YU-YB26

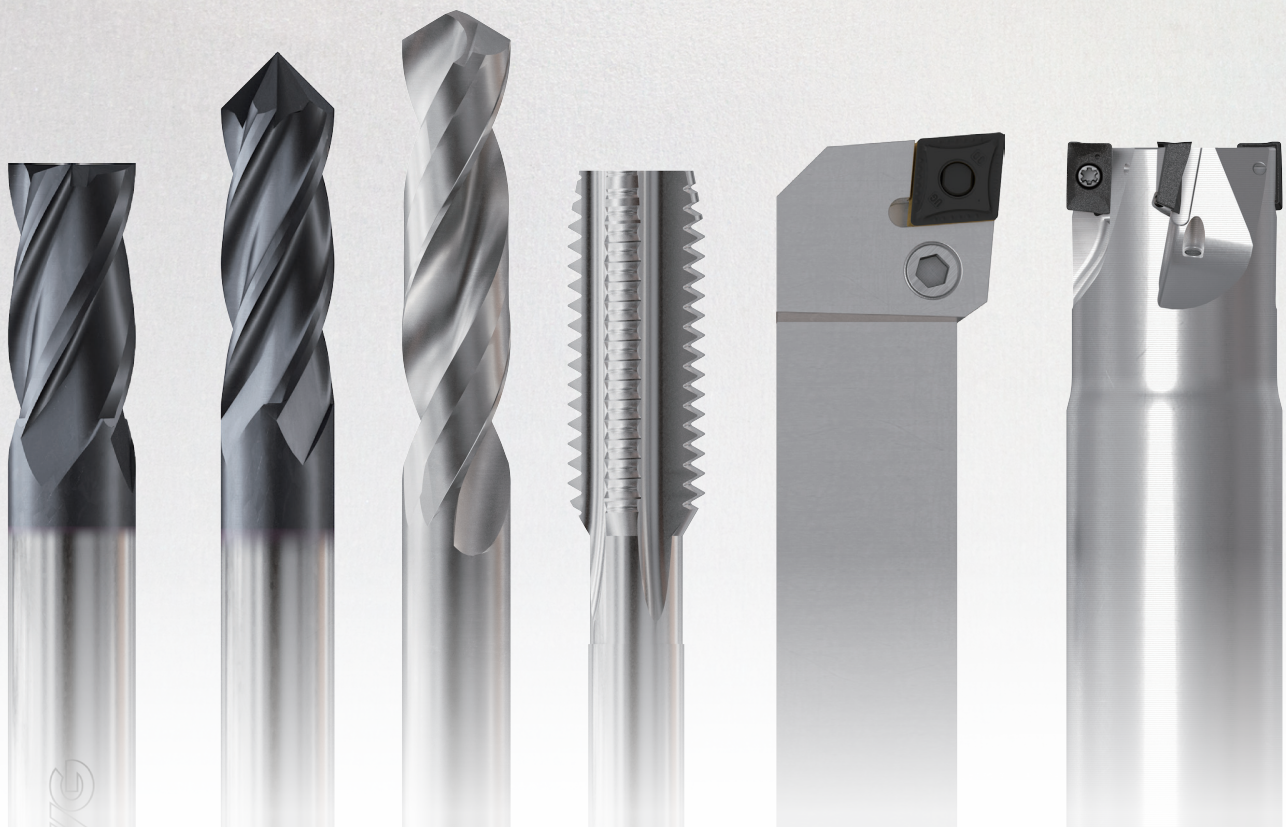
BEST VALUE IN THE WORLD OF CUTTING TOOLS

Registered
ISO 9001:2015 / ISO 14001:2015

YG

YGBasiX

Holemaking | Threading | Milling | Indexable Inserts | Rotary Tool Holders



General Purpose Tooling Solutions for General Purpose Applications

YG-1 makes it easy for you to select the right general purpose tools for your general purpose machining applications.

In addition offering reliable quality and performance, you will also discover that these products are priced to give you the best value in the world in cutting tools.

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** to explore our full range of product offerings.

If you require a custom engineered solution or product reconditioning, we can provide that as well. Just contact us, 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!

INDEX

GUIDE LINE TO ICONS

Tool Material

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

Cutting Condition

- Milling
- Holemaking
- Reaming
- Threading

Helix Angle

- 30° / 30° — End mills
- N ≈ 30° / W 38° — Drills
- R40 / R50 — Taps

The Type of Shank

- PLAIN — Plain shank (with DIN Standard)
- FLAT — Flat shank (with DIN Standard)

Tolerance of Radius

- R ±.0008 / R ±0.02 — Tolerance of Ball Radius .0008", ±0.02 mm
- R ±.001 — Tolerance of Corner Radius ±0.001"

Standard of Tools

- DIN 338 / DIN 6537 / DIN 6539
- ANSI / USCTI 302 / USCTI 302A / USCTI Long Shank

No. of Flute

- 2 / 3 / 4

Surface Treatment

- TiAlN — Titanium Aluminum Nitride Coating
- Hardslick — TiAlN + WC/C Coating
- TiN — Titanium Nitride Coating
- TiCN — Titanium Carbon Nitride Coating
- Bright — Bright Finish
- Steam Oxide — Steam Oxide

Point Angle

- 90° / 118° / 120° / 135° / 140°

Chamfer Angle

- 45° — Reamers

Chamfer Lead Acc.

- 1.5P~2P / 4P~5P / 5P/2P / 9P/5P/2P

Tolerance of Dimension

- m7 / h8 / h7 / h6 / K12 — Tolerance of Outside Diameter
- h7 / h6 — Tolerance of Shank Diameter

Thread Angle

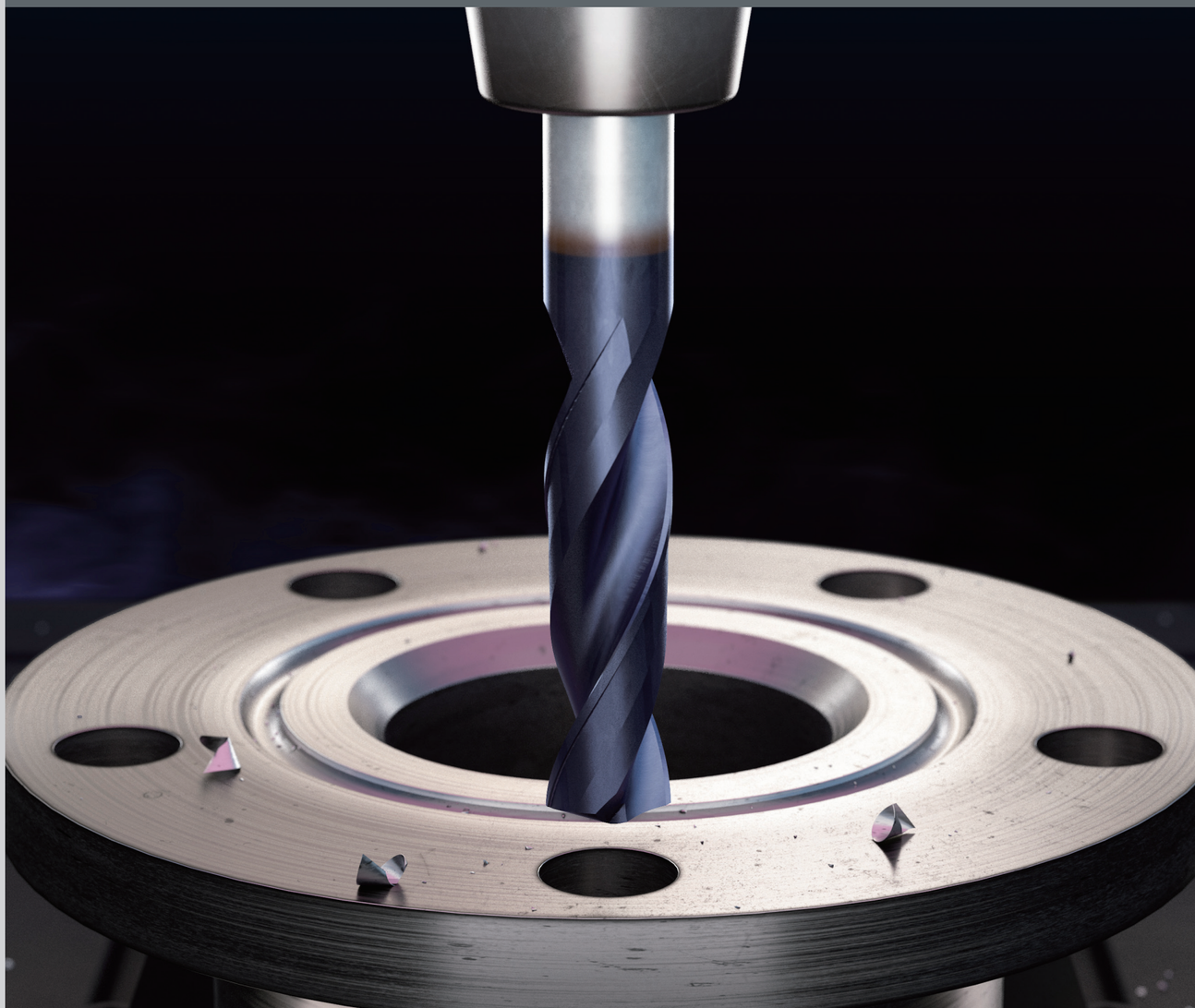
- 60°

Working Material

- Material groups GS

YG

YGBasix
SOLID CARBIDE DRILLS



SELECTION GUIDE

YGBasix SOLID CARBIDE DRILLS

- *For drilling in Steels, Cast Iron, and some Stainless Steels.*
- *R-thinning point geometry for better self-centering.*
- *Wave shaped cutting edge to reduce drilling torque resulting in longer tool life.*
- *Optimized flute shape for improved strength and better chip evacuation.*

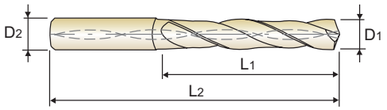
DRILLING DEPTH	3xD	5xD	3xD	5xD
COOLANT	INTERNAL	INTERNAL	EXTERNAL	EXTERNAL
SIZE MIN	D3.0	D1.0	D3.0	D1.0
SIZE MAX	D20.0	D20.0	D20.0	D20.0
PAGE	7	9	12	14
SURFACE TREATMENT	TiAlN			

◎ : Excellent ○ : Good

Recommended cutting conditions : P. 16 & 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 (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		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				

3xD COOLANT THRU



DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | TiAlN

P. 16

3 × D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Imperial	Decimal			
TiAlN	D1			D2	L1	L2
DB310030	3.0		.1181	6	20	62
DB310031	3.1		.1220	6	20	62
DB310008F	3.18	1/8	.1250	6	20	62
DB310032	3.2		.1260	6	20	62
DB310033	3.3		.1299	6	20	62
DB310034	3.4		.1339	6	20	62
DB310035	3.5		.1378	6	20	62
DB310009F	3.57	9/64	.1406	6	20	62
DB310036	3.6		.1417	6	20	62
DB310037	3.7		.1457	6	20	62
DB310038	3.8		.1496	6	24	66
DB310039	3.9		.1535	6	24	66
DB310010F	3.97	5/32	.1563	6	24	66
DB310040	4.0		.1575	6	24	66
DB310041	4.1		.1614	6	24	66
DB310042	4.2		.1654	6	24	66
DB310043	4.3		.1693	6	24	66
DB310011F	4.37	11/64	.1719	6	24	66
DB310044	4.4		.1732	6	24	66
DB310045	4.5		.1772	6	24	66
DB310046	4.6		.1811	6	24	66
DB310047	4.7		.1850	6	24	66
DB310012F	4.76	3/16	.1875	6	28	66
DB310048	4.8		.1890	6	28	66
DB310049	4.9		.1929	6	28	66
DB310050	5.0		.1969	6	28	66
DB310051	5.1		.2008	6	28	66
DB310013F	5.16	13/64	.2031	6	28	66
DB310052	5.2		.2047	6	28	66
DB310053	5.3		.2087	6	28	66
DB310054	5.4		.2126	6	28	66
DB310055	5.5		.2165	6	28	66
DB310014F	5.56	7/32	.2188	6	28	66
DB310056	5.6		.2205	6	28	66
DB310057	5.7		.2244	6	28	66
DB310058	5.8		.2283	6	28	66
DB310059	5.9		.2323	6	28	66
DB310015F	5.95	15/64	.2344	6	28	66
DB310060	6.0		.2362	6	28	66
DB310061	6.1		.2402	8	34	79
DB310062	6.2		.2441	8	34	79
DB310063	6.3		.2480	8	34	79

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Imperial	Decimal			
TiAlN	D1			D2	L1	L2
DB310016F	6.35	1/4	.2500	8	34	79
DB310064	6.4		.2520	8	34	79
DB310065	6.5		.2559	8	34	79
DB310006L	6.53	F	.2570	8	34	79
DB310066	6.6		.2598	8	34	79
DB310067	6.7		.2638	8	34	79
DB310017F	6.75	17/64	.2656	8	34	79
DB310068	6.8		.2677	8	34	79
DB310069	6.9		.2717	8	34	79
DB310009L	6.91	I	.2720	8	34	79
DB310070	7.0		.2756	8	34	79
DB310071	7.1		.2795	8	41	79
DB310018F	7.14	9/32	.2813	8	41	79
DB310072	7.2		.2835	8	41	79
DB310073	7.3		.2874	8	41	79
DB310074	7.4		.2913	8	41	79
DB310075	7.5		.2953	8	41	79
DB310019F	7.54	19/64	.2969	8	41	79
DB310076	7.6		.2992	8	41	79
DB310077	7.7		.3031	8	41	79
DB310078	7.8		.3071	8	41	79
DB310079	7.9		.3110	8	41	79
DB310020F	7.94	5/16	.3125	8	41	79
DB310080	8.0		.3150	8	41	79
DB310081	8.1		.3189	10	47	89
DB310082	8.2		.3228	10	47	89
DB310083	8.3		.3268	10	47	89
DB310021F	8.33	21/64	.3281	10	47	89
DB310084	8.4		.3307	10	47	89
DB310017L	8.43	Q	.3320	10	47	89
DB310085	8.5		.3346	10	47	89
DB310086	8.6		.3386	10	47	89
DB310087	8.7		.3425	10	47	89
DB310022F	8.73	11/32	.3438	10	47	89
DB310088	8.8		.3465	10	47	89
DB310089	8.9		.3504	10	47	89
DB310090	9.0		.3543	10	47	89
DB310091	9.1		.3583	10	47	89
DB310023F	9.13	23/64	.3594	10	47	89
DB310092	9.2		.3622	10	47	89
DB310093	9.3		.3661	10	47	89
DB310021L	9.35	U	.3680	10	47	89

▶ NEXT PAGE

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Imperial	Decimal			
TiAlN	D1			D2	L1	L2
DB310094	9.4		.3701	10	47	89
DB310095	9.5		.3740	10	47	89
DB310024F	9.53	3/8	.3750	10	47	89
DB310096	9.6		.3780	10	47	89
DB310097	9.7		.3819	10	47	89
DB310098	9.8		.3858	10	47	89
DB310099	9.9		.3898	10	47	89
DB310025F	9.92	25/64	.3906	10	47	89
DB310100	10.0		.3937	10	47	89
DB310101	10.1		.3976	12	55	102
DB310102	10.2		.4016	12	55	102
DB310103	10.3		.4055	12	55	102
DB310026F	10.32	13/32	.4063	12	55	102
DB310104	10.4		.4094	12	55	102
DB310105	10.5		.4134	12	55	102
DB310106	10.6		.4173	12	55	102
DB310107	10.7		.4213	12	55	102
DB310027F	10.72	27/64	.4219	12	55	102
DB310108	10.8		.4252	12	55	102
DB310109	10.9		.4291	12	55	102
DB310110	11.0		.4331	12	55	102
DB310111	11.1		.4370	12	55	102
DB310028F	11.11	7/16	.4375	12	55	102
DB310112	11.2		.4409	12	55	102
DB310113	11.3		.4449	12	55	102
DB310114	11.4		.4488	12	55	102
DB310115	11.5		.4528	12	55	102
DB310029F	11.51	29/64	.4531	12	55	102
DB310116	11.6		.4567	12	55	102
DB310117	11.7		.4606	12	55	102
DB310118	11.8		.4646	12	55	102
DB310119	11.9		.4685	12	55	102
DB310030F	11.91	15/32	.4688	12	55	102
DB310120	12.0		.4724	12	55	102
DB310121	12.1		.4764	14	60	107
DB310122	12.2		.4803	14	60	107
DB310123	12.3		.4843	14	60	107
DB310031F	12.30	31/64	.4844	14	60	107
DB310124	12.4		.4882	14	60	107
DB310125	12.5		.4921	14	60	107
DB310126	12.6		.4961	14	60	107
DB310032F	12.70	1/2	.5000	14	60	107
DB310128	12.8		.5039	14	60	107
DB310129	12.9		.5079	14	60	107
DB310130	13.0		.5118	14	60	107
DB310131	13.1		.5157	14	60	107
DB310132	13.2		.5197	14	60	107
DB310133	13.3		.5236	14	60	107
DB310134	13.4		.5276	14	60	107
DB310033F	13.49	17/32	.5313	14	60	107
DB310135	13.5		.5315	14	60	107
DB310136	13.6		.5354	14	60	107
DB310137	13.7		.5394	14	60	107
DB310138	13.8		.5433	14	60	107
DB310139	13.9		.5472	14	60	107
DB310140	14.0		.5512	14	60	107
DB310141	14.1		.5551	16	65	115
DB310142	14.2		.5591	16	65	115
DB310036F	14.29	9/16	.5625	16	65	115
DB310143	14.3		.5630	16	65	115
DB310144	14.4		.5669	16	65	115
DB310145	14.5		.5709	16	65	115
DB310146	14.6		.5748	16	65	115
DB310147	14.7		.5787	16	65	115
DB310148	14.8		.5827	16	65	115
DB310149	14.9		.5866	16	65	115
DB310150	15.0		.5906	16	65	115
DB310151	15.1		.5945	16	65	115
DB310152	15.2		.5984	16	65	115
DB310153	15.3		.6024	16	65	115
DB310154	15.4		.6063	16	65	115
DB310155	15.5		.6102	16	65	115
DB310156	15.6		.6142	16	65	115
DB310157	15.7		.6181	16	65	115
DB310158	15.8		.6220	16	65	115
DB310040F	15.88	5/8	.6250	16	65	115
DB310159	15.9		.6260	16	65	115
DB310160	16.0		.6299	16	65	115
DB310161	16.1		.6339	18	73	123
DB310162	16.2		.6378	18	73	123
DB310163	16.3		.6417	18	73	123
DB310164	16.4		.6457	18	73	123
DB310165	16.5		.6496	18	73	123
DB310166	16.6		.6535	18	73	123
DB310167	16.7		.6575	18	73	123
DB310168	16.8		.6614	18	73	123
DB310169	16.9		.6654	18	73	123
DB310170	17.0		.6693	18	73	123
DB310171	17.1		.6732	18	73	123
DB310172	17.2		.6772	18	73	123
DB310173	17.3		.6811	18	73	123
DB310174	17.4		.6850	18	73	123
DB310044F	17.46	11/16	.6875	18	73	123
DB310175	17.5		.6890	18	73	123
DB310176	17.6		.6929	18	73	123
DB310177	17.7		.6969	18	73	123
DB310178	17.8		.7008	18	73	123
DB310179	17.9		.7047	18	73	123
DB310180	18.0		.7087	18	73	123
DB310181	18.1		.7126	20	79	131
DB310182	18.2		.7165	20	79	131
DB310183	18.3		.7205	20	79	131
DB310184	18.4		.7244	20	79	131
DB310185	18.5		.7283	20	79	131
DB310186	18.6		.7323	20	79	131
DB310187	18.7		.7362	20	79	131
DB310188	18.8		.7402	20	79	131
DB310189	18.9		.7441	20	79	131
DB310190	19.0		.7480	20	79	131
DB310048F	19.05	3/4	.7500	20	79	131
DB310191	19.1		.7520	20	79	131
DB310192	19.2		.7559	20	79	131
DB310193	19.3		.7598	20	79	131
DB310194	19.4		.7638	20	79	131
DB310195	19.5		.7677	20	79	131
DB310196	19.6		.7717	20	79	131
DB310197	19.7		.7756	20	79	131
DB310198	19.8		.7795	20	79	131
DB310199	19.9		.7835	20	79	131
DB310200	20.0		.7874	20	79	131

5xD COOLANT THRU

DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | TiAlN P. 16

5×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Imperial	Decimal			
TiAlN	D1			D2	L1	L2
DB510010	1.0		.0394	3	8	55
DB510011	1.1		.0433	3	12	55
DB510012	1.2		.0472	3	12	55
DB510013	1.3		.0512	3	12	55
DB510014	1.4		.0551	3	12	55
DB510015	1.5		.0591	3	16	55
DB510004F	1.59	1/16	.0625	3	16	55
DB510016	1.6		.0630	3	16	55
DB510017	1.7		.0669	3	16	55
DB510018	1.8		.0709	3	16	55
DB510019	1.9		.0748	3	16	55
DB510005F	1.98	5/64	.0781	3	16	55
DB510020	2.0		.0787	4	21	57
DB510021	2.1		.0827	4	21	57
DB510022	2.2		.0866	4	21	57
DB510023	2.3		.0906	4	21	57
DB510006F	2.38	3/32	.0938	4	21	57
DB510024	2.4		.0945	4	21	57
DB510025	2.5		.0984	4	21	57
DB510026	2.6		.1024	4	21	57
DB510027	2.7		.1063	4	21	57
DB510007F	2.78	7/64	.1094	4	21	57
DB510028	2.8		.1102	4	21	57
DB510029	2.9		.1142	4	21	57
DB510030	3.0		.1181	6	28	66
DB510031	3.1		.1220	6	28	66
DB510008F	3.18	1/8	.1250	6	28	66
DB510032	3.2		.1260	6	28	66
DB510033	3.3		.1299	6	28	66
DB510034	3.4		.1339	6	28	66
DB510035	3.5		.1378	6	28	66
DB510009F	3.57	9/64	.1406	6	28	66
DB510036	3.6		.1417	6	28	66
DB510037	3.7		.1457	6	28	66
DB510038	3.8		.1496	6	36	74
DB510039	3.9		.1535	6	36	74
DB510010F	3.97	5/32	.1562	6	36	74
DB510040	4.0		.1575	6	36	74
DB510041	4.1		.1614	6	36	74
DB510042	4.2		.1654	6	36	74
DB510043	4.3		.1693	6	36	74
DB510011F	4.37	11/64	.1719	6	36	74
DB510044	4.4		.1732	6	36	74
DB510045	4.5		.1772	6	36	74
DB510046	4.6		.1811	6	36	74
DB510047	4.7		.1850	6	36	74
DB510012F	4.76	3/16	.1875	6	44	82
DB510048	4.8		.1890	6	44	82
DB510049	4.9		.1929	6	44	82
DB510050	5.0		.1969	6	44	82
DB510051	5.1		.2008	6	44	82
DB510013F	5.16	13/64	.2031	6	44	82
DB510052	5.2		.2047	6	44	82
DB510053	5.3		.2087	6	44	82
DB510054	5.4		.2126	6	44	82
DB510055	5.5		.2165	6	44	82
DB510014F	5.56	7/32	.2188	6	44	82
DB510056	5.6		.2205	6	44	82
DB510057	5.7		.2244	6	44	82
DB510058	5.8		.2283	6	44	82
DB510059	5.9		.2323	6	44	82
DB510015F	5.95	15/64	.2344	6	44	82
DB510060	6.0		.2362	6	44	82
DB510061	6.1		.2402	8	53	91
DB510062	6.2		.2441	8	53	91
DB510063	6.3		.2480	8	53	91
DB510016F	6.35	1/4	.2500	8	53	91
DB510064	6.4		.2520	8	53	91
DB510065	6.5		.2559	8	53	91
DB510006L	6.53	F	.2570	8	53	91
DB510066	6.6		.2598	8	53	91
DB510067	6.7		.2638	8	53	91
DB510017F	6.75	17/64	.2656	8	53	91
DB510068	6.8		.2677	8	53	91
DB510069	6.9		.2717	8	53	91
DB510009L	6.91	I	.2720	8	53	91
DB510070	7.0		.2756	8	53	91
DB510071	7.1		.2795	8	53	91

▶ NEXT PAGE

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Imperial	Decimal			
TiAlN	D1			D2	L1	L2
DB510018F	7.14	9/32	.2812	8	53	91
DB510072	7.2		.2835	8	53	91
DB510073	7.3		.2874	8	53	91
DB510074	7.4		.2913	8	53	91
DB510075	7.5		.2953	8	53	91
DB510019F	7.54	19/64	.2969	8	53	91
DB510076	7.6		.2992	8	53	91
DB510077	7.7		.3031	8	53	91
DB510078	7.8		.3071	8	53	91
DB510079	7.9		.3110	8	53	91
DB510020F	7.94	5/16	.3125	8	53	91
DB510080	8.0		.3150	8	53	91
DB510081	8.1		.3189	10	61	103
DB510082	8.2		.3228	10	61	103
DB510083	8.3		.3268	10	61	103
DB510021F	8.33	21/64	.3281	10	61	103
DB510084	8.4		.3307	10	61	103
DB510017L	8.43	Q	.3320	10	61	103
DB510085	8.5		.3346	10	61	103
DB510086	8.6		.3386	10	61	103
DB510087	8.7		.3425	10	61	103
DB510022F	8.73	11/32	.3438	10	61	103
DB510088	8.8		.3465	10	61	103
DB510089	8.9		.3504	10	61	103
DB510090	9.0		.3543	10	61	103
DB510091	9.1		.3583	10	61	103
DB510023F	9.13	23/64	.3594	10	61	103
DB510092	9.2		.3622	10	61	103
DB510093	9.3		.3661	10	61	103
DB510021L	9.35	U	.3680	10	61	103
DB510094	9.4		.3701	10	61	103
DB510095	9.5		.3740	10	61	103
DB510024F	9.53	3/8	.3750	10	61	103
DB510096	9.6		.3780	10	61	103
DB510097	9.7		.3819	10	61	103
DB510098	9.8		.3858	10	61	103
DB510099	9.9		.3898	10	61	103
DB510025F	9.92	25/64	.3906	10	61	103
DB510100	10.0		.3937	10	61	103
DB510101	10.1		.3976	12	71	118
DB510102	10.2		.4016	12	71	118
DB510103	10.3		.4055	12	71	118
DB510026F	10.32	13/32	.4062	12	71	118
DB510104	10.4		.4094	12	71	118
DB510105	10.5		.4134	12	71	118
DB510106	10.6		.4173	12	71	118
DB510107	10.7		.4213	12	71	118
DB510027F	10.72	27/64	.4219	12	71	118
DB510108	10.8		.4252	12	71	118
DB510109	10.9		.4291	12	71	118
DB510110	11.0		.4331	12	71	118
DB510111	11.1		.4370	12	71	118
DB510028F	11.11	7/16	.4375	12	71	118
DB510112	11.2		.4409	12	71	118
DB510113	11.3		.4449	12	71	118
DB510114	11.4		.4488	12	71	118
DB510115	11.5		.4528	12	71	118
DB510029F	11.51	29/64	.4531	12	71	118
DB510116	11.6		.4567	12	71	118
DB510117	11.7		.4606	12	71	118
DB510118	11.8		.4646	12	71	118
DB510119	11.9		.4685	12	71	118
DB510030F	11.91	15/32	.4688	12	71	118
DB510120	12.0		.4724	12	71	118
DB510121	12.1		.4764	14	77	124
DB510122	12.2		.4803	14	77	124
DB510123	12.3		.4843	14	77	124
DB510031F	12.30	31/64	.4844	14	77	124
DB510124	12.4		.4882	14	77	124
DB510125	12.5		.4921	14	77	124
DB510126	12.6		.4961	14	77	124
DB510032F	12.70	1/2	.5000	14	77	124
DB510128	12.8		.5039	14	77	124
DB510129	12.9		.5079	14	77	124
DB510130	13.0		.5118	14	77	124
DB510131	13.1		.5157	14	77	124
DB510132	13.2		.5197	14	77	124
DB510133	13.3		.5236	14	77	124
DB510134	13.4		.5276	14	77	124
DB510033F	13.49	17/32	.5313	14	77	124
DB510135	13.5		.5315	14	77	124
DB510136	13.6		.5354	14	77	124
DB510137	13.7		.5394	14	77	124
DB510138	13.8		.5433	14	77	124
DB510139	13.9		.5472	14	77	124
DB510140	14.0		.5512	14	77	124
DB510141	14.1		.5551	16	83	133
DB510142	14.2		.5591	16	83	133
DB510036F	14.29	9/16	.5625	16	83	133
DB510143	14.3		.5630	16	83	133
DB510144	14.4		.5669	16	83	133
DB510145	14.5		.5709	16	83	133
DB510146	14.6		.5748	16	83	133
DB510147	14.7		.5787	16	83	133
DB510148	14.8		.5827	16	83	133
DB510149	14.9		.5866	16	83	133
DB510150	15.0		.5906	16	83	133
DB510151	15.1		.5945	16	83	133
DB510152	15.2		.5984	16	83	133
DB510153	15.3		.6024	16	83	133
DB510154	15.4		.6063	16	83	133
DB510155	15.5		.6102	16	83	133
DB510156	15.6		.6142	16	83	133
DB510157	15.7		.6181	16	83	133
DB510158	15.8		.6220	16	83	133
DB510040F	15.88	5/8	.6250	16	83	133
DB510159	15.9		.6260	16	83	133
DB510160	16.0		.6299	16	83	133

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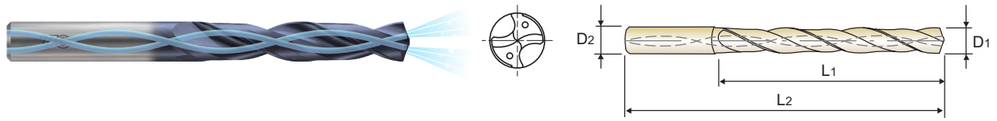
5xD COOLANT THRU



DIN 6537 | CARBIDE | h6 | m7 | 140° | 20 bar | TiAlN

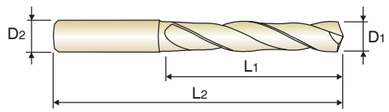
P. 16

5×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Imperial	Decimal			
TiAlN	D1			D2	L1	L2
DB510161	16.1		.6339	18	93	143
DB510162	16.2		.6378	18	93	143
DB510163	16.3		.6417	18	93	143
DB510164	16.4		.6457	18	93	143
DB510165	16.5		.6496	18	93	143
DB510166	16.6		.6535	18	93	143
DB510167	16.7		.6575	18	93	143
DB510168	16.8		.6614	18	93	143
DB510169	16.9		.6654	18	93	143
DB510170	17.0		.6693	18	93	143
DB510171	17.1		.6732	18	93	143
DB510172	17.2		.6772	18	93	143
DB510173	17.3		.6811	18	93	143
DB510174	17.4		.6850	18	93	143
DB510044F	17.46	11/16	.6875	18	93	143
DB510175	17.5		.6890	18	93	143
DB510176	17.6		.6929	18	93	143
DB510177	17.7		.6969	18	93	143
DB510178	17.8		.7008	18	93	143
DB510179	17.9		.7047	18	93	143
DB510180	18.0		.7087	18	93	143
DB510181	18.1		.7126	20	101	153
DB510182	18.2		.7165	20	101	153
DB510183	18.3		.7205	20	101	153
DB510184	18.4		.7244	20	101	153
DB510185	18.5		.7283	20	101	153
DB510186	18.6		.7323	20	101	153
DB510187	18.7		.7362	20	101	153
DB510188	18.8		.7402	20	101	153
DB510189	18.9		.7441	20	101	153
DB510190	19.0		.7480	20	101	153
DB510048F	19.05	3/4	.7500	20	101	153
DB510191	19.1		.7520	20	101	153
DB510192	19.2		.7559	20	101	153
DB510193	19.3		.7598	20	101	153
DB510194	19.4		.7638	20	101	153
DB510195	19.5		.7677	20	101	153
DB510196	19.6		.7717	20	101	153
DB510197	19.7		.7756	20	101	153
DB510198	19.8		.7795	20	101	153
DB510199	19.9		.7835	20	101	153
DB510200	20.0		.7874	20	101	153

3xD NON-COOLANT THRU



DIN 6539 | CARBIDE | h6 | h7 | 140° | TiAlN

P. 17

3 × D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Imperial	Decimal			
TiAlN	D1			D2	L1	L2
DB301030	3.0		.1181	3	16	46
DB301031	3.1		.1220	3.1	18	49
DB301008F	3.18	1/8	.1250	6	20	62
DB301032	3.2		.1260	3.2	18	49
DB301033	3.3		.1299	3.3	18	49
DB301034	3.4		.1339	3.4	20	52
DB301035	3.5		.1378	3.5	20	52
DB301009F	3.57	9/64	.1406	6	20	62
DB301036	3.6		.1417	3.6	20	52
DB301037	3.7		.1457	3.7	20	52
DB301038	3.8		.1496	3.8	22	55
DB301039	3.9		.1535	3.9	22	55
DB301010F	3.97	5/32	.1563	6	24	66
DB301040	4.0		.1575	4	22	55
DB301041	4.1		.1614	4.1	22	55
DB301042	4.2		.1654	4.2	22	55
DB301043	4.3		.1693	4.3	24	58
DB301011F	4.37	11/64	.1719	6	24	66
DB301044	4.4		.1732	4.4	24	58
DB301045	4.5		.1772	4.5	24	58
DB301046	4.6		.1811	4.6	24	58
DB301047	4.7		.1850	4.7	24	58
DB301012F	4.76	3/16	.1875	6	28	66
DB301048	4.8		.1890	4.8	26	62
DB301049	4.9		.1929	4.9	26	62
DB301050	5.0		.1969	5	26	62
DB301051	5.1		.2008	5.1	26	62
DB301013F	5.16	13/64	.2031	6	28	66
DB301052	5.2		.2047	5.2	26	62
DB301053	5.3		.2087	5.3	26	62
DB301054	5.4		.2126	5.4	28	66
DB301055	5.5		.2165	5.5	28	66
DB301014F	5.56	7/32	.2188	6	28	66
DB301056	5.6		.2205	5.6	28	66
DB301057	5.7		.2244	5.7	28	66
DB301058	5.8		.2283	5.8	28	66
DB301059	5.9		.2323	5.9	28	66
DB301015F	5.95	15/64	.2344	6	28	66
DB301060	6.0		.2362	6	28	66
DB301061	6.1		.2402	6.1	31	70
DB301062	6.2		.2441	6.2	31	70
DB301063	6.3		.2480	6.3	31	70
DB301016F	6.35	1/4	.2500	8	34	79
DB301064	6.4		.2520	6.4	31	70
DB301065	6.5		.2559	6.5	31	70
DB301066	6.6		.2598	6.6	31	70
DB301067	6.7		.2638	6.7	31	70
DB301017F	6.75	17/64	.2656	8	34	79
DB301068	6.8		.2677	6.8	34	74
DB301069	6.9		.2717	6.9	34	74
DB301070	7.0		.2756	7	34	74
DB301071	7.1		.2795	7.1	34	74
DB301018F	7.14	9/32	.2813	8	41	79
DB301072	7.2		.2835	7.2	34	74
DB301073	7.3		.2874	7.3	34	74
DB301074	7.4		.2913	7.4	34	74
DB301075	7.5		.2953	7.5	34	74
DB301019F	7.54	19/64	.2969	8	41	79
DB301076	7.6		.2992	7.6	37	79
DB301077	7.7		.3031	7.7	37	79
DB301078	7.8		.3071	7.8	37	79
DB301079	7.9		.3110	7.9	37	79
DB301020F	7.94	5/16	.3125	8	41	79
DB301080	8.0		.3150	8	37	79
DB301081	8.1		.3189	8.1	37	79
DB301082	8.2		.3228	8.2	37	79
DB301083	8.3		.3268	8.3	37	79
DB301021F	8.33	21/64	.3281	10	47	89
DB301084	8.4		.3307	8.4	37	79
DB301085	8.5		.3346	8.5	37	79
DB301086	8.6		.3386	8.6	40	84
DB301087	8.7		.3425	8.7	40	84
DB301022F	8.73	11/32	.3438	10	47	89
DB301088	8.8		.3465	8.8	40	84
DB301089	8.9		.3504	8.9	40	84
DB301090	9.0		.3543	9	40	84
DB301091	9.1		.3583	9.1	40	84
DB301023F	9.13	23/64	.3594	10	47	89

▶ NEXT PAGE

YGBasix SOLID CARBIDE DRILLS

3xD NON-COOLANT THRU

DIN 6539 | CARBIDE | h6 | h7 | 140° | TiAlN

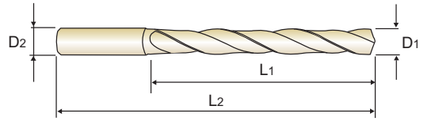
P. 17

3 × D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Imperial	Decimal			
TiAlN	D1			D2	L1	L2
DB301092	9.2		.3622	9.2	40	84
DB301093	9.3		.3661	9.3	40	84
DB301094	9.4		.3701	9.4	40	84
DB301095	9.5		.3740	9.5	40	84
DB301024F	9.53	3/8	.3750	10	47	89
DB301096	9.6		.3780	9.6	43	89
DB301097	9.7		.3819	9.7	43	89
DB301098	9.8		.3858	9.8	43	89
DB301099	9.9		.3898	9.9	43	89
DB301025F	9.92	25/64	.3906	10	47	89
DB301100	10.0		.3937	10	43	89
DB301102	10.2		.4016	10.2	43	89
DB301026F	10.32	13/32	.4063	12	55	102
DB301105	10.5		.4134	10.5	43	89
DB301027F	10.72	27/64	.4219	12	55	102
DB301110	11.0		.4331	11	47	95
DB301028F	11.11	7/16	.4375	12	55	102
DB301115	11.5		.4528	11.5	47	95
DB301029F	11.51	29/64	.4531	12	55	102
DB301030F	11.91	15/32	.4688	12	55	102
DB301120	12.0		.4724	12	51	102
DB301031F	12.30	31/64	.4844	14	60	107
DB301032F	12.70	1/2	.5000	14	60	107
DB301130	13.0		.5118	13	51	102
DB301033F	13.49	17/32	.5313	14	60	107
DB301135	13.5		.5315	13.5	54	107
DB301140	14.0		.5512	14	54	107
DB301036F	14.29	9/16	.5625	16	65	115
DB301145	14.5		.5709	14.5	56	111
DB301150	15.0		.5906	15	56	111
DB301155	15.5		.6102	15.5	58	115
DB301040F	15.88	5/8	.6250	16	65	115
DB301160	16.0		.6299	16	58	115
DB301165	16.5		.6496	16.5	60	119
DB301170	17.0		.6693	17	60	119
DB301044F	17.46	11/16	.6875	18	73	123
DB301175	17.5		.6890	17.5	62	123
DB301180	18.0		.7087	18	62	123
DB301185	18.5		.7283	18.5	64	127
DB301190	19.0		.7480	19	64	127
DB301048F	19.05	3/4	.7500	20	79	131
DB301195	19.5		.7677	19.5	66	131
DB301200	20.0		.7874	20	66	131

5xD NON-COOLANT THRU



DIN 6537 | CARBIDE | h6 | m7 | 140° | TiAlN | P. 17

5×D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Imperial	Decimal			
TiAlN	D1			D2	L1	L2
DB501010	1.0		.0394	3	8	55
DB501011	1.1		.0433	3	12	55
DB501012	1.2		.0472	3	12	55
DB501013	1.3		.0512	3	12	55
DB501014	1.4		.0551	3	12	55
DB501015	1.5		.0591	3	16	55
DB501004F	1.59	1/16	.0625	3	16	55
DB501016	1.6		.0630	3	16	55
DB501017	1.7		.0669	3	16	55
DB501018	1.8		.0709	3	16	55
DB501019	1.9		.0748	3	16	55
DB501005F	1.98	5/64	.0781	3	16	55
DB501020	2.0		.0787	4	21	57
DB501021	2.1		.0827	4	21	57
DB501022	2.2		.0866	4	21	57
DB501023	2.3		.0906	4	21	57
DB501006F	2.38	3/32	.0938	4	21	57
DB501024	2.4		.0945	4	21	57
DB501025	2.5		.0984	4	21	57
DB501026	2.6		.1024	4	21	57
DB501027	2.7		.1063	4	21	57
DB501007F	2.78	7/64	.1094	4	21	57
DB501028	2.8		.1102	4	21	57
DB501029	2.9		.1142	4	21	57
DB501030	3.0		.1181	6	28	66
DB501031	3.1		.1220	6	28	66
DB501008F	3.18	1/8	.1250	6	28	66
DB501032	3.2		.1260	6	28	66
DB501033	3.3		.1299	6	28	66
DB501034	3.4		.1339	6	28	66
DB501035	3.5		.1378	6	28	66
DB501009F	3.57	9/64	.1406	6	28	66
DB501036	3.6		.1417	6	28	66
DB501037	3.7		.1457	6	28	66
DB501038	3.8		.1496	6	36	74
DB501039	3.9		.1535	6	36	74
DB501010F	3.97	5/32	.1563	6	36	74
DB501040	4.0		.1575	6	36	74
DB501041	4.1		.1614	6	36	74
DB501042	4.2		.1654	6	36	74
DB501043	4.3		.1693	6	36	74
DB501011F	4.37	11/64	.1719	6	36	74
DB501044	4.4		.1732	6	36	74
DB501045	4.5		.1772	6	36	74
DB501046	4.6		.1811	6	36	74
DB501047	4.7		.1850	6	36	74
DB501012F	4.76	3/16	.1875	6	44	82
DB501048	4.8		.1890	6	44	82
DB501049	4.9		.1929	6	44	82
DB501050	5.0		.1969	6	44	82
DB501051	5.1		.2008	6	44	82
DB501013F	5.16	13/64	.2031	6	44	82
DB501052	5.2		.2047	6	44	82
DB501053	5.3		.2087	6	44	82
DB501054	5.4		.2126	6	44	82
DB501055	5.5		.2165	6	44	82
DB501014F	5.56	7/32	.2188	6	44	82
DB501056	5.6		.2205	6	44	82
DB501057	5.7		.2244	6	44	82
DB501058	5.8		.2283	6	44	82
DB501059	5.9		.2323	6	44	82
DB501015F	5.95	15/64	.2344	6	44	82
DB501060	6.0		.2362	6	44	82
DB501061	6.1		.2402	8	53	91
DB501062	6.2		.2441	8	53	91
DB501063	6.3		.2480	8	53	91
DB501016F	6.35	1/4	.2500	8	53	91
DB501064	6.4		.2520	8	53	91
DB501065	6.5		.2559	8	53	91
DB501066	6.6		.2598	8	53	91
DB501067	6.7		.2638	8	53	91
DB501017F	6.75	17/64	.2656	8	53	91
DB501068	6.8		.2677	8	53	91
DB501069	6.9		.2717	8	53	91
DB501070	7.0		.2756	8	53	91
DB501071	7.1		.2795	8	53	91

▶ NEXT PAGE

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Imperial	Decimal			
TiAlN	D1			D2	L1	L2
DB501018F	7.14	9/32	.2813	8	53	91
DB501072	7.2		.2835	8	53	91
DB501073	7.3		.2874	8	53	91
DB501074	7.4		.2913	8	53	91
DB501075	7.5		.2953	8	53	91
DB501019F	7.54	19/64	.2969	8	53	91
DB501076	7.6		.2992	8	53	91
DB501077	7.7		.3031	8	53	91
DB501078	7.8		.3071	8	53	91
DB501079	7.9		.3110	8	53	91
DB501020F	7.94	5/16	.3125	8	53	91
DB501080	8.0		.3150	8	53	91
DB501081	8.1		.3189	10	61	103
DB501082	8.2		.3228	10	61	103
DB501083	8.3		.3268	10	61	103
DB501021F	8.33	21/64	.3281	10	61	103
DB501084	8.4		.3307	10	61	103
DB501085	8.5		.3346	10	61	103
DB501086	8.6		.3386	10	61	103
DB501087	8.7		.3425	10	61	103
DB501022F	8.73	11/32	.3438	10	61	103
DB501088	8.8		.3465	10	61	103
DB501089	8.9		.3504	10	61	103
DB501090	9.0		.3543	10	61	103
DB501091	9.1		.3583	10	61	103
DB501023F	9.13	23/64	.3594	10	61	103
DB501092	9.2		.3622	10	61	103
DB501093	9.3		.3661	10	61	103
DB501094	9.4		.3701	10	61	103
DB501095	9.5		.3740	10	61	103
DB501024F	9.53	3/8	.3750	10	61	103
DB501096	9.6		.3780	10	61	103
DB501097	9.7		.3819	10	61	103
DB501098	9.8		.3858	10	61	103
DB501099	9.9		.3898	10	61	103
DB501025F	9.92	25/64	.3906	10	61	103
DB501100	10.0		.3937	10	61	103
DB501101	10.1		.3976	12	71	118
DB501102	10.2		.4016	12	71	118
DB501103	10.3		.4055	12	71	118
DB501026F	10.32	13/32	.4063	12	71	118
DB501104	10.4		.4094	12	71	118
DB501105	10.5		.4134	12	71	118
DB501106	10.6		.4173	12	71	118
DB501107	10.7		.4213	12	71	118
DB501027F	10.72	27/64	.4219	12	71	118
DB501108	10.8		.4252	12	71	118
DB501109	10.9		.4291	12	71	118
DB501110	11.0		.4331	12	71	118
DB501111	11.1		.4370	12	71	118
DB501028F	11.11	7/16	.4375	12	71	118
DB501112	11.2		.4409	12	71	118
DB501113	11.3		.4449	12	71	118
DB501114	11.4		.4488	12	71	118
DB501115	11.5		.4528	12	71	118
DB501029F	11.51	29/64	.4531	12	71	118
DB501116	11.6		.4567	12	71	118
DB501117	11.7		.4606	12	71	118
DB501118	11.8		.4646	12	71	118
DB501119	11.9		.4685	12	71	118
DB501030F	11.91	15/32	.4688	12	71	118
DB501120	12.0		.4724	12	71	118
DB501031F	12.30	31/64	.4844	14	77	124
DB501125	12.5		.4921	14	77	124
DB501032F	12.70	1/2	.5000	14	77	124
DB501130	13.0		.5118	14	77	124
DB501033F	13.49	17/32	.5315	14	77	124
DB501135	13.5		.5315	14	77	124
DB501140	14.0		.5512	14	77	124
DB501036F	14.29	9/16	.5625	16	83	133
DB501145	14.5		.5709	16	83	133
DB501150	15.0		.5906	16	83	133
DB501155	15.5		.6102	16	83	133
DB501040F	15.88	5/8	.6250	16	83	133
DB501160	16.0		.6299	16	83	133
DB501165	16.5		.6496	18	93	143
DB501170	17.0		.6693	18	93	143
DB501044F	17.46	11/16	.6875	18	93	143
DB501175	17.5		.6890	18	93	143
DB501180	18.0		.7087	18	93	143
DB501185	18.5		.7283	20	101	153
DB501190	19.0		.7480	20	101	153
DB501048F	19.05	3/4	.7500	20	101	153
DB501195	19.5		.7677	20	101	153
DB501200	20.0		.7874	20	101	153

RECOMMENDED CUTTING CONDITIONS

Drills with Coolant Holes

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

ISO	VDI 3323	Material Description	SFM	Drill Diameter										
				METRIC	3.0	-	4.0	-	5.0	6.0	-	-	8.0	-	10.0
				FRACTIONAL	-	1/8	-	3/16	-	-	1/4	5/16	-	3/8	-
				DECIMAL	.1181	.1250	.1575	.1875	.1969	.2362	.2500	.3125	.3150	.3750	.3937
P	1-2	Non-alloy steel	230 ~ 265	FEED	.0024 - .0047		.0031 - .0055		.0055 - .0079	.0063 - .0087		.0071 - .0094		.0075 - .0106	
	3		230 ~ 265	FEED	.0024 - .0047		.0031 - .0055		.0055 - .0079	.0063 - .0087		.0071 - .0094		.0075 - .0106	
	4		230 ~ 265	FEED	.0016 - .0039		.0028 - .0051		.0039 - .0063	.0047 - .0071		.0055 - .0079		.0059 - .0091	
	5		180 ~ 210	FEED	.0016 - .0039		.0028 - .0051		.0039 - .0063	.0047 - .0071		.0055 - .0079		.0059 - .0091	
	6	Low alloy steel	230 ~ 265	FEED	.0024 - .0047		.0031 - .0055		.0055 - .0079	.0063 - .0087		.0071 - .0094		.0075 - .0106	
	7		190 ~ 230	FEED	.0024 - .0047		.0031 - .0055		.0039 - .0079	.0047 - .0094		.0063 - .0110		.0075 - .0106	
	8		190 ~ 230	FEED	.0016 - .0039		.0028 - .0051		.0039 - .0063	.0047 - .0071		.0055 - .0079		.0059 - .0091	
	9		85 ~ 105	FEED	.0012 - .0031		.0020 - .0043		.0031 - .0055	.0039 - .0063		.0047 - .0071		.0051 - .0075	
	10	High alloyed steel, and tool steel	160 ~ 200	FEED	.0016 - .0039		.0028 - .0051		.0039 - .0063	.0047 - .0071		.0055 - .0079		.0059 - .0091	
	11		85 ~ 105	FEED	.0012 - .0031		.0020 - .0043		.0031 - .0055	.0039 - .0063		.0047 - .0071		.0051 - .0075	
M	12	Stainless steel	160 ~ 190	FEED	.0024 - .0047		.0031 - .0055		.0055 - .0079	.0063 - .0087		.0071 - .0094		.0075 - .0106	
	13		100 ~ 120	FEED	.0016 - .0039		.0028 - .0051		.0039 - .0063	.0047 - .0071		.0055 - .0079		.0059 - .0091	
K	15	Grey cast iron	230 ~ 265	FEED	.0031 - .0055		.0047 - .0071		.0059 - .0087	.0079 - .0102		.0087 - .0110		.0098 - .0130	
	16		190 ~ 210	FEED	.0024 - .0047		.0031 - .0055		.0055 - .0079	.0063 - .0087		.0071 - .0094		.0075 - .0106	
	17	Nodular cast iron	230 ~ 265	FEED	.0031 - .0055		.0047 - .0071		.0059 - .0087	.0079 - .0102		.0087 - .0110		.0098 - .0130	
	18		160 ~ 185	FEED	.0024 - .0047		.0031 - .0055		.0055 - .0079	.0063 - .0087		.0071 - .0094		.0075 - .0106	
	19	Malleable cast iron	190 ~ 210	FEED	.0031 - .0055		.0047 - .0071		.0059 - .0087	.0079 - .0102		.0087 - .0110		.0098 - .0130	
	20		160 ~ 185	FEED	.0024 - .0047		.0031 - .0055		.0055 - .0079	.0063 - .0087		.0071 - .0094		.0075 - .0106	

ISO	VDI 3323	Material Description	SFM	Drill Diameter									
				METRIC	12.0	-	14.0	-	-	16.0	18.0	-	20.0
				FRACTIONAL	-	1/2	-	9/16	5/8	-	-	3/4	-
				DECIMAL	.4724	.5000	.5512	.5625	.6250	.6299	.7087	.7500	.7874
P	1-2	Non-alloy steel	230 ~ 265	FEED	.0083 - .0114	.0083 - .0114	.0091 - .0122		.0098 - .0130		.0110 - .0150	.0110 - .0150	.0118 - .0157
	3		230 ~ 265	FEED	.0083 - .0114	.0083 - .0114	.0091 - .0122		.0098 - .0130		.0110 - .0150	.0110 - .0150	.0118 - .0157
	4		230 ~ 265	FEED	.0067 - .0098	.0067 - .0098	.0071 - .0102		.0075 - .0106		.0079 - .0118	.0079 - .0118	.0087 - .0126
	5		180 ~ 210	FEED	.0067 - .0098	.0067 - .0098	.0071 - .0102		.0075 - .0106		.0079 - .0118	.0079 - .0118	.0087 - .0126
	6	Low alloy steel	230 ~ 265	FEED	.0083 - .0114	.0083 - .0114	.0091 - .0122		.0098 - .0130		.0110 - .0150	.0110 - .0150	.0118 - .0157
	7		190 ~ 230	FEED	.0083 - .0114	.0083 - .0114	.0091 - .0122		.0098 - .0130		.0110 - .0150	.0110 - .0150	.0118 - .0157
	8		190 ~ 230	FEED	.0067 - .0098	.0067 - .0098	.0071 - .0102		.0075 - .0106		.0079 - .0118	.0079 - .0118	.0087 - .0126
	9		85 ~ 105	FEED	.0055 - .0079	.0055 - .0079	.0059 - .0083		.0063 - .0087		.0067 - .0098	.0063 - .0102	.0071 - .0110
	10	High alloyed steel, and tool steel	160 ~ 200	FEED	.0067 - .0098	.0067 - .0098	.0071 - .0102		.0075 - .0106		.0079 - .0118	.0079 - .0118	.0087 - .0126
	11		85 ~ 105	FEED	.0055 - .0079	.0055 - .0079	.0059 - .0083		.0063 - .0087		.0067 - .0098	.0063 - .0102	.0071 - .0110
M	12	Stainless steel	160 ~ 190	FEED	.0083 - .0114	.0083 - .0114	.0091 - .0122		.0098 - .0130		.0110 - .0150	.0110 - .0150	.0118 - .0157
	13		100 ~ 120	FEED	.0067 - .0098	.0067 - .0098	.0071 - .0102		.0075 - .0106		.0079 - .0118	.0079 - .0118	.0087 - .0126
K	15	Grey cast iron	230 ~ 265	FEED	.0106 - .0138	.0106 - .0138	.0114 - .0146		.0122 - .0154		.0126 - .0165	.0126 - .0165	.0134 - .0173
	16		190 ~ 210	FEED	.0083 - .0114	.0083 - .0114	.0091 - .0122		.0098 - .0130		.0110 - .0150	.0110 - .0150	.0118 - .0157
	17	Nodular cast iron	230 ~ 265	FEED	.0106 - .0138	.0106 - .0138	.0114 - .0146		.0122 - .0154		.0126 - .0165	.0126 - .0165	.0134 - .0173
	18		160 ~ 185	FEED	.0083 - .0114	.0083 - .0114	.0091 - .0122		.0098 - .0130		.0110 - .0150	.0110 - .0150	.0118 - .0157
	19	Malleable cast iron	190 ~ 210	FEED	.0106 - .0138	.0106 - .0138	.0114 - .0146		.0122 - .0154		.0126 - .0165	.0126 - .0165	.0134 - .0173
	20		160 ~ 185	FEED	.0083 - .0114	.0083 - .0114	.0091 - .0122		.0098 - .0130		.0110 - .0150	.0110 - .0150	.0118 - .0157

RECOMMENDED CUTTING CONDITIONS

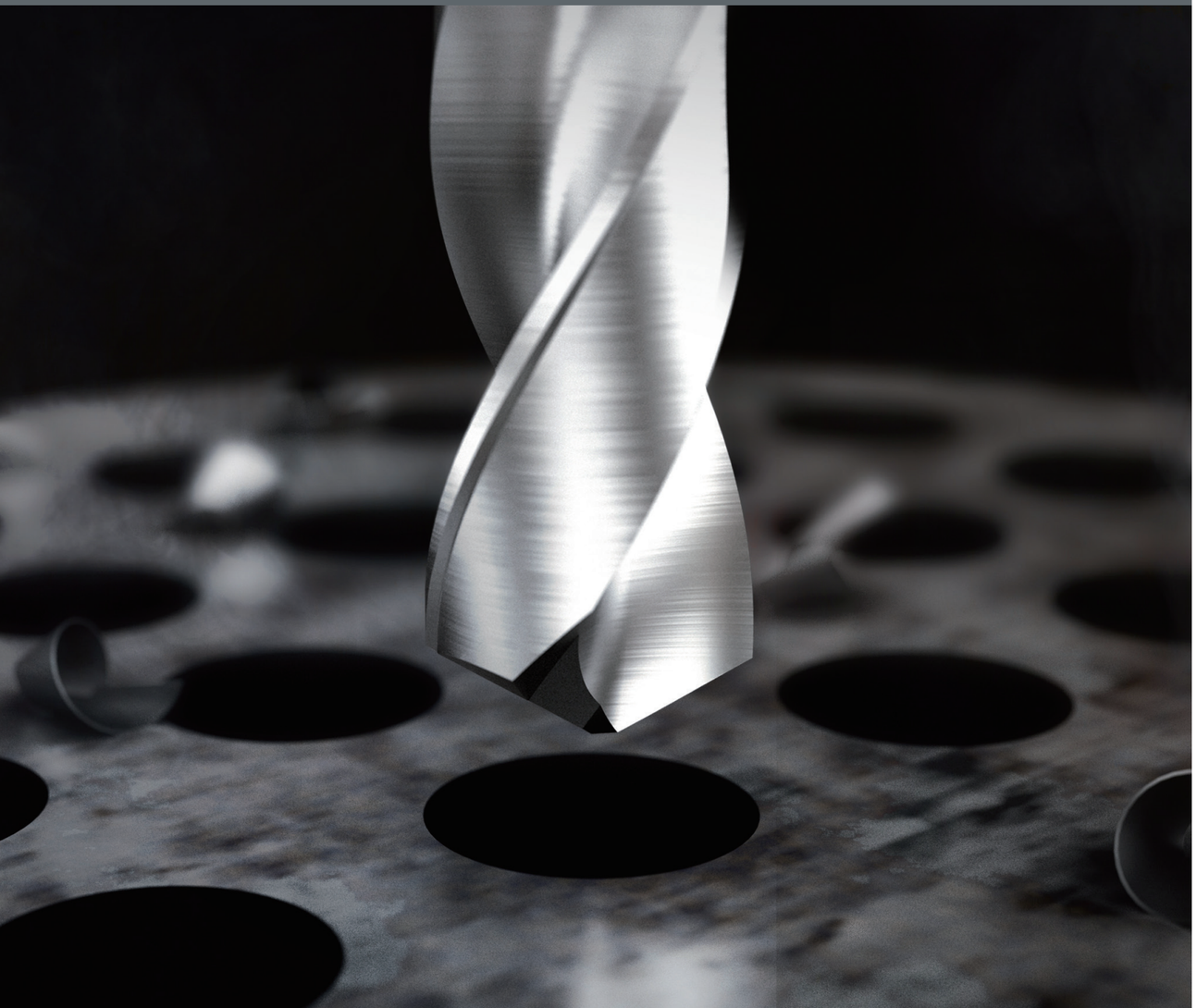
Drills without Coolant Holes

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

ISO	VDI 3323	Material Description	SFM	Drill Diameter										
				METRIC	3.0	-	4.0	-	5.0	6.0	-	-	8.0	-	10.0
				FRACTIONAL	-	1/8	-	3/16	-	-	1/4	5/16	-	3/8	-
				DECIMAL	.1181	.1250	.1575	.1875	.1969	.2362	.2500	.3125	.3150	.3750	.3937
P	1-2	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		85 ~ 105	FEED	.0012- .0031		.002- .0043		.0031- .0055	.0039- .0063		.0047- .0071		.0055- .0079	
	10	High alloyed steel, and tool steel	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	
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	
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	

ISO	VDI 3323	Material Description	SFM	Drill Diameter									
				METRIC	12.0	-	14.0	-	-	16.0	18.0	-	20.0
				FRACTIONAL	-	1/2	-	9/16	5/8	-	-	3/4	-
				DECIMAL	.4724	.5000	.5512	.5625	.6250	.6299	.7087	.7500	.7874
P	1-2	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		85 ~ 105	FEED	.0047- .0087	.0047- .0087	.0051- .0091		.0055- .0094		.0063- .0102	.0063- .0102	.0071- .011
	10	High alloyed steel, and tool steel	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

CARBIDE JOBBER DRILL



SELECTION GUIDE

MATERIAL	CARBIDE
WIRE SIZES	#56 - #1
LETTER SIZES	A - Z
FRACTIONAL SIZES	3/64" - 1/2"
PAGE	20 - 21
SURFACE TREATMENT	Bright/TiAlN

CARBIDE JOBBER DRILLS

- *For drilling steels, cast iron, stainless steel, aluminum and other non-ferrous materials*
- *Diameters greater than .1181" have special split point geometry*
- *118° for easy entry into workpiece*
- *Available as uncoated or TiAlN coated*

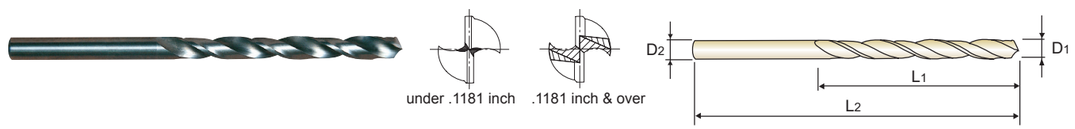
◎ : Excellent ○ : Good

Recommended cutting conditions : P. 22

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		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	

CARBIDE JOBBER DRILLS

- For drilling steels, cast iron, stainless steel, aluminum and other non-ferrous materials.
- Uncoated or TiAlN coated



CARBIDE | 30° | h6 | h7 | 118° | P. 22

Unit: Inch

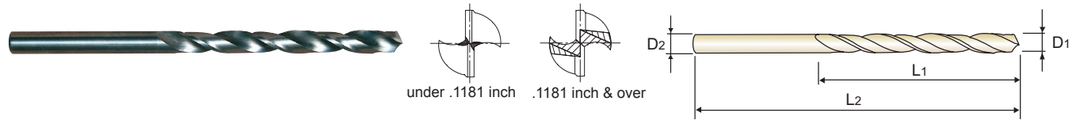
EDP No.	EDP No.	Diameter				Flute Lgth.	Overall Lgth.
		Fract.	Letter	Wire	Dec.		
Uncoated	TiAlN	D1 = D2				L1	L2
D5412156	DH412156			56	.0465	3/4	1-1/2
D5417003	DH417003	3/64			.0469	3/4	1-1/2
D5412155	DH412155			55	.0520	3/4	1-1/2
D5412154	DH412154			54	.0550	3/4	1-1/2
D5412153	DH412153			53	.0595	3/4	1-1/2
D5417004	DH417004	1/16			.0625	3/4	1-1/2
D5412152	DH412152			52	.0635	3/4	1-1/2
D5412151	DH412151			51	.0670	3/4	1-1/2
D5412150	DH412150			50	.0700	7/8	1-3/4
D5412149	DH412149			49	.0730	7/8	1-3/4
D5412148	DH412148			48	.0760	7/8	1-3/4
D5417005	DH417005	5/64			.0781	7/8	1-3/4
D5412147	DH412147			47	.0785	7/8	1-3/4
D5412146	DH412146			46	.0810	7/8	1-3/4
D5412145	DH412145			45	.0820	7/8	1-3/4
D5412144	DH412144			44	.0860	1	2
D5412143	DH412143			43	.0890	1	2
D5412142	DH412142			42	.0935	1	2
D5417006	DH417006	3/32			.0938	1	2
D5412141	DH412141			41	.0960	1	2
D5412140	DH412140			40	.0980	1	2
D5412139	DH412139			39	.0995	1-1/4	2-1/4
D5412138	DH412138			38	.1015	1-1/4	2-1/4
D5412137	DH412137			37	.1040	1-1/4	2-1/4
D5412136	DH412136			36	.1065	1-1/4	2-1/4
D5417007	DH417007	7/64			.1094	1-1/4	2-1/4
D5412135	DH412135			35	.1100	1-1/4	2-1/4
D5412134	DH412134			34	.1110	1-1/4	2-1/4
D5412133	DH412133			33	.1130	1-1/4	2-1/4
D5412132	DH412132			32	.1160	1-1/4	2-1/4
D5412131	DH412131			31	.1200	1-1/4	2-1/4
D5417008	DH417008	1/8			.1250	1-1/4	2-1/4
D5412130	DH412130			30	.1285	1-1/4	2-1/4
D5412129	DH412129			29	.1360	1-3/8	2-1/2

EDP No.	EDP No.	Diameter				Flute Lgth.	Overall Lgth.
		Fract.	Letter	Wire	Dec.		
Uncoated	TiAlN	D1 = D2				L1	L2
D5412128	DH412128			28	.1405	1-3/8	2-1/2
D5417009	DH417009	9/64			.1406	1-3/8	2-1/2
D5412127	DH412127			27	.1440	1-3/8	2-1/2
D5412126	DH412126			26	.1470	1-3/8	2-1/2
D5412125	DH412125			25	.1495	1-3/8	2-1/2
D5412124	DH412124			24	.1520	1-3/8	2-1/2
D5412123	DH412123			23	.1540	1-3/8	2-1/2
D5417010	DH417010	5/32			.1563	1-3/8	2-1/2
D5412122	DH412122			22	.1570	1-3/8	2-1/2
D5412121	DH412121			21	.1590	1-3/8	2-1/2
D5412120	DH412120			20	.1610	1-3/8	2-1/2
D5412119	DH412119			19	.1660	1-5/8	2-3/4
D5412118	DH412118			18	.1695	1-5/8	2-3/4
D5417011	DH417011	11/64			.1719	1-5/8	2-3/4
D5412117	DH412117			17	.1730	1-5/8	2-3/4
D5412116	DH412116			16	.1770	1-5/8	2-3/4
D5412115	DH412115			15	.1800	1-5/8	2-3/4
D5412114	DH412114			14	.1820	1-5/8	2-3/4
D5412113	DH412113			13	.1850	1-5/8	2-3/4
D5417012	DH417012	3/16			.1875	1-5/8	2-3/4
D5412112	DH412112			12	.1890	1-7/8	2-3/4
D5412111	DH412111			11	.1910	1-5/8	2-3/4
D5412110	DH412110			10	.1935	1-5/8	2-3/4
D5412109	DH412109			9	.1960	1-3/4	3
D5412108	DH412108			8	.1990	1-3/4	3
D5412107	DH412107			7	.2010	1-3/4	3
D5417013	DH417013	13/64			.2031	1-3/4	3
D5412106	DH412106			6	.2040	1-3/4	3
D5412105	DH412105			5	.2055	1-3/4	3
D5412104	DH412104			4	.2090	1-3/4	3
D5412103	DH412103			3	.2130	1-3/4	3
D5417014	DH417014	7/32			.2188	1-3/4	3
D5412102	DH412102			2	.2210	1-3/4	3
D5412101	DH412101			1	.2280	1-3/4	3

