	.0026	.0026	.0033	.0031	.0036	.0025	IPT	.0001	.0004	.0011	.0013	.0018	.0020	.0023	.0023	.0019	.0014	.0015	.0021 / .0016		
			RPM	2080	1040	590	520	360	330	290	290	230	160	140	100	RPM	1600	800	450	400	280	250	220	220	180	120	110	80		
IPM	2	3	3	4	3	3	3	3	3	2	2	1	IPM	1	2	3	3	3	3	3	3	2	1	1	1					
8-9	0.1D	1.5D	SFM	135	135	115	135	120	130	125	145	135	130	130	130	SFM	105	105	90	105	90	100	95	110	105	100	100	100		
			IPT	.0002	.0008	.0017	.0022	.0027	.0031	.0034	.0034	.0034	.0038	.0043	.0050	IPT	.0001	.0006	.0011	.0015	.0018	.0020	.0022	.0022	.0025	.0027	.0030	.0035 / .0026		
			RPM	4160	2090	1170	1040	730	650	590	590	520	330	290	250	RPM	3200	1600	900	800	560	500	450	450	400	250	220	190		
IPM	4	7	8	9	8	8	8	8	7	5	5	5	IPM	3	6	6	7	6	6	6	6	4	4	4	4					
10	0.1D	1.5D	SFM	70	70	55	70	60	65	60	70	60	60	65	55	SFM	50	50	45	50	45	50	45	55	45	45	50	40		
			IPT	.0002	.0007	.0013	.0019	.0021	.0023	.0026	.0026	.0033	.0031	.0036	.0025	IPT	.0001	.0004	.0011	.0013	.0018	.0020	.0023	.0023	.0019	.0014	.0015	.0021 / .0016		
			RPM	2080	1040	590	520	360	330	290	290	230	160	140	100	RPM	1600	800	450	400	280	250	220	220	180	120	110	80		
IPM	2	3	3	4	3	3	3	3	3	2	2	1	IPM	1	2	3	3	3	3	3	3	2	1	1	1					
11.1	0.1D	1.5D	SFM	470	475	395	425	425	460	385	445	410	460	475	545	SFM	360	365	305	325	325	355	300	345	315	355	365	330		
			IPT	.0003	.0008	.0019	.0022	.0026	.0029	.0032	.0032	.0035	.0036	.0036	.0036	IPT	.0002	.0006	.0013	.0015	.0018	.0019	.0021	.0021	.0024	.0024	.0025	.0032 / .0024		
			RPM	14300	7280	4030	3250	2600	2340	1820	1820	1560	1170	1040	1040	RPM	11000	5600	3100	2500	2000	1800	1400	1400	1200	900	800	630		
IPM	20	24	31	29	27	27	23	23	22	17	15	15	IPM	15	19	24	22	21	21	18	18	17	13	12	12					
21-22	0.1D	1.5D	SFM	470	475	395	425	425	460	385	445	410	460	475	545	SFM	360	365	305	325	325	355	300	345	315	355	365	330		
			IPT	.0003	.0008	.0019	.0022	.0026	.0029	.0032	.0032	.0035	.0036	.0036	.0036	IPT	.0002	.0006	.0013	.0015	.0018	.0019	.0021	.0021	.0024	.0024	.0025	.0032 / .0024		
			RPM	14300	7280	4030	3250	2600	2340	1820	1820	1560	1170	1040	1040	RPM	11000	5600	3100	2500	2000	1800	1400	1400	1200	900	800	630		
IPM	20	24	31	29	27	27	23	23	22	17	15	15	IPM	15	19	24	22	21	21	18	18	17	13	12	12					
23-25	0.1D	1.5D	SFM	470	475	395	425	425	460	385	445	410	460	475	545	SFM	360	365	305	325	325	355	300	345	315	355	365	330		
			IPT	.0003	.0008	.0019	.0022	.0026	.0029	.0032	.0032	.0035	.0036	.0036	.0036	IPT	.0002	.0006	.0013	.0015	.0018	.0019	.0021	.0021	.0024	.0024	.0025	.0032 / .0024		
			RPM	14300	7280	4030	3250	2600	2340	1820	1820	1560	1170	1040	1040	RPM	11000	5600	3100	2500	2000	1800	1400	1400	1200	900	800	630		
IPM	20	24	31	29	27	27	23	23	22	17	15	15	IPM	15	19	24	22	21	21	18	18	17	13	12	12					

※ The Feed, in long & extra long types, should be reduced by around 50%.

SFM = Surface Feet per Minute  
 RPM = Revolutions Per Minute  
 IPT = Inches Per Tooth  
 IPM = Inches Per Minute  
 Ap : Inch (Axial Depth of Cut)  
 Ae : Inch (Radial Depth of Cut)

# COBALT & HSS END MILLS



**E2032, E1032, E2035, E1035, E2037, E1037, E2042, E1042, E2162, E1162, E2175, E1175, E2100, E1100** 6 & 8 FLUTE / SIDE CUTTING / INCH

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)																											
						1/8	1/4	3/8	1/2	5/8	3/4	13/16	15/16	1	1 1/2	1 3/4	2 (6 & 8 FL)																
P	1	Non-alloy steel	0.1D	1.5D	SFM	115	120	110	120	115	125	105	125	105	120	120	130	145	SFM	105	105	90	105	90	100	95	110	105	100	100			
					IPT	.0002	.0006	.0012	.0017	.0021	.0021	.0027	.0027	.0026	.0027	.0030	.0030	.0030	.0030	.0030	IPT	.0002	.0006	.0011	.0015	.0018	.0020	.0022	.0022	.0025	.0027	.0030	.0035 / .0026
					RPM	3500	1800	1100	900	700	630	500	500	450	310	280	280	RPM	3200	1600	900	800	560	500	450	400	250	220	190				
	IPM		4	7	8	9	9	8	8	7	5	5	5	5	IPM	3	6	6	7	6	6	6	6	4	4	4	4						
	2		0.1D	1.5D	SFM	80	80	80	80	75	80	75	85	80	80	70	60	SFM	50	50	45	50	45	50	45	55	45	45	50	40			
					IPT	.0001	.0006	.0010	.0013	.0015	.0017	.0019	.0019	.0022	.0017	.0022	.0030 / .0023	IPT	.0001	.0004	.0011	.0013	.0018	.0020	.0023	.0023	.0019						



# COBALT & HSS END MILLS



E2032, E1032, E2035, E1035, E2037, E1037, E2042, E1042, E2162, E1162, E2175, E1175, E2100, E1100 6 & 8 FLUTE / SIDE CUTTING / INCH / TiN Coated

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)															
						1/8	1/4	3/8	1/2	5/8	3/4	13/16	15/16	1	1 1/2	1 3/4	2 (6 & 8 FL)				
P	1	Non-alloy steel	0.1D	1.5D	SFM	135	140	130	140	135	150	130	145	140	145	155	175				
					IPT	.0002	.0007	.0013	.0015	.0020	.0022	.0028	.0028	.0027	.0029	.0029	.0022				
					RPM	4200	2160	1320	1080	840	760	600	600	540	370	340	340				
	2		0.1D	1.5D	SFM	125	125	105	125	110	120	115	135	125	120	120	120				
					IPT	.0002	.0006	.0012	.0016	.0020	.0022	.0025	.0025	.0024	.0022	.0026	.0029 / .0022				
					RPM	3840	1920	1080	960	670	600	540	540	480	300	260	230				
	3-4		0.1D	1.5D	SFM	100	95	95	100	90	95	90	105	95	95	80	70				
					IPT	.0002	.0005	.0010	.0013	.0015	.0017	.0020	.0020	.0018	.0021	.0028	.0026 / .0019				
					RPM	3000	1440	960	760	540	480	420	420	370	240	180	130				
	5		0.1D	1.5D	SFM	65	65	55	65	55	60	55	65	55	55	60	50				
					IPT	.0001	.0005	.0009	.0014	.0015	.0017	.0019	.0019	.0015	.0024	.0026	.0017 / .0013				
RPM		1920			960	540	480	340	300	260	260	220	140	130	100						
6	0.1D	1.5D	SFM	125	125	105	125	110	120	115	135	125	120	120	120						
			IPT	.0002	.0006	.0012	.0016	.0020	.0022	.0025	.0025	.0024	.0022	.0026	.0029 / .0022						
			RPM	3840	1920	1080	960	670	600	540	540	480	300	260	230						
7	0.1D	1.5D	SFM	100	95	95	100	90	95	90	105	95	95	80	70						
			IPT	.0002	.0005	.0010	.0013	.0015	.0017	.0020	.0020	.0018	.0021	.0028	.0026 / .0019						
			RPM	3000	1440	960	760	540	480	420	420	370	240	180	130						
8-9	0.1D	1.5D	SFM	65	65	55	65	55	60	55	65	55	55	60	50						
			IPT	.0001	.0005	.0009	.0014	.0015	.0017	.0019	.0019	.0015	.0024	.0026	.0017 / .0013						
			RPM	1920	960	540	480	340	300	260	260	220	140	130	100						
10	0.1D	1.5D	SFM	125	125	105	125	110	120	115	135	125	120	120	120						
			IPT	.0002	.0006	.0012	.0016	.0020	.0022	.0025	.0025	.0024	.0022	.0026	.0029 / .0022						
			RPM	3840	1920	1080	960	670	600	540	540	480	300	260	230						
11.1	0.1D	1.5D	SFM	65	65	55	65	55	60	55	65	55	55	60	50						
			IPT	.0001	.0005	.0009	.0014	.0015	.0017	.0019	.0019	.0015	.0024	.0026	.0017 / .0013						
			RPM	1920	960	540	480	340	300	260	260	220	140	130	100						
21-22	0.1D	1.5D	SFM	430	440	365	395	395	425	355	410	375	425	440	395						
			IPT	.0002	.0005	.0013	.0015	.0017	.0019	.0021	.0021	.0023	.0025	.0024	.0031 / .0023						
			RPM	13200	6720	3720	3000	2400	2160	1680	1440	1080	960	760	760						
23-25	0.1D	1.5D	SFM	430	440	365	395	395	425	355	410	375	425	440	395						
			IPT	.0002	.0005	.0013	.0015	.0017	.0019	.0021	.0021	.0023	.0025	.0024	.0031 / .0023						
			RPM	13200	6720	3720	3000	2400	2160	1680	1440	1080	960	760	760						

SFM = Surface Feet per Minute  
 RPM = Revolutions Per Minute  
 IPT = Inches Per Tooth  
 IPM = Inches Per Minute  
 Ap : Inch (Axial Depth of Cut)  
 Ae : Inch (Radial Depth of Cut)

\* The Feed, in long & extra long types, should be reduced by around 50%.

# COBALT & HSS END MILLS



E2032, E1032, E2035, E1035, E2037, E1037, E2042, E1042, E2162, E1162, E2175, E1175, E2100, E1100 6 & 8 FLUTE / SIDE CUTTING / INCH / TiCN Coated

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)															
						1/8	1/4	3/8	1/2	5/8	3/4	13/16	15/16	1	1 1/2	1 3/4	2 (6 & 8 FL)				
P	1	Non-alloy steel	0.1D	1.5D	SFM	150	155	140	155	150	160	140	160	155	160	165	190				
					IPT	.0002	.0006	.0012	.0016	.0020	.0020	.0026	.0026	.0025	.0025	.0028	.0028 / .0021				
					RPM	4550	2340	1430	1170	910	820	650	650	590	400	360	360				
	2		0.1D	1.5D	SFM	135	135	115	135	120	130	125	145	135	130	130	130				
					IPT	.0002	.0006	.0011	.0014	.0018	.0021	.0023	.0023	.0022	.0025	.0029	.0033 / .0025				
					RPM	4160	2090	1170	1040	730	650	590	590	520	330	290	250				
	3-4		0.1D	1.5D	SFM	105	100	100	105	95	100	95	110	105	100	105	75				
					IPT	.0002	.0005	.0010	.0012	.0014	.0016	.0018	.0018	.0021	.0019	.0022	.0024 / .0018				
					RPM	3250	1560	1040	820	590	520	460	460	400	260	230	140				
	5		0.1D	1.5D	SFM	70	70	55	70	60	65	60	70	60	60	65	55				
					IPT	.0002	.0005	.0008	.0013	.0014	.0015	.0017	.0017	.0022	.0021	.0024	.0017 / .0013				
RPM		2080			1040	590	520	360	330	290	290	230	160	140	100						
6	0.1D	1.5D	SFM	135	135	115	135	120	130	125	145	135	130	130	130						
			IPT	.0002	.0006	.0011	.0014	.0018	.0021	.0023	.0023	.0022	.0025	.0029	.0033 / .0025						
			RPM	4160	2090	1170	1040	730	650	590	590	520	330	290	250						
7	0.1D	1.5D	SFM	105	100	100	105	95	100	95	110	105	100	105	75						
			IPT	.0002	.0005	.0010	.0012	.0014	.0016	.0018	.0018	.0021	.0019	.0022	.0024 / .0018						
			RPM	3250	1560	1040	820	590	520	460	460	400	260	230	140						
8-9	0.1D	1.5D	SFM	70	70	55	70	60	65	60	70	60	60	65	55						
			IPT	.0002	.0005	.0008	.0013	.0014	.0015	.0017	.0017	.0022	.0021	.0024	.0017 / .0013						
			RPM	2080	1040	590	520	360	330	290	290	230	160	140	100						
10	0.1D	1.5D	SFM	135	135	115	135	120	130	125	145	135	130	130	130						
			IPT	.0002	.0006	.0011	.0014	.0018	.0021	.0023	.0023	.0022	.0025	.0029	.0033 / .0025						
			RPM	4160	2090	1170	1040	730	650	590	590	520	330	290	250						
11.1	0.1D	1.5D	SFM	70	70	55	70	60	65	60	70	60	60	65	55						
			IPT	.0002	.0005	.0008	.0013	.0014	.0015	.0017	.0017	.0022	.0021	.0024	.0017 / .0013						
			RPM	2080	1040	590	520	360	330	290	290	230	160	140	100						
21-22	0.1D	1.5D	SFM	470	475	395	425	425	460	385	445	410	460	475	545						
			IPT	.0002	.0005	.0013	.0015	.0017	.0019	.0021	.0021	.0024	.0024	.0024	.0024 / .0018						
			RPM	14300	7280	4030	3250	2600	2340	1820	1820	1560	1170	1040	1040						
23-25	0.1D	1.5D	SFM	470	475	395	425	425	460	385	445	410	460	475	545						
			IPT	.0002	.0005	.0013	.0015	.0017	.0019	.0021	.0021	.0024	.0024	.0024	.0024 / .0018						
			RPM	14300	7280	4030	3250	2600	2340	1820	1820	1560	1170	1040	1040						

SFM = Surface Feet per Minute  
 RPM = Revolutions Per Minute  
 IPT = Inches Per Tooth  
 IPM = Inches Per Minute  
 Ap : Inch (Axial Depth of Cut)  
 Ae : Inch (Radial Depth of Cut)

\* The Feed, in long & extra long types, should be reduced by around 50%.