▶ NEXT PAGE

CARBIDE JOBBER DRILLS

- For drilling steels, cast iron, stainless steel, aluminum and other non-ferrous materials.
- Uncoated or TiAlN coated



CARBIDE | 30° | h6 | h7 | 118° | P. 22

Unit: Inch

EDP No.	EDP No.	Diameter				Flute Lgth.	Overall Lgth.
		Fract.	Letter	Wire	Dec.		
Uncoated	TiAlN	D1 = D2				L1	L2
D5413201	DH413201		A		.2340	2	3-1/4
D5417015	DH417015	15/64			.2344	2	3-1/4
D5413202	DH413202		B		.2380	2	3-1/4
D5413203	DH413203		C		.2420	2	3-1/4
D5413204	DH413204		D		.2460	2	3-1/4
D5417016	DH417016	1/4	E		.2500	2	3-1/4
D5413206	DH413206		F		.2570	2	3-1/4
D5413207	DH413207		G		.2610	2-1/8	3-1/2
D5417017	DH417017	17/64			.2656	2-1/8	3-1/2
D5413208	DH413208		H		.2660	2-1/8	3-1/2
D5413209	DH413209		I		.2720	2-1/8	3-1/2
D5413210	DH413210		J		.2770	2-1/8	3-1/2
D5413211	DH413211		K		.2810	2-1/8	3-1/2
D5417018	DH417018	9/32			.2813	2-1/8	3-1/2
D5413212	DH413212		L		.2900	2-1/8	3-1/2
D5413213	DH413213		M		.2950	2-3/8	3-3/4
D5417019	DH417019	19/64			.2969	2-3/8	3-3/4
D5413214	DH413214		N		.3020	2-3/8	3-3/4
D5417020	DH417020	5/16			.3125	2-3/8	3-3/4
D5413215	DH413215		O		.3160	2-3/8	3-3/4
D5413216	DH413216		P		.3230	2-3/8	3-3/4
D5417021	DH417021	21/64			.3281	2-1/2	4

EDP No.	EDP No.	Diameter				Flute Lgth.	Overall Lgth.
		Fract.	Letter	Wire	Dec.		
Uncoated	TiAlN	D1 = D2				L1	L2
D5413217	DH413217		Q		.3320	2-1/2	4
D5413218	DH413218		R		.3390	2-1/2	4
D5417022	DH417022	11/32			.3438	2-1/2	4
D5413219	DH413219		S		.3480	2-1/2	4
D5413220	DH413220		T		.3580	2-3/4	4-1/4
D5417023	DH417023	23/64			.3594	2-3/4	4-1/4
D5413221	DH413221		U		.3680	2-3/4	4-1/4
D5417024	DH417024	3/8			.3750	2-3/4	4-1/4
D5413222	DH413222		V		.3770	2-3/4	4-1/4
D5413223	DH413223		W		.3860	2-7/8	4-1/2
D5417025	DH417025	25/64			.3906	2-7/8	4-1/2
D5413224	DH413224		X		.3970	2-7/8	4-1/2
D5413225	DH413225		Y		.4040	2-7/8	4-1/2
D5417026	DH417026	13/32			.4063	2-7/8	4-1/2
D5413226	DH413226		Z		.4130	2-7/8	4-1/2
D5417027	DH417027	27/64			.4219	2-7/8	4-1/2
D5417028	DH417028	7/16			.4375	2-7/8	4-1/2
D5417029	DH417029	29/64			.4531	3	4-3/4
D5417030	DH417030	15/32			.4688	3	4-3/4
D5417031	DH417031	31/64			.4844	3	4-3/4
D5417032	DH417032	1/2			.5000	3	4-3/4

CARBIDE JOBBER DRILLS

RECOMMENDED CUTTING CONDITIONS

DH412, DH413, DH417, D5412, D5413, D5417 SERIES

JOBBER LENGTH CARBIDE DRILLS

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

ISO	VDI 3323	Material Description	SFM	Drill Diameter			SFM	Drill Diameter			
				METRIC	1.0	2.0		METRIC	3.0	-	4.0
				FRACTIONAL	-	-		FRACTIONAL	-	1/8	-
				DECIMAL	.0394	.0787		DECIMAL	.1181	.1250	.1575
P	1	Non-alloy steel	180	RPM	17510	8750	230	RPM	7430		5570
				FEED	.0008 - .0012	.0008 - .0016		FEED	.0012 - .0020		.0012 - .0024
	2		150	RPM	14320	7160	200	RPM	6,370		4770
				FEED	.0008 - .0012	.0008 - .0016		FEED	.0012 - .0020		.0012 - .0024
	6	Low alloy steel	115	RPM	11140	5570	165	RPM	5310		3980
				FEED	.0008 - .0012	.0008 - .0016		FEED	.0012 - .0020		.0012 - .0024
M	12	Stainless steel	50	RPM	4770	2390	80	RPM	2650		1990
				FEED	.0004 - .0008	.0004 - .0012		FEED	.0008 - .0016		.0008 - .0020
K	15	Grey cast iron	80	RPM	7960	3980	150	RPM	4770		3580
				FEED	.0012 - .0016	.0012 - .0020		FEED	.0016 - .0024		.0016 - .0028
N	21	Aluminum-wrought alloy	330	RPM	31830	15920	460	RPM	14850		11140
				FEED	.0016 - .0020	.0016 - .0024		FEED	.0020 - .0028		.0020 - .0031
	22		295	RPM	28650	14320	395	RPM	12730		9550
				FEED	.0016 - .0020	.0016 - .0024		FEED	.0020 - .0028		.0020 - .0031
	23	Aluminum-cast, alloyed	230	RPM	22280	11140	330	RPM	10610		7960
				FEED	.0016 - .0020	.0016 - .0024		FEED	.0020 - .0028		.0020 - .0031
	24		200	RPM	19100	9550	260	RPM	8490		6370
				FEED	.0016 - .0020	.0016 - .0024		FEED	.0020 - .0028		.0020 - .0031
S	36	Titanium Alloys	30	RPM	3180	1590	65	RPM	2120		1590
				FEED	.0004 - .0008	.0004 - .0012		FEED	.0008 - .0016		.0008 - .0020

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

ISO	VDI 3323	Material Description	SFM	Drill Diameter										
				METRIC	-	5.0	6.0	-	-	8.0	-	10.0	12.0	-	13.0
				FRACTIONAL	3/16	-	-	1/4	5/16	-	3/8	-	-	1/2	-
				DECIMAL	.1875	.1969	.2362	.2500	.3125	.3150	.3750	.3937	.4724	.5000	.5118
P	1	Non-alloy steel	230	RPM	4460		3710		2790		2230		1860	1710	
				FEED	.0016 - .0028		.0020 - .0031		.0028 - .0039		.0031 - .0047		.0039 - .0055	.0047 - .0063	
	2		200	RPM	3820		3180		2390		1910		1590	1470	
				FEED	.0016 - .0028		.0020 - .0031		.0028 - .0039		.0031 - .0047		.0039 - .0055	.0047 - .0063	
	6	Low alloy steel	165	RPM	3180		2650		1990		1590		1330	1220	
				FEED	.0016 - .0028		.0020 - .0031		.0028 - .0039		.0031 - .0047		.0039 - .0055	.0047 - .0063	
M	12	Stainless steel	80	RPM	1590		1330		990		800		660	610	
				FEED	.0012 - .0024		.0016 - .0028		.0024 - .0035		.0028 - .0043		.0031 - .0047	.0035 - .0051	
K	15	Grey cast iron	150	RPM	2860		2390		1790		1430		1190	1,100	
				FEED	.0020 - .0031		.0024 - .0035		.0035 - .0047		.0047 - .0063		.0055 - .0071	.0063 - .0079	
N	21	Aluminum-wrought alloy	460	RPM	8910		7430		5570		4460		3710	3430	
				FEED	.0024 - .0035		.0031 - .0043		.0047 - .0059		.0059 - .0075		.0075 - .0091	.0083 - .0098	
	22		395	RPM	7640		6370		4770		3820		3180	2940	
				FEED	.0024 - .0035		.0031 - .0043		.0047 - .0059		.0059 - .0075		.0075 - .0091	.0083 - .0098	
	23	Aluminum-cast, alloyed	330	RPM	6370		5310		3980		3180		2650	2450	
				FEED	.0024 - .0035		.0031 - .0043		.0047 - .0059		.0059 - .0075		.0075 - .0091	.0083 - .0098	
	24		260	RPM	5090		4240		3180		2550		2120	1960	
				FEED	.0024 - .0035		.0031 - .0043		.0047 - .0059		.0059 - .0075		.0075 - .0091	.0083 - .0098	
S	36	Titanium Alloys	65	RPM	1270		1060		800		640		530	490	
				FEED	.0012 - .0024		.0016 - .0028		.0024 - .0035		.0028 - .0043		.0031 - .0047	.0035 - .0051	

HSS / HSSCo JOBBER DRILLS

SELECTION GUIDE

GOLD-P & BLACK OXIDE JOBBER DRILLS

- *For drilling in steels, cast iron, stainless steel, aluminum, and other non-ferrous materials*
- *HSS, HSSCo5, and HSSCo8*
- *Bright shank with TiN coating on working part*
- *Right-hand helix, straight shank*
- *Standard and Parabolic Flute*

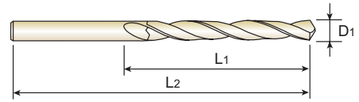
MATERIAL	HSS		HSSCo	
TYPE	Standard		Standard	Parabolic
WIRE SIZES	#80 - #1	#56 - #1	#80 - #1	#47 - #1
LETTER SIZES	A - Z			
FRACTIONAL SIZES	1/64" - 3/4"		1/64" - 1/2"	5/64" - 9/16"
METRIC SIZES			1.0mm - 18.0mm	2.0mm - 14.5mm
PAGE	25		27	30
SURFACE TREATMENT	TiN	Black Oxide	TiN	

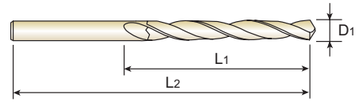
◎ : Excellent ○ : Good

Recommended cutting conditions : P. 32

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		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				

- For drilling in steels, cast iron, stainless steel, aluminum, and other non-ferrous materials





▶ **Point Angle:** Under 1/16" : 118° Standard point
#61 ~ #80 : 118° point

1/16" and larger : 135° Split point
#1 ~ #60 : 135° point

P. 32

Unit: Inch

Gold-P Drill EDP No.	HSS Drill EDP No.	Diamater Fract.	Ltr.	Wire	Dec.	Flute Lgth.	Overall Lgth.
TiN Coated	Black Oxide	D1 = D2				L1	L2
D1138177*				80	.0135	1/8	3/4
D1138178*				79	.0145	1/8	3/4
D1182001*	D1783002	1/64			.0156	3/16	3/4
D1138179*				78	.0160	3/16	7/8
D1138180*				77	.0180	3/16	7/8
D1138181*				76	.0200	3/16	7/8
D1138182*				75	.0210	1/4	1
D1138183*				74	.0225	1/4	1
D1138184*				73	.0240	5/16	1-1/8
D1138185*				72	.0250	5/16	1-1/8
D1138186*				71	.0260	3/8	1-1/4
D1138187*				70	.0280	3/8	1-1/4
D1138188*				69	.0292	1/2	1-3/8
D1138189*				68	.0310	1/2	1-3/8
D1182002*	D1783003	1/32			.0313	1/2	1-3/8
D1138190*				67	.0320	1/2	1-3/8
D1138191*				66	.0330	1/2	1-3/8
D1138192*				65	.0350	5/8	1-1/2
D1138193*				64	.0360	5/8	1-1/2
D1138194*				63	.0370	5/8	1-1/2
D1138195*				62	.0380	5/8	1-1/2
D1138196*				61	.0390	11/16	1-5/8
D1GP138197				60	.0400	11/16	1-5/8
D1GP138198				59	.0410	11/16	1-5/8
D1GP138199				58	.0420	11/16	1-5/8
D1GP138200				57	.0430	3/4	1-3/4
D1GP134201	D1781210			56	.0465	3/4	1-3/4
D1GP113003	D1783001	3/64			.0469	3/4	1-3/4
D1GP134202	D1781209			55	.0520	7/8	1-7/8
D1GP134203	D1781208			54	.0550	7/8	1-7/8
D1GP134204	D1781207			53	.0595	7/8	1-7/8
D1GP182004	D1783004	1/16			.0625	7/8	1-7/8
D1GP138205	D1781206			52	.0635	7/8	1-7/8
D1GP138206	D1781205			51	.0670	1	2
D1GP138207	D1781204			50	.0700	1	2
D1GP138208	D1781203			49	.0730	1	2

Gold-P Drill EDP No.	HSS Drill EDP No.	Diamater Fract.	Ltr.	Wire	Dec.	Flute Lgth.	Overall Lgth.
TiN Coated	Black Oxide	D1 = D2				L1	L2
D1GP138209	D1781202			48	.0760	1	2
D1GP182005	D1783005	5/64			.0781	1	2
D1GP138210	D1781201			47	.0785	1	2
D1GP138211	D1784211N			46	.0810	1-1/8	2-1/8
D1GP138212	D1784212N			45	.0820	1-1/8	2-1/8
D1GP138213	D1784213N			44	.0860	1-1/8	2-1/8
D1GP138214	D1784214N			43	.0890	1-1/4	2-1/4
D1GP138215	D1784215N			42	.0935	1-1/4	2-1/4
D1GP182006	D1786006N	3/32			.0938	1-1/4	2-1/4
D1GP138216	D1784216N			41	.0960	1-3/8	2-3/8
D1GP138217	D1784217N			40	.0980	1-3/8	2-3/8
D1GP138218	D1784218N			39	.0995	1-3/8	2-3/8
D1GP138219	D1784219N			38	.1015	1-7/16	2-1/2
D1GP138220	D1784220N			37	.1040	1-7/16	2-1/2
D1GP138221	D1784221N			36	.1065	1-7/16	2-1/2
D1GP182007	D1786007N	7/64			.1094	1-1/2	2-5/8
D1GP138222	D1784222N			35	.1100	1-1/2	2-5/8
D1GP138223	D1784223N			34	.1110	1-1/2	2-5/8
D1GP138224	D1784224N			33	.1130	1-1/2	2-5/8
D1GP138225	D1784225N			32	.1160	1-5/8	2-3/4
D1GP138226	D1784226N			31	.1200	1-5/8	2-3/4
D1GP182008	D1786008N	1/8			.1250	1-5/8	2-3/4
D1GP138227	D1784227N			30	.1285	1-5/8	2-3/4
D1GP138228	D1784228N			29	.1360	1-3/4	2-7/8
D1GP138229	D1784229N			28	.1405	1-3/4	2-7/8
D1GP182009	D1786009N	9/64			.1406	1-3/4	2-7/8
D1GP138230	D1784230N			27	.1440	1-7/8	3
D1GP138231	D1784231N			26	.1470	1-7/8	3
D1GP138232	D1784232N			25	.1495	1-7/8	3
D1GP138233	D1784233N			24	.1520	2	3-1/8
D1GP138234	D1784234N			23	.1540	2	3-1/8
D1GP182010	D1786010N	5/32			.1563	2	3-1/8
D1GP138235	D1784235N			22	.1570	2	3-1/8
D1GP138236	D1784236N			21	.1590	2-1/8	3-1/4
D1GP138237	D1784237N			20	.1610	2-1/8	3-1/4
D1GP138238	D1784238N			19	.1660	2-1/8	3-1/4

*Bright Finish

▶ NEXT PAGE

1/64" thru 5/16" = 10 pcs per pack
21/64" thru 37/64" = 5 pcs per pack
19/32" thru 3/4" = 3 pcs per pack

Letter A thru P = 10 pcs per pack
Letter Q thru Z = 5 pcs per pack

All wire sizes = 10 pcs per pack

1.0mm thru 8.3mm = 10 pcs per pack
8.4mm thru 18.0mm = 5 pcs per pack

HSS JOBBER DRILLS

Unit: Inch

Gold-P Drill	HSS Drill	Diamater				Flute Lgth.	Overall Lgth.
EDP No.	EDP No.	Fract.	Ltr.	Wire	Dec.		
TiN Coated	Black Oxide	D1 = D2				L1	L2
D1GP138239	D1784239N			18	.1695	2-1/8	3-1/4
D1GP182011	D1786011N	11/64			.1719	2-1/8	3-1/4
D1GP138240	D1784240N			17	.1730	2-3/16	3-3/8
D1GP138241	D1784241N			16	.1770	2-3/16	3-3/8
D1GP138242	D1784242N			15	.1800	2-3/16	3-3/8
D1GP138243	D1784243N			14	.1820	2-3/16	3-3/8
D1GP138244	D1784244N			13	.1850	2-5/16	3-1/2
D1GP182012	D1786012N	3/16			.1875	2-5/16	3-1/2
D1GP138245	D1784245N			12	.1890	2-5/16	3-1/2
D1GP138246	D1784246N			11	.1910	2-5/16	3-1/2
D1GP138247	D1784247N			10	.1935	2-7/16	3-5/8
D1GP138248	D1784248N			9	.1960	2-7/16	3-5/8
D1GP138249	D1784249N			8	.1990	2-7/16	3-5/8
D1GP138250	D1784250N			7	.2010	2-7/16	3-5/8
D1GP182013	D1786013N	13/64			.2031	2-7/16	3-5/8
D1GP138251	D1784251N			6	.2040	2-1/2	3-3/4
D1GP138252	D1784252N			5	.2055	2-1/2	3-3/4
D1GP138253	D1784253N			4	.2090	2-1/2	3-3/4
D1GP138254	D1784254N			3	.2130	2-1/2	3-3/4
D1GP182014	D1786014N	7/32			.2188	2-1/2	3-3/4
D1GP138255	D1784255N			2	.2210	2-5/8	3-7/8
D1GP138256	D1784256N			1	.2280	2-5/8	3-7/8
D1GP139101	D1785101N		A		.2340	2-5/8	3-7/8
D1GP182015	D1786015N	15/64			.2344	2-5/8	3-7/8
D1GP139102	D1785102N		B		.2380	2-3/4	4
D1GP139103	D1785103N		C		.2420	2-3/4	4
D1GP139104	D1785104N		D		.2460	2-3/4	4
D1GP182016	D1786016N	1/4	E		.2500	2-3/4	4
D1GP139106	D1785106N		F		.2570	2-7/8	4-1/8
D1GP139107	D1785107N		G		.2610	2-7/8	4-1/8
D1GP182017	D1786017N	17/64			.2656	2-7/8	4-1/8
D1GP139108	D1785108N		H		.2660	2-7/8	4-1/8
D1GP139109	D1785109N		I		.2720	2-7/8	4-1/8
D1GP139110	D1785110N		J		.2770	2-7/8	4-1/8
D1GP139111	D1785111N		K		.2810	2-15/16	4-1/4
D1GP182018	D1786018N	9/32			.2813	2-15/16	4-1/4
D1GP139112	D1785112N		L		.2900	2-15/16	4-1/4
D1GP139113	D1785113N		M		.2950	3-1/16	4-3/8
D1GP182019	D1786019N	19/64			.2969	3-1/16	4-3/8
D1GP139114	D1785114N		N		.3020	3-1/16	4-3/8

Gold-P Drill	HSS Drill	Diamater				Flute Lgth.	Overall Lgth.
EDP No.	EDP No.	Fract.	Ltr.	Wire	Dec.		
TiN Coated	Black Oxide	D1 = D2				L1	L2
D1GP182020	D1786020N	5/16			.3125	3-3/16	4-1/2
D1GP139115	D1785115N		O		.3160	3-3/16	4-1/2
D1GP139116	D1785116N		P		.3230	3-5/16	4-5/8
D1GP182021	D1786021N	21/64			.3281	3-5/16	4-5/8
D1GP139117	D1785117N		Q		.3320	3-7/16	4-3/4
D1GP139118	D1785118N		R		.3390	3-7/16	4-3/4
D1GP182022	D1786022N	11/32			.3438	3-7/16	4-3/4
D1GP139119	D1785119N		S		.3480	3-1/2	4-7/8
D1GP139120	D1785120N		T		.3580	3-1/2	4-7/8
D1GP182023	D1786023N	23/64			.3594	3-1/2	4-7/8
D1GP139121	D1785121N		U		.3680	3-5/8	5
D1GP182024	D1786024N	3/8			.3750	3-5/8	5
D1GP139122	D1785122N		V		.3770	3-5/8	5
D1GP139123	D1785123N		W		.3860	3-3/4	5-1/8
D1GP182025	D1786025N	25/64			.3906	3-3/4	5-1/8
D1GP139124	D1785124N		X		.3970	3-3/4	5-1/8
D1GP139125	D1785125N		Y		.4040	3-7/8	5-1/4
D1GP182026	D1786026N	13/32			.4063	3-7/8	5-1/4
D1GP139126	D1785126N		Z		.4130	3-7/8	5-1/4
D1GP182027	D1786027N	27/64			.4219	3-5/16	5-3/8
D1GP182028	D1786028N	7/16			.4375	4-1/16	5-1/2
D1GP182029	D1786029N	29/64			.4531	4-3/16	5-5/8
D1GP182030	D1786030N	15/32			.4688	4-5/16	5-3/4
D1GP182031	D1786031N	31/64			.4844	4-3/8	5-7/8
D1GP182032	D1786032N	1/2			.5000	4-1/2	6
D8182033	D1786033N	33/64			.5156	4-13/16	6-5/8
D8182034	D1786034N	17/32			.5313	4-13/16	6-5/8
D8182035	D1786035N	35/64			.5469	4-13/16	6-5/8
D8182036	D1786036N	9/16			.5625	4-13/16	6-5/8
D8182037	D1786037N	37/64			.5781	4-13/16	6-5/8
D8182038	D1786038N	19/32			.5938	5-3/16	7-1/8
D8182039	D1786039N	39/64			.6094	5-3/16	7-1/8
D8182040	D1786040N	5/8			.6250	5-3/16	7-1/8
D8182042	D1786042N	21/32			.6563	5-3/16	7-1/8
D8182044	D1786044N	11/16			.6875	5-5/8	7-5/8
D8182045	D1786045N	45/64			.7031	5-5/8	9-1/2
D8182046	D1786046N	23/32			.7188	5-5/8	9-1/2
D8182047	D1786047N	47/64			.7344	5-5/8	9-3/4
D8182048	D1786048N	3/4			.7500	5-7/8	9-3/4

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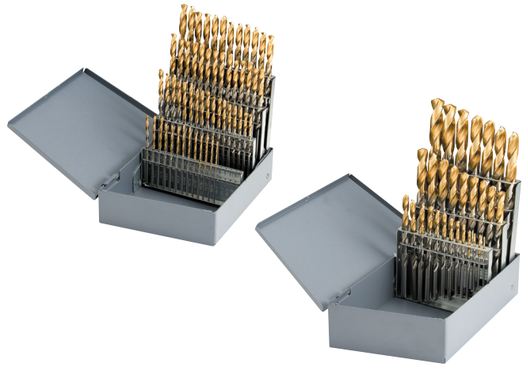
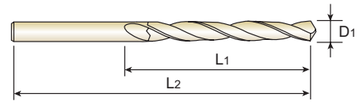
HSS JOBBER DRILL SETS

EDP No.	Description	SIZE	QUANTITY
D1GP138SET	Gold-P, Wire Size Set	#1~#56	56 pcs
D1GP139SET	Gold-P, Letter Size Set	A~Z	26 pcs
D1GP182SET	Gold-P, Fractional Size Set	1/16"~ 1/2"	29 pcs
D1SET1061	Black Oxide, Letter Size Set	A~Z	26 pcs
D1SET1062	Black Oxide, Fractional Size Set	1/16" ~ 1/2"	29 pcs



HSSCo JOBBER DRILLS

- For drilling in steels, cast iron, stainless steel, aluminum, and other non-ferrous materials



▶ **Point Angle:** Under 1/16" : 118° Standard point
#61 ~ #80 : 118° point

1/16" and larger : 135° Split point
#1 ~ #60 : 135° point

P. 32

Unit: Inch

Gold-P Drill	Diamater					Flute Length	Overall Length
EDP No.	Metric	Fract.	Letter	Wire	Decimal		
TiN Coated	D1 = D2					L1	L2
D2187177*	.34			80	.0135	1/8	3/4
D2187178*	.37			79	.0145	1/8	3/4
D2185001*	.40	1/64			.0156	3/16	3/4
D2187179*	.41			78	.0160	3/16	7/8
D2187180*	.46			77	.0180	3/16	7/8
D2187181*	.51			76	.0200	3/16	7/8
D2187182*	.53			75	.0210	1/4	1
D2187183*	.57			74	.0225	1/4	1
D2187184*	.61			73	.0240	5/16	1-1/8
D2187185*	.64			72	.0250	5/16	1-1/8
D2187186*	.66			71	.0260	3/8	1-1/4
D2187187*	.71			70	.0280	3/8	1-1/4
D2187188*	.74			69	.0292	1/2	1-3/8
D2187189*	.79			68	.0310	1/2	1-3/8
D2185002*	.80	1/32			.0313	1/2	1-3/8
D2187190*	.81			67	.0320	1/2	1-3/8
D2187191*	.84			66	.0330	1/2	1-3/8
D2187192*	.89			65	.0350	5/8	1-1/2
D2187193*	.91			64	.0360	5/8	1-1/2
D2187194*	.94			63	.0370	5/8	1-1/2
D2187195*	.97			62	.0380	5/8	1-1/2
D2187196*	.99			61	.0390	11/16	1-5/8
DLGP195010	1.00				.0394	12mm	34mm
D2GP187197	1.02			60	.0400	11/16	1-5/8
D2GP187198	1.04			59	.0410	11/16	1-5/8
D2GP187199	1.07			58	.0420	11/16	1-5/8
D2GP187200	1.09			57	.0430	3/4	1-3/4
DLGP195011	1.10				.0433	12mm	36mm
D2GP187201	1.18			56	.0465	3/4	1-3/4
D2GP185003	1.19	3/64			.0469	3/4	1-3/4
DLGP195012	1.20				.0472	16mm	38mm
DLGP195013	1.30				.0512	16mm	38mm
D2GP187202	1.32			55	.0520	7/8	1-7/8
D2GP187203	1.40			54	.0550	7/8	1-7/8
DLGP195014	1.40				.0551	18mm	40mm
DLGP195015	1.50				.0591	18mm	40mm
D2GP187204	1.51			53	.0595	7/8	1-7/8
D2GP185004	1.59	1/16			.0625	7/8	1-7/8
DLGP195016	1.60				.0630	20mm	43mm

Gold-P Drill	Diamater					Flute Length	Overall Length
EDP No.	Metric	Fract.	Letter	Wire	Decimal		
TiN Coated	D1 = D2					L1	L2
D2GP187205	1.61			52	.0635	7/8	1-7/8
DLGP195017	1.70				.0669	20mm	43mm
D2GP187206	1.70			51	.0670	1	2
D2GP187207	1.78			50	.0700	1	2
DLGP195018	1.80				.0709	22mm	46mm
D2GP187208	1.85			49	.0730	1	2
DLGP195019	1.90				.0748	22mm	46mm
D2GP187209	1.93			48	.0760	1	2
D2GP185005	1.98	5/64			.0781	1	2
D2GP187210	1.99			47	.0785	1	2
DLGP195020	2.00				.0787	24mm	49mm
D2GP187211	2.06			46	.0810	1-1/8	2-1/8
D2GP187212	2.08			45	.0820	1-1/8	2-1/8
DLGP195021	2.10				.0827	24mm	49mm
D2GP187213	2.18			44	.0860	1-1/8	2-1/8
DLGP195022	2.20				.0866	27mm	53mm
D2GP187214	2.26			43	.0890	1-1/4	2-1/4
DLGP195023	2.30				.0906	27mm	53mm
D2GP187215	2.37			42	.0935	1-1/4	2-1/4
D2GP185006	2.38	3/32			.0938	1-1/4	2-1/4
DLGP195024	2.40				.0945	30mm	57mm
D2GP187216	2.44			41	.0960	1-3/8	2-3/8
D2GP187217	2.49			40	.0980	1-3/8	2-3/8
DLGP195025	2.50				.0984	30mm	57mm
D2GP187218	2.53			39	.0995	1-3/8	2-3/8
D2GP187219	2.58			38	.1015	1-7/16	2-1/2
DLGP195026	2.60				.1024	30mm	57mm
D2GP187220	2.64			37	.1040	1-7/16	2-1/2
DLGP195027	2.70				.1063	33mm	61mm
D2GP187221	2.71			36	.1065	1-7/16	2-1/2
D2GP185007	2.78	7/64			.1094	1-1/2	2-5/8
D2GP187222	2.79			35	.1100	1-1/2	2-5/8
DLGP195028	2.80				.1102	33mm	61mm
D2GP187223	2.82			34	.1110	1-1/2	2-5/8
D2GP187224	2.87			33	.1130	1-1/2	2-5/8
DLGP195029	2.90				.1142	33mm	61mm
D2GP187225	2.95			32	.1160	1-5/8	2-3/4
DLGP195030	3.00				.1181	33mm	61mm
D2GP187226	3.05			31	.1200	1-5/8	2-3/4

*Bright Finish

▶ NEXT PAGE

1/64" thru 5/16" = 10 pcs per pack
21/64" thru 37/64" = 5 pcs per pack
19/32" thru 3/4" = 3 pcs per pack

Letter A thru P = 10 pcs per pack
Letter Q thru Z = 5 pcs per pack

All wire sizes = 10 pcs per pack

1.0mm thru 8.3mm = 10 pcs per pack
8.4mm thru 18.0mm = 5 pcs per pack

HSSCo JOBBER DRILLS

Unit: Inch

Gold-P Drill	Diamater					Flute Length	Overall Length
EDP No.	Metric	Fract.	Letter	Wire	Decimal		
TiN Coated	D1 = D2					L1	L2
DLGP195031	3.10				.1220	36mm	65mm
D2GP185008	3.18	1/8			.1250	1-5/8	2-3/4
DLGP195032	3.20				.1260	36mm	65mm
D2GP187227	3.26			30	.1285	1-5/8	2-3/4
DLGP195033	3.30				.1299	36mm	65mm
DLGP195034	3.40				.1339	39mm	70mm
D2GP187228	3.45			29	.1360	1-3/4	2-7/8
DLGP195035	3.50				.1378	39mm	70mm
D2GP187229	3.57			28	.1405	1-3/4	2-7/8
D2GP185009	3.57	9/64			.1406	1-3/4	2-7/8
DLGP195036	3.60				.1417	39mm	70mm
D2GP187230	3.66			27	.1440	1-7/8	3
DLGP195037	3.70				.1457	39mm	70mm
D2GP187231	3.73			26	.1470	1-7/8	3
D2GP187232	3.80			25	.1495	1-7/8	3
DLGP195038	3.80				.1496	43mm	75mm
D2GP187233	3.86			24	.1520	2	3-1/8
DLGP195039	3.90				.1535	43mm	75mm
D2GP187234	3.91			23	.1540	2	3-1/8
D2GP185010	3.97	5/32			.1563	2	3-1/8
D2GP187235	3.99			22	.1570	2	3-1/8
DLGP195040	4.00				.1575	43mm	75mm
D2GP187236	4.04			21	.1590	2-1/8	3-1/4
D2GP187237	4.09			20	.1610	2-1/8	3-1/4
DLGP195041	4.10				.1614	43mm	75mm
DLGP195042	4.20				.1654	43mm	75mm
D2GP187238	4.22			19	.1660	2-1/8	3-1/4
DLGP195043	4.30				.1693	47mm	80mm
D2GP187239	4.31			18	.1695	2-1/8	3-1/4
D2GP185011	4.37	11/64			.1719	2-1/8	3-1/4
D2GP187240	4.39			17	.1730	2-3/16	3-3/8
DLGP195044	4.40				.1732	47mm	80mm
D2GP187241	4.50			16	.1770	2-3/16	3-3/8
DLGP195045	4.50				.1772	47mm	80mm
D2GP187242	4.57			15	.1800	2-3/16	3-3/8
DLGP195046	4.60				.1811	47mm	80mm
D2GP187243	4.62			14	.1820	2-3/16	3-3/8
D2GP187244	4.70			13	.1850	2-5/16	3-1/2
DLGP195047	4.70				.1850	47mm	80mm
D2GP185012	4.76	3/16			.1875	2-5/16	3-1/2
DLGP195048	4.80				.1890	52mm	86mm
D2GP187245	4.80			12	.1890	2-5/16	3-1/2
D2GP187246	4.85			11	.1910	2-5/16	3-1/2
DLGP195049	4.90				.1929	52mm	86mm
D2GP187247	4.91			10	.1935	2-7/16	3-5/8
D2GP187248	4.98			9	.1960	2-7/16	3-5/8
DLGP195050	5.00				.1969	52mm	86mm
D2GP187249	5.05			8	.1990	2-7/16	3-5/8
DLGP195051	5.10				.2008	52mm	86mm
D2GP187250	5.11			7	.2010	2-7/16	3-5/8
D2GP185013	5.16	13/64			.2031	2-7/16	3-5/8
D2GP187251	5.18			6	.2040	2-1/2	3-3/4
DLGP195052	5.20				.2047	52mm	86mm
D2GP187252	5.22			5	.2055	2-1/2	3-3/4
DLGP195053	5.30				.2087	52mm	86mm
D2GP187253	5.31			4	.2090	2-1/2	3-3/4
DLGP195054	5.40				.2126	57mm	93mm
D2GP187254	5.41			3	.2130	2-1/2	3-3/4

Gold-P Drill	Diamater					Flute Length	Overall Length
EDP No.	Metric	Fract.	Letter	Wire	Decimal		
TiN Coated	D1 = D2					L1	L2
DLGP195055	5.50				.2165	57mm	93mm
D2GP185014	5.56	7/32			.2188	2-1/2	3-3/4
DLGP195056	5.60				.2205	57mm	93mm
D2GP187255	5.61			2	.2210	2-5/8	3-7/8
DLGP195057	5.70				.2244	57mm	93mm
D2GP187256	5.79			1	.2280	2-5/8	3-7/8
DLGP195058	5.80				.2283	57mm	93mm
DLGP195059	5.90				.2323	57mm	93mm
D2GP186101	5.94		A		.2340	2-5/8	3-7/8
D2GP185015	5.95	15/64			.2344	2-5/8	3-7/8
DLGP195060	6.00				.2362	57mm	93mm
D2GP186102	6.05		B		.2380	2-3/4	4
DLGP195061	6.10				.2402	63mm	101mm
D2GP186103	6.15		C		.2420	2-3/4	4
DLGP195062	6.20				.2441	63mm	101mm
D2GP186104	6.25		D		.2460	2-3/4	4
DLGP195063	6.30				.2480	63mm	101mm
D2GP185016	6.35	1/4	E		.2500	2-3/4	4
DLGP195064	6.40				.2520	63mm	101mm
DLGP195065	6.50				.2559	63mm	101mm
D2GP186106	6.53		F		.2570	2-7/8	4-1/8
DLGP195066	6.60				.2598	63mm	101mm
D2GP186107	6.63		G		.2610	2-7/8	4-1/8
DLGP195067	6.70				.2638	63mm	101mm
D2GP185017	6.75	17/64			.2656	2-7/8	4-1/8
D2GP186108	6.76		H		.2660	2-7/8	4-1/8
DLGP195068	6.80				.2677	69mm	109mm
DLGP195069	6.90				.2717	69mm	109mm
D2GP186109	6.91		I		.2720	2-7/8	4-1/8
DLGP195070	7.00				.2756	69mm	109mm
D2GP186110	7.04		J		.2770	2-7/8	4-1/8
DLGP195071	7.10				.2795	69mm	109mm
D2GP186111	7.14		K		.2810	3	4-1/4
D2GP185018	7.14	9/32			.2813	2-15/16	4-1/4
DLGP195072	7.20				.2835	69mm	109mm
DLGP195073	7.30				.2874	69mm	109mm
D2GP186112	7.37		L		.2900	3	4-1/4
DLGP195074	7.40				.2913	69mm	109mm
D2GP186113	7.49		M		.2950	3-1/16	4-3/8
DLGP195075	7.50				.2953	69mm	109mm
D2GP185019	7.54	19/64			.2969	3-1/16	4-3/8
DLGP195076	7.60				.2992	75mm	117mm
D2GP186114	7.67		N		.3020	3-1/16	4-3/8
DLGP195077	7.70				.3031	75mm	117mm
DLGP195078	7.80				.3071	75mm	117mm
DLGP195079	7.90				.3110	75mm	117mm
D2GP185020	7.94	5/16			.3125	3-3/16	4-1/2
DLGP195080	8.00				.3150	75mm	117mm
D2GP186115	8.03		O		.3160	3-3/16	4-1/2
DLGP195081	8.10				.3189	75mm	117mm
DLGP195082	8.20				.3228	75mm	117mm
D2GP186116	8.20		P		.3230	3-5/16	4-5/8
DLGP195083	8.30				.3268	75mm	117mm
D2GP185021	8.33	21/64			.3281	3-5/16	4-5/8
DLGP195084	8.40				.3307	75mm	117mm
D2GP186117	8.43		Q		.3320	3-7/16	4-3/4
DLGP195085	8.50				.3346	75mm	117mm
DLGP195086	8.60				.3386	81mm	125mm

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1.0mm thru 8.3mm = 10 pcs per pack
8.4mm thru 18.0mm = 5 pcs per pack

HSSCo JOBBER DRILLS

Unit: Inch

Gold-P Drill	Diamater					Flute Length	Overall Length
EDP No.	Metric	Fract.	Letter	Wire	Decimal		
TiN Coated	D1 = D2					L1	L2
D2GP186118	8.61		R		.3390	3-7/16	4-3/4
DLGP195087	8.70				.3425	81mm	125mm
D2GP185022	8.73	11/32			.3438	3-7/16	4-3/4
DLGP195088	8.80				.3465	81mm	125mm
D2GP186119	8.84		S		.3480	3-1/2	4-7/8
DLGP195089	8.90				.3504	81mm	125mm
DLGP195090	9.00				.3543	81mm	125mm
D2GP186120	9.09		T		.3580	3-1/2	4-7/8
DLGP195091	9.10				.3583	81mm	125mm
D2GP185023	9.13	23/64			.3594	3-1/2	4-7/8
DLGP195092	9.20				.3622	81mm	125mm
DLGP195093	9.30				.3661	81mm	125mm
D2GP186121	9.35		U		.3680	3-5/8	5
DLGP195094	9.40				.3701	81mm	125mm
DLGP195095	9.50				.3740	81mm	125mm
D2GP185024	9.53	3/8			.3750	3-5/8	5
D2GP186122	9.58		V		.3770	3-5/8	5
DLGP195096	9.60				.3780	87mm	133mm
DLGP195097	9.70				.3819	87mm	133mm
DLGP195098	9.80				.3858	87mm	133mm
D2GP186123	9.80		W		.3860	3-3/4	5-1/8
DLGP195099	9.90				.3898	87mm	133mm
D2GP185025	9.92	25/64			.3906	3-3/4	5-1/8
DLGP195100	10.00				.3937	87mm	133mm
D2GP186124	10.08		X		.3970	3-3/4	5-1/8
DLGP195101	10.10				.3976	87mm	133mm
DLGP195102	10.20				.4016	87mm	133mm
D2GP186125	10.26		Y		.4040	3-7/8	5-1/4
DLGP195103	10.30				.4055	87mm	133mm
D2GP185026	10.32	13/32			.4063	3-7/8	5-1/4
DLGP195104	10.40				.4094	87mm	133mm
D2GP186126	10.49		Z		.4130	3-7/8	5-1/4
DLGP195105	10.50				.4134	87mm	133mm
DLGP195106	10.60				.4173	87mm	133mm
DLGP195107	10.70				.4213	94mm	142mm
D2GP185027	10.72	27/64			.4219	3-15/16	5-3/8
DLGP195108	10.80				.4252	94mm	142mm

Gold-P Drill	Diamater					Flute Length	Overall Length
EDP No.	Metric	Fract.	Letter	Wire	Decimal		
TiN Coated	D1 = D2					L1	L2
DLGP195109	10.90				.4291	94mm	142mm
DLGP195110	11.00				.4331	94mm	142mm
DLGP195111	11.10				.4370	94mm	142mm
D2GP185028	11.11	7/16			.4375	4-1/16	5-1/2
DLGP195112	11.20				.4409	94mm	142mm
DLGP195113	11.30				.4449	94mm	142mm
DLGP195114	11.40				.4488	94mm	142mm
DLGP195115	11.50				.4528	94mm	142mm
D2GP185029	11.51	29/64			.4531	4-3/16	5-5/8
DLGP195116	11.60				.4567	94mm	142mm
DLGP195117	11.70				.4606	94mm	142mm
DLGP195118	11.80				.4646	94mm	142mm
DLGP195119	11.90				.4685	101mm	151mm
D2GP185030	11.91	15/32			.4688	4-5/16	5-3/4
DLGP195120	12.00				.4724	101mm	151mm
DLGP195121	12.10				.4764	101mm	151mm
DLGP195122	12.20				.4803	101mm	151mm
DLGP195123	12.30				.4843	101mm	151mm
D2GP185031	12.30	31/64			.4844	4-3/8	5-7/8
DLGP195124	12.40				.4882	101mm	151mm
DLGP195125	12.50				.4921	101mm	151mm
DLGP195126	12.60				.4961	101mm	151mm
D2GP185032	12.70	1/2			.5000	4-1/2	6
DLGP195127	12.70				.5000	101mm	151mm
DLGP195128	12.80				.5039	101mm	151mm
DLGP195129	12.90				.5079	101mm	151mm
DLGP195130	13.00				.5118	101mm	151mm
DLGP195135	13.50				.5315	108mm	160mm
DLGP195140	14.00				.5512	108mm	160mm
DLGP195145	14.50				.5709	114mm	169mm
DLGP195150	15.00				.5906	114mm	169mm
DLGP195155	15.50				.6102	120mm	178mm
DLGP195160	16.00				.6299	120mm	178mm
DLGP195165	16.50				.6496	125mm	184mm
DLGP195170	17.00				.6693	125mm	184mm
DLGP195175	17.50				.6890	130mm	191mm
DLGP195180	18.00				.7087	130mm	191mm

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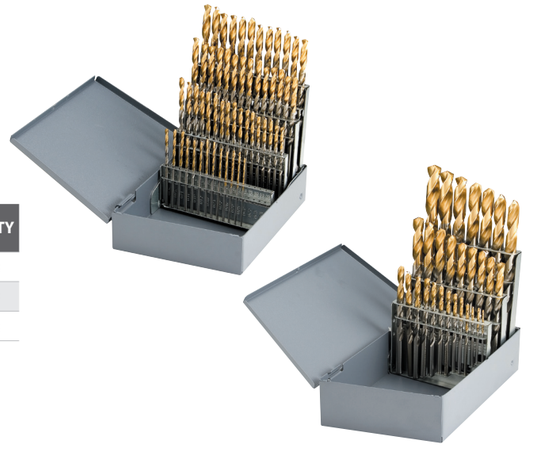
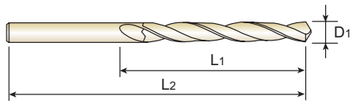
GOLD-P HSSCo JOBBER DRILL SETS

EDP No.	Description	SIZE	QUANTITY
D2GP185SET	HSSCo8 Gold-P, Fractional Size Set	1/16" ~ 1/2"	29 pcs
D2GP186SET	HSSCo8 Gold-P, Letter Size Set	A~Z	26 pcs
D2GP187SET	HSSCo8 Gold-P, Wire Size Set	#1~#56	56 pcs



HSSCo PARABOLIC FLUTE JOBBER DRILLS

- Improved chip evacuation in most materials, especially in deep drilling applications



ANSI | DIN 338 | HSS Co5 | W 38° | h8 | 130° | P. 32

▶ **Point Angle:** 130° Split Point

Unit: Inch

Gold-P Drill	Diamater					Flute Length	Overall Length
EDP No.	Metric	Fract.	Letter	Wire	Decimal		
TiN Coated	D1 = D2					L1	L2
DLGP511005	1.98	5/64			.0781	1	2
DLGP512201	1.99			47	.0785	1	2
DLGP506020	2.00				.0787	24mm	49mm
DLGP512202	2.06			46	.0810	1-1/8	2-1/8
DLGP512203	2.08			45	.0820	1-1/8	2-1/8
DLGP506021	2.10				.0827	24mm	49mm
DLGP512204	2.18			44	.0860	1-1/8	2-1/8
DLGP506022	2.20				.0866	27mm	53mm
DLGP512205	2.26			43	.0890	1-1/4	2-1/4
DLGP506023	2.30				.0906	27mm	53mm
DLGP512206	2.37			42	.0935	1-1/4	2-1/4
DLGP511006	2.38	3/32			.0938	1-1/4	2-1/4
DLGP506024	2.40				.0945	30mm	57mm
DLGP512207	2.44			41	.0960	1-3/8	2-3/8
DLGP512208	2.49			40	.0980	1-3/8	2-3/8
DLGP506025	2.50				.0984	30mm	57mm
DLGP512209	2.53			39	.0995	1-3/8	2-3/8
DLGP512210	2.58			38	.1015	1-7/16	2-1/2
DLGP506026	2.60				.1024	30mm	57mm
DLGP512211	2.64			37	.1040	1-7/16	2-1/2
DLGP506027	2.70				.1063	33mm	61mm
DLGP512212	2.71			36	.1065	1-7/16	2-1/2
DLGP511007	2.78	7/64			.1094	1-1/2	2-5/8
DLGP512213	2.79			35	.1100	1-1/2	2-5/8
DLGP506028	2.80				.1102	33mm	61mm
DLGP512214	2.82			34	.1110	1-1/2	2-5/8
DLGP512215	2.87			33	.1130	1-1/2	2-5/8
DLGP506029	2.90				.1142	33mm	61mm
DLGP512216	2.95			32	.1160	1-5/8	2-3/4
DLGP506030	3.00				.1181	33mm	61mm
DLGP512217	3.05			31	.1200	1-5/8	2-3/4
DLGP506031	3.10				.1220	36mm	65mm
DLGP511008	3.18	1/8			.1250	1-5/8	2-3/4
DLGP506032	3.20				.1260	36mm	65mm
DLGP512218	3.26			30	.1285	1-5/8	2-3/4
DLGP506033	3.30				.1299	36mm	65mm
DLGP506034	3.40				.1339	39mm	70mm
DLGP512219	3.45			29	.1360	1-3/4	2-7/8
DLGP506035	3.50				.1378	39mm	70mm
DLGP512220	3.57			28	.1405	1-3/4	2-7/8
DLGP511009	3.57	9/64			.1406	1-3/4	2-7/8
DLGP506036	3.60				.1417	39mm	70mm
DLGP512221	3.66			27	.1440	1-7/8	3
DLGP506037	3.70				.1457	39mm	70mm
DLGP512222	3.73			26	.1470	1-7/8	3
DLGP512223	3.80			25	.1495	1-7/8	3
DLGP506038	3.80				.1496	43mm	75mm

Gold-P Drill	Diamater					Flute Length	Overall Length
EDP No.	Metric	Fract.	Letter	Wire	Decimal		
TiN Coated	D1 = D2					L1	L2
DLGP512224	3.86			24	.1520	2	3-1/8
DLGP506039	3.90				.1535	43mm	75mm
DLGP512225	3.91			23	.1540	2	3-1/8
DLGP511010	3.97	5/32			.1563	2	3-1/8
DLGP512226	3.99			22	.1570	2	3-1/8
DLGP506040	4.00				.1575	43mm	75mm
DLGP512227	4.04			21	.1590	2-1/8	3-1/4
DLGP512228	4.09			20	.1610	2-1/8	3-1/4
DLGP506041	4.10				.1614	43mm	75mm
DLGP506042	4.20				.1654	43mm	75mm
DLGP512229	4.22			19	.1660	2-1/8	3-1/4
DLGP506043	4.30				.1693	47mm	80mm
DLGP512230	4.31			18	.1695	2-1/8	3-1/4
DLGP511011	4.37	11/64			.1719	2-1/8	3-1/4
DLGP512231	4.39			17	.1730	2-3/16	3-3/8
DLGP506044	4.40				.1732	47mm	80mm
DLGP512232	4.50			16	.1770	2-3/16	3-3/8
DLGP506045	4.50				.1772	47mm	80mm
DLGP512233	4.57			15	.1800	2-3/16	3-3/8
DLGP506046	4.60				.1811	47mm	80mm
DLGP512234	4.62			14	.1820	2-3/16	3-3/8
DLGP512235	4.70			13	.1850	2-5/16	3-1/2
DLGP506047	4.70				.1850	47mm	80mm
DLGP511012	4.76	3/16			.1875	2-5/16	3-1/2
DLGP506048	4.80				.1890	52mm	86mm
DLGP512236	4.80			12	.1890	2-5/16	3-1/2
DLGP512237	4.85			11	.1910	2-5/16	3-1/2
DLGP506049	4.90				.1929	52mm	86mm
DLGP512238	4.91			10	.1935	2-7/16	3-5/8
DLGP512239	4.98			9	.1960	2-7/16	3-5/8
DLGP506050	5.00				.1969	52mm	86mm
DLGP512240	5.05			8	.1990	2-7/16	3-5/8
DLGP506051	5.10				.2008	52mm	86mm
DLGP512241	5.11			7	.2010	2-7/16	3-5/8
DLGP511013	5.16	13/64			.2031	2-7/16	3-5/8
DLGP512242	5.18			6	.2040	2-1/2	3-3/4
DLGP506052	5.20				.2047	52mm	86mm
DLGP512243	5.22			5	.2055	2-1/2	3-3/4
DLGP506053	5.30				.2087	52mm	86mm
DLGP512244	5.31			4	.2090	2-1/2	3-3/4
DLGP506054	5.40				.2126	57mm	93mm
DLGP512245	5.41			3	.2130	2-1/2	3-3/4
DLGP506055	5.50				.2165	57mm	93mm
DLGP511014	5.56	7/32			.2188	2-1/2	3-3/4
DLGP506056	5.60				.2205	57mm	93mm
DLGP512246	5.61			2	.2210	2-5/8	3-7/8
DLGP506057	5.70				.2244	57mm	93mm

▶ NEXT PAGE

1/64" thru 5/16" = 10 pcs per pack
21/64" thru 37/64" = 5 pcs per pack
19/32" thru 3/4" = 3 pcs per pack

Letter A thru P = 10 pcs per pack
Letter Q thru Z = 5 pcs per pack

All wire sizes = 10 pcs per pack

1.0mm thru 8.3mm = 10 pcs per pack
8.4mm thru 18.0mm = 5 pcs per pack

HSSCo PARABOLIC FLUTE JOBBER DRILLS

Unit: Inch

Gold-P Drill	Diamater					Flute Length	Overall Length
EDP No.	Metric	Fract.	Letter	Wire	Decimal		
TiN Coated	D1 = D2					L1	L2
DLGP512247	5.79			1	.2280	2-5/8	3-7/8
DLGP506058	5.80				.2283	57mm	93mm
DLGP506059	5.90				.2323	57mm	93mm
DLGP513101	5.94		A		.2340	2-5/8	3-7/8
DLGP511015	5.95	15/64			.2344	2-5/8	3-7/8
DLGP506060	6.00				.2362	57mm	93mm
DLGP513102	6.05		B		.2380	2-3/4	4
DLGP506061	6.10				.2402	63mm	101mm
DLGP513103	6.15		C		.2420	2-3/4	4
DLGP506062	6.20				.2441	63mm	101mm
DLGP513104	6.25		D		.2460	2-3/4	4
DLGP506063	6.30				.2480	63mm	101mm
DLGP511016	6.35	1/4	E		.2500	2-3/4	4
DLGP506064	6.40				.2520	63mm	101mm
DLGP506065	6.50				.2559	63mm	101mm
DLGP513106	6.53		F		.2570	2-7/8	4-1/8
DLGP506066	6.60				.2598	63mm	101mm
DLGP513107	6.63		G		.2610	2-7/8	4-1/8
DLGP506067	6.70				.2638	63mm	101mm
DLGP511017	6.75	17/64			.2656	2-7/8	4-1/8
DLGP513108	6.76		H		.2660	2-7/8	4-1/8
DLGP506068	6.80				.2677	69mm	109mm
DLGP506069	6.90				.2717	69mm	109mm
DLGP513109	6.91		I		.2720	2-7/8	4-1/8
DLGP506070	7.00				.2756	69mm	109mm
DLGP513110	7.04		J		.2770	2-7/8	4-1/8
DLGP506071	7.10				.2795	69mm	109mm
DLGP513111	7.14		K		.2810	2-15/16	4-1/4
DLGP511018	7.14	9/32			.2813	2-15/16	4-1/4
DLGP506072	7.20				.2835	69mm	109mm
DLGP506073	7.30				.2874	69mm	109mm
DLGP513112	7.37		L		.2900	2-15/16	4-1/4
DLGP506074	7.40				.2913	69mm	109mm
DLGP513113	7.49		M		.2950	3-1/16	4-3/8
DLGP506075	7.50				.2953	69mm	109mm
DLGP511019	7.54	19/64			.2969	3	4-3/8
DLGP506076	7.60				.2992	75mm	117mm
DLGP513114	7.67		N		.3020	3	4-3/8
DLGP506077	7.70				.3031	75mm	117mm
DLGP506078	7.80				.3071	75mm	117mm
DLGP506079	7.90				.3110	75mm	117mm
DLGP511020	7.94	5/16			.3125	3-3/16	4-1/2
DLGP506080	8.00				.3150	75mm	117mm
DLGP513115	8.03		O		.3160	3-1/16	4-3/8
DLGP506081	8.10				.3189	75mm	117mm
DLGP506082	8.20				.3228	75mm	117mm
DLGP513116	8.20		P		.3230	3-5/16	4-5/8
DLGP506083	8.30				.3268	75mm	117mm
DLGP511021	8.33	21/64			.3281	3-5/16	4-5/8
DLGP506084	8.40				.3307	75mm	117mm
DLGP513117	8.43		Q		.3320	3-7/16	4-3/4
DLGP506085	8.50				.3346	75mm	117mm
DLGP506086	8.60				.3386	81mm	125mm
DLGP513118	8.61		R		.3390	3-7/16	4-3/4
DLGP506087	8.70				.3425	81mm	125mm
DLGP511022	8.73	11/32			.3438	3-7/16	4-3/4
DLGP506088	8.80				.3465	81mm	125mm
DLGP513119	8.84		S		.3480	3-1/2	4-7/8
DLGP506089	8.90				.3504	81mm	125mm
DLGP506090	9.00				.3543	81mm	125mm
DLGP513120	9.09		T		.3580	3-1/2	4-7/8
DLGP506091	9.10				.3583	81mm	125mm

Gold-P Drill	Diamater					Flute Length	Overall Length
EDP No.	Metric	Fract.	Letter	Wire	Decimal		
TiN Coated	D1 = D2					L1	L2
DLGP511023	9.13	23/64			.3594	3-1/2	4-7/8
DLGP506092	9.20				.3622	81mm	125mm
DLGP506093	9.30				.3661	81mm	125mm
DLGP513121	9.35		U		.3680	3-5/8	5
DLGP506094	9.40				.3701	81mm	125mm
DLGP506095	9.50				.3740	81mm	125mm
DLGP511024	9.53	3/8			.3750	3-5/8	5
DLGP513122	9.58		V		.3770	3-5/8	5
DLGP506096	9.60				.3780	87mm	133mm
DLGP506097	9.70				.3819	87mm	133mm
DLGP506098	9.80				.3858	87mm	133mm
DLGP513123	9.80		W		.3860	3-3/4	5-1/8
DLGP506099	9.90				.3898	87mm	133mm
DLGP511025	9.92	25/64			.3906	3-3/4	5-1/8
DLGP506100	10.00				.3937	87mm	133mm
DLGP513124	10.08		X		.3970	3-3/4	5-1/8
DLGP506101	10.10				.3976	87mm	133mm
DLGP506102	10.20				.4016	87mm	133mm
DLGP513125	10.26		Y		.4040	3-7/8	5-1/4
DLGP506103	10.30				.4055	87mm	133mm
DLGP511026	10.32	13/32			.4063	3-7/8	5-1/4
DLGP506104	10.40				.4094	87mm	133mm
DLGP513126	10.49		Z		.4130	3-7/8	5-1/4
DLGP506105	10.50				.4134	87mm	133mm
DLGP506106	10.60				.4173	87mm	133mm
DLGP506107	10.70				.4213	94mm	142mm
DLGP511027	10.72	27/64			.4219	3-15/16	5-3/8
DLGP506108	10.80				.4252	94mm	142mm
DLGP506109	10.90				.4291	94mm	142mm
DLGP506110	11.00				.4331	94mm	142mm
DLGP506111	11.10				.4370	94mm	142mm
DLGP511028	11.11	7/16			.4375	4-1/16	5-1/2
DLGP506112	11.20				.4409	94mm	142mm
DLGP506113	11.30				.4449	94mm	142mm
DLGP506114	11.40				.4488	94mm	142mm
DLGP506115	11.50				.4528	94mm	142mm
DLGP511029	11.51	29/64			.4531	4-3/16	5-5/8
DLGP506116	11.60				.4567	94mm	142mm
DLGP506117	11.70				.4606	94mm	142mm
DLGP506118	11.80				.4646	94mm	142mm
DLGP506119	11.90				.4685	101mm	151mm
DLGP511030	11.91	15/32			.4688	4-5/16	5-3/4
DLGP506120	12.00				.4724	101mm	151mm
DLGP506121	12.10				.4764	101mm	151mm
DLGP506122	12.20				.4803	101mm	151mm
DLGP506123	12.30				.4843	101mm	151mm
DLGP511031	12.30	31/64			.4844	4-3/8	5-7/8
DLGP506124	12.40				.4882	101mm	151mm
DLGP506125	12.50				.4921	101mm	151mm
DLGP506126	12.60				.4961	101mm	151mm
DLGP511032	12.70	1/2			.5000	4-1/2	6
DLGP506127	12.70				.5000	101mm	151mm
DLGP506128	12.80				.5039	101mm	151mm
DLGP506129	12.90				.5079	101mm	151mm
DLGP506130	13.00				.5118	101mm	151mm
DLGP511033	13.10	33/64			.5156	4-13/16	6-5/8
DLGP511034	13.49	17/32			.5313	4-13/16	6-5/8
DLGP506135	13.50				.5315	108mm	160mm
DLGP506140	14.00				.5512	108mm	160mm
DLGP511035	13.89	35/64			.5625	4-13/16	6-5/8
DLGP511036	14.29	9/16			.5625	4-13/16	6-5/8
DLGP506145	14.50				.5709	114mm	169mm

1/64" thru 5/16" = 10 pcs per pack
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Letter A thru P = 10 pcs per pack
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All wire sizes = 10 pcs per pack

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HSS / HSSCo JOBBER DRILLS

RECOMMENDED CUTTING CONDITIONS

HSS & HSSCo STRAIGHT SHANK, GOLD-P AND BLACK OXIDE JOBBER DRILLS

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

ISO	VDI 3323	Material Description	SFM	Drill Diameter												
				METRIC	2.0	3.0	-	4.0	6.0	-	-	8.0	-	10.0	-	13.0
				FRACTIONAL	-	-	1/8	-	-	1/4	5/16	-	3/8	-	1/2	
				DECIMAL	.0787	.1181	.1250	.1575	.2362	.2500	.3125	.3150	.3750	.3937	.5000	.5118
P	1	Non-alloy steel	132	RPM	6370	4240		3180	2120		1590		1270		980	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0071		.0063 - .0087		.0071 - .0094	
	2		115	RPM	5570	3710		2790	1860		1390		1110		860	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0071		.0063 - .0087		.0071 - .0094	
	3		99	RPM	4770	3180		2390	1590		1190		950		730	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0071		.0063 - .0087		.0071 - .0094	
	4		66	RPM	3180	2120		1590	1060		800		640		490	
				FEED	.0008 - .002	.0008 - .0024		.0016 - .0031	.0016 - .0039		.0024 - .0047		.0031 - .0055		.0047 - .0071	
	6	Low alloy steel	115	RPM	5570	3710		2790	1860		1390		1110		860	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0071		.0063 - .0087		.0071 - .0094	
	7		99	RPM	4770	3180		2390	1590		1190		950		730	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0071		.0063 - .0087		.0071 - .0094	
	8		99	RPM	4770	3180		2390	1590		1190		950		730	
				FEED	.0008 - .002	.0008 - .0024		.0016 - .0031	.0016 - .0039		.0024 - .0047		.0031 - .0055		.0047 - .0071	
	10	High alloyed steel, and tool steel	66	RPM	3180	2120		1590	1060		800		640		490	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0071		.0063 - .0087		.0071 - .0094	
M	12	Stainless steel	82	RPM	3980	2650		1990	1330		990		800		610	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0071		.0063 - .0087		.0071 - .0094	
	13		66	RPM	3180	2120		1590	1060		800		640		490	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0071		.0063 - .0087		.0071 - .0094	
	14		49	RPM	2390	1590		1190	800		600		480		370	
				FEED	.0008 - .002	.0008 - .0024		.0016 - .0031	.0016 - .0039		.0024 - .0047		.0031 - .0055		.0047 - .0071	
K	15	Grey cast iron	132	RPM	6370	4240		3180	2120		1590		1270		980	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0071		.0063 - .0087		.0071 - .0094	
	16		115	RPM	5570	3710		2790	1860		1390		1110		860	
				FEED	.0008 - .002	.0008 -.0024		.0016 - .0031	.0016 - .0039		.0024 - .0047		.0031 - .0055		.0047 - .0071	
	17	Nodular cast iron	132	RPM	6370	4240		3180	2120		1590		1270		980	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0071		.0063 - .0087		.0071 - .0094	
	18		99	RPM	4770	3180		2390	1590		1190		950		730	
				FEED	.0008 - .002	.0008 - .0024		.0016 - .0031	.0016 - .0039		.0024 - .0047		.0031 - .0055		.0047 - .0071	
	19	Malleable cast iron	115	RPM	5570	3710		2790	1860		1390		1110		860	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0071		.0063 - .0087		.0071 - .0094	
	20		99	RPM	4770	3180		2390	1590		1190		950		730	
				FEED	.0008 - .002	.0008 - .0024		.0016 - .0031	.0016 - .0039		.0024 - .0047		.0031 - .0055		.0047 - .0071	
N	21	Aluminum-wrought alloy	214	RPM	10350	6900		5170	3450		2590		2070		1590	
				FEED	.002 - .0035	.0028 - .0043		.0047 - .0063	.0047 - .0071		.0055 - .0079		.0063 - .0087		.0087 - .011	
	22		214	RPM	10350	6900		5170	3450		2590		2070		1590	
				FEED	.002 - .0035	.0028 - .0043		.0047 - .0063	.0047 - .0071		.0055 - .0079		.0063 - .0087		.0087 - .011	
	23	Aluminum-cast, alloyed	165	RPM	7960	5310		3980	2650		1990		1590		1220	
				FEED	.002 - .0035	.0028 - .0043		.0047 - .0063	.0047 - .0071		.0055 - .0079		.0063 - .0087		.0087 - .011	
	29	Non Metallic Materials	99	RPM	4770	3180		2390	1590		1190		950		730	
				FEED	.0016 - .0031	.0024 - .0039		.0031 - .0047	.0047 - .0063		.0047 - .0071		.0063 - .0087		.0071 - .0094	
S	36	Titanium Alloys	66	RPM	3180	2120		1590	1060		800		640		490	
				FEED	.0008 - .002	.0008 - .0024		.0016 - .0031	.002 - .0035		.0024 - .0039		.0028 - .0051		.0031 - .0055	

For Black Oxide Drills Reduce Speed 20-25%

CENTER DRILLS

SELECTION GUIDE

HSS & CARBIDE CENTER DRILLS

- *Drill and Countersink in 1 operation*
- *Carbide for longer tool life*
- *Double ended for greater value*

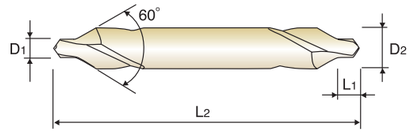
MATERIAL	HSS	CARBIDE
STANDARD	60° / 82°	60° / 82° / 90°
SIZE MIN	#1	#1
SIZE MAX	#6	#8
PAGE	**35**	**36**
SURFACE TREATMENT	Bright	

◎ : Excellent ○ : Good

Recommended cutting conditions : P. 35 & 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		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		

HSS Center Drills



HSS h8 k12 120°

Unit: Inch

EDP No. 60°	EDP No. 82°	Size	Dia. D1	Shank Dia. D2	Drill Lgth. L1	Overall Lgth. L2
D1C90079	D1346008	#1	3/64	1/8	1/16	1-1/2
D1C90141	D1347008	#1	3/64	1/8	3/64	1-1/4
D1C90085	D1348308	#1	3/64	1/8	3/64	3
D1C90086	D1348408	#1	3/64	1/8	3/64	4
D1C90087	D1348508	#1	3/64	1/8	3/64	5
D1C90088	D1348608	#1	3/64	1/8	3/64	6
D1C90080	D1346012	#2	1/16	3/16	5/64	1-3/4
D1C90142	D1347012	#2	5/64	3/16	5/64	1-7/8
D1C90089	D1348312	#2	5/64	3/16	5/64	3
D1C90090	D1348412	#2	5/64	3/16	5/64	4
D1C90091	D1348512	#2	5/64	3/16	5/64	5
D1C90092	D1348612	#2	5/64	3/16	5/64	6
D1C90081	D1346016	#3	3/32	1/4	1/8	2
D1C90143	D1347016	#3	7/64	1/4	7/64	2
D1C90093	D1348416	#3	7/64	1/4	7/64	4
D1C90094	D1348516	#3	7/64	1/4	7/64	5

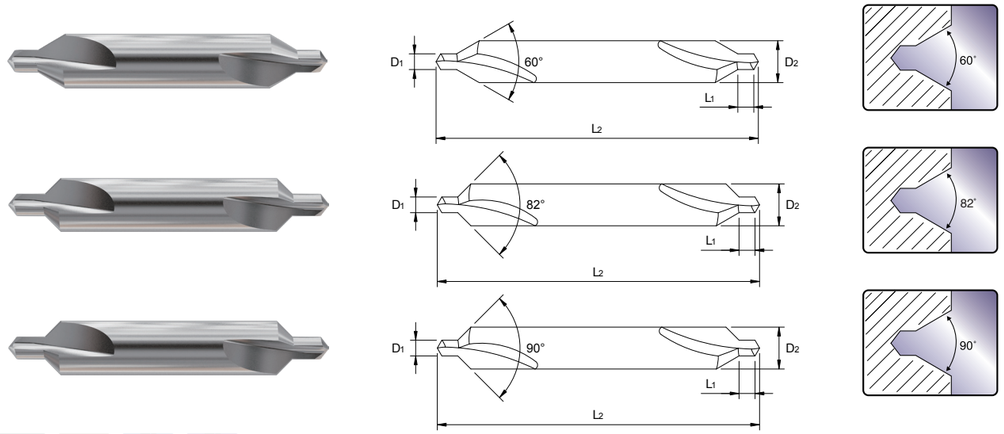
EDP No. 60°	EDP No. 82°	Size	Dia. D1	Shank Dia. D2	Drill Lgth. L1	Overall Lgth. L2
D1C90095	D1348616	#3	7/64	1/4	7/64	6
D1C90082	D1346020	#4	1/8	5/16	5/32	2-1/4
D1C90144	D1347020	#4	1/8	5/16	1/8	2-1/8
D1C90096	D1348420	#4	1/8	5/16	1/8	4
D1C90097	D1348520	#4	1/8	5/16	1/8	5
D1C90098	D1348620	#4	1/8	5/16	1/8	6
D1C90083	D1346028	#5	3/16	7/16	1/4	2-1/2
D1C90145	D1347028	#5	3/16	7/16	3/16	2-3/4
D1C90099	D1348428	#5	3/16	7/16	3/16	4
D1C90100	D1348528	#5	3/16	7/16	3/16	5
D1C90101	D1348628	#5	3/16	7/16	3/16	6
D1C90084	D1346032	#6	7/32	1/2	7/32	3
D1C90102	D1348432	#6	7/32	1/2	7/32	4
D1C90103	D1348532	#6	7/32	1/2	7/32	5
D1C90104	D1348632	#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	-
				DECIMAL	0.394	.0787	.1181	.1250	.1575	.2362	.2500	.3125	.3150	.3750	.3937
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	
	2		99	RPM	9550	4770	3180		2390	1590		1190		950	
				FEED	.0008 - .0016	.0012 - .0024	.0016 - .0031		.0020 - .0035	.0028 - .0047		.0035 - .0059		.0047 - .0071	
	3		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	Low alloy steel	99	RPM	9550	4770	3180		2390	1590		1190		950	
				FEED	.0008 - .0016	.0012 - .0024	.0016 - .0031		.0020 - .0035	.0028 - .0047		.0035 - .0059		.0047 - .0071	
	7		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	
	16		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	

Solid Carbide Center Drills



CARBIDE | h8 | k12 | 120°

Unit: Inch

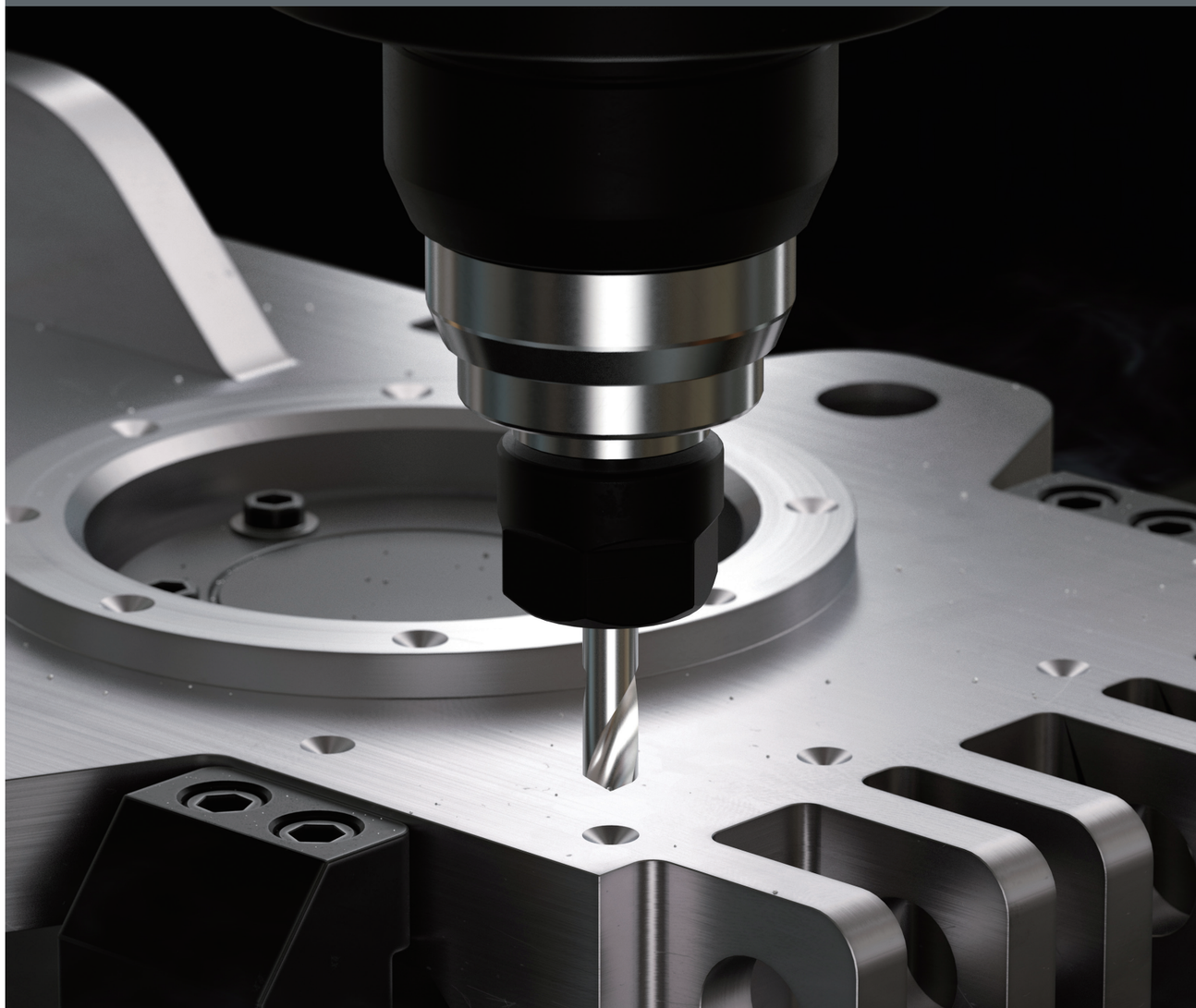
EDP No.	EDP No.	EDP No.	Size	Dia.	Shank Dia.	Drill Length	Overall Length
60°	82°	90°		D1	D2	L1	L2
D5331008	D5349008	D5332008	#1	3/64	1/8	3/64	1-1/2
D5331012	D5349012	D5332012	#2	5/64	3/16	5/64	1-7/8
D5331016	D5349016	D5332016	#3	7/64	1/4	7/64	2
D5331020	D5349020	D5332020	#4	1/8	5/16	1/8	2-1/8
D5331028	D5349028	D5332028	#5	3/16	7/16	3/16	2-3/4
D5331032	D5349032	D5332032	#6	7/32	1/2	7/32	3
D5331040	D5349040	D5332040	#7	1/4	5/8	1/4	3-3/4
D5331048	D5349048	D5332048	#8	5/16	3/4	5/16	4

SOLID CARBIDE CENTER DRILLS

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

ISO	VDI 3323	Material Description	SFM	Drill Diameter						
				METRIC	-	-	-	-	-	-
				FRACTIONAL	3/64	5/64	1/8	3/16	1/4	3/4
				DECIMAL	.0468	.0781	.1250	.1875	.2500	.7500
P	1	Non-alloy steel	165	RPM	15920	7960	5310	3200	2650	1260
				FEED	.0008 - .0016	.0012 - .0024	.0016 - .0031	.0024 - .0039	.0028 - .0047	.0051 - .0075
	2		132	RPM	12730	6370	4240	2560	2120	1170
				FEED	.0008 - .0016	.0012 - .0024	.0016 - .0031	.0024 - .0039	.0028 - .0047	.0051 - .0075
	3		99	RPM	9550	4770	3180	1920	1590	1090
				FEED	.0004 - .0012	.0004 - .0014	.0004 - .002	.0012 - .0028	.0016 - .0031	.0043 - .0067
	6	Low alloy steel	132	RPM	12730	6370	4240	2560	2120	1170
				FEED	.0008 - .0016	.0012 - .0024	.0016 - .0031	.0024 - .0039	.0028 - .0047	.0051 - .0075
	7		99	RPM	9550	4770	3180	1920	1590	920
				FEED	.0004 - .0012	.0004 - .0014	.0004 - .002	.0012 - .0028	.0016 - .0031	.0043 - .0067
M	12	Stainless steel	66	RPM	6370	3180	2120	1280	1060	590
				FEED	.0004 - .0012	.0004 - .0014	.0004 - .002	.0012 - .0028	.0016 - .0031	.0051 - .0075
K	15	Grey cast iron	197	RPM	19100	9550	6370	3820	3180	1510
				FEED	.0008 - .0016	.0012 - .0024	.0016 - .0031	.0024 - .0039	.0028 - .0047	.0071 - .0094
	16		165	RPM	15920	7960	5310	3202	2650	1170
				FEED	.0004 - .0012	.0004 - .0014	.0004 - .002	.0012 - .0028	.0016 - .0031	.0043 - .0067
	17	Nodular cast iron	197	RPM	19100	9550	6370	3820	3180	1510
				FEED	.0008 - .0016	.0012 - .0024	.0016 - .0031	.0024 - .0039	.0028 - .0047	.0071 - .0094
	19	Malleable cast iron	132	RPM	12730	6370	4240	2560	2120	1000
				FEED	.0008 - .0016	.0012 - .0024	.0016 - .0031	.0024 - .0039	.0028 - .0047	.0071 - .0094

SPOTTING DRILLS



SELECTION GUIDE

HSSCo8 & CARBIDE SPOTTING DRILLS

- *Spot center for more precise drilling operation*
- *90° for chamfering holes*
- *HSSCo8 for greater toughness*
- *Carbide for longer tool life*

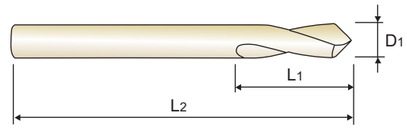
MATERIAL	HSSCo8	CARBIDE
POINT ANGLE	82° / 90° / 120° / 142°	82° / 90° / 120° / 142°
SIZE MIN	D1/8	D1/8
SIZE MAX	D1	D3/4
PAGE	39	
SURFACE TREATMENT	Bright	

◎ : Excellent ○ : Good

Recommended cutting conditions : P. 40

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		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		

HSSCo8 Spotting Drills, 82°, 90°, 120°, and 142°



HSS Co8 | Bright | h6 | h6 | 82° | 90° | 120° | 142°

P. 40

Unit: Inch

EDP No.	EDP No.	EDP No.	EDP No.	Dia.	Flute Length	Overall Length
82°	90°	120°	142°	D1	L1	L2
D2393008	0081L	2081L	D2394008	1/8	0.472	1.93
D2393012	0121L	2121L	D2394012	3/16	0.590	2.44
D2393016	0161L	2161L	D2394016	1/4	0.669	2.76
D2393020	0201L	2201L	D2394020	5/16	0.984	3.11
D2393024	0241L	2241L	D2394024	3/8	0.827	3.50
D2393032	0321L	2321L	D2394032	1/2	0.984	4.02
D2393040	0401L	2401L	D2394040	5/8	1.575	4.53
D2393048	0481L	2481L	D2394048	3/4	1.968	5.16
D2393064	0641L	2641L	D2394064	1	1.968	6.14

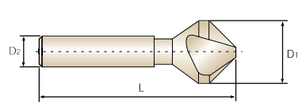
Carbide Spotting Drills, 82°, 90°, 120°, and 142°

CARBIDE

P. 40

Unit: Inch

EDP No.	EDP No.	EDP No.	EDP No.	Dia.	Flute Length	Overall Length
82°	90°	120°	142°	D1	L1	L2
D5395008	D5321008	D5322008	D5396008	1/8	5/8	2
D5395012	D5321012	D5322012	D5396012	3/16	3/4	2
D5395016	D5321016	D5322016	D5396016	1/4	3/4	2-1/2
D5395020	D5321020	D5322020	D5396020	5/16	1	2-1/2
D5395024	D5321024	D5322024	D5396024	3/8	1	3
D5395032	D5321032	D5322032	D5396032	1/2	1	3
D5395040	D5321040	D5322040	D5396040	5/8	1-1/4	3
D5395048	D5321048	D5322048	D5396048	3/4	1-3/4	4



HSSCo 90° Countersink

HSS Co8 | Bright

P. 40

Unit: Inch

EDP No.	Dia.	Shank Dia.	Overall Length
90°	D1	D2	L1
CS313513	1/4	1/4	2
CS313514	3/8	1/4	2
CS313515	1/2	1/4	2
CS313516	3/4	1/2	2-1/2
CS313517	1	1/2	2-3/4

SPOTTING DRILLS & COUNTERSINK

RECOMMENDED CUTTING CONDITIONS – Carbide NC Spotting Drills

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

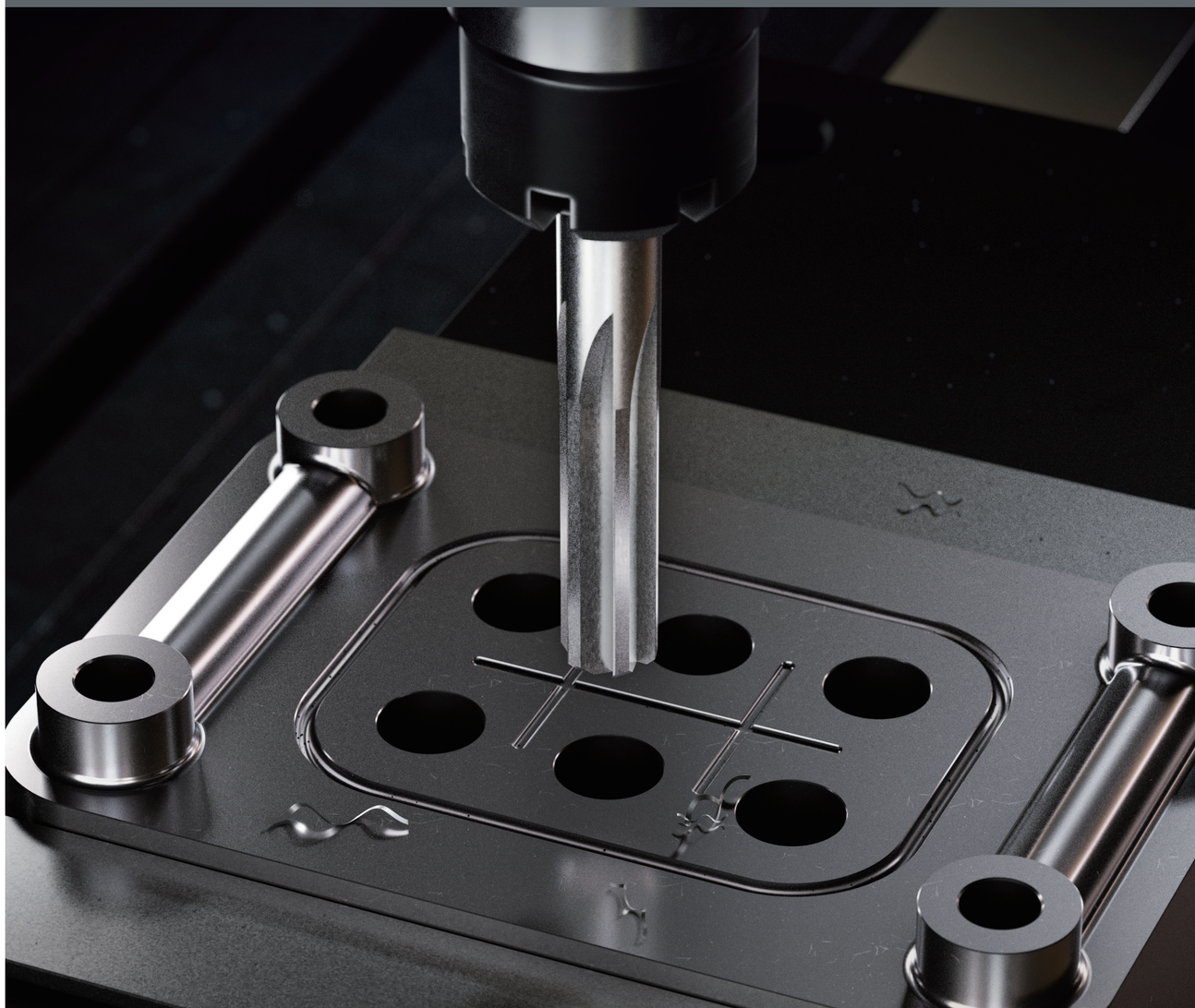
ISO	VDI 3323	Material Description	SFM	Parameter	Drill Diameter							
					.1250	.1875	.2500	.3125	.3750	.5000	.6250	.6250
P	1	Non-alloy steel	82	RPM	7960	4790	3980	2980	2390	1890	1490	1490
				FEED	.0016 - .0024	.0024 - .0035	.0028 - .0039	.0031 - .0047	.0035 - .0055	.0043 - .0067	.0051 - .0075	.0051 - .0075
	2		82	RPM	7430	4460	3710	2790	2230	1760	1390	1390
				FEED	.0016 - .0024	.0024 - .0035	.0028 - .0039	.0031 - .0047	.0035 - .0055	.0043 - .0067	.0051 - .0075	.0051 - .0075
	3		49	RPM	6900	4150	3450	2590	2070	1630	1290	1290
				FEED	.0012 - .002	.0018 - .003	.0020 - .0031	.0028 - .0039	.0031 - .0047	.0035 - .0055	.0043 - .0067	.0043 - .0067
	6	Low alloy steel	66	RPM	7430	4460	3710	2790	2230	1760	1390	1390
				FEED	.0016 - .0024	.0024 - .0035	.0028 - .0039	.0031 - .0047	.0035 - .0055	.0043 - .0067	.0051 - .0075	.0051 - .0075
	7		49	RPM	5840	3510	2920	2190	1750	1380	1090	1090
				FEED	.0012 -.0020	.0018 -.0030	.0020 - .0031	.0028 - .0039	.0031 - .0047	.0035 - .0055	.0043 - .0067	.0043 - .0067
M	12	Stainless steel	49	RPM	3710	2230	1860	1390	1110	880	700	700
				FEED	.0016 - .0024	.0024 - .0035	.0028 - .0039	.0031 - .0047	.0035 - .0055	.0043 - .0067	.0051 - .0075	.0051 - .0075
K	15	Grey cast iron	99	RPM	9550	5740	4770	3580	2860	2260	1790	1790
				FEED	.0020 - .0028	.0028 - .0039	.0031 - .0043	.0039 - .0051	.0047 - .0063	.0059 - .0079	.0071 - .0094	.0071 - .0094
	16		82	RPM	7430	4460	3710	2790	2230	1760	1390	1390
				FEED	.0012 -.0020	.0018 -.0030	.0020 - .0031	.0028 - .0039	.0031 - .0047	.0035 - .0055	.0043 - .0067	.0043 - .0067
	17	Nodular cast iron	99	RPM	9550	5740	4770	3580	2860	2260	1790	1790
				FEED	.002 - .0028	.0028 - .0039	.0031 - .0043	.0039 - .0051	.0047 - .0063	.0059 -.0079	.0071 - .0094	.0071 - .0094
	19	Malleable cast iron	66	RPM	6370	3820	3180	2390	1910	1510	1190	1190
				FEED	.0020 - .0028	.0028 - .0039	.0031 - .0043	.0039 - .0051	.0047 - .0063	.0059 - .0079	.0071 - .0094	.0071 - .0094
N	21	Aluminum-wrought alloy	214	RPM	17510	10530	8750	6570	5250	4150	3280	3280
				FEED	.0024 - .0035	.0035 - .0047	.0039 - .0051	.0047 - .0059	.0059 - .0075	.0071 - .0091	.0083 - .0106	.0083 - .0106
	22		197	RPM	13790	8300	6900	5170	4140	3270	2590	2590
				FEED	.0024 - .0035	.0035 - .0047	.0039 - .0051	.0047 - .0059	.0059 - .0075	.0071 - .0091	.0083 - .0106	.0083 - .0106
	23	Aluminum-cast, alloyed	165	RPM	11670	7020	5840	4380	3500	2770	2190	2190
				FEED	.0024 - .0035	.0035 - .0047	.0039 - .0051	.0047 - .0059	.0059 - .0075	.0071 - .0091	.0083 - .0106	.0083 - .0106
S	36	Titanium Alloys	115	RPM	3710	2230	1860	1390	1110	880	700	700
				FEED	.0012 -.0020	.0018 - .0030	.0020 - .0031	.0028 - .0039	.0031 - .0047	.0035 - .0055	.0043 - .0067	.0043 - .0067

RECOMMENDED CUTTING CONDITIONS – HSSCo Countersink

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

ISO	VDI 3323	Material Description	Vc SFM	Countersink Dia.				
				1/4"	3/8"	1/2"	3/4"	1"
P	1	Non-alloy steel	65	0.0045 - 0.0065	0.0065 - 0.0080	0.0080 - 0.009	0.0090 - 0.0100	0.0100 - 0.0115
	2		65	0.0045 - 0.0065	0.0065 - 0.0080	0.0080 - 0.009	0.0090 - 0.0100	0.0100 - 0.0115
	3		45	0.0040 - 0.0055	0.0055 - 0.0070	0.0070 - 0.0085	0.0085 - 0.0095	0.0095 - 0.0105
	4		35	0.0025 - 0.0040	0.0040 - 0.0055	0.0055 - 0.0065	0.0065 - 0.0085	0.0085 - 0.0095
	5		35	0.0025 - 0.0040	0.0040 - 0.0055	0.0055 - 0.0065	0.0065 - 0.0085	0.0085 - 0.0095
M	12	Stainless steel	20	0.0025 - 0.0030	0.0025 - 0.0030	0.0030 - 0.0040	0.0030 - 0.0040	0.0040 - 0.0045
	13		15	0.0025 - 0.0030	0.0025 - 0.0030	0.0030 - 0.0040	0.0030 - 0.0040	0.0040 - 0.0045
	14		15	0.0025 - 0.0030	0.0025 - 0.0030	0.0030 - 0.0040	0.0030 - 0.0040	0.0040 - 0.0045
K	15	Grey cast iron	70	0.0035 - 0.0045	0.0045 - 0.0050	0.0050 - 0.0065	0.0065 - 0.0075	0.0075 - 0.0085
	16		55	0.0030 - 0.0040	0.0040 - 0.0045	0.0045 - 0.0060	0.0060 - 0.0070	0.0070 - 0.0085
	17	Nodular cast iron	55	0.0035 - 0.0045	0.0045 - 0.0050	0.0050 - 0.0065	0.0065 - 0.0075	0.0075 - 0.0085
	18		50	0.0030 - 0.0040	0.0040 - 0.0045	0.0045 - 0.0060	0.0060 - 0.0070	0.0070 - 0.0085
	19	Malleable cast iron	55	0.0035 - 0.0045	0.0045 - 0.0050	0.0050 - 0.0065	0.0065 - 0.0075	0.0075 - 0.0085
	20		50	0.0030 - 0.0040	0.0040 - 0.0045	0.0045 - 0.0060	0.0060 - 0.0070	0.0070 - 0.0085
N	21	Aluminum-wrought alloy	140	0.0060 - 0.0070	0.0070 - 0.0085	0.0085 - 0.0095	0.0095 - 0.0105	0.0105 - 0.0120
	22		140	0.0060 - 0.0070	0.0070 - 0.0085	0.0085 - 0.0095	0.0095 - 0.0105	0.0105 - 0.0120
	23	Aluminum-cast, alloyed	130	0.0060 - 0.0070	0.0070 - 0.0085	0.0085 - 0.0095	0.0095 - 0.0105	0.0105 - 0.0120
	24		120	0.0045 - 0.0060	0.0060 - 0.0070	0.0070 - 0.0085	0.0085 - 0.0095	0.0095 - 0.0110
	25		115	0.0060 - 0.0070	0.0070 - 0.0085	0.0085 - 0.0095	0.0095 - 0.0105	0.0105 - 0.0120
	26	Copper and Copper Alloys (Bronze / Brass)	90	0.0045 - 0.006	0.0060 - 0.0070	0.0070 - 0.0085	0.0085 - 0.0095	0.0095 - 0.0110
	27		80	0.0045 - 0.006	0.0060 - 0.0070	0.0070 - 0.0085	0.0085 - 0.0095	0.0095 - 0.0110
	28		50	0.0045 - 0.006	0.0060 - 0.0070	0.0070 - 0.0085	0.0085 - 0.0095	0.0095 - 0.0110

REAMERS



SELECTION GUIDE

HSS & CARBIDE REAMERS

– *Straight Flute Chucking Reamers*

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

TOOL MATERIAL	HSS	CARBIDE
FLUTE TYPE	Straight Flute	
CHAMFER ANGLE	45°	
HAND CUT	Right Hand Cut	
SIZE MIN	.0135	.0280
SIZE MAX	.7500	.6299
SURFACE TREATMENT	Bright	
PAGE	43	47

◎ : Excellent ○ : Good

Recommended cutting conditions : P. 58-59

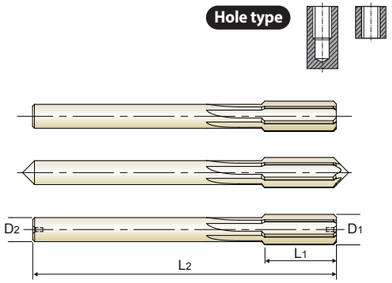
ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRC		
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎
	2		About 0.45% C	Annealed	190	13	◎	◎
	3		About 0.45% C	Quenched & Tempered	250	25	○	○
	4		About 0.75% C	Annealed	270	28	○	○
	5		About 0.75% C	Quenched & Tempered	300	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		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		

- ▶ Straight Flute, Right Hand Cut
- ▶ Type of Center

  Up to .0393" : Non-Center

  Over .0393" to .1799" : External

  Over .1799" : Internal



HSS 45°

P. 58-59

Unit: Inch

Nominal Size: Metric	Nominal Size: Fractional	Nominal Size: Letter	Nominal Size: Wire Gauge	Nominal Size: Decimal	Shank Diameter D2	Flute Length L1	Overall Length L2	No. of Flute	EDP No.
			#80	.0135	**.0135**	3/8	3/4	2	**K610200135**
			#79	.0145	**.0145**	3/8	3/4	2	**K610200145**
	1/64			.0156	**.0156**	3/8	3/4	2	**K610100156**
			#78	.0160	**.0160**	3/8	7/8	2	**K610200160**
			#77	.0180	**.0180**	3/8	7/8	2	**K610200180**
			#76	.0200	**.0200**	3/8	7/8	2	**K610200200**
			#75	.0210	**.0210**	1/2	1	3	**K610200210**
			#74	.0225	**.0225**	1/2	1	3	**K610200225**
			#73	.0240	**.0240**	1/2	1-1/8	3	**K610200240**
			#72	.0250	**.0250**	1/2	1-1/8	3	**K610200250**
			#71	.0260	**.0260**	1/2	1-1/4	3	**K610200260**
			#70	.0280	**.0280**	1/2	1-1/4	3	**K610200280**
			#69	.0292	**.0292**	1/2	1-3/8	3	**K610200292**
			#68	.0310	**.0310**	1/2	1-3/8	3	**K610200310**
	1/32			.0312	**.0312**	1/2	1-3/8	3	**K610100312**
			#67	.0320	**.0320**	1/2	1-3/8	3	**K610200320**
			#66	.0330	**.0330**	1/2	1-3/8	3	**K610200330**
			#65	.0350	**.0350**	1/2	1-1/2	3	**K610200350**
			#64	.0360	**.0360**	1/2	1-1/2	3	**K610200360**
			#63	.0370	**.0370**	1/2	1-1/2	3	**K610200370**
			#62	.0380	**.0380**	1/2	1-1/2	3	**K610200380**
			#61	.0390	**.0390**	1/2	1-1/2	3	**K610200390**
1.00				.0394	**.0394**	1/2	2-1/2	4	**K610600394**
			#60	.0400	**.0390**	1/2	2-1/2	4	**K610200400**
			#59	.0410	**.0390**	1/2	2-1/2	4	**K610200410**
			#58	.0420	**.0390**	1/2	2-1/2	4	**K610200420**
			#57	.0430	**.0390**	1/2	2-1/2	4	**K610200430**
			#56	.0465	**.0455**	1/2	2-1/2	4	**K610200465**
	3/64			.0469	**.0455**	1/2	2-1/2	4	**K610100469**
			#55	.0520	**.0510**	1/2	2-1/2	4	**K610200520**
			#54	.0550	**.0510**	1/2	2-1/2	4	**K610200550**
1.50				.0591	**.0510**	1/2	2-1/2	4	**K610600591**
			#53	.0595	**.0585**	1/2	2-1/2	4	**K610200595**
	1/16			.0625	**.0585**	1/2	2-1/2	4	**K610100625**
			#52	.0635	**.0585**	1/2	2-1/2	4	**K610200635**
			#51	.0670	**.0660**	3/4	3	4	**K610200670**
			#50	.0700	**.0660**	3/4	3	4	**K610200700**
			#49	.0730	**.0660**	3/4	3	4	**K610200730**
			#48	.0760	**.0720**	3/4	3	4	**K610200760**
	5/64			.0781	**.0720**	3/4	3	4	**K610100781**
			#47	.0785	**.0720**	3/4	3	4	**K610200785**
2.00				.0787	**.0720**	3/4	3	4	**K610600787**
			#46	.0810	**.0771**	3/4	3	4	**K610200810**
			#45	.0820	**.0771**	3/4	3	4	**K610200820**

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HSS REAMERS

Unit: Inch

Nominal Size					Shank Diameter	Flute Length	Overall Length	No. of Flute	EDP No.
Metric	Fractional	Letter	Wire Gauge	Decimal					
		D1			D2	L1	L2		
			#44	.0860	**.0810**	3/4	3	4	**K610200860**
			#43	.0890	**.0810**	3/4	3	4	**K610200890**
			#42	.0935	**.0880**	3/4	3	4	**K610200935**
	3/32			.0938	**.0880**	3/4	3	4	**K610100938**
			#41	.0960	**.0928**	7/8	3-1/2	4	**K610200960**
			#40	.0980	**.0928**	7/8	3-1/2	4	**K610200980**
2.50				.0984	**.0928**	7/8	3-1/2	4	**K610600984**
			#39	.0995	**.0928**	7/8	3-1/2	4	**K610200995**
			#38	.1015	**.0950**	7/8	3-1/2	4	**K610201015**
			#37	.1040	**.0950**	7/8	3-1/2	4	**K610201040**
			#36	.1065	**.1030**	7/8	3-1/2	4	**K610201065**
	7/64			.1094	**.1030**	7/8	3-1/2	4	**K610101094**
			#35	.1100	**.1030**	7/8	3-1/2	4	**K610201100**
			#34	.1110	**.1055**	7/8	3-1/2	4	**K610201110**
			#33	.1130	**.1055**	7/8	3-1/2	4	**K610201130**
			#32	.1160	**.1120**	7/8	3-1/2	4	**K610201160**
3.00				.1181	**.1120**	7/8	3-1/2	4	**K610601181**
			#31	.1200	**.1120**	7/8	3-1/2	4	**K610201200**
	U/S 1/8			.1240	**.1190**	7/8	3-1/2	4	**K610501240**
	1/8			.1250	**.1190**	7/8	3-1/2	4	**K610101250**
	O/S 1/8			.1260	**.1190**	7/8	3-1/2	4	**K610501260**
			#30	.1285	**.1190**	7/8	3-1/2	4	**K610201285**
			#29	.1360	**.1275**	1	4	4	**K610201360**
3.50				.1378	**.1350**	1	4	4	**K610601378**
			#28	.1405	**.1350**	1	4	4	**K610201405**
	9/64			.1406	**.1350**	1	4	4	**K610101406**
			#27	.1440	**.1350**	1	4	4	**K610201440**
			#26	.1470	**.1430**	1	4	4	**K610201470**
			#25	.1495	**.1430**	1	4	4	**K610201495**
			#24	.1520	**.1460**	1	4	4	**K610201520**
			#23	.1540	**.1460**	1	4	4	**K610201540**
	5/32			.1562	**.1510**	1	4	4	**K610101562**
			#22	.1570	**.1510**	1	4	6	**K610201570**
4.00				.1575	**.1530**	1	4	6	**K610601575**
			#21	.1590	**.1530**	1-1/8	4-1/2	6	**K610201590**
			#20	.1610	**.1530**	1-1/8	4-1/2	6	**K610201610**
			#19	.1660	**.1595**	1-1/8	4-1/2	6	**K610201660**
			#18	.1695	**.1595**	1-1/8	4-1/2	6	**K610201695**
	11/64			.1719	**.1645**	1-1/8	4-1/2	6	**K610101719**
			#17	.1730	**.1645**	1-1/8	4-1/2	6	**K610201730**
			#16	.1770	**.1704**	1-1/8	4-1/2	6	**K610201770**
4.50				.1772	**.1704**	1-1/8	4-1/2	6	**K610601772**
			#15	.1800	**.1755**	1-1/8	4-1/2	6	**K610201800**
			#14	.1820	**.1755**	1-1/8	4-1/2	6	**K610201820**
			#13	.1850	**.1805**	1-1/8	4-1/2	6	**K610201850**
	U/S 3/16			.1865	**.1805**	1-1/8	4-1/2	6	**K610501865**
	3/16			.1875	**.1805**	1-1/8	4-1/2	6	**K610101875**
	O/S 3/16			.1885	**.1805**	1-1/8	4-1/2	6	**K610501885**
			#12	.1890	**.1805**	1-1/8	4-1/2	6	**K610201890**
			#11	.1910	**.1860**	1-1/4	5	6	**K610201910**
			#10	.1935	**.1860**	1-1/4	5	6	**K610201935**
			#9	.1960	**.1895**	1-1/4	5	6	**K610201960**
5.00				.1969	**.1895**	1-1/4	5	6	**K610601969**
			#8	.1990	**.1895**	1-1/4	5	6	**K610201990**
			#7	.2010	**.1945**	1-1/4	5	6	**K610202010**
	13/64			.2031	**.1945**	1-1/4	5	6	**K610102031**
			#6	.2040	**.1945**	1-1/4	5	6	**K610202040**
			#5	.2055	**.2016**	1-1/4	5	6	**K610202055**
			#4	.2090	**.2016**	1-1/4	5	6	**K610202090**
			#3	.2130	**.2075**	1-1/4	5	6	**K610202130**

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HSS REAMERS

Unit: Inch

Nominal Size					Shank Diameter	Flute Length	Overall Length	No. of Flute	EDP No.
Metric	Fractional	Letter	Wire Gauge	Decimal					
		D1			D2	L1	L2		
5.50				.2165	**.2075**	1-1/4	5	6	**K610602165**
	7/32			.2188	**.2075**	1-1/4	5	6	**K610102188**
			#2	.2210	**.2173**	1-1/2	6	6	**K610202210**
			#1	.2280	**.2173**	1-1/2	6	6	**K610202280**
		A		.2340	**.2265**	1-1/2	6	6	**K610302340**
	15/64			.2344	**.2265**	1-1/2	6	6	**K610102344**
6.00				.2362	**.2265**	1-1/2	6	6	**K610602362**
		B		.2380	**.2329**	1-1/2	6	6	**K610302380**
		C		.2420	**.2329**	1-1/2	6	6	**K610302420**
		D		.2460	**.2329**	1-1/2	6	6	**K610302460**
	U/S 1/4			.2490	**.2405**	1-1/2	6	6	**K610502490**
	1/4	E		.2500	**.2405**	1-1/2	6	6	**K610102500**
	O/S 1/4			.2510	**.2405**	1-1/2	6	6	**K610502510**
6.50				.2559	**.2405**	1-1/2	6	6	**K610602559**
		F		.2570	**.2485**	1-1/2	6	6	**K610302570**
		G		.2610	**.2485**	1-1/2	6	6	**K610302610**
	17/64			.2656	**.2485**	1-1/2	6	6	**K610102656**
		H		.2660	**.2485**	1-1/2	6	6	**K610302660**
		I		.2720	**.2485**	1-1/2	6	6	**K610302720**
7.00				.2756	**.2485**	1-1/2	6	6	**K610602756**
		J		.2770	**.2485**	1-1/2	6	6	**K610302770**
		K		.2810	**.2485**	1-1/2	6	6	**K610302810**
	9/32			.2812	**.2485**	1-1/2	6	6	**K610102812**
		L		.2900	**.2792**	1-1/2	6	6	**K610302900**
		M		.2950	**.2792**	1-1/2	6	6	**K610302950**
7.50				.2953	**.2792**	1-1/2	6	6	**K610602953**
	19/64			.2969	**.2792**	1-1/2	6	6	**K610102969**
		N		.3020	**.2792**	1-1/2	6	6	**K610303020**
	U/S 5/16			.3115	**.2792**	1-1/2	6	6	**K610503115**
	5/16			.3125	**.2792**	1-1/2	6	6	**K610103125**
	O/S 5/16			.3135	**.2792**	1-1/2	6	6	**K610503135**
8.00				.3150	**.2792**	1-1/2	6	6	**K610603150**
		O		.3160	**.2792**	1-1/2	6	6	**K610303160**
		P		.3230	**.2792**	1-1/2	6	6	**K610303230**
	21/64			.3281	**.2792**	1-1/2	6	6	**K610103281**
		Q		.3320	**.2792**	1-1/2	6	6	**K610303320**
8.50				.3346	**.2792**	1-1/2	6	6	**K610603346**
		R		.3390	**.2792**	1-1/2	6	6	**K610303390**
	11/32			.3438	**.2792**	1-1/2	6	6	**K610103438**
		S		.3480	**.3105**	1-3/4	7	6	**K610303480**
9.00				.3543	**.3105**	1-3/4	7	6	**K610603543**
		T		.3580	**.3105**	1-3/4	7	6	**K610303580**
	23/64			.3594	**.3105**	1-3/4	7	6	**K610103594**
		U		.3680	**.3105**	1-3/4	7	6	**K610303680**
	U/S 3/8			.3740	**.3105**	1-3/4	7	6	**K610503740**
	3/8			.3750	**.3105**	1-3/4	7	6	**K610103750**
	O/S 3/8			.3760	**.3105**	1-3/4	7	6	**K610503760**
		V		.3770	**.3105**	1-3/4	7	6	**K610303770**
		W		.3860	**.3105**	1-3/4	7	6	**K610303860**
	25/64			.3906	**.3105**	1-3/4	7	6	**K610103906**
10.00				.3937	**.3105**	1-3/4	7	6	**K610603937**
		X		.3970	**.3105**	1-3/4	7	6	**K610303970**
		Y		.4040	**.3105**	1-3/4	7	6	**K610304040**
	13/32			.4062	**.3105**	1-3/4	7	6	**K610104062**
		Z		.4130	**.3730**	1-3/4	7	6	**K610304130**
10.50				.4134	**.3730**	1-3/4	7	6	**K610604134**
	27/64			.4219	**.3730**	1-3/4	7	6	**K610104219**
11.00				.4331	**.3730**	1-3/4	7	6	**K610604331**
	U/S 7/16			.4365	**.3730**	1-3/4	7	6	**K610504365**
	7/16			.4375	**.3730**	1-3/4	7	6	**K610104375**

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HSS REAMERS

Unit: Inch

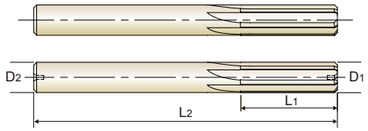
Nominal Size					Shank Diameter	Flute Length	Overall Length	No. of Flute	EDP No.
Metric	Fractional	Letter	Wire Gauge	Decimal					
		D1			D2	L1	L2		
	O/S 7/16			.4385	**.3730**	1-3/4	7	6	**K610504385**
11.50				.4528	**.3730**	1-3/4	7	6	**K610604528**
	29/64			.4531	**.3730**	1-3/4	7	6	**K610104531**
	15/32			.4688	**.3730**	1-3/4	7	6	**K610104688**
12.00				.4724	**.4355**	2	8	6	**K610604724**
	31/64			.4844	**.4355**	2	8	6	**K610104844**
12.50				.4921	**.4355**	2	8	6	**K610604921**
	U/S 1/2			.4990	**.4355**	2	8	6	**K610504990**
	1/2			.5000	**.4355**	2	8	6	**K610105000**
	O/S 1/2			.5010	**.4355**	2	8	6	**K610505010**
13.00				.5118	**.4355**	2	8	6	**K610605118**
	33/64			.5156	**.4355**	2	8	6	**K610105156**
	17/32			.5312	**.4355**	2	8	6	**K610105313**
13.50				.5315	**.4355**	2	8	6	**K610605315**
	35/64			.5469	**.4355**	2	8	8	**K610105469**
14.00				.5512	**.4355**	2	8	8	**K610605512**
	9/16			.5625	**.4355**	2	8	8	**K610105625**
14.50				.5709	**.4355**	2	8	8	**K610605709**
	37/64			.5781	**.4355**	2	8	8	**K610105781**
15.00				.5906	**.4355**	2	8	8	**K610605906**
	19/32			.5938	**.4355**	2	8	8	**K610105938**
	39/64			.6094	**.5620**	2-1/4	9	8	**K610106094**
15.50				.6102	**.5620**	2-1/4	9	8	**K610606102**
	U/S 5/8			.6240	**.5615**	2-1/4	9	8	**K610506240**
	5/8			.6250	**.5620**	2-1/4	9	8	**K610106250**
	O/S 5/8			.6260	**.5615**	2-1/4	9	8	**K610506260**
16.00				.6299	**.5620**	2-1/4	9	8	**K610606299**
	41/64			.6406	**.5620**	2-1/4	9	8	**K610106406**
16.50				.6496	**.5620**	2-1/4	9	8	**K610606496**
	21/32			.6562	**.5620**	2-1/4	9	8	**K610106562**
17.00				.6693	**.5620**	2-1/4	9	8	**K610606693**
	43/64			.6719	**.5620**	2-1/4	9	8	**K610106719**
	U/S 11/16			.6865	**.5615**	2-1/4	9	8	**K610506865**
	11/16			.6875	**.5620**	2-1/4	9	8	**K610106875**
	O/S 11/16			.6885	**.5615**	2-1/4	9	8	**K610506885**
17.50				.6890	**.5620**	2-1/4	9	8	**K610606890**
	45/64			.7031	**.5620**	2-1/4	9	8	**K610107031**
18.00				.7087	**.5620**	2-1/4	9	8	**K610607087**
	23/32			.7188	**.5620**	2-1/4	9	8	**K610107188**
18.50				.7283	**.6245**	2-1/4	9	8	**K610607283**
	47/64			.7344	**.6245**	2-1/2	9-1/2	8	**K610107344**
19.00				.7480	**.6245**	2-1/4	9	8	**K610607480**
	U/S 3/4			.7490	**.6240**	2-1/2	9	8	**K610507490**
	3/4			.7500	**.6245**	2-1/2	9-1/2	8	**K610107500**

O.D. Tolerance	Shank Dia. Tolerance
Up to 1/2 Inch : +.0002"/-.0000" Over 1/2 to 5/8 Inch : '+.0003"/-.0000" Over 5/8 to 1 Inch : '+.0004"/+.0001"	Up to .4355" : +.0000"/-.0010" Over .4355" : +.0000"/-.0015"

CARBIDE REAMERS

- Straight Flute, Right Hand Cut
- Shank Diameter ≠ Nominal Reamer Diameter
- Type of Center
  Up to .1177" : Non-Center
  Over .1177" : Internal

Hole type



CARBIDE 45°

P. 58-59

Unit: Inch

Nominal Size					Shank Diameter	Flute Length	Overall Length	No. of Flute	EDP No.
Metric	Fractional	Letter	Wire Gauge	Decimal					
		D1			D2	L1	L2		
			#70	.0280	**.0280**	1/4	1- 1/2	4	**K910200280**
			#69	.0292	**.0292**	1/4	1- 1/2	4	**K910200292**
			#68	.0310	**.0310**	1/4	1- 1/2	4	**K910200310**
			#67	.0320	**.0320**	1/4	1- 1/2	4	**K910200320**
			#66	.0330	**.0330**	1/4	1- 1/2	4	**K910200330**
			#65	.0350	**.0350**	1/4	1- 1/2	4	**K910200350**
				.0355	**.0355**	1/4	1- 1/2	4	**K910700355**
			#64	.0360	**.0360**	1/4	1- 1/2	4	**K910200360**
				.0365	**.0365**	1/4	1- 1/2	4	**K910700365**
			#63	.0370	**.0370**	1/4	1- 1/2	4	**K910200370**
				.0375	**.0375**	1/4	1- 1/2	4	**K910700375**
			#62	.0380	**.0380**	1/4	1- 1/2	4	**K910200380**
				.0385	**.0385**	1/4	1- 1/2	4	**K910700385**
			#61	.0390	**.0390**	1/4	1- 1/2	4	**K910200390**
				.0395	**.0395**	1/4	1- 1/2	4	**K910700395**
			#60	.0400	**.0400**	1/4	1- 1/2	4	**K910200400**
				.0405	**.0405**	3/8	1- 1/2	4	**K910700405**
			#59	.0410	**.0410**	3/8	1- 1/2	4	**K910200410**
			#58	.0420	**.0420**	3/8	1- 1/2	4	**K910200420**
				.0425	**.0425**	3/8	1- 1/2	4	**K910700425**
			#57	.0430	**.0430**	3/8	1- 1/2	4	**K910200430**
				.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**
			#56	.0465	**.0465**	3/8	1- 1/2	4	**K910200465**
				.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**
			#55	.0520	**.0520**	3/8	1- 1/2	4	**K910200520**
				.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**
			#54	.0550	**.0550**	3/8	1- 1/2	4	**K910200550**
				.0560	**.0560**	3/8	1- 1/2	4	**K910700560**

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CARBIDE REAMERS

Unit: Inch

Nominal Size					Shank Diameter	Flute Length	Overall Length	No. of Flute	EDP No.
Metric	Fractional	Letter	Wire Gauge	Decimal					
		D1			D2	L1	L2		
				.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**
1.50				.0591	**.0591**	3/8	1-1/2	4	**K910600591**
			#53	.0595	**.0595**	3/8	1-1/2	4	**K910200595**
				.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**
	1/16			.0625	**.0625**	3/8	1-1/2	4	**K910700625**
				.0630	**.0630**	3/8	1-1/2	4	**K910700630**
			#52	.0635	**.0635**	3/8	1-1/2	4	**K910200635**
				.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**
			#51	.0670	**.0670**	1/2	1-3/4	4	**K910200670**
				.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**
			#50	.0700	**.0700**	1/2	1-3/4	4	**K910200700**
				.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**
			#49	.0730	**.0730**	1/2	1-3/4	4	**K910200730**
				.0740	**.0740**	1/2	1-3/4	4	**K910700740**
				.0750	**.0750**	1/2	1-3/4	4	**K910700750**
			#48	.0760	**.0760**	1/2	1-3/4	4	**K910200760**
				.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**
	5/64			.0781	**.0781**	1/2	1-3/4	4	**K910700781**
			#47	.0785	**.0785**	1/2	1-3/4	4	**K910200785**
2.00				.0787	**.0787**	1/2	1-3/4	4	**K910600787**
				.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**
			#46	.0810	**.0810**	1/2	2	4	**K910200810**
			#45	.0820	**.0820**	1/2	2	4	**K910200820**
				.0830	**.0830**	1/2	2	4	**K910700830**
				.0840	**.0840**	1/2	2	4	**K910700840**
				.0850	**.0850**	1/2	2	4	**K910700850**
			#44	.0860	**.0860**	1/2	2	4	**K910200860**
				.0865	**.0865**	1/2	2	4	**K910700865**
				.0870	**.0870**	1/2	2	4	**K910700870**
				.0880	**.0880**	1/2	2	4	**K910700880**
			#43	.0890	**.0890**	1/2	2	4	**K910200890**
				.0900	**.0900**	1/2	2	4	**K910700900**
				.0905	**.0905**	1/2	2	4	**K910700905**
				.0910	**.0910**	1/2	2	4	**K910700910**
				.0915	**.0915**	1/2	2	4	**K910700915**
				.0920	**.0920**	1/2	2	4	**K910700920**
				.0925	**.0925**	1/2	2	4	**K910700925**
				.0930	**.0930**	1/2	2	4	**K910700930**
			#42	.0935	**.0935**	1/2	2	4	**K910200935**
	3/32			.0938	**.0938**	1/2	2	4	**K910700938**
				.0940	**.0940**	1/2	2	4	**K910700940**

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CARBIDE REAMERS

Unit: Inch

Nominal Size					Shank Diameter	Flute Length	Overall Length	No. of Flute	EDP No.
Metric	Fractional	Letter	Wire Gauge	Decimal					
		D1			D2	L1	L2		
				.0945	**.0945**	1/2	2	4	**K910700945**
				.0950	**.0950**	1/2	2	4	**K910700950**
				.0955	**.0955**	1/2	2	4	**K910700955**
			#41	.0960	**.0960**	5/8	2	4	**K910200960**
2.45				.0965	**.0965**	1/2	2	4	**K910600965**
				.0970	**.0970**	5/8	2	4	**K910700970**
				.0975	**.0975**	5/8	2-1/4	4	**K910700975**
			#40	.0980	**.0980**	5/8	2	4	**K910200980**
2.50				.0984	**.0984**	5/8	2	4	**K910600984**
				.0985	**.0985**	5/8	2-1/4	4	**K910700985**
				.0990	**.0990**	5/8	2-1/4	4	**K910700990**
			#39	.0995	**.0995**	5/8	2-1/4	4	**K910200995**
				.1000	**.1000**	5/8	2-1/4	4	**K910701000**
				.1010	**.1010**	5/8	2-1/4	4	**K910701010**
			#38	.1015	**.1015**	5/8	2-1/4	4	**K910201015**
				.1020	**.1020**	5/8	2-1/4	4	**K910701020**
				.1030	**.1030**	5/8	2-1/4	4	**K910701030**
			#37	.1040	**.1040**	5/8	2-1/4	4	**K910201040**
				.1050	**.1050**	5/8	2-1/4	4	**K910701050**
				.1050	**.1050**	5/8	2-1/4	4	**K910701550**
				.1060	**.1060**	5/8	2-1/4	4	**K910701060**
			#36	.1065	**.1065**	5/8	2-1/4	4	**K910201065**
				.1070	**.1070**	5/8	2-1/4	4	**K910701070**
				.1080	**.1080**	5/8	2-1/4	4	**K910701080**
				.1090	**.1090**	5/8	2-1/4	4	**K910701090**
	7/64			.1094	**.1094**	5/8	2-1/4	4	**K910701094**
			#35	.1100	**.1100**	5/8	2-1/4	4	**K910201100**
			#34	.1110	**.1110**	5/8	2-1/4	4	**K910201110**
				.1120	**.1120**	5/8	2-1/4	4	**K910701120**
			#33	.1130	**.1130**	5/8	2-1/4	4	**K910201130**
				.1140	**.1140**	5/8	2-1/4	4	**K910701140**
				.1150	**.1150**	5/8	2-1/4	4	**K910701150**
			#32	.1160	**.1160**	5/8	2-1/4	4	**K910201160**
				.1170	**.1170**	5/8	2-1/4	4	**K910701170**
				.1175	**.1175**	5/8	2-1/4	4	**K910701175**
				.1180	**.1180**	5/8	2-1/4	4	**K910701180**
3.00				.1181	**.1181**	5/8	2-1/4	4	**K910601181**
				.1185	**.1185**	5/8	2-1/4	4	**K910701185**
				.1190	**.1190**	5/8	2-1/4	4	**K910701190**
				.1195	**.1195**	5/8	2-1/4	4	**K910701195**
			#31	.1200	**.1200**	5/8	2-1/4	4	**K910201200**
				.1205	**.1205**	5/8	2-1/4	4	**K910701205**
				.1210	**.1210**	5/8	2-1/4	4	**K910701210**
				.1215	**.1215**	5/8	2-1/4	4	**K910701215**
				.1220	**.1220**	5/8	2-1/4	4	**K910701220**
				.1225	**.1225**	5/8	2-1/4	4	**K910701225**
				.1230	**.1230**	5/8	2-1/4	4	**K910701230**
				.1235	**.1235**	5/8	2-1/4	4	**K910701235**
				.1240	**.1240**	5/8	2-1/4	4	**K910701240**
				.1245	**.1245**	5/8	2-1/4	4	**K910701245**
				.1247	**.1247**	5/8	2-1/4	4	**K910701247**
	1/8			.1250	**.1250**	5/8	2-1/4	4	**K910701250**
				.1255	**.1255**	5/8	2-1/4	4	**K910701255**
				.1260	**.1260**	5/8	2-1/4	4	**K910701260**
				.1265	**.1265**	5/8	2-1/4	4	**K910701265**
				.1270	**.1270**	5/8	2-1/4	4	**K910701270**
				.1275	**.1275**	5/8	2-1/4	4	**K910701275**
3.25				.1280	**.1280**	5/8	2-1/4	4	**K910601280**
			#30	.1285	**.1285**	5/8	2-1/4	4	**K910201285**

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CARBIDE REAMERS

Unit: Inch

Nominal Size					Shank Diameter	Flute Length	Overall Length	No. of Flute	EDP No.
Metric	Fractional	Letter	Wire Gauge	Decimal					
		D1			D2	L1	L2		
				.1290	**.1290**	5/8	2-1/4	4	**K910701290**
				.1295	**.1295**	3/4	2-1/2	4	**K910701295**
				.1300	**.1300**	5/8	2-1/2	4	**K910701300**
				.1305	**.1305**	3/4	2-1/2	4	**K910701305**
				.1310	**.1310**	3/4	2-1/2	4	**K910701310**
				.1315	**.1315**	3/4	2-1/2	4	**K910701315**
				.1320	**.1320**	3/4	2-1/2	4	**K910701320**
				.1330	**.1330**	3/4	2-1/2	4	**K910701330**
				.1340	**.1340**	3/4	2-1/2	4	**K910701340**
				.1350	**.1350**	3/4	2-1/2	4	**K910701350**
			#29	.1360	**.1360**	3/4	2-1/2	4	**K910201360**
				.1365	**.1365**	3/4	2-1/2	4	**K910701365**
				.1370	**.1370**	3/4	2-1/2	4	**K910701370**
3.50				.1378	**.1378**	3/4	2-1/2	4	**K910601378**
				.1380	**.1380**	3/4	2-1/2	4	**K910701380**
				.1390	**.1390**	3/4	2-1/2	4	**K910701390**
				.1400	**.1400**	3/4	2-1/2	4	**K910701400**
			#28	.1405	**.1405**	3/4	2-1/2	4	**K910201405**
	9/64			.1406	**.1406**	3/4	2-1/2	4	**K910701406**
				.1410	**.1410**	3/4	2-1/2	4	**K910701410**
				.1415	**.1415**	3/4	2-1/2	4	**K910701415**
				.1420	**.1420**	3/4	2-1/2	4	**K910701420**
				.1430	**.1430**	3/4	2-1/2	4	**K910701430**
				.1435	**.1435**	3/4	2-1/2	4	**K910701435**
			#27	.1440	**.1440**	3/4	2-1/2	4	**K910201440**
				.1450	**.1450**	3/4	2-1/2	4	**K910701450**
				.1460	**.1460**	3/4	2-1/2	4	**K910701460**
			#26	.1470	**.1470**	3/4	2-1/2	4	**K910201470**
				.1480	**.1480**	3/4	2-1/2	4	**K910701480**
				.1490	**.1490**	3/4	2-1/2	4	**K910701490**
			#25	.1495	**.1495**	3/4	2-1/2	4	**K910201495**
				.1500	**.1500**	3/4	2-1/2	4	**K910701500**
				.1510	**.1510**	3/4	2-1/2	4	**K910701510**
			#24	.1520	**.1520**	3/4	2-1/2	4	**K910201520**
				.1530	**.1530**	3/4	2-1/2	4	**K910701530**
			#23	.1540	**.1540**	3/4	2-1/2	4	**K910201540**
				.1545	**.1545**	3/4	2-1/2	4	**K910701545**
				.1545	**.1545**	3/4	2-1/2	4	**K910701565**
				.1555	**.1555**	3/4	2-1/2	4	**K910701555**
				.1560	**.1560**	3/4	2-1/2	4	**K910701560**
	5/32			.1562	**.1562**	3/4	2-1/2	4	**K910701562**
			#22	.1570	**.1570**	3/4	2-1/2	4	**K910201570**
4.00				.1575	**.1575**	3/4	2-1/2	4	**K910601575**
				.1580	**.1580**	3/4	2-1/2	4	**K910701580**
				.1585	**.1585**	3/4	2-1/2	4	**K910701585**
			#21	.1590	**.1590**	3/4	2-1/2	4	**K910201590**
				.1600	**.1600**	3/4	2-1/2	4	**K910701600**
				.1605	**.1605**	7/8	2-3/4	4	**K910701605**
			#20	.1610	**.1610**	7/8	2-1/2	4	**K910201610**
				.1615	**.1615**	7/8	2-3/4	4	**K910701615**
				.1620	**.1620**	7/8	2-3/4	4	**K910701620**
				.1630	**.1630**	7/8	2-3/4	4	**K910701630**
				.1640	**.1640**	7/8	2-3/4	4	**K910701640**
				.1650	**.1650**	7/8	2-3/4	4	**K910701650**
			#19	.1660	**.1660**	7/8	2-3/4	4	**K910201660**
				.1670	**.1670**	7/8	2-3/4	4	**K910701670**
				.1680	**.1680**	7/8	2-3/4	4	**K910701680**
				.1690	**.1690**	7/8	2-3/4	4	**K910701690**
			#18	.1695	**.1695**	7/8	2-3/4	4	**K910201695**
				.1700	**.1700**	7/8	2-3/4	4	**K910701700**

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CARBIDE REAMERS

Unit: Inch

Nominal Size					Shank Diameter	Flute Length	Overall Length	No. of Flute	EDP No.
Metric	Fractional	Letter	Wire Gauge	Decimal					
		D1			D2	L1	L2		
				.1710	**.1710**	7/8	2-3/4	4	**K910701710**
	11/64			.1719	**.1719**	7/8	2-3/4	4	**K910701719**
				.1720	**.1720**	7/8	2-3/4	4	**K910701720**
			#17	.1730	**.1730**	7/8	2-3/4	4	**K910201730**
				.1740	**.1740**	7/8	2-3/4	4	**K910701740**
				.1750	**.1750**	7/8	2-3/4	4	**K910701750**
				.1760	**.1760**	7/8	2-3/4	4	**K910701760**
			#16	.1770	**.1770**	7/8	2-3/4	4	**K910201770**
4.50				.1772	**.1772**	7/8	2-3/4	4	**K910601772**
				.1780	**.1780**	7/8	2-3/4	4	**K910701780**
				.1790	**.1790**	7/8	2-3/4	4	**K910701790**
			#15	.1800	**.1800**	7/8	2-3/4	4	**K910201800**
				.1810	**.1810**	7/8	2-3/4	4	**K910701810**
			#14	.1820	**.1820**	7/8	2-3/4	4	**K910201820**
				.1830	**.1830**	7/8	2-3/4	4	**K910701830**
				.1840	**.1840**	7/8	2-3/4	4	**K910701840**
			#13	.1850	**.1850**	7/8	2-3/4	4	**K910201850**
				.1855	**.1855**	7/8	2-3/4	4	**K910701855**
				.1860	**.1860**	7/8	2-3/4	4	**K910701860**
				.1865	**.1865**	7/8	2-3/4	4	**K910701865**
				.1870	**.1870**	7/8	2-3/4	4	**K910701870**
	3/16			.1875	**.1875**	7/8	2-3/4	4	**K910701875**
				.1880	**.1880**	7/8	2-3/4	4	**K910701880**
				.1885	**.1885**	7/8	2-3/4	4	**K910701885**
			#12	.1890	**.1890**	7/8	2-3/4	4	**K910201890**
				.1895	**.1895**	7/8	2-3/4	4	**K910701895**
				.1900	**.1900**	7/8	2-3/4	4	**K910701900**
				.1905	**.1905**	7/8	2-3/4	4	**K910701905**
			#11	.1910	**.1910**	7/8	2-3/4	4	**K910201910**
				.1915	**.1915**	1	3	4	**K910701915**
				.1920	**.1920**	7/8	2-3/4	4	**K910701920**
				.1925	**.1925**	1	3	4	**K910701925**
				.1930	**.1930**	7/8	2-3/4	4	**K910701930**
			#10	.1935	**.1935**	7/8	2-3/4	4	**K910201935**
				.1940	**.1940**	7/8	2-3/4	4	**K910701940**
				.1950	**.1950**	7/8	2-3/4	4	**K910701950**
				.1955	**.1955**	1	3	4	**K910701955**
			#9	.1960	**.1960**	1	3	4	**K910201960**
				.1965	**.1965**	1	3	4	**K910701965**
5.00				.1969	**.1969**	1	3	4	**K910601969**
				.1970	**.1970**	1	3	4	**K910701970**
				.1980	**.1980**	1	3	4	**K910701980**
			#8	.1990	**.1990**	1	3	4	**K910201990**
				.2000	**.2000**	1	3	4	**K910702000**
				.2005	**.2005**	1	3	4	**K910702005**
			#7	.2010	**.2010**	1	3	4	**K910202010**
				.2015	**.2015**	1	3	4	**K910702015**
				.2020	**.2020**	1	3	4	**K910702020**
				.2025	**.2025**	1	3	4	**K910702025**
				.2030	**.2030**	1	3	4	**K910702030**
	13/64			.2031	**.2031**	1	3	4	**K910102031**
			#6	.2040	**.2040**	1	3	4	**K910202040**
				.2050	**.2050**	1	3	4	**K910702050**
			#5	.2055	**.2055**	1	3	4	**K910202055**
				.2060	**.2060**	1	3	4	**K910702060**
				.2070	**.2070**	1	3	4	**K910702070**
				.2080	**.2080**	1	3	4	**K910702080**
			#4	.2090	**.2090**	1	3	4	**K910202090**
				.2100	**.2100**	1	3	4	**K910702100**
				.2110	**.2110**	1	3	4	**K910702110**

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Holemaking
Threading
Milling
Indexable
Rotary Tool Holder

CARBIDE REAMERS

Unit: Inch

Nominal Size					Shank Diameter	Flute Length	Overall Length	No. of Flute	EDP No.
Metric	Fractional	Letter	Wire Gauge	Decimal					
		D1			D2	L1	L2		
				.2120	**.2120**	1	3	4	**K910702120**
			#3	.2130	**.2130**	1	3	4	**K910202130**
				.2140	**.2140**	1	3	4	**K910702140**
				.2150	**.2150**	1	3	4	**K910702150**
				.2160	**.2160**	1	3	4	**K910702160**
5.50				.2165	**.2165**	1	3	4	**K910602165**
				.2170	**.2170**	1	3	4	**K910702170**
				.2180	**.2180**	1	3	4	**K910702180**
	7/32			.2188	**.2188**	1	3	4	**K910702188**
				.2190	**.2190**	1	3	4	**K910702190**
				.2200	**.2200**	1	3	4	**K910702200**
			#2	.2210	**.2210**	1	3	4	**K910202210**
				.2220	**.2220**	1	3	4	**K910702220**
				.2230	**.2230**	1	3	4	**K910702230**
				.2240	**.2240**	1	3	4	**K910702240**
				.2250	**.2250**	1	3	4	**K910702250**
				.2260	**.2260**	1	3	4	**K910702260**
				.2270	**.2270**	1	3	4	**K910702270**
			#1	.2280	**.2280**	1	3	4	**K910202280**
				.2290	**.2290**	1	3	4	**K910702290**
				.2300	**.2300**	1	3	4	**K910702300**
				.2310	**.2310**	1	3	4	**K910702310**
				.2320	**.2320**	1	3	4	**K910702320**
				.2330	**.2330**	1	3	4	**K910702330**
		A		.2340	**.2340**	1	3	4	**K910302340**
	15/64			.2344	**.2344**	1	3	4	**K910102344**
				.2350	**.2350**	1	3	4	**K910702350**
				.2355	**.2355**	1	3	4	**K910702355**
				.2360	**.2360**	1	3	4	**K910702360**
6.00				.2362	**.2362**	1	3	4	**K910602362**
				.2365	**.2365**	1	3	4	**K910702365**
				.2370	**.2370**	1	3	4	**K910702370**
				.2375	**.2375**	1	3	4	**K910702375**
		B		.2380	**.2380**	1	3	4	**K910302380**
				.2390	**.2390**	1	3	4	**K910702390**
				.2400	**.2400**	1	3	4	**K910702400**
				.2410	**.2410**	1	3	4	**K910702410**
		C		.2420	**.2420**	1	3	4	**K910302420**
				.2430	**.2430**	1	3	4	**K910702430**
				.2440	**.2440**	1	3	4	**K910702440**
				.2450	**.2450**	1	3	4	**K910702450**
		D		.2460	**.2460**	1	3	4	**K910302460**
				.2470	**.2470**	1	3	4	**K910702470**
				.2480	**.2480**	1	3	4	**K910702480**
				.2485	**.2485**	1	3	4	**K910702485**
				.2490	**.2490**	1	3	4	**K910702490**
				.2495	**.2495**	1	3	4	**K910702495**
				.2498	**.2498**	1	3	4	**K910402498**
	1/4	E		.2500	**.2500**	1	3	4	**K910702500**
				.2505	**.2505**	1	3	4	**K910702505**
				.2510	**.2510**	1	3	4	**K910702510**
				.2515	**.2515**	1	3	4	**K910702515**
				.2520	**.2520**	1	3	4	**K910702520**
				.2530	**.2530**	1	3	4	**K910702530**
				.2540	**.2540**	1	3	4	**K910702540**
				.2550	**.2550**	1	3	6	**K910702550**
6.50				.2559	**.2559**	1-1/8	3-1/4	6	**K910602559**
				.2560	**.2560**	1-1/8	3-1/4	6	**K910702560**
		F		.2570	**.2570**	1-1/8	3-1/4	6	**K910302570**
				.2580	**.2580**	1-1/8	3-1/4	6	**K910702580**