E2020, E2021, E2069

4 FLUTE / PROFILE MILLING / INCH

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)						
						1/4	5/16	3/8	1/2	5/8	3/4	1
P	1	Non-alloy steel	0.7D	0.3D	SFM	145	130	130	130	130	120	130
					IPT	.0009	.0014	.0021	.0025	.0028	.0033	.0040
					RPM	2200	1600	1300	1000	800	600	500
	2		0.7D	0.3D	SFM	110	100	100	105	100	100	105
					IPT	.0007	.0013	.0018	.0019	.0025	.0025	.0025
					RPM	1700	1200	1000	800	600	500	400
	3-4		0.7D	0.3D	SFM	65	55	55	60	55	60	60
					IPT	.0008	.0011	.0018	.0017	.0021	.0025	.0023
					RPM	1000	700	560	450	350	300	220
	5		0.7D	0.3D	SFM	45	40	40	40	40	40	40
					IPT	.0007	.0010	.0013	.0016	.0020	.0025	.0031
RPM		700			500	400	320	250	200	160		
6	0.7D	0.3D	SFM	110	100	100	105	100	100	105		
			IPT	.0007	.0013	.0018	.0019	.0025	.0025	.0025		
			RPM	1700	1200	1000	800	600	500	400		
7	0.7D	0.3D	SFM	65	55	55	60	55	60	60		
			IPT	.0008	.0011	.0018	.0017	.0021	.0025	.0023		
			RPM	1000	700	560	450	350	300	220		
8-9	0.7D	0.3D	SFM	45	40	40	40	40	40	40		
			IPT	.0007	.0010	.0013	.0016	.0020	.0025	.0031		
			RPM	700	500	400	320	250	200	160		
10	0.7D	0.3D	SFM	110	100	100	105	100	100	105		
			IPT	.0007	.0013	.0018	.0019	.0025	.0025	.0025		
			RPM	1700	1200	1000	800	600	500	400		
11.1	0.7D	0.3D	SFM	45	40	40	40	40	40	40		
			IPT	.0007	.0010	.0013	.0016	.0020	.0025	.0031		
			RPM	700	500	400	320	250	200	160		
21-22	0.7D	0.3D	SFM	365	325	315	325	325	315	340		
			IPT	.0008	.0013	.0016	.0020	.0023	.0027	.0029		
			RPM	5600	4000	3200	2500	2000	1600	1300		
23-25	0.7D	0.3D	SFM	365	325	315	325	325	315	340		
			IPT	.0008	.0013	.0016	.0020	.0023	.0027	.0029		
			RPM	5600	4000	3200	2500	2000	1600	1300		

SFM = Surface Feet per Minute  
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 IPM = Inches Per Minute  
 Ap : Inch (Axial Depth of Cut)  
 Ae : Inch (Radial Depth of Cut)

※ The Feed, in long & extra long types, should be reduced by around 50%.



E2020, E2021, E2069

4 FLUTE / PROFILE MILLING / INCH / TiN Coated

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)						
						1/4	5/16	3/8	1/2	5/8	3/4	1
P	1	Non-alloy steel	0.7D	0.3D	SFM	175	155	155	155	155	140	155
					IPT	.0009	.0014	.0021	.0025	.0029	.0035	.0042
					RPM	2640	1920	1560	1200	960	720	600
	2		0.7D	0.3D	SFM	135	120	120	125	120	120	125
					IPT	.0007	.0014	.0019	.0021	.0024	.0025	.0026
					RPM	2040	1440	1200	960	720	600	480
	3-4		0.7D	0.3D	SFM	80	70	65	70	70	70	70
					IPT	.0006	.0012	.0015	.0019	.0024	.0028	.0029
					RPM	1200	840	670	540	420	360	260
	5		0.7D	0.3D	SFM	55	50	45	50	50	45	50
					IPT	.0006	.0008	.0010	.0013	.0017	.0021	.0026
RPM		840			600	480	380	300	240	190		
6	0.7D	0.3D	SFM	135	120	120	125	120	120	125		
			IPT	.0007	.0014	.0019	.0021	.0024	.0025	.0026		
			RPM	2040	1440	1200	960	720	600	480		
7	0.7D	0.3D	SFM	80	70	65	70	70	70	70		
			IPT	.0006	.0012	.0015	.0019	.0024	.0028	.0029		
			RPM	1200	840	670	540	420	360	260		
8-9	0.7D	0.3D	SFM	55	50	45	50	50	45	50		
			IPT	.0006	.0008	.0010	.0013	.0017	.0021	.0026		
			RPM	840	600	480	380	300	240	190		
10	0.7D	0.3D	SFM	135	120	120	125	120	120	125		
			IPT	.0007	.0014	.0019	.0021	.0024	.0025	.0026		
			RPM	2040	1440	1200	960	720	600	480		
11.1	0.7D	0.3D	SFM	55	50	45	50	50	45	50		
			IPT	.0006	.0008	.0010	.0013	.0017	.0021	.0026		
			RPM	840	600	480	380	300	240	190		
21-22	0.7D	0.3D	SFM	440	395	375	395	395	375	410		
			IPT	.0007	.0013	.0017	.0020	.0022	.0026	.0029		
			RPM	6720	4800	3840	3000	2400	1920	1560		
23-25	0.7D	0.3D	SFM	440	395	375	395	395	375	410		
			IPT	.0007	.0013	.0017	.0020	.0022	.0026	.0029		
			RPM	6720	4800	3840	3000	2400	1920	1560		

SFM = Surface Feet per Minute  
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 Ap : Inch (Axial Depth of Cut)  
 Ae : Inch (Radial Depth of Cut)

※ The Feed, in long & extra long types, should be reduced by around 50%.



**E2020, E2021, E2069**  
4 FLUTE / PROFILE MILLING / INCH / TiCN Coated

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)						
						1/4	5/16	3/8	1/2	5/8	3/4	1
P	1	Non-alloy steel	0.7D	0.3D	SFM	185	170	165	170	170	155	170
					IPT	.0009	.0014	.0021	.0025	.0029	.0035	.0038
					RPM	2860	2080	1690	1300	1040	780	650
	2		0.7D	0.3D	SFM	145	130	130	135	130	130	135
					IPT	.0008	.0013	.0017	.0019	.0026	.0027	.0024
					RPM	2210	1560	1300	1040	780	650	520
	3-4		0.7D	0.3D	SFM	85	75	70	75	75	75	75
					IPT	.0008	.0011	.0017	.0017	.0022	.0026	.0026
					RPM	1300	910	730	590	460	390	290
	5		0.7D	0.3D	SFM	60	55	50	55	55	50	55
					IPT	.0005	.0008	.0014	.0018	.0023	.0029	.0024
RPM		910			650	520	420	330	260	210		
6	0.7D	0.3D	SFM	145	130	130	135	130	130	135		
			IPT	.0008	.0013	.0017	.0019	.0026	.0027	.0024		
			RPM	2210	1560	1300	1040	780	650	520		
7	0.7D	0.3D	SFM	85	75	70	75	75	75	75		
			IPT	.0008	.0011	.0017	.0017	.0022	.0026	.0026		
			RPM	1300	910	730	590	460	390	290		
8-9	0.7D	0.3D	SFM	60	55	50	55	55	50	55		
			IPT	.0005	.0008	.0014	.0018	.0023	.0029	.0024		
			RPM	910	650	520	420	330	260	210		
10	0.7D	0.3D	SFM	145	130	130	135	130	130	135		
			IPT	.0008	.0013	.0017	.0019	.0026	.0027	.0024		
			RPM	2210	1560	1300	1040	780	650	520		
11.1	0.7D	0.3D	SFM	60	55	50	55	55	50	55		
			IPT	.0005	.0008	.0014	.0018	.0023	.0029	.0024		
			RPM	910	650	520	420	330	260	210		
21-22	0.7D	0.3D	SFM	475	425	410	425	425	410	440		
			IPT	.0008	.0013	.0017	.0020	.0022	.0026	.0030		
			RPM	7280	5200	4160	3250	2600	2080	1690		
23-25	0.7D	0.3D	SFM	475	425	410	425	425	410	440		
			IPT	.0008	.0013	.0017	.0020	.0022	.0026	.0030		
			RPM	7280	5200	4160	3250	2600	2080	1690		
N	0.7D	0.3D	SFM	475	425	410	425	425	410	440		
			IPT	.0008	.0013	.0017	.0020	.0022	.0026	.0030		
			RPM	7280	5200	4160	3250	2600	2080	1690		
N	0.7D	0.3D	SFM	475	425	410	425	425	410	440		
			IPT	.0008	.0013	.0017	.0020	.0022	.0026	.0030		
			RPM	7280	5200	4160	3250	2600	2080	1690		

※ The Feed, in long & extra long types, should be reduced by around 50%.

SFM = Surface Feet per Minute  
RPM = Revolutions Per Minute  
IPT = Inches Per Tooth  
IPM = Inches Per Minute  
Ap : Inch (Axial Depth of Cut)  
Ae : Inch (Radial Depth of Cut)



**E2001, E1001, E2003, E1003, E2005, E1005, E2002, E1002, E2004, E1004, E2006, E1006, E2008, E1008, E2013, E1013, E2015, E1015** MINIATURE / INCH

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)															
				1/64	1/32	3/64	1/16	5/64	3/32	7/64	1/8	9/64	5/32	11/64	3/16				
P	1-5	Non-alloy steel Low alloy steel	SFM	45	45~55	45~55	45~55	45~55	45~55	45~55	45~55	45~55	45~55	45~55	45~55	45~55	45~55	45~55	45~55
			RPM	11000 up	5500~5600	3670~4400	2750~3300	2200~2640	1840~2200	1570~1890	1380~1650	1220~1470	1100~1320	1000~1200	920~1100				
			IPM	0.5	0.6	0.6	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.2	1.4			
	6-9	Low alloy steel	SFM	45	45~55	45~55	45~55	45~55	45~55	45~55	45~55	45~55	45~55	45~55	45~55	45~55	45~55	45~55	45~55
			RPM	11000 up	5500~5600	3670~4400	2750~3300	2200~2640	1840~2200	1570~1890	1380~1650	1220~1470	1100~1320	1000~1200	920~1100				
			IPM	0.5	0.6	0.6	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.2	1.4			
10-11	High alloyed steel, and tool steel	SFM	25~35	25~35	25~35	25~35	25~35	25~35	25~35	25~30	25~35	25~35	25~35	25~35	25~35	25~35	25~35	25~35	
		RPM	6600~8800	3300~4400	2200~2940	1650~2260	1320~1760	1100~1290	850~1260	830~1100	740~980	560~880	600~800	550~740					
		IPM	0.3	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.8	0.9	1.0				
M	12-14	Stainless steel	SFM	25~35	25~35	25~35	25~35	25~35	25~35	25~30	25~35	25~35	25~35	25~35	25~35	25~35	25~35	25~35	
			RPM	6600~8800	3300~4400	2200~2940	1650~2260	1320~1760	1100~1290	850~1260	830~1100	740~980	560~880	600~800	550~740				
			IPM	0.3	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.8	0.9	1.0			
N	21-22	Aluminum- wrought alloy	SFM	45	90	135	180	175	180	160	180	160	180	180~360	180~360	180~360	180~360		
			RPM	11000 up	11000 up	11000 up	11000 up	8500 up	7330 up	5625 up	5500 up	4890~9780	4400~8800	3000~8000	3690~7340				
			IPM	1.5	2.5	2.6	4.2	4.2	4.2	4.3	4.5	4.5	4.5	4.5	4.6	4.7			
	23-25	Aluminum-cast, alloyed	SFM	45	90	135	180	175	180	160	180	160	180	180~360	180~360	180~360	180~360		
			RPM	11000 up	11000 up	11000 up	11000 up	8500 up	7330 up	5625 up	5500 up	4890~9780	4400~8800	3000~8000	3690~7340				
			IPM	1.5	2.5	2.6	4.2	4.2	4.2	4.3	4.5	4.5	4.5	4.5	4.6	4.7			
	26-28	Copper and Copper Alloys (Bronze / Brass)	SFM	45	65~80	65~80	55~80	80	65~80	65~80	65~80	65~80	65~80	65~80	65~80	65~80	65~80		
			RPM	11000 up	7700~9900	5140~6600	3350~4950	3850~3960	2570~3300	2200~2830	1930~2480	1710~2200	1540~1980	1400~1800	1290~1650				
			IPM	0.8	1.6	2.5	3.3	3.3	3.3	3.3	3.3	3.4	3.6	3.7	3.3				
	30	Non Metallic Materials	SFM	45	90	90~110	90~110	90~120	90~110	90~110	90~110	90~110	90~110	90~140	90~110	90~110	75~110		
			RPM	11000 up	11000 up	7335~8800	5500~6600	4400~5820	3665~4400	3140~3770	2750~3300	2445~3770	2205~2640	2000~2400	1535~2200				
			IPM	1.2	1.6	2.0	2.6	2.6	2.6	2.8	2.8	2.9	3.0	3.0	3.3				
S	36	Titanium Alloys	SFM	45	45~55	45~55	45~55	45~55	45~55	45~55	45~55	45~55	45~55	45~55	45~55	45~55	45~55		
			RPM	11000 up	5500~5600	3670~4400	2750~3300	2200~2640	1840~2200	1570~1890	1380~1650	1220~1470	1100~1320	1000~1200	920~1100				
			IPM	0.5	0.6	0.6	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.2	1.4			
S	37	Titanium Alloys	SFM	25~35	25~35	25~35	25~35	25~35	25~35	25~30	25~35	25~35	25~35	25~35	25~35	25~35			
			RPM	6600~8800	3300~4400	2200~2940	1650~2260	1320~1760	1100~1290	850~1260	830~1100	740~980	560~880	600~800	550~740				
			IPM	0.3	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.8	0.9	1.0			

SFM = Surface Feet per Minute  
RPM = Revolutions Per Minute  
IPT = Inches Per Tooth  
IPM = Inches Per Minute  
Ap : Inch (Axial Depth of Cut)  
Ae : Inch (Radial Depth of Cut)  
※ The Feed, in long & extra long types, should be reduced by around 50%.