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CARBIDE REAMERS

Unit: Inch

Nominal Size					Shank Diameter	Flute Length	Overall Length	No. of Flute	EDP No.
Metric	Fractional	Letter	Wire Gauge	Decimal					
		D1			D2	L1	L2		
				.2590	**.2590**	1-1/8	3-1/4	6	**K910702590**
				.2600	**.2600**	1-1/8	3-1/4	6	**K910702600**
		G		.2610	**.2610**	1-1/8	3-1/4	6	**K910302610**
				.2620	**.2620**	1-1/8	3-1/4	6	**K910702620**
				.2630	**.2630**	1-1/8	3-1/4	6	**K910702630**
				.2640	**.2640**	1-1/8	3-1/4	6	**K910702640**
				.2650	**.2650**	1-1/8	3-1/4	6	**K910702650**
	17/64			.2656	**.2656**	1-1/8	3-1/4	6	**K910102656**
		H		.2660	**.2660**	1-1/8	3-1/4	6	**K910302660**
				.2670	**.2670**	1-1/8	3-1/4	6	**K910702670**
				.2680	**.2680**	1-1/8	3-1/4	6	**K910702680**
				.2690	**.2690**	1-1/8	3-1/4	6	**K910702690**
				.2700	**.2700**	1-1/8	3-1/4	6	**K910702700**
				.2710	**.2710**	1-1/8	3-1/4	6	**K910702710**
		I		.2720	**.2720**	1-1/8	3-1/4	6	**K910302720**
				.2730	**.2730**	1-1/8	3-1/4	6	**K910702730**
				.2740	**.2740**	1-1/8	3-1/4	6	**K910702740**
				.2750	**.2750**	1-1/8	3-1/4	6	**K910702750**
7.00				.2756	**.2756**	1-1/8	3-1/4	6	**K910602756**
				.2760	**.2760**	1-1/8	3-1/4	6	**K910702760**
		J		.2770	**.2770**	1-1/8	3-1/4	6	**K910302770**
				.2780	**.2780**	1-1/8	3-1/4	6	**K910702780**
				.2790	**.2790**	1-1/8	3-1/4	6	**K910702790**
				.2800	**.2800**	1-1/8	3-1/4	6	**K910702800**
		K		.2810	**.2810**	1-1/8	3-1/4	6	**K910302810**
	9/32			.2812	**.2812**	1-1/8	3-1/4	6	**K910702812**
				.2820	**.2820**	1-1/8	3-1/4	6	**K910702820**
				.2830	**.2830**	1-1/8	3-1/4	6	**K910702830**
				.2840	**.2840**	1-1/8	3-1/4	6	**K910702840**
				.2850	**.2850**	1-1/8	3-1/4	6	**K910702850**
				.2860	**.2860**	1-1/8	3-1/4	6	**K910702860**
				.2870	**.2870**	1-1/8	3-1/4	6	**K910702870**
				.2880	**.2880**	1-1/8	3-1/4	6	**K910702880**
				.2890	**.2890**	1-1/8	3-1/4	6	**K910702890**
		L		.2900	**.2900**	1-1/8	3-1/4	6	**K910302900**
				.2910	**.2910**	1-1/8	3-1/4	6	**K910702910**
				.2920	**.2920**	1-1/8	3-1/4	6	**K910702920**
				.2930	**.2930**	1-1/8	3-1/4	6	**K910702930**
				.2940	**.2940**	1-1/8	3-1/4	6	**K910702940**
		M		.2950	**.2950**	1-1/8	3-1/4	6	**K910302950**
7.50				.2953	**.2953**	1-1/8	3-1/4	6	**K910602953**
				.2960	**.2960**	1-1/8	3-1/4	6	**K910702960**
	19/64			.2969	**.2969**	1-1/8	3-1/4	6	**K910102969**
				.2970	**.2970**	1-1/8	3-1/4	6	**K910702970**
				.2980	**.2980**	1-1/8	3-1/4	6	**K910702980**
				.2990	**.2990**	1-1/8	3-1/4	6	**K910702990**
				.3000	**.3000**	1-1/8	3-1/4	6	**K910703000**
				.3010	**.3010**	1-1/8	3-1/4	6	**K910703010**
		N		.3020	**.3020**	1-1/8	3-1/4	6	**K910303020**
				.3030	**.3030**	1-1/8	3-1/4	6	**K910703030**
				.3040	**.3040**	1-1/8	3-1/4	6	**K910703040**
				.3050	**.3050**	1-1/8	3-1/4	6	**K910703050**
				.3060	**.3060**	1-1/8	3-1/4	6	**K910703060**
				.3070	**.3070**	1-1/8	3-1/4	6	**K910703070**
				.3080	**.3080**	1-1/8	3-1/4	6	**K910703080**
				.3090	**.3090**	1-1/8	3-1/4	6	**K910703090**
				.3100	**.3100**	1-1/8	3-1/4	6	**K910703100**
				.3105	**.3105**	1-1/8	3-1/4	6	**K910703105**
				.3110	**.3110**	1-1/8	3-1/4	6	**K910703110**
				.3115	**.3115**	1-1/8	3-1/4	6	**K910703115**

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CARBIDE REAMERS

Unit: Inch

Nominal Size					Shank Diameter	Flute Length	Overall Length	No. of Flute	EDP No.
Metric	Fractional	Letter	Wire Gauge	Decimal					
		D1			D2	L1	L2		
				.3120	**.3120**	1-1/8	3-1/4	6	**K910703120**
	5/16			.3125	**.3125**	1-1/8	3-1/4	6	**K910703125**
				.3130	**.3130**	1-1/8	3-1/4	6	**K910703130**
				.3135	**.3135**	1-1/8	3-1/4	6	**K910703135**
				.3140	**.3140**	1-1/8	3-1/4	6	**K910703140**
8.00				.3150	**.3150**	1-1/8	3-1/4	6	**K910603150**
		O		.3160	**.3160**	1-1/8	3-1/4	6	**K910303160**
				.3170	**.3170**	1-1/8	3-1/4	6	**K910703170**
				.3180	**.3180**	1-1/8	3-1/4	6	**K910703180**
				.3190	**.3190**	1-1/8	3-1/4	6	**K910703190**
				.3200	**.3200**	1-1/8	3-1/4	6	**K910703200**
				.3210	**.3210**	1-1/4	3-1/2	6	**K910703210**
				.3220	**.3220**	1-1/4	3-1/2	6	**K910703220**
		P		.3230	**.3230**	1-1/4	3-1/2	6	**K910303230**
				.3240	**.3240**	1-1/4	3-1/2	6	**K910703240**
				.3250	**.3250**	1-1/4	3-1/2	6	**K910703250**
				.3260	**.3260**	1-1/4	3-1/2	6	**K910703260**
				.3270	**.3270**	1-1/4	3-1/2	6	**K910703270**
				.3280	**.3280**	1-1/4	3-1/2	6	**K910703280**
	21/64			.3281	**.3281**	1-1/4	3-1/2	6	**K910103281**
				.3290	**.3290**	1-1/4	3-1/2	6	**K910703290**
				.3300	**.3300**	1-1/4	3-1/2	6	**K910703300**
				.3310	**.3310**	1-1/4	3-1/2	6	**K910703310**
		Q		.3320	**.3320**	1-1/4	3-1/2	6	**K910303320**
				.3330	**.3330**	1-1/4	3-1/2	6	**K910703330**
				.3340	**.3340**	1-1/4	3-1/2	6	**K910703340**
8.50				.3345	**.3345**	1-1/4	3-1/2	6	**K910603346**
				.3350	**.3350**	1-1/4	3-1/2	6	**K910703350**
				.3360	**.3360**	1-1/4	3-1/2	6	**K910703360**
				.3370	**.3370**	1-1/4	3-1/2	6	**K910703370**
				.3380	**.3380**	1-1/4	3-1/2	6	**K910703380**
		R		.3390	**.3390**	1-1/4	3-1/2	6	**K910303390**
				.3400	**.3400**	1-1/4	3-1/2	6	**K910703400**
				.3410	**.3410**	1-1/4	3-1/2	6	**K910703410**
				.3420	**.3420**	1-1/4	3-1/2	6	**K910703420**
				.3430	**.3430**	1-1/4	3-1/2	6	**K910703430**
	11/32			.3438	**.3438**	1-1/4	3-1/2	6	**K910703438**
				.3440	**.3440**	1-1/4	3-1/2	6	**K910703440**
				.3450	**.3450**	1-1/4	3-1/2	6	**K910703450**
				.3460	**.3460**	1-1/4	3-1/2	6	**K910703460**
				.3470	**.3470**	1-1/4	3-1/2	6	**K910703470**
		S		.3480	**.3480**	1-1/4	3-1/2	6	**K910303480**
				.3490	**.3490**	1-1/4	3-1/2	6	**K910703490**
				.3500	**.3500**	1-1/4	3-1/2	6	**K910703500**
				.3510	**.3510**	1-1/4	3-1/2	6	**K910703510**
				.3520	**.3520**	1-1/4	3-1/2	6	**K910703520**
				.3530	**.3530**	1-1/4	3-1/2	6	**K910703530**
				.3540	**.3540**	1-1/4	3-1/2	6	**K910703540**
9.00				.3543	**.3543**	1-1/4	3-1/2	6	**K910603543**
				.3550	**.3550**	1-1/4	3-1/2	6	**K910703550**
				.3560	**.3560**	1-1/4	3-1/2	6	**K910703560**
				.3570	**.3570**	1-1/4	3-1/2	6	**K910703570**
		T		.3580	**.3580**	1-1/4	3-1/2	6	**K910303580**
				.3590	**.3590**	1-1/4	3-1/2	6	**K910703590**
	23/64			.3594	**.3594**	1-1/4	3-1/2	6	**K910103594**
				.3600	**.3600**	1-1/4	3-1/2	6	**K910703600**
				.3610	**.3610**	1-1/4	3-1/2	6	**K910703610**
				.3620	**.3620**	1-1/4	3-1/2	6	**K910703620**
				.3630	**.3630**	1-1/4	3-1/2	6	**K910703630**
				.3640	**.3640**	1-1/4	3-1/2	6	**K910703640**

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CARBIDE REAMERS

Unit: Inch

Nominal Size					Shank Diameter	Flute Length	Overall Length	No. of Flute	EDP No.
Metric	Fractional	Letter	Wire Gauge	Decimal					
		D1			D2	L1	L2		
				.3650	**.3650**	1-1/4	3-1/2	6	**K910703650**
				.3660	**.3660**	1-1/4	3-1/2	6	**K910703660**
				.3670	**.3670**	1-1/4	3-1/2	6	**K910703670**
		U		.3680	**.3680**	1-1/4	3-1/2	6	**K910303680**
				.3690	**.3690**	1-1/4	3-1/2	6	**K910703690**
				.3700	**.3700**	1-1/4	3-1/2	6	**K910703700**
				.3710	**.3710**	1-1/4	3-1/2	6	**K910703710**
				.3720	**.3720**	1-1/4	3-1/2	6	**K910703720**
				.3730	**.3730**	1-1/4	3-1/2	6	**K910703730**
9.50				.3740	**.3740**	1-1/4	3-1/2	6	**K910603740**
				.3745	**.3745**	1-1/4	3-1/2	6	**K910703745**
	3/8			.3750	**.3750**	1-1/4	3-1/2	6	**K910703750**
				.3755	**.3755**	1-1/4	3-1/2	6	**K910703755**
				.3760	**.3760**	1-1/4	3-1/2	6	**K910703760**
				.3765	**.3765**	1-1/4	3-1/2	6	**K910703765**
		V		.3770	**.3770**	1-1/4	3-1/2	6	**K910303770**
				.3780	**.3780**	1-1/4	3-1/2	6	**K910703780**
				.3790	**.3790**	1-1/4	3-1/2	6	**K910703790**
				.3800	**.3800**	1-1/4	3-1/2	6	**K910703800**
				.3810	**.3810**	1-1/4	3-1/2	6	**K910703810**
				.3820	**.3820**	1-1/4	3-1/2	6	**K910703820**
				.3830	**.3830**	1-1/4	3-1/2	6	**K910703830**
				.3840	**.3840**	1-1/4	3-1/2	6	**K910703840**
				.3850	**.3850**	1-1/4	3-1/2	6	**K910703850**
		W		.3860	**.3860**	1-1/4	3-1/2	6	**K910303860**
				.3870	**.3870**	1-1/4	3-1/2	6	**K910703870**
				.3880	**.3880**	1-1/4	3-1/2	6	**K910703880**
				.3890	**.3890**	1-1/4	3-1/2	6	**K910703890**
				.3900	**.3900**	1-1/4	3-1/2	6	**K910703900**
	25/64			.3905	**.3905**	1-1/4	3-1/2	6	**K910103906**
				.3910	**.3910**	1-1/4	3-1/2	6	**K910703910**
				.3920	**.3920**	1-1/4	3-1/2	6	**K910703920**
				.3930	**.3930**	1-1/4	3-1/2	6	**K910703930**
10.00				.3937	**.3937**	1-1/4	3-1/2	6	**K910603937**
				.3940	**.3940**	1-1/4	3-1/2	6	**K910703940**
				.3950	**.3950**	1-1/4	3-1/2	6	**K910703950**
				.3960	**.3960**	1-1/4	3-1/2	6	**K910703960**
		X		.3970	**.3970**	1-1/4	3-1/2	6	**K910303970**
				.3980	**.3980**	1-1/4	3-1/2	6	**K910703980**
				.3990	**.3990**	1-1/4	3-1/2	6	**K910703990**
				.4000	**.4000**	1-1/4	3-1/2	6	**K910704000**
				.4010	**.4010**	1-1/4	3-1/2	6	**K910704010**
				.4020	**.4020**	1-1/4	3-1/2	6	**K910704020**
				.4030	**.4030**	1-1/4	3-1/2	6	**K910704030**
		Y		.4040	**.4040**	1-1/4	3-1/2	6	**K910304040**
				.4050	**.4050**	1-1/4	3-1/2	6	**K910704050**
				.4060	**.4060**	1-1/4	3-1/2	6	**K910704060**
	13/32			.4062	**.4062**	1-1/4	3-1/2	6	**K910104062**
				.4070	**.4070**	1-1/4	3-1/2	6	**K910704070**
				.4080	**.4080**	1-1/4	3-1/2	6	**K910704080**
				.4090	**.4090**	1-1/4	3-1/2	6	**K910704090**
				.4100	**.4100**	1-1/4	3-1/2	6	**K910704100**
				.4110	**.4110**	1-1/4	3-1/2	6	**K910704110**
				.4120	**.4120**	1-1/4	3-1/2	6	**K910704120**
		Z		.4130	**.4130**	1-1/4	3-1/2	6	**K910304130**
10.50				.4134	**.4134**	1-1/4	3-1/2	6	**K910604134**
				.4140	**.4140**	1-1/4	3-1/2	6	**K910704140**
				.4150	**.4150**	1-1/4	3-1/2	6	**K910704150**
				.4160	**.4160**	1-3/8	4	6	**K910704160**
				.4170	**.4170**	1-3/8	4	6	**K910704170**

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CARBIDE REAMERS

Unit: Inch

Nominal Size					Shank Diameter	Flute Length	Overall Length	No. of Flute	EDP No.
Metric	Fractional	Letter	Wire Gauge	Decimal					
		D1			D2	L1	L2		
				.4180	**.4180**	1-3/8	4	6	**K910704180**
				.4190	**.4190**	1-3/8	4	6	**K910704190**
				.4200	**.4200**	1-3/8	4	6	**K910704200**
				.4210	**.4210**	1-3/8	4	6	**K910704210**
	27/64			.4219	**.4219**	1-3/8	4	6	**K910104219**
				.4220	**.4220**	1-3/8	4	6	**K910704220**
				.4230	**.4230**	1-3/8	4	6	**K910704230**
				.4240	**.4240**	1-3/8	4	6	**K910704240**
				.4250	**.4250**	1-3/8	4	6	**K910704250**
				.4260	**.4260**	1-3/8	4	6	**K910704260**
				.4270	**.4270**	1-3/8	4	6	**K910704270**
				.4280	**.4280**	1-3/8	4	6	**K910704280**
				.4290	**.4290**	1-3/8	4	6	**K910704290**
				.4300	**.4300**	1-3/8	4	6	**K910704300**
				.4310	**.4310**	1-3/8	4	6	**K910704310**
				.4320	**.4320**	1-3/8	4	6	**K910704320**
				.4330	**.4330**	1-3/8	4	6	**K910704330**
11.00				.4331	**.4331**	1-3/8	4	6	**K910604331**
				.4340	**.4340**	1-3/8	4	6	**K910704340**
				.4350	**.4350**	1-3/8	4	6	**K910704350**
				.4360	**.4360**	1-3/8	4	6	**K910704360**
				.4365	**.4365**	1-3/8	4	6	**K910704365**
				.4370	**.4370**	1-3/8	4	6	**K910704370**
	7/16			.4375	**.4375**	1-3/8	4	6	**K910704375**
				.4380	**.4380**	1-3/8	4	6	**K910704380**
				.4385	**.4385**	1-3/8	4	6	**K910704385**
				.4390	**.4390**	1-3/8	4	6	**K910704390**
				.4400	**.4400**	1-3/8	4	6	**K910704400**
				.4410	**.4410**	1-3/8	4	6	**K910704410**
				.4420	**.4420**	1-3/8	4	6	**K910704420**
				.4430	**.4430**	1-3/8	4	6	**K910704430**
				.4440	**.4440**	1-3/8	4	6	**K910704440**
				.4450	**.4450**	1-3/8	4	6	**K910704450**
				.4460	**.4460**	1-3/8	4	6	**K910704460**
				.4470	**.4470**	1-3/8	4	6	**K910704470**
				.4480	**.4480**	1-3/8	4	6	**K910704480**
				.4490	**.4490**	1-3/8	4	6	**K910704490**
				.4500	**.4500**	1-3/8	4	6	**K910704500**
				.4510	**.4510**	1-3/8	4	6	**K910704510**
				.4520	**.4520**	1-3/8	4	6	**K910704520**
11.50				.4528	**.4528**	1-3/8	4	6	**K910604528**
				.4530	**.4530**	1-3/8	4	6	**K910704530**
	29/64			.4531	**.4531**	1-3/8	4	6	**K910104531**
				.4540	**.4540**	1-3/8	4	6	**K910704540**
				.4550	**.4550**	1-3/8	4	6	**K910704550**
				.4560	**.4560**	1-3/8	4	6	**K910704560**
				.4570	**.4570**	1-3/8	4	6	**K910704570**
				.4580	**.4580**	1-3/8	4	6	**K910704580**
				.4590	**.4590**	1-3/8	4	6	**K910704590**
				.4600	**.4600**	1-3/8	4	6	**K910704600**
				.4610	**.4610**	1-3/8	4	6	**K910704610**
				.4620	**.4620**	1-3/8	4	6	**K910704620**
				.4630	**.4630**	1-3/8	4	6	**K910704630**
				.4640	**.4640**	1-3/8	4	6	**K910704640**
				.4650	**.4650**	1-3/8	4	6	**K910704650**
				.4660	**.4660**	1-3/8	4	6	**K910704660**
				.4670	**.4670**	1-3/8	4	6	**K910704670**
				.4680	**.4680**	1-3/8	4	6	**K910704680**
	15/32			.4688	**.4688**	1-3/8	4	6	**K910104688**
				.4690	**.4690**	1-3/8	4	6	**K910704690**

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CARBIDE REAMERS

Unit: Inch

Nominal Size					Shank Diameter	Flute Length	Overall Length	No. of Flute	EDP No.
Metric	Fractional	Letter	Wire Gauge	Decimal					
		D1			D2	L1	L2		
				.4700	**.4700**	1-3/8	4	6	**K910704700**
				.4710	**.4710**	1-3/8	4	6	**K910704710**
				.4720	**.4720**	1-3/8	4	6	**K910704720**
12.00				.4724	**.4724**	1-3/8	4	6	**K910604724**
				.4730	**.4730**	1-3/8	4	6	**K910704730**
				.4740	**.4740**	1-3/8	4	6	**K910704740**
				.4750	**.4750**	1-3/8	4	6	**K910704750**
				.4760	**.4760**	1-1/2	4	6	**K910704760**
				.4770	**.4770**	1-1/2	4	6	**K910704770**
				.4780	**.4780**	1-1/2	4	6	**K910704780**
				.4790	**.4790**	1-1/2	4	6	**K910704790**
				.4800	**.4800**	1-1/2	4	6	**K910704800**
				.4810	**.4810**	1-1/2	4	6	**K910704810**
				.4820	**.4820**	1-1/2	4	6	**K910704820**
				.4830	**.4830**	1-1/2	4	6	**K910704830**
				.4840	**.4840**	1-1/2	4	6	**K910704840**
	31/64			.4844	**.4844**	1-1/2	4	6	**K910104844**
				.4850	**.4850**	1-1/2	4	6	**K910704850**
				.4860	**.4860**	1-1/2	4	6	**K910704860**
				.4870	**.4870**	1-1/2	4	6	**K910704870**
				.4880	**.4880**	1-1/2	4	6	**K910704880**
				.4890	**.4890**	1-1/2	4	6	**K910704890**
				.4900	**.4900**	1-1/2	4	6	**K910704900**
				.4910	**.4910**	1-1/2	4	6	**K910704910**
				.4920	**.4920**	1-1/2	4	6	**K910704920**
12.50				.4921	**.4921**	1-1/2	4	6	**K910604921**
				.4930	**.4930**	1-1/2	4	6	**K910704930**
				.4940	**.4940**	1-1/2	4	6	**K910704940**
				.4950	**.4950**	1-1/2	4	6	**K910704950**
				.4960	**.4960**	1-1/2	4	6	**K910704960**
				.4970	**.4970**	1-1/2	4	6	**K910704970**
				.4980	**.4980**	1-1/2	4	6	**K910704980**
				.4990	**.4990**	1-1/2	4	6	**K910704990**
				.4995	**.4995**	1-1/2	4	6	**K910704995**
	1/2			.5000	**.5000**	1-1/2	4	6	**K910705000**
				.5005	**.5005**	1-1/2	4	6	**K910705005**
				.5010	**.5010**	1-1/2	4	6	**K910705010**
				.5020	**.5020**	1-1/2	4	6	**K910705020**
13.00				.5118	**.5118**	1-1/2	4	6	**K910605118**
14.00				.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				.6299	**.6299**	1-3/4	4	6	**K910606299**

TOLERANCE FOR SERIES K9107 REAMERS

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

O.D. Tolerance	Shank Dia. Tolerance
Up to .2504" : +.0002"/-.0000" Over .2504" : +.0003"/-.0000"	+.0000"/-.0010"

RECOMMENDED CUTTING CONDITIONS – HSS

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	.0024~.0028
	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	.0055~.0063
	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

REAMING ALLOWANCE

Unit: Inch

Size Range	Up to Ø.2362"	Ø.2362"~Ø.3937"	Ø.3937"~Ø.6299"	Ø.6299"~Ø1.0000"	Over Ø1.0000"
Removal Amount	.004" ~ .008"	.008" ~ .012"	.008" ~ .016"	.012" ~ .020"	.012" ~ .024"

RECOMMENDED CUTTING CONDITIONS – CARBIDE

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	.0039~.0047
	13		23	.0008~.0016	.0016~.0024	.0024~.0031	.0031~.0039	.0039~.0047
	14		20	.0008~.0016	.0016~.0024	.0024~.0031	.0031~.0039	.0039~.0047
K	15	Grey cast iron	66	.0008~.002	.002~.0031	.0031~.0039	.0039~.0047	.0047~.0063
	16		49	.0008~.002	.002~.0031	.0031~.0039	.0039~.0047	.0047~.0063
	17	Nodular cast iron	59	.0008~.002	.002~.0031	.0031~.0039	.0039~.0047	.0047~.0063
	18		43	.0008~.002	.002~.0031	.0031~.0039	.0039~.0047	.0047~.0063
	19	Malleable cast iron	59	.0008~.002	.002~.0031	.0031~.0039	.0039~.0047	.0047~.0063
	20		43	.0008~.002	.002~.0031	.0031~.0039	.0039~.0047	.0047~.0063
N	21	Aluminum-wrought alloy	98	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0079
	22		98	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0079
	23	Aluminum-cast, alloyed	98	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0079
	24		82	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0079
	26	Copper and Copper Alloys (Bronze / Brass)	82	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0079
	27		72	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0079
	28		75	.0008~.0024	.0024~.0039	.0039~.0051	.0051~.0063	.0063~.0079

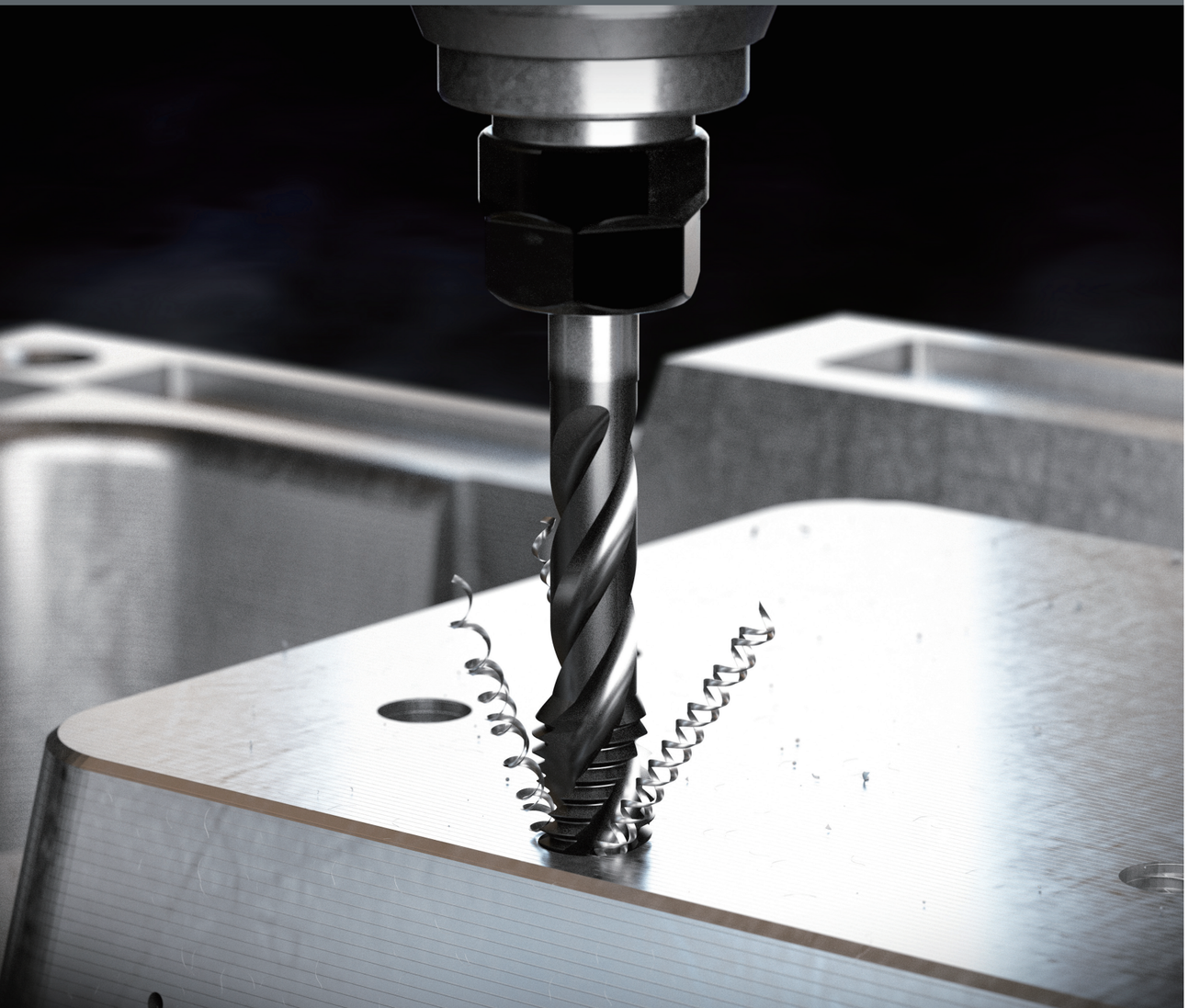
ISO	VDI 3323	Material Description	SFM (ft/min.)	IPR(inch/rev.)				
				Ø.315	Ø.3937	Ø.4724	Ø.5512	Ø.6299
P	1	Non-alloy steel	59	.0063~.0079	.0079~.0094	.0094~.011	.011~.0126	.0126~.0142
	2		56	.0063~.0079	.0079~.0094	.0094~.011	.011~.0126	.0126~.0142
	3		49	.0063~.0079	.0079~.0094	.0094~.011	.011~.0126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

REAMING ALLOWANCE

Unit: Inch

Size Range	Up to Ø.2362"	Ø.2362"~Ø.3937"	Ø.3937"~Ø.6299"	Ø.6299"~Ø1.0000"	Over Ø1.0000"
Removal Amount	.004" ~ .008"	.008" ~ .012"	.008" ~ .016"	.012" ~ .020"	.012" ~ .024"

TAPS



SELECTION GUIDE

HSS & HSS-E
TAPS

- *Spiral Flute for blind holes to pull the chip up out of the hole*
- *Spiral Point for through holes to push the chip through*
- *Straight Flute taps for short chipping materials and hand tapping operations*
- *Offered in Bright Finish, Steam Oxide, TiN, and TiCN coating*
- *Use Hardslick coating for gummy materials*

◎ : Excellent ○ : Good

HOLE TYPE					Max. 2.5xD Blind Hole										
FLUTE TYPE					Spiral Flute										
CHAMFER LEAD					1.5P-2P								2P-3P		
TOOL MATERIAL					HSS-E										
SPIRAL FLUTE ANGLE					R45		R50				R45				
PAGE NO.	M/MF								67	67					
	UNC/UNF				65	65	66	66			68	68			
	UNC/UNF/ UNS														
SURFACE TREATMENT / COATING					Bright Steam Oxide	TiN Hardslick	Steam Oxide	TiN Hardslick	Bright	TiCN Hardslick	Bright	TiN Hardslick			
MODEL															
ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRC									
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	
	2		About 0.45% C	Annealed	190	13	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	
	3		About 0.45% C	Quenched & Tempered	250	25	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	
	4		About 0.75% C	Annealed	270	28	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 10-35	
	5		About 0.75% C	Quenched & Tempered	300	32	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 10-35	
	6	Low alloy steel		Annealed	180	10	◎ 6-30	◎ 10-35	◎ 6-30	◎ 10-35	◎ 6-30	◎ 10-35	◎ 6-30	◎ 10-35	
	7			Quenched & Tempered	275	29	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 10-35	
	8			Quenched & Tempered	300	32	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 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	○ 20-50	○ 12-35	○ 20-50	○ 12-35	○ 20-50	
	13		Martensitic	Quenched & Tempered	240	23	○ 12-35	○ 20-50	○ 12-35	○ 20-50	○ 12-35	○ 20-50	○ 12-35	○ 20-50	
	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	○ 25-55	○ 12-45	○ 25-55	○ 12-45	○ 25-55	
	18		Pearlitic		250	25	○ 12-45	○ 25-55	○ 12-45	○ 25-55	○ 12-45	○ 25-55	○ 12-45	○ 25-55	
	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		○ 40-65	○ 45-90	○ 40-65	○ 45-90	○ 40-65	○ 45-90	○ 40-65	○ 45-90	
	24		≤ 12% Si, Curable	Hardened	90		○ 40-65	○ 45-90	○ 40-65	○ 45-90	○ 40-65	○ 45-90	○ 40-65	○ 45-90	
	25		> 12% Si, Not Curable		130										
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		○ 50-60	○ 65-100	○ 50-60	○ 65-100	○ 50-60	○ 65-100	○ 50-60	○ 65-100	
	27		CuZn, CuSnZn (Brass)		90		○ 30-50	○ 50-65	○ 30-50	○ 50-65	○ 30-50	○ 50-65	○ 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		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									

SELECTION GUIDE

HSS & HSS-E
TAPS

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◎ : Excellent ○ : Good

HOLE TYPE		Max. 2.5xD Blind Hole											
FLUTE TYPE		Spiral Flute											
CHAMFER LEAD		4P-5P, 1.5P-2P											
TOOL MATERIAL		HSS											
SPIRAL FLUTE ANGLE		R50											
PAGE NO.	M/MF			70	70								
	UNC/UNF	69	69			70	70						
	UNC/UNF/UNS												
SURFACE TREATMENT / COATING		Bright Steam Oxide	TiN	Bright Steam Oxide	TiCN	Bright	TiN						
MODEL													

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRC							
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	
	2		About 0.45% C	Annealed	190	13	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	
	3		About 0.45% C	Quenched & Tempered	250	25	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	
	4		About 0.75% C	Annealed	270	28	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 10-35	
	5		About 0.75% C	Quenched & Tempered	300	32	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 10-35	
	6	Low alloy steel		Annealed	180	10	◎ 6-30	◎ 10-35	◎ 6-30	◎ 10-35	◎ 6-30	◎ 10-35	
	7			Quenched & Tempered	275	29	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 10-35	
	8			Quenched & Tempered	300	32	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 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	○ 20-50	○ 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	○ 25-55	○ 12-45	○ 25-55	
	18		Pearlitic		250	25	○ 12-45	○ 25-55	○ 12-45	○ 25-55	○ 12-45	○ 25-55	
	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		○ 40-65	○ 45-90	○ 40-65	○ 45-90	○ 40-65	○ 45-90	
	24		≤ 12% Si, Curable	Hardened	90		○ 40-65	○ 45-90	○ 40-65	○ 45-90	○ 40-65	○ 45-90	
	25		> 12% Si, Not Curable		130								
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		○ 50-60	○ 65-100	○ 50-60	○ 65-100	○ 50-60	○ 65-100	
	27		CuZn, CuSnZn (Brass)		90		○ 30-50	○ 50-65	○ 30-50	○ 50-65	○ 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		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							

	Max. 3.0xD Through Hole								Max. 3.0xD Through Hole														
	Spiral Point								Spiral Point														
	4P-5P								4P-5P		1.5P-2P	4P-5P											
	HSS-E								HSS														
PAGE NO.					73	73							78	78			79	79					
	71	71	72	72			74	74	75-76	75-76	77			79	79			78	78				
SURFACE TREATMENT / COATING	Bright Steam Oxide	TiN Hardslick	Bright	TiN Hardslick	Bright	TiCN Hardslick	Bright	TiN Hardslick	Bright Steam Oxide	TiN	Bright Steam Oxide	Bright Steam Oxide	TiN	Bright Steam Oxide	TiN	Bright Steam Oxide	TiN	Bright Steam Oxide	TiN				
MODEL														.005" oversize 		.127mm oversize 							
ISO	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	◎ 25-50	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80				
P	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	◎ 25-50	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80				
	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	◎ 25-50	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80	◎ 25-50	◎ 50-80				
	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 10-35				
	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 10-35				
	◎ 6-30	◎ 10-35	◎ 6-30	◎ 10-35	◎ 6-30	◎ 10-35	◎ 6-30	◎ 10-35	◎ 6-30	◎ 10-35	◎ 6-30	◎ 6-30	◎ 10-35	◎ 6-30	◎ 10-35	◎ 6-30	◎ 10-35	◎ 6-30	◎ 10-35				
	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 10-35				
	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 10-35				
M	○ 12-35	○ 20-50	○ 12-35	○ 20-50	○ 12-35	○ 20-50	○ 12-35	○ 20-50	○ 12-35	○ 20-50	○ 12-35	○ 12-35	○ 20-50	○ 12-35	○ 20-50	○ 12-35	○ 20-50	○ 12-35	○ 20-50				
	○ 12-35	○ 20-50	○ 12-35	○ 20-50	○ 12-35	○ 20-50	○ 12-35	○ 20-50															
K	○ 12-45	○ 25-55	○ 12-45	○ 25-55	○ 12-45	○ 25-55	○ 12-45	○ 25-55	○ 12-45	○ 25-55	○ 12-45	○ 12-45	○ 25-55	○ 12-45	○ 25-55	○ 12-45	○ 25-55	○ 12-45	○ 25-55				
	○ 12-45	○ 25-55	○ 12-45	○ 25-55	○ 12-45	○ 25-55	○ 12-45	○ 25-55	○ 12-45	○ 25-55	○ 12-45	○ 12-45	○ 25-55	○ 12-45	○ 25-55	○ 12-45	○ 25-55	○ 12-45	○ 25-55				
N									○ 40-65	○ 45-90	○ 40-65	○ 40-65	○ 45-90										
	○ 40-65	○ 45-90	○ 40-65	○ 45-90	○ 40-65	○ 45-90	○ 40-65	○ 45-90	○ 40-65	○ 45-90	○ 40-65	○ 40-65	○ 45-90	○ 40-65	○ 45-90	○ 40-65	○ 45-90	○ 40-65	○ 45-90				
	○ 40-65	○ 45-90	○ 40-65	○ 45-90	○ 40-65	○ 45-90	○ 40-65	○ 45-90						○ 40-65	○ 45-90	○ 40-65	○ 45-90	○ 40-65	○ 45-90				
	○ 50-60	○ 65-100	○ 50-60	○ 65-100	○ 50-60	○ 65-100	○ 50-60	○ 65-100	○ 50-60	○ 65-100	○ 50-60	○ 50-60	○ 65-100	○ 50-60	○ 65-100	○ 50-60	○ 65-100	○ 50-60	○ 65-100				
	○ 30-50	○ 50-65	○ 30-50	○ 50-65	○ 30-50	○ 50-65	○ 30-50	○ 50-65	○ 30-50	○ 50-65	○ 30-50	○ 30-50	○ 50-65	○ 30-50	○ 50-65	○ 30-50	○ 50-65	○ 30-50	○ 50-65				

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TAPS

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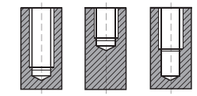
◎ : Excellent ○ : Good

HOLE TYPE		Max. 2.0xD Blind /Through Hole						Max. 2.5xD Blind Hole			
FLUTE TYPE		Spiral Flute						Straight Flute			
CHAMFER LEAD		9P/5P/2P				5P/2P		5P/2P		4P-5P	
TOOL MATERIAL		HSS									
SPIRAL FLUTE ANGLE											
PAGE NO.	M/MF			83	83		84		86		
	UNC/UNF					84		85		86	86
	UNC/UNF/UNS	80-82	80-82								
SURFACE TREATMENT / COATING		Bright Steam Oxide	TiN	Bright Steam Oxide	TiN	Bright	Bright	Bright	Bright	Bright Steam Oxide	TiN
MODEL						.005" oversize	.127mm oversize	Left Handed	Left Handed		

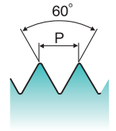
ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRC										
P	1	Non-alloy steel	About 0.15% C	Annealed	125		○ 25-50	○ 50-80	○ 25-50	○ 50-80	○ 25-50	○ 25-50	○ 25-50	○ 25-50	◎ 25-50	◎ 50-80
	2		About 0.45% C	Annealed	190	13	○ 25-50	○ 50-80	○ 25-50	○ 50-80	○ 25-50	○ 25-50	○ 25-50	○ 25-50	◎ 25-50	◎ 50-80
	3		About 0.45% C	Quenched & Tempered	250	25	○ 25-50	○ 50-80	○ 25-50	○ 50-80	○ 25-50	○ 25-50	○ 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	○ 10-35	○ 6-30	○ 10-35	○ 6-30	○ 6-30	○ 6-30	○ 6-30	◎ 6-30	◎ 10-35
	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	○ 12-35	○ 20-50	○ 12-35	○ 20-50	○ 12-35	○ 12-35	○ 12-35	○ 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	○ 25-55	○ 12-45	○ 12-45	○ 12-45	○ 12-45	○ 12-45	○ 25-55
	18		Pearlitic		250	25	○ 12-45	○ 25-55	○ 12-45	○ 25-55	○ 12-45	○ 12-45	○ 12-45	○ 12-45	○ 12-45	○ 25-55
	19	Malleable cast iron	Ferritic		130											
	20		Pearlitic		230	21										
N	21	Aluminum-wrought alloy	Not Curable		60		○ 50-65	○ 50-65	○ 50-65	○ 50-65	○ 50-65	○ 50-65	○ 50-65	○ 50-65	○ 50-65	○ 50-65
	22		Curable	Hardened	100		○ 50-65	○ 50-65	○ 50-65	○ 50-65	○ 50-65	○ 50-65	○ 50-65	○ 50-65	○ 50-65	○ 50-65
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		○ 40-65	○ 45-90	○ 40-65	○ 45-90	○ 40-65	○ 40-65	○ 40-65	○ 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	○ 65-100	○ 50-60	○ 50-60	○ 50-60	○ 50-60	○ 50-60	○ 65-100
	27		CuZn, CuSnZn (Brass)		90		○ 30-50	○ 50-65	○ 30-50	○ 50-65	○ 30-50	○ 30-50	○ 30-50	○ 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		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										

SPIRAL FLUTE TAPS BOTTOMING STYLE

Thread Depth / Hole Type 2.5×D



USCTI

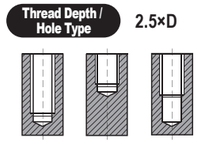


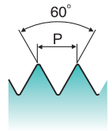
Material groups: GS | HSS-E | UNC UNF | USCTI 302 | 1.5P~2P | Bright | Steam Oxide | TiN | Hardslick | R45

SIZE	Thread Per Inch		Limit	No of Flute	EDP No.		EDP No.	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 61-64.

SPIRAL FLUTE TAPS BOTTOMING STYLE



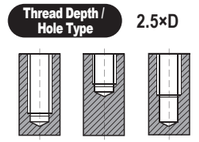


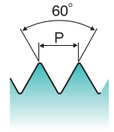
Material groups **GS** | HSS-E | UNC UNF | USCTI 302A | 1.5P~2P | Steam Oxide | TiN | Hardslick | R50

SIZE	Thread Per Inch		Limit	No. of Flute	EDP No.	EDP No.	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 61-64.

METRIC SPIRAL FLUTE TAPS BOTTOMING STYLE



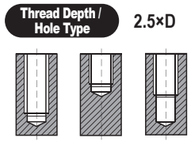


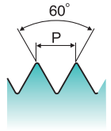
Material groups **GS** | HSS-E | M MF | USCTI 302A | 1.5P~2P | Bright | TiCN | Hardslick | R50

SIZE	PITCH	Limit	No. of Flute	EDP No.	EDP No.	EDP No.
				Bright	TiN	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 61-64.

SPIRAL FLUTE TAPS BOTTOMING STYLE



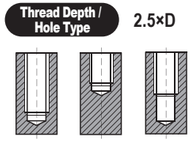


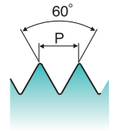
Material groups **GS** | HSS-E | UNC UNF | 2P~3P | Bright | TiN | Hardslick | R45

SIZE	Thread Per Inch		Limit	No. of Flute	EDP No.	EDP No.	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 61-64.

SPIRAL FLUTE TAPS





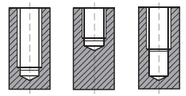
Material groups **GS** | HSS | UNC UNF | USCTI 302 | 4P~5P Plug | 1.5P~2P Bottoming | Bright | Steam Oxide | TiN | R50

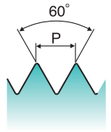
SIZE	Thread Per Inch		Limit	No. of Flute	EDP No.			EDP No.		EDP No.
					Plug			Bottoming		
	UNC	UNF			Bright	Steam Oxide	TiN	Bright	Steam Oxide	TiN
#3	48	-	H2	2	T7A96122	T6A96122	T8A96122	T7295122	T6295122	T8295122
#4	40	-	H2	2	T7A96162	T6A96162	T8A96162	T7295162	T6295162	T8295162
#5	40	-	H2	2	T7A96202	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 61-64.

METRIC SPIRAL FLUTE TAPS

Thread Depth / Hole Type 2.5×D





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

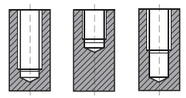
SIZE	Pitch	Limit	No. of Flute	EDP No.		EDP No.	EDP No.		EDP No.
				Plug			Bottoming		
				Bright	Steam Oxide	TiN	Bright	Steam Oxide	TiN
M3	0.5	D3	2	T7A86203	T6A86203	T8A86203	T7A85203	T6A85203	T8A85203
M4	0.7	D4	3	T7A86244	T6A86244	T8A86244	T7A85244	T6A85244	T8A85244
M5	0.8	D4	3	T7A86284	T6A86284	T8A86284	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

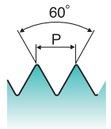
▶Refer to technical data on page 61-64.

SPIRAL FLUTE TAP, 6" EXTENSION

Extended length for greater reach

Thread Depth / Hole Type 2.5×D





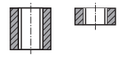
Material groups **GS** | HSS | UNC UNF | USCTI Long Shank | 4P~5P Plug | 1.5P~2P Bottoming | Bright | TiN | R50

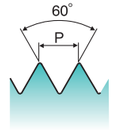
SIZE	UNC	UNF	Limit	Overall Length	No. of Flute	EDP No.	EDP No.	EDP No.	EDP No.
						Plug		Bottoming	
						Bright	TiN	Bright	TiN
#6	32	-	H3	6	2	T7D01243	T8D01243	T7D02243	T8D02243
#8	32	-	H3	6	3	T7D01283	T8D01283	T7D02283	T8D02283
#10	24	-	H3	6	3	T7D01323	T8D01323	T7D02323	T8D02323
#10	-	32	H3	6	3	T7D01343	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 61-64.

SPIRAL POINT PLUG STYLE

Thread Depth / Hole Type 3.0×D





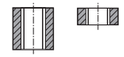
Material groups **GS** | HSS-E | UNC UNF | USCTI 302 | 4P~5P | Bright | Steam Oxide | TiN | Hardslick

SIZE	Thread Per Inch		Limit	No. of Flute	EDP No.		EDP No.	EDP No.
	UNC	UNF			Steam Oxide	Bright	TiN	Hardslick
#2	56	-	H2	2	I9082	J0082	J1082	J7082
#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

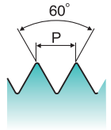
▶Refer to technical data on page 61-64.

SPIRAL POINT TAPS PLUG STYLE

Thread Depth / Hole Type 3.0×D



USCTI



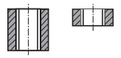
Material groups **GS** | HSS-E | UNC UNF | USCTI 302A | 4P~5P | Bright | TiN | Hardslick

SIZE	Thread Per Inch		Limit	No. of Flute	EDP No.	EDP No.	EDP No.
	UNC	UNF			Bright	TiCN	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

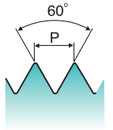
▶Refer to technical data on page 61-64.

METRIC SPIRAL POINT TAPS PLUG STYLE

Thread Depth / Hole Type 3.0×D



USCTI



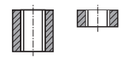
Material groups **GS** | HSS-E | M MF | USCTI 302A | 4P~5P | Bright | TiCN | Hardslick

SIZE	Pitch	Limit	No. of Flute	EDP No.	EDP No.	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

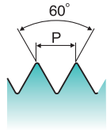
▶Refer to technical data on page 61-64.

SPIRAL POINT TAPS PLUG STYLE

Thread Depth / Hole Type 3.0×D



DIN Length-ANSI Shank



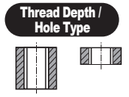
Material groups **GS** | HSS-E | UNC UNF | 4P~5P | Bright | TiN | Hardslick

SIZE	Thread Per Inch		Limit	No. of Flute	EDP No.	EDP No.	EDP No.
	UNC	UNF			Bright	TiCN	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

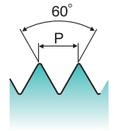
▶Refer to technical data on page 61-64.

SPIRAL POINT PLUG STYLE

Thread Depth / Hole Type 3.0×D



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.		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

▶Refer to technical data on page 61-64.
▶ NEXT PAGE

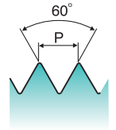
SIZE	Thread Per Inch		Limit	No. of Flute	EDP No.		EDP No.
	UNC	UNF			Bright	Steam Oxide	TiN
#10	-	32	H1	2	T7216341	T6216341	T8216341
#10	-	32	H2	2	T7216342	T6216342	T8216342
#10	-	32	H3	2	T7216343	T6216343	T8216343
#10	-	32	H4	2	T7216344	T6216344	T8216344
#10	-	32	H5	2	T7216345	T6216345	T8216345
#10	-	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 61-64.

SPIRAL POINT BOTTOMING STYLE

Thread Depth / Hole Type 3.0×D

USCTI

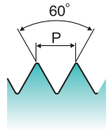


Material groups GS | HSS | UNC UNF | USCTI 302 | 1.5P~2P | Bright | Steam Oxide

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
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 61-64.

METRIC SPIRAL POINT PLUG STYLE



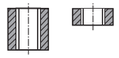
Material groups **GS** | HSS | M MF | USCTI 302 | 4P~5P | Bright | Steam Oxide | TiN

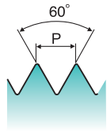
SIZE	Pitch	Limit	No. of Flute	EDP No.		EDP No.
				Bright	Steam Oxide	TiN
M1.6	0.35	D3	2	T7217093	T6217093	T8217093
M2	0.40	D3	2	T7217133	T6217133	T8217133
M2.5	0.45	D3	2	T7217173	T6217173	T8217173
M3	0.50	D3	2	T7217203	T6217203	T8217203
M3.5	0.60	D4	2	T7217224	T6217224	T8217224
M4	0.70	D4	2	T7217244	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 61-64.

SPIRAL POINT TAP, PULLEY TAPS & 6" EXTENSION

Thread Depth / Hole Type 3.0×D





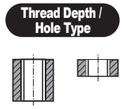
Material groups **GS** | HSS | UNC UNF | USCTI | 4P~5P | Bright | Steam Oxide | TiN

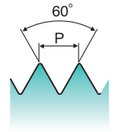
SIZE	Thread Per Inch		Limit	Overall Length	No. of Flute	EDP No.		EDP No.
	UNC	UNF				Bright	Steam Oxide	TiN
#6	32	-	H3	6	2	T7236243	T6236243	T8236243
#8	32	-	H3	6	2	T7236283	T6236283	T8236283
#10	24	-	H3	6	2	T7236323	T6236323	T8236323
#10	-	32	H3	6	2	T7236343	T6236343	T8236343
1/4	20	-	H3	6	2	T7236403	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 61-64.
▶ 6" EXTENSION (#6~#10)
▶ Pulley Tap (1/4~5/8)

SPIRAL POINT PLUG STYLE
Oversize Tap

Thread Depth / Hole Type 3.0×D



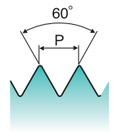


Material groups **GS** | HSS | UNC UNF | USCTI 302 | 4P~5P | Bright | Steam Oxide | TiN | +.005" oversize

SIZE	Thread Per Inch		No. of Flute	EDP No.		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

▶Refer to technical data on page 61-64.

METRIC SPIRAL POINT PLUG STYLE
Oversize Tap



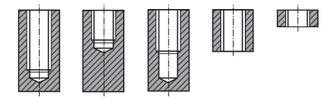
Material groups **GS** | HSS | M MF | USCTI 302 | 4P~5P | Bright | Steam Oxide | TiN | +.127mm oversize

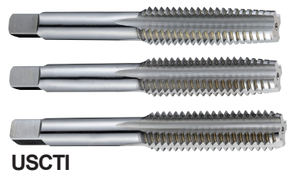
SIZE	Pitch	No. of Flute	EDP No.	EDP No.	EDP No.
			Bright	Steam Oxide	TiN
M4	0.7	2	T7B17240	T6B17240	T8B17240
M5	0.8	2	T7B17280	T6B17280	T8B17280
M6	1	2	T7B17310	T6B17310	T8B17310
M8	1.25	2	T7B17360	T6B17360	T8B17360
M8	1	2	T7B17370	T6B17370	T8B17370
M10	1.5	3	T7B17420	T6B17420	T8B17420
M10	1.25	3	T7B17430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

▶Refer to technical data on page 61-64.

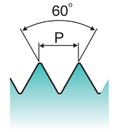
HAND TAP
TAPER, PLUG & BOTTOMING STYLE

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. Bright			EDP No. Steam Oxide			EDP No. TiN	
	UNC	UNF	UNS			Taper	Plug	Bottoming	Taper	Plug	Bottoming	Plug	Bottoming
#0	-	80	-	H1	2	T7316026	T7316027	T7316028	T6316026	T6316027	T6316028	T8316027	T8316028
#0	-	80	-	H2	2	-	T7316027H2	T7316028H2	-	-	-	-	-
#1	64	-	-	H1	2	T7316046	T7316047	T7316048	T6316046	T6316047	T6316048	T8316047	T8316048
#1	64	-	-	H2	2	-	T7316047H2	T7316048H2	-	-	-	-	-
#1	-	72	-	H1	2	T7316066	T7316067	T7316068	T6316066	T6316067	T6316068	T8316067	T8316068
#1	-	72	-	H2	2	-	T7316067H2	T7316068H2	-	-	-	-	-
#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	-	-

▶Refer to technical data on page 61-64.

▶ NEXT PAGE

SIZE	Thread Per Inch			Limit	No. of Flute	EDP No. Bright			EDP No. Steam Oxide			EDP No. TiN	
	UNC	UNF	UNS			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	T7B16488H5	-	-	-	-	-
3/8	16	-	-	H5	4	-	T7316487H5	T7316488H5	-	-	-	-	-
3/8	-	24	-	H1	4	-	T7316507H1	T7316508H1	-	-	-	-	-
3/8	-	24	-	H2	4	-	T7316507H2	T7316508H2	-	-	-	-	-
3/8	-	24	-	H3	3	-	T7B16507	T7B16508	-	-	-	-	-
3/8	-	24	-	H3	4	T7316506	T7316507	T7316508	T6316506	T6316507	T6316508	T8316507	T8316508
3/8	-	24	-	H4	4	-	T7316507H4	T7316508H4	-	-	-	-	-
7/16	14	-	-	H2	4	-	T7316527H2	-	-	-	-	-	-
7/16	14	-	-	H3	3	-	T7B16527	T7B16528	-	-	-	-	-
7/16	14	-	-	H3	4	T7316526	T7316527	T7316528	T6316526	T6316527	T6316528	T8316527	T8316528
7/16	14	-	-	H5	4	-	T7316527H5	T7316528H5	-	-	-	-	-

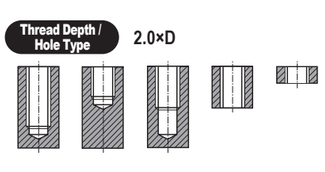
▶Refer to technical data on page 61-64.

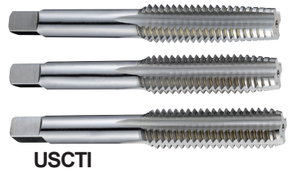
▶ NEXT PAGE

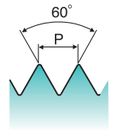
SIZE	Thread Per Inch			Limit	No. of Flute	EDP No. Bright			EDP No. Steam Oxide			EDP No. TiN	
	UNC	UNF	UNS			Taper	Plug	Bottoming	Taper	Plug	Bottoming	Plug	Bottoming
7/16	-	20	-	H2	4	-	T7316547H2	-	-	-	-	-	-
7/16	-	20	-	H3	3	-	T7B16547	T7B16548	-	-	-	-	-
7/16	-	20	-	H3	4	T7316546	T7316547	T7316548	T6316546	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 61-64.

METRIC HAND TAP
TAPER, PLUG & BOTTOMING STYLE







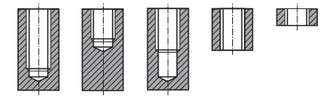
Material groups **GS** | HSS | M MF | USCTI 302 | 9P/5P/2P | Bright | Steam Oxide | TiN

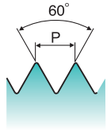
SIZE	Pitch	Limit	No. of Flute	EDP No. Bright			EDP No. Steam Oxide			EDP No. TiN	
				Taper	Plug	Bottoming	Taper	Plug	Bottoming	Plug	Bottoming
M1.6	0.35	D3	3	-	T7315097	-	-	-	-	-	-
M2	0.40	D3	3	-	T7315137	T7315138	-	T6315137	T6315138	T8315137	T8315138
M2.5	0.45	D3	3	-	T7315177	T7315178	-	T6315177	T6315178	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 61-64.

HAND TAP Oversize Tap

Thread Depth / Hole Type 2.0×D



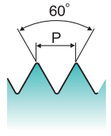


Material groups GS | HSS | UNC UNF | USCTI 302 | 5P/2P | Bright | +.005" oversize

SIZE	Thread Per Inch		No. of Flute	EDP No.	
				Bright	
	UNC	UNF		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 61-64.

METRIC HAND TAP Oversize Tap



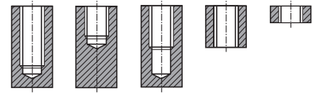
Material groups GS | HSS | M MF | USCTI 302 | 5P/2P | Bright | +.127mm oversize

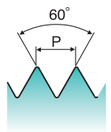
SIZE	Pitch	No. of Flute	EDP No.	
			Bright	
			Plug	Bottoming
M4	0.70	4	T7B15247	T7B15248
M4.5	0.75	4	T7B15267	T7B15268
M5	0.80	4	T7B15287	T7B15288
M6	1.00	4	T7B15317	T7B15318
M7	1.00	4	T7B15347	T7B15348
M8	1.25	4	T7B15367	T7B15368
M8	1.00	4	T7B15377	T7B15378
M10	1.50	4	T7B15427	T7B15428
M10	1.25	4	T7B15437	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 61-64.

LEFT HAND TAP

Thread Depth / Hole Type 2.0×D





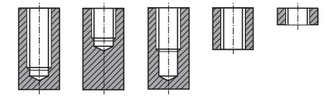
Material groups GS | HSS | UNC UNF | USCTI 302 | 5P/2P | Bright

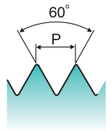
SIZE	Thread Per Inch		Limit	No. of Flute	EDP No.	
					Bright	
	UNC	UNF			Plug	Bottoming
#6	32	-	H3	3	T7336247	T7336248
#6	-	40	H2	3	T7336267	T7336268
#8	32	-	H3	4	T7336287	T7336288
#8	-	36	H2	4	T7336307	T7336308
#10	24	-	H3	4	T7336327	T7336328
#10	-	32	H3	4	T7336347	T7336348
1/4	20	-	H3	4	T7336407	T7336408
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 61-64.

METRIC LEFT HAND TAP

Thread Depth / Hole Type 2.0×D





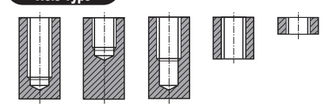
Material groups GS | HSS | UNC UNF | USCTI 302 | 5P/2P | Bright

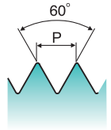
SIZE	Pitch	Limit	No. of Flute	EDP No. Bright	
				Plug	Bottoming
M3.5	0.6	D4	3	T7A15227	T7A15228
M4	0.7	D4	4	T7A15247	T7A15248
M4.5	0.75	D4	4	T7A15267	T7A15268
M5	0.8	D4	4	T7A15287	T7A15288
M6	1.0	D5	4	T7A15317	T7A15318
M7	1.0	D5	4	T7A15347	T7A15348
M8	1.25	D5	4	T7A15367	T7A15368
M8	1.0	D5	4	T7A15377	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 61-64.

STRAIGHT FLUTE PULLEY TAPS, 6" LONG LENGTH PLUG STYLE

Thread Depth / Hole Type 2.0×D



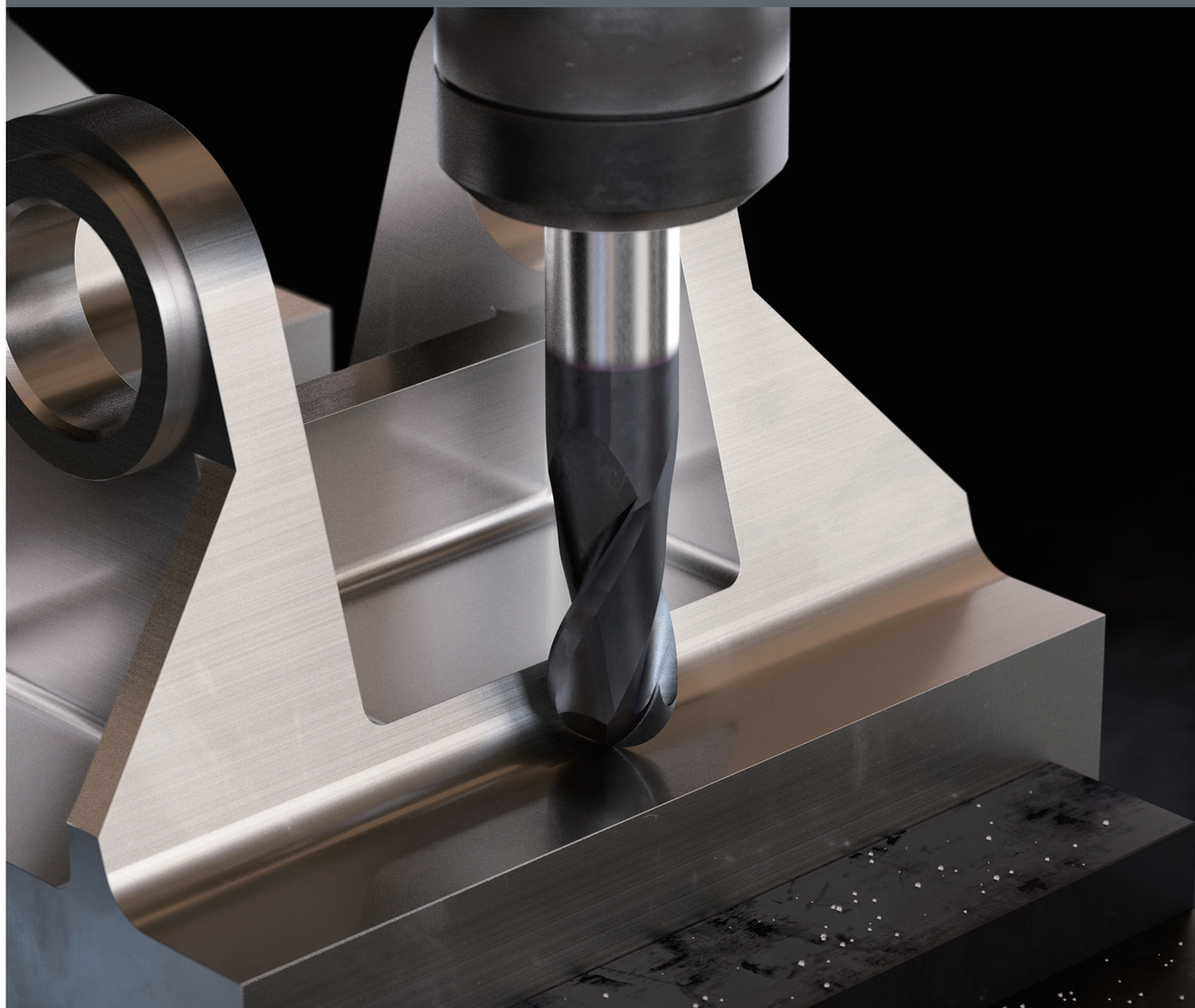


Material groups GS | HSS | UNC UNF | USCTI | 4P~5P | Bright | Steam Oxide | TiN

SIZE	UNC	Overall Length	Limit	No. of Flute	EDP No.		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 61-64.

YGBasix SOLID CARBIDE END MILLS



SELECTION GUIDE

SOLID CARBIDE
END MILLS

- *X-coated or Uncoated*
- *Multi-helix and unequal index for chatter-free machining*
- *2-, 3-, 4-, and 5-flute design*
- *Square end, Corner Radius, and Ball Nose*
- *Stub length to Extra Long length*
- *Single and Double ended*
- *Inch and Metric sizes*
- *Drill/Mills to side mill and chamfer with same tool*
- *60°, 90°, and 120° chamfer mills*

◎ : Excellent ○ : Good

Recommended cutting conditions : P. 125-143

END SHAPE	SQUARE C. RADIUS	BALL NOSE	SQUARE C. RADIUS	CORNER CHAMFER	SQUARE			CORNER RADIUS	SQUARE		SQUARE			CORNER RADIUS	BALL NOSE		
FLUTE COUNT	4		5	4	2				3		4				2		
INCH/METRIX	INCH				INCH		METRIC	INCH	INCH		INCH		METRIC	INCH	INCH		METRIC
HELIX ANGLE	MULTIPLE HELIX		38°	30°	30°				30°		30°		30°	30°	30°		30°
SIZE MIN	1/8"	1/8"	1/8"	1/8"	1/64"	1/32"	1 mm	1/8"	1/32"	1/32"	1/64"	1/32"	1mm	1/8"	1/64"	1/32"	1 mm
SIZE MAX	1"	1"	1"	1"	1"	1/2"	25 mm	3/4"	1"	1/2"	1-1/4"	1/2"	25mm	1"	1"	1/2"	25mm
PRDUCT PAGE	**91-93**	**94**	**95-98**	**99**	**100**	**102**	**103**	**104-105**	**106**	**107**	**108-110**	**111**	**112**	**113-114**	**115**	**117**	**116**
STYLE	SINGLE END				SINGLE END	DOUBLE END	SINGLE END	SINGLE END	SINGLE END	DOUBLE END	SINGLE END	DOUBLE END	SINGLE END	SINGLE END	SINGLE END	DOUBLE END	SINGLE END

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRC	91-93	94	95-98	99	100	102	103	104-105	106	107	108-110	111	112	113-114	115	117	116
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		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																	

SELECTION GUIDE

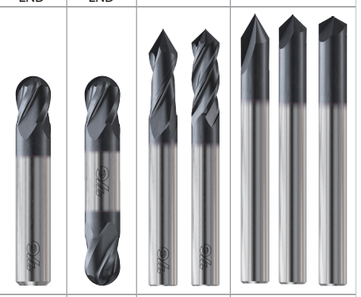
SOLID CARBIDE END MILLS

- *X-coated or Uncoated*
- *Multi-helix option for chatter-free machining*
- *2, 3, and 4-flute design*
- *Square end, Corner Radius, and Ball Nose*
- *Stub length to Extra Long length*
- *Single and Double ended*
- *Inch and Metric sizes*
- *Drill/Mills to side mill and chamfer with same tool*
- *60°, 90°, and 120° chamfer mills*

◎ : Excellent ○ : Good

Recommended cutting conditions : P. 125-143

END SHAPE	BALL NOSE		DRILL MILL 60°- 90°	CHAMFER MILL 60°- 90°- 120°
FLUTE COUNT	4		2 / 4	2 / 4
INCH/METRIX	INCH		INCH	INCH
HELIX ANGLE	30°		30°	0°
SIZE MIN	1/64"	1/32"	1/8"	1/8"
SIZE MAX	1"	3/4"	3/4"	1/2"
PRDUCT PAGE	118	120	121-122	123-124
STYLE	SINGLE END	DOUBLE END	SINGLE END	SINGLE END

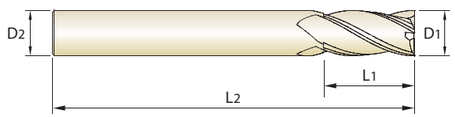


ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRC				
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎	◎	◎
	2		About 0.45% C	Annealed	190	13	◎	◎	◎	◎
	3		About 0.45% C	Quenched & Tempered	250	25	◎	◎	◎	◎
	4		About 0.75% C	Annealed	270	28	◎	◎	◎	◎
	5		About 0.75% C	Quenched & 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		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				

X-COATED VARIABLE INDEX, MULTIPLE HELIX SOLID CARBIDE END MILLS

4 FLUTE SQUARE CORNER

- Variable Index and Multiple helix for smooth, chatter-free machining in a wide range of materials
- Eccentric relief grind and our proprietary X-coating for long tool life



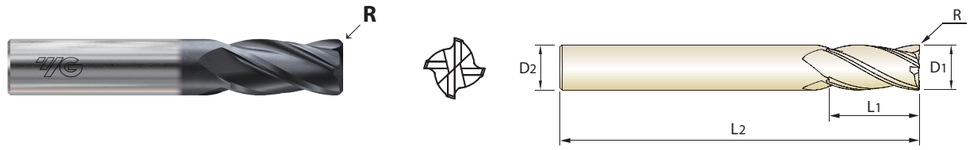
P. 125

Unit: Inch

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Shank
G9J48008N	1/8	1/8	1/4	1-1/2	Plain
G9J48901N		1/8	1/2	2	Plain
G9J48012N	3/16	3/16	3/8	2	Plain
G9J48902N		3/16	5/8	2-1/4	Plain
G9J48016N	1/4	1/4	3/8	2	Plain
G9J48903N		1/4	3/4	2-1/2	Plain
G9J48904N		1/4	1-1/4	3	Plain
G9J48020N	5/16	5/16	1/2	2	Plain
G9J48905N		5/16	13/16	2-1/2	Plain
G9J48906N		5/16	1-1/4	3	Plain
G9J49024N	3/8	3/8	1/2	2-1/4	Flat
G9J49901N		3/8	1	2-3/4	Flat
G9J49902N		3/8	1-1/2	3-1/4	Flat
G9J49028N	7/16	7/16	5/8	2-1/2	Flat
G9J49903N		7/16	1	3	Flat
G9J49032N	1/2	1/2	5/8	2-3/4	Flat
G9J49904N		1/2	1-1/4	3-1/4	Flat
G9J49912N		1/2	1-5/8	3-7/8	Flat
G9J49905N		1/2	2	4	Flat
G9J49040N	5/8	5/8	3/4	3-1/4	Flat
G9J49906N		5/8	1-5/8	3-7/8	Flat
G9J49907N		5/8	2-1/4	4-1/2	Flat
G9J49048N	3/4	3/4	1	3-1/2	Flat
G9J49908N		3/4	1-5/8	4	Flat
G9J49909N	1	3/4	2-1/4	4-3/4	Flat
G9J49064N		1	1-1/2	4	Flat
G9J49910N		1	2	4-1/2	Flat
G9J49911N		1	3	5-1/2	Flat

X-COATED VARIABLE INDEX, MULTIPLE HELIX SOLID CARBIDE END MILLS
4 FLUTE CORNER RADIUS

- Variable Index and Multiple helix for smooth, chatter-free machining in a wide range of materials
- Eccentric relief grind and our proprietary X-coating for long tool life
- Corner radius for increased edge strength



CARBIDE | 4 | 35°/37° | PLAIN | FLAT

P. 125

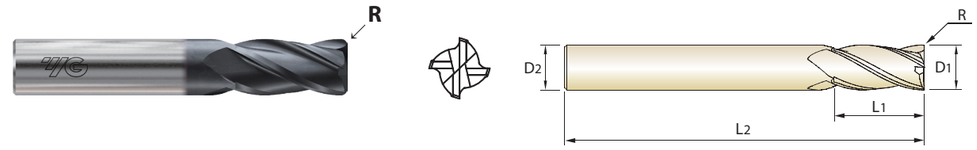
Unit: Inch

EDP No.	Mill Diameter D1	Radius R	Shank Diameter D2	Length of Cut L1	Overall Length L2	Shank
G9J52008N	1/8	R0.010	1/8	1/4	1-1/2	Plain
G9J52915N		R0.020	1/8	1/4	1-1/2	Plain
G9J52901N		R0.010	1/8	1/2	2	Plain
G9J52916N		R0.020	1/8	1/2	2	Plain
G9J52012N	3/16	R0.010	3/16	3/8	2	Plain
G9J52917N		R0.020	3/16	3/8	2	Plain
G9J52903N		R0.030	3/16	3/8	2	Plain
G9J52902N		R0.010	3/16	5/8	2-1/4	Plain
G9J52918N		R0.020	3/16	5/8	2-1/4	Plain
G9J52904N		R0.030	3/16	5/8	2-1/4	Plain
G9J52016N	1/4	R0.015	1/4	3/8	2	Plain
G9J52919N		R0.020	1/4	3/8	2	Plain
G9J52907N		R0.030	1/4	3/8	2	Plain
G9J52905N		R0.015	1/4	3/4	2-1/2	Plain
G9J52920N		R0.020	1/4	3/4	2-1/2	Plain
G9J52908N		R0.030	1/4	3/4	2-1/2	Plain
G9J52906N		R0.015	1/4	1-1/4	3	Plain
G9J52921N		R0.020	1/4	1-1/4	3	Plain
G9J52909N		R0.030	1/4	1-1/4	3	Plain
G9J52020N	5/16	R0.015	5/16	1/2	2	Plain
G9J52922N		R0.020	5/16	1/2	2	Plain
G9J52912N		R0.030	5/16	1/2	2	Plain
G9J52910N		R0.015	5/16	13/16	2-1/2	Plain
G9J52923N		R0.020	5/16	13/16	2-1/2	Plain
G9J52913N		R0.030	5/16	13/16	2-1/2	Plain
G9J52911N		R0.015	5/16	1-1/4	3	Plain
G9J52924N		R0.020	5/16	1-1/4	3	Plain
G9J52914N		R0.030	5/16	1-1/4	3	Plain
G9J53024N	3/8	R0.015	3/8	1/2	2-1/4	Flat
G9J53938N		R0.020	3/8	1/2	2-1/4	Flat
G9J53903N		R0.030	3/8	1/2	2-1/4	Flat
G9J53906N		R0.060	3/8	1/2	2-1/4	Flat
G9J53901N		R0.015	3/8	1	2-3/4	Flat
G9J53939N		R0.020	3/8	1	2-3/4	Flat
G9J53904N		R0.030	3/8	1	2-3/4	Flat
G9J53907N		R0.060	3/8	1	2-3/4	Flat
G9J53902N		R0.015	3/8	1-1/2	3-1/4	Flat
G9J53940N		R0.020	3/8	1-1/2	3-1/4	Flat
G9J53905N		R0.030	3/8	1-1/2	3-1/4	Flat
G9J53908N		R0.060	3/8	1-1/2	3-1/4	Flat
G9J53028N	7/16	R0.030	7/16	5/8	2-1/2	Flat
G9J53910N		R0.060	7/16	5/8	2-1/2	Flat
G9J53909N		R0.030	7/16	1	3	Flat
G9J53911N		R0.060	7/16	1	3	Flat

YGBasiX END MILLS

X-COATED VARIABLE INDEX, MULTIPLE HELIX SOLID CARBIDE END MILLS
4 FLUTE CORNER RADIUS

- Variable Index and Multiple helix for smooth, chatter-free machining in a wide range of materials
- Eccentric relief grind and our proprietary X-coating for long tool life
- Corner radius for increased edge strength



CARBIDE | 4 | 35°/37° | PLAIN | FLAT

P. 125

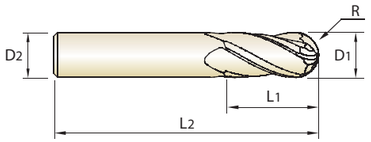
Unit: Inch

EDP No.	Mill Diameter D1	Radius R	Shank Diameter D2	Length of Cut L1	Overall Length L2	Shank
G9J53032N	1/2	R0.015	1/2	5/8	2-3/4	Flat
G9J53941N		R0.020	1/2	5/8	2-3/4	Flat
G9J53914N		R0.030	1/2	5/8	2-3/4	Flat
G9J53917N		R0.060	1/2	5/8	2-3/4	Flat
G9J53912N		R0.015	1/2	1-1/4	3-1/4	Flat
G9J53942N		R0.020	1/2	1-1/4	3-1/4	Flat
G9J53915N		R0.030	1/2	1-1/4	3-1/4	Flat
G9J53918N		R0.060	1/2	1-1/4	3-1/4	Flat
G9J53943N		R0.015	1/2	1-5/8	3-7/8	Flat
G9J53944N		R0.020	1/2	1-5/8	3-7/8	Flat
G9J53945N		R0.030	1/2	1-5/8	3-7/8	Flat
G9J53946N		R0.060	1/2	1-5/8	3-7/8	Flat
G9J53913N		R0.015	1/2	2	4	Flat
G9J53947N		R0.020	1/2	2	4	Flat
G9J53916N		R0.030	1/2	2	4	Flat
G9J53919N		R0.060	1/2	2	4	Flat
G9J53040N	5/8	R0.030	5/8	3/4	3-1/4	Flat
G9J53922N		R0.060	5/8	3/4	3-1/4	Flat
G9J53920N		R0.030	5/8	1-5/8	3-7/8	Flat
G9J53923N		R0.060	5/8	1-5/8	3-7/8	Flat
G9J53925N		R0.125	5/8	1-5/8	3-7/8	Flat
G9J53921N		R0.030	5/8	2-1/4	4-1/2	Flat
G9J53924N		R0.060	5/8	2-1/4	1-1/2	Flat
G9J53948N	3/4	R0.020	3/4	1	3-1/2	Flat
G9J53048N		R0.030	3/4	1	3-1/2	Flat
G9J53928N		R0.060	3/4	1	3-1/2	Flat
G9J53949N		R0.020	3/4	1-5/8	4	Flat
G9J53926N		R0.030	3/4	1-5/8	4	Flat
G9J53929N		R0.060	3/4	1-5/8	4	Flat
G9J53931N		R0.125	3/4	1-5/8	4	Flat
G9J53950N		R0.020	3/4	2-1/4	4-3/4	Flat
G9J53927N		R0.030	3/4	2-1/4	4-3/4	Flat
G9J53930N		R0.060	3/4	2-1/4	4-3/4	Flat
G9J53064N	1	R0.030	1	1-1/2	4	Flat
G9J53934N		R0.060	1	1-1/2	4	Flat
G9J53932N		R0.030	1	2	4-1/2	Flat
G9J53935N		R0.060	1	2	4-1/2	Flat
G9J53937N		R0.125	1	2	4-1/2	Flat
G9J53933N		R0.030	1	3	5-1/2	Flat
G9J53936N		R0.060	1	3	5-1/2	Flat

Holemaking
Threading
Milling
Indexable
Rotary Tool Holder

X-COATED VARIABLE INDEX, MULTIPLE HELIX SOLID CARBIDE END MILLS
4 FLUTE BALL NOSE

- Variable Index and Multiple helix for smooth, chatter-free machining in a wide range of materials
- Eccentric relief grind and our proprietary X-coating for long tool life



CARBIDE | 4 | 35°/37° | R ±.0008 | PLAIN | FLAT

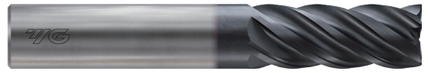
P. 126

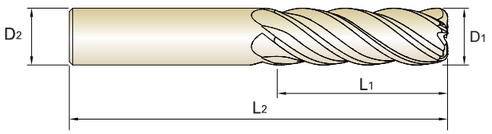
Unit: Inch

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Shank
G9J50008N	1/8	1/8	1/2	2	Plain
G9J50012N	3/16	3/16	5/8	2-1/4	Plain
G9J50016N	1/4	1/4	3/4	2-1/2	Plain
G9J50901N		1/4	1-1/4	3	Plain
G9J50020N	5/16	5/16	13/16	2-1/2	Plain
G9J50902N		5/16	1-1/4	3	Plain
G9J51024N	3/8	3/8	1	2-3/4	Flat
G9J51901N		3/8	1-1/2	3-1/4	Flat
G9J51028N	7/16	7/16	1	3	Flat
G9J51032N	1/2	1/2	1-1/4	3-1/4	Flat
G9J51906N		1/2	1-5/8	3-7/8	Flat
G9J51902N		1/2	2	4	Flat
G9J51040N	5/8	5/8	1-5/8	3-7/8	Flat
G9J51903N		5/8	2-1/4	4-1/2	Flat
G9J51048N	3/4	3/4	1-5/8	4	Flat
G9J51904N		3/4	2-1/4	4-3/4	Flat
G9J51064N	1	1	2	4-1/2	Flat
G9J51905N		1	3	5-1/2	Flat

X-COATED, UNEQUAL INDEX, 38° HELIX, SOLID CARBIDE END MILLS
5-FLUTE SQUARE CORNER

- Unequal Index for smooth, chatter-free machining in a wide range of materials
- Eccentric relief grind and our proprietary X-coating for long tool life





CARBIDE | 5 | 38° | PLAIN | FLAT

P. 127

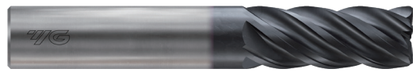
Unit: Inch

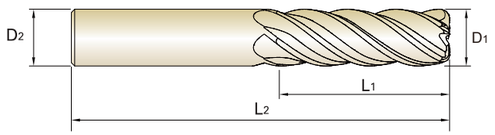
EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Shank
G9K79008N	1/8	1/8	1/4	1-1/2	Plain
G9K79901N		1/8	1/2	2	Plain
G9K79012N	3/16	3/16	3/8	2	Plain
G9K79902N		3/16	5/8	2-1/4	Plain
G9K79016N	1/4	1/4	3/8	2	Plain
G9K79903N		1/4	3/4	2-1/2	Plain
G9K79904N		1/4	1-1/4	3	Plain
G9K79020N	5/16	5/16	1/2	2	Plain
G9K79905N		5/16	13/16	2-1/2	Plain
G9K79906N		5/16	1-1/4	3	Plain
G9K79024N	3/8	3/8	1/2	2-1/4	Flat
G9K79907N		3/8	1	2-3/4	Flat
G9K79008N		3/8	1-1/2	3-1/4	Flat
G9K79032N	1/2	1/2	5/8	2-3/4	Flat
G9K79909N		1/2	1-1/4	3-1/4	Flat
G9K79910N		1/2	1-5/8	3-7/8	Flat
G9K79911N		1/2	2	4	Flat
G9K79040N	5/8	5/8	3/4	3-1/4	Flat
G9K79912N		5/8	1-5/8	3-7/8	Flat
G9K79913N		5/8	2-1/4	4-1/2	Flat
G9K79048N	3/4	3/4	1	3-1/2	Flat
G9K79914N		3/4	1-5/8	4	Flat
G9K79915N		3/4	2-1/4	4-3/4	Flat
G9K79064N	1	1	1-1/2	4	Flat
G9K79916N		1	2-5/8	5	Flat
G9K79917N		1	3-1/4	6	Flat

X-COATED, UNEQUAL INDEX, 38° HELIX, SOLID CARBIDE END MILLS

5-FLUTE CORNER RADIUS

- Unequal Index for smooth, chatter-free machining in a wide range of materials
- Eccentric relief grind and our proprietary X-coating for long tool life
- Corner radius for increased edge strength





CARBIDE 5 38° PLAIN FLAT

P. 127

Unit: Inch

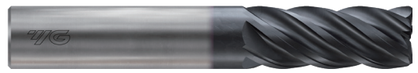
EDP No.	Mill Diameter	Radius	Shank Diameter	Length of Cut	Overall Length	Shank
	D1	R	D2	L1	L2	
G9K80008N	1/8	R0.010	1/8	1/4	1-1/2	Plain
G9K80902N		R0.015	1/8	1/4	1-1/2	Plain
G9K80904N		R0.020	1/8	1/4	1-1/2	Plain
G9K80901N		R0.010	1/8	1/2	2	Plain
G9K80903N		R0.015	1/8	1/2	2	Plain
G9K80905N		R0.020	1/8	1/2	2	Plain
G9K80012N	3/16	R0.010	3/16	3/8	2	Plain
G9K80907N		R0.015	3/16	3/8	2	Plain
G9K80910N		R0.020	3/16	3/8	2	Plain
G9K80912N		R0.030	3/16	3/8	2	Plain
G9K80906N		R0.010	3/16	5/8	2-1/4	Plain
G9K80908N		R0.015	3/16	5/8	2-1/4	Plain
G9K80911N		R0.020	3/16	5/8	2-1/4	Plain
G9K80913N		R0.030	3/16	5/8	2-1/4	Plain
G9K80016N	1/4	R0.010	1/4	3/8	2	Plain
G9K80915N		R0.015	1/4	3/8	2	Plain
G9K80918N		R0.020	1/4	3/8	2	Plain
G9K80921N		R0.030	1/4	3/8	2	Plain
G9K80914N		R0.010	1/4	3/4	2-1/2	Plain
G9K80916N		R0.015	1/4	3/4	2-1/2	Plain
G9K80919N		R0.020	1/4	3/4	2-1/2	Plain
G9K80922N		R0.030	1/4	3/4	2-1/2	Plain
G9K80924N		R0.060	1/4	3/4	2-1/2	Plain
G9K80917N		R0.015	1/4	1-1/4	3	Plain
G9K80920N		R0.020	1/4	1-1/4	3	Plain
G9K80923N		R0.030	1/4	1-1/4	3	Plain
G9K80020N	5/16	R0.010	5/16	1/2	2	Plain
G9K80926N		R0.015	5/16	1/2	2	Plain
G9K80929N		R0.020	5/16	1/2	2	Plain
G9K80932N		R0.030	5/16	1/2	2	Plain
G9K80925N		R0.010	5/16	13/16	2-1/2	Plain
G9K80927N		R0.015	5/16	13/16	2-1/2	Plain
G9K80930N		R0.020	5/16	13/16	2-1/2	Plain
G9K80933N		R0.030	5/16	13/16	2-1/2	Plain
G9K80935N		R0.060	5/16	13/16	2-1/2	Plain
G9K80928N		R0.015	5/16	1-1/4	3	Plain
G9K80931N		R0.020	5/16	1-1/4	3	Plain
G9K80934N		R0.030	5/16	1-1/4	3	Plain

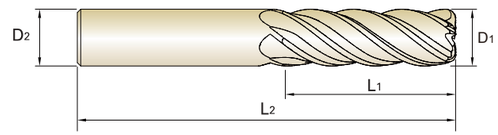
YGBasiX END MILLS

X-COATED, UNEQUAL INDEX, 38° HELIX, SOLID CARBIDE END MILLS

5-FLUTE CORNER RADIUS

- Unequal Index for smooth, chatter-free machining in a wide range of materials
- Eccentric relief grind and our proprietary X-coating for long tool life
- Corner radius for increased edge strength





CARBIDE 5 38° PLAIN FLAT

P. 127

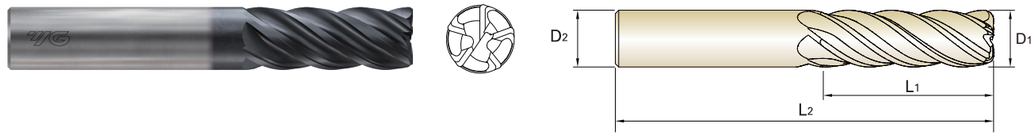
Unit: Inch

EDP No.	Mill Diameter	Radius	Shank Diameter	Length of Cut	Overall Length	Shank
	D1	R	D2	L1	L2	
G9K80024N	3/8	R0.010	3/8	1/2	2-1/4	Flat
G9K80937N		R0.015	3/8	1/2	2-1/4	Flat
G9K80940N		R0.020	3/8	1/2	2-1/4	Flat
G9K80943N		R0.030	3/8	1/2	2-1/4	Flat
G9K80946N		R0.060	3/8	1/2	2-1/4	Flat
G9K80936N		R0.010	3/8	1	2-3/4	Flat
G9K80938N		R0.015	3/8	1	2-3/4	Flat
G9K80941N		R0.020	3/8	1	2-3/4	Flat
G9K80944N		R0.030	3/8	1	2-3/4	Flat
G9K80947N		R0.060	3/8	1	2-3/4	Flat
G9K80939N		R0.015	3/8	1-1/2	3-1/4	Flat
G9K80942N		R0.020	3/8	1-1/2	3-1/4	Flat
G9K80945N		R0.030	3/8	1-1/2	3-1/4	Flat
G9K80948N		R0.060	3/8	1-1/2	3-1/4	Flat
G9K80032N	1/2	R0.010	1/2	5/8	2-3/4	Flat
G9K80950N		R0.015	1/2	5/8	2-3/4	Flat
G9K80954N		R0.020	1/2	5/8	2-3/4	Flat
G9K80958N		R0.030	1/2	5/8	2-3/4	Flat
G9K80962N		R0.060	1/2	5/8	2-3/4	Flat
G9K80949N		R0.010	1/2	1-1/4	3-1/4	Flat
G9K80951N		R0.015	1/2	1-1/4	3-1/4	Flat
G9K80955N		R0.020	1/2	1-1/4	3-1/4	Flat
G9K80959N		R0.030	1/2	1-1/4	3-1/4	Flat
G9K80963N		R0.060	1/2	1-1/4	3-1/4	Flat
G9K80966N		R0.125	1/2	1-1/4	3-1/4	Flat
G9K80952N		R0.015	1/2	1-5/8	3-7/8	Flat
G9K80956N		R0.020	1/2	1-5/8	3-7/8	Flat
G9K80960N		R0.030	1/2	1-5/8	3-7/8	Flat
G9K80964N		R0.060	1/2	1-5/8	3-7/8	Flat
G9K80953N		R0.015	1/2	2	4	Flat
G9K80957N		R0.020	1/2	2	4	Flat
G9K80961N		R0.030	1/2	2	4	Flat
G9K80965N		R0.060	1/2	2	4	Flat

X-COATED, UNEQUAL INDEX, 38° HELIX, SOLID CARBIDE END MILLS

5-FLUTE CORNER RADIUS

- Unequal Index for smooth, chatter-free machining in a wide range of materials
- Eccentric relief grind and our proprietary X-coating for long tool life
- Corner radius for increased edge strength



CARBIDE | 5 | 38° | PLAIN | FLAT

P. 127

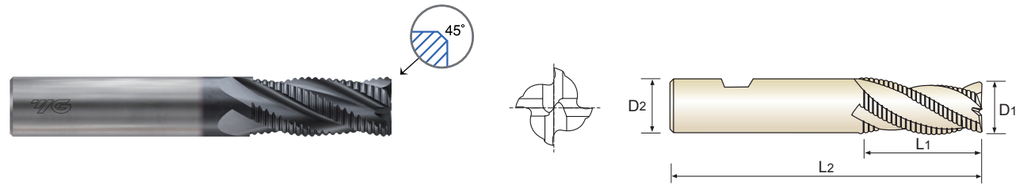
Unit: Inch

EDP No.	Mill Diameter	Radius	Shank Diameter	Length of Cut	Overall Length	Shank
	D1	R	D2	L1	L2	
G9K80040N	5/8	R0.015	5/8	3/4	3-1/4	Flat
G9K80969N		R0.020	5/8	3/4	3-1/4	Flat
G9K80972N		R0.030	5/8	3/4	3-1/4	Flat
G9K80975N		R0.060	5/8	3/4	3-1/4	Flat
G9K80967N		R0.015	5/8	1-5/8	3-7/8	Flat
G9K80970N		R0.020	5/8	1-5/8	3-7/8	Flat
G9K80973N		R0.030	5/8	1-5/8	3-7/8	Flat
G9K80976N		R0.060	5/8	1-5/8	3-7/8	Flat
G9K80978N		R0.125	5/8	1-5/8	3-7/8	Flat
G9K80968N		R0.015	5/8	2-1/4	4-1/2	Flat
G9K80971N		R0.020	5/8	2-1/4	1-1/2	Flat
G9K80974N		R0.030	5/8	2-1/4	4-1/2	Flat
G9K80977N		R0.060	5/8	2-1/4	1-1/2	Flat
G9K80048N	3/4	R0.015	3/4	1	3-1/2	Flat
G9K80980N		R0.020	3/4	1	3-1/2	Flat
G9K80983N		R0.030	3/4	1	3-1/2	Flat
G9K80986N		R0.060	3/4	1	3-1/2	Flat
G9K80979N		R0.015	3/4	1-5/8	4	Flat
G9K80981N		R0.020	3/4	1-5/8	4	Flat
G9K80984N		R0.030	3/4	1-5/8	4	Flat
G9K80987N		R0.060	3/4	1-5/8	4	Flat
G9K80989N		R0.125	3/4	1-5/8	4	Flat
G9K80982N		R0.020	3/4	2-1/4	4-3/4	Flat
G9K80985N		R0.030	3/4	2-1/4	4-3/4	Flat
G9K80988N		R0.060	3/4	2-1/4	4-3/4	Flat
G9K80064N	1	R0.030	1	1-1/2	4	Flat
G9K80992N		R0.060	1	1-1/2	4	Flat
G9K80990N		R0.030	1	2-5/8	5	Flat
G9K80993N		R0.060	1	2-5/8	5	Flat
G9K80995N		R0.125	1	2-5/8	5	Flat
G9K80991N		R0.030	1	3-1/4	6	Flat
G9K80994N		R0.060	1	3-1/4	6	Flat

X-COATED, 30° HELIX, SOLID CARBIDE END MILLS

4-FLUTE CORNER CHAMFER, FINE-PITCH ROUGHER

- Machining in a wide range of materials
- Proprietary X-coating for long tool life



CARBIDE | 4 | 30° | FINE | PLAIN | FLAT | C x 45°

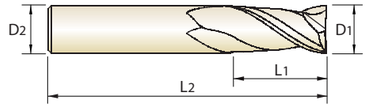
P. 128

Unit: Inch

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Shank
	D1	D2	L1	L2	
G9K81008	1/8	1/8	1/4	1-1/2	Plain
G9K81901		1/8	1/2	2	Plain
G9K81902		1/8	3/4	2-1/4	Plain
G9K81012	3/16	3/16	3/8	2	Plain
G9K81903		3/16	5/8	2-1/4	Plain
G9K81904		3/16	7/8	2-1/4	Plain
G9K81016	1/4	1/4	3/8	2	Plain
G9K81905		1/4	3/4	2-1/2	Plain
G9K81906		1/4	1-1/8	3	Plain
G9K81907		1/4	1-1/2	3-1/4	Plain
G9K81020	5/16	5/16	1/2	2	Plain
G9K81908		5/16	13/16	2-1/2	Plain
G9K81909		5/16	1-1/8	3	Plain
G9K81910		5/16	1-1/2	3-1/4	Plain
G9K81024	3/8	3/8	1/2	2-1/4	Flat
G9K81911		3/8	1	2-3/4	Flat
G9K81912		3/8	1-1/2	3-1/4	Flat
G9K81032	1/2	1/2	5/8	2-3/4	Flat
G9K81913		1/2	1-1/4	3-1/4	Flat
G9K81914		1/2	1-5/8	3-7/8	Flat
G9K81915		1/2	2	4	Flat
G9K81040	5/8	5/8	3/4	3-1/4	Flat
G9K81916		5/8	1-5/8	3-7/8	Flat
G9K81917		5/8	2-1/4	4-1/2	Flat
G9K81048	3/4	3/4	1	3-1/2	Flat
G9K81918		3/4	1-5/8	4	Flat
G9K81919		3/4	2-1/4	4-3/4	Flat
G9K81920		3/4	3	5-1/2	Flat
G9K81064	1	1	1-1/2	4	Flat
G9K81921		1	2-5/8	5	Flat
G9K81922		1	3-1/4	6	Flat

2-FLUTE, SQUARE, SINGLE ENDED

- Suitable for machining alloy steels, cast iron, stainless steel, brass, copper alloys, aluminum, and other non-ferrous materials



CARBIDE | 2 | 30° | PLAIN

P. 129

Unit: Inch

EDP No.	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
G9H80002N	E5H80002	1/32	1/8	1/16	1-1/2
G9H85002N	E5H85002		1/8	5/64	1-1/2
G9H85901N	E5H85901		1/8	1/8	1-1/2
G9H80003N	E5H80003	3/64	1/8	3/32	1-1/2
G9H85003N	E5H85003		1/8	7/64	1-1/2
G9H85902N	E5H85902		1/8	1/8	1-1/2
G9H80004N	E5H80004	1/16	1/8	1/8	1-1/2
G9H85004N	E5H85004		1/8	3/16	1-1/2
G9H85903N	E5H85903		1/8	1/4	1-1/2
G9H80005N	E5H80005	5/64	1/8	5/32	1-1/2
G9H85005N	E5H85005		1/8	3/16	1-1/2
G9H85905N	E5H85905		1/8	1/4	1-1/2
G9H80006N	E5H80006	3/32	1/8	3/16	1-1/2
G9H85006N	E5H85006		1/8	3/8	1-1/2
G9H80007N	E5H80007	7/64	1/8	7/32	1-1/2
G9H85007N	E5H85007		1/8	3/8	1-1/2
G9H80008N	E5H80008	1/8	1/8	1/4	1-1/2
G9H85008N	E5H85008		1/8	1/2	1-1/2
G9H91008N	E5H91008		1/8	3/4	2-1/4
G9H93008N	E5H93008		1/8	1	3
G9H80009N	E5H80009	9/64	3/16	9/32	2
G9H85009N	E5H85009		3/16	1/2	2
G9H85906N	E5H85906		3/16	9/16	2
G9H80010N	E5H80010	5/32	3/16	5/16	2
G9H85010N	E5H85010		3/16	9/16	2
G9H91010N	E5H91010		3/16	3/4	2-1/2
G9H93010N	E5H93010		3/16	1-1/8	3
G9H80011N	E5H80011	11/64	3/16	5/16	2
G9H85011N	E5H85011		3/16	9/16	2
G9H85907N	E5H85907		3/16	5/8	2
G9H80012N	E5H80012	3/16	3/16	3/8	2
G9H85012N	E5H85012		3/16	5/8	2
G9H91012N	E5H91012		3/16	3/4	2-1/2
G9H93901N	E5H93901		3/16	1	4
G9H93012N	E5H93012		3/16	1-1/8	3
G9H80013N	E5H80013	13/64	1/4	3/8	2
G9H85013N	E5H85013		1/4	5/8	2-1/2
G9H80014N	E5H80014	7/32	1/4	7/16	2
G9H85014N	E5H85014		1/4	5/8	2-1/2
G9H80015N	E5H80015	15/64	1/4	7/16	2
G9H85015N	E5H85015		1/4	3/4	2-1/2
G9H80016N	E5H80016	1/4	1/4	1/2	2
G9H85016N	E5H85016		1/4	3/4	2-1/2
G9H91016N	E5H91016		1/4	1-1/8	3
G9H93016N	E5H93016		1/4	1-1/2	4
G9H93902N	E5H93902		1/4	1-1/2	6
G9H85017N	E5H85017	17/64	5/16	3/4	2-1/2
G9H80018N	E5H80018	9/32	5/16	1/2	2
G9H85018N	E5H85018		5/16	3/4	2-1/2

▶ NEXT PAGE

Unit: Inch

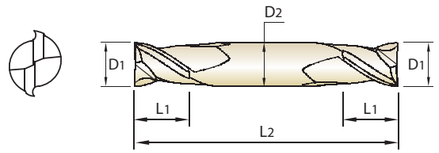
EDP No.	EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9H85019N	E5H85019	19/64	5/16	13/16	2-1/2
G9H80020N	E5H80020	5/16	5/16	1/2	2
G9H85020N	E5H85020		5/16	13/16	2-1/2
G9H91020N	E5H91020		5/16	1-1/8	3
G9H93903N	E5H93903		5/16	1-1/2	6
G9H93020N	E5H93020		5/16	1-5/8	4
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
G9H80024N	E5H80024	3/8	3/8	5/8	2
G9H85024N	E5H85024		3/8	1	2-1/2
G9H91024N	E5H91024		3/8	1-1/8	3
G9H93904N	E5H93904		3/8	1-1/2	6
G9H93024N	E5H93024		3/8	1-3/4	4
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
G9H80028N	E5H80028	7/16	7/16	5/8	2-1/2
G9H85028N	E5H85028		7/16	1	2-3/4
G9H91028N	E5H91028		7/16	2	4
G9H93028N	E5H93028		7/16	3	6
G9H85029N	E5H85029	29/64	1/2	1	3
G9H85030N	E5H85030	15/32	1/2	1	3
G9H85031N	E5H85031	31/64	1/2	1	3
G9H80032N	E5H80032	1/2	1/2	5/8	2-1/2
G9H85032N	E5H85032		1/2	1	3
G9H85908N	E5H85908		1/2	1-1/4	3
G9H93905N	E5H93905		1/2	1-1/2	6
G9H91032N	E5H91032		1/2	2	4
G9H93032N	E5H93032		1/2	3	6
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
G9H80040N	E5H80040	5/8	5/8	3/4	3
G9H85040N	E5H85040		5/8	1-1/4	3-1/2
G9H91040N	E5H91040		5/8	2-1/4	5
G9H93040N	E5H93040		5/8	3	6
G9H85044N	E5H85044	11/16	3/4	1-1/2	4
G9H80048N	E5H80048	3/4	3/4	1	3
G9H85048N	E5H85048		3/4	1-1/2	4
G9H93906N	E5H93906		3/4	1-1/2	6
G9H91048N	E5H91048		3/4	2-1/4	5
G9H93048N	E5H93048		3/4	3	6
G9H93907N	E5H93907		3/4	4	7
G9H85056N	E5H85056	7/8	7/8	1-1/2	4
G9H85064N	E5H85064	1	1	1-1/2	4
G9H93064N	E5H93064		1	1-1/2	6
G9H91064N	E5H91064		1	2-1/4	5
G9H93908N	E5H93908		1	3	6
G9H93909N	E5H93909		1	4	7

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
+0/-.0012	+0/-.0005

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

2-FLUTE, SQUARE, DOUBLE ENDED

- Suitable for machining alloy steels, cast iron, stainless steel, brass, copper alloys, aluminum, and other non-ferrous materials
- Same construction features as single end mill in a more economical version



CARBIDE | 2 | 30° | PLAIN | FLAT

P. 129

Unit: Inch

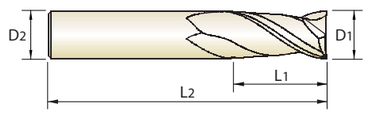
EDP No.	EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Shank
X-Coated	Uncoated	D1	D2	L1	L2	
G9H81002N	E5H81002	1/32	1/8	1/16	1-1/2	Plain
G9H81003N	E5H81003	3/64	1/8	3/32	1-1/2	Plain
G9H81004N	E5H81004	1/16	1/8	1/8	1-1/2	Plain
G9H81005N	E5H81005	5/64	1/8	1/8	1-1/2	Plain
G9H81006N	E5H81006	3/32	1/8	3/16	1-1/2	Plain
G9H81007N	E5H81007	7/64	1/8	3/16	1-1/2	Plain
G9H81008N	E5H81008	1/8	1/8	1/4	1-1/2	Plain
G9H87008N	E5H87008		3/8	3/8	3	Flat
G9H81009N	E5H81009	9/64	3/16	5/16	2	Plain
G9H81010N	E5H81010	5/32	3/16	5/16	2	Plain
G9H87010N	E5H87010		3/8	7/16	3	Flat
G9H81011N	E5H81011	11/64	3/16	5/16	2	Plain
G9H81012N	E5H81012	3/16	3/16	3/8	2	Plain
G9H87012N	E5H87012		3/8	1/2	3	Flat
G9H81013N	E5H81013	13/64	1/4	1/2	2-1/2	Plain
G9H81014N	E5H81014	7/32	1/4	1/2	2-1/2	Plain
G9H87014N	E5H87014		3/8	9/16	3-1/2	Flat
G9H81015N	E5H81015	15/64	1/4	1/2	2-1/2	Plain
G9H81016N	E5H81016	1/4	1/4	1/2	2-1/2	Plain
G9H87016N	E5H87016		3/8	5/8	3-1/2	Flat
G9H81017N	E5H81017	17/64	5/16	1/2	2-1/2	Plain
G9H81018N	E5H81018	9/32	5/16	1/2	2-1/2	Plain
G9H87018N	E5H87018		3/8	11/16	3-1/2	Flat
G9H81019N	E5H81019	19/64	5/16	1/2	2-1/2	Plain
G9H81020N	E5H81020	5/16	5/16	1/2	2-1/2	Plain
G9H87020N	E5H87020		3/8	3/4	3-1/2	Flat
G9H81022N	E5H81022	11/32	3/8	9/16	2-1/2	Plain
G9H87022N	E5H87022		3/8	3/4	3-1/2	Flat
G9H81024N	E5H81024	3/8	3/8	9/16	2-1/2	Plain
G9H87024N	E5H87024		3/8	3/4	3-1/2	Flat
G9H81028N	E5H81028	7/16	7/16	9/16	2-3/4	Plain
G9H87028N	E5H87028		1/2	7/8	4	Flat
G9H81032N	E5H81032	1/2	1/2	5/8	3	Plain
G9H87032N	E5H87032		1/2	1	4	Flat

Mill Dia. Tolerance (inch)	
D1=D2	+0/-.002
D1≠D2	+0/-.0012

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

2-FLUTE, SQUARE, SINGLE ENDED – METRIC

- Suitable for machining alloy steels, cast iron, stainless steel, brass, copper alloys, aluminum, and other non-ferrous materials



CARBIDE | 2 | 30° | PLAIN

P. 130

Unit: Inch

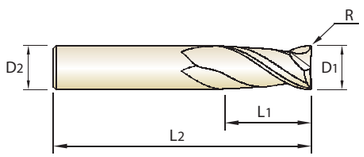
EDP No.	EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9H86010N	E5H86010	1.0	3	4	39
G9H86015N	E5H86015	1.5	3	5	39
G9H86020N	E5H86020	2.0	3	8	39
G9H86025N	E5H86025	2.5	3	10	39
G9H86030N	E5H86030	3.0	3	12	39
G9H86035N	E5H86035	3.5	4	12	51
G9H86040N	E5H86040	4.0	4	14	51
G9H86045N	E5H86045	4.5	5	16	51
G9H86050N	E5H86050	5.0	5	16	51
G9H86060N	E5H86060	6.0	6	19	63
G9H86070N	E5H86070	7.0	8	19	63
G9H86080N	E5H86080	8.0	8	20	63
G9H86090N	E5H86090	9.0	10	22	63
G9H86100N	E5H86100	10.0	10	22	76
G9H86110N	E5H86110	11.0	12	25	76
G9H86120N	E5H86120	12.0	12	25	76
G9H86140N	E5H86140	14.0	14	32	90
G9H86160N	E5H86160	16.0	16	32	102
G9H86180N	E5H86180	18.0	18	38	102
G9H86200N	E5H86200	20.0	20	38	102
G9H86250N	E5H86250	25.0	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.

2-FLUTE, CORNER RADIUS, SINGLE ENDED

- Suitable for machining alloy steels, cast iron, stainless steel, brass, copper alloys, aluminum, and other non-ferrous materials



CARBIDE | 2 | 30° | R ±.001 | PLAIN

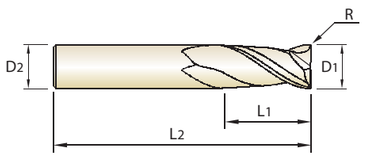
P. 129

Unit: Inch

EDP No.	EDP No.	Mill Diameter	Corner Radius	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	R	D2	L1	L2
G9H96008N	E5H96008	1/8	0.010	1/8	1/2	1-1/2
G9H96901N	E5H96901		0.015	1/8	1/2	1-1/2
G9H96902N	E5H96902		0.020	1/8	1/2	1-1/2
G9H96903N	E5H96903		0.030	1/8	1/2	1-1/2
G9H96012N	E5H96012	3/16	0.010	3/16	5/8	2
G9H96904N	E5H96904		0.015	3/16	5/8	2
G9H96905N	E5H96905		0.020	3/16	5/8	2
G9H96906N	E5H96906		0.025	3/16	5/8	2
G9H96907N	E5H96907		0.045	3/16	5/8	2
G9H96908N	E5H96908		0.060	3/16	5/8	2
G9H96016N	E5H96016	1/4	0.015	1/4	3/4	2-1/2
G9H96909N	E5H96909		0.020	1/4	3/4	2-1/2
G9H96910N	E5H96910		0.025	1/4	3/4	2-1/2
G9H96911N	E5H96911		0.030	1/4	3/4	2-1/2
G9H96912N	E5H96912		0.045	1/4	3/4	2-1/2
G9H96913N	E5H96913		0.060	1/4	3/4	2-1/2
G9H96914N	E5H96914		0.090	1/4	3/4	2-1/2
G9H96020N	E5H96020	5/16	0.015	5/16	13/16	2-1/2
G9H96915N	E5H96915		0.020	5/16	13/16	2-1/2
G9H96916N	E5H96916		0.025	5/16	13/16	2-1/2
G9H96917N	E5H96917		0.030	5/16	13/16	2-1/2
G9H96918N	E5H96918		0.045	5/16	13/16	2-1/2
G9H96919N	E5H96919		0.060	5/16	13/16	2-1/2
G9H96920N	E5H96920		0.090	5/16	13/16	2-1/2
G9H96024N	E5H96024	3/8	0.015	3/8	1	2-1/2
G9H96921N	E5H96921		0.020	3/8	1	2-1/2
G9H96922N	E5H96922		0.025	3/8	1	2-1/2
G9H96923N	E5H96923		0.030	3/8	1	2-1/2
G9H96924N	E5H96924		0.045	3/8	1	2-1/2
G9H96925N	E5H96925		0.060	3/8	1	2-1/2
G9H96926N	E5H96926		0.090	3/8	1	2-1/2
G9H96028N	E5H96028	7/16	0.015	7/16	1	2-3/4
G9H96927N	E5H96927		0.020	7/16	1	2-3/4
G9H96928N	E5H96928		0.025	7/16	1	2-3/4
G9H96929N	E5H96929		0.030	7/16	1	2-3/4
G9H96930N	E5H96930		0.045	7/16	1	2-3/4
G9H96931N	E5H96931		0.060	7/16	1	2-3/4
G9H96932N	E5H96932		0.090	7/16	1	2-3/4

2-FLUTE, CORNER RADIUS, SINGLE ENDED

- Suitable for machining alloy steels, cast iron, stainless steel, brass, copper alloys, aluminum, and other non-ferrous materials



CARBIDE | 2 | 30° | R ±.001 | PLAIN

P. 129

Unit: Inch

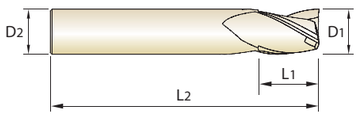
EDP No.	EDP No.	Mill Diameter	Corner Radius	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	R	D2	L1	L2
G9H96032N	E5H96032	1/2	0.015	1/2	1	3
G9H96933N	E5H96933		0.020	1/2	1	3
G9H96934N	E5H96934		0.025	1/2	1	3
G9H96935N	E5H96935		0.030	1/2	1	3
G9H96936N	E5H96936		0.045	1/2	1	3
G9H96937N	E5H96937		0.060	1/2	1	3
G9H96938N	E5H96938		0.090	1/2	1	3
G9H96939N	E5H96939		0.125	1/2	1	3
G9H96040N	E5H96040	5/8	0.015	5/8	1-1/4	3-1/2
G9H96940N	E5H96940		0.020	5/8	1-1/4	3-1/2
G9H96941N	E5H96941		0.025	5/8	1-1/4	3-1/2
G9H96942N	E5H96942		0.030	5/8	1-1/4	3-1/2
G9H96943N	E5H96943		R.045	5/8	1-1/4	3-1/2
G9H96944N	E5H96944		R.060	5/8	1-1/4	3-1/2
G9H96945N	E5H96945		R.090	5/8	1-1/4	3-1/2
G9H96946N	E5H96946		R.125	5/8	1-1/4	3-1/2
G9H96947N	E5H96947		R.250	5/8	1-1/4	3-1/2
G9H96048N	E5H96048	3/4	R.015	3/4	1-1/2	4
G9H96948N	E5H96948		R.020	3/4	1-1/2	4
G9H96949N	E5H96949		R.025	3/4	1-1/2	4
G9H96950N	E5H96950		R.030	3/4	1-1/2	4
G9H96951N	E5H96951		R.045	3/4	1-1/2	4
G9H96952N	E5H96952		R.060	3/4	1-1/2	4
G9H96953N	E5H96953		R.090	3/4	1-1/2	4
G9H96954N	E5H96954		R.125	3/4	1-1/2	4
G9H96955N	E5H96955		R.190	3/4	1-1/2	4
G9H96956N	E5H96956		R.250	3/4	1-1/2	4

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
+0/-.0012	+0/-.0005

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

3-FLUTE, SQUARE, SINGLE ENDED

- Suitable for machining alloy steels, cast iron, stainless steel, brass, copper alloys, aluminum, and other non-ferrous materials



CARBIDE | 2 | 30° | PLAIN

P. 131

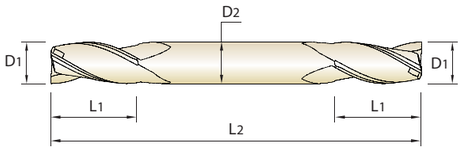
Unit: Inch

EDP No.	EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9I10002N	**E5I10002**	**1/32**	1/8	1/8	1-1/2
G9I10003N	**E5I10003**	**3/64**	1/8	1/8	1-1/2
G9I10004N	**E5I10004**	**1/16**	1/8	1/4	1-1/2
G9I10005N	**E5I10005**	**5/64**	1/8	1/4	1-1/2
G9I10006N	**E5I10006**	**3/32**	1/8	3/8	1-1/2
G9I10007N	**E5I10007**	**7/64**	1/8	3/8	1-1/2
G9I10008N	**E5I10008**	**1/8**	1/8	1/2	1-1/2
G9I10010N	**E5I10010**	**5/32**	3/16	9/16	2
G9I10011N	**E5I10011**	**11/64**	3/16	5/16	2
G9I10012N	**E5I10012**	**3/16**	3/16	5/8	2
G9I10013N	**E5I10013**	**13/64**	1/4	5/8	2-1/2
G9I10014N	**E5I10014**	**7/32**	1/4	5/8	2-1/2
G9I10015N	**E5I10015**	**15/64**	1/4	3/4	2-1/2
G9I10016N	**E5I10016**	**1/4**	1/4	3/4	2-1/2
G9I10017N	**E5I10017**	**17/64**	5/16	3/4	2-1/2
G9I10018N	**E5I10018**	**9/32**	5/16	3/4	2-1/2
G9I10019N	**E5I10019**	**19/64**	5/16	13/16	2-1/2
G9I10020N	**E5I10020**	**5/16**	5/16	13/16	2-1/2
G9I10021N	**E5I10021**	**21/64**	3/8	1	2-1/2
G9I10022N	**E5I10022**	**11/32**	3/8	1	2-1/2
G9I10023N	**E5I10023**	**23/64**	3/8	1	2-1/2
G9I10024N	**E5I10024**	**3/8**	3/8	7/8	2-1/2
G9I10901N	**E5I10901**	**3/8**	3/8	1	2-1/2
G9I10025N	**E5I10025**	**25/64**	7/16	1	2-3/4
G9I10026N	**E5I10026**	**13/32**	7/16	1	2-3/4
G9I10028N	**E5I10028**	**7/16**	7/16	1	2-3/4
G9I10032N	**E5I10032**	**1/2**	1/2	1	3
G9I10036N	**E5I10036**	**9/16**	9/16	1-1/4	3-1/2
G9I10040N	**E5I10040**	**5/8**	5/8	1-1/4	3-1/2
G9I10044N	**E5I10044**	**11/16**	3/4	1-1/2	4
G9I10048N	**E5I10048**	**3/4**	3/4	1-1/2	4
G9I10056N	**E5I10056**	**7/8**	7/8	1-1/2	4
G9I10064N	**E5I10064**	**1**	1	1-1/2	4

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
+0/-.0012	+0/-.0005

3-FLUTE, SQUARE, DOUBLE ENDED

- Suitable for machining alloy steels, cast iron, stainless steel, brass, copper alloys, aluminum, and other non-ferrous materials
- Same construction features as single end mill in a more economical version



CARBIDE | 3 | 30° | PLAIN

P. 131

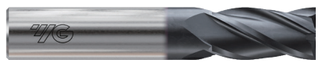
Unit: Inch

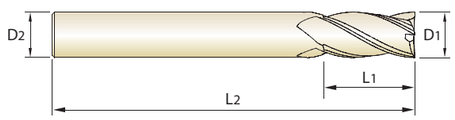
EDP No.	EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9H82002N	**E5H82002**	**1/32**	1/8	1/16	1-1/2
G9H82003N	**E5H82003**	**3/64**	1/8	3/32	1-1/2
G9H82004N	**E5H82004**	**1/16**	1/8	1/8	1-1/2
G9H82006N	**E5H82006**	**3/32**	1/8	3/16	1-1/2
G9H82008N	**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/-.002
D1≠D2	+0/-.0012

4-FLUTE, SQUARE, SINGLE ENDED

- Suitable for machining alloy steels, cast iron, stainless steel, brass, copper alloys, aluminum, and other non-ferrous materials





CARBIDE | 4 | 30° | PLAIN

P. 132-133

Unit: Inch

EDP No.	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
G9H88001N	E5H88001		1/8	3/64	1-1/2
G9H83002N	E5H83002	1/32	1/8	1/16	1-1/2
G9H88002N	E5H88002		1/8	5/64	1-1/2
G9H88901N	E5H88901		1/8	1/8	1-1/2
G9H83003N	E5H83003	3/64	1/8	3/32	1-1/2
G9H88003N	E5H88003		1/8	1/8	1-1/2
G9H83004N	E5H83004	1/16	1/8	1/8	1-1/2
G9H88004N	E5H88004		1/8	3/16	1-1/2
G9H88902N	E5H88902		1/8	1/4	1-1/2
G9H83005N	E5H83005	5/64	1/8	5/32	1-1/2
G9H88005N	E5H88005		1/8	3/16	1-1/2
G9H88903N	E5H88903		1/8	1/4	1-1/2
G9H83006N	E5H83006	3/32	1/8	3/16	1-1/2
G9H88006N	E5H88006		1/8	3/8	1-1/2
G9H83007N	E5H83007	7/64	1/8	7/32	1-1/2
G9H88007N	E5H88007		1/8	3/8	1-1/2
G9H83008N	E5H83008	1/8	1/8	1/4	1-1/2
G9H88008N	E5H88008		1/8	1/2	1-1/2
G9H92008N	E5H92008		1/8	3/4	2-1/4
G9H94008N	E5H94008		1/8	1	3
G9H83009N	E5H83009	9/64	3/16	9/32	2
G9H88009N	E5H88009		3/16	1/2	2
G9H88904N	E5H88904		3/16	9/16	2
G9H83010N	E5H83010	5/32	3/16	5/16	2
G9H88010N	E5H88010		3/16	9/16	2
G9H92010N	E5H92010		3/16	3/4	2-1/2
G9H94010N	E5H94010		3/16	1-1/8	3
G9H83011N	E5H83011	11/64	3/16	5/16	2
G9H88011N	E5H88011		3/16	9/16	2
G9H88905N	E5H88905		3/16	5/8	2
G9H83012N	E5H83012	3/16	3/16	3/8	2
G9H88012N	E5H88012		3/16	5/8	2
G9H92012N	E5H92012		3/16	3/4	2-1/2
G9H94901N	E5H94901		3/16	1	4
G9H94012N	E5H94012		3/16	1-1/8	3
G9H83013N	E5H83013	13/64	1/4	3/8	2
G9H88013N	E5H88013		1/4	5/8	2-1/2
G9H83014N	E5H83014	7/32	1/4	7/16	2
G9H88014N	E5H88014		1/4	5/8	2-1/2
G9H83015N	E5H83015	15/64	1/4	7/16	2
G9H88015N	E5H88015		1/4	3/4	2-1/2

▶ NEXT PAGE

Unit: Inch

EDP No.	EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9H83016N	E5H83016	1/4	1/4	1/2	2
G9H88016N	E5H88016		1/4	3/4	2-1/2
G9H94016N	E5H94016		1/4	1	4
G9H92016N	E5H92016		1/4	1-1/8	3
G9H94902N	E5H94902		1/4	1-1/2	4
G9H94903N	E5H94903		1/4	1-1/2	6
G9H88017N	E5H88017	17/64	5/16	3/4	2-1/2
G9H83018N	E5H83018	9/32	5/16	1/2	2
G9H88018N	E5H88018		5/16	3/4	2-1/2
G9H88019N	E5H88019	19/64	5/16	13/16	2-1/2
G9H83020N	E5H83020	5/16	5/16	1/2	2
G9H88020N	E5H88020		5/16	13/16	2-1/2
G9H92020N	E5H92020		5/16	1-1/8	3
G9H94904N	E5H94904		5/16	1-1/2	6
G9H94020N	E5H94020		5/16	1-5/8	4
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
G9H83024N	E5H83024	3/8	3/8	5/8	2
G9H88024N	E5H88024		3/8	1	2-1/2
G9H94024N	E5H94024		3/8	1	4
G9H92024N	E5H92024		3/8	1-1/8	3
G9H94906N	E5H94906		3/8	1-1/2	6
G9H94905N	E5H94905		3/8	1-3/4	4
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
G9H83028N	E5H83028	7/16	7/16	5/8	2-1/2
G9H88028N	E5H88028		7/16	1	2-3/4
G9H92028N	E5H92028		7/16	2	4
G9H94028N	E5H94028		7/16	3	6
G9H88029N	E5H88029	29/64	1/2	1	3
G9H88030N	E5H88030	15/32	1/2	1	3
G9H88031N	E5H88031	31/64	1/2	1	3
G9H83032N	E5H83032	1/2	1/2	5/8	2-1/2
G9H88032N	E5H88032		1/2	1	3
G9H92032N	E5H92032		1/2	1	4
G9H88906N	E5H88906		1/2	1-1/4	3
G9H92901N	E5H92901		1/2	1-1/2	4
G9H94032N	E5H94032		1/2	1-1/2	6
G9H92902N	E5H92902		1/2	2	4
G9H94907N	E5H94907		1/2	3	6
G9H94908N	E5H94908		1/2	4	7
G9H94909N	E5H94909		1/2	5	8
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
G9H88038N	E5H88038	19/32	5/8	1-1/4	3-1/2
G9H83040N	E5H83040	5/8	5/8	3/4	3
G9H88040N	E5H88040		5/8	1-1/4	3-1/2
G9H94040N	E5H94040		5/8	1-1/2	6
G9H92040N	E5H92040		5/8	2-1/4	5
G9H94910N	E5H94910		5/8	3	6
G9H94911N	E5H94911		5/8	4	7
G9H94912N	E5H94912		5/8	5	8
G9H94913N	E5H94913		5/8	6	9

▶ NEXT PAGE

Unit: Inch

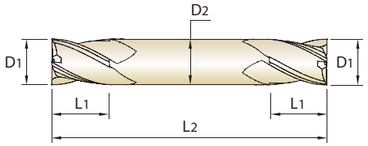
EDP No.	EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9H88041N	E5H88041	41/64	3/4	1-1/2	4
G9H88042N	E5H88042	21/32	3/4	1-1/2	4
G9H88044N	E5H88044	11/16	3/4	1-1/2	4
G9H88047N	E5H88047	47/64	3/4	1-1/2	4
G9H83048N	E5H83048	3/4	3/4	1	3
G9H88048N	E5H88048		3/4	1	4
G9H88907N	E5H88907		3/4	1-1/2	4
G9H94048N	E5H94048		3/4	1-1/2	6
G9H92048N	E5H92048		3/4	2-1/4	5
G9H94914N	E5H94914		3/4	3	6
G9H94915N	E5H94915		3/4	4	7
G9H94916N	E5H94916		3/4	5	8
G9H94917N	E5H94917		3/4	6	9
G9H94918N	E5H94918		3/4	8	12
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	1-1/2	4
G9H83064N	E5H83064	1	1	1	3
G9H88064N	E5H88064		1	1	4
G9H88908N	E5H88908		1	1-1/2	4
G9H94064N	E5H94064		1	1-1/2	6
G9H92064N	E5H92064		1	2-1/4	5
G9H94919N	E5H94919		1	3	6
G9H94920N	E5H94920		1	4	7
G9H94921N	E5H94921		1	5	8
G9H94922N	E5H94922		1	6	9
G9H94923N	E5H94923		1	7	10
G9H94924N	E5H94924		1	8	12
G9H88080N	E5H88080	1-1/4	1-1/4	2	4-1/2

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
+0/-.0012	+0/-.0005

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

4-FLUTE, SQUARE, DOUBLE ENDED

- Suitable for machining alloy steels, cast iron, stainless steel, brass, copper alloys, aluminum, and other non-ferrous materials
- Same construction features as single end mill in a more economical version



P. 132-133

Unit: Inch

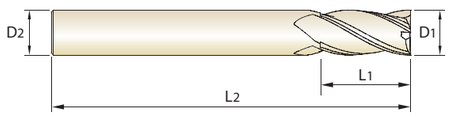
EDP No.	EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Shank
X-Coated	Uncoated	D1	D2	L1	L2	
G9H84002N	E5H84002	1/32	1/8	1/16	1-1/2	Plain
G9H84003N	E5H84003	3/64	1/8	3/32	1-1/2	Plain
G9H84004N	E5H84004	1/16	1/8	1/8	1-1/2	Plain
G9H84005N	E5H84005	5/64	1/8	1/8	1-1/2	Plain
G9H84006N	E5H84006	3/32	1/8	3/16	1-1/2	Plain
G9H84007N	E5H84007	7/64	1/8	3/16	1-1/2	Plain
G9H84008N	E5H84008	1/8	1/8	1/4	1-1/2	Plain
G9H90008N	E5H90008		3/8	3/8	3	Flat
G9H90901N	E5H90901		3/8	3/8	3-1/16	Flat
G9H84009N	E5H84009	9/64	3/16	5/16	2	Plain
G9H84010N	E5H84010	5/32	3/16	5/16	2	Plain
G9H90010N	E5H90010		3/8	7/16	3	Flat
G9H90902N	E5H90902		3/8	7/16	3-1/8	Flat
G9H84011N	E5H84011	11/64	3/16	5/16	2	Plain
G9H84012N	E5H84012	3/16	3/16	3/8	2	Plain
G9H90012N	E5H90012		3/8	1/2	3	Flat
G9H90903N	E5H90903		3/8	1/2	3-1/4	Flat
G9H84013N	E5H84013	13/64	1/4	1/2	2-1/2	Plain
G9H84014N	E5H84014	7/32	1/4	1/2	2-1/2	Plain
G9H90014N	E5H90014		3/8	9/16	3-3/8	Flat
G9H90904N	E5H90904		3/8	9/16	3-1/2	Flat
G9H84015N	E5H84015	15/64	1/4	1/2	2-1/2	Plain
G9H84016N	E5H84016	1/4	1/4	1/2	2-1/2	Plain
G9H90016N	E5H90016		3/8	5/8	3-3/8	Flat
G9H90905N	E5H90905		3/8	5/8	3-1/2	Flat
G9H84017N	E5H84017	17/64	5/16	1/2	2-1/2	Plain
G9H84018N	E5H84018	9/32	5/16	1/2	2-1/2	Plain
G9H90018N	E5H90018		3/8	11/16	3-3/8	Flat
G9H90906N	E5H90906		3/8	11/16	3-1/2	Flat
G9H84019N	E5H84019	19/64	5/16	1/2	2-1/2	Plain
G9H84020N	E5H84020	5/16	5/16	1/2	2-1/2	Plain
G9H90020N	E5H90020		3/8	3/4	3-1/2	Flat
G9H84021N	E5H84021	21/64	3/8	1/2	2-1/2	Plain
G9H84022N	E5H84022	11/32	3/8	9/16	2-1/2	Plain
G9H90022N	E5H90022		3/8	3/4	3-1/2	Flat
G9H84024N	E5H84024	3/8	3/8	9/16	2-1/2	Plain
G9H90024N	E5H90024		3/8	3/4	3-1/2	Flat
G9H84028N	E5H84028	7/16	7/16	9/16	2-3/4	Plain
G9H90028N	E5H90028		1/2	7/8	4	Flat
G9H84032N	E5H84032	1/2	1/2	5/8	3	Plain
G9H90032N	E5H90032		1/2	1	4	Flat

Mill Dia. Tolerance (inch)	
D1=D2	+0/-.002
D1≠D2	+0/-.0012

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

4-FLUTE, SQUARE, SINGLE ENDED – METRIC

▶ Suitable for machining alloy steels, cast iron, stainless steel, brass, copper alloys, aluminum, and other non-ferrous materials



CARBIDE | 4 | 30° | PLAIN

P. 134-135

Unit : mm

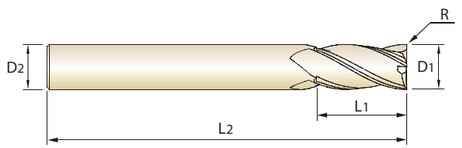
EDP No.	EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9H89902N	E5H89902	1	3	3	1-1/2
G9H89010N	E5H89010		3	4	1-1/2
G9H89901N	E5H89901		3	4	39
G9H89015N	E5H89015	1.5	3	5	39
G9H89020N	E5H89020	2	3	8	39
G9H89025N	E5H89025	2.5	3	9.5	39
G9H89030N	E5H89030	3	3	12	1-1/2
G9H89903N	E5H89903		3	12	39
G9H89035N	E5H89035	3.5	4	12	51
G9H89040N	E5H89040	4	4	14	51
G9H95040N	E5H95040		4	25	76
G9H89045N	E5H89045	4.5	5	16	51
G9H89050N	E5H89050	5	5	16	51
G9H95050N	E5H95050		5	25	76
G9H89060N	E5H89060	6	6	19	63
G9H95060N	E5H95060		6	40	100
G9H89070N	E5H89070	7	8	19	63
G9H95070N	E5H95070		8	40	100
G9H89080N	E5H89080	8	8	20	63
G9H95080N	E5H95080		8	44	100
G9H89090N	E5H89090	9	10	22	63
G9H95090N	E5H95090		10	50	100
G9H89100N	E5H89100	10	10	22	76
G9H95100N	E5H95100		10	50	100
G9H89110N	E5H89110	11	12	25	76
G9H95110N	E5H95110		12	76	152
G9H89120N	E5H89120	12	12	25	76
G9H95120N	E5H95120		12	76	152
G9H89140N	E5H89140	14	14	32	90
G9H95140N	E5H95140		14	76	152
G9H89160N	E5H89160	16	16	32	102
G9H95160N	E5H95160		16	76	152
G9H89180N	E5H89180	18	18	38	102
G9H89200N	E5H89200	20	20	38	102
G9H95200N	E5H95200		20	76	152
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.