**NOTES :**

- (1) The cutting conditions in this table are given for reference, which should be varied depending on the machine, tooling, depth of cut, cutting fluid and other conditons.
- (2) Use a holder of strong gripping force and machine of high stiffness



**E2086, E2085, E2079, E2077, E2170, E2171, E2172, E2241, E2195, E2197**  
MULTI FLUTE ROUGHING / SIDE CUTTING / INCH

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)															
						1/4	5/16	3/8	1/2	5/8	11/16	7/8	1	1 1/8	1 1/4	1 3/8	1 3/4	2			
P	1	Non-alloy steel	0.5D	1.5D	SFM	120	115	110	120	115	115	115	120	120	115	110	130	115			
					RPM	1800	1400	1100	900	700	630	500	450	400	350	310	280	220			
					IPM	3	4	6	7	7	7	9	8	8	8	8	8	8			
	2		SFM	105	90	90	105	90	90	105	105	105	90	90	100	95					
			RPM	1600	1100	900	800	560	500	450	400	350	280	250	220	180					
			IPM	2	3	5	6	6	6	7	7	6	6	6	6	7					
	3-4		SFM	80	75	80	80	75	70	80	80	80	70	70	80	85					
			RPM	1200	900	800	630	450	400	350	310	280	220	200	180	160					
			IPM	2	3	4	4	4	4	6	6	5	5	5	5	6					
	5		SFM	50	45	45	50	45	45	50	45	45	45	50	45						
RPM		800	560	450	400	280	250	220	180	160	140	120	110	90							
IPM		1	1	2	3	3	3	3	3	3	3	3	3	3							
6	SFM	105	90	90	105	90	90	105	105	105	90	90	100	95							
	RPM	1600	1100	900	800	560	500	450	400	350	280	250	220	180							
	IPM	2	3	5	6	6	6	7	7	6	6	6	6	7							
7	SFM	80	75	80	80	75	70	80	80	80	70	70	80	85							
	RPM	1200	900	800	630	450	400	350	310	280	220	200	180	160							
	IPM	2	3	4	4	4	4	6	6	5	5	5	5	6							
8-9	SFM	50	45	45	50	45	45	50	45	45	45	50	45								
	RPM	800	560	450	400	280	250	220	180	160	140	120	110	90							
	IPM	1	1	2	3	3	3	3	3	3	3	3	3	3							
10	SFM	105	90	90	105	90	90	105	105	105	90	90	100	95							
	RPM	1600	1100	900	800	560	500	450	400	350	280	250	220	180							
	IPM	2	3	5	6	6	6	7	7	6	6	6	6	7							
11.1	SFM	50	45	45	50	45	45	50	45	45	45	50	45								
	RPM	800	560	450	400	280	250	220	180	160	140	120	110	90							
	IPM	1	1	2	3	3	3	3	3	3	3	3	3	3							
N	21-22	Aluminum-wrought alloy	0.5D	1.5D	SFM	295	255	245	260	260	250	250	260	265	250	290	260				
					RPM	4500	3100	2500	2000	1600	1400	1100	1000	900	800	700	630	500			
	23-25	Aluminum-cast, alloyed	0.5D	1.5D	SFM	295	255	245	260	260	250	250	260	265	250	290	260				
					RPM	4500	3100	2500	2000	1600	1400	1100	1000	900	800	700	630	500			
						SFM	295	255	245	260	260	250	250	260	265	250	290	260			
						RPM	4500	3100	2500	2000	1600	1400	1100	1000	900	800	700	630	500		

Holemaking

Threading

Milling

Indexable inserts

**E2086, E2085, E2079, E2077, E2170, E2171, E2172, E2241, E2195, E2197**  
MULTI FLUTE ROUGHING / SIDE CUTTING / INCH / TiN Coated

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)															
						1/4	5/16	3/8	1/2	5/8	11/16	7/8	1	1 1/8	1 1/4	1 3/8	1 3/4	2			
P	1	Non-alloy steel	0.5D	1.5D	SFM	140	135	130	140	135	135	140	140	135	135	155	140				
					RPM	2160	1680	1320	1080	840	760	600	540	480	420	370	340	260			
					IPM	4	5	7	9	9	10	10	10	10	10	10	10	10			
	2		SFM	125	110	105	125	110	110	125	125	125	110	110	120	115					
			RPM	1920	1320	1080	960	670	600	540	480	420	340	300	260	220					
			IPM	3	4	6	7	7	7	8	8	8	8	8	7	8					
	3-4		SFM	95	90	95	100	90	85	95	95	100	85	85	100	100					
			RPM	1440	1080	960	760	540	480	420	370	340	260	240	220	190					
			IPM	3	3	5	5	5	5	7	7	6	6	6	6	7					
	5		SFM	65	55	55	65	55	55	60	55	55	55	50	60	55					
RPM		960	670	540	480	340	300	260	220	190	170	140	130	110							
IPM		1	2	3	3	3	3	4	4	4	4	4	4	4							
6	SFM	125	110	105	125	110	110	125	125	125	110	110	120	115							
	RPM	1920	1320	1080	960	670	600	540	480	420	340	300	260	220							
	IPM	3	4	6	7	7	7	8	8	8	8	8	7	8							
7	SFM	95	90	95	100	90	85	95	95	100	85	85	100	100							
	RPM	1440	1080	960	760	540	480	420	370	340	260	240	220	190							
	IPM	3	3	5	5	5	5	7	7	6	6	6	6	7							
8-9	SFM	65	55	55	65	55	55	60	55	55	55	50	60	55							
	RPM	960	670	540	480	340	300	260	220	190	170	140	130	110							
	IPM	1	2	3	3	3	3	4	4	4	4	4	4	4							
10	SFM	125	110	105	125	110	110	125	125	125	110	110	120	115							
	RPM	1920	1320	1080	960	670	600	540	480	420	340	300	260	220							
	IPM	3	4	6	7	7	7	8	8	8	8	8	7	8							
11.1	SFM	65	55	55	65	55	55	60	55	55	55	50	60	55							
	RPM	960	670	540	480	340	300	260	220	190	170	140	130	110							
	IPM	1	2	3	3	3	3	4	4	4	4	4	4	4							
N	21-22	Aluminum-wrought alloy	0.5D	1.5D	SFM	355	305	295	315	315	300	315	320	315	300	345	315				
					RPM	5400	3720	3000	2400	1920	1680	1320	1200	1080	960	840	760	600			
	23-25	Aluminum-cast, alloyed	0.5D	1.5D	SFM	355	305	295	315	315	300	315	320	315	300	345	315				
					RPM	5400	3720	3000	2400	1920	1680	1320	1200	1080	960	840	760	600			
						SFM	355	305	295	315	315	300	315	320	315	300	345	315			
						RPM	5400	3720	3000	2400	1920	1680	1320	1200	1080	960	840	760	600		

SFM = Surface Feet per Minute  
RPM = Revolutions Per Minute  
IPT = Inches Per Tooth  
IPM = Inches Per Minute  
Ap : Inch (Axial Depth of Cut)  
Ae : Inch (Radial Depth of Cut)

※ The Feed, in long & extra long types, should be reduced by around 50%.



**E2086, E2085, E2079, E2077, E2170, E2171, E2172, E2241, E2195, E2197**  
MULTI FLUTE ROUGHING / SIDE CUTTING / INCH / TiCN Coated

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)															
						1/4	5/16	3/8	1/2	5/8	11/16	7/8	1	1 1/8	1 1/4	1 3/8	1 3/4	2			
P	1	Non-alloy steel	0.5D	1.5D	SFM	155	150	140	155	150	145	150	155	155	150	130	115				
					RPM	2340	1820	1430	1170	910	820	650	590	520	460	400	360	290			
					IPM	4	5	8	9	9	11	11	11	11	11	10	10	10			
	2		SFM	135	115	115	135	120	115	135	135	135	135	135	120	115	130	125			
			RPM	2080	1430	1170	1040	730	650	590	520	460	400	360	330	290	230				
			IPM	3	4	6	7	7	7	9	9	8	8	8	8	8	9				
	3-4		SFM	100	95	100	105	95	95	105	105	105	105	105	95	95	105	110			
			RPM	1560	1170	1040	820	590	520	460	400	360	290	260	230	210					
			IPM	3	3	6	6	6	6	7	7	7	7	7	6	7					
	5		SFM	70	60	55	70	60	60	65	60	60	60	60	55	65	60				
RPM		1040	730	590	520	360	330	290	230	210	180	160	140	120							
IPM		2	2	3	4	4	4	4	4	4	4	4	4	4							
6	SFM	135	115	115	135	120	115	135	135	135	135	120	115	130	125						
	RPM	2080	1430	1170	1040	730	650	590	520	460	400	360	330	290	230						
	IPM	3	4	6	7	7	7	9	9	8	8	8	8	8	9						
7	SFM	100	95	100	105	95	95	105	105	105	105	95	95	105	110						
	RPM	1560	1170	1040	820	590	520	460	400	360	290	260	230	210							
	IPM	3	3	6	6	6	6	7	7	7	7	7	6	7							
8-9	SFM	70	60	55	70	60	60	65	60	60	60	55	65	60							
	RPM	1040	730	590	520	360	330	290	230	210	180	160	140	120							
	IPM	2	2	3	4	4	4	4	4	4	4	4	4	4							
10	SFM	135	115	115	135	120	115	135	135	135	135	120	115	130	125						
	RPM	2080	1430	1170	1040	730	650	590	520	460	400	360	330	290	230						
	IPM	3	4	6	7	7	7	9	9	8											



**E2193, E2125**

**MULTI FLUTE BALL ROUGHING / SIDE CUTTING / INCH**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)							
						5/16	3/8	1/2	5/8	3/4	1	1 1/4	1 3/4
P	1	Non-alloy steel	0.5D	1.5D	SFM	115	110	120	115	110	120	115	130
					IPT	.0010	.0014	.0019	.0025	.0031	.0040	.0038	.0048
					RPM	1400	1100	900	700	560	450	350	280
					IPM	4	6	7	7	7	9	8	8
	2		0.5D	1.5D	SFM	90	90	105	90	90	105	90	100
					IPT	.0009	.0014	.0019	.0027	.0033	.0035	.0036	.0045
					RPM	1100	900	800	560	450	400	280	220
					IPM	3	5	6	6	6	7	6	6
	3-4		0.5D	1.5D	SFM	75	80	80	75	80	80	70	80
					IPT	.0011	.0013	.0016	.0022	.0025	.0039	.0038	.0046
					RPM	900	800	630	450	400	310	220	180
IPM		3			4	4	4	4	6	5	5		
5	0.5D	1.5D	SFM	45	45	50	45	45	45	45	50		
			IPT	.0006	.0011	.0019	.0027	.0034	.0033	.0036	.0045		
			RPM	560	450	400	280	220	180	140	110		
			IPM	1	2	3	3	3	3	3	3		
6	0.5D	1.5D	SFM	90	90	105	90	90	105	90	100		
			IPT	.0009	.0014	.0019	.0027	.0033	.0035	.0036	.0045		
			RPM	1100	900	800	560	450	400	280	220		
			IPM	3	5	6	6	6	7	6	6		
7	0.5D	1.5D	SFM	75	80	80	75	80	80	70	80		
			IPT	.0011	.0013	.0016	.0022	.0025	.0039	.0038	.0046		
			RPM	900	800	630	450	400	310	220	180		
			IPM	3	4	4	4	4	6	5	5		
8-9	0.5D	1.5D	SFM	45	45	50	45	45	45	45	50		
			IPT	.0006	.0011	.0019	.0027	.0034	.0033	.0036	.0045		
			RPM	560	450	400	280	220	180	140	110		
			IPM	1	2	3	3	3	3	3	3		
10	0.5D	1.5D	SFM	90	90	105	90	90	105	90	100		
			IPT	.0009	.0014	.0019	.0027	.0033	.0035	.0036	.0045		
			RPM	1100	900	800	560	450	400	280	220		
			IPM	3	5	6	6	6	7	6	6		
11.1	0.5D	1.5D	SFM	45	45	50	45	45	45	45	50		
			IPT	.0006	.0011	.0019	.0027	.0034	.0033	.0036	.0045		
			RPM	560	450	400	280	220	180	140	110		
			IPM	1	2	3	3	3	3	3	3		
N	21-22	Aluminum-wrought alloy	0.5D	1.5D	SFM	255	245	260	260	235	260	260	290
					IPT	.0010	.0010	.0020	.0028	.0042	.0036	.0042	.0048
					RPM	3100	2500	2000	1600	1200	1000	800	630
					IPM	9	10	16	18	20	18	20	18
N	23-25	Aluminum-cast, alloyed	0.5D	1.5D	SFM	255	245	260	260	235	260	260	290
					IPT	.0010	.0010	.0020	.0028	.0042	.0036	.0042	.0048
					RPM	3100	2500	2000	1600	1200	1000	800	630
					IPM	9	10	16	18	20	18	20	18

SFM = Surface Feet per Minute  
 RPM = Revolutions Per Minute  
 IPT = Inches Per Tooth  
 IPM = Inches Per Minute  
 Ap : Inch (Axial Depth of Cut)  
 Ae : Inch (Radial Depth of Cut)

※ The Feed, in long & extra long types, should be reduced by around 50%.



**E2248**

**MULTI FLUTE ROUGHING & FINISHING / SIDE CUTTING / INCH**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)											
						1/4	5/16	3/8	1/2	5/8	11/16	7/8	1	1 1/4	1 3/8	2 (6 & 8 FL)	
P	1	Non-alloy steel	0.5D	1.5D	SFM	120	115	110	120	115	115	115	115	120	115	110	125
					IPT	.0004	.0005	.0011	.0017	.0021	.0024	.0028	.0031	.0033	.0038	.0035 / .0026	
					RPM	1800	1400	1100	900	700	630	500	450	350	310	240	
					IPM	3	3	5	6	6	6	7	7	7	7	5	
	2		0.5D	1.5D	SFM	85	90	90	105	90	90	105	90	105	90	100	
					IPT	.0004	.0005	.0011	.0013	.0018	.0020	.0022	.0025	.0030	.0033	.0035 / .0026	
					RPM	1300	1100	900	800	560	500	450	400	280	250	190	
					IPM	2	2	4	4	4	4	5	5	5	5	4	
	3-4		0.5D	1.5D	SFM	80	75	80	80	75	70	80	70	70	70	80	
					IPT	.0004	.0006	.0013	.0016	.0022	.0025	.0023	.0026	.0030	.0033	.0033 / .0025	
					RPM	1200	900	800	630	450	400	350	310	220	200	150	
IPM		2			2	4	4	4	4	4	4	4	4	3			
5	0.5D	1.5D	SFM	50	45	45	50	45	45	50	45	45	45	60			
			IPT	.0003	.0004	.0011	.0013	.0018	.0020	.0027	.0033	.0036	.0042	.0045 / .0034			
			RPM	800	560	450	400	280	250	220	180	140	120	110			
			IPM	1	1	2	2	2	2	3	3	3	3	3			
6	0.5D	1.5D	SFM	85	90	90	105	90	90	105	90	90	100				
			IPT	.0004	.0005	.0011	.0013	.0018	.0020	.0022	.0025	.0030	.0033	.0035 / .0026			
			RPM	1300	1100	900	800	560	500	450	400	280	250	190			
			IPM	2	2	4	4	4	4	5	5	5	5	4			
7	0.5D	1.5D	SFM	80	75	80	80	75	70	80	70	70	80				
			IPT	.0004	.0006	.0013	.0016	.0022	.0025	.0023	.0026	.0030	.0033	.0033 / .0025			
			RPM	1200	900	800	630	450	400	350	310	220	200	150			
			IPM	2	2	4	4	4	4	4	4	4	4	3			
8-9	0.5D	1.5D	SFM	50	45	45	50	45	45	50	45	45	45	60			
			IPT	.0003	.0004	.0011	.0013	.0018	.0020	.0027	.0033	.0036	.0042	.0045 / .0034			
			RPM	800	560	450	400	280	250	220	180	140	120	110			
			IPM	1	1	2	2	2	2	3	3	3	3	3			
10	0.5D	1.5D	SFM	85	90	90	105	90	90	105	90	90	100				
			IPT	.0004	.0005	.0011	.0013	.0018	.0020	.0022	.0025	.0030	.0033	.0035 / .0026			
			RPM	1300	1100	900	800	560	500	450	400	280	250	190			
			IPM	2	2	4	4	4	4	5	5	5	5	4			
11.1	0.5D	1.5D	SFM	50	45	45	50	45	45	50	45	45	45	60			
			IPT	.0003	.0004	.0011	.0013	.0018	.0020	.0027	.0033	.0036	.0042	.0045 / .0034			
			RPM	800	560	450	400	280	250	220	180	140	120	110			
			IPM	1	1	2	2	2	2	3	3	3	3	3			
N	21-22	Aluminum-wrought alloy	0.5D	1.5D	SFM	295	255	245	260	260	250	250	260	260	250	260	
					IPT	.0003	.0006	.0011	.0016	.0022	.0027	.0027	.0028	.0033	.0036	.0037 / .0028	
					RPM	4500	3100	2500	2000	1600	1400	1100	1000	800	700	500	
					IPM	6	7	11	13	14	15	15	14	15	15	11	
N	23-25	Aluminum-cast, alloyed	0.5D	1.5D	SFM	295	255	245	260	260	250	250	260	260	250	260	
					IPT	.0003	.0006	.0011	.0016	.0022	.0027	.0027	.0028	.0033	.0036	.0037 / .0028	
					RPM	4500	3100	2500	2000	1600	1400	1100	1000	800	700	500	
					IPM	6	7	11	13	14	15	15	14	15	15	11	

SFM = Surface Feet per Minute  
 RPM = Revolutions Per Minute  
 IPT = Inches Per Tooth  
 IPM = Inches Per Minute  
 Ap : Inch (Axial Depth of Cut)  
 Ae : Inch (Radial Depth of Cut)

※ The Feed, in long & extra long types, should be reduced by around 50%.