4-FLUTE, CORNER RADIUS, SINGLE ENDED

▶ Suitable for machining alloy steels, cast iron, stainless steel, brass, copper alloys, aluminum, and other non-ferrous materials



CARBIDE | 4 | 30° | R ±.001 | PLAIN

P. 132-133

Unit: Inch

EDP No.	EDP No.	Mill Diameter	Corner Radius	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1		D2	L1	L2
G9H97008N	E5H97008	1/8	0.005	1/8	1/2	1-1/2
G9H97901N	E5H97901		0.010	1/8	1/2	1-1/2
G9H97902N	E5H97902		0.015	1/8	1/2	1-1/2
G9H97903N	E5H97903		0.020	1/8	1/2	1-1/2
G9H97904N	E5H97904		0.030	1/8	1/2	1-1/2
G9H97012N	E5H97012	3/16	0.010	3/16	5/8	2
G9H97905N	E5H97905		0.015	3/16	5/8	2
G9H97906N	E5H97906		0.020	3/16	5/8	2
G9H97907N	E5H97907		0.030	3/16	5/8	2
G9H97908N	E5H97908		0.045	3/16	5/8	2
G9H97909N	E5H97909		0.050	3/16	5/8	2
G9H97910N	E5H97910		0.060	3/16	5/8	2
G9H97016N	E5H97016	1/4	0.005	1/4	3/4	2-1/2
G9H97911N	E5H97911		0.010	1/4	3/4	2-1/2
G9H97912N	E5H97912		0.015	1/4	3/4	2-1/2
G9H97913N	E5H97913		0.020	1/4	3/4	2-1/2
G9H97914N	E5H97914		0.025	1/4	3/4	2-1/2
G9H97915N	E5H97915		0.030	1/4	3/4	2-1/2
G9H97916N	E5H97916		0.045	1/4	3/4	2-1/2
G9H97917N	E5H97917		0.060	1/4	3/4	2-1/2
G9H97918N	E5H97918		0.090	1/4	3/4	2-1/2
G9H97020N	E5H97020	5/16	0.015	5/16	13/16	2-1/2
G9H97919N	E5H97919		0.020	5/16	13/16	2-1/2
G9H97920N	E5H97920		0.025	5/16	13/16	2-1/2
G9H97921N	E5H97921		0.030	5/16	13/16	2-1/2
G9H97922N	E5H97922		0.045	5/16	13/16	2-1/2
G9H97923N	E5H97923		0.060	5/16	13/16	2-1/2
G9H97924N	E5H97924		0.090	5/16	13/16	2-1/2
G9H97925N	E5H97925		0.125	5/16	13/16	2-1/2
G9H97024N	E5H97024	3/8	0.015	3/8	1	2-1/2
G9H97926N	E5H97926		0.020	3/8	1	2-1/2
G9H97927N	E5H97927		0.025	3/8	1	2-1/2
G9H97928N	E5H97928		0.030	3/8	1	2-1/2
G9H97929N	E5H97929		0.045	3/8	1	2-1/2
G9H97930N	E5H97930		0.060	3/8	1	2-1/2
G9H97931N	E5H97931		0.090	3/8	1	2-1/2
G9H97932N	E5H97932		0.125	3/8	1	2-1/2
G9H97028N	E5H97028	7/16	0.015	7/16	1	2-3/4
G9H97933N	E5H97933		0.020	7/16	1	2-3/4
G9H97934N	E5H97934		0.025	7/16	1	2-3/4
G9H97935N	E5H97935		0.030	7/16	1	2-3/4
G9H97936N	E5H97936		0.045	7/16	1	2-3/4
G9H97937N	E5H97937		0.060	7/16	1	2-3/4
G9H97938N	E5H97938		0.090	7/16	1	2-3/4
G9H97939N	E5H97939		0.125	7/16	1	2-3/4

▶ NEXT PAGE

Unit: Inch

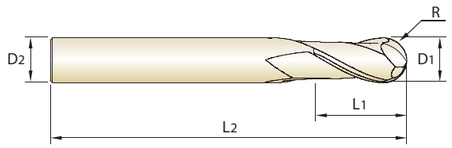
EDP No.	EDP No.	Mill Diameter	Corner Radius	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1		D2	L1	L2
G9H97032N	E5H97032	1/2	0.015	1/2	1	3
G9H97940N	E5H97940		0.020	1/2	1	3
G9H97941N	E5H97941		0.025	1/2	1	3
G9H97942N	E5H97942		0.030	1/2	1	3
G9H97943N	E5H97943		0.045	1/2	1	3
G9H97944N	E5H97944		0.060	1/2	1	3
G9H97945N	E5H97945		0.090	1/2	1	3
G9H97946N	E5H97946		0.125	1/2	1	3
G9H97040N	E5H97040	5/8	0.015	5/8	1-1/4	3-1/2
G9H97947N	E5H97947		0.020	5/8	1-1/4	3-1/2
G9H97948N	E5H97948		0.025	5/8	1-1/4	3-1/2
G9H97949N	E5H97949		0.030	5/8	1-1/4	3-1/2
G9H97950N	E5H97950		0.045	5/8	1-1/4	3-1/2
G9H97951N	E5H97951		0.060	5/8	1-1/4	3-1/2
G9H97952N	E5H97952		0.090	5/8	1-1/4	3-1/2
G9H97953N	E5H97953		0.125	5/8	1-1/4	3-1/2
G9H97048N	E5H97048	3/4	0.015	3/4	1-1/2	4
G9H97954N	E5H97954		0.020	3/4	1-1/2	4
G9H97955N	E5H97955		0.025	3/4	1-1/2	4
G9H97956N	E5H97956		0.030	3/4	1-1/2	4
G9H97957N	E5H97957		0.045	3/4	1-1/2	4
G9H97958N	E5H97958		0.060	3/4	1-1/2	4
G9H97959N	E5H97959		0.090	3/4	1-1/2	4
G9H97960N	E5H97960		0.125	3/4	1-1/2	4
G9H97961N	E5H97961		0.190	3/4	1-1/2	4
G9H97962N	E5H97962		0.250	3/4	1-1/2	4
G9H97064N	E5H97064	1	0.015	1	1-1/2	4
G9H97963N	E5H97963		0.020	1	1-1/2	4
G9H97964N	E5H97964		0.025	1	1-1/2	4
G9H97965N	E5H97965		0.030	1	1-1/2	4
G9H97966N	E5H97966		0.045	1	1-1/2	4
G9H97967N	E5H97967		0.060	1	1-1/2	4
G9H97968N	E5H97968		0.090	1	1-1/2	4
G9H97969N	E5H97969		0.125	1	1-1/2	4
G9H97970N	E5H97970		0.190	1	1-1/2	4
G9H97971N	E5H97971		0.250	1	1-1/2	4

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
+0/-.0012	+0/-.0005

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

2-FLUTE, BALL END, SINGLE ENDED

▶ Suitable for machining alloy steels, cast iron, stainless steel, brass, copper alloys, aluminum, and other non-ferrous materials



CARBIDE | 2 | 30° | R ±.0008 | PLAIN

P. 136

Unit: Inch

EDP No.	EDP No.	Mill Diameter	Radius of Ball Nose	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	R	D2	L1	L2
G9I02001N	E5I02001	1/64	R0.0078	1/8	3/64	1-1/2
G9I02002N	E5I02002	1/32	R1/64	1/8	1/8	1-1/2
G9I02003N	E5I02003	3/64	R0.0234	1/8	1/8	1-1/2
G9I02004N	E5I02004	1/16	R1/32	1/8	1/8	1-1/2
G9I02901N	E5I02901			1/8	1/4	1-1/2
G9I02005N	E5I02005	5/64	R0.0391	1/8	1/4	1-1/2
G9I02006N	E5I02006	3/32	R3/64	1/8	3/8	1-1/2
G9I02007N	E5I02007	7/64	R0.0547	1/8	3/8	1-1/2
G9I02008N	E5I02008	1/8	R1/16	1/8	1/2	1-1/2
G9I07008N	E5I07008			1/8	3/4	2-1/4
G9I02009N	E5I02009	9/64	R0.0703	3/16	9/16	2
G9I02010N	E5I02010	5/32	R5/64	3/16	9/16	2
G9I07010N	E5I07010			3/16	3/4	2-1/2
G9I02011N	E5I02011	11/64	R0.0859	3/16	9/16	2
G9I02012N	E5I02012	3/16	R3/32	3/16	5/8	2
G9I07012N	E5I07012			3/16	3/4	2-1/2
G9I02013N	E5I02013	13/64	R0.1016	1/4	5/8	2-1/2
G9I02014N	E5I02014	7/32	R7/64	1/4	5/8	2-1/2
G9I02015N	E5I02015	15/64	R0.1172	1/4	3/4	2-1/2
G9I02016N	E5I02016	1/4	R1/8	1/4	3/4	2-1/2
G9I07016N	E5I07016			1/4	3/4	2-1/2
G9I07901N	E5I07901			1/4	1-1/8	3
G9I02017N	E5I02017	17/64	R0.1328	5/16	3/4	2-1/2
G9I02018N	E5I02018	9/32	R9/64	5/16	3/4	2-1/2
G9I02019N	E5I02019	19/64	R0.1484	5/16	13/16	2-1/2
G9I02020N	E5I02020	5/16	R5/32	5/16	13/16	2-1/2
G9I07020N	E5I07020			5/16	1-1/8	3
G9I02021N	E5I02021	21/64	R0.1641	3/8	1	2-1/2
G9I02022N	E5I02022	11/32	R11/64	3/8	1	2-1/2
G9I02023N	E5I02023	23/64	R0.1797	3/8	1	2-1/2
G9I02024N	E5I02024	3/8	R3/16	3/8	1	2-1/2
G9I07024N	E5I07024			3/8	1	2-1/2
G9I07902N	E5I07902			3/8	1-1/8	3
G9I02025N	E5I02025	25/64	R0.1953	7/16	1	2-3/4
G9I02026N	E5I02026	13/32	R13/64	7/16	1	2-3/4
G9I02027N	E5I02027	27/64	R0.2109	7/16	1	2-3/4
G9I02028N	E5I02028	7/16	R7/32	7/16	1	2-3/4
G9I07028N	E5I07028			7/16	2	4
G9I02029N	E5I02029	29/64	R0.2266	1/2	1	3
G9I02030N	E5I02030	15/32	R15/64	1/2	1	3
G9I02031N	E5I02031	31/64	R0.2422	1/2	1	3
G9I02032N	E5I02032	1/2	R1/4	1/2	1	3
G9I07032N	E5I07032			1/2	2	4
G9I02036N	E5I02036	9/16	R9/32	9/16	1-1/4	3-1/2

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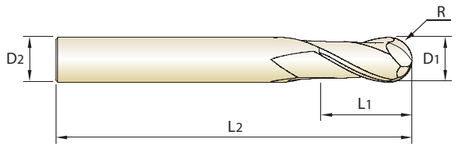
Unit: Inch

EDP No.	EDP No.	Mill Diameter	Radius of Ball Nose	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	R	D2	L1	L2
G9I02040N	**E5I02040**	**5/8**	R5/16	5/8	1-1/4	3-1/2
G9I07040N	**E5I07040**			5/8	2-1/4	5
G9I02044N	**E5I02044**	**11/16**	R11/32	3/4	1-1/2	4
G9I02048N	**E5I02048**	**3/4**	R3/8	3/4	1-1/2	4
G9I07048N	**E5I07048**			3/4	2-1/4	5
G9I02056N	**E5I02056**	**7/8**	R7/16	7/8	1-1/2	4
G9I02064N	**E5I02064**	**1**	R1/2	1	1-1/2	4
G9I07064N	**E5I07064**			1	2-1/4	5

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
+0/-.0012	+0/-.0005

2-FLUTE, BALL END, SINGLE ENDED – METRIC

- Suitable for machining alloy steels, cast iron, stainless steel, brass, copper alloys, aluminum, and other non-ferrous materials



CARBIDE | 2 | 30° | R ±.0.02 | PLAIN

P. 137

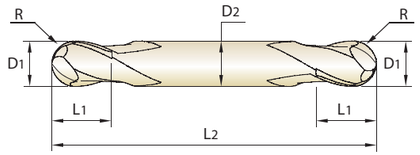
Unit : mm

EDP No.	EDP No.	Mill Diameter	Radius of Ball	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	R	D2	L1	L2
G9I03010N	**E5I03010**	**1.0**	R0.50	3	4	39
G9I03901N	**E5I03901**	**1.0**	R0.50	3	6	39
G9I03015N	**E5I03015**	**1.5**	R0.75	3	5	39
G9I03020N	**E5I03020**	**2.0**	R1.00	3	8	39
G9I03025N	**E5I03025**	**2.5**	R1.25	3	10	39
G9I03030N	**E5I03030**	**3.0**	R1.50	3	12	39
G9I03035N	**E5I03035**	**3.5**	R1.75	4	12	51
G9I03040N	**E5I03040**	**4.0**	R2.00	4	14	51
G9I03045N	**E5I03045**	**4.5**	R2.25	5	16	51
G9I03050N	**E5I03050**	**5.0**	R2.50	5	16	51
G9I03060N	**E5I03060**	**6.0**	R3.00	6	19	63
G9I03070N	**E5I03070**	**7.0**	R3.50	8	19	63
G9I03080N	**E5I03080**	**8.0**	R4.00	8	20	63
G9I03090N	**E5I03090**	**9.0**	R4.50	10	22	63
G9I03100N	**E5I03100**	**10.0**	R5.00	10	22	76
G9I03110N	**E5I03110**	**11.0**	R5.50	12	25	76
G9I03120N	**E5I03120**	**12.0**	R6.00	12	25	76
G9I03140N	**E5I03140**	**14.0**	R7.00	14	32	90
G9I03160N	**E5I03160**	**16.0**	R8.00	16	32	102
G9I03180N	**E5I03180**	**18.0**	R9.00	18	38	102
G9I03200N	**E5I03250**	**20.0**	R10.00	20	38	102
G9I03250N	**E5I03250**	**25.0**	R12.50	25	38	102

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

2-FLUTE, BALL END, DOUBLE ENDED

- Suitable for machining alloy steels, cast iron, stainless steel, brass, copper alloys, aluminum, and other non-ferrous materials
- Same construction features as single end mill in a more economical version



CARBIDE | 2 | 30° | R ±.0008 | PLAIN | FLAT

P. 137

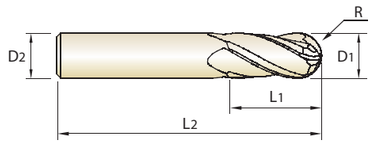
Unit: Inch

EDP No.	EDP No.	Mill Diameter	Radius of Ball	Shank Diameter	Length of Cut	Overall Length	Shank
X-Coated	Uncoated	D1	R	D2	L1	L2	
G9H98002N	**E5H98002**	**1/32**	**R1/64**	1/8	1/16	1-1/2	Plain
G9H98003N	**E5H98003**	**3/64**	**R0.0234**	1/8	3/32	1-1/2	Plain
G9H98004N	**E5H98004**	**1/16**	**R1/32**	1/8	1/8	1-1/2	Plain
G9H98005N	**E5H98005**	**5/64**	**R0.0391**	1/8	1/8	1-1/2	Plain
G9H98006N	**E5H98006**	**3/32**	**R3/64**	1/8	3/16	1-1/2	Plain
G9H98007N	**E5H98007**	**7/64**	**R0.0547**	1/8	3/16	1-1/2	Plain
G9H98008N	**E5H98008**	**1/8**	**R1/16**	1/8	1/4	1-1/2	Plain
G9I04008N	**E5I04008**			3/8	3/8	3	Flat
G9H98009N	**E5H98009**	**9/64**	**R0.0703**	3/16	5/16	2	Plain
G9H98010N	**E5H98010**	**5/32**	**R5/64**	3/16	5/16	2	Plain
G9I04010N	**E5I04010**			3/8	7/16	3	Flat
G9H98011N	**E5H98011**	**11/64**	**R0.0859**	3/16	5/16	2	Plain
G9H98012N	**E5H98012**	**3/16**	**R3/32**	3/16	3/8	2	Plain
G9I04012N	**E5I04012**			3/8	1/2	3	Flat
G9H98013N	**E5H98013**	**13/64**	**R0.1016**	1/4	1/2	2-1/2	Plain
G9H98014N	**E5H98014**	**7/32**	**R7/64**	1/4	1/2	2-1/2	Plain
G9I04014N	**E5I04014**			3/8	9/16	3-1/2	Flat
G9H98015N	**E5H98015**	**15/64**	**R0.1172**	1/4	1/2	2-1/2	Plain
G9H98016N	**E5H98016**	**1/4**	**R1/8**	1/4	1/2	2-1/2	Plain
G9I04016N	**E5I04016**			3/8	5/8	3-1/2	Flat
G9H98018N	**E5H98018**	**9/32**	**R9/64**	5/16	1/2	2-1/2	Plain
G9I04018N	**E5I04018**			3/8	11/16	3-1/2	Flat
G9H98020N	**E5H98020**	**5/16**	**R5/32**	5/16	1/2	2-1/2	Plain
G9I04020N	**E5I04020**			3/8	3/4	3-1/2	Flat
G9H98022N	**E5H98022**	**11/32**	**R11/64**	3/8	9/16	2-1/2	Plain
G9I04022N	**E5I04022**			3/8	3/4	3-1/2	Flat
G9H98024N	**E5H98024**	**3/8**	**R3/16**	3/8	9/16	2-1/2	Plain
G9I04024N	**E5I04024**			3/8	3/4	3-1/2	Flat
G9H98028N	**E5H98028**	**7/16**	**R7/32**	7/16	9/16	2-3/4	Plain
G9I04028N	**E5I04028**			1/2	7/8	4	Flat
G9H98032N	**E5H98032**	**1/2**	**R1/4**	1/2	5/8	3	Plain
G9I04032N	**E5I04032**			1/2	1	4	Flat

Mill Dia. Tolerance (inch)	
D1=D2	+0/-.002
D1≠D2	+0/-.0012

4-FLUTE, BALL END, SINGLE ENDED

- Suitable for machining alloy steels, cast iron, stainless steel, brass, copper alloys, aluminum, and other non-ferrous materials



CARBIDE | 2 | 30° | R ±.0008 | PLAIN

P. 138

Unit: Inch

EDP No.	EDP No.	Mill Diameter	Radius of Ball Nose	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	R	D2	L1	L2
G9I05001N	E5I05001	1/64	R0.0078	1/8	3/64	1-1/2
G9H99002N	E5H99002	1/32	R1/64	1/8	1/16	1-1/2
G9I05002N	E5I05002			1/8	3/32	1-1/2
G9I05901N	E5I05901			1/8	1/8	1-1/2
G9H99003N	E5H99003	3/64	R0.0234	1/8	3/32	1-1/2
G9I05003N	E5I05003			1/8	1/8	1-1/2
G9H99004N	E5H99004	1/16	R1/32	1/8	1/8	1-1/2
G9I05004N	E5I05004			1/8	1/4	1-1/2
G9H99005N	E5H99005	5/64	R0.0391	1/8	1/8	1-1/2
G9H99901N	E5H99901			1/8	5/32	1-1/2
G9I05005N	E5I05005			1/8	1/4	1-1/2
G9H99006N	E5H99006	3/32	R3/64	1/8	3/16	1-1/2
G9I05006N	E5I05006			1/8	3/8	1-1/2
G9H99007N	E5H99007	7/64	R0.0547	1/8	3/16	1-1/2
G9H99902N	E5H99902			1/8	7/32	1-1/2
G9I05007N	E5I05007			1/8	3/8	1-1/2
G9H99008N	E5H99008	1/8	R1/16	1/8	1/4	1-1/2
G9I05008N	E5I05008			1/8	1/2	1-1/2
G9I08008N	E5I08008			1/8	3/4	2-1/4
G9I09008N	E5I09008			1/8	1	3
G9H99009N	E5H99009	9/64	R0.0703	3/16	9/32	2
G9H99903N	E5H99903			3/16	5/16	2
G9I05009N	E5I05009			3/16	9/16	2
G9H99010N	E5H99010	5/32	R5/64	3/16	5/16	2
G9I05010N	E5I05010			3/16	9/16	2
G9I08010N	E5I08010			3/16	3/4	2-1/2
G9I09010N	E5I09010			3/16	1-1/8	3
G9H99011N	E5H99011	11/64	R0.0859	3/16	5/16	2
G9I05011N	E5I05011			3/16	9/16	2
G9I05902N	E5I05902			3/16	5/8	2
G9H99012N	E5H99012	3/16	R3/32	3/16	3/8	2
G9I05012N	E5I05012			3/16	5/8	2
G9I08012N	E5I08012			3/16	3/4	2-1/2
G9I09012N	E5I09012			3/16	1-1/8	3
G9H99013N	E5H99013	13/64	R0.1016	1/4	3/8	2
G9H99904N	E5H99904			1/4	1/2	2-1/2
G9I05013N	E5I05013			1/4	5/8	2-1/2
G9H99014N	E5H99014	7/32	R7/64	1/4	7/16	2
G9H99906N	E5H99906			1/4	1/2	2-1/2
G9I05014N	E5I05014			1/4	5/8	2-1/2
G9H99015N	E5H99015	15/64	R0.1172	1/4	7/16	2
G9H99905N	E5H99905			1/4	1/2	2-1/2
G9I05015N	E5I05015			1/4	3/4	2-1/2
G9H99016N	E5H99016	1/4	R1/8	1/4	1/2	2
G9H99907N	E5H99907			1/4	1/2	2-1/2
G9I05016N	E5I05016			1/4	3/4	2-1/2
G9I09016N	E5I09016			1/4	1	4
G9I08016N	E5I08016			1/4	1-1/8	3
G9I09901N	E5I09901			1/4	1-1/2	4
G9I09902N	E5I09902			1/4	1-1/2	6

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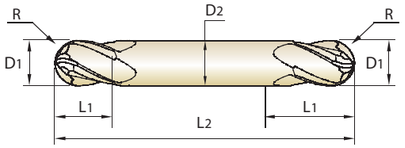
Unit: Inch

EDP No.	EDP No.	Mill Diameter	Radius of Ball Nose	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	R	D2	L1	L2
G9H99017N	E5H99017	17/64	R0.1328	5/16	1/2	2-1/2
G9I05017N	E5I05017			5/16	3/4	2-1/2
G9H99018N	E5H99018	9/32	R9/64	5/16	1/2	2
G9I05018N	E5I05018			5/16	3/4	2-1/2
G9H99019N	E5H99019	19/64	R0.1484	5/16	1/2	2-1/2
G9I05019N	E5I05019			5/16	13/16	2-1/2
G9H99020N	E5H99020	5/16	R5/32	5/16	1/2	2
G9H99908N	E5H99908			5/16	1/2	2-1/2
G9I05020N	E5I05020			5/16	13/16	2-1/2
G9I08020N	E5I08020			5/16	1-1/8	3
G9I09903N	E5I09903			5/16	1-1/2	6
G9I09020N	E5I09020			5/16	1-5/8	4
G9I05021N	E5I05021	21/64	R0.1641	3/8	1	2-1/2
G9H99022N	E5H99022	11/32	R11/64	3/8	9/16	2-1/2
G9I05022N	E5I05022			3/8	7/8	2-1/2
G9I05903N	E5I05903			3/8	1	2-1/2
G9I05023N	E5I05023	23/64	R0.1797	3/8	1	2-1/2
G9H99909N	E5H99909	3/8	R3/16	3/8	9/16	2-1/2
G9H99024N	E5H99024			3/8	5/8	2
G9I05024N	E5I05024			3/8	1	2-1/2
G9I08024N	E5I08024			3/8	1-1/8	3
G9I09904N	E5I09904			3/8	1-1/2	6
G9I09024N	E5I09024			3/8	1-3/4	4
G9I05025N	E5I05025	25/64	R0.1953	7/16	1	2-3/4
G9I05026N	E5I05026	13/32	R13/64	7/16	1	2-3/4
G9I05027N	E5I05027	27/64	R0.2109	7/16	1	2-3/4
G9H99910N	E5H99910	7/16	R7/32	7/16	9/16	2-3/4
G9H99028N	E5H99028			7/16	5/8	2-1/2
G9I05028N	E5I05028			7/16	1	2-3/4
G9I08028N	E5I08028			7/16	2	4
G9I09028N	E5I09028			7/16	3	6
G9I05029N	E5I05029	29/64	R0.2266	1/2	1	3
G9I05030N	E5I05030	15/32	R15/64	1/2	1	3
G9I05031N	E5I05031	31/64	R0.2422	1/2	1	3
G9H99032N	E5H99032	1/2	R1/4	1/2	5/8	2-1/2
G9H99911N	E5H99911			1/2	5/8	3
G9I05032N	E5I05032			1/2	1	3
G9I08032N	E5I08032			1/2	1-1/2	4
G9I09032N	E5I09032			1/2	1-1/2	6
G9I08901N	E5I08901			1/2	2	4
G9I09905N	E5I09905			1/2	3	6
G9I05036N	E5I05036	9/16	R9/32	9/16	1-1/4	3-1/2
G9H99040N	E5H99040	5/8	R5/16	5/8	3/4	3
G9I05040N	E5I05040			5/8	1-1/4	3-1/2
G9I09040N	E5I09040			5/8	1-1/2	6
G9I08040N	E5I08040			5/8	2-1/4	5
G9I09906N	E5I09906			5/8	3	6
G9I05044N	E5I05044	11/16	R11/32	3/4	1-1/2	4
G9H99048N	E5H99048	3/4	R3/8	3/4	1	3
G9I05048N	E5I05048			3/4	1-1/2	4
G9I09048N	E5I09048			3/4	1-1/2	6
G9I08048N	E5I08048			3/4	2-1/4	5
G9I09907N	E5I09907			3/4	3	6
G9I05056N	E5I05056	7/8	R7/16	7/8	1-1/2	4
G9I05064N	E5I05064	1	R1/2	1	1-1/2	4
G9I09908N	E5I09908			1	1-1/2	6
G9I08064N	E5I08064			1	2-1/4	5
G9I09064N	E5I09064			1	3	6

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
+0/-.0012	+0/-.0005

4-FLUTE, BALL END, DOUBLE ENDED

- Suitable for machining alloy steels, cast iron, stainless steel, brass, copper alloys, aluminum, and other non-ferrous materials
- Same construction features as single end mill in a more economical version



CARBIDE | 2 | 30° | R ±.0008 | PLAIN | FLAT

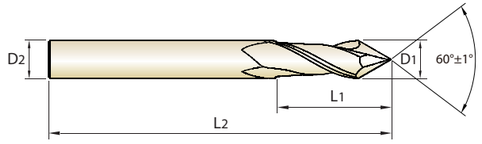
P. 138

Unit: Inch

EDP No.	EDP No.	Mill Diameter	Radius of Ball	Shank Diameter	Length of Cut	Overall Length	Shank
X-Coated	Uncoated	D1	R	D2	L1	L2	
G9I01002N	E5I01002	1/32	R1/64	1/8	1/16	1-1/2	Plain
G9I01003N	E5I01003	3/64	R0.0234	1/8	3/32	1-1/2	Plain
G9I01004N	E5I01004	1/16	R1/32	1/8	1/8	1-1/2	Plain
G9I01005N	E5I01005	5/64	R0.0391	1/8	1/8	1-1/2	Plain
G9I01901N	E5I01901			1/8	5/32	1-1/2	Plain
G9I01006N	E5I01006	3/32	R3/64	1/8	3/16	1-1/2	Plain
G9I01007N	E5I01007	7/64	R0.0547	1/8	3/16	1-1/2	Plain
G9I01902N	E5I01902			1/8	7/32	1-1/2	Plain
G9I01008N	E5I01008	1/8	R1/16	1/8	1/4	1-1/2	Plain
G9I06008N	E5I06008			3/8	3/8	3	Flat
G9I01903N	E5I01903	9/64	R0.0703	3/16	9/32	2	Plain
G9I01009N	E5I01009			3/16	5/16	2	Plain
G9I01010N	E5I01010	5/32	R5/64	3/16	5/16	2	Plain
G9I06010N	E5I06010			3/8	7/16	3	Flat
G9I01011N	E5I01011	11/64	R0.0859	3/16	5/16	2	Plain
G9I01012N	E5I01012	3/16	R3/32	3/16	3/8	2	Plain
G9I06012N	E5I06012			3/8	1/2	3	Flat
G9I01013N	E5I01013	13/64	R0.1016	1/4	3/8	2	Plain
G9I01904N	E5I01904			1/4	1/2	2-1/2	Plain
G9I01014N	E5I01014	7/32	R7/64	1/4	7/16	2	Plain
G9I01905N	E5I01905			1/4	1/2	2-1/2	Plain
G9I06014N	E5I06014			3/8	9/16	3-1/2	Flat
G9I01015N	E5I01015	15/64	R0.1172	1/4	7/16	2	Plain
G9I01906N	E5I01906			1/4	1/2	2-1/2	Plain
G9I01016N	E5I01016	1/4	R1/8	1/4	1/2	2	Plain
G9I01907N	E5I01907			1/4	1/2	2-1/2	Plain
G9I06016N	E5I06016			3/8	5/8	3-1/2	Flat
G9I01017N	E5I01017	17/64	R0.1328	5/16	1/2	2-1/2	Plain
G9I01018N	E5I01018	9/32	R9/64	5/16	1/2	2	Plain
G9I01908N	E5I01908			5/16	1/2	2-1/2	Plain
G9I06018N	E5I06018			3/8	11/16	3-1/2	Flat
G9I01019N	E5I01019	19/64	R0.1484	5/16	1/2	2-1/2	Plain
G9I01020N	E5I01020	5/16	R5/32	5/16	1/2	2	Plain
G9I01909N	E5I01909			5/16	1/2	2-1/2	Plain
G9I06020N	E5I06020			3/8	3/4	3-1/2	Flat
G9I01022N	E5I01022	11/32	R11/64	3/8	9/16	2-1/2	Plain
G9I06022N	E5I06022			3/8	3/4	3-1/2	Flat
G9I01910N	E5I01910	3/8	R3/16	3/8	9/16	2-1/2	Plain
G9I06024N	E5I06024			3/8	3/4	3-1/2	Flat
G9I01028N	E5I01028	7/16	R7/32	7/16	9/16	2-3/4	Plain
G9I01911N	E5I01911			7/16	5/8	2-1/2	Plain
G9I06028N	E5I06028			1/2	7/8	4	Flat
G9I01032N	E5I01032	1/2	R1/4	1/2	5/8	2-1/2	Plain
G9I01912N	E5I01912			1/2	5/8	3	Plain
G9I06032N	E5I06032			1/2	1	4	Flat
G9I01040N	E5I01040	5/8	R5/16	5/8	3/4	3	Plain
G9I01048N	E5I01048	3/4	R3/8	3/4	1	3	Plain

Mill Dia. Tolerance (inch)	
D1=D2	+0/-.002
D1≠D2	+0/-.0012

2-FLUTE 60° DRILL MILL



CARBIDE | 2 | 30° | PLAIN

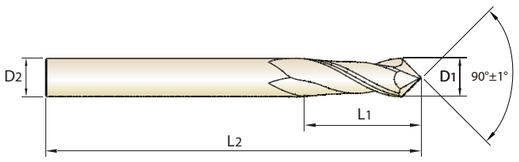
P. 139

Unit: Inch

EDP No.	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/-.0020	+0/-.0005

2-FLUTE 90° DRILL MILL



CARBIDE | 2 | 30° | PLAIN

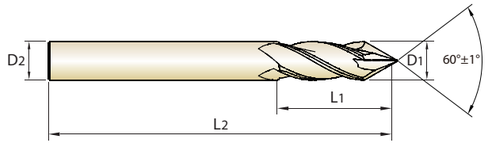
P. 139

Unit: Inch

EDP No.	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/-.0020	+0/-.0005

4-FLUTE 60° DRILL MILL



CARBIDE | 4 | 30° | PLAIN

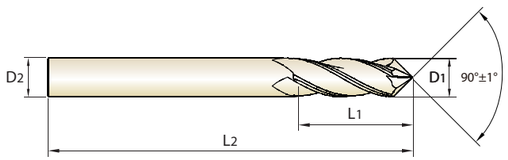
P. 139

Unit: Inch

EDP No.	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/-.0020	+0/-.0005

4-FLUTE 90° DRILL MILL



CARBIDE | 4 | 30° | PLAIN

P. 139

Unit: Inch

EDP No.	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

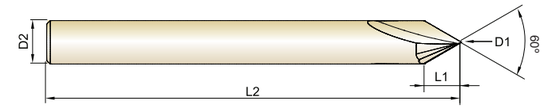
Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
+0/-.0020	+0/-.0005

- Suitable for machining alloy steels, cast iron, stainless steel, brass, copper alloys, aluminum, and other non-ferrous materials

CARBIDE | 2 | PLAIN

P. 140-143

2-FLUTE 60° CHAMFER MILL

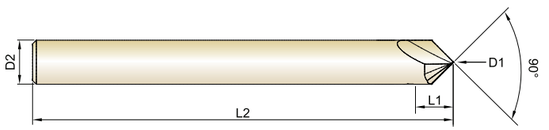


60°

Unit: Inch

EDP No.	EDP No.	Point Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9I52008N	**E5I52008**	**0**	1/8	.108"	1-1/2
G9I52016N	**E5I52016**	**0**	1/4	.217"	2-1/2
G9I52024N	**E5I52024**	**0**	3/8	.325"	2-1/2
G9I52032N	**E5I52032**	**0**	1/2	.433"	3"

2-FLUTE 90° CHAMFER MILL

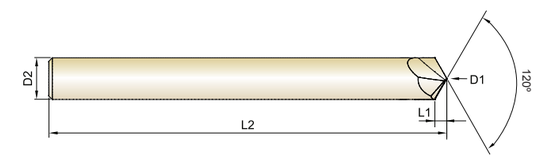


90°

Unit: Inch

EDP No.	EDP No.	Point Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9I53008N	**E5I53008**	**0**	1/8	.063"	1-1/2
G9I53016N	**E5I53016**	**0**	1/4	.125"	2-1/2
G9I53024N	**E5I53024**	**0**	3/8	.188"	2-1/2
G9I53032N	**E5I53032**	**0**	1/2	.250"	3"

2-FLUTE 120° CHAMFER MILL



120°

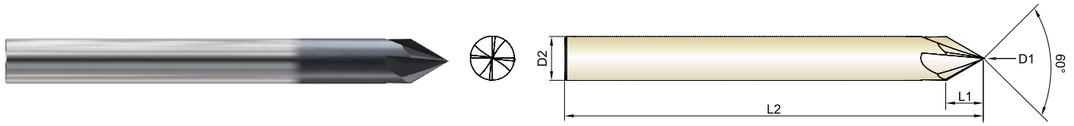
Unit: Inch

EDP No.	EDP No.	Point Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9I54008N	**E5I54008**	**0**	1/8	.036"	1-1/2
G9I54016N	**E5I54016**	**0**	1/4	.072"	2-1/2
G9I54024N	**E5I54024**	**0**	3/8	.108"	2-1/2
G9I54032N	**E5I54032**	**0**	1/2	.144"	3"

▶ Suitable for machining alloy steels, cast iron, stainless steel, brass, copper alloys, aluminum, and other non-ferrous materials

CARBIDE | 4 | PLAIN P. 140-143

4-FLUTE 60° CHAMFER MILL

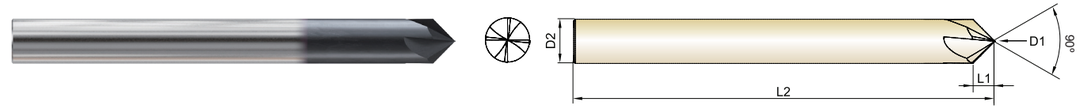


60°

Unit: Inch

EDP No.	EDP No.	Point Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9I55008N	E5I55008	0	1/8	.108"	1-1/2
G9I55016N	E5I55016	0	1/4	.217"	2-1/2
G9I55024N	E5I55024	0	3/8	.325"	2-1/2
G9I55032N	E5I55032	0	1/2	.433"	3"

4-FLUTE 90° CHAMFER MILL

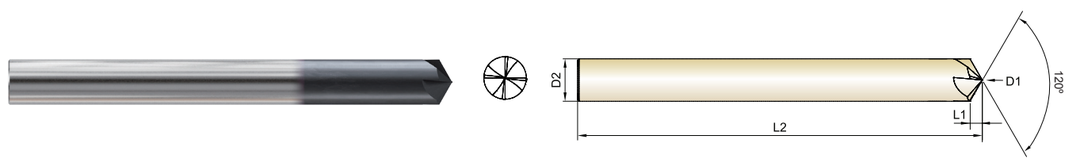


90°

Unit: Inch

EDP No.	EDP No.	Point Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9I56008N	E5I56008	0	1/8	.063"	1-1/2
G9I56016N	E5I56016	0	1/4	.125"	2-1/2
G9I56024N	E5I56024	0	3/8	.188"	2-1/2
G9I56032N	E5I56032	0	1/2	.250"	3"

4-FLUTE 120° CHAMFER MILL



120°

Unit: Inch

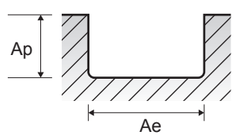
EDP No.	EDP No.	Point Diameter	Shank Diameter	Length of Cut	Overall Length
X-Coated	Uncoated	D1	D2	L1	L2
G9I57016N	E5I57016	0	1/4	.072"	2-1/2
G9I57024N	E5I57024	0	3/8	.108"	2-1/2
G9I57032N	E5I57032	0	1/2	.144"	3"

RECOMMENDED CUTTING CONDITIONS

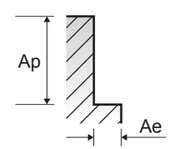
4-FLUTE, MULTIHELIX / SLOTTING & SIDE MILLING / INCH

ISO	VDI 3323	Material Description	Slotting Ae	Slotting Ap	Side Cutting Ae	Side Cutting Ap	Parameter	Diameter (Ø) 1/8	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	0.8D	0.3D	1.5D	SFM	380	380	380	380	380	380	380	380	380	380
							IPT	.0002	.0005	.0007	.0013	.0018	.0020	.0022	.0025	.0029	.0033
							RPM	11600	7740	5800	4640	3870	3320	2900	2320	1930	1450
							IPM	9	15	16	24	28	27	26	23	22	19
	3-4		1.0D	0.8D	0.3D	1.5D	SFM	380	380	380	380	380	380	380	380	380	380
							IPT	.0002	.0004	.0006	.0011	.0015	.0017	.0019	.0021	.0025	.0028
							RPM	11600	7740	5800	4640	3870	3320	2900	2320	1930	1450
							IPM	9	12	14	20	23	23	22	19	19	16
	5		1.0D	0.8D	0.3D	1.5D	SFM	260	260	260	260	260	260	260	260	260	260
							IPT	.0002	.0004	.0006	.0011	.0015	.0017	.0019	.0021	.0025	.0028
							RPM	7940	5290	3970	3180	2650	2270	1980	1590	1320	990
							IPM	6	8	10	14	16	15	15	13	13	11
	6	Low alloy steel	1.0D	0.8D	0.3D	1.5D	SFM	380	380	380	380	380	380	380	380	380	380
							IPT	.0002	.0005	.0007	.0013	.0018	.0020	.0022	.0025	.0029	.0033
							RPM	11600	7740	5800	4640	3870	3320	2900	2320	1930	1450
							IPM	9	15	16	24	28	27	26	23	22	19
	7		1.0D	0.8D	0.3D	1.5D	SFM	380	380	380	380	380	380	380	380	380	380
							IPT	.0002	.0004	.0006	.0011	.0015	.0017	.0019	.0021	.0025	.0028
							RPM	11600	7740	5800	4640	3870	3320	2900	2320	1930	1450
							IPM	9	12	14	20	23	23	22	19	19	16
	8-9		1.0D	0.8D	0.3D	1.5D	SFM	260	260	260	260	260	260	260	260	260	260
							IPT	.0002	.0004	.0006	.0011	.0015	.0017	.0019	.0021	.0025	.0028
							RPM	7940	5290	3970	3180	2650	2270	1980	1590	1320	990
							IPM	6	8	10	14	16	15	15	13	13	11
	10	High alloyed steel, and tool steel	1.0D	0.8D	0.3D	1.5D	SFM	160	160	160	160	160	160	160	160	160	160
							IPT	.0001	.0003	.0005	.0007	.0011	.0012	.0013	.0015	.0018	.0021
							RPM	4890	3260	2440	1950	1630	1400	1220	980	810	610
							IPM	2	4	5	5	7	7	6	6	6	5
	11.1		1.0D	0.8D	0.3D	1.5D	SFM	160	160	160	160	160	160	160	160	160	160
							IPT	.0001	.0003	.0005	.0007	.0011	.0012	.0013	.0015	.0018	.0021
							RPM	4890	3260	2440	1950	1630	1400	1220	980	810	610
							IPM	2	4	5	5	7	7	6	6	6	5
M	12-13	Stainless steel	1.0D	0.8D	0.3D	1.5D	SFM	380	380	380	380	380	380	380	380	380	380
							IPT	.0002	.0004	.0007	.0011	.0015	.0018	.0021	.0024	.0027	.0030
							RPM	11600	7740	5800	4640	3870	3320	2900	2320	1930	1450
							IPM	9	12	16	20	23	24	24	22	21	17
	14.1		1.0D	0.8D	0.3D	1.5D	SFM	260	260	260	260	260	260	260	260	260	260
							IPT	.0002	.0004	.0006	.0010	.0014	.0017	.0019	.0021	.0025	.0028
							RPM	7940	5290	3970	3180	2650	2270	1980	1590	1320	990
							IPM	6	8	10	13	15	15	15	13	13	11
	14.2		1.0D	0.8D	0.3D	1.5D	SFM	220	220	220	220	220	220	220	220	220	220
							IPT	.0001	.0003	.0005	.0007	.0011	.0012	.0013	.0015	.0018	.0021
							RPM	6720	4480	3360	2690	2240	1920	1680	1340	1120	840
							IPM	3	5	7	8	10	9	9	8	8	7
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	0.8D	0.3D	1.5D	SFM	280	280	280	280	280	280	280	280	280	280
							IPT	.0002	.0005	.0008	.0013	.0017	.0020	.0023	.0026	.0029	.0032
							RPM	8550	5700	4270	3420	2850	2440	2140	1710	1420	1070
							IPM	7	11	14	18	19	20	20	18	16	14

(Values based on recommended Ae and Ap)
SFM = ft./min. IPM = in/min.
IPT = in/tooth Ap = factor of dia. (Axial Depth of Cut)
RPM = rev./min. Ae = factor of dia. (Radial Stepover)



Slotting



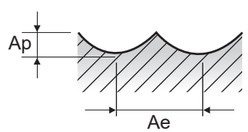
Side Cutting

RECOMMENDED CUTTING CONDITIONS

4-FLUTE, MULTIHELIX, BALL NOSE / SURFACING / INCH

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 1/8	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	1
P	1-2	Non-alloy steel	0.7D	0.3D	SFM	380	380	380	380	380	380	380	380	380	380
					IPT	.0002	.0005	.0008	.0014	.0020	.0022	.0024	.0027	.0032	.0036
					RPM	16250	10830	8120	6500	5420	4640	4060	3250	2710	2030
					IPM	13	22	26	36	43	41	39	35	35	29
	3-4		0.7D	0.3D	SFM	380	380	380	380	380	380	380	380	380	380
					IPT	.0002	.0004	.0007	.0012	.0016	.0019	.0021	.0023	.0027	.0031
					RPM	16250	10830	8120	6500	5420	4640	4060	3250	2710	2030
					IPM	13	17	23	31	35	35	34	30	29	25
	5		0.7D	0.3D	SFM	260	260	260	260	260	260	260	260	260	260
					IPT	.0002	.0004	.0007	.0012	.0016	.0019	.0021	.0023	.0027	.0031
					RPM	11120	7410	5560	4450	3710	3180	2780	2220	1850	1390
					IPM	9	12	16	21	24	24	23	20	20	17
	6	Low alloy steel	0.7D	0.3D	SFM	380	380	380	380	380	380	380	380	380	380
					IPT	.0002	.0005	.0008	.0014	.0020	.0022	.0024	.0027	.0032	.0036
					RPM	16250	10830	8120	6500	5420	4640	4060	3250	2710	2030
					IPM	13	22	26	36	43	41	39	35	35	29
	7		0.7D	0.3D	SFM	380	380	380	380	380	380	380	380	380	380
					IPT	.0002	.0004	.0007	.0012	.0016	.0019	.0021	.0023	.0027	.0031
					RPM	16250	10830	8120	6500	5420	4640	4060	3250	2710	2030
					IPM	13	17	23	31	35	35	34	30	29	25
	8-9		0.7D	0.3D	SFM	260	260	260	260	260	260	260	260	260	260
					IPT	.0002	.0004	.0007	.0012	.0016	.0019	.0021	.0023	.0027	.0031
					RPM	11120	7410	5560	4450	3710	3180	2780	2220	1850	1390
					IPM	9	12	16	21	24	24	23	20	20	17
	10	High alloyed steel, and tool steel	0.7D	0.3D	SFM	160	160	160	160	160	160	160	160	160	160
					IPT	.0001	.0003	.0005	.0008	.0012	.0013	.0014	.0016	.0020	.0023
					RPM	6840	4560	3420	2740	2280	1950	1710	1370	1140	860
					IPM	3	5	7	9	11	10	10	9	9	8
	11.1		0.7D	0.3D	SFM	160	160	160	160	160	160	160	160	160	160
					IPT	.0001	.0003	.0005	.0008	.0012	.0013	.0014	.0016	.0020	.0023
					RPM	6840	4560	3420	2740	2280	1950	1710	1370	1140	860
					IPM	3	5	7	9	11	10	10	9	9	8
M	12-13	Stainless steel	0.7D	0.3D	SFM	380	380	380	380	380	380	380	380	380	380
					IPT	.0002	.0004	.0008	.0012	.0016	.0020	.0023	.0026	.0029	.0033
					RPM	16250	10830	8120	6500	5420	4640	4060	3250	2710	2030
					IPM	13	17	26	31	35	37	37	34	31	27
	14.1		0.7D	0.3D	SFM	260	260	260	260	260	260	260	260	260	260
					IPT	.0002	.0004	.0007	.0011	.0015	.0019	.0021	.0023	.0027	.0031
					RPM	11120	7410	5560	4450	3710	3180	2780	2220	1850	1390
					IPM	9	12	16	20	22	24	23	20	20	17
	14.2		0.7D	0.3D	SFM	220	220	220	220	220	220	220	220	220	220
					IPT	.0001	.0003	.0005	.0008	.0012	.0013	.0014	.0016	.0020	.0023
					RPM	9410	6270	4700	3760	3140	2690	2350	1880	1570	1180
					IPM	4	8	9	12	15	14	13	12	13	11
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.7D	1.3D	SFM	280	280	280	280	280	280	280	280	280	280
					IPT	.0002	.0005	.0009	.0014	.0019	.0022	.0025	.0028	.0032	.0035
					RPM	11970	7980	5990	4790	3990	3420	2990	2390	2000	1500
					IPM	10	16	22	27	30	30	30	27	26	21

(Values based on recommended Ae and Ap)
SFM = ft./min. IPM = in/min.
IPT = in/tooth Ap = factor of dia. (Axial Depth of Cut)
RPM = rev./min. Ae = factor of dia. (Radial Stepover)



RECOMMENDED CUTTING CONDITIONS

5-FLUTE, UNEQUAL INDEX / SQUARE & CORNER RADIUS / SIDE MILLING / INCH

ISO	VDI 3323	Material Description	Side Cutting Ae	Side Cutting Ap	Parameter	Diameter (Ø) 1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	1
P	1-2	Non-alloy steel (Annealed)	0.2D	1.5D	SFM	420	420	420	420	420	420	420	420	420
					IPT	.0006	.0008	.0011	.0014	.0017	.0022	.0028	.0033	.0044
					RPM	12800	8550	6400	5150	4250	3200	2550	2150	1600
					IPM	46	43	44	45	45	44	45	44	44
	3-4	Non-alloy steel (~26 HRc)	0.2D	1.5D	SFM	350	350	350	350	350	350	350	350	350
					IPT	.0005	.0008	.0011	.0013	.0016	.0021	.0026	.0032	.0042
					RPM	10700	7100	5350	4250	3550	2650	2150	1800	1350
					IPM	33	36	37	35	36	35	35	36	35
	5	Non-alloy steel (32 HRc)	0.2D	1.5D	SFM	280	280	280	280	280	280	280	280	280
					IPT	.0005	.0008	.0010	.0013	.0015	.0020	.0025	.0030	.0040
					RPM	8550	5700	4250	3400	2850	2150	1700	1400	1050
					IPM	27	29	27	28	27	27	27	26	26
	6	Low alloy steel (Annealed)	0.2D	1.5D	SFM	420	420	420	420	420	420	420	420	420
					IPT	.0006	.0008	.0011	.0014	.0017	.0022	.0028	.0033	.0044
					RPM	12800	8550	6400	5150	4250	3200	2550	2150	1600
					IPM	46	43	44	45	45	44	45	44	44
	7	Low alloy steel (~26 HRc)	0.2D	1.5D	SFM	350	350	350	350	350	350	350	350	350
					IPT	.0005	.0008	.0011	.0013	.0016	.0021	.0026	.0032	.0042
					RPM	10700	7100	5350	4250	3550	2650	2150	1800	1350
					IPM	33	36	37	35	36	35	35	36	35
	8-9	Low alloy steel (32 HRc)	0.2D	1.5D	SFM	280	280	280	280	280	280	280	280	280
					IPT	.0005	.0008	.0010	.0013	.0015	.0020	.0025	.0030	.0040
					RPM	8550	5700	4250	3400	2850	2150	1700	1400	1050
					IPM	27	29	27	28	27	27	27	26	26
	10	High alloyed steel, and tool steel (Annealed)	0.2D	1.5D	SFM	220	220	220	220	220	220	220	220	220
					IPT	.0004	.0006	.0008	.0009	.0011	.0015	.0019	.0023	.0030
					RPM	6700	4500	3350	2700	2250	1700	1350	1100	850
					IPM	17	17	17	15	15	16	16	16	16
	11	High alloyed steel, and tool steel (~35 HRc)	0.2D	1.5D	SFM	160	160	160	160	160	160	160	160	160
					IPT	.0003	.0004	.0005	.0006	.0008	.0010	.0013	.0015	.0020
					RPM	4900	3250	2450	1950	1650	1200	1000	800	600
					IPM	8	8	8	7	8	8	8	8	8
M	12	Stainless steel (Ferritic / Martensitic)	0.2D	1.5D	SFM	300	300	300	300	300	300	300	300	300
					IPT	.0004	.0006	.0008	.0009	.0011	.0015	.0019	.0023	.0030
					RPM	9150	6100	4600	3650	3050	2300	1850	1550	1150
					IPM	23	23	23	21	21	22	22	22	22
	13	Stainless steel (Precipitation)	0.2D	1.5D	SFM	260	260	260	260	260	260	260	260	260
					IPT	.0004	.0006	.0008	.0009	.0011	.0015	.0019	.0023	.0030
					RPM	7950	5300	3950	3200	2650	2000	1600	1300	1000
					IPM	20	20	20	18	18	19	19	19	19
	14	Stainless steel (Austenitic)	0.2D	1.5D	SFM	350	350	350	350	350	350	350	350	350
					IPT	.0006	.0008	.0011	.0014	.0017	.0022	.0028	.0033	.0044
					RPM	10700	7100	5350	4250	3550	2650	2150	1800	1350
					IPM	38	36	37	37	38	36	38	37	37
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.2D	1.5D	SFM	280	280	280	280	280	280	280	280	280
					IPT	.0005	.0008	.0010	.0013	.0015	.0020	.0025	.0030	.0040
					RPM	8550	5700	4250	3400	2850	2150	1700	1400	1050
					IPM	27	29	27	28	27	27	27	26	26

(Values based on recommended Ae and Ap)
SFM = ft./min. IPM = in/min. (Accouunting for Chip Thinning)
IPT = in/tooth (Chip Load) Ap = factor of dia. (Axial Depth of Cut)
RPM = rev./min. Ae = factor of dia. (Radial Depth of Cut)

Slotting is possible up to Ap 0.5xD
Use IPT for feed calculations
For longer Ap, reduce Ae

RECOMMENDED CUTTING CONDITIONS

4-FLUTE, CARBIDE ROUGHER / SLOTTING & SIDE MILLING / INCH

ISO	VDI 3323	Material Description	Slotting Ae	Slotting Ap	Side Cutting Ae	Side Cutting Ap	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 (Annealed)	1.0D	0.5D	0.5D	2.0D	SFM	340	340	340	340	340	340	340	340	340
							IPT	.0009	.0013	.0018	.0022	.0026	.0035	.0044	.0053	.0070
							RPM	10400	6900	5200	4150	3450	2600	2100	1750	1300
							IPM	58	56	59	57	56	57	58	58	57
	3-4	Non-alloy steel (~26 HRc)	1.0D	0.5D	0.5D	2.0D	SFM	300	300	300	300	300	300	300	300	300
							IPT	.0008	.0011	.0015	.0019	.0023	.0030	.0038	.0045	.0060
							RPM	9150	6100	4600	3650	3050	2300	1850	1550	1150
							IPM	45	42	43	43	44	43	44	44	43
	5	Non-alloy steel (32 HRc)	1.0D	0.5D	0.5D	2.0D	SFM	275	275	275	275	275	275	275	275	275
							IPT	.0006	.0009	.0013	.0016	.0019	.0025	.0031	.0038	.0050
							RPM	8400	5600	4200	3350	2800	2100	1700	1400	1050
							IPM	31	32	34	34	33	33	33	33	33
	6	Low alloy steel (Annealed)	1.0D	0.5D	0.5D	2.0D	SFM	340	340	340	340	340	340	340	340	340
							IPT	.0009	.0013	.0018	.0022	.0026	.0035	.0044	.0053	.0070
							RPM	10400	6900	5200	4150	3450	2600	2100	1750	1300
							IPM	59	56	59	57	56	57	58	58	57
	7	Low alloy steel (~26 HRc)	1.0D	0.5D	0.5D	2.0D	SFM	300	300	300	300	300	300	300	300	300
							IPT	.0008	.0011	.0015	.0019	.0023	.0030	.0038	.0045	.0060
							RPM	9150	6100	4600	3650	3050	2300	1850	1550	1150
							IPM	45	42	43	43	44	43	44	44	43
	8-9	Low alloy steel (32 HRc)	1.0D	0.5D	0.5D	2.0D	SFM	275	275	275	275	275	275	275	275	275
							IPT	.0006	.0009	.0013	.0016	.0019	.0025	.0031	.0038	.0050
							RPM	8400	5600	4200	3350	2800	2100	1700	1400	1050
							IPM	31	32	34	34	33	33	33	33	33
	10	High alloyed steel, and tool steel (Annealed)	1.0D	0.5D	0.5D	2.0D	SFM	220	220	220	220	220	220	220	220	220
							IPT	.0006	.0008	.0011	.0014	.0017	.0023	.0028	.0034	.0045
							RPM	6700	4500	3350	2700	2250	1700	1350	1100	850
							IPM	25	23	23	24	24	24	24	23	24
	11	High alloyed steel, and tool steel (~35 HRc)	1.0D	0.5D	0.5D	2.0D	SFM	160	160	160	160	160	160	160	160	160
							IPT	.0005	.0008	.0010	.0013	.0015	.0020	.0025	.0030	.0040
							RPM	4900	3250	2450	1950	1650	1200	1000	800	600
							IPM	15	16	15	16	15	15	16	15	15
M	12	Stainless steel (Ferritic / Martensitic)	1.0D	0.5D	0.5D	2.0D	SFM	250	250	250	250	250	250	250	250	250
							IPT	.0010	.0015	.0020	.0025	.0030	.0040	.0050	.0060	.0080
							RPM	7650	5100	3800	3050	2550	1900	1550	1250	950
							IPM	48	48	48	48	48	48	48	47	48
	13	Stainless steel (Precipitation)	1.0D	0.5D	0.5D	2.0D	SFM	210	210	210	210	210	210	210	210	210
							IPT	.0008	.0011	.0015	.0019	.0023	.0030	.0038	.0045	.0060
							RPM	6400	4250	3200	2550	2150	1600	1300	1050	800
							IPM	32	30	30	30	31	30	31	30	30
	14	Stainless steel (Austenitic)	1.0D	0.5D	0.5D	2.0D	SFM	275	275	275	275	275	275	275	275	275
							IPT	.0009	.0013	.0018	.0022	.0026	.0035	.0044	.0053	.0070
							RPM	8400	5600	4200	3350	2800	2100	1700	1400	1050
							IPM	47	46	47	46	46	46	47	46	46
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	0.5D	0.5D	2.0D	SFM	275	275	275	275	275	275	275	275	275
							IPT	.0006	.0008	.0011	.0014	.0017	.0023	.0028	.0034	.0045
							RPM	8400	5600	4200	3350	2800	2100	1700	1400	1050
							IPM	31	29	29	29	30	30	30	30	30

(Values based on recommended Ae and Ap)
SFM = ft./min.
IPT = in/tooth (Chip Load)
RPM = rev./min.
IPM = in/min. (Accouunting for Chip Thinning)
Ap = factor of dia. (Axial Depth of Cut)
Ae = factor of dia. (Radial Depth of Cut)

Slotting is possible up to Ap 0.5xD
Use IPT for feed calculations
For longer Ap, reduce Ae

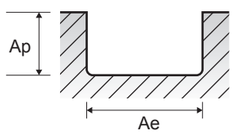
RECOMMENDED CUTTING CONDITIONS

2-FLUTE, SQUARE & CORNER RADIUS / SLOTTING / INCH

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
					IPT	.0005	.0006	.0008	.0009	.0012	.0015	.0017	.0018	.0025	.0029	.0037
					RPM	5190	4160	3460	2600	2080	1730	1480	1300	1040	870	650
					IPM	5	5	5	5	5	5	5	5	5	5	5
	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
					IPT	.0005	.0006	.0008	.0009	.0013	.0016	.0017	.0019	.0024	.0029	.0039
					RPM	4430	3540	2950	2220	1770	1480	1270	1110	890	740	550
					IPM	4	4	4	4	4	5	4	4	4	4	4
	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
					IPT	.0004	.0006	.0007	.0008	.0011	.0014	.0015	.0017	.0027	.0032	.0041
					RPM	3670	2930	2440	1830	1470	1220	1050	920	730	610	460
					IPM	3	3	3	3	3	3	3	3	4	4	4
	6	Low 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
					IPT	.0005	.0006	.0008	.0009	.0012	.0015	.0017	.0018	.0025	.0029	.0037
					RPM	5190	4160	3460	2600	2080	1730	1480	1300	1040	870	650
					IPM	5	5	5	5	5	5	5	5	5	5	5
	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
					IPT	.0005	.0006	.0008	.0009	.0013	.0016	.0017	.0019	.0024	.0029	.0039
					RPM	4430	3540	2950	2220	1770	1480	1270	1110	890	740	550
					IPM	4	4	4	4	4	5	4	4	4	4	4
	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
					IPT	.0004	.0006	.0007	.0008	.0011	.0014	.0015	.0017	.0027	.0032	.0041
					RPM	3670	2930	2440	1830	1470	1220	1050	920	730	610	460
					IPM	3	3	3	3	3	3	3	3	4	4	4
	10	High alloyed steel, and tool 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
					IPT	.0005	.0006	.0008	.0009	.0012	.0015	.0017	.0018	.0025	.0029	.0037
					RPM	5190	4160	3460	2600	2080	1730	1480	1300	1040	870	650
					IPM	5	5	5	5	5	5	5	5	5	5	5
	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
					IPT	.0004	.0006	.0007	.0008	.0011	.0014	.0015	.0017	.0027	.0032	.0041
					RPM	3670	2930	2440	1830	1470	1220	1050	920	730	610	460
					IPM	3	3	3	3	3	3	3	3	4	4	4
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	.0007	.0008	.0011	.0014	.0015	.0017	.0027	.0032	.0041
					RPM	3670	2930	2440	1830	1470	1220	1050	920	730	610	460
					IPM	3	3	3	3	3	3	3	3	4	4	4
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	.0008	.0011	.0015	.0022	.0027	.0032	.0037	.0051	.0061	.0080
					RPM	5960	4770	3970	2980	2380	1990	1700	1490	1190	990	740
					IPM	8	8	8	9	11	11	11	11	12	12	12
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	.0019	.0021	.0023	.0030	.0036	.0048
					RPM	14970	11980	9980	7490	5990	4990	4280	3740	2990	2500	1870
					IPM	16	18	18	17	18	19	18	17	18	18	18
	26-29.1	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	.0006	.0007	.0009	.0012	.0015	.0020	.0021	.0023	.0030	.0036	.0047
					RPM	11310	9050	7540	5650	4520	3770	3230	2830	2260	1880	1410
					IPM	12	12	13	13	14	15	14	13	14	14	13

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

Reduce cutting speed ~35% for uncoated tools



Slotting

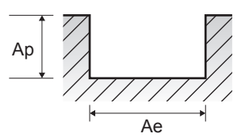
RECOMMENDED CUTTING CONDITIONS

2-FLUTE, SQUARE / SLOTTING / METRIC

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
					IPT	.0004	.0006	.0008	.0008	.0012	.0016	.0017	.0026	.0028	.0030	.0036
					RPM	5500	4120	3300	2750	2060	1650	1370	1030	920	820	660
					IPM	5	5	5	5	5	5	5	5	5	5	5
	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
					IPT	.0004	.0006	.0008	.0009	.0013	.0016	.0018	.0025	.0028	.0031	.0038
					RPM	4690	3520	2810	2340	1760	1410	1170	880	780	700	560
					IPM	4	4	4	4	4	5	4	4	4	4	4
	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
					IPT	.0004	.0006	.0008	.0008	.0011	.0015	.0016	.0027	.0030	.0033	.0041
					RPM	3880	2910	2330	1940	1460	1160	970	730	650	580	470
					IPM	3	3	3	3	3	3	3	4	4	4	4
	6	Low 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
					IPT	.0004	.0006	.0008	.0008	.0012	.0016	.0017	.0026	.0028	.0030	.0036
					RPM	5500	4120	3300	2750	2060	1650	1370	1030	920	820	660
					IPM	5	5	5	5	5	5	5	5	5	5	5
	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
					IPT	.0004	.0006	.0008	.0009	.0013	.0016	.0018	.0025	.0028	.0031	.0038
					RPM	4690	3520	2810	2340	1760	1410	1170	880	780	700	560
					IPM	4	4	4	4	4	5	4	4	4	4	4
	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
					IPT	.0004	.0006	.0008	.0008	.0011	.0015	.0016	.0027	.0030	.0033	.0041
					RPM	3880	2910	2330	1940	1460	1160	970	730	650	580	470
					IPM	3	3	3	3	3	3	3	4	4	4	4
	10	High alloyed steel, and tool 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
					IPT	.0004	.0006	.0008	.0008	.0012	.0016	.0017	.0026	.0028	.0030	.0036
					RPM	5500	4120	3300	2750	2060	1650	1370	1030	920	820	660
					IPM	5	5	5	5	5	5	5	5	5	5	5
	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
					IPT	.0004	.0006	.0008	.0008	.0011	.0015	.0016	.0027	.0030	.0033	.0041
					RPM	3880	2910	2330	1940	1460	1160	970	730	650	580	470
					IPM	3	3	3	3	3	3	3	4	4	4	4
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
					IPM	3	3	3	3	3	3	3	4	4	4	4
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
					IPM	8	8	8	9	11	11	11	12	12	12	12
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
					IPM	16	18	18	17	18	19	17	18	18	18	18
	26-29.1	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
					IPM	12	12	13	13	14	15	13	14	13	13	13

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

Reduce cutting speed ~35% for uncoated tools



Slotting

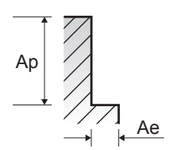
RECOMMENDED CUTTING CONDITIONS

3-FLUTE, SQUARE / SIDE CUTTING / INCH

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
					IPT	.0006	.0009	.0011	.0013	.0017	.0022	.0024	.0026	.0038	.0044	.0056
					RPM	5190	4160	3460	2600	2080	1730	1480	1300	1040	870	650
					IPM	10	11	11	10	11	11	11	10	12	11	11
	3-4		0.1D	1.5D	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
					IPM	9	9	10	9	10	10	10	9	10	10	10
	5		0.1D	1.5D	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
					IPM	7	7	7	7	7	7	7	7	9	8	8
	6	Low alloy steel	0.1D	1.5D	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
					IPM	10	11	11	10	11	11	11	10	12	11	11
	7		0.1D	1.5D	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
					IPM	9	9	10	9	10	10	10	9	10	10	10
	8-9		0.1D	1.5D	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
					IPM	7	7	7	7	7	7	7	7	9	8	8
	10	High alloyed steel, and tool steel	0.1D	1.5D	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
					IPM	10	11	11	10	11	11	11	10	12	11	11
	11.1		0.1D	1.5D	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
					IPM	7	7	7	7	7	7	7	7	9	8	8
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.