E2191, E2226, E2192

3 FLUTE ROUGHING FOR ALUMINIUM / SIDE CUTTING / INCH

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						1/4	5/16	3/8	1/2	5/8	3/4	7/8	1	1 1/4	1 1/2
P	1	Non-alloy steel	0.5D	1.5D	SFM	120	115	110	120	115	115	115	120	115	110
					IPT	.0006	.0010	.0018	.0026	.0033	.0037	.0060	.0067	.0076	.0086
					RPM	1800	1400	1100	900	700	630	500	450	350	310
	2		0.5D	1.5D	SFM	105	90	90	105	90	90	105	90	90	
					IPT	.0004	.0009	.0019	.0025	.0036	.0040	.0052	.0058	.0071	.0080
					RPM	1600	1100	900	800	560	500	450	400	280	250
	3-4		0.5D	1.5D	SFM	80	75	80	80	75	70	80	80	70	70
					IPT	.0006	.0011	.0017	.0021	.0030	.0033	.0057	.0065	.0076	.0083
					RPM	1200	900	800	630	450	400	350	310	220	200
	5		0.5D	1.5D	SFM	50	45	45	50	45	45	50	45	45	45
					IPT	.0004	.0006	.0015	.0017	.0024	.0027	.0045	.0056	.0071	.0083
RPM		800			560	450	400	280	250	220	180	140	120		
6	0.5D	1.5D	SFM	105	90	90	105	90	90	105	90	90			
			IPT	.0004	.0009	.0019	.0025	.0036	.0040	.0052	.0058	.0071	.0080		
			RPM	1600	1100	900	800	560	500	450	400	280	250		
7	0.5D	1.5D	SFM	80	75	80	80	75	70	80	80	70	70		
			IPT	.0006	.0011	.0017	.0021	.0030	.0033	.0057	.0065	.0076	.0083		
			RPM	1200	900	800	630	450	400	350	310	220	200		
8-9	0.5D	1.5D	SFM	50	45	45	50	45	45	50	45	45	45		
			IPT	.0004	.0006	.0015	.0017	.0024	.0027	.0045	.0056	.0071	.0083		
			RPM	800	560	450	400	280	250	220	180	140	120		
10	0.5D	1.5D	SFM	105	90	90	105	90	90	105	90	90			
			IPT	.0004	.0009	.0019	.0025	.0036	.0040	.0052	.0058	.0071	.0080		
			RPM	1600	1100	900	800	560	500	450	400	280	250		
11.1	0.5D	1.5D	SFM	50	45	45	50	45	45	50	45	45	45		
			IPT	.0004	.0006	.0015	.0017	.0024	.0027	.0045	.0056	.0071	.0083		
			RPM	800	560	450	400	280	250	220	180	140	120		
21-22	0.5D	1.5D	SFM	295	255	245	260	260	250	250	260	260	250		
			IPT	.0004	.0008	.0015	.0022	.0029	.0036	.0045	.0047	.0067	.0071		
			RPM	4500	3100	2500	2000	1600	1400	1100	1000	800	700		
23-25	0.5D	1.5D	SFM	295	255	245	260	260	250	250	260	260	250		
			IPT	.0004	.0008	.0015	.0022	.0029	.0036	.0045	.0047	.0067	.0071		
			RPM	4500	3100	2500	2000	1600	1400	1100	1000	800	700		

SFM = Surface Feet per Minute  
 RPM = Revolutions Per Minute  
 IPT = Inches Per Tooth  
 IPM = Inches Per Minute  
 Ap : Inch (Axial Depth of Cut)  
 Ae : Inch (Radial Depth of Cut)

※ The Feed, in long & extra long types, should be reduced by around 50%.



E2237, E1237

4 FLUTE CORNER ROUNDING / INCH

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø)														
				7/16	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	1 3/8	1 1/2	1 5/8	1 15/16	1 7/8		
P	1	Non-alloy steel	SFM	65	65	65	65	65	65	65	65	65	65	65	65			
			IPT	.0008	.0008	.0011	.0012	.0014	.0016	.0017	.0019	.0019	.0021	.0022	.0023	.0023		
			RPM	580	500	400	340	290	250	220	200	180	170	160	130	130		
	2		0.5D	1.5D	SFM	50	50	50	50	50	50	50	50	50	50	50		
					IPT	.0008	.0008	.0011	.0012	.0014	.0016	.0016	.0018	.0018	.0021	.0021	.0023	.0023
					RPM	430	370	300	250	210	190	170	150	140	120	100	100	
	3-4		0.5D	1.5D	SFM	35	35	35	35	35	35	35	35	35	35	35	35	
					IPT	.0009	.0010	.0013	.0015	.0018	.0019	.0023	.0025	.0028	.0031	.0030	.0036	
					RPM	290	250	200	170	140	130	110	100	90	80	70	70	
	5		0.5D	1.5D	SFM	50	45	45	50	45	45	50	45	45	45	45	45	
					IPT	.0004	.0006	.0015	.0017	.0024	.0027	.0045	.0056	.0071	.0083	.0083	.0083	
RPM		800			560	450	400	280	250	220	180	140	120	120	120			
6	0.5D	1.5D	SFM	50	50	50	50	50	50	50	50	50	50	50				
			IPT	.0008	.0008	.0011	.0012	.0014	.0016	.0016	.0018	.0018	.0021	.0021	.0023	.0023		
			RPM	430	370	300	250	210	190	170	150	140	120	100	100			
7	0.5D	1.5D	SFM	35	35	35	35	35	35	35	35	35	35	35	35			
			IPT	.0009	.0010	.0013	.0015	.0018	.0019	.0023	.0025	.0028	.0031	.0030	.0036			
			RPM	290	250	200	170	140	130	110	100	90	80	70	70			
8-9	0.5D	1.5D	SFM	50	45	45	50	45	45	50	45	45	45	45	45			
			IPT	.0004	.0006	.0015	.0017	.0024	.0027	.0045	.0056	.0071	.0083	.0083	.0083			
			RPM	800	560	450	400	280	250	220	180	140	120	120	120			
10	0.5D	1.5D	SFM	50	50	50	50	50	50	50	50	50	50	50				
			IPT	.0008	.0008	.0011	.0012	.0014	.0016	.0016	.0018	.0018	.0021	.0021	.0023	.0023		
			RPM	430	370	300	250	210	190	170	150	140	120	100	100			
11.1	0.5D	1.5D	SFM	50	45	45	50	45	45	50	45	45	45	45	45			
			IPT	.0004	.0006	.0015	.0017	.0024	.0027	.0045	.0056	.0071	.0083	.0083	.0083			
			RPM	800	560	450	400	280	250	220	180	140	120	120	120			
21-22	0.5D	1.5D	SFM	295	295	295	295	295	295	295	295	295	295	295				
			IPT	.0009	.0009	.0013	.0013	.0016	.0015	.0018	.0019	.0021	.0023	.0022	.0025			
			RPM	2580	2250	1800	1500	1290	1130	1000	900	820	750	690	580	600		
23-25	0.5D	1.5D	SFM	295	295	295	295	295	295	295	295	295	295	295				
			IPT	.0009	.0009	.0013	.0013	.0016	.0015	.0018	.0019	.0021	.0023	.0022	.0025			
			RPM	2580	2250	1800	1500	1290	1130	1000	900	820	750	690	580	600		

SFM = Surface Feet per Minute  
 RPM = Revolutions Per Minute  
 IPT = Inches Per Tooth  
 IPM = Inches Per Minute  
 Ap : Inch (Axial Depth of Cut)  
 Ae : Inch (Radial Depth of Cut)

※ The Feed, in long & extra long types, should be reduced by around 50%.



E2482, E1482
2FLUTE / SLOTING / METRIC

Table with columns for ISO, VDI 3323, Material Description, Ae, Ap, Parameter, and Diameter (Ø) from 2 to 40. Rows include categories P (Non-alloy steel, Low alloy steel, High alloyed steel, and tool steel) and N (Aluminum-wrought alloy, Aluminum-cast, alloyed).

SFM = Surface Feet per Minute
RPM = Revolutions Per Minute
IPT = Inches Per Tooth
IPM = Inches Per Minute
Ap : Inch (Axial Depth of Cut)
Ae : Inch (Radial Depth of Cut)

\* The Feed, in long & extra long types, should be reduced by around 50%.



E2483, E1483
4FLUTE / SIDE CUTTING / METRIC

Table with columns for ISO, VDI 3323, Material Description, Ae, Ap, Parameter, and Diameter (Ø) from 2 to 40. Rows include categories P (Non-alloy steel, Low alloy steel, High alloyed steel, and tool steel) and N (Aluminum-wrought alloy, Aluminum-cast, alloyed).

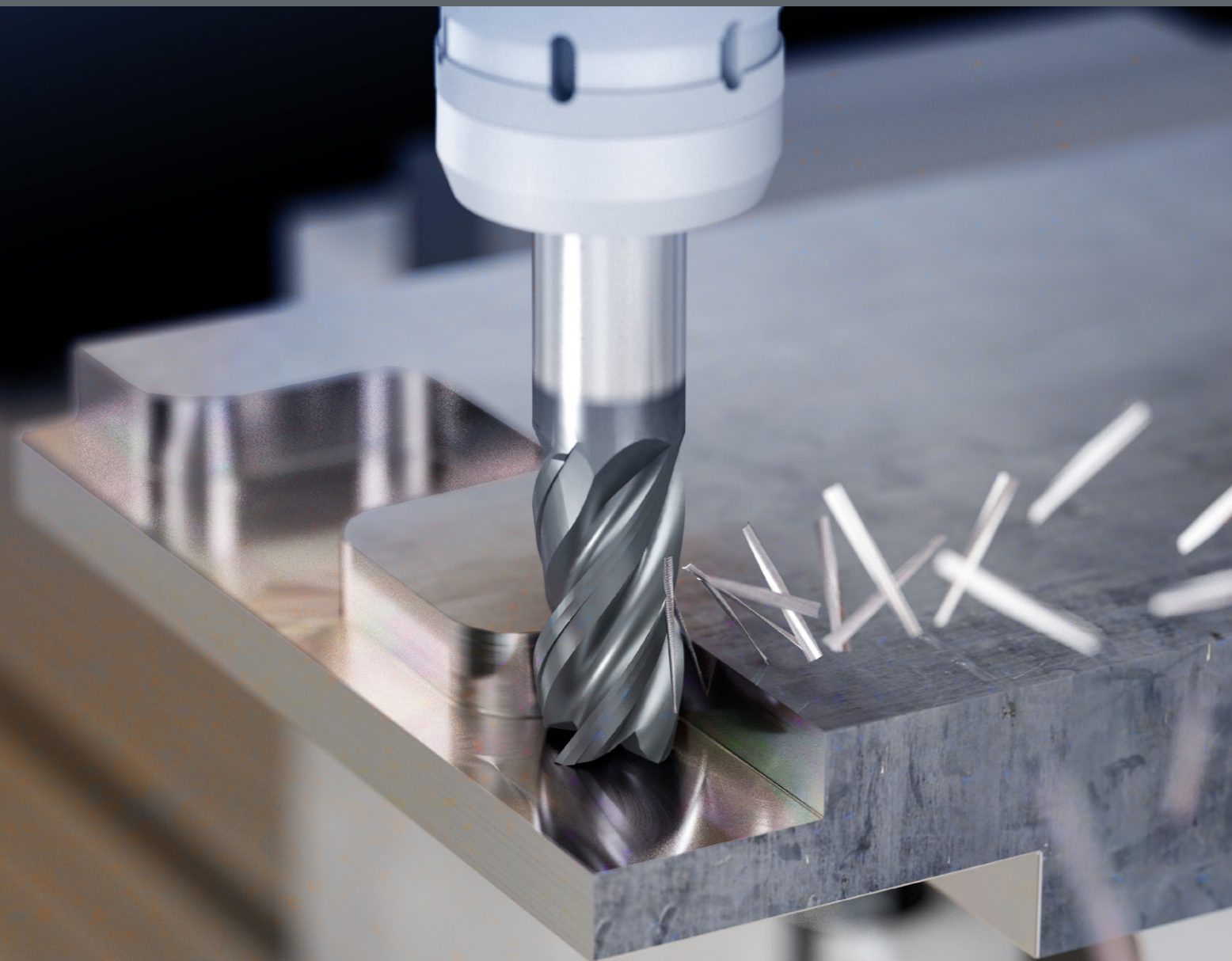
SFM = Surface Feet per Minute
RPM = Revolutions Per Minute
IPT = Inches Per Tooth
IPM = Inches Per Minute
Ap : Inch (Axial Depth of Cut)
Ae : Inch (Radial Depth of Cut)

\* The Feed, in long & extra long types, should be reduced by around 50%.



# PM60 ONLY ONE

- Perfect solution to protect carbide chipping problems under vibrations  
- Y-Coating



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### SELECTION GUIDE

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- Perfect solution to protect carbide chipping problems under vibrations  
- Y-Coating

SERIES	GYG64	GYG67	GYG65	GYG66
FLUTE	2	4	4	4
HELIX ANGLE	30°	30°	30°	M-Helix
CUTTING EDGE SHAPE	SQUARE	BALL NOSE	SQUARE	SQUARE
SIZE MIN	D1/8	R1/16	D1/8	D1/8
SIZE MAX	D1	R1/2	D1	D1
PAGE	249	249	250	250
LENGTH	CENTER CUT		CENTER CUT	CENTER CUT



Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : P.253-258

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRC	GYG64	GYG67	GYG65	GYG66	
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎	◎	◎	◎	
	2		About 0.45% C Annealed	190	13	◎	◎	◎	◎	
	3		About 0.45% C Quenched & Tempered	250	25	◎	◎	◎	◎	
	4		About 0.75% C Annealed	270	28	◎	◎	◎	◎	
	5		About 0.75% C Quenched & Tempered	300	32	◎	◎	◎	◎	
	6	Low alloy steel	Annealed	180	10	◎	◎	◎	◎	
	7		Quenched & Tempered	275	29	◎	◎	◎	◎	
	8		Quenched & Tempered	300	32	◎	◎	◎	◎	
	9		Quenched & Tempered	350	38	○	○	○	○	
	10		High alloyed steel, and tool steel	Annealed	200	15	◎	◎	◎	◎
	11			Quenched & Tempered	325	35	○	○	○	○
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	◎	◎	◎	◎	
	13		Martensitic Quenched & Tempered	240	23	◎	◎	◎	◎	
	14	Austenitic	180	10	◎	◎	◎	◎		
K	15	Grey cast iron	Pearlitic / ferritic	180	10	◎	◎	◎	◎	
	16		Pearlitic (Martensitic)	260	26	◎	◎	◎	◎	
	17	Nodular cast iron	Ferritic	160	3	◎	◎	◎	◎	
	18		Pearlitic	250	25	◎	◎	◎	◎	
	19	Malleable cast iron	Ferritic	130		◎	◎	◎	◎	
20	Pearlitic		230	21	◎	◎	◎	◎		
N	21	Aluminum-wrought alloy	Not Curable	60						
	22		Curable Hardened	100						
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75						
	24		≤ 12% Si, Curable Hardened	90						
	25		> 12% Si, Not Curable	130						
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110		○	○	○	○	
	27		CuZn, CuSnZn (Brass)	90		○	○	○	○	
	28		CuSn, lead-free copper and electrolytic copper	100		○	○	○	○	
	29		Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic Rubber, Wood, etc.						
	30									
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15					
	32		Cured	280	30					
	33		Annealed	250	25					
	34		Ni or Co Based Cured	350	38					
	35	Cast	320	34						
	36	Titanium Alloys	Pure Titanium	400 Rm						
	37		Alpha + Beta Alloys Hardened	1050 Rm						
H	38	Hardened steel	Hardened	550	55					
	39		Hardened	630	60					
	40	Chilled Cast Iron	Cast	400	42	○	○	○	○	
	41	Hardened Cast Iron	Hardened	550	55					



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SELECTION GUIDE

ONLY ONE

- Perfect solution to protect carbide chipping problems under vibrations
- Y-Coating

SERIES	GYG69	GYG68	GYG70
FLUTE	4&5	3-6	3-6
HELIX ANGLE	M-Helix	30°	30°
CUTTING EDGE SHAPE	CORNER RADIUS ROUGHING	ROUGHING	ROUGHING
SIZE MIN	D1/4	D1/4	D1/4
SIZE MAX	D1	D1-1/4	D1-1/4
PAGE	251	251	252
LENGTH	FINE CENTER CUT	FINE CENTER CUT	COARSE CENTER CUT



Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent ○ : Good  
Recommended cutting conditions : P.253-258

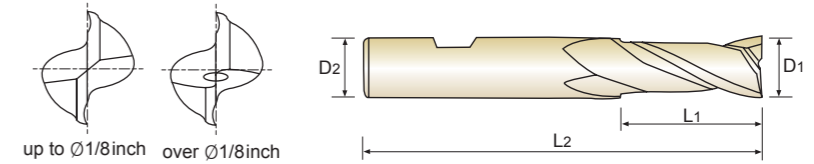
ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRC	GYG69	GYG68	GYG70
P	1	Non-alloy steel	About 0.15% C Annealed	125		◎	◎	◎
	2		About 0.45% C Annealed	190	13	◎	◎	◎
	3		About 0.45% C Quenched & Tempered	250	25	◎	◎	◎
	4		About 0.75% C Annealed	270	28	◎	◎	◎
	5		About 0.75% C Quenched & Tempered	300	32	◎	◎	◎
	6	Low alloy steel	Annealed	180	10	◎	◎	◎
	7		Quenched & Tempered	275	29	◎	◎	◎
	8		Quenched & Tempered	300	32	◎	◎	◎
	9		Quenched & Tempered	350	38	○	○	○
	10		High alloyed steel, and tool steel	Annealed	200	15	◎	◎
	11	Quenched & Tempered		325	35	○	○	○
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	◎	◎	◎
	13		Martensitic Quenched & Tempered	240	23	◎	◎	◎
	14		Austenitic	180	10	◎	◎	◎
K	15	Grey cast iron	Pearlitic / ferritic	180	10	◎	◎	◎
	16		Pearlitic (Martensitic)	260	26	◎	◎	◎
	17	Nodular cast iron	Ferritic	160	3	◎	◎	◎
	18		Pearlitic	250	25	◎	◎	◎
	19	Malleable cast iron	Ferritic	130		◎	◎	◎
	20		Pearlitic	230	21	◎	◎	◎
N	21	Aluminum-wrought alloy	Not Curable	60				
	22		Curable Hardened	100				
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75				
	24		≤ 12% Si, Curable Hardened	90				
	25		> 12% Si, Not Curable	130				
	26		Cutting Alloys, PB>1%	110			○	○
	27	Copper and Copper Alloys (Bronze / Brass)	CuZn, CuSnZn (Brass)	90		○	○	○
	28		CuSn, lead-free copper and electrolytic copper	100		○	○	○
	29		Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic Rubber, Wood, etc.				
	30							
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15			
	32		Cured	280	30			
	33		Annealed	250	25			
	34		Ni or Co Based Cured	350	38			
	35		Cast	320	34			
	36	Titanium Alloys	Pure Titanium	400 Rm				
	37		Alpha + Beta Alloys Hardened	1050 Rm				
H	38	Hardened steel	Hardened	550	55			
	39		Hardened	630	60			
	40	Chilled Cast Iron	Cast	400	42	○	○	○
	41	Hardened Cast Iron	Hardened	550	55			

ONLY ONE



FLAT SHANK GYG64 SERIES

PM60, 2 FLUTE (Center Cut)



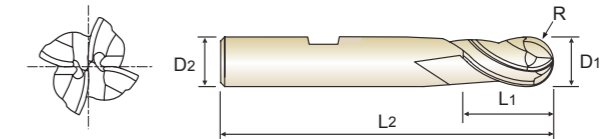
PM 60 2 30° FLAT P. 1181

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
Y-COATED	D1	D2	L1	L2
GYG64008	1/8	3/8	3/8	2-5/16
GYG64012	3/16	3/8	7/16	2-5/16
GYG64016	1/4	3/8	1/2	2-5/16
GYG64020	5/16	3/8	9/16	2-5/16
GYG64024	3/8	3/8	9/16	2-5/16
GYG64032	1/2	1/2	1	3
GYG64040	5/8	5/8	1-5/16	3-7/16
GYG64048	3/4	3/4	1-5/16	3-7/16
GYG64064	1	1	1-5/8	4-1/8

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
0~-.0012	h6

FLAT SHANK GYG67 SERIES

PM60, 4 FLUTE BALL NOSE



PM 60 4 30° R ±.001 FLAT P.1182

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
Y-COATED	R	D1	D2	L1	L2
GYG67008	R1/16	1/8	3/8	3/8	2-5/16
GYG67012	R3/32	3/16	3/8	1/2	2-3/8
GYG67016	R1/8	1/4	3/8	5/8	2-7/16
GYG67020	R5/32	5/16	3/8	3/4	2-1/2
GYG67024	R3/16	3/8	3/8	3/4	2-1/2
GYG67032	R1/4	1/2	1/2	1-1/4	3-1/4
GYG67040	R5/16	5/8	5/8	1-5/8	3-3/4
GYG67048	R3/8	3/4	3/4	1-5/8	3-7/8
GYG67064	R1/2	1	1	2	4-1/2

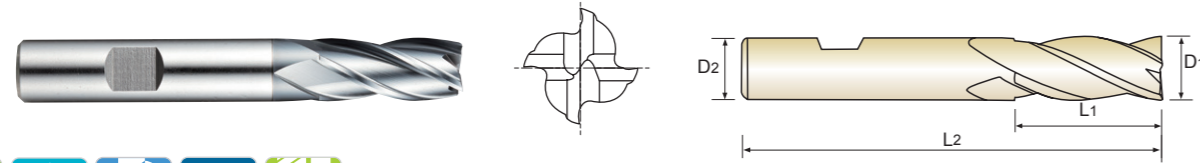
Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
0~-.0012	h6

**ONLY ONE**



FLAT SHANK  
**GYG65** SERIES

**PM60, 4 FLUTE (Center Cut)**



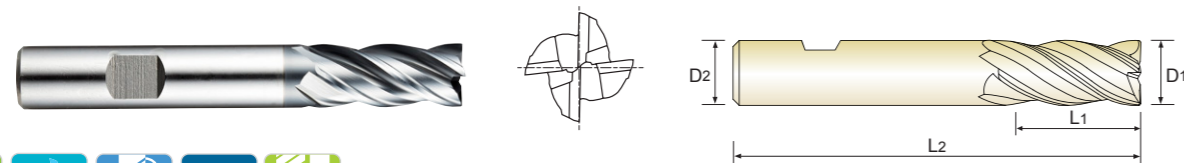
Unit : Inch

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
Y-COATED	D1	D2	L1	L2
GYG65008	1/8	3/8	3/8	2-5/16
GYG65012	3/16	3/8	1/2	2-3/8
GYG65016	1/4	3/8	5/8	2-7/16
GYG65020	5/16	3/8	3/4	2-1/2
GYG65024	3/8	3/8	3/4	2-1/2
GYG65032	1/2	1/2	1-1/4	3-1/4
GYG65040	5/8	5/8	1-5/8	3-3/4
GYG65048	3/4	3/4	1-5/8	3-7/8
GYG65056	7/8	7/8	1-7/8	4-1/8
GYG65064	1	1	2	4-1/2

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
0~- .0012	h6

FLAT SHANK  
**GYG66** SERIES

**PM60, 4 FLUTE MULTIPLE HELIX (Center Cut)**



Unit : Inch

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
Y-COATED	D1	D2	L1	L2
GYG66008	1/8	3/8	3/8	2-5/16
GYG66012	3/16	3/8	1/2	2-3/8
GYG66016	1/4	3/8	5/8	2-7/16
GYG66020	5/16	3/8	3/4	2-1/2
GYG66024	3/8	3/8	3/4	2-1/2
GYG66032	1/2	1/2	1-1/4	3-1/4
GYG66040	5/8	5/8	1-5/8	3-3/4
GYG66048	3/4	3/4	1-5/8	3-7/8
GYG66064	1	1	2	4-1/2

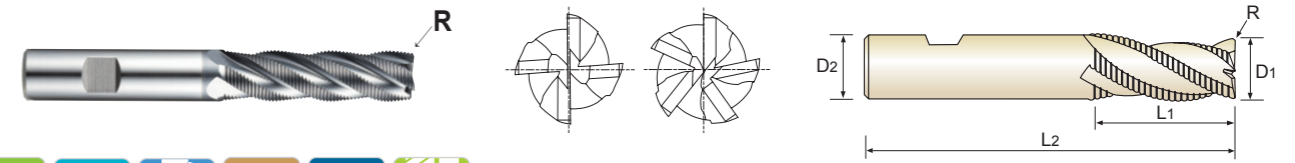
Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
0~- .0012	h6

**ONLY ONE**



FLAT SHANK  
**GYG69** SERIES

**PM60, MULTI FLUTE MULTIPLE HELIX CORNER RADIUS ROUGHING - FINE (Center Cut)**



5 Flute, 44°/45°/45°

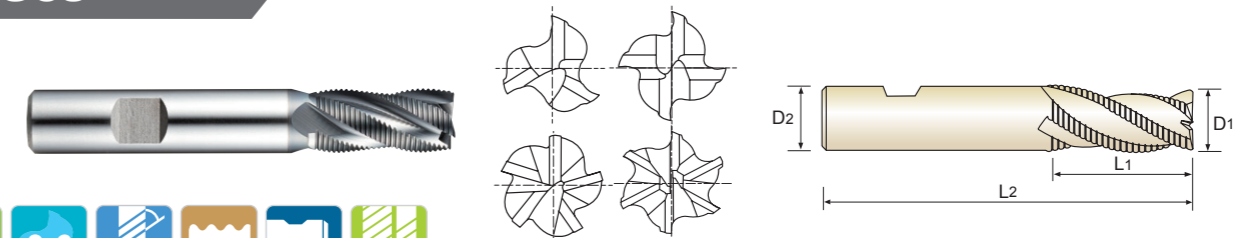
Unit : Inch

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
Y-COATED	R	D1	D2	L1	L2	
GYG69016	R.020	1/4	3/8	5/8	2-7/16	4
GYG69020	R.020	5/16	3/8	3/4	2-1/2	4
GYG69024	R.020	3/8	3/8	3/4	2-1/2	4
GYG69032	R.020	1/2	1/2	1-1/4	3-1/4	4
GYG69040	R.040	5/8	5/8	1-1/4	3-3/8	5
GYG69048	R.040	3/4	3/4	1-5/8	3-7/8	5
GYG69064	R.040	1	1	2	4-1/2	5

Mill Dia. Tolerance (inch)
0 ~ +.0030

FLAT SHANK  
**GYG68** SERIES

**PM60, MULTI FLUTE ROUGHING- FINE (Center Cut)**



Unit : Inch

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
Y-COATED	D1	D2	L1	L2	
GYG68016	1/4	3/8	5/8	2-7/16	3
GYG68020	5/16	3/8	3/4	2-1/2	3
GYG68901	5/16	3/8	1-3/8	3_3/16	3
GYG68024	3/8	3/8	3/4	2-1/2	4
GYG68902	3/8	3/8	1-1/2	3-1/4	4
GYG68032	1/2	1/2	1-1/4	3-1/4	4
GYG68903	1/2	1/2	2	4	4
GYG68040	5/8	5/8	1-5/8	3-3/4	4
GYG68904	5/8	5/8	2-1/2	4-5/8	4
GYG68048	3/4	3/4	1-5/8	3-7/8	4
GYG68905	3/4	3/4	2-1/2	4-3/4	4
GYG68906	3/4	3/4	3	5-1/4	4
GYG68064	1	1	2	4-1/2	5
GYG68907	1	1	4	6-1/2	5
GYG68116	1-1/4	1-1/4	2	4-1/2	6