Reduce cutting speed ~35% for uncoated tools



Side Cutting

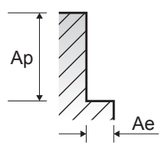
RECOMMENDED CUTTING CONDITIONS

4-FLUTE, SQUARE & CORNER RADIUS / SIDE CUTTING / INCH

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
					IPT	.0006	.0009	.0011	.0013	.0017	.0022	.0024	.0026	.0038	.0044	.0056
					RPM	5190	4160	3460	2600	2080	1730	1480	1300	1040	870	650
					IPM	13	14	15	13	14	15	14	13	16	15	14
	3-4		0.1D	1.5D	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
					IPM	12	13	13	12	13	13	13	12	13	13	13
	5		0.1D	1.5D	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
					IPM	9	9	10	9	9	10	9	9	12	11	11
	6	Low alloy steel	0.1D	1.5D	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
					IPM	13	14	15	13	14	15	14	13	16	15	14
	7		0.1D	1.5D	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
					IPM	12	13	13	12	13	13	13	12	13	13	13
	8-9		0.1D	1.5D	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
					IPM	9	9	10	9	9	10	9	9	12	11	11
	10	High alloyed steel, and tool steel	0.1D	1.5D	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
					IPM	13	14	15	13	14	15	14	13	16	15	14
	11.1		0.1D	1.5D	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
					IPM	9	9	10	9	9	10	9	9	12	11	11
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	7	7	7	7	7	8	7	7	8	8	9
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	22	23	25	27	31	32	33	33	37	32	26
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	45	51	51	50	53	55	52	51	53	53	53
	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	38	38	40	38	40	43	40	38	40	40	39

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

Reduce cutting speed ~35% for uncoated tools



Side Cutting

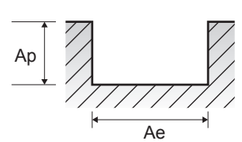
RECOMMENDED CUTTING CONDITIONS

4-FLUTE, SQUARE & CORNER RADIUS / SLOTTING / INCH

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	0.3D	SFM	170	170	170	170	170	170	170	170	170	170	170
					IPT	.0005	.0006	.0008	.0009	.0012	.0015	.0017	.0018	.0025	.0029	.0037
					RPM	5190	4160	3460	2600	2080	1730	1480	1300	1040	870	650
					IPM	9	10	10	9	10	11	10	9	11	10	10
	3-4		1.0D	0.3D	SFM	145	145	145	145	145	145	145	145	145	145	145
					IPT	.0005	.0006	.0008	.0009	.0013	.0016	.0017	.0019	.0024	.0029	.0039
					RPM	4430	3540	2950	2220	1770	1480	1270	1110	890	740	550
					IPM	8	9	9	8	9	9	9	8	9	9	9
	5		1.0D	0.3D	SFM	120	120	120	120	120	120	120	120	120	120	120
					IPT	.0004	.0006	.0007	.0008	.0011	.0014	.0015	.0017	.0027	.0032	.0041
					RPM	3670	2930	2440	1830	1470	1220	1050	920	730	610	460
					IPM	6	6	7	6	6	7	6	6	8	8	8
	6	Low alloy steel	1.0D	0.3D	SFM	170	170	170	170	170	170	170	170	170	170	170
					IPT	.0005	.0006	.0008	.0009	.0012	.0015	.0017	.0018	.0025	.0029	.0037
					RPM	5190	4160	3460	2600	2080	1730	1480	1300	1040	870	650
					IPM	9	10	10	9	10	11	10	9	11	10	10
	7		1.0D	0.3D	SFM	145	145	145	145	145	145	145	145	145	145	145
					IPT	.0005	.0006	.0008	.0009	.0013	.0016	.0017	.0019	.0024	.0029	.0039
					RPM	4430	3540	2950	2220	1770	1480	1270	1110	890	740	550
					IPM	8	9	9	8	9	9	9	8	9	9	9
	8-9		1.0D	0.3D	SFM	120	120	120	120	120	120	120	120	120	120	120
					IPT	.0004	.0006	.0007	.0008	.0011	.0014	.0015	.0017	.0027	.0032	.0041
					RPM	3670	2930	2440	1830	1470	1220	1050	920	730	610	460
					IPM	6	6	7	6	6	7	6	6	8	8	8
	10	High alloyed steel, and tool steel	1.0D	0.3D	SFM	170	170	170	170	170	170	170	170	170	170	170
					IPT	.0005	.0006	.0008	.0009	.0012	.0015	.0017	.0018	.0025	.0029	.0037
					RPM	5190	4160	3460	2600	2080	1730	1480	1300	1040	870	650
					IPM	9	10	10	9	10	11	10	9	11	10	10
	11.1		1.0D	0.3D	SFM	120	120	120	120	120	120	120	120	120	120	120
					IPT	.0004	.0006	.0007	.0008	.0011	.0014	.0015	.0017	.0027	.0032	.0041
					RPM	3670	2930	2440	1830	1470	1220	1050	920	730	610	460
					IPM	6	6	7	6	6	7	6	6	8	8	8
M	14.1	Stainless steel	1.0D	0.3D	SFM	120	120	120	120	120	120	120	120	120	120	120
					IPT	.0004	.0006	.0007	.0008	.0011	.0014	.0015	.0017	.0027	.0032	.0041
					RPM	3670	2930	2440	1830	1470	1220	1050	920	730	610	460
					IPM	6	6	7	6	6	7	6	6	8	8	8
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	0.3D	SFM	195	195	195	195	195	195	195	195	195	195	195
					IPT	.0006	.0008	.0011	.0015	.0022	.0027	.0032	.0037	.0051	.0061	.0080
					RPM	5960	4770	3970	2980	2380	1990	1700	1490	1190	990	740
					IPM	15	16	17	18	21	22	22	22	24	24	24
N	21-25	Aluminum-wrought alloy Aluminum-cast, alloyed	1.0D	0.5D	SFM	490	490	490	490	490	490	490	490	490	490	490
					IPT	.0005	.0008	.0009	.0011	.0015	.0019	.0021	.0023	.0030	.0036	.0048
					RPM	14970	11980	9980	7490	5990	4990	4280	3740	2990	2500	1870
					IPM	32	36	36	34	36	37	36	34	36	36	36
	26-29.1	Copper and Copper Alloys (Bronze / Brass) Non Metallic Materials	1.0D	0.5D	SFM	370	370	370	370	370	370	370	370	370	370	370
					IPT	.0006	.0007	.0009	.0012	.0015	.0020	.0021	.0023	.0030	.0036	.0047
					RPM	11310	9050	7540	5650	4520	3770	3230	2830	2260	1880	1410
					IPM	25	25	27	26	27	29	28	26	27	27	27

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

Reduce cutting speed ~35% for uncoated tools



Slotting

YGBasiX END MILLS

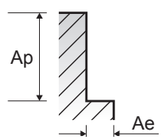
RECOMMENDED CUTTING CONDITIONS

4-FLUTE, SQUARE / SIDE CUTTING / METRIC

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
					IPT	.0006	.0009	.0011	.0012	.0017	.0023	.0024	.0039	.0042	.0046	.0055
					RPM	5500	4120	3300	2750	2060	1650	1370	1030	920	820	660
					IPM	13	14	15	13	14	15	13	16	15	15	14
	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
					IPM	12	13	13	12	13	13	12	13	13	13	13
	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
					IPM	9	9	10	9	9	10	9	12	11	11	11
	6	Low alloy steel	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
					IPM	13	14	15	13	14	15	13	16	15	15	14
	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
					IPM	12	13	13	12	13	13	12	13	13	13	13
	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
					IPM	9	9	10	9	9	10	9	12	11	11	11
	10	High alloyed steel, and tool steel	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
					IPM	13	14	15	13	14	15	13	16	15	15	14
	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
					IPM	9	9	10	9	9	10	9	12	11	11	11
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
					IPM	7	7	7	7	7	8	7	8	8	8	9
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
					IPM	22	23	25	27	31	32	33	37	32	30	26
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
					IPM	45	51	51	50	53	55	51	53	53	53	53
	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
					IPM	38	38	40	38	40	43	38	40	40	40	39

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

Reduce cutting speed ~35% for uncoated tools



Side Cutting

YGBasiX END MILLS

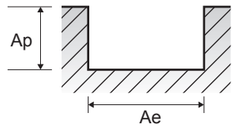
RECOMMENDED CUTTING CONDITIONS

4-FLUTE, SQUARE / SLOTTING / METRIC

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	0.3D	SFM	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
					IPM	9	10	10	9	10	11	9	11	10	10	10
	3-4		1.0D	0.3D	SFM	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	2810	2340	1760	1410	1170	880	780	700	560
					IPM	8	9	9	8	9	9	8	9	9	9	9
	5		1.0D	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
					IPM	6	6	7	6	6	7	6	8	8	8	8
	6	Low alloy steel	1.0D	0.3D	SFM	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
					IPM	9	10	10	9	10	11	9	11	10	10	10
	7		1.0D	0.3D	SFM	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	2810	2340	1760	1410	1170	880	780	700	560
					IPM	8	9	9	8	9	9	8	9	9	9	9
	8-9		1.0D	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
					IPM	6	6	7	6	6	7	6	8	8	8	8
	10	High alloyed steel, and tool steel	1.0D	0.3D	SFM	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
					IPM	9	10	10	9	10	11	9	11	10	10	10
	11.1		1.0D	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
					IPM	6	6	7	6	6	7	6	8	8	8	8
M	14.1	Stainless steel	1.0D	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
					IPM	6	6	7	6	6	7	6	8	8	8	8
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	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
					IPM	15	16	17	18	21	22	22	24	24	24	24
N	21-25	Aluminum-wrought alloy Aluminum-cast, alloyed	1.0D	0.5D	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
					IPM	32	36	36	34	36	37	34	36	36	36	36
	26-29.1	Copper and Copper Alloys (Bronze / Brass) Non Metallic Materials	1.0D	0.5D	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
					IPM	25	25	27	26	27	29	26	27	27	27	27

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

Reduce cutting speed ~35% for uncoated tools



Slotting

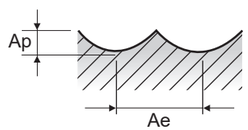
RECOMMENDED CUTTING CONDITIONS

2-FLUTE, BALL NOSE / SURFACING / INCH

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	1-4	Non-alloy steel	0.7D	0.3D	SFM	160	160	160	160	160	160	160	160	160	160	160
					IPT	.0005	.0007	.0009	.0010	.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
	5		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
	6-7	Low alloy 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
	8-9		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
	10	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
	11.1		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
K	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	.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
N	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	.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 = ft./min.
IPT = In./tooth
RPM = rev./min.
IPM = In./min.

Reduce cutting speed ~35% for uncoated tools



RECOMMENDED CUTTING CONDITIONS

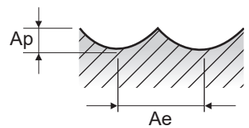
2-FLUTE, BALL NOSE / SURFACING / METRIC

Unit : mm

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 3	4	5	6	8	10	12	16	18	20	25
P	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	.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
	5		0.7D	0.3D	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	160
					IPT	.0005	.0007	.0009	.0010	.0014	.0017	.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
	8-9		0.7D	0.3D	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	160
					IPT	.0005	.0007	.0009	.0010	.0014	.0017	.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
	11.1		0.7D	0.3D	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
K	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	.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
N	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	.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 = ft./min.
IPT = In./tooth
RPM = rev./min.
IPM = In./min.

Reduce cutting speed ~35% for uncoated tools



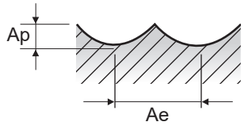
RECOMMENDED CUTTING CONDITIONS

4-FLUTE, BALL NOSE / SURFACING / INCH

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	1-4	Non-alloy 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
	5		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
	6-7	Low alloy 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
	8-9		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
	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
	11.1		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
K	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
N	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.

Reduce cutting speed ~35% for uncoated tools



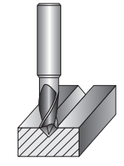
RECOMMENDED CUTTING CONDITIONS

2-FLUTE, DRILL MILL / V-GROOVING / INCH

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
			IPT	.0004	.0006	.0008	.0011	.0013	.0014	.0015	.0018	.0023
			RPM	7720	5150	3860	3090	2570	2210	1930	1540	1290
			IPM	6	6	6	7	7	6	6	6	6
	3-4		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
			IPM	3	4	3	4	4	4	4	4	4
	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
			IPM	3	3	3	4	4	4	3	4	4
	6	Low alloy steel	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
			IPM	6	6	6	7	7	6	6	6	6
	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
			IPM	3	4	3	4	4	4	4	4	4
	8-9		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
			IPM	3	3	3	4	4	4	3	4	4
	10	High alloyed steel, and tool steel	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
			IPM	6	6	6	7	7	6	6	6	6
	11.1		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
			IPM	3	3	3	4	4	4	3	4	4
M	14.1	Stainless steel	SFM	140	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
			IPM	3	3	2	2	2	3	3	3	3
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	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
			IPM	3	4	3	4	4	4	4	4	4
N	21-25	Aluminum-wrought alloy Aluminum-cast, alloyed	SFM	690	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	26	28	27	30	29	26	24	27	29

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

Reduce cutting speed ~35% for uncoated tools



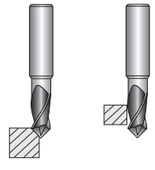
RECOMMENDED CUTTING CONDITIONS

2-FLUTE, DRILL MILL / CHAMFERING & SIDE CUTTING / INCH

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
			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	Low alloy steel	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	High alloyed steel, and tool steel	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.

Reduce cutting speed ~35% for uncoated tools



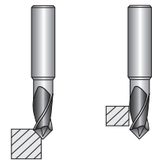
RECOMMENDED CUTTING CONDITIONS

4-FLUTE, DRILL MILL / CHAMFERING & SIDE CUTTING / INCH

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
			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
			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
			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	Low alloy steel	SFM	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
			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
			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	High alloyed steel, and tool steel	SFM	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
			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
M	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
K	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
N	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.

Reduce cutting speed ~35% for uncoated tools



RECOMMENDED CUTTING CONDITIONS

2-FLUTE, CHAMFER MILL / CHAMFERING / INCH

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
			IPM	8	8	9	7
	3-4		SFM	185	185	185	185
			IPT	.0004	.0008	.0014	.0021
			RPM	5600	2800	1870	1400
			IPM	4	4	5	6
	5		SFM	160	160	160	160
			IPT	.0004	.0009	.0015	.0018
			RPM	4920	2460	1640	1230
			IPM	4	4	5	4
	6	Low alloy steel	SFM	250	250	250	250
			IPT	.0005	.0010	.0017	.0019
			RPM	7700	3850	2570	1930
			IPM	8	8	9	7
	7		SFM	185	185	185	185
			IPT	.0004	.0008	.0014	.0021
			RPM	5600	2800	1870	1400
			IPM	4	4	5	6
	8-9		SFM	160	160	160	160
			IPT	.0004	.0009	.0015	.0018
			RPM	4920	2460	1640	1230
			IPM	4	4	5	4
	10	High alloyed steel, and tool steel	SFM	250	250	250	250
			IPT	.0005	.0010	.0017	.0019
			RPM	7700	3850	2570	1930
			IPM	8	8	9	7
	11.1		SFM	160	160	160	160
			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
			IPM	4	3	3	4
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	SFM	185	185	185	185
			IPT	.0004	.0008	.0014	.0021
			RPM	5600	2800	1870	1400
			IPM	4	4	5	6
N	21-25	Aluminum-wrought alloy Aluminum-cast, alloyed	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.

Reduce cutting speed ~35% for uncoated tools

RECOMMENDED CUTTING CONDITIONS

4-FLUTE, CHAMFER MILL / CHAMFERING / INCH

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
			IPM	16	16	17	15
	3-4		SFM	185	185	185	185
			IPT	.0008	.0015	.0028	.0041
			RPM	5600	2800	1870	1400
			IPM	9	9	10	11
	5		SFM	160	160	160	160
			IPT	.0008	.0017	.0030	.0036
			RPM	4920	2460	1640	1230
			IPM	8	8	10	9
	6	Low alloy steel	SFM	250	250	250	250
			IPT	.0010	.0021	.0033	.0038
			RPM	7700	3850	2570	1930
			IPM	16	16	17	15
	7		SFM	185	185	185	185
			IPT	.0008	.0015	.0028	.0041
			RPM	5600	2800	1870	1400
			IPM	9	9	10	11
	8-9		SFM	160	160	160	160
			IPT	.0008	.0017	.0030	.0036
			RPM	4920	2460	1640	1230
			IPM	8	8	10	9
	10	High alloyed steel, and tool steel	SFM	250	250	250	250
			IPT	.0010	.0021	.0033	.0038
			RPM	7700	3850	2570	1930
			IPM	16	16	17	15
	11.1		SFM	160	160	160	160
			IPT	.0008	.0017	.0030	.0036
			RPM	4920	2460	1640	1230
			IPM	8	8	10	9
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.

Reduce cutting speed ~35% for uncoated tools

HSS & HSSCo8 END MILLS

SELECTION GUIDE

COBALT & HSS END MILLS

- *HSS for improved toughness*
- *HSSCo8 (cobalt) for improved tool life*
- *Uncoated*
- *Inch and Metric sizes*
- *2 through 8-Flute Finishing*
- *Roughing (Fine and Coarse pitch)*
- *Up to 2" diameter (45mm)*

STYLE	SQUARE							
FLUTE	2			4				
FACE GEOMETRY				CENTER CUTTING		NON-CENTER CUTTING		CENTER CUTTING
INCH/METRIC	INCH		METRIC	INCH				METRIC
HELIX ANGLE	30°		30°	30°				30°
SIZE MIN	1/8"	1/8"	2mm	1/8"	1/8"	1/8"	1/8"	2mm
SIZE MAX	2"	1"	45mm	1-1/2"	1"	1"	1"	45mm
PRODUCT PAGE	148	150	151	152	154	155	157	158
SINGLE/DOUBLE	SINGLE END	DOUBLE END	SINGLE END	SINGLE END	DOUBLE END	SINGLE END	DOUBLE END	SINGLE END

◎ : Excellent ○ : Good

Recommended cutting conditions : P. 180-195

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		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								

SELECTION GUIDE

COBALT & HSS
END MILLS

- *HSS for improved toughness*
- *HSSCo8 (cobalt) for improved tool life*
- *Uncoated*
- *Inch and Metric sizes*
- *2 through 8-Flute Finishing*
- *Roughing (Fine and Coarse pitch)*
- *Up to 2" diameter (45mm)*

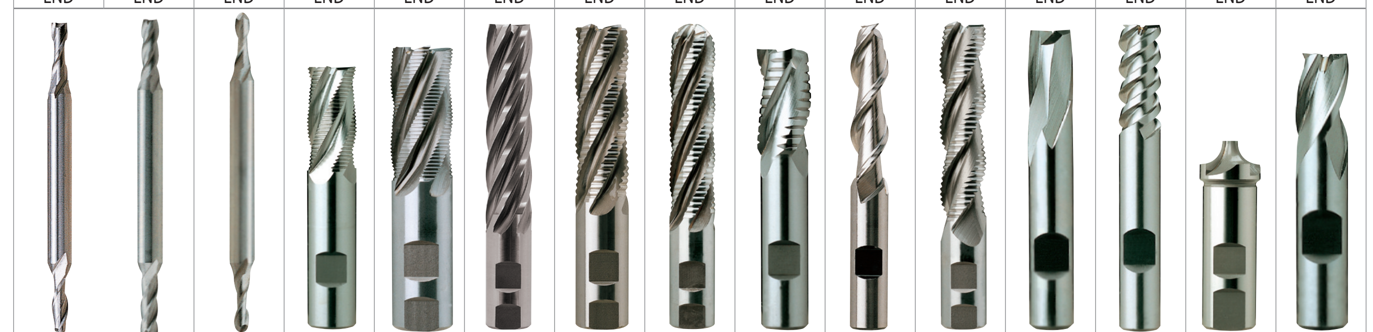
◎ : Excellent ○ : Good

Recommended cutting conditions : P. 180-195

STYLE	SQUARE		BALL NOSE			
FLUTE	6/8		2		4	
FACE GEOMETRY	CENTER CUTTING	NON-CENTER CUTTING				
INCH/METRIC	INCH					
HELIX ANGLE	30°		30°		30°	
SIZE MIN	1/2"	5/8"	1/8"	1/8"	1/8"	1/8"
SIZE MAX	2"	2"	2"	1"	2"	1"
PRODUCT PAGE	159	160	161	162	163	164
SINGLE/DOUBLE	SINGLE END	SINGLE END	SINGLE END	DOUBLE END	SINGLE END	DOUBLE END

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRC	159	160	161	162	163	164
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	◎	◎	◎	◎	◎
P	2		About 0.45% C	Annealed	190	13	◎	◎	◎	◎	◎	◎
P	3		About 0.45% C	Quenched & Tempered	250	25	◎	◎	◎	◎	◎	◎
P	4		About 0.75% C	Annealed	270	28	◎	◎	◎	◎	◎	◎
P	5		About 0.75% C	Quenched & Tempered	300	32	○	○	○	○	○	○
P	6	Low alloy steel		Annealed	180	10	◎	◎	◎	◎	◎	◎
P	7			Quenched & Tempered	275	29	◎	◎	◎	◎	◎	◎
P	8			Quenched & Tempered	300	32	○	○	○	○	○	○
P	9			Quenched & Tempered	350	38	○	○	○	○	○	○
P	10	High alloyed steel, and tool steel		Annealed	200	15	◎	◎	◎	◎	◎	◎
P	11			Quenched & Tempered	325	35	○	○	○	○	○	○
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15						
M	13		Martensitic	Quenched & Tempered	240	23						
M	14		Austenitic		180	10						
K	15	Grey cast iron	Pearlitic / ferritic		180	10						
K	16		Pearlitic (Martensitic)		260	26						
K	17	Nodular cast iron	Ferritic		160	3						
K	18		Pearlitic		250	25						
K	19	Malleable cast iron	Ferritic		130							
K	20		Pearlitic		230	21						
N	21	Aluminum-wrought alloy	Not Curable		60		○	○	○	○	○	○
N	22		Curable	Hardened	100		○	○	○	○	○	○
N	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		○	○	○	○	○	○
N	24		≤ 12% Si, Curable	Hardened	90		○	○	○	○	○	○
N	25		> 12% Si, Not Curable		130		○	○	○	○	○	○
N	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		○	○	○	○	○	○
N	27		CuZn, CuSnZn (Brass)		90		○	○	○	○	○	○
N	28		CuSn, lead-free copper and electrolytic copper		100		○	○	○	○	○	○
N	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic									
N	30		Rubber, Wood, etc.									
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15						
S	32			Cured	280	30						
S	33		Ni or Co Based	Annealed	250	25						
S	34			Cured	350	38						
S	35			Cast	320	34						
S	36	Titanium Alloys	Pure Titanium		400 Rm							
S	37		Alpha + Beta Alloys	Hardened	1050 Rm							
H	38	Hardened steel		Hardened	550	55						
H	39			Hardened	630	60						
H	40	Chilled Cast Iron		Cast	400	42						
H	41	Hardened Cast Iron		Hardened	550	55						

STYLE	MINIATURE			ROUGHER						ALUMINUM SPECIFIC		KEYWAY CUTTER	HIGH HELIX	CORNER ROUNDING	THROW AWAY
	SQUARE		BALL NOSE	FINE PITCH		COARSE PITCH		BALL NOSE	TRUNCATED	SQUARE	ROUGHER				
FLUTE	2	4	2	3 - 5	3 - 6	3 - 6	3 - 8	3 - 6	4 - 8	2	3	2	3 - 4	4	3
FACE GEOMETRY				CENTER CUTTING	NON-CENTER CUTTING	CENTER CUTTING	NON-CENTER CUTTING				CENTER CUTTING				
INCH/METRIC	INCH														
HELIX ANGLE	30°- 39°			30°		30°		30°	30°	42°	37°	15°	30°	0°	30°
SIZE MIN	1/32"	1/16"	1/32"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/8"	1/4"	R 1/16"	1/16"
SIZE MAX	3/16"	3/16"	3/16"	1"	2"	1-1/2"	2"	1-1/2"	2"	2"	1-1/2"	1"	2"	R 1"	1/4"
PRODUCT PAGE	165	166	167	168	169	170	171	173	174	175	176	177	178	179	177
SINGLE/DOUBLE	DOUBLE END	DOUBLE END	DOUBLE END	SINGLE END	SINGLE END	SINGLE END	SINGLE END	SINGLE END	SINGLE END	SINGLE END	SINGLE END	SINGLE END	SINGLE END	SINGLE END	SINGLE END



ISO	VDI 3323	165	166	167	168	169	170	171	173	174	175	176	177	178	179	177
P	1	◎	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎	◎	◎
P	2	◎	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎	◎	◎
P	3	◎	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎	◎	◎
P	4	◎	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎	◎	◎
P	5	○	○	○	○	○	○	○	○	○			○	○	○	○
P	6	◎	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎	◎	◎
P	7	◎	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎	◎	◎
P	8	○	○	○	○	○	○	○	○	○			○	○	○	○
P	9	○	○	○	○	○	○	○	○	○			○	○	○	○
P	10	◎	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎	◎	◎
P	11	○	○	○	○	○	○	○	○	○			○	○	○	○
M	12															
M	13															
M	14															
K	15															
K	16															
K	17															
K	18															
K	19															
K	20															
N	21	○	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○
N	22	○	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○
N	23	○	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○
N	24	○	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○
N	25	○	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○
N	26	○	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○
N	27	○	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○
N	28	○	○	○	○	○	○	○	○	○	◎	◎	○	○	○	○
N	29															
N	30															
S	31															
S	32															
S	33															
S	34															
S	35															
S	36															
S	37															
H	38															
H	39															
H	40															
H	41															

2-FLUTE, SQUARE, SINGLE ENDED

▶ These end mills are furnished as regular with right-hand cut and right-hand helical flutes. All shanks have Weldon Flat for set screw holder. These are designed for slotting, drilling, pocketing, and general-purpose operations.

HSS Co8 | HSS | 2 | 30° | FLAT

P. 180

Unit: Inch

EDP No. 8% COBALT (M42)	EDP No. HSS (M2)	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length
01289	01039	1/8	3/8	3/8	-	2-5/16
03289	03039		3/8	3/8	-	2-3/8
01291	01041	5/32	3/8	7/16	-	2-5/16
01293	01043	3/16	3/8	7/16	-	2-5/16
03293	03043		3/8	1/2	1-1/8	2-11/16
01295	01045	7/32	3/8	1/2	-	2-5/16
01297	01047	1/4	3/8	1/2	-	2-5/16
03297	03047		3/8	5/8	1-1/2	3-1/16
02297	02047		3/8	1-1/4	-	3-1/8
01299	01049	9/32	3/8	9/16	-	2-5/16
01301	01051	5/16	3/8	9/16	-	2-5/16
03301	03051		3/8	3/4	1-3/4	3-5/16
02301	02051		3/8	1-3/8	-	3-1/8
01303	01053	11/32	3/8	9/16	-	2-5/16
01305	01055	3/8	3/8	9/16	-	2-5/16
03305	03055		3/8	3/4	1-3/4	3-5/16
02305	02055		3/8	1-1/2	-	3-1/4
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	-	3
03321	03071		1/2	1	2-7/32	4
02321	02071		1/2	2	-	4
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	1-5/16	-	3-7/16
03337	03087		5/8	1-3/8	2-23/32	4-5/8
02337	02087		5/8	2	-	4-1/8
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		5/8	1-5/16	-	3-7/16
01359	01109		3/4	1-5/16	-	3-7/16
03359	03109		3/4	1-5/8	3-11/32	5-3/8
02359	02109		3/4	2-1/4	-	4-1/2
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	1-1/2	-	3-3/4
03394	03144		7/8	2	4	6
02394	02144		7/8	2-1/2	-	4-3/4
01409	01159	15/16	7/8	1-1/2	-	3-3/4

▶ NEXT PAGE

Unit: Inch

EDP No. 8% COBALT (M42)	EDP No. HSS (M2)	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length
01420	01170	1	5/8	1-1/2	-	3-5/8
01422	01172		3/4	1-1/2	-	3-3/4
01426	01176		1	1-5/8	-	4-1/8
03426	03176		1	2-1/2	4-31/32	7-1/4
02426	02176		1	3	-	5-1/2
01435	01185	1-1/8	1	1-5/8	-	4-1/8
02435	02185		1	3	-	5-1/2
01445	01195	1-1/4	1-1/4	1-5/8	-	4-1/8
02443	02193		1	3	-	5-1/2
02445	02195		1-1/4	3	-	5-1/2
03445	03195		1-1/4	3	4-31/32	7-1/4
01451	01201	1-3/8	1	1-5/8	-	4-1/8
01453	01203		1-1/4	1-5/8	-	4-1/8
01459	01209	1-1/2	1	1-5/8	-	4-1/8
01461	01211		1-1/4	1-5/8	-	4-1/8
02461	02211		1-1/4	3	-	5-1/2
01469	01219	1-3/4	1-1/4	1-5/8	-	4-1/8
*02469	*02219		1-1/4	3	-	5-1/2
01477	01227	2	1-1/4	1-5/8	-	4-1/8
*01480	*01230		2	2	-	5-3/4
02477	02227		1-1/4	3	-	5-1/2
02482	02232		2	3	-	6-3/4

* Combination Shank

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

†When shank is equal to cutting diameter.

COBALT & HSS END MILLS

2-FLUTE, SQUARE, DOUBLE ENDED

▶ These end mills are furnished as regular with right-hand cut and right-hand helical flutes. All shanks have Weldon Flat for set screw holder. These are designed for slotting, drilling, pocketing, and general-purpose operations.

HSS Co8 | HSS | 2 | 30° | FLAT

P. 180

Unit: Inch

EDP No. 8% COBALT (M42)	EDP No. HSS (M2)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
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
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

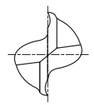
Mill Dia. Tolerance (inch)	
0~+.0010	†0~+.0015

†When shank is equal to cutting diameter.

COBALT & HSS END MILLS

2-FLUTE, SQUARE, SINGLE ENDED – METRIC

▶ These end mills are furnished as regular with right-hand cut and right-hand helical flutes. All shanks have Weldon Flat for set screw holder. These are designed for slotting, drilling, pocketing, and general-purpose operations.



HSS Co8 | HSS | 2 | 30° | FLAT

P. 181

Unit: mm

EDP No. 8% COBALT (M42)	EDP No. HSS (M2)	Mill Diameter Metric	Mill Diameter Inch	Shank Diameter	Length of Cut	Overall Length
15252	15002	2.0	0.0787	3/8	5/16	2-5/16
15253	15003	2.5	0.0984	3/8	5/16	2-5/16
15254	15004	3.0	0.1181	3/8	5/16	2-5/16
15255	15005	3.5	0.1378	3/8	7/16	2-5/16
15256	15006	4.0	0.1575	3/8	7/16	2-5/16
15257	15007	4.5	0.1772	3/8	1/2	2-5/16
15258	15008	5.0	0.1969	3/8	1/2	2-5/16
15259	15009	5.5	0.2165	3/8	1/2	2-5/16
15260	15010	6.0	0.2362	3/8	1/2	2-5/16
15261	15011	7.0	0.2756	3/8	9/16	2-5/16
15262	15012	8.0	0.3150	3/8	9/16	2-5/16
15263	15013	9.0	0.3543	3/8	9/16	2-5/16
15264	15014	10.0	0.3937	3/8	13/16	2-1/2
15265	15015	11.0	0.4331	3/8	13/16	2-1/2
15266	15016	12.0	0.4724	3/8	13/16	2-1/2
15267	15017	12.5	0.4921	1/2	1-1/8	3-1/8
15268	15018	13.0	0.5118	1/2	1-1/8	3-1/8
15270	15020	14.0	0.5512	1/2	1-1/8	3-1/8
15276	15026	16.0	0.6299	5/8	1-5/16	3-7/16
15280	15030	18.0	0.7087	5/8	1-5/16	3-7/16
15282	15032	20.0	0.7874	5/8	1-1/2	3-3/4
15284	15034	22.0	0.8661	3/4	1-1/2	3-3/4
15288	15038	24.0	0.9449	3/4	2	4-1/2
15290	15040	25.0	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

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

†When shank is equal to cutting diameter.

4-FLUTE, SQUARE, SINGLE ENDED, CENTER CUTTING

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

HSS Co8 | HSS | 4 | 30° | FLAT

P. 182

Unit: Inch

EDP No. 8% COBALT (M42)	EDP No. HSS (M2)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
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
08297	08047		3/8	1-1/4	3-1/16
09297	09047		3/8	1-3/4	3-9/16
07299	07049	9/32	3/8	11/16	2-1/2
07301	07051	5/16	3/8	3/4	2-1/2
08301	08051		3/8	1-3/8	3-1/8
09301	09051		3/8	2	3-3/4
07303	07053	11/32	3/8	3/4	2-1/2
07305	07055	3/8	3/8	3/4	2-1/2
08305	08055		3/8	1-1/2	3-1/4
09305	09055		3/8	2-1/2	4-1/4
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	1-1/4	3-1/4
08321	08071		1/2	2	4
09321	09071		1/2	3	5
07336	07086	5/8	1/2	1-3/8	3-3/8
07337	07087		5/8	1-5/8	3-3/4
08337	08087		5/8	2-1/2	4-5/8
09337	09087		5/8	4	6-1/8
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		5/8	1-5/8	3-3/4
07359	07109		3/4	1-5/8	3-7/8
08359	08109		3/4	3	5-1/4
09359	09109		3/4	4	6-1/4
07391	07141	7/8	3/4	1-7/8	4-1/8
07394	07144		7/8	1-7/8	4-1/8
08394	08144		7/8	3-1/2	5-3/4
09394	09144		7/8	5	7-1/4

▶ NEXT PAGE

Unit: Inch

EDP No. 8% COBALT (M42)	EDP No. HSS (M2)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
07420	07170	1	5/8	1-7/8	4
07422	07172		3/4	1-7/8	4-1/8
07426	07176		1	2	4-1/2
07901			1	3	5-1/2
08426	08176		1	4	6-1/2
09426	09176		1	6	8-1/2
07435	07185	1-1/8	1	2	4-1/2
07445	07195	1-1/4	1-1/4	2	4-1/2
07902			1-1/4	3	5-1/2
08445	08195		1-1/4	4	6-1/2
09445	09195		1-1/4	6	8-1/2
07461	07211	1-1/2	1-1/4	2	4-1/2
07903			1-1/4	3	5-1/2
08461	08211		1-1/4	4	6-1/2

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

†When shank is equal to cutting diameter.

4-FLUTE, SQUARE, DOUBLE ENDED, CENTER CUTTING

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

HSS Co8 | HSS | 4 | 30° | FLAT

P. 182

Unit: inch

EDP No. 8% COBALT (M42)	EDP No. HSS (M2)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
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

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

†When shank is equal to cutting diameter.

4-FLUTE, SQUARE, SINGLE ENDED, NON-CENTER CUTTING

▶ Non-center cutting for easier regrinding. Ideally suited for side milling.

HSS Co8 | HSS | 4 | 30° | FLAT

P. 182

Unit Inch

EDP No. 8% COBALT (M42)	EDP No. HSS (M2)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
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
05297	05047		3/8	1-1/4	3-1/16
06297	06047		3/8	1-3/4	3-9/16
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
05301	05051		3/8	1-3/8	3-1/8
06301	06051		3/8	2	3-3/4
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
05305	05055		3/8	1-1/2	3-1/4
06305	06055		3/8	2-1/2	4-1/4
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
05313	05063		1/2	1-3/4	3-3/4
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	1-1/4	3-1/4
05321	05071		1/2	2	4
06321	06071		1/2	3	5
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	1-5/8	3-3/4
05337	05087		5/8	2-1/2	4-5/8
06337	06087		5/8	4	6-1/8
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

▶ NEXT PAGE

Unit: Inch

EDP No. 8% COBALT (M42)	EDP No. HSS (M2)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
04357	04107	3/4	1/2	1-5/8	3-5/8
04358	04108		5/8	1-5/8	3-3/4
04359	04109		3/4	1-5/8	3-7/8
05359	05109		3/4	3	5-1/4
06359	06109		3/4	4	6-1/4
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	1-7/8	4-1/8
05394	05144		7/8	3-1/2	5-3/4
06394	06144		7/8	5	7-1/4
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		3/4	1-7/8	4-1/8
04426	04176		1	2	4-1/2
05426	05176		1	4	6-1/2
06426	06176		1	6	8-1/2

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

☆☆ When shank is equal to cutting diameter.

4-FLUTE, SQUARE, DOUBLE ENDED, NON-CENTER CUTTING

▶ Non-center cutting for easier regrinding. Ideally suited for side milling.

HSS Co8 | HSS | 4 | 30° | FLAT

P. 182

Unit: Inch

EDP No. 8% COBALT (M42)	EDP No. HSS (M2)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
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

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

☆☆ When shank is equal to cutting diameter.

4-FLUTE, SQUARE, SINGLE ENDED, CENTER CUTTING – METRIC

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

HSS Co8 | HSS | 4 | 30° | FLAT

P. 183

Unit: mm

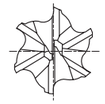
EDP No. 8% COBALT (M42)	EDP No. HSS (M2)	Mill Diameter Metric	Mill Diameter Inch	Shank Diameter	Length of Cut	Overall Length
16252	16002	2.0	0.0787	3/8	3/8	2-5/16
16253	16003	2.5	0.0984	3/8	3/8	2-5/16
16254	16004	3.0	0.1181	3/8	3/8	2-5/16
16255	16005	3.5	0.1378	3/8	1/2	2-3/8
16256	16006	4.0	0.1575	3/8	1/2	2-3/8
16257	16007	4.5	0.1772	3/8	9/16	2-1/2
16258	16008	5.0	0.1969	3/8	9/16	2-1/2
16259	16009	5.5	0.2165	3/8	5/8	2-1/2
16260	16010	6.0	0.2362	3/8	5/8	2-1/2
16261	16011	7.0	0.2756	3/8	11/16	2-1/2
16262	16012	8.0	0.3150	3/8	3/4	2-1/2
16263	16013	9.0	0.3543	3/8	3/4	2-1/2
16264	16014	10.0	0.3937	3/8	1	2-11/16
16265	16015	11.0	0.4331	3/8	1	2-11/16
16266	16016	12.0	0.4724	3/8	1	2-11/16
16267	16017	12.5	0.4921	1/2	1-1/4	3-1/4
16268	16018	13.0	0.5118	1/2	1-1/4	3-1/4
16270	16020	14.0	0.5512	1/2	1-3/8	3-3/8
16276	16026	16.0	0.6299	5/8	1-5/8	3-3/4
16280	16030	18.0	0.7087	5/8	1-5/8	3-3/4
16282	16032	20.0	0.7874	5/8	1-7/8	4-1/8
16284	16034	22.0	0.8661	3/4	1-7/8	4-1/8
16288	16038	24.0	0.9449	3/4	2	4-1/2
16290	16040	25.0	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

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

†When shank is equal to cutting diameter.

6-FLUTE, SQUARE, SINGLE ENDED, CENTER CUTTING

▶ Center cutting allows these end mills to ramp into the part for the beginning of a cut. Recommended for pocketing, tracer milling, cam milling, die sinking, and dynamic milling.



HSS Co8 | HSS | 6 | 30° | FLAT

P. 184

Unit: Inch

EDP No. 8% COBALT (M42)	EDP No. HSS (M2)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
07322	07072	1/2	1/2	1-1/4	3-1/4
08322	08072		1/2	2	4
09322	09072		1/2	3	5
07338	07088	5/8	5/8	1-5/8	3-3/4
08338	08088		5/8	2-1/2	4-5/8
09338	09088		5/8	4	6-1/8
07349	07099	11/16	5/8	1-5/8	3-3/4
07360	07110	3/4	3/4	1-5/8	3-7/8
08360	08110		3/4	3	5-1/4
09360	09110		3/4	4	6-1/4
07395	07145	7/8	7/8	1-7/8	4-1/8
08395	08145		7/8	3-1/2	5-3/4
09395	09145		7/8	5	7-1/4
07427	07177	1	1	2	4-1/2
07094			1	3	5-1/2
08427	08177		1	4	6-1/2
09427	09177		1	6	8-1/2
07436	07186	1-1/8	1	2	4-1/2
07446	07196	1-1/4	1-1/4	2	4-1/2
07095			1-1/4	3	5-1/2
08446	08196		1-1/4	4	6-1/2
09446	09196		1-1/4	6	8-1/2
07448		1-5/16	3/4	2	4-1/4
07462	07212	1-1/2	1-1/4	2	4-1/2
07096			1-1/4	3	5-1/2
08462	08212		1-1/4	4	6-1/2
09462	09212		1-1/4	8	10-1/2
07097		1-3/4	1-1/4	3	5-1/2
07478	07228	2	1-1/4	2	4-1/2
* 07481	* 07231		2	2	5-3/4
** 99098			1-1/4	3	5-1/2
08478	08228		1-1/4	4	6-1/2
* 08485	* 08235		2	4	7-3/4
* 08487	* 08237		2	5	8-3/4
* 08489	* 08239		2	6	9-3/4
* 09491	* 09241		2	8	11-3/4

* Combination Shank
** 8-Flute

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

†When shank is equal to cutting diameter.

6-FLUTE, SQUARE, SINGLE ENDED, NON-CENTER CUTTING

▶ Non-center cutting for easier regrinding. Ideally suited for side milling.

HSS Co8 | HSS | 6 | 30° | FLAT

P. 184

Unit: Inch

EDP No. 8% COBALT (M42)	EDP No. HSS (M2)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
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	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	2	4-1/2
04432	04182	1-1/8	3/4	2	4-1/4
04436	04186		1	2	4-1/2
05436	05186		1	4	6-1/2
04440	04190	1-1/4	3/4	2	4-1/4
04444	04194		1	2	4-1/2
04446	04196		1-1/4	2	4-1/2
05444	05194		1	4	6-1/2
05446	05196		1-1/4	4	6-1/2
06446	06196		1-1/4	6	8-1/2
04452	04202	1-3/8	1	2	4-1/2
04458	04208	1-1/2	3/4	2	4-1/4
04460	04210		1	2	4-1/2
04462	04212		1-1/4	2	4-1/2
05460	05210		1	4	6-1/2
05462	05212		1-1/4	4	6-1/2
06462	06212		1-1/4	8	10-1/2
04468	04218	1-3/4	3/4	2	4-1/2
04470	04220		1-1/4	2	4-1/2
05470	05220		1-1/4	4	6-1/2
** 04476	** 04226	2	3/4	2	4-1/2
04478	04228		1-1/4	2	4-1/2
* 04481	* 04231		2	2	5-3/4
05478	05228		1-1/4	4	6-1/2
* 05485	* 05235		2	4	7-3/4
* 06491	* 06241		2	8	11-3/4

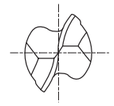
* Combination Shank
** 8-Flute

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

†When shank is equal to cutting diameter.

2-FLUTE, BALL NOSE, SINGLE ENDED

▶ The 2-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 2-flute design provides good chip removal ability in slotting.



HSS Co8 | HSS | 2 | 30° | FLAT

P. 185

Unit: Inch

EDP No. 8% COBALT (M42)	EDP No. HSS (M2)	Mill Diameter	Radius of Ball Nose R	Shank Diameter	Length of Cut	Length Below Shank	Overall Length
41289	41039	1/8	R1/16	3/8	3/8	-	2-5/16
42289	42039			3/8	3/8	-	2-3/8
41293	41043	3/16	R3/32	3/8	1/2	-	2-3/8
42293	42043			3/8	1/2	1-1/8	2-11/16
41297	41047	1/4	R1/8	3/8	5/8	-	2-7/16
42297	42047			3/8	5/8	1-1/2	3-1/16
41301	41051	5/16	R5/32	3/8	3/4	-	2-1/2
42301	42051			3/8	3/4	1-3/4	3-5/16
41305	41055	3/8	R3/16	3/8	3/4	-	2-1/2
42305	42055			3/8	3/4	1-3/4	3-5/16
41313	41063	7/16	R7/32	1/2	1	-	3
42313	42063			1/2	1	1-7/8	3-11/16
41321	41071	1/2	R1/4	1/2	1	-	3
42321	42071			1/2	1	2-1/4	4
41328	41078	9/16	R9/32	1/2	1-1/8	-	3-1/8
41336	41086	5/8	R5/16	1/2	1-1/8	-	3-1/8
41337	41087			5/8	1-3/8	-	3-1/2
42337	42087			5/8	1-3/8	2-3/4	4-5/8
41357	41107	3/4	R3/8	1/2	1-5/16	-	3-5/16
41359	41109			3/4	1-5/8	-	3-7/8
42359	42109			3/4	1-5/8	3-3/8	5-3/8
41391	41141	7/8	R7/16	3/4	2	-	4-1/4
41394	41144			7/8	2	-	4-1/4
41422	41172	1	R1/2	3/4	2-1/4	-	4-1/2
41426	41176			1	2-1/4	-	4-3/4
42426	42176			1	2-1/2	5	7-1/4
41431	41181	1-1/8	R9/16	3/4	1-5/8	-	3-7/8
41435	41185			1	2-1/4	-	4-3/4
41439	41189	1-1/4	R5/8	3/4	1-5/8	-	3-7/8
41445	41195			1-1/4	2-1/2	-	5
41449	41199	1-3/8	R11/16	3/4	1-5/8	-	4-1/8
41453	41203			1-1/4	2-1/2	-	5
41457	41207	1-1/2	R3/4	3/4	1-5/8	-	4-1/8
41461	41211			1-1/4	2-1/2	-	5
41478	41227	2	R1	1-1/4	2-1/2	-	5

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

†When shank is equal to cutting diameter.

2-FLUTE, BALL NOSE, DOUBLE ENDED

▶ The 2-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 2-flute design provides good chip removal ability in slotting.

HSS Co8 | HSS | 2 | 30° | FLAT

P. 185

Unit: inch

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

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

†When shank is equal to cutting diameter.

4-FLUTE, BALL NOSE, SINGLE ENDED

▶ The 4-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. 186

Unit: Inch

EDP No. 8% COBALT (M42)	Mill Diameter	Radius of Ball Nose R	Shank Diameter	Length of Cut	Overall Length
43289	**1/8**	R1/4	3/8	3/8	2-5/16
43293	**3/16**	R3/32	3/8	1/2	2-3/8
43297	**1/4**	R1/8	3/8	5/8	2-7/16
44297			3/8	1-1/4	3-1/16
43301	**5/16**	R5/32	3/8	3/4	2-1/2
44301			3/8	1-3/8	3-1/8
43305	**3/8**	R3/16	3/8	3/4	2-1/2
44305			3/8	1-1/2	3-1/4
43312	**7/16**	R7/32	3/8	1	2-11/16
43321	**1/2**	R1/4	1/2	1-1/4	3-1/4
44321			1/2	2	4
43337	**5/8**	R5/16	5/8	1-5/8	3-3/4
44337			5/8	2-1/2	4-5/8
43350	**11/16**	R11/32	5/8	1-5/8	3-3/4
43359	**3/4**	R3/8	3/4	1-5/8	3-7/8
44359			3/4	3	5-1/4
43394	**7/8**	R7/16	7/8	1-7/8	4-1/8
44394			7/8	3-1/2	5-3/4
43426	**1**	R1/2	1	2	4-1/2
44426			1	4	6-1/2
43435	**1-1/8**	R9/16	1	2	4-1/2
43445	**1-1/4**	R5/8	1-1/4	2	4-1/2
43461	**1-1/2**	R3/4	1-1/4	2	4-1/2
43477	**2**	R1	1-1/4	2	4-1/2

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

†When shank is equal to cutting diameter.

4-FLUTE, BALL NOSE, DOUBLE ENDED

▶ The 4-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. 186

Unit: Inch

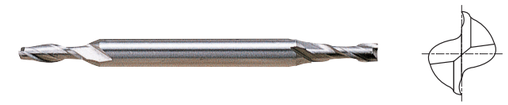
EDP No. 8% COBALT (M42)	Mill Diameter	Radius of Ball Nose R	Shank Diameter	Length of Cut	Overall Length
46289	1/8	R1/16	3/8	3/8	3-1/16
46293	3/16	R3/32	3/8	1/2	3-1/4
46297	1/4	R1/8	3/8	5/8	3-3/8
46301	5/16	R5/32	3/8	3/4	3-1/2
46305	3/8	R3/16	3/8	3/4	3-1/2
46313	7/16	R7/32	1/2	1	4-1/8
46321	1/2	R1/4	1/2	1	4-1/8
46337	5/8	R5/16	5/8	1-3/8	5
46359	3/4	R3/8	3/4	1-5/8	5-5/8
46426	1	R1/2	1	1-7/8	6-3/8

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

†When shank is equal to cutting diameter.

2-FLUTE, SQUARE, DOUBLE ENDED, MINIATURE

▶ Miniature end mills have 3/16" shank without flats. Designed with positive rake angle geometry and high helix angle to insure free cutting action. Suitable for finishing of precision components such as watch, camera, electronic apparatus molds, etc.



HSS Co8 | HSS | 2 | ~Ø3/32 39° | Ø7/64~ 30° | PLAIN

P. 187

Unit: Inch

EDP No. 8% COBALT (M42)	EDP No. HSS (M2)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
49252	49002	1/32	3/16	3/64	2
50252	50002		3/16	3/32	2-1/4
49254	49004	3/64	3/16	1/16	2
50254	50004		3/16	9/64	2-1/4
49256	49006	1/16	3/16	3/32	2
50256	50006		3/16	3/16	2-1/4
51256	51006		3/16	7/32	2-1/2
49258	49008	5/64	3/16	1/8	2
50258	50008		3/16	15/64	2-1/4
51258	51008		3/16	1/4	2-1/2
49260	49010	3/32	3/16	9/64	2
50260	50010		3/16	9/32	2-1/4
51260	51010		3/16	9/32	2-5/8
49262	49012	7/64	3/16	5/32	2
50262	50012		3/16	21/64	2-1/4
51262	51012		3/16	9/32	2-5/8
49264	49014	1/8	3/16	3/16	2
50264	50014		3/16	3/8	2-1/4
51264	51014		3/16	3/4	3-1/8
49266	49016	9/64	3/16	7/32	2
50266	50016		3/16	13/32	2-1/4
51266	51016		3/16	3/4	3-1/8
49268	49018	5/32	3/16	15/64	2
50268	50018		3/16	7/16	2-1/4
51268	51018		3/16	7/8	3-1/4
49270	49020	11/64	3/16	1/4	2
50270	50020		3/16	1/2	2-1/4
51270	51020		3/16	7/8	3-1/4
49272	49022	3/16	3/16	9/32	2
50272	50022		3/16	1/2	2-1/4
51272	51022		3/16	1	3-3/8

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

†When shank is equal to cutting diameter.

4-FLUTE, SQUARE, DOUBLE ENDED, MINIATURE

▶ Miniature end mills have 3/16" shank without flats. Designed with positive rake angle geometry and high helix angle to insure free cutting action. Suitable for finishing of precision components such as watch, camera, electronic apparatus molds, etc.

HSS Co8 | HSS | 2 | ~Ø3/32 39° | Ø7/64~ 30° | PLAIN

P. 187

Unit: Inch

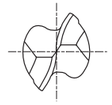
EDP No. 8% COBALT (M42)	EDP No. HSS (M2)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
52256	52006	1/16	3/16	3/32	2
53256	53006		3/16	3/16	2-1/4
54256	54006		3/16	7/32	2-1/2
52258	52008	5/64	3/16	1/8	2
53258	53008		3/16	15/64	2-1/4
54258	54008		3/16	1/4	2-1/2
52260	52010	3/32	3/16	9/64	2
53260	53010		3/16	9/32	2-1/4
54260	54010		3/16	9/32	2-5/8
52262	52012	7/64	3/16	5/32	2
53262	53012		3/16	21/64	2-1/4
54262	54012		3/16	9/32	2-5/8
52264	52014	1/8	3/16	3/16	2
53264	53014		3/16	3/8	2-1/4
54264	54014		3/16	3/4	3-1/8
52266	52016	9/64	3/16	7/32	2
53266	53016		3/16	13/32	2-1/4
54266	54016		3/16	3/4	3-1/8
52268	52018	5/32	3/16	15/64	2
53268	53018		3/16	7/16	2-1/4
54268	54018		3/16	7/8	3-1/4
52270	52020	11/64	3/16	1/4	2
53270	53020		3/16	1/2	2-1/4
54270	54020		3/16	7/8	3-1/4
52272	52022	3/16	3/16	9/32	2
53272	53022		3/16	1/2	2-1/4
54272	54022		3/16	1	3-3/8

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

†When shank is equal to cutting diameter.

2-FLUTE, BALL NOSE, DOUBLE ENDED, MINIATURE

▶ Miniature end mills have 3/16" shank without flats. Designed with positive rake angle geometry and high helix angle to insure free cutting action. Suitable for finishing of precision components such as watch, camera, electronic apparatus molds, etc.



HSS Co8 | HSS | 2 | ~Ø3/32 39° | Ø7/64~ 30° | PLAIN

P. 187

Unit: Inch

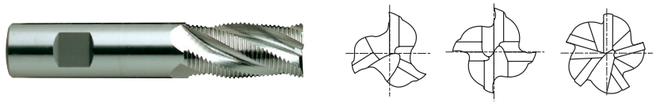
EDP No. 8% COBALT (M42)	EDP No. HSS (M2)	Mill Diameter	Radius of Ball Nose R	Shank Diameter	Length of Cut	Overall Length
56252	56002	1/32	R1/64	3/16	3/32	2-1/4
56254	56004	3/64	R3/128	3/16	9/64	2-1/4
55256	55006	1/16	R1/32	3/16	3/32	2
56256	56006			3/16	3/16	2-1/4
57256	57006			3/16	7/32	2-1/2
56258	56008	5/64	R5/128	3/16	15/64	2-1/4
55260	55010	3/32	R3/64	3/16	9/64	2
56260	56010			3/16	9/32	2-1/4
57260	57010			3/16	9/32	2-5/8
56262	56012	7/64	R7/128	3/16	21/64	2-1/4
55264	55014	1/8	R1/16	3/16	3/16	2
56264	56014			3/16	3/8	2-1/4
57264	57014			3/16	3/4	3-1/8
56266	56016	9/64	R9/128	3/16	13/32	2-1/4
55268	55018	5/32	R5/64	3/16	15/64	2
56268	56018			3/16	7/16	2-1/4
57268	57018			3/16	7/8	3-1/4
56270	56020	11/64	R11/128	3/16	1/2	2-1/4
55272	55022	3/16	R3/32	3/16	9/32	2
56272	56022			3/16	1/2	2-1/4
57272	57022			3/16	1	3-3/8

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

†When shank is equal to cutting diameter.

FINE PITCH, CENTER CUTTING ROUGHER

▶ These general purpose roughers are designed for high production metal removal in a wide range of work piece materials. It is suitable for a broad spectrum of materials including those with high tensile strengths. In many cases, the milled surfaces are of acceptable quality.



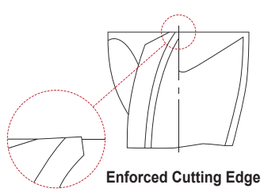
HSS Co8 | FINE | 3-5 | 30° | FLAT

P. 188

Unit: Inch

EDP No. 8% COBALT (M42)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.of Flute
72297	1/4	3/8	1/4	2-1/16	3
75297		3/8	1/4	2-1/16	4
76297		3/8	5/8	2-7/16	3
76301	5/16	3/8	3/4	2-1/2	3
72305	3/8	3/8	3/8	2-5/32	3
75305		3/8	3/8	2-5/32	4
76305		3/8	3/4	2-1/2	4
75313	7/16	1/2	1/2	2-1/2	4
76312		3/8	1	2-11/16	4
72321	1/2	1/2	1/2	2-1/2	3
75321		1/2	1/2	2-1/2	4
76321		1/2	1-1/4	3-1/4	4
76328	9/16	1/2	1-3/8	3-3/8	4
72337	5/8	5/8	5/8	2-3/4	3
75337		5/8	5/8	2-3/4	4
76337		5/8	1-5/8	3-3/4	4
72359	3/4	3/4	3/4	2-7/8	3
75359		3/4	3/4	2-7/8	4
76359		3/4	1-5/8	3-7/8	4
72391	7/8	3/4	7/8	3-1/8	3
75391		3/4	7/8	3-1/8	5
76391		3/4	1-7/8	4-1/8	5
76394		7/8	1-7/8	4-1/8	5
72422	1	3/4	1	3-1/4	3
72426		1	1	3-1/2	3
75426		1	1	3-1/2	5
76422		3/4	2	4-1/4	5
76426		1	2	4-1/2	5

Mill Dia. Tolerance (inch)	
≤ 1"	0~+.0030
> 1"	0~+.0060



FINE PITCH, NON-CENTER CUTTING ROUGHER

▶ These general purpose roughers are designed for high production metal removal in a wide range of work piece materials. It is suitable for a broad spectrum of materials including those with high tensile strengths. In many cases, the milled surfaces are of acceptable quality.

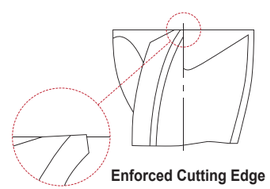
HSS Co8 | FINE | 3-6 | 30° | FLAT

P. 188

Unit: Inch

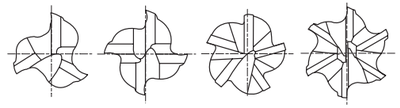
EDP No. 8% COBALT (M42)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.of Flute
70297	1/4	3/8	5/8	2-7/16	3
70301	5/16	3/8	3/4	2-1/2	3
70305	3/8	3/8	3/4	2-1/2	4
70312	7/16	3/8	1	2-11/16	4
70321	1/2	1/2	1-1/4	3-1/4	4
71321		1/2	2	4	4
70328	9/16	1/2	1-3/8	3-3/8	4
70337	5/8	5/8	1-5/8	3-3/4	4
71337		5/8	2-1/2	4-5/8	4
70358	3/4	5/8	1-5/8	3-3/4	4
70359		3/4	1-5/8	3-7/8	4
71358		5/8	3	5-1/4	4
71359		3/4	3	5-1/4	4
70391	7/8	3/4	1-7/8	4-1/8	5
70394		7/8	1-7/8	4-1/8	5
71394		7/8	3-1/2	5-3/4	5
70422	1	3/4	2	4-1/4	5
70426		1	2	4-1/2	5
71426		1	4	6-1/2	5
70431	1-1/8	3/4	2	4-1/4	6
70435		1	2	4-1/2	6
70439	1-1/4	3/4	2	4-1/4	6
70445		1-1/4	2	4-1/2	6
71445		1-1/4	4	6-1/2	6
70449	1-3/8	3/4	2	4-1/4	6
70457	1-1/2	3/4	2	4-1/4	6
70461		1-1/4	2	4-1/2	6
71457		3/4	4	6-1/4	6
71461		1-1/4	4	6-1/2	6
70469	1-3/4	1-1/4	2	4-1/2	6
71469		1-1/4	4	6-1/2	6
70475	2	3/4	2	4-1/4	6
70477		1-1/4	2	4-1/2	6
71477		1-1/4	4	6-1/2	6

Mill Dia. Tolerance (inch)	
≤ 1"	0~+.0030
> 1"	0~+.0060



COARSE PITCH, CENTER CUTTING ROUGHER

▶ These general purpose roughers are designed for high production metal removal in a wide range of work piece materials. Recommended for cutting steel grades and many non-ferrous materials.



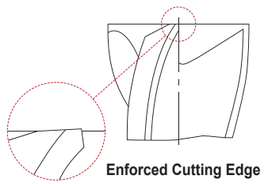
HSS Co8 | COARSE | 3-6 | 30° | FLAT

P. 188

Unit: Inch

EDP No. 8% COBALT (M42)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.of Flute
63297	1/4	3/8	1/4	2-1/16	3
63305	3/8	3/8	3/8	2-5/32	3
63321	1/2	1/2	1/2	2-1/2	3
64321		1/2	1-1/4	3-1/4	4
65321		1/2	2	4	4
63337	5/8	5/8	5/8	2-3/4	3
64337		5/8	1-5/8	3-3/4	4
65337		5/8	2-1/2	4-5/8	4
63359	3/4	3/4	3/4	2-7/8	3
64359		3/4	1-5/8	3-7/8	4
65359		3/4	3	5-1/4	4
63426	1	1	1	3-1/2	3
64426		1	2	4-1/2	5
65426		1	4	6-1/2	5
64445	1-1/4	1-1/4	2	4-1/2	6
65445		1-1/4	4	6-1/2	6
64461	1-1/2	1-1/4	2	4-1/2	6
65461		1-1/4	4	6-1/2	6

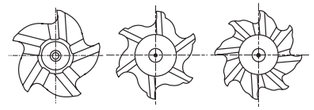
Mill Dia. Tolerance (inch)	
≤ 1"	0~+.0030
> 1"	0~+.0060



Enforced Cutting Edge

COARSE PITCH, NON-CENTER CUTTING ROUGHER

▶ These general purpose roughers are designed for high production metal removal in a wide range of work piece materials. Recommended for cutting steel grades and many non-ferrous materials. Non-center cutting for easier resharpening.



HSS Co8 | COARSE | 3-8 | 30° | FLAT

P. 188

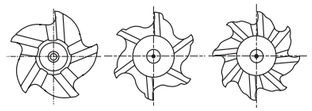
Unit: Inch

EDP No. 8% COBALT (M42)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.of Flute
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
62321		1/2	2	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
62337		5/8	2-1/2	4-5/8	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	1-5/8	3-3/4	4
62358		5/8	3	5-1/8	4
62359		3/4	3	5-1/4	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	1-7/8	4-1/8	5
62391		3/4	3-1/2	5-3/4	5
60409	15/16	7/8	1-7/8	4-1/8	5
60422	1	3/4	2	4-1/4	5
60426		1	2	4-1/2	5
61426		1	3	5-1/2	5
62422		3/4	4	6-1/4	5
62426		1	4	6-1/2	5
60431	1-1/8	3/4	2	4-1/4	6
60435		1	2	4-1/2	6
60439	1-1/4	3/4	2	4-1/4	6
60445		1-1/4	2	4-1/2	6
61445		1-1/4	3	5-1/2	6
62439		3/4	4	6-1/4	6
62445		1-1/4	4	6-1/2	6
60449	1-3/8	3/4	2	4-1/4	6
60457	1-1/2	3/4	2	4-1/4	6
60461		1-1/4	2	4-1/2	6
61461		1-1/4	3	5-1/2	6
62457		3/4	4	6-1/4	6
62461		1-1/4	4	6-1/2	6

▶ NEXT PAGE

COARSE PITCH, NON-CENTER CUTTING ROUGHER

▶ These general purpose roughers are designed for high production metal removal in a wide range of work piece materials. Recommended for cutting steel grades and many non-ferrous materials. Non-center cutting for easier resharpening.



HSS Co8 | COARSE | 3-8 | 30° | FLAT

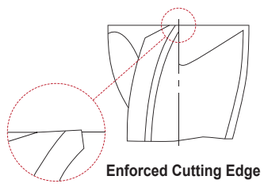
P. 188

Unit: Inch

EDP No. 8% COBALT (M42)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.of Flute
60467	1-3/4	3/4	2	4-1/4	6
60469		1-1/4	2	4-1/2	6
62469		1-1/4	4	6-1/2	6
60475	2	3/4	2	4-1/4	6
60477		1-1/4	2	4-1/2	6
* 60480		2	2	5-3/4	8
* 60482		2	3	6-3/4	8
62477		1-1/4	4	6-1/2	6
* 60484		2	4	7-3/4	8
* 61488		2	6	9-3/4	8
* 62490		2	8	11-3/4	8

Mill Dia. Tolerance (inch)	
≤ 1"	0~+.0030
> 1"	0~+.0060

* Combination Shank



Enforced Cutting Edge

COARSE PITCH, BALL NOSE ROUGHER

▶ These general purpose roughers are designed for high production metal removal in a wide range of work piece materials. Recommended for cutting steel grades and many non-ferrous materials.

HSS Co8 | COARSE | 3-6 | 30° | FLAT

P. 189

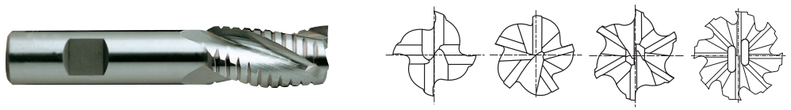
Unit: Inch

EDP No. 8% COBALT (M42)	Mill Diameter	Radius of Ball Nose R	Shank Diameter	Length of Cut	Overall Length	No. of Flutes
68297	1/4	R1/8	3/8	5/8	2-7/16	3
68301	5/16	R5/32	3/8	3/4	2-1/2	3
68305	3/8	R3/16	3/8	3/4	2-1/2	4
68321	1/2	R1/4	1/2	1-1/4	3-1/4	4
69321			1/2	2-1/2	4-1/2	4
68337	5/8	R5/16	5/8	1-5/8	3-3/4	4
69337			5/8	2-1/2	4-5/8	4
68359	3/4	R3/8	3/4	1-3/4	4	4
69359			3/4	3	5-1/4	4
68422	1	R1/2	3/4	2	4-1/2	5
68426			1	2	4-1/2	5
69426			1	4	6-1/2	5
68439	1-1/4	R5/8	3/4	2	4-1/2	6
68445			1-1/4	2	4-1/2	6
69445			1-1/4	4	6-1/2	6
68457	1-1/2	R3/4	3/4	2	4-1/2	6
68461			1-1/4	2	4-1/2	6
69461			1-1/4	4	6-1/2	6

Mill Dia. Tolerance (inch)	
≤ 1"	0~+.0030
> 1"	0~+.0060

TRUNCATED ROUGHER

▶ These general purpose roughers are designed for high production metal removal in a wide range of work piece materials. Recommended for cutting steel grades and many non-ferrous materials. Truncated profile offers smoother finish, often acceptable as finish cut.



HSS Co8 | NF | 4-8 | 30° | FLAT

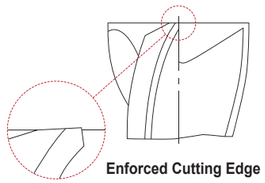
P. 190

Unit: Inch

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flutes
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	1-5/8	3-3/4	4
73391	7/8	3/4	1-7/8	4-1/8	5
73394		7/8	1-7/8	4-1/8	5
73422	1	3/4	2	4-1/4	5
73426		1	2	4-1/2	5
73431	1-1/8	3/4	2	4-1/4	6
73435		1	2	4-1/2	6
73439	1-1/4	3/4	2	4-1/4	6
73445		1-1/4	2	4-1/2	6
73457	1-1/2	3/4	2	4-1/4	6
73461		1-1/4	2	4-1/2	6
73467	1-3/4	3/4	2	4-1/4	6
73469		1-1/4	2	4-1/2	6
73475	2	3/4	2	4-1/4	6
73477		1-1/4	2	4-1/2	6
*73480		2	2	5-3/4	8
*73482		2	3	6-3/4	8
*73484		2	4	7-3/4	8

* Combination Shank

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



Enforced Cutting Edge

2-FLUTE, 42° HELIX, ALUMINUM SPECIFIC

▶ High Helix 2-flute, designed specifically for aluminum and non-ferrous materials. Special rake angle and fine finish on primary clearance angles and flute faces insuring free cutting action with material sticking, fine finish, and longer tool life. Made of M2 HSS, good for cutting aluminum.

HSS | 2 | 42° | FLAT

P. 191

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
18047		3/8	1-1/4	3-1/16
19047		3/8	1-3/4	3-9/16
17051	5/16	3/8	3/4	2-1/2
18051		3/8	1-3/8	3-1/8
19051		3/8	2	3-3/4
17055	3/8	3/8	3/4	2-1/2
18055		3/8	1-1/2	3-1/4
19055		3/8	2-1/2	4-1/4
17062	7/16	3/8	1	2-11/16
18063		1/2	1-3/4	3-3/4
17071	1/2	1/2	1-1/4	3-1/4
18071		1/2	2	4
19071		1/2	3	5
17087	5/8	5/8	1-5/8	3-3/4
18087		5/8	2-1/2	4-5/8
19087		5/8	4	6-1/8
17109	3/4	3/4	1-5/8	3-7/8
18109		3/4	3	5-1/4
19109		3/4	4	6-1/4
17141	7/8	3/4	1-7/8	4-1/8
17144		7/8	1-7/8	4-1/8
17172	1	3/4	1-7/8	4-1/8
17176		1	2	4-1/2
99089		1	3	5-1/2
18176		1	4	6-1/2
19176		1	6	8-1/2
17195	1-1/4	1-1/4	2	4-1/2
99090		1-1/4	3	5-1/2
18195		1-1/4	4	6-1/2
19195		1-1/4	6	8-1/2
17211	1-1/2	1-1/4	2	4-1/2
99091		1-1/4	3	5-1/2
18211		1-1/4	4	6-1/2
19211		1-1/4	8	10-1/2
17219	1-3/4	1-1/4	2	4-1/2
99092		1-1/4	3	5-1/2
17227	2	1-1/4	2	4-1/2
99093		1-1/4	3	5-1/2
18227		1-1/4	4	6-1/2

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

†When shank is equal to cutting diameter.

3-FLUTE, 37° HELIX, ALUMINUM SPECIFIC ROUGHER

▶ 3-flute design allows for chip capacity within the flutes. 37° helix better suited for aluminum and non-ferrous materials.

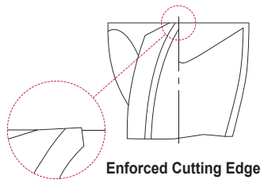
HSS Co8 | ALU | 3 | 37° | FLAT

P. 191

Unit: Inch

EDP No. HSS (M2)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
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
67321		1/2	2	4
66337	**5/8**	5/8	1-5/8	3-3/4
67337		5/8	2-1/2	4-5/8
66359	**3/4**	3/4	1-5/8	3-7/8
67359		3/4	3	5-1/4
66391	**7/8**	3/4	1-7/8	4-1/8
66426	**1**	1	2	4-1/2
66901		1	3	5-1/2
67426		1	4	6-1/2
66445	**1-1/4**	1-1/4	2	4-1/2
66902		1-1/4	3	5-1/2
67445		1-1/4	4	6-1/2
66461	**1-1/2**	1-1/4	2	4-1/2
67461		1-1/4	4	6-1/2

Mill Dia. Tolerance (inch)	
≤ 1"	0~+.0030
> 1"	0~+.0060



Enforced Cutting Edge

2-FLUTE, 15° HELIX, KEYWAY CUTTER

▶ Keyway cutting end mills have the same design as general purpose 2-flute end mills except held to a tolerance of +.0000 -.0015". These close tolerance end mills are recommended for cutting keyways which must be held close to nominal size.

HSS Co8 | HSS | 2 | 15° | FLAT

Unit: Inch

EDP No. 8% COBALT (M42)	EDP No. HSS (M2)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
14289	**14039**	**1/8**	3/8	3/8	2-5/16
14293	**14043**	**3/16**	3/8	7/16	2-5/16
14297	**14047**	**1/4**	3/8	1/2	2-5/16
14301	**14051**	**5/16**	3/8	9/16	2-5/16
14305	**14055**	**3/8**	3/8	9/16	2-5/16
14312	**14062**	**7/16**	3/8	13/16	2-1/2
14321	**14071**	**1/2**	1/2	1	3
14337	**14087**	**5/8**	5/8	1-5/16	3-7/16
14359	**14109**	**3/4**	3/4	1-5/16	3-9/16
14394	**14144**	**7/8**	7/8	1-1/2	3-3/4
14426	**14176**	**1**	1	1-5/8	4-1/8

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

3-FLUTE, THROW AWAY

▶ Well balanced 3-flute design to minimize deflection and chatter. High accuracy cutting diameter is guaranteed under strict tolerance control. 50% higher table feed than 2-flute design.