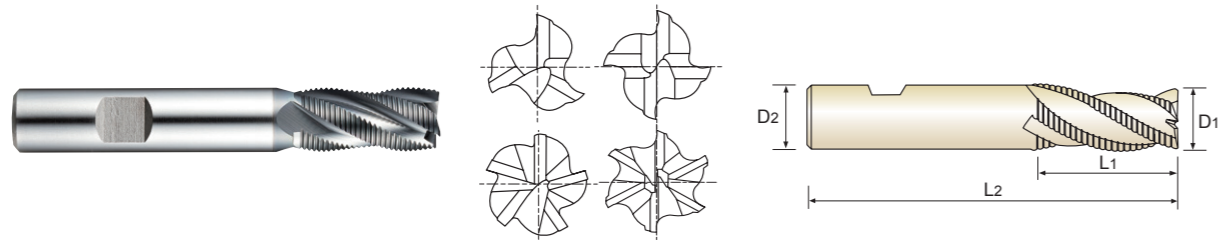
Mill Dia. Tolerance (inch)	
up to 1	0~+.0030
over 1	0~+.0060

**ONLY ONE**



FLAT SHANK  
**GYG70** SERIES

**PM60, MULTI FLUTE ROUGHING- COARSE  
(Center Cut)**



Unit : Inch

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
	D1	D2	L1	L2	
Y-COATED					
GYG70016	1/4	3/8	5/8	2-7/16	3
GYG70020	5/16	3/8	3/4	2-1/2	3
GYG70024	3/8	3/8	3/4	2-1/2	4
GYG70032	1/2	1/2	1-1/4	3-1/4	4
GYG70040	5/8	5/8	1-5/8	3-3/4	4
GYG70048	3/4	3/4	1-5/8	3-7/8	4
GYG70064	1	1	2	4-1/2	5
GYG70116	1-1/4	1-1/4	2	4-1/2	6

Mill Dia. Tolerance (inch)	
up to 1	0~+.0030
over 1	0~+.0060

Holemaking

Threading

Milling

Indexable inserts

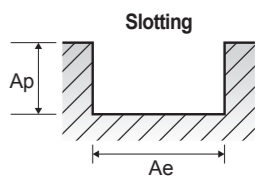
**ONLY ONE**



**GYG 64  
2FLUTE / SLOTTING / INCH**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	1	
P	1	Non-alloy steel	1.0D	0.5D	SFM	185	245	260	255	260	265	265	235	235	
					IPT	.0006	.0013	.0015	.0021	.0028	.0030	.0039	.0046	.0041	
					RPM	5710	4950	3960	3130	2640	2030	1620	1200	890	
	2		1.0D	0.5D	SFM	150	200	215	215	225	215	225	195	195	
					IPT	.0006	.0012	.0014	.0022	.0029	.0033	.0034	.0042	.0044	
					RPM	4610	4080	3310	2650	2270	1650	1380	990	750	
	3-4		1.0D	0.5D	SFM	125	160	170	180	180	170	175	175	150	
					IPT	.0007	.0014	.0017	.0022	.0031	.0036	.0039	.0042	.0047	
					RPM	3810	3280	2610	2170	1840	1300	1080	890	580	
	5		1.0D	0.5D	SFM	85	105	110	115	110	110	110	110	115	
					IPT	.0007	.0011	.0015	.0020	.0027	.0031	.0036	.0041	.0041	
					RPM	2610	2140	1650	1400	1140	850	680	550	430	
6	1.0D	0.5D	SFM	150	200	215	215	225	215	225	195	195			
			IPT	.0006	.0012	.0014	.0022	.0029	.0033	.0034	.0042	.0044			
			RPM	4610	4080	3310	2650	2270	1650	1380	990	750			
7	1.0D	0.5D	SFM	125	160	170	180	180	170	175	175	150			
			IPT	.0007	.0014	.0017	.0022	.0031	.0036	.0039	.0042	.0047			
			RPM	3810	3280	2610	2170	1840	1300	1080	890	580			
8	1.0D	0.5D	SFM	85	105	110	115	110	110	110	110	115			
			IPT	.0007	.0011	.0015	.0020	.0027	.0031	.0036	.0041	.0041			
			RPM	2610	2140	1650	1400	1140	850	680	550	430			
9	1.0D	0.5D	SFM	65	80	85	90	85	85	90	90	80			
			IPT	.0007	.0011	.0014	.0019	.0028	.0028	.0036	.0039	.0040			
			RPM	2010	1670	1300	1080	870	650	540	450	300			
10	1.0D	0.5D	SFM	150	200	215	215	225	215	225	195	195			
			IPT	.0006	.0012	.0014	.0022	.0029	.0033	.0034	.0042	.0044			
			RPM	4610	4080	3310	2650	2270	1650	1380	990	750			
11.1	1.0D	0.5D	SFM	85	105	110	115	110	110	110	110	115			
			IPT	.0007	.0011	.0015	.0020	.0027	.0031	.0036	.0041	.0041			
			RPM	2610	2140	1650	1400	1140	850	680	550	430			
11.2	1.0D	0.3D	SFM	45	60	60	60	60	60	60	65	50			
			IPT	.0007	.0011	.0014	.0019	.0029	.0028	.0035	.0039	.0038			
			RPM	1400	1200	900	760	630	450	380	320	200			
M	14.1	Stainless steel	1.0D	0.5D	SFM	70	90	95	100	95	95	100	85		
					IPT	.0007	.0011	.0014	.0019	.0028	.0028	.0036	.0040	.0038	
					RPM	2210	1870	1450	1200	970	730	580	500	330	
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	0.5D	SFM	150	200	215	215	225	215	225	195	195	
					IPT	.0006	.0012	.0014	.0022	.0029	.0033	.0034	.0042	.0044	
					RPM	4610	4080	3310	2650	2270	1650	1380	990	750	
H	40	Hardened Cast Iron	1.0D	0.3D	SFM	45	60	60	60	60	60	65	50		
					IPT	.0007	.0011	.0014	.0019	.0029	.0028	.0035	.0039	.0038	
					RPM	1400	1200	900	760	630	450	380	320	200	

SFM = Surface Feet per Minute  
RPM = Revolutions Per Minute  
IPT = Inches Per Tooth  
IPM = Inches Per Minute  
Ap : Inch (Axial Depth of Cut)  
Ae : Inch (Radial Depth of Cut)



Holemaking

Threading

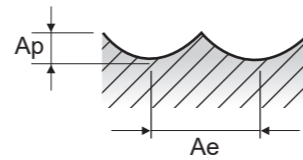
Milling

Indexable inserts

**GYG67**  
4FLUTE / BALL / INCH

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	1	
P	1	Non-alloy steel	0.5D	0.2D	SFM	270	310	330	330	340	340	340	335	295	
					IPT	.0007	.0012	.0016	.0023	.0032	.0034	.0042	.0046	.0048	
					RPM	8320	6270	5010	4050	3480	2610	2070	1700	1130	
					IPM	24	29	32	38	45	36	34	31	22	
	2		0.5D	0.2D	SFM	215	245	260	255	260	265	255	245	230	
					IPT	.0006	.0010	.0014	.0020	.0028	.0029	.0037	.0041	.0041	
					RPM	6620	4950	3960	3130	2640	2030	1560	1250	880	
					IPM	16	20	22	25	30	23	23	21	15	
	3-4		0.5D	0.2D	SFM	145	160	170	180	175	175	175	170	145	
					IPT	.0005	.0008	.0011	.0016	.0024	.0025	.0030	.0032	.0037	
					RPM	4410	3260	2610	2170	1770	1350	1080	870	550	
					IPM	8	11	12	14	17	13	13	11	8	
5	0.5D	0.2D	SFM	75	85	90	90	85	85	90	90	80			
			IPT	.0004	.0007	.0010	.0014	.0022	.0021	.0027	.0030	.0030			
			RPM	2310	1690	1350	1080	870	650	540	450	300			
			IPM	4	5	6	6	8	6	6	5	4			
6	0.5D	0.2D	SFM	215	245	260	255	260	265	255	245	230			
			IPT	.0006	.0010	.0014	.0020	.0028	.0029	.0037	.0041	.0041			
			RPM	6620	4950	3960	3130	2640	2030	1560	1250	880			
			IPM	16	20	22	25	30	23	23	21	15			
7	0.5D	0.2D	SFM	145	160	170	180	175	175	175	170	145			
			IPT	.0005	.0008	.0011	.0016	.0024	.0025	.0030	.0032	.0037			
			RPM	4410	3260	2610	2170	1770	1350	1080	870	550			
			IPM	8	11	12	14	17	13	13	11	8			
8	0.5D	0.2D	SFM	75	85	90	90	85	85	90	90	80			
			IPT	.0004	.0007	.0010	.0014	.0022	.0021	.0027	.0030	.0030			
			RPM	2310	1690	1350	1080	870	650	540	450	300			
			IPM	4	5	6	6	8	6	6	5	4			
9	0.5D	0.2D	SFM	75	85	90	90	85	85	90	90	80			
			IPT	.0004	.0007	.0010	.0014	.0022	.0021	.0027	.0030	.0030			
			RPM	2310	1690	1350	1080	870	650	540	450	300			
			IPM	4	5	6	6	8	6	6	5	4			
10	0.5D	0.2D	SFM	215	245	260	255	260	265	255	245	230			
			IPT	.0006	.0010	.0014	.0020	.0028	.0029	.0037	.0041	.0041			
			RPM	6620	4950	3960	3130	2640	2030	1560	1250	880			
			IPM	16	20	22	25	30	23	23	21	15			
11.1	0.5D	High alloyed steel, and tool steel	0.2D	SFM	75	85	90	90	85	85	90	90	80		
				IPT	.0004	.0007	.0010	.0014	.0022	.0021	.0027	.0030	.0030		
				RPM	2310	1690	1350	1080	870	650	540	450	300		
				IPM	4	5	6	6	8	6	6	5	4		
11.2	0.3D	0.2D	SFM	50	60	60	60	60	60	60	65	50			
			IPT	.0004	.0007	.0010	.0014	.0023	.0021	.0027	.0029	.0028			
			RPM	1600	1190	950	760	600	450	380	320	200			
			IPM	3	4	4	4	5	4	4	4	2			
M	14.1	Stainless steel	0.5D	0.2D	SFM	80	90	100	100	90	95	100	100	85	
					IPT	.0004	.0008	.0011	.0015	.0021	.0022	.0028	.0030	.0030	
					RPM	2510	1880	1500	1200	940	730	600	500	330	
					IPM	4	6	7	7	8	7	7	6	4	
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	0.2D	SFM	215	245	260	255	260	265	255	245	230	
					IPT	.0006	.0010	.0014	.0020	.0028	.0029	.0037	.0041	.0041	
					RPM	6620	4950	3960	3130	2640	2030	1560	1250	880	
					IPM	16	20	22	25	30	23	23	21	15	
H	40	Hardened Cast Iron	0.3D	0.2D	SFM	50	60	60	60	60	60	60	65	50	
					IPT	.0004	.0007	.0010	.0014	.0023	.0021	.0027	.0029	.0028	
					RPM	1600	1190	950	760	600	450	380	320	200	
					IPM	3	4	4	4	5	4	4	4	2	

SFM = Surface Feet per Minute  
 RPM = Revolutions Per Minute  
 IPT = Inches Per Tooth  
 IPM = Inches Per Minute  
 Ap : Inch (Axial Depth of Cut)  
 Ae : Inch (Radial Depth of Cut)



**GYG65**  
4FLUTE / SIDE CUTTING / INCH

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	7/8	1
P	1	Non-alloy steel	0.1D	1.5D	SFM	245	270	290	305	285	295	320	310	285	310
					IPT	.0006	.0011	.0014	.0018	.0027	.0028	.0031	.0035	.0038	.0037
					RPM	7520	5550	4410	3730	2910	2260	1950	1570	1250	1180
					IPM	18	25	24	27	31	25	24	22	19	17
	2		0.1D	1.5D	SFM	225	245	265	255	260	265	275	260	260	260
					IPT	.0006	.0010	.0012	.0018	.0025	.0026	.0030	.0035	.0033	.0035
					RPM	6820	5010	4060	3130	2640	2030	1680	1320	1130	990
					IPM	16	21	20	23	26	21	20	18	15	14
	3-4		0.1D	1.5D	SFM	165	180	195	195	195	205	195	195	190	195
					IPT	.0006	.0011	.0013	.0018	.0023	.0026	.0034	.0034	.0036	.0036
					RPM	5010	3680	2960	2410	2010	1580	1200	990	820	750
					IPM	11	16	15	17	19	16	16	14	12	11
5	0.1D	1.5D	SFM	100	125	135	135	125	130	135	130	130	130		
			IPT	.0007	.0011	.0013	.0017	.0026	.0027	.0032	.0032	.0033	.0035		
			RPM	3110	2540	2060	1680	1270	1000	820	670	560	490		
			IPM	8	11	10	11	13	11	10	9	7	7		
6	0.1D	1.5D	SFM	225	245	265	255	260	265	275	260	260	260		
			IPT	.0006	.0010	.0012	.0018	.0025	.0026	.0030	.0035	.0033	.0035		
			RPM	6820	5010	4060	3130	2640	2030	1680	1320	1130	990		
			IPM	16	21	20	23	26	21	20	18	15	14		
7	0.1D	1.5D	SFM	165	180	195	195	195	205	195	195	190	195		
			IPT	.0006	.0011	.0013	.0018	.0023	.0026	.0034	.0034	.0036	.0036		
			RPM	5010	3680	2960	2410	2010	1580	1200	990	820	750		
			IPM	11	16	15	17	19	16	16	14	12	11		
8	0.1D	1.5D	SFM	100	125	135	135	125	130	135	130	130	130		
			IPT	.0007	.0011	.0013	.0017	.0026	.0027	.0032	.0032	.0033	.0035		
			RPM	3110	2540	2060	1680	1270	1000	820	670	560	490		
			IPM	8	11	10	11	13	11	10	9	7	7		
9	0.1D	1.5D	SFM	90	105	110	115	110	105	110	110	110	115		
			IPT	.0005	.0009	.0012	.0016	.0022	.0025	.0030	.0032	.0032	.0034		
			RPM	2710	2140	1650	1400	1140	800	660	550	470	430		
			IPM	6	8	8	9	10	8	8	7	6	6		
10	0.1D	1.5D	SFM	225	245	265	255	260	265	275	260	260	260		
			IPT	.0006	.0010	.0012	.0018	.0025	.0026	.0030	.0035	.0033	.0035		
			RPM	6820	5010	4060	3130	2640	2030	1680	1320	1130	990		
			IPM	16	21	20	23	26	21	20	18	15	14		
11.1	0.1D	High alloyed steel, and tool steel	1.5D	SFM	100	125	135	135	125	130	135	130	130	130	
				IPT	.0007	.0011	.0013	.0017	.0026	.0027	.0032	.0032	.0033	.0035	
				RPM	3110	2540	2060	1680	1270	1000	820	670	560	490	
				IPM	8	11	10	11	13	11	10	9	7	7	
11.2	0.05D	1.5D	SFM	60	70	75	80	80	75	75	75	75	80		
			IPT	.0005	.0009	.0012	.0016	.0023	.0025	.0030	.0032	.0032	.0035		
			RPM	1900	1470	1150	960	800	580	460	380	330	300		
			IPM	4	6	6	6	7	6	6	5	4	4		
M	14.1	Stainless steel	0.1D	1.5D	SFM	100	115	120	125	120	120	120	120	120	120
					IPT	.0005	.0009	.0012	.0015	.0022	.0025	.0030	.0032	.0032	.0035
					RPM	3010	2340	1800	1520	1240	900	740	600	530	460
					IPM	6	8	9	9	11	9	8	7	6	6
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.1D	1.5D	SFM	225	245	265	255	260	265	275	260	260	260
					IPT	.0006	.0010	.0012	.0018	.0025	.0026	.0030	.0035	.0033	.0035
					RPM	6820	5010	4060	3130	2640	2030	1680	1320	1130	990
					IPM	16	21	20	23	26	21	20	18	15	14
H	40	Hardened Cast Iron	0.05D	1.5D	SFM	60	70	75	80	80	75	75	75	75	80
					IPT	.0005	.0009	.0012	.0016	.0023	.0025	.0030	.0032	.0032	.0035
					RPM	1900	1470	1150	960	800	580	460	380	330	300
					IPM	4	6	6	6	7	6	6	5	4	4



**ONLY ONE**

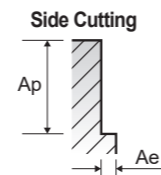


**GYG68, GYG70**

MULTI FLUTE / SIDE CUTTING / INCH

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)								
						1/4	5/16	3/8	1/2	5/8	3/4	1	1-1/4	
P	1	Non-alloy steel	0.5D	1.5D	SFM	205	235	235	235	235	235	245	175	
					IPT	.0011	.0016	.0022	.0026	.0034	.0044	.0041	.0044	
					RPM	3160	2890	2410	1800	1440	1200	940	670	
	2		0.5D	1.5D	SFM	165	185	185	175	185	185	185	185	130
					IPT	.0011	.0016	.0021	.0027	.0034	.0043	.0042	.0045	
					RPM	2510	2290	1900	1350	1140	950	710	500	
	3-4		0.5D	1.5D	SFM	120	135	130	135	130	130	130	130	90
					IPT	.0009	.0015	.0018	.0025	.0034	.0042	.0042	.0045	
					RPM	1800	1680	1340	1030	800	670	490	350	
	5		0.5D	1.5D	SFM	95	105	110	110	110	110	115	80	
					IPT	.0011	.0016	.0017	.0024	.0032	.0040	.0041	.0043	
					RPM	1450	1280	1140	850	660	550	430	300	
6	0.5D	1.5D	SFM	165	185	185	175	185	185	185	185	130		
			IPT	.0011	.0016	.0021	.0027	.0034	.0043	.0042	.0045			
			RPM	2510	2290	1900	1350	1140	950	710	500			
7	0.5D	1.5D	SFM	120	135	130	135	130	130	130	130	90		
			IPT	.0009	.0015	.0018	.0025	.0034	.0042	.0042	.0045			
			RPM	1800	1680	1340	1030	800	670	490	350			
8-9	0.5D	1.5D	SFM	95	105	110	110	110	110	115	80			
			IPT	.0011	.0016	.0017	.0024	.0032	.0040	.0041	.0043			
			RPM	1450	1280	1140	850	660	550	430	300			
10	0.5D	1.5D	SFM	165	185	185	175	185	185	185	185	130		
			IPT	.0011	.0016	.0021	.0027	.0034	.0043	.0042	.0045			
			RPM	2510	2290	1900	1350	1140	950	710	500			
11.1	0.5D	1.5D	SFM	95	105	110	110	110	110	115	80			
			IPT	.0011	.0016	.0017	.0024	.0032	.0040	.0041	.0043			
			RPM	1450	1280	1140	850	660	550	430	300			
11.2	0.3D	1.5D	SFM	70	70	80	75	75	75	80	55			
			IPT	.0011	.0016	.0018	.0023	.0032	.0040	.0039	.0042			
			RPM	1050	880	800	580	460	380	300	210			
M	14.1	Stainless steel	0.5D	1.5D	SFM	110	120	120	120	120	120	120	85	
					IPT	.0010	.0015	.0018	.0025	.0034	.0042	.0040	.0043	
					RPM	1650	1440	1200	900	720	600	460	330	
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	1.5D	SFM	165	185	185	175	185	185	185	130	
					IPT	.0011	.0016	.0021	.0027	.0034	.0043	.0042	.0045	
					RPM	2510	2290	1900	1350	1140	950	710	500	
H	40	Hardened Cast Iron	0.3D	1.5D	SFM	70	70	80	75	75	75	80	55	
					IPT	.0011	.0016	.0018	.0023	.0032	.0040	.0039	.0042	
					RPM	1050	880	800	580	460	380	300	210	
					SFM	3	4	6	5	6	6	6	5	

SFM = Surface Feet per Minute  
 RPM = Revolutions Per Minute  
 IPT = Inches Per Tooth  
 IPM = Inches Per Minute  
 Ap : Inch (Axial Depth of Cut)  
 Ae : Inch (Radial Depth of Cut)



Global Cutting Tool Leader **YG-1**



# INDEXABLE INSERTS & CUTTERS

# INDEXABLE INSERTS

## INDEXABLE INSERTS

### Turning Grades

<b>YG1001</b> P01 - P10 K10 - K25		<b>First Choice for Stable Machining of Cast Iron</b> <ul style="list-style-type: none"> <li>• Substrate especially designed for high wear resistance</li> <li>• Thick Al<sub>2</sub>O<sub>3</sub> layer ensures good wear resistance at high cutting speeds including dry machining</li> </ul>
<b>YG1010</b> K05 - K15		<b>First Choice for Cast Iron</b> <ul style="list-style-type: none"> <li>• Effective coating structure enables high speed machining</li> <li>• Special post treatment for improved chipping resistance</li> </ul>
<b>YG3020</b> P15 - P30		<b>First Choice Grade for General Steel Application</b> <ul style="list-style-type: none"> <li>• Substrate especially designed for good toughness</li> <li>• Excellent surface smoothness increases wear resistance and reliability</li> </ul>
<b>YG213</b> M20 - M35		<b>First Choice Grade on Low Cutting Speed of Stainless steel</b> <ul style="list-style-type: none"> <li>• First choice on Stainless steel for Low cutting speed</li> <li>• For Medium to low cutting speed</li> </ul>









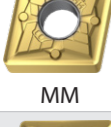


### Milling Grades

<b>YG602</b> P20 - P35 M20 - M40 K20 - K40 S15 - S25		<b>Universal grade for General Milling Application</b> <ul style="list-style-type: none"> <li>• Ultra Dense PVD Coating with optimal thermal resistance &amp; strength</li> <li>• Sub-Micron substrate designed for demanding application</li> </ul>
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### Turning - CCMT

Series	EDP	Description		Grade
		Metric	Inch	
CCMT UF UG	22000164	CCMT060204-UF	CCMT2151-UF	YG3020
	22000170	CCMT09T304-UF	CCMT3251-UF	
	22000951	CCMT09T308-UF	CCMT3252-UF	
	22000445	CCMT09T308-UG	CCMT3252-UG	YG1001
	22000167	CCMT060204-UG	CCMT2151-UG	YG3020
	22000173	CCMT09T304-UG	CCMT3251-UG	
	22000151	CCMT09T308-UG	CCMT3252-UG	
	22000176	CCMT120404-UG	CCMT431-UG	
	22000154	CCMT120408-UG	CCMT432-UG	
	22000683	CCMT060208-UG	CCMT2152-UG	
22000915	CCMT120412-UG	CCMT433-UG		

Turning - CNMA / CNMG





	Series	EDP	Description		Grade	
			Metric	Inch		
Holmaking	 NMA	22000010	CNMA120408	CNMA432	YG1001	
		22000011	CNMA120412	CNMA433		
		22000089	CNMA120404	CNMA431		
		22001188	CNMA120416	CNMA434		
Threading	 UF	22000179	CNMG120404-UF	CNMG431-UF	YG3020	
		22000190	CNMG120408-UF	CNMG432-UF		
		22001360	CNMG120412-UF	CNMG433-UF		
	 UM	22000100	CNMG120408-UM	CNMG432-UM	YG3020	
		22000185	CNMG120404-UM	CNMG431-UM		
		22000486	CNMG120412-UM	CNMG433-UM		
	 UG	22000099	CNMG120408-UG	CNMG432-UG	YG3020	
		22000182	CNMG120404-UG	CNMG431-UG		
		22000199	CNMG120412-UG	CNMG433-UG		
	Milling	 UC	22000062	CNMG120408-UC	CNMG432-UC	YG1001
			22000088	CNMG120412-UC	CNMG433-UC	
			22000096	CNMG120404-UC	CNMG431-UC	
Indexable inserts	 UR	22000196	CNMG120408-UR	CNMG432-UR	YG3020	
		22000205	CNMG120412-UR	CNMG433-UR		
		22000623	CNMG120416-UR	CNMG434-UR		
	 KR	22000718	CNMG120408-KR	CNMG432-KR	YG1001	
		22000719	CNMG120412-KR	CNMG433-KR		
	 MF	22000539	CNMG120408-MF	CNMG432-MF	YG213	
		22000613	CNMG120404-MF	CNMG431-MF		
	 MM	22000495	CNMG120408-MM	CNMG432-MM	YG213	
		22000548	CNMG120404-MM	CNMG431-MM		
		22000550	CNMG120412-MM	CNMG433-MM		
 MG	22001491	CNMG120408-MG	CNMG432-MG	YG213		
	22001494	CNMG120412-MG	CNMG433-MG			
 MR	22000541	CNMG120408-MR	CNMG432-MR	YG213		
	22000614	CNMG120412-MR	CNMG433-MR			

Turning - DCMT / DNMA / DNMG

	Series	EDP	Description		Grade	
			Metric	Inch		
Holmaking	 UF	22000208	DCMT070204-UF	DCMT2151-UF	YG3020	
		22000214	DCMT11T304-UF	DCMT3251-UF		
		22000220	DCMT11T308-UF	DCMT3252-UF		
	Threading	 UG	22000677	DCMT11T304-UG	DCMT3251-UG	YG1001
			22000678	DCMT11T308-UG	DCMT325-UG	
			22000211	DCMT070204-UG	DCMT2151-UG	YG3020
22000217			DCMT11T304-UG	DCMT3251-UG		
22000223			DCMT11T308-UG	DCMT3252-UG		
Milling	 NMA	22000573	DNMA150408	DNMA432	YG1001	
		22000575	DNMA150412	DNMA433		
		22001505	DNMA150404	DNMA431		
Indexable inserts	 UF	22000364	DNMG150404-UF	DNMG431-UF	YG3020	
		22000774	DNMG150408-UF	DNMG432-UF		
		22001368	DNMG150412-UF	DNMG433-UF		
	 UG	22000367	DNMG150408-UG	DNMG432-UG	YG3020	
		22000487	DNMG150412-UG	DNMG433-UG		
		22000772	DNMG150404-UG	DNMG431-UG		
	Milling	 UC	22000577	DNMG150408-UC	DNMG432-UC	YG1001
			22000579	DNMG150412-UC	DNMG433-UC	
	Indexable inserts	 UM	22000488	DNMG150412-UM	DNMG433-UM	YG3020
			22000689	DNMG150408-UM	DNMG432-UM	
 UR		22001096	DNMG150408-UR	DNMG432-UR	YG3020	
	22001134	DNMG150412-UR	DNMG433-UR			






**Turning - DNMG / RCMT**

Series	EDP	Description		Grade		
		Metric	Inch			
<b>DNMG</b>	 MF	22000771	DNMG150404-MF	DNMG431-MF	YG213	
		22000514	DNMG150408-MM	DNMG432-MM	YG213	
	22000552	DNMG150404-MM	DNMG431-MM			
	 MG	22001562	DNMG150408-MG	DNMG432-MG	YG213	
		 MR	22000808	DNMG150408-MR	DNMG432-MR	YG213
	22000930		DNMG150412-MR	DNMG433-MR		
	<b>RCMT</b>		22000374	RCMT0602M0		YG1001
			22000376	RCMT0602M0		
22000377			RCMT0803M0			
22000379			RCMT0803M0			
22000380			RCMT10T3M0		YG3020	
22000382			RCMT10T3M0			
22000383			RCMT1204M0			
22000385			RCMT1204M0			









**Turning - SCMT / SNMA / SNMG**

Series	EDP	Description		Grade	
		Metric	Inch		
<b>SCMT</b>	 UF	22000387	SCMT09T304-UF	SCMT3251-UF	YG3020
		22001022	SCMT09T308-UF	SCMT3252-UF	
	 UG	22000455	SCMT09T304-UG	SCMT3251-UG	YG1001
		22000456	SCMT09T308-UG	SCMT3252-UG	
		22000674	SCMT120408-UG	SCMT432-UG	
		22000916	SCMT09T304-UG	SCMT32.51-UG	YG3020
		22000160	SCMT09T308-UG	SCMT3252-UG	
		22000256	SCMT120408-UG	SCMT432-UG	
<b>SNMA</b>	 NMA	22000027	SNMA120408	SNMA432	YG1001
		22000028	SNMA120412	SNMA433	
<b>SNMG</b>	 UF	22001433	SNMG120408-UF	SNMG432-UF	YG3020
		22001459	SNMG120404-UF	SNMG431-UF	
	 UM	22000784	SNMG120408-UM	SNMG432-UM	YG3020
		 UG	22000142	SNMG120408-UG	SNMG432-UG
	22000259		SNMG120412-UG	SNMG433-UG	
	22001169		SNMG120416-UG	SNMG434-UG	
	 UC	22000073	SNMG120408-UC	SNMG432-UC	YG1001
		22000074	SNMG120412-UC	SNMG433-UC	
	 KR	22000730	SNMG120416-KR	SNMG434-KR	YG1001
		22001063	SNMG120412-KR	SNMG433-KR	









Turning - SNMG

Series	EDP	Description		Grade	
		Metric	Inch		
SNMG	 MF	22000654	SNMG120408-MF	SNMG432-MF	YG213
		22000979	SNMG120404-MF	SNMG431-MF	
		22000656	SNMG120412-MF	SNMG433-MF	
	 MM	22000556	SNMG120408-MM	SNMG432-MM	YG213
		22000562	DNMG150412-MM	DNMG433-MM	
		22000566	SNMG120412-MM	SNMG433-MM	
	 MR	22000658	SNMG120408-MR	SNMG432-MR	YG213
		22000660	SNMG120412-MR	SNMG433-MR	










Turning - TCMT / TNMA / TNMG

Series	EDP	Description		Grade	
		Metric	Inch		
TCMT	 UF	22000396	TCMT110204-UF	TCMT21.51-UF	YG3020
		22000398	TCMT16T304-UF	TCMT32.51-UF	
		22000625	TCMT16T308-UF	TCMT32.52-UF	
	 UG	22000728	TCMT110204-UG	TCMT21.51-UG	YG1001
		22000457	TCMT16T308-UG	TCMT32.52-UG	
		22000679	TCMT16T304-UG	TCMT32.51-UG	YG3020
		22000265	TCMT110204-UG	TCMT21.51-UG	
		22000715	TCMT110208-UG	TCMT21.52-UG	
		22000268	TCMT16T304-UG	TCMT32.51-UG	
22000157		TCMT16T308-UG	TCMT32.52-UG		
TNMA	 NMA	22000035	TNMA160408	TNMA332	YG1001
		22000036	TNMA160412	TNMA333	
		22001446	TNMA160404	TNMA331	
TNMG	 UF	22000271	TNMG160404-UF	TNMG331-UF	YG3020
		22000277	TNMG160408-UF	TNMG332-UF	
		22000588	TNMG160412-UF	TNMG333-UF	
	 UG	22000145	TNMG160408-UG	TNMG332-UG	YG3020
		22000274	TNMG160404-UG	TNMG331-UG	
		22000587	TNMG160412-UG	TNMG333-UG	
	 UC	22000075	TNMG160408-UC	TNMG332-UC	YG1001
		22000076	TNMG160412-UC	TNMG333-UC	
		22000399	TNMG160404-UC	TNMG331-UC	
	 UM	22000283	TNMG160408-UM	TNMG332-UM	YG3020
		22000952	TNMG160404-UM	TNMG331-UM	
		22000586	TNMG160412-UM	TNMG333-UM	
	 UR	22000670	TNMG160408-UR	TNMG332-UR	YG3020
		22000405	TNMG160412-UR	TNMG333-UR	

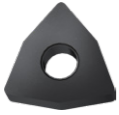
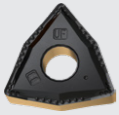
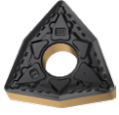
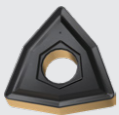
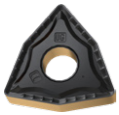


Turning - TNMG / VBMT / VCMT

Series	EDP	Description		Grade	
		Metric	Inch		
TNMG	 MF	22000775	TNMG160404-MF	TNMG331-MF	YG213
		22000776	TNMG160408-MF	TNMG332-MF	
	 MM	22000568	TNMG160404-MM	TNMG331-MM	YG213
		22000570	TNMG160408-MM	TNMG332-MM	
		22000603	TNMG160412-MM	TNMG333-MM	
	 MR	22000985	TNMG160408-MR	TNMG332-MR	YG213
		22000827	TNMG160412-MR	TNMG333-MR	YG213
	 MG	22001456	TNMG160404-MG	TNMG331-MG	YG213
		22001569	TNMG160408-MG	TNMG332-MG	
	VBMT	 UF	22000295	VBMT160404-UF	VBMT331-UF
22000301			VBMT160408-UF	VBMT332-UF	
 UG		22000681	VBMT160408-UG	VBMT332-UG	YG1001
		22000682	VBMT160404-UG	VBMT331-UG	
		22000298	VBMT160404-UG	VBMT331-UG	YG3020
		22000304	VBMT160408-UG	VBMT332-UG	
VCMT		 UF	22000421	VCMT160404-UF	VCMT331-UF
	22000558		VCMT160408-UF	VCMT332-UF	
	 UG	22000422	VCMT160408-UG	VCMT332-UG	YG3020





Turning - VNMA / VNMG

Series	EDP	Description		Grade	
		Metric	Inch		
VNMA	 NMA	22000162	VNMA160408	VNMA332	YG1001
VNMG	 UF	22000307	VNMG160404-UF	VNMG331-UF	YG3020
		22000310	VNMG160408-UF	VNMG332-UF	
	 UM	22001361	VNMG160408-UM	VNMG332-UM	YG3020
		22000737	VNMG160412-UM	VNMG333-UM	
	 UG	22000313	VNMG160408-UG	VNMG332-UG	YG3020
		22000927	VNMG160412-UG	VNMG333-UG	
		22000940	VNMG160404-UG	VNMG331-UG	
	 UC	22000094	VNMG160408-UC	VNMA332-UC	YG1001
		22000885	VNMG160404-UC	VNMG331-UC	
		22001381	VNMG160412-UC	VNMG333-UC	
 UR	22000431	VNMG160412-UR	VNMG333-UR	YG3020	
 MR	22000831	VNMG160408-MR	VNMG332-MR	YG213	
 MM	22000662	VNMG160404-MM	VNMG331-MM	YG213	
	22000664	VNMG160408-MM	VNMG332-MM		
 MF	22000947	VNMG160408-MF	VNMG332-MF	YG213	

Turning - WNMA / WNMG

Series	EDP	Description		Grade
		Metric	Inch	
<b>WNMA</b>  NMA	22000052	WNMA080404	WNMA431	YG1001
	22000053	WNMA080408	WNMA432	
	22000054	WNMA080412	WNMA433	
 UF	22000316	WNMG080404-UF	WNMG431-UF	YG3020
	22000322	WNMG080408-UF	WNMG432-UF	
	22001410	WNMG080412-UF	WNMG433-UF	
 UM	22000328	WNMG080408-UM	WNMG432-UM	YG3020
	22000584	WNMG080416-UM	WNMG434-UM	
	22000598	WNMG080412-UM	WNMG433-UM	
	22000787	WNMG080404-UM	WNMG431-UM	
 UC	22000077	WNMG080408-UC	WNMG432-UC	YG1001
	22000078	WNMG080412-UC	WNMG433-UC	
	22000097	WNMG080404-UC	WNMG431-UC	
	22001055	WNMG080416-UC	WNMG434-UC	
 UG	22000148	WNMG080408-UG	WNMG432-UG	YG3020
	22000319	WNMG080404-UG	WNMG431-UG	
	22000490	WNMG080412-UG	WNMG433-UG	
	22000583	WNMG080416-UG	WNMG434-UG	
 UR	22000443	WNMG080412-UR	WNMG433-UR	YG3020
	22000471	WNMG080408-UR	WNMG432-UR	
	22000725	WNMG080416-UR	WNMG434-UR	
 KR	22000522	WNMG080412-KR	WNMG433-KR	YG1001
	22000720	WNMG080408-KR	WNMG432-KR	

Turning - WNMG

Series	EDP	Description		Grade
		Metric	Inch	
 MF	22000618	WNMG080408-MF	WNMG432-MF	YG213
	22000668	WNMG080404-MF	WNMG431-MF	
 MM	22000498	WNMG080408-MM	WNMG432-MM	YG213
	22000572	WNMG080404-MM	WNMG431-MM	
	22000615	WNMG080412-MM	WNMG433-MM	
 MR	22000620	WNMG080408-MR	WNMG432-MR	YG213
	22000666	WNMG080412-MR	WNMG433-MR	
 MG	22001497	WNMG080408-MG	WNMG432-MG	YG213
	22001500	WNMG080412-MG	WNMG433-MG	

Milling - APKT / RDKT / RDKW / RPMT / RPMW

Series	EDP	Description		Grade	
		Metric	Inch		
APKT		12000005	APKT100305PDTR	YG602	
		12000004	APKT100308PDTR		
		12000003	APKT160404PDTR		
		12000001	APKT160408PDTR		
		12000002	APKT160412PDTR		
		12000006	APKT160416PDTR		
		12000255	APKT160424PDTR		
	ST	12000278	APKT100305-ST	YG602	
		12000270	APKT160408-ST		
	TR		12000256	APKT160408-TR	YG602
12000472			APKT160416-TR		
12000492			APKT160404-TR		
12000493			APKT160412-TR		
12000494			APKT160424-TR		
RDKT		12000035	RDKT0802M0	YG602	
		12000041	RDKT10T3M0		
		12000034	RDKT1204M0		
	ST		12000284	RDKT0802M0-TR	YG602
			12000285	RDKT10T3M0-TR	
			12000272	RDKT1204M0-TR	
TR		12000292	RDKT0802M0-ST	YG602	
		12000293	RDKT10T3M0-ST		
		12000294	RDKT1204M0-ST		
RDKW		12000043	RDKW0802M0	YG602	
		12000040	RDKW10T3M0		
		12000042	RDKW1204M0		
RPMT		12000038	RPMT08T2M0	YG602	
		12000036	RPMT10T3M0		
		12000037	RPMT1204M0		
		12000230	RPMT1204M0-TI		
RPMW		12000204	RPMW1003M0	YG602	
		12000039	RPMW1204M0		

Milling - SEKT / SPKN / SPKR / TPKN / TPKR

Series	EDP	Description		Grade		
		Metric	Inch			
SEKT		12000055	SEKT1204AFTN	YG602		
		12000056	SEKT12T3AGTN			
		12000057	SEKT13T3AGTN			
		ST	12000257		SEKT1204-ST	YG602
			12000271		SEKT12T3-ST	
SPKN		12000048	SPKN1203EDTR	SPKN42EDTR	YG602	
		12000280	SPKN1203EDTR-GW	SPKN42EDTR-GW		
		12000279	SPKN1203EDTR-PW	SPKN42EDTR-PW		
		12000049	SPKN1504EDTR	SPKN53EDTR		
		12000305	SPKN1504EDTR-GW	SPKN53EDTR-GW		
		12000299	SPKN1504EDTR-PW	SPKN53EDTR-PW		
SPKR		12000050	SPKR1203EDTR	SPKR42EDTR	YG602	
		12000298	SPKR1203EDTR-PW	SPKR42EDTR-PW		
TPKN		12000062	TPKN1603PDTR	YG602		
		12000306	TPKN1603PDTR-GW		TPKN32PDTR-GW	
		12000302	TPKN1603PDTR-PW		TPKN32PDTR-PW	
		12000063	TPKN2204PDTR		TPKN43PDTR	
		12000307	TPKN2204PDTR-GW		TPKN43PDTR-GW	
		12000303	TPKN2204PDTR-PW		TPKN43PDTR-PW	
TPKR		12000060	TPKR1603PDTR	TPKR32PDTR	YG602	
		12000300	TPKR1603PDTR-PW	TPKR32PDTR-PW		
		12000061	TPKR2204PDTR	TPKR43PDTR		
		12000301	TPKR2204PDTR-PW	TPKR43PDTR-PW		



**APKT**

Series	EDP	Description	
		Metric	Inch
<b>APKT</b>	KIT EM 0.625X.625-10	2FL ENDMILL CUTTER (.625 SHANK) WITH 10 APKT 10 INSERTS	
	KIT EM 0.750X.750-10	3FL ENDMILL CUTTER (.75 SHANK) WITH 10 APKT 10 INSERTS	
	KIT EM 1.00X.75-10	4FL ENDMILL CUTTER (3/4 SHANK) WITH 10 APKT 10 INSERTS	
	KIT EM 1.00X1.00-10	4FL ENDMILL CUTTER (1.00 SHANK) WITH 10 APKT 10 INSERTS	
	KIT EM 1.00X1.00-16	2FL ENDMILL CUTTER (1.00 SHANK) WITH 10 APTK 16 INSERTS	
	KIT EM 1.25X1.00-16	3FL ENDMILL CUTTER (1.00 SHANK) WITH 10 APKT 16 INSERTS	
	KIT FM 1.50-4FL-10	4FL FACEMILL CUTTER WITH 10 APKT 10 INSERTS	
	KIT FM 2.00-5FL-16	5FL FACEMILL CUTTER WITH 20 APKT 16 INSERTS	
	KIT FM 2.00-7FL-10	7FL FACEMILL CUTTER WITH 20APKT 10 INSERTS	
	KIT FM 2.50-6FL-16	6FL FACEMILL CUTTER WITH 20 APKT 16 INSERTS	
	KIT FM 3.00-7FL-16	7FL FACEMILL CUTTER WITH 20 APKT 16 INSERTS	
	KIT FM 4.00-8FL-16	8FL FACEMILL CUTTER WITH 20 APKT 16 INSERTS	



**RDKT / SEKT**

Series	EDP	Description	
		Metric	Inch
<b>RDKT</b>	KIT R08E-D075Z2	E-RDKT08-D075Z2C075-L700i	10 RDKT0802M0 YG602 INSERTS
	KIT R08E-D100Z3	E-RDKT08-D100Z3C075-L700i	10 RDKT0802M0 YG602 INSERTS
	KIT R10E-D100Z2	E-RDKT10-D100Z2C100-L700i	10 RDKT10T3M0 YG602 INSERTS
	KIT R10F-D150Z5	F-RDKT10-D150Z5S050i	10 RDKT10T3M0 YG602 INSERTS
	KIT R10F-D200Z6	F-RDKT10-D200Z6S075i	20 RDKT10T3M0 YG602 INSERTS
	KIT R12E-D100Z2	E-RDKT12-D100Z2C100-L700i	10 RDKT1204M0 YG602 INSERTS
	KIT R12E-D125Z2	E-RDKT12-D125Z2C125-L800i	10 RDKT1204M0 YG602 INSERTS
	KIT R12E-D125Z3	E-RDKT12-D125Z3C125-L600i	10 RDKT1204M0 YG602 INSERTS
	KIT R12F-D150Z4	F-RDKT12-D150Z4S050i	10 RDKT1204M0 YG602 INSERTS
	KIT R12F-D200Z5	F-RDKT12-D200Z5S075i	20 RDKT1204M0 YG602 INSERTS
	KIT R12F-D250Z6	F-RDKT12-D250Z6S075i	20 RDKT1204M0 YG602 INSERTS
	<b>SEKT</b>	KIT F45-SEKT-D150Z4	1.50" 45° FACEMILL WITH 10 SEKT1204 INSERTS (Z=4)
KIT F45-SEKT-D200Z5		2.00" 45° FACEMILL WITH 10 SEKT1204 INSERTS (Z=5)	
KIT F45-SEKT-D250Z4		2.50" 45° FACEMILL WITH 10 SEKT1204 INSERTS (Z=4)	
KIT F45-SEKT-D250Z6		2.50" 45° FACEMILL WITH 20 SEKT1204 INSERTS (Z=6)	
KIT F45-SEKT-D300Z4		3.00" 45° FACEMILL WITH 20 SEKT1204 INSERTS (Z=4)	
KIT F45-SEKT-D300Z7		3.00" 45° FACEMILL WITH 20 SEKT1204 INSERTS (Z=7)	
KIT F45-SEKT-D400Z8		4.00" 45° FACEMILL WITH 20 SEKT1204 INSERTS (Z=8)	
KIT F45-SEKT-D500Z10		5.00" 45° FACEMILL WITH 30 SEKT1204 INSERTS (Z=10)	
KIT F45-SEKT-D600Z12		6.00" 45° FACEMILL WITH 30 SEKT1204 INSERTS (Z=12)	