HSS Co8 | 3 | 30° | FLAT

P. 194

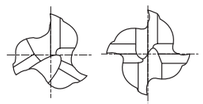
Unit: Inch

EDP No. 8% COBALT (M42)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
22257	**1/16**	1/4	3/32	31/32
23257		1/4	5/32	1-3/32
22261	**3/32**	1/4	5/32	1-1/64
23261		1/4	1/4	1-1/4
22265	**1/8**	1/4	3/16	1-3/32
23265		1/4	5/16	1-11/32
22269	**5/32**	1/4	1/4	1-9/32
23269		1/4	3/8	1-17/32
22273	**3/16**	1/4	9/32	1-11/32
23273		1/4	7/16	1-21/32
22277	**7/32**	1/4	5/16	1-13/32
23277		1/4	1/2	1-3/4
22281	**1/4**	1/4	3/8	1-13/32
23281		1/4	5/8	1-3/4

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

60° HIGH HELIX

▶ 60° Helix angle provides smooth cutting action and reduced radial load on the tool.
Suitable for machining difficult to cut materials.



HSS Co8 | 3&4 | 60° | FLAT

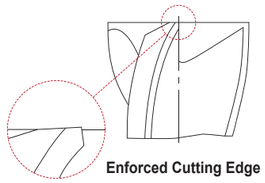
P. 192

Unit: Inch

EDP No. 8% COBALT (M42)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flutes
20297	**1/4**	3/8	5/8	2-7/16	3
20301	**5/16**	3/8	3/4	2-1/2	3
20305	**3/8**	3/8	3/4	2-1/2	3
20312	**7/16**	3/8	1	2-11/16	3
20321	**1/2**	1/2	1-1/4	3-1/4	3
20337	**5/8**	5/8	1-5/8	3-3/4	3
20359	**3/4**	3/4	1-5/8	3-7/8	3
20394	**7/8**	7/8	1-7/8	4-1/8	4
20426	**1**	1	2	4-1/2	4
20445	**1-1/4**	1-1/4	2	4-1/2	4
20461	**1-1/2**	1-1/4	2	4-1/2	4
20477	**2**	1-1/4	2	4-1/2	4

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

†When shank is equal to cutting diameter.



Enforced Cutting Edge

4-FLUTE, CORNER ROUNDING

▶ These general purpose corner rounding end mills are designed for machining fillets on work pieces.

HSS Co8 | HSS | 4 | FLAT

P. 193

Unit: Inch

EDP No. 8% COBALT (M42)	EDP No. HSS (M2)	Radius	Pilot Diameter	Outside Diameter	Shank Diameter	Overall Length
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

RECOMMENDED CUTTING CONDITIONS

2-FLUTE, SQUARE END / 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	4	3	2	2	2	2
	2		1.0D	0.5D	SFM	105	105	90	105	90	100	105	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
	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	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	Low alloy steel	1.0D	0.5D	SFM	105	105	90	105	90	100	105	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	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	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	High alloyed steel, and tool steel	1.0D	0.5D	SFM	105	105	90	105	90	100	105	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	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
N	21-22	Aluminum-wrought alloy	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	Aluminum-cast, alloyed	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)

TiN coated tools increase speed ~20%
TiCN coated tools increase speed ~30%
TiAlN coated tools increase speed ~40%

※ For tools with >3xD LOC, reduce feed approximately 50%

RECOMMENDED CUTTING CONDITIONS

2-FLUTE, SQUARE END / SLOTTING / METRIC

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)																		
						2	3	4	5	6	8	10	12	14	16	18	20	22	25	28	30	32	36	40
P	1	Non-alloy steel	1.0D	0.5D	SFM	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
					IPT	.0002	.0003	.0005	.0009	.0011	.0014	.0018	.0022	.0025	.0029	.0032	.0036	.0039	.0044	.0038	.0041	.0043	.0032	.0036
					RPM	5570	3710	2790	2230	1860	1390	1110	930	800	700	620	560	510	450	400	370	350	310	280
					IPM	2	2	3	4	4	4	4	4	4	4	4	4	4	4	3	3	3	2	2
	2		1.0D	0.5D	SFM	100	100	100	100	100	100	100	100	100	100	100	100	95	100	100	100	100	100	100
					IPT	.0001	.0003	.0004	.0008	.0009	.0017	.0021	.0025	.0022	.0033	.0038	.0042	.0035	.0039	.0044	.0031	.0033	.0037	.0042
					RPM	4780	3180	2390	1910	1590	1190	960	800	680	600	530	480	430	380	340	320	300	270	240
					IPM	1	2	2	3	3	4	4	4	3	4	4	4	3	3	3	2	2	2	2
	3-4		1.0D	0.5D	SFM	80	80	80	80	80	80	80	80	80	80	80	80	80	80	85	65	80	80	
					IPT	.0001	.0004	.0005	.0006	.0011	.0015	.0019	.0023	.0026	.0030	.0034	.0038	.0042	.0031	.0036	.0037	.0050	.0045	.0050
					RPM	3980	2650	1990	1590	1330	1000	800	660	570	500	440	400	360	320	280	270	200	220	200
					IPM	1	2	2	2	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2
	5		1.0D	0.5D	SFM	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
					IPT	.0002	.0003	.0004	.0005	.0013	.0017	.0021	.0025	.0029	.0033	.0037	.0042	.0045	.0026	.0029	.0031	.0033	.0038	.0042
					RPM	2390	1590	1190	960	800	600	480	400	340	300	270	240	220	190	170	160	150	130	120
					IPM	1	1	1	1	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1
	6	Low alloy steel	1.0D	0.5D	SFM	100	100	100	100	100	100	100	100	100	100	100	100	95	100	100	100	100	100	100
					IPT	.0001	.0003	.0004	.0008	.0009	.0017	.0021	.0025	.0022	.0033	.0038	.0042	.0035	.0039	.0044	.0031	.0033	.0037	.0042
					RPM	4780	3180	2390	1910	1590	1190	960	800	680	600	530	480	430	380	340	320	300	270	240
					IPM	1	2	2	3	3	4	4	4	3	4	4	4	3	3	3	2	2	2	2
	7		1.0D	0.5D	SFM	80	80	80	80	80	80	80	80	80	80	80	80	80	80	85	65	80	80	
					IPT	.0001	.0004	.0005	.0006	.0011	.0015	.0019	.0023	.0026	.0030	.0034	.0038	.0042	.0031	.0036	.0037	.0050	.0045	.0050
					RPM	3980	2650	1990	1590	1330	1000	800	660	570	500	440	400	360	320	280	270	200	220	200
					IPM	1	2	2	2	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2
	8-9		1.0D	0.5D	SFM	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
					IPT	.0002	.0003	.0004	.0005	.0013	.0017	.0021	.0025	.0029	.0033	.0037	.0042	.0045	.0026	.0029	.0031	.0033	.0038	.0042
					RPM	2390	1590	1190	960	800	600	480	400	340	300	270	240	220	190	170	160	150	130	120
					IPM	1	1	1	1	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1
	10	High alloyed steel, and tool steel	1.0D	0.5D	SFM	100	100	100	100	100	100	100	100	100	100	100	100	95	100	100	100	100	100	100
					IPT	.0001	.0003	.0004	.0008	.0009	.0017	.0021	.0025	.0022	.0033	.0038	.0042	.0035	.0039	.0044	.0031	.0033	.0037	.0042
					RPM	4780	3180	2390	1910	1590	1190	960	800	680	600	530	480	430	380	340	320	300	270	240
					IPM	1	2	2	3	3	4	4	4	3	4	4	4	3	3	3	2	2	2	2
	11.1		1.0D	0.5D	SFM	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
					IPT	.0002	.0003	.0004	.0005	.0013	.0017	.0021	.0025	.0029	.0033	.0037	.0042	.0045	.0026	.0029	.0031	.0033	.0038	.0042
					RPM	2390	1590	1190	960	800	600	480	400	340	300	270	240	220	190	170	160	150	130	120
					IPM	1	1	1	1	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1
N	21-22	Aluminum-wrought alloy	1.0D	0.5D	SFM	245	345	330	330	345	330	310	310	310	330	330	330	315	310	310	345	330	325	330
					IPT	.0003	.0004	.0007	.0010	.0011	.0019	.0025	.0030	.0032	.0035	.0040	.0041	.0043	.0045	.0046	.0050	.0045	.0051	.0050
					RPM	11940	11140	7960	6370	5570	3980	3020	2520	2160	1990	1770	1590	1380	1210	1080	1110	1000	880	800
					IPM	7	10	11	13	12	15	15	15	14	14	14	13	12	11	10	11	9	9	8
	23-25	Aluminum-cast, alloyed	1.0D	0.5D	SFM	160	225	215	215	225	215	205	205	205	215	215	215	205	205	205	225	215	215	215
					IPT	.0003	.0004	.0007	.0010	.0011	.0019	.0025	.0030	.0032	.0035	.0039	.0038	.0044	.0044	.0049	.0049	.0046	.0052	.0048
					RPM	7800	7220	5170	4140	3610	2590	1970	1650	1410	1290	1150	1040	900	790	710	720	650	580	520
					IPM	4	6	7	8	8	10	10	10	9	9	9	8	8	7	7	7	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)

TiN coated tools increase speed ~20%
TiCN coated tools increase speed ~30%
TiAlN coated tools increase speed ~40%

※ For tools with >3xD LOC, reduce feed approximately 50%

RECOMMENDED CUTTING CONDITIONS

4-FLUTE, SQUARE END / 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	120	130	145
					IPT	.0003	.0010	.0018	.0025	.0032	.0032	.0040	.0040	.0039	.0040	.0045	.0045
					RPM	3500	1800	1100	900	700	630	500	500	450	310	280	280
					IPM	4	7	8	9	9	8	8	8	7	5	5	5
	2		0.1D	1.5D	SFM	105	105	90	105	90	100	95	110	105	100	100	100
					IPT	.0002	.0009	.0017	.0022	.0027	.0030	.0033	.0033	.0038	.0040	.0045	.0053
					RPM	3200	1600	900	800	560	500	450	450	400	250	220	190
					IPM	3	6	6	7	6	6	6	6	6	4	4	4
	3-4		0.1D	1.5D	SFM	80	80	80	80	75	80	75	85	80	80	70	60
					IPT	.0002	.0008	.0016	.0020	.0022	.0025	.0029	.0029	.0032	.0025	.0033	.0045
					RPM	2500	1200	800	630	450	400	350	350	310	200	150	110
					IPM	2	4	5	5	4	4	4	4	4	2	2	2
	5		0.1D	1.5D	SFM	50	50	45	50	45	50	45	55	45	45	50	40
					IPT	.0002	.0006	.0017	.0019	.0027	.0030	.0034	.0034	.0028	.0021	.0023	.0031
					RPM	1600	800	450	400	280	250	220	220	180	120	110	80
					IPM	1	2	3	3	3	3	3	3	2	1	1	1
	6	Low alloy steel	0.1D	1.5D	SFM	105	105	90	105	90	100	95	110	105	100	100	100
					IPT	.0002	.0009	.0017	.0022	.0027	.0030	.0033	.0033	.0038	.0040	.0045	.0053
					RPM	3200	1600	900	800	560	500	450	450	400	250	220	190
					IPM	3	6	6	7	6	6	6	6	6	4	4	4
	7		0.1D	1.5D	SFM	80	80	80	80	75	80	75	85	80	80	70	60
					IPT	.0002	.0008	.0016	.0020	.0022	.0025	.0029	.0029	.0032	.0025	.0033	.0045
					RPM	2500	1200	800	630	450	400	350	350	310	200	150	110
					IPM	2	4	5	5	4	4	4	4	4	2	2	2
	8-9		0.1D	1.5D	SFM	50	50	45	50	45	50	45	55	45	45	50	40
					IPT	.0002	.0006	.0017	.0019	.0027	.0030	.0034	.0034	.0028	.0021	.0023	.0031
					RPM	1600	800	450	400	280	250	220	220	180	120	110	80
					IPM	1	2	3	3	3	3	3	3	2	1	1	1
	10	High alloyed steel, and tool steel	0.1D	1.5D	SFM	105	105	90	105	90	100	95	110	105	100	100	100
					IPT	.0002	.0009	.0017	.0022	.0027	.0030	.0033	.0033	.0038	.0040	.0045	.0053
					RPM	3200	1600	900	800	560	500	450	450	400	250	220	190
					IPM	3	6	6	7	6	6	6	6	6	4	4	4
	11.1		0.1D	1.5D	SFM	50	50	45	50	45	50	45	55	45	45	50	40
					IPT	.0002	.0006	.0017	.0019	.0027	.0030	.0034	.0034	.0028	.0021	.0023	.0031
					RPM	1600	800	450	400	280	250	220	220	180	120	110	80
					IPM	1	2	3	3	3	3	3	3	2	1	1	1
N	21-22	Aluminum-wrought alloy	0.1D	1.5D	SFM	360	365	305	325	325	355	300	345	315	355	365	330
					IPT	.0003	.0008	.0019	.0022	.0026	.0029	.0032	.0032	.0035	.0036	.0038	.0048
					RPM	11000	5600	3100	2500	2000	1800	1400	1400	1200	900	800	630
					IPM	15	19	24	22	21	21	18	18	17	13	12	12
	23-25	Aluminum-cast, alloyed	0.1D	1.5D	SFM	360	365	305	325	325	355	300	345	315	355	365	330
					IPT	.0003	.0008	.0019	.0022	.0026	.0029	.0032	.0032	.0035	.0036	.0038	.0048
					RPM	11000	5600	3100	2500	2000	1800	1400	1400	1200	900	800	630
					IPM	15	19	24	22	21	21	18	18	17	13	12	12

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)

TiN coated tools increase speed ~20%
TiCN coated tools increase speed ~30%
TiAlN coated tools increase speed ~40%

※ For tools with >3xD LOC, reduce feed approximately 50%

RECOMMENDED CUTTING CONDITIONS

4-FLUTE, SQUARE END / SIDE CUTTING / METRIC

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)																			
						2	3	4	5	6	8	10	12	14	16	18	20	22	25	28	30	32	36	40
P	1	Non-alloy steel	0.1D	1.5D	SFM	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
					IPT	.0002	.0003	.0005	.0008	.0009	.0014	.0018	.0024	.0028	.0032	.0032	.0036	.0039	.0039	.0038	.0041	.0043	.0040	.0045
					RPM	5570	3710	2790	2230	1860	1390	1110	930	800	700	620	560	510	450	400	370	350	310	280
					IPM	4	5	6	7	7	8	8	9	9	9	8	8	8	7	6	6	6	5	5
	2		0.1D	1.5D	SFM	100	100	100	100	100	100	100	100	100	100	100	100	95	100	100	100	100	100	100
					IPT	.0001	.0002	.0004	.0007	.0009	.0015	.0018	.0022	.0066	.0029	.0033	.0036	.0035	.0033	.0037	.0031	.0033	.0037	.0042
					RPM	4780	3180	2390	1910	1590	1190	960	800	680	600	530	480	430	380	340	320	300	270	240
					IPM	2	3	4	5	6	7	7	7	18	7	7	7	6	5	5	4	4	4	4
	3-4		0.1D	1.5D	SFM	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	85	65	80	80
					IPT	.0001	.0003	.0004	.0006	.0008	.0013	.0016	.0019	.0022	.0025	.0028	.0025	.0028	.0031	.0027	.0028	.0025	.0034	.0038
					RPM	3980	2650	1990	1590	1330	1000	800	660	570	500	440	400	360	320	280	270	200	220	200
					IPM	2	3	3	4	4	5	5	5	5	5	5	4	4	4	3	3	2	3	3
	5		0.1D	1.5D	SFM	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
					IPT	.0001	.0002	.0004	.0005	.0006	.0013	.0016	.0019	.0022	.0025	.0028	.0031	.0034	.0026	.0029	.0031	.0033	.0038	.0021
					RPM	2390	1590	1190	960	800	600	480	400	340	300	270	240	220	190	170	160	150	130	120
					IPM	1	1	2	2	2	3	3	3	3	3	3	3	3	2	2	2	2	2	1
	6	Low alloy steel	0.1D	1.5D	SFM	100	100	100	100	100	100	100	100	100	100	100	100	95	100	100	100	100	100	100
					IPT	.0001	.0002	.0004	.0007	.0009	.0015	.0018	.0022	.0066	.0029	.0033	.0036	.0035	.0033	.0037	.0031	.0033	.0037	.0042
					RPM	4780	3180	2390	1910	1590	1190	960	800	680	600	530	480	430	380	340	320	300	270	240
					IPM	2	3	4	5	6	7	7	7	18	7	7	7	6	5	5	4	4	4	4
	7		0.1D	1.5D	SFM	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	85	65	80	80
					IPT	.0001	.0003	.0004	.0006	.0008	.0013	.0016	.0019	.0022	.0025	.0028	.0025	.0028	.0031	.0027	.0028	.0025	.0034	.0038
					RPM	3980	2650	1990	1590	1330	1000	800	660	570	500	440	400	360	320	280	270	200	220	200
					IPM	2	3	3	4	4	5	5	5	5	5	5	4	4	4	3	3	2	3	3
	8-9		0.1D	1.5D	SFM	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
					IPT	.0001	.0002	.0004	.0005	.0006	.0013	.0016	.0019	.0022	.0025	.0028	.0031	.0034	.0026	.0029	.0031	.0033	.0038	.0021
					RPM	2390	1590	1190	960	800	600	480	400	340	300	270	240	220	190	170	160	150	130	120
					IPM	1	1	2	2	2	3	3	3	3	3	3	3	3	2	2	2	2	2	1
	10	High alloyed steel, and tool steel	0.1D	1.5D	SFM	100	100	100	100	100	100	100	100	100	100	100	100	95	100	100	100	100	100	100
					IPT	.0001	.0002	.0004	.0007	.0009	.0015	.0018	.0022	.0066	.0029	.0033	.0036	.0035	.0033	.0037	.0031	.0033	.0037	.0042
					RPM	4780	3180	2390	1910	1590	1190	960	800	680	600	530	480	430	380	340	320	300	270	240
					IPM	2	3	4	5	6	7	7	7	18	7	7	7	6	5	5	4	4	4	4
	11.1		0.1D	1.5D	SFM	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
					IPT	.0001	.0002	.0004	.0005	.0006	.0013	.0016	.0019	.0022	.0025	.0028	.0031	.0034	.0026	.0029	.0031	.0033	.0038	.0021
					RPM	2390	1590	1190	960	800	600	480	400	340	300	270	240	220	190	170	160	150	130	120
					IPM	1	1	2	2	2	3	3	3	3	3	3	3	3	2	2	2	2	2	1
N	21-22	Aluminum-wrought alloy	0.1D	1.5D	SFM	245	345	330	330	345	330	310	310	310	330	330	330	315	310	310	345	330	325	330
					IPT	.0002	.0004	.0006	.0007	.0008	.0014	.0019	.0023	.0023	.0026	.0030	.0030	.0031	.0035	.0037	.0036	.0035	.0037	.0034
					RPM	11940	11140	7960	6370	5570	3980	3020	2520	2160	1990	1770	1590	1380	1210	1080	1110	1000	880	800
					IPM	9	16	18	19	18	23	23	23	20	21	21	19	17	17	16	16	14	13	11
	23-25	Aluminum-cast, alloyed	0.1D	1.5D	SFM	160	225	215	215	225	215	205	205	205	215	215	215	205	205	205	225	215	215	215
					IPT	.0002	.0003	.0005	.0007	.0008	.0014	.0019	.0023	.0023	.0025	.0028	.0029	.0031	.0035	.0035	.0035	.0035	.0034	.0034
					RPM	7800	7220	5170	4140	3610	2590	1970	1650	1410	1290	1150	1040	900	790	710	720	650	580	520
					IPM	6	10	11	12	12	15	15	15	13	13	13	12	11	11	10	10	9	8	7

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)

TiN coated tools increase speed ~20%
TiCN coated tools increase speed ~30%
TiAlN coated tools increase speed ~40%

※ For tools with >3xD LOC, reduce feed approximately 50%

RECOMMENDED CUTTING CONDITIONS

6 & 8-FLUTE, SQUARE END / 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	120	120	130	145
					IPT	.0002	.0006	.0012	.0017	.0021	.0021	.0027	.0027	.0026	.0027	.0030	.0030 / .0022
					RPM	3500	1800	1100	900	700	630	500	500	450	310	280	280
					IPM	4	7	8	9	9	8	8	8	7	5	5	5
	2		0.1D	1.5D	SFM	105	105	90	105	90	100	95	110	105	100	100	100
					IPT	.0002	.0006	.0011	.0015	.0018	.0020	.0022	.0022	.0025	.0027	.0030	.0035 / .0026
					RPM	3200	1600	900	800	560	500	450	450	400	250	220	190
					IPM	3	6	6	7	6	6	6	6	6	4	4	4
	3-4		0.1D	1.5D	SFM	80	80	80	80	75	80	75	85	80	80	70	60
					IPT	.0001	.0006	.0010	.0013	.0015	.0017	.0019	.0019	.0022	.0017	.0022	.0030 / .0023
					RPM	2500	1200	800	630	450	400	350	350	310	200	150	110
					IPM	2	4	5	5	4	4	4	4	4	2	2	2
	5		0.1D	1.5D	SFM	50	50	45	50	45	50	45	55	45	45	50	40
					IPT	.0001	.0004	.0011	.0013	.0018	.0020	.0023	.0023	.0019	.0014	.0015	.0021 / .0016
					RPM	1600	800	450	400	280	250	220	220	180	120	110	80
					IPM	1	2	3	3	3	3	3	3	2	1	1	1
	6	Low alloy steel	0.1D	1.5D	SFM	105	105	90	105	90	100	95	110	105	100	100	100
					IPT	.0002	.0006	.0011	.0015	.0018	.0020	.0022	.0022	.0025	.0027	.0030	.0035 / .0026
					RPM	3200	1600	900	800	560	500	450	450	400	250	220	190
					IPM	3	6	6	7	6	6	6	6	6	4	4	4
	7		0.1D	1.5D	SFM	80	80	80	80	75	80	75	85	80	80	70	60
					IPT	.0001	.0006	.0010	.0013	.0015	.0017	.0019	.0019	.0022	.0017	.0022	.0030 / .0023
					RPM	2500	1200	800	630	450	400	350	350	310	200	150	110
					IPM	2	4	5	5	4	4	4	4	4	2	2	2
	8-9		0.1D	1.5D	SFM	50	50	45	50	45	50	45	55	45	45	50	40
					IPT	.0001	.0004	.0011	.0013	.0018	.0020	.0023	.0023	.0019	.0014	.0015	.0021 / .0016
					RPM	1600	800	450	400	280	250	220	220	180	120	110	80
					IPM	1	2	3	3	3	3	3	3	2	1	1	1
	10	High alloyed steel, and tool steel	0.1D	1.5D	SFM	105	105	90	105	90	100	95	110	105	100	100	100
					IPT	.0002	.0006	.0011	.0015	.0018	.0020	.0022	.0022	.0025	.0027	.0030	.0035 / .0026
					RPM	3200	1600	900	800	560	500	450	450	400	250	220	190
					IPM	3	6	6	7	6	6	6	6	6	4	4	4
	11.1		0.1D	1.5D	SFM	50	50	45	50	45	50	45	55	45	45	50	40
					IPT	.0001	.0004	.0011	.0013	.0018	.0020	.0023	.0023	.0019	.0014	.0015	.0021 / .0016
					RPM	1600	800	450	400	280	250	220	220	180	120	110	80
					IPM	1	2	3	3	3	3	3	3	2	1	1	1
N	21-22	Aluminum-wrought alloy	0.1D	1.5D	SFM	360	365	305	325	325	355	300	345	315	355	365	330
					IPT	.0002	.0006	.0013	.0015	.0018	.0019	.0021	.0021	.0024	.0024	.0025	.0032 / .0024
					RPM	11000	5600	3100	2500	2000	1800	1400	1400	1200	900	800	630
					IPM	15	19	24	22	21	21	18	18	17	13	12	12
	23-25	Aluminum-cast, alloyed	0.1D	1.5D	SFM	360	365	305	325	325	355	300	345	315	355	365	330
					IPT	.0002	.0006	.0013	.0015	.0018	.0019	.0021	.0021	.0024	.0024	.0025	.0032 / .0024
					RPM	11000	5600	3100	2500	2000	1800	1400	1400	1200	900	800	630
					IPM	15	19	24	22	21	21	18	18	17	13	12	12

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)

TiN coated tools increase speed ~20%
TiCN coated tools increase speed ~30%
TiAlN coated tools increase speed ~40%

※ For tools with >3xD LOC, reduce feed approximately 50%

RECOMMENDED CUTTING CONDITIONS

2-FLUTE, BALL NOSE / SURFACING / INCH

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	145	130	145	350	130	130	130	120	130
					IPT	4500	3200	2200	1600	1300	1000	800	600	500
					RPM	.0004	.0007	.0012	.0020	.0027	.0034	.0038	.0046	.0051
					IPM	4	5	5	6	7	7	6	6	5
	2		0.7D	0.3D	SFM	110	100	110	260	100	105	100	100	105
					IPT	.0004	.0006	.0010	.0017	.0024	.0026	.0033	.0034	.0035
					RPM	3400	2400	1700	1200	1000	800	600	500	400
					IPM	3	3	4	4	5	4	4	3	3
	3-4		0.7D	0.3D	SFM	65	55	65	155	55	60	55	60	60
					IPT	.0003	.0005	.0009	.0014	.0021	.0024	.0031	.0033	.0036
					RPM	2000	1400	1000	700	560	450	350	300	220
					IPM	1	1	2	2	2	2	2	2	2
	5		0.7D	0.3D	SFM	45	40	45	110	40	40	40	40	40
					IPT	.0003	.0005	.0007	.0012	.0018	.0022	.0028	.0035	.0038
					RPM	1400	1000	700	500	400	320	250	200	160
					IPM	1	1	1	1	1	1	1	1	1
	6	Low alloy steel	0.7D	0.3D	SFM	110	100	110	260	100	105	100	100	105
					IPT	.0004	.0006	.0010	.0017	.0024	.0026	.0033	.0034	.0035
					RPM	3400	2400	1700	1200	1000	800	600	500	400
					IPM	3	3	4	4	5	4	4	3	3
	7		0.7D	0.3D	SFM	65	55	65	155	55	60	55	60	60
					IPT	.0003	.0005	.0009	.0014	.0021	.0024	.0031	.0033	.0036
					RPM	2000	1400	1000	700	560	450	350	300	220
					IPM	1	1	2	2	2	2	2	2	2
	8-9		0.7D	0.3D	SFM	45	40	45	110	40	40	40	40	40
					IPT	.0003	.0005	.0007	.0012	.0018	.0022	.0028	.0035	.0038
					RPM	1400	1000	700	500	400	320	250	200	160
					IPM	1	1	1	1	1	1	1	1	1
	10	High alloyed steel, and tool steel	0.7D	0.3D	SFM	110	100	110	260	100	105	100	100	105
					IPT	.0004	.0006	.0010	.0017	.0024	.0026	.0033	.0034	.0035
					RPM	3400	2400	1700	1200	1000	800	600	500	400
					IPM	3	3	4	4	5	4	4	3	3
	11.1		0.7D	0.3D	SFM	45	40	45	110	40	40	40	40	40
					IPT	.0003	.0005	.0007	.0012	.0018	.0022	.0028	.0035	.0038
					RPM	1400	1000	700	500	400	320	250	200	160
					IPM	1	1	1	1	1	1	1	1	1
N	21-22	Aluminum-wrought alloy	0.7D	0.3D	SFM	360	325	365	875	315	325	325	315	340
					IPT	.0004	.0006	.0010	.0017	.0022	.0027	.0030	.0034	.0038
					RPM	11000	8000	5600	4000	3200	2500	2000	1600	1300
					IPM	9	10	11	14	14	13	12	11	10
	23-25	Aluminum-cast, alloyed	0.7D	0.3D	SFM	360	325	365	875	315	325	325	315	340
					IPT	.0004	.0006	.0010	.0017	.0022	.0027	.0030	.0034	.0038
					RPM	11000	8000	5600	4000	3200	2500	2000	1600	1300
					IPM	9	10	11	14	14	13	12	11	10

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)

TiN coated tools increase speed ~20%
TiCN coated tools increase speed ~30%
TiAlN coated tools increase speed ~40%

※ For tools with >3xD LOC, reduce feed approximately 50%

RECOMMENDED CUTTING CONDITIONS

4-FLUTE, BALL NOSE / SURFACING / INCH

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	145	130	145	350	130	130	130	120	130
					IPT	4500	3200	2200	1600	1300	1000	800	600	500
					RPM	.0004	.0007	.0012	.0020	.0027	.0034	.0038	.0046	.0051
					IPM	4	5	5	6	7	7	6	6	5
	2		0.7D	0.3D	SFM	110	100	110	260	100	105	100	100	105
					IPT	.0004	.0006	.0010	.0017	.0024	.0026	.0033	.0034	.0035
					RPM	3400	2400	1700	1200	1000	800	600	500	400
					IPM	3	3	4	4	5	4	4	3	3
	3-4		0.7D	0.3D	SFM	65	55	65	155	55	60	55	60	60
					IPT	.0003	.0005	.0009	.0014	.0021	.0024	.0031	.0033	.0036
					RPM	2000	1400	1000	700	560	450	350	300	220
					IPM	1	1	2	2	2	2	2	2	2
	5		0.7D	0.3D	SFM	45	40	45	110	40	40	40	40	40
					IPT	.0003	.0005	.0007	.0012	.0018	.0022	.0028	.0035	.0038
					RPM	1400	1000	700	500	400	320	250	200	160
					IPM	1	1	1	1	1	1	1	1	1
	6	Low alloy steel	0.7D	0.3D	SFM	110	100	110	260	100	105	100	100	105
					IPT	.0004	.0006	.0010	.0017	.0024	.0026	.0033	.0034	.0035
					RPM	3400	2400	1700	1200	1000	800	600	500	400
					IPM	3	3	4	4	5	4	4	3	3
	7		0.7D	0.3D	SFM	65	55	65	155	55	60	55	60	60
					IPT	.0003	.0005	.0009	.0014	.0021	.0024	.0031	.0033	.0036
					RPM	2000	1400	1000	700	560	450	350	300	220
					IPM	1	1	2	2	2	2	2	2	2
	8-9		0.7D	0.3D	SFM	45	40	45	110	40	40	40	40	40
					IPT	.0003	.0005	.0007	.0012	.0018	.0022	.0028	.0035	.0038
					RPM	1400	1000	700	500	400	320	250	200	160
					IPM	1	1	1	1	1	1	1	1	1
	10	High alloyed steel, and tool steel	0.7D	0.3D	SFM	110	100	110	260	100	105	100	100	105
					IPT	.0004	.0006	.0010	.0017	.0024	.0026	.0033	.0034	.0035
					RPM	3400	2400	1700	1200	1000	800	600	500	400
					IPM	3	3	4	4	5	4	4	3	3
	11.1		0.7D	0.3D	SFM	45	40	45	110	40	40	40	40	40
					IPT	.0003	.0005	.0007	.0012	.0018	.0022	.0028	.0035	.0038
					RPM	1400	1000	700	500	400	320	250	200	160
					IPM	1	1	1	1	1	1	1	1	1
N	21-22	Aluminum-wrought alloy	0.7D	0.3D	SFM	360	325	365	875	315	325	325	315	340
					IPT	.0004	.0006	.0010	.0017	.0022	.0027	.0030	.0034	.0038
					RPM	11000	8000	5600	4000	3200	2500	2000	1600	1300
					IPM	9	10	11	14	14	13	12	11	10
	23-25	Aluminum-cast, alloyed	0.7D	0.3D	SFM	360	325	365	875	315	325	325	315	340
					IPT	.0004	.0006	.0010	.0017	.0022	.0027	.0030	.0034	.0038
					RPM	11000	8000	5600	4000	3200	2500	2000	1600	1300
					IPM	9	10	11	14	14	13	12	11	10

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)

TiN coated tools increase speed ~20%
TiCN coated tools increase speed ~30%
TiAlN coated tools increase speed ~40%

※ For tools with >3xD LOC, reduce feed approximately 50%

RECOMMENDED CUTTING CONDITIONS

2 & 4-FLUTE, MINIATURE / SLOTTING & SIDE CUTTING / 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
			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	1.1	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
			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	1.1	1.2	1.4
	10-11	High alloyed steel, and tool steel	SFM	25~35	25~35	25~35	25~35	25~35	25~30	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	0.8	0.9	1.0
M	12-14	Stainless steel	SFM	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	0.8	0.9	1.0
N	21-22	Aluminum-wrought alloy	SFM	45	90	135	180	175	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	4.6	4.7
	23-25	Aluminum-cast, alloyed	SFM	45	90	135	180	175	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	4.6	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
			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	90~140	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	2.6	2.8	2.8	2.9	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
			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	1.1	1.2	1.4
	37		SFM	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	0.8	0.9	1.0

SFM = Surface Feet per Minute
RPM = Revolutions Per Minute
IPT = Inches Per Tooth
IPM = Inches Per Minute

TiN coated tools increase speed ~20%
TiCN coated tools increase speed ~30%
TiAlN coated tools increase speed ~40%

※ For tools with >3xD LOC, reduce feed approximately 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

RECOMMENDED CUTTING CONDITIONS

ROUGHER (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	1-1/8	1-1/4	1-1/2	1 3/4	2
P	1	Non-alloy steel	0.5D	1.5D	SFM	120	120	120	120	120	120	120	120	120	120	120	120
					IPT	.0006	.001	.0014	.0019	.0024	.0028	.0031	.0033	.0036	.0042	.0049	.0056
					RPM	1825	1475	1225	925	725	600	450	400	375	300	250	225
					IPM	3	4	7	7	7	7	7	8	8	8	7	10
	2		0.5D	1.5D	SFM	100	100	100	100	100	100	100	100	100	100	100	100
					IPT	.0006	.001	.0014	.0019	.0024	.0028	.0031	.0033	.0036	.0042	.0049	.0056
					RPM	1525	1225	1025	775	600	500	375	350	300	250	225	200
					IPM	3	4	6	6	6	6	6	7	6	6	7	9
	3-4		0.5D	1.5D	SFM	80	80	80	80	80	80	80	80	80	80	80	80
					IPT	.0006	.001	.0014	.0019	.0024	.0028	.0031	.0033	.0036	.0042	.0049	.0056
					RPM	1225	975	825	600	500	400	300	275	250	200	175	150
					IPM	2	3	5	5	5	4	5	5	5	5	5	7
	5		0.5D	1.5D	SFM	50	50	50	50	50	50	50	50	50	50	50	50
					IPT	.0005	.0008	.0011	.0015	.0019	.0022	.0025	.0026	.0029	.0034	.0039	.0045
					RPM	775	600	500	375	300	250	200	175	150	125	100	100
					IPM	1	1	2	2	2	2	3	3	3	3	2	4
	6	Low alloy steel	0.5D	1.5D	SFM	100	100	100	100	100	100	100	100	100	100	100	100
					IPT	.0006	.001	.0014	.0019	.0024	.0028	.0031	.0033	.0036	.0042	.0049	.0056
					RPM	1525	1225	1025	775	600	500	375	350	300	250	225	200
					IPM	3	4	6	6	6	6	6	7	6	6	7	9
	7		0.5D	1.5D	SFM	80	80	80	80	80	80	80	80	80	80	80	80
					IPT	.0006	.001	.0014	.0019	.0024	.0028	.0031	.0033	.0036	.0042	.0049	.0056
					RPM	1225	975	825	600	500	400	300	275	250	200	175	150
					IPM	2	3	5	5	5	4	5	5	5	5	5	7
	8-9		0.5D	1.5D	SFM	50	50	50	50	50	50	50	50	50	50	50	50
					IPT	.0005	.0008	.0011	.0015	.0019	.0022	.0025	.0026	.0029	.0034	.0039	.0045
					RPM	775	600	500	375	300	250	200	175	150	125	100	100
					IPM	1	1	2	2	2	2	3	3	3	3	2	4
	10	High alloyed steel, and tool steel	0.5D	1.5D	SFM	100	100	100	100	100	100	100	100	100	100	100	100
					IPT	.0005	.0008	.0011	.0015	.0019	.0022	.0025	.0026	.0029	.0034	.0039	.0045
					RPM	1525	1225	1025	775	600	500	375	350	300	250	225	200
					IPM	2	3	5	5	5	4	5	5	5	5	5	7
	11.1		0.5D	1.5D	SFM	50	50	50	50	50	50	50	50	50	50	50	50
					IPT	.0005	.0008	.0011	.0015	.0019	.0022	.0025	.0026	.0029	.0034	.0039	.0045
					RPM	775	600	500	375	300	250	200	175	150	125	100	100
					IPM	1	1	2	2	2	2	3	3	3	3	2	4
N	21-22	Aluminum-wrought alloy	0.5D	1.5D	SFM	260	260	260	260	260	260	260	260	260	260	260	260
					IPT	.0008	.0013	.0018	.0024	.003	.0035	.0039	.0041	.0045	.0052	.0061	.007
					RPM	3975	3175	2650	1975	1600	1325	1000	875	800	650	575	500
					IPM	10	12	19	19	19	19	20	22	22	20	21	28
	23-25	Aluminum-cast, alloyed	0.5D	1.5D	SFM	235	235	235	235	235	235	235	235	235	235	235	235
					IPT	.0007	.0012	.0016	.0022	.0028	.0032	.0036	.0038	.0041	.0048	.0056	.0064
					RPM	3600	2875	2400	1800	1425	1200	900	800	725	600	525	450
					IPM	8	10	15	16	16	15	16	18	18	17	18	23

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)

TiN coated tools increase speed ~20%
TiCN coated tools increase speed ~30%
TiAlN coated tools increase speed ~40%

※ For tools with >3xD LOC, reduce feed approximately 50%

RECOMMENDED CUTTING CONDITIONS

ROUGHER, BALL NOSE (MULTI-FLUTE) / 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	Low alloy steel	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
	10	High alloyed steel, and tool steel	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
	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)

TiN coated tools increase speed ~20%
TiCN coated tools increase speed ~30%
TiAlN coated tools increase speed ~40%

※ For tools with >3xD LOC, reduce feed approximately 50%

RECOMMENDED CUTTING CONDITIONS

ROUGHER, TRUNCATED (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	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	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	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
	3-4		0.5D	1.5D	SFM	80	75	80	80	75	70	80	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
	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	Low alloy steel	0.5D	1.5D	SFM	85	90	90	105	90	90	105	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	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	High alloyed steel, and tool steel	0.5D	1.5D	SFM	85	90	90	105	90	90	105	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	16	15	11
	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	16	15	11

SFM = Surface Feet per Minute
RPM = Revolutions Per Minute
IPT = Inches Per Tooth
IPM = Inches Per Minute

TiN coated tools increase speed ~20%
TiCN coated tools increase speed ~30%
TiAlN coated tools increase speed ~40%

※ For tools with >3xD LOC, reduce feed approximately 50%

RECOMMENDED CUTTING CONDITIONS

2-FLUTE, ALUMINUM SPECIFIC / SLOTTING / INCH

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 1/8	3/16	1/4	5/16	7/16	1/2	9/16	5/8	3/4	13/16
N	21-22	Aluminum-wrought alloy	1.0D	0.5D	SFM	260	365	445	425	575	590	515	575	450	425
					IPT	.0014	.0017	.0021	.0042	.0047	.0052	.0070	.0070	.0111	.0128
					RPM	8000	7400	6800	5200	5000	4500	3500	3500	2300	2000
					IPM	23	25	29	44	47	47	49	49	51	51
	23-25	Aluminum-cast, alloyed	1.0D	0.5D	SFM	170	235	290	275	370	385	335	370	295	275
					IPT	.0014	.0017	.0021	.0042	.0047	.0052	.0070	.0070	.0111	.0128
					RPM	5200	4810	4420	3380	3250	2930	2280	2280	1500	1300
					IPM	15	16	19	28	31	31	32	32	33	33

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)

TiN coated tools increase speed ~20%
TiCN coated tools increase speed ~30%

※ For tools with >3xD LOC, reduce feed approximately 50%

ROUGHER, ALUMINUM SPECIFIC (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	7/8	1	1 1/4	1 1/2
N	21-22	Aluminum-wrought alloy	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
					IPM	6	7	11	13	14	15	15	14	16	15
	23-25	Aluminum-cast, alloyed	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
					IPM	6	7	11	13	14	15	15	14	16	15

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)

TiN coated tools increase speed ~20%
TiCN coated tools increase speed ~30%

※ For tools with >3xD LOC, reduce feed approximately 50%

COBALT & HSS END MILLS

RECOMMENDED CUTTING CONDITIONS

HIGH HELIX (MULTI-FLUTE) / SIDE CUTTING / INCH

ISO	VDI 3323	Material Description	Parameter	Diameter (Ø) 1/4	1/4	5/8	5/8	3/4	3/4	1	1	1-1/2	1-1/2	2	2
			Ae	0.08D	0.32D	0.03D	0.3D	0.03D	0.35D	0.02D	0.3D	0.13D	0.05D	0.01D	0.8D
			Ap	1.4D	1.4D	1.6D	1.6D	1.6D	1.6D	1.6D	1.6D	1.05D	1.05D	1.0D	1.0D
P	1-5	Non-alloy steel	SFM	120	105	125	105	100	90	120	105	110	95	115	100
			IPT	.0007	.0008	.0013	.0015	.0016	.0019	.0016	.0018	.0022	.0026	.0025	.0029
			RPM	1840	1600	750	650	520	450	460	400	280	240	220	190
			IPM	4	4	3	3	3	3	3	3	3	3	2	2
	6-9	Low alloy steel	SFM	120	105	125	105	100	90	120	105	110	95	115	100
			IPT	.0007	.0008	.0013	.0015	.0016	.0019	.0016	.0018	.0022	.0026	.0025	.0029
			RPM	1840	1600	750	650	520	450	460	400	280	240	220	190
			IPM	4	4	3	3	3	3	3	3	3	3	2	2
	10-11	High alloyed steel, and tool steel	SFM	80	45	75	65	75	65	75	65	65	60	75	65
			IPT	.0006	.0011	.0014	.0017	.0016	.0019	.0016	.0018	.0021	.0023	.0023	.0027
			RPM	1250	650	460	400	370	320	290	250	170	150	140	120
			IPM	2	2	2	2	2	2	2	2	1	1	1	1
M	12-14	Stainless steel	SFM	65	35	65	55	60	50	65	55	60	50	60	50
			IPT	.0006	.0010	.0012	.0014	.0016	.0018	.0015	.0017	.0022	.0025	.0024	.0028
			RPM	980	510	390	340	300	260	240	210	150	130	120	100
			IPM	2	2	1	1	1	1	1	1	1	1	1	1
K	15-16	Grey cast iron	SFM	135	70	135	120	125	110	135	115	125	110	135	120
			IPT	.0008	.0014	.0016	.0019	.0022	.0025	.0021	.0024	.0028	.0032	.0028	.0032
			RPM	2050	1100	840	730	630	550	510	440	320	280	260	230
			IPM	5	5	4	4	4	4	4	4	4	4	3	3
	17-18	Nodular cast iron	SFM	135	70	135	120	125	110	135	115	125	110	135	120
			IPT	.0008	.0014	.0016	.0019	.0022	.0025	.0021	.0024	.0028	.0032	.0028	.0032
			RPM	2050	1100	840	730	630	550	510	440	320	280	260	230
			IPM	5	5	4	4	4	4	4	4	4	4	3	3
	19-20	Low alloy steel	SFM	135	70	135	120	125	110	135	115	125	110	135	120
			IPT	.0008	.0014	.0016	.0019	.0022	.0025	.0021	.0024	.0028	.0032	.0028	.0032
			RPM	2050	1100	840	730	630	550	510	440	320	280	260	230
			IPM	5	5	4	4	4	4	4	4	4	4	3	3

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)

TiN coated tools increase speed ~20%
TiCN coated tools increase speed ~30%
TiAlN coated tools increase speed ~40%

※ For tools with >3xD LOC, reduce feed approximately 50%

COBALT & HSS END MILLS

RECOMMENDED CUTTING CONDITIONS

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	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
			IPM	1.8	1.6	1.8	1.6	1.6	1.6	1.5	1.5	1.4	1.4	1.4	1.2	1.2
	2		SFM	50	50	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	120	100	100
			IPM	1.4	1.2	1.3	1.2	1.2	1.2	1.1	1.1	1	1	1	0.9	0.9
	3-4		SFM	35	35	35	35	35	35	35	35	35	35	35	35	35
			IPT	.0009	.0010	.0013	.0015	.0018	.0019	.0023	.0025	.0028	.0031	.0000	.0000	.0036
			RPM	290	250	200	170	140	130	110	100	90	80	80	70	70
			IPM	1	1	1	1	1	1	1	1	1	1	0	0	1
	5		SFM	50	45	45	50	45	45	50	45	45	45	45	45	45
			IPT	.0004	.0006	.0015	.0017	.0024	.0027	.0045	.0056	.0071	.0083	.0083	.0083	.0083
			RPM	800	560	450	400	280	250	220	180	140	120	120	120	120
			IPM	1	1	2	2	2	2	3	3	3	3	3	3	3
	6	Low alloy steel	SFM	50	50	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	120	100	100
			IPM	1.4	1.2	1.3	1.2	1.2	1.2	1.1	1.1	1	1	1	0.9	0.9
	7		SFM	35	35	35	35	35	35	35	35	35	35	35	35	35
			IPT	.0009	.0010	.0013	.0015	.0018	.0019	.0023	.0025	.0028	.0031	.0000	.0000	.0036
			RPM	290	250	200	170	140	130	110	100	90	80	80	70	70
			IPM	1	1	1	1	1	1	1	1	1	1	0	0	1
	8-9		SFM	50	45	45	50	45	45	50	45	45	45	45	45	45
			IPT	.0004	.0006	.0015	.0017	.0024	.0027	.0045	.0056	.0071	.0083	.0083	.0083	.0083
			RPM	800	560	450	400	280	250	220	180	140	120	120	120	120
			IPM	1	1	2	2	2	2	3	3	3	3	3	3	3
	10	High alloyed steel, and tool steel	SFM	50	50	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	120	100	100
			IPM	1.4	1.2	1.3	1.2	1.2	1.2	1.1	1.1	1	1	1	0.9	0.9
	11.1		SFM	50	45	45	50	45	45	50	45	45	45	45	45	45
			IPT	.0004	.0006	.0015	.0017	.0024	.0027	.0045	.0056	.0071	.0083	.0083	.0083	.0083
			RPM	800	560	450	400	280	250	220	180	140	120	120	120	120
			IPM	1	1	2	2	2	2	3	3	3	3	3	3	3
N	21-22	Aluminum-wrought alloy	SFM	295	295	295	295	295	295	295	295	295	295	295	295	295
			IPT	.0009	.0009	.0013	.0013	.0016	.0015	.0018	.0019	.0021	.0023	.0022	.0022	.0025
			RPM	2580	2250	1800	1500	1290	1130	1000	900	820	750	690	580	600
			IPM	9	8	9	8	8	7	7	7	7	7	6	5	6
	23-25	Aluminum-cast, alloyed	SFM	295	295	295	295	295	295	295	295	295	295	295	295	295
			IPT	.0009	.0009	.0013	.0013	.0016	.0015	.0018	.0019	.0021	.0023	.0022	.0022	.0025
			RPM	2580	2250	1800	1500	1290	1130	1000	900	820	750	690	580	600
			IPM	9	8	9	8	8	7	7	7	7	7	6	5	6

SFM = Surface Feet per Minute
RPM = Revolutions Per Minute
IPT = Inches Per Tooth
IPM = Inches Per Minute

TiN coated tools increase speed ~20%
TiCN coated tools increase speed ~30%
TiAlN coated tools increase speed ~40%

RECOMMENDED CUTTING CONDITIONS

3-FLUTE (THROW AWAY) / SLOTTING / INCH

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
P	1	Non-alloy steel	1.0D	0.5D	SFM	135	115	120	110	120	120	115	115	120	120
					IPT	.0001	.0003	.0010	.0018	.0024	.0027	.0031	.0040	.0039	.0039
					RPM	5600	3500	1800	1100	900	800	700	500	450	400
					IPM	2	3	5	6	7	7	7	6	5	5
	2		1.0D	0.5D	SFM	110	105	105	90	105	105	90	105	105	105
					IPT	.0001	.0003	.0010	.0020	.0025	.0025	.0032	.0039	.0039	.0039
					RPM	4500	3200	1600	900	800	700	560	450	400	350
					IPM	2	3	5	5	6	5	5	5	5	4
	3-4		1.0D	0.5D	SFM	100	80	80	80	80	80	75	80	80	80
					IPT	.0002	.0003	.0010	.0020	.0025	.0028	.0030	.0039	.0038	.0037
					RPM	4000	2500	1200	800	630	560	450	350	310	280
					IPM	2	2	4	5	5	5	4	4	4	3
	5		1.0D	0.5D	SFM	55	50	50	45	50	50	45	50	45	45
					IPT	.0001	.0003	.0010	.0019	.0025	.0029	.0031	.0039	.0037	.0038
					RPM	2200	1600	800	450	400	350	280	220	180	160
					IPM	1	1	2	3	3	3	3	3	2	2
	6	Low alloy steel	1.0D	0.5D	SFM	110	105	105	90	105	105	90	105	105	105
					IPT	.0001	.0003	.0010	.0020	.0025	.0025	.0032	.0039	.0039	.0039
					RPM	4500	3200	1600	900	800	700	560	450	400	350
					IPM	2	3	5	5	6	5	5	5	5	4
	7		1.0D	0.5D	SFM	100	80	80	80	80	80	75	80	80	80
					IPT	.0002	.0003	.0010	.0020	.0025	.0028	.0030	.0039	.0038	.0037
					RPM	4000	2500	1200	800	630	560	450	350	310	280
					IPM	2	2	4	5	5	5	4	4	4	3
	8-9		1.0D	0.5D	SFM	55	50	50	45	50	50	45	50	45	45
					IPT	.0001	.0003	.0010	.0019	.0025	.0029	.0031	.0039	.0037	.0038
					RPM	2200	1600	800	450	400	350	280	220	180	160
					IPM	1	1	2	3	3	3	3	3	2	2
	10	High alloyed steel, and tool steel	1.0D	0.5D	SFM	110	105	105	90	105	105	90	105	105	105
					IPT	.0001	.0003	.0010	.0020	.0025	.0025	.0032	.0039	.0039	.0039
					RPM	4500	3200	1600	900	800	700	560	450	400	350
					IPM	2	3	5	5	6	5	5	5	5	4
	11.1		1.0D	0.5D	SFM	55	50	50	45	50	50	45	50	45	45
					IPT	.0001	.0003	.0010	.0019	.0025	.0029	.0031	.0039	.0037	.0038
					RPM	2200	1600	800	450	400	350	280	220	180	160
					IPM	1	1	2	3	3	3	3	3	2	2
N	21-22	Aluminum-wrought alloy	1.0D	0.5D	SFM	295	360	365	305	325	325	325	320	315	325
					IPT	.0003	.0005	.0011	.0025	.0030	.0032	.0035	.0042	.0046	.0048
					RPM	12000	11000	5600	3100	2500	2200	2000	1400	1200	1100
					IPM	9	15	19	24	22	21	21	18	17	16
	23-25	Aluminum-cast, alloyed	1.0D	0.5D	SFM	295	360	365	305	325	325	325	320	315	325
					IPT	.0003	.0005	.0011	.0025	.0030	.0032	.0035	.0042	.0046	.0048
					RPM	12000	11000	5600	3100	2500	2200	2000	1400	1200	1100
					IPM	9	15	19	24	22	21	21	18	17	16

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)

TiN coated tools increase speed ~20%
TiCN coated tools increase speed ~30%
TiAlN coated tools increase speed ~40%

※ For tools with >3xD LOC, reduce feed approximately 50%

RECOMMENDED CUTTING CONDITIONS

3-FLUTE (THROW AWAY) / SIDE CUTTING / INCH

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)															
						3/32	1/8	5/32	3/16	1/4	5/16	3/8	1/2	9/16	5/8	11/16	13/16	7/8	1	1-1/8	1-3/16
P	1	Non-alloy steel	0.1D	1.5D	SFM	135	115	115	110	120	115	110	120	120	115	115	120	115	120	120	110
					IPT	.0001	.0003	.0005	.0008	.0010	.0014	.0018	.0024	.0027	.0031	.0032	.0036	.0040	.0039	.0039	.0039
					RPM	5600	3500	2800	2200	1800	1400	1100	900	800	700	630	560	500	450	400	350
					IPM	2	3	4	5	5	6	6	7	7	7	6	6	6	5	5	4
	2		0.1D	1.5D	SFM	110	105	90	90	105	90	90	105	105	90	90	95	105	105	105	95
					IPT	.0001	.0003	.0005	.0007	.0009	.0014	.0017	.0022	.0022	.0028	.0031	.0035	.0035	.0036	.0035	.0033
					RPM	4500	3200	2200	1800	1600	1100	900	800	700	560	500	450	450	400	350	310
					IPM	2	2	3	4	4	5	5	5	5	5	5	5	5	4	4	3
	3-4		0.1D	1.5D	SFM	100	80	75	80	80	75	80	80	80	75	70	85	80	80	80	80
					IPT	.0001	.0002	.0004	.0005	.0007	.0011	.0016	.0020	.0023	.0023	.0026	.0026	.0030	.0028	.0029	.0029
					RPM	4000	2500	1800	1600	1200	900	800	630	560	450	400	400	350	310	280	250
					IPM	1	2	2	3	3	3	4	4	4	3	3	3	3	3	2	2
	5		0.1D	1.5D	SFM	55	50	45	45	50	45	45	50	50	45	45	45	50	45	45	50
					IPT	.0001	.0002	.0004	.0005	.0008	.0012	.0015	.0018	.0021	.0024	.0027	.0030	.0030	.0026	.0025	.0025
					RPM	2200	1600	1100	900	800	560	450	400	350	280	250	220	220	180	160	160
					IPM	1	1	1	1	2	2	2	2	2	2	2	2	2	1	1	1
	6	Low alloy steel	0.1D	1.5D	SFM	110	105	90	90	105	90	90	105	105	90	90	95	105	105	105	95
					IPT	.0001	.0003	.0005	.0007	.0009	.0014	.0017	.0022	.0022	.0028	.0031	.0035	.0035	.0036	.0035	.0033
					RPM	4500	3200	2200	1800	1600	1100	900	800	700	560	500	450	450	400	350	310
					IPM	2	2	3	4	4	5	5	5	5	5	5	5	5	4	4	3
	7		0.1D	1.5D	SFM	100	80	75	80	80	75	80	80	80	75	70	85	80	80	80	80
					IPT	.0001	.0002	.0004	.0005	.0007	.0011	.0016	.0020	.0023	.0023	.0026	.0026	.0030	.0028	.0029	.0029
					RPM	4000	2500	1800	1600	1200	900	800	630	560	450	400	400	350	310	280	250
					IPM	1	2	2	3	3	3	4	4	4	3	3	3	3	3	2	2
	8-9		0.1D	1.5D	SFM	55	50	45	45	50	45	45	50	50	45	45	45	50	45	45	50
					IPT	.0001	.0002	.0004	.0005	.0008	.0012	.0015	.0018	.0021	.0024	.0027	.0030	.0030	.0026	.0025	.0025
					RPM	2200	1600	1100	900	800	560	450	400	350	280	250	220	220	180	160	160
					IPM	1	1	1	1	2	2	2	2	2	2	2	2	2	1	1	1
	10	High alloyed steel, and tool steel	0.1D	1.5D	SFM	110	105	90	90	105	90	90	105	105	90	90	95	105	105	105	95
					IPT	.0001	.0003	.0005	.0007	.0009	.0014	.0017	.0022	.0022	.0028	.0031	.0035	.0035	.0036	.0035	.0033
					RPM	4500	3200	2200	1800	1600	1100	900	800	700	560	500	450	450	400	350	310
					IPM	2	2	3	4	4	5	5	5	5	5	5	5	5	4	4	3
	11.1		0.1D	1.5D	SFM	55	50	45	45	50	45	45	50	50	45	45	45	50	45	45	50
					IPT	.0001	.0002	.0004	.0005	.0008	.0012	.0015	.0018	.0021	.0024	.0027	.0030	.0030	.0026	.0025	.0025
					RPM	2200	1600	1100	900	800	560	450	400	350	280	250	220	220	180	160	160
					IPM	1	1	1	1	2	2	2	2	2	2	2	2	2	1	1	1
N	21-22	Aluminum-wrought alloy	0.1D	1.5D	SFM	295	360	325	310	365	325	305	325	325	325	325	340	320	315	325	340
					IPT	.0002	.0003	.0005	.0007	.0008	.0014	.0019	.0023	.0024	.0026	.0029	.0030	.0032	.0035	.0036	.0036
					RPM	12000	11000	8000	6300	5600	4000	3100	2500	2200	2000	1800	1600	1400	1200	1100	1100
					IPM	7	11	13	14	14	17	18	17	16	16	16	14	13	13	12	12
	23-25	Aluminum-cast, alloyed	0.1D	1.5D	SFM	295	360	325	310	365	325	305	325	325	325	325	340	320	315	325	340
					IPT	.0002	.0003	.0005	.0007	.0008	.0014	.0019	.0023	.0024	.0026	.0029	.0030	.0032	.0035	.0036	.0036
					RPM	12000	11000	8000	6300	5600	4000	3100	2500	2200	2000	1800	1600	1400	1200	1100	1100
					IPM	7	11	13	14	14	17	18	17	16	16	16	14	13	13	12	12

SFM = Surface Feet per Minute
RPM = Revolutions Per Minute
IPT = Inches Per Tooth
IPM = Inches Per Minute

TiN coated tools increase speed ~20%
TiCN coated tools increase speed ~30%
TiAlN coated tools increase speed ~40%

※ For tools with >3xD LOC, reduce feed approximately 50%

POWDER METAL END MILLS
PM60 ONLY ONE

SELECTION GUIDE

ONLY ONE

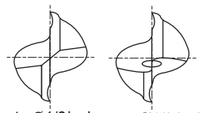
- *PM60 Powder Metal offers the toughness of cobalt and near carbide level performance*
- *Y-coating (same coating as used on YG-1's High-Performance products)*
- *Perfect solution to prevent carbide chipping in less stable applications*

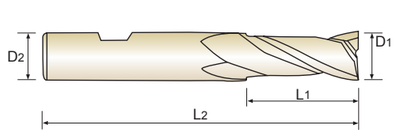
◎ : Excellent ○ : Good

Recommended cutting conditions : P. 202-207

	FLUTE	**2**	**4**	**4**	**4**	**4 & 5**	**3 - 6**	**3 - 6**
	HELIX ANGLE	30°	30°	30°	M-Helix	M-Helix	30°	30°
	CUTTING EDGE SHAPE	SQUARE	BALL NOSE	SQUARE	SQUARE	CORNER RADIUS ROUGHING	ROUGHING	ROUGHING
	SIZE MIN	D1/8	R1/16	D1/8	D1/8	D1/4	D1/4	D1/4
	SIZE MAX	D1	R1/2	D1	D1	D1	D1-1/4	D1-1/4
	PAGE	**198**	**198**	**199**	**199**	**200**	**200**	**201**
	LENGTH	CENTER CUT		CENTER CUT	CENTER CUT	FINE CENTER CUT	FINE CENTER CUT	COARSE CENTER CUT
								
P	1		About 0.15% C	Annealed	125		◎	◎	◎	◎	◎	◎	◎
	2		About 0.45% C	Annealed	190	13	◎	◎	◎	◎	◎	◎	◎
	3	Non-alloy steel	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			Annealed	180	10	◎	◎	◎	◎	◎	◎	◎
	7	Low alloy steel		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		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							

PM60, 2-FLUTE (Center Cut)





PM 60 | 30° | FLAT

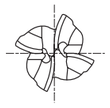
P. 202

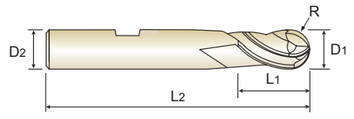
Unit: Inch

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

PM60, 4-FLUTE BALL NOSE





PM 60 | 4 | 30° | R ±.001 | FLAT

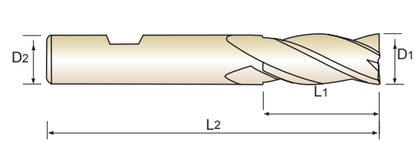
P. 203

Unit: Inch

EDP No.	Mill Diameter	Radius of Ball Nose	Shank Diameter	Length of Cut	Overall Length
Y-COATED	D1	R	D2	L1	L2
GYG67008	1/8	R1/16	3/8	3/8	2-5/16
GYG67012	3/16	R3/32	3/8	1/2	2-3/8
GYG67016	1/4	R1/8	3/8	5/8	2-7/16
GYG67020	5/16	R5/32	3/8	3/4	2-1/2
GYG67024	3/8	R3/16	3/8	3/4	2-1/2
GYG67032	1/2	R1/4	1/2	1-1/4	3-1/4
GYG67040	5/8	R5/16	5/8	1-5/8	3-3/4
GYG67048	3/4	R3/8	3/4	1-5/8	3-7/8
GYG67064	1	R1/2	1	2	4-1/2

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
0~-.0012	h6

PM60, 4-FLUTE (Center Cut)



PM 60 | 4 | 30° | FLAT

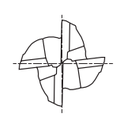
P. 204

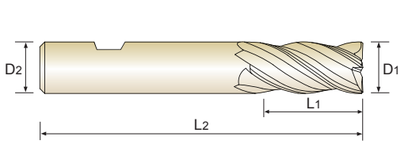
Unit: Inch

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

PM60, 4-FLUTE MULTIPLE HELIX (Center Cut)





PM 60 | 4 | 35°/37° | FLAT

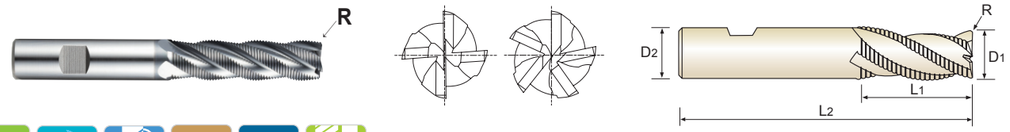
P. 205

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

PM60, MULTI-FLUTE MULTIPLE HELIX CORNER RADIUS ROUGHING - FINE (Center Cut)



PM 60 | 4-5 | 44°/45° | FINE | FLAT

5 Flute, 44°/44.5°/45°

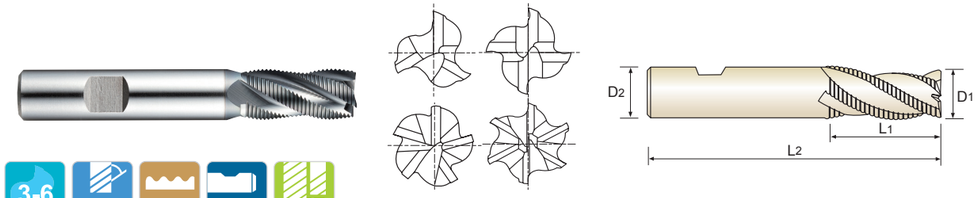
P. 206

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

PM60, MULTI-FLUTE ROUGHING- FINE (Center Cut)



PM 60 | 3-6 | 30° | FINE | FLAT

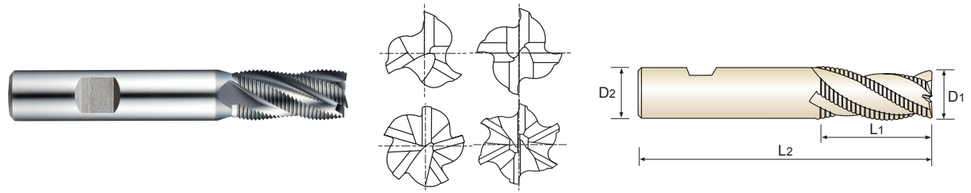
P. 207

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		3/8	1-3/8	3_3/16	3
GYG68024	**3/8**	3/8	3/4	2-1/2	4
GYG68902		3/8	1-1/2	3-1/4	4
GYG68032	**1/2**	1/2	1-1/4	3-1/4	4
GYG68903		1/2	2	4	4
GYG68040	**5/8**	5/8	1-5/8	3-3/4	4
GYG68904		5/8	2-1/2	4-5/8	4
GYG68048	**3/4**	3/4	1-5/8	3-7/8	4
GYG68905		3/4	2-1/2	4-3/4	4
GYG68906		3/4	3	5-1/4	4
GYG68064	**1**	1	2	4-1/2	5
GYG68907		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

PM60, MULTI-FLUTE ROUGHING- COARSE (Center Cut)



PM 60 | 3-6 | 30° | COARSE | FLAT

P. 207

Unit: Inch

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
Y-COATED	D1	D2	L1	L2	
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

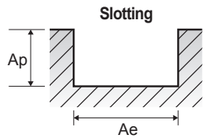
Mill Dia. Tolerance (inch)	
up to 1	0~+.0030
over 1	0~+.0060

RECOMMENDED CUTTING CONDITIONS

2 FLUTE / 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
					IPM	7	13	12	13	15	12	13	11	7
	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
					IPM	6	10	9	11	13	11	9	8	7
	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
					IPM	5	9	9	10	11	9	9	7	5
	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
					IPM	3	5	5	6	6	5	5	5	4
	6	Low alloy steel	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
					IPM	6	10	9	11	13	11	9	8	7
	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
					IPM	5	9	9	10	11	9	9	7	5
	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
					IPM	3	5	5	6	6	5	5	5	4
	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
					IPM	3	4	4	4	5	4	4	4	2
	10	High alloyed steel, and tool steel	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
					IPM	6	10	9	11	13	11	9	8	7
	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
					IPM	3	5	5	6	6	5	5	5	4
	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
					IPM	2	3	3	3	4	3	3	3	2
M	14.1	Stainless steel	1.0D	0.5D	SFM	70	90	95	100	95	95	95	100	85
					IPT	.0007	.0011	.0014	.0019	.0028	.0028	.0036	.0040	.0038
					RPM	2210	1870	1450	1200	970	730	580	500	330
					IPM	3	4	4	4	5	4	4	4	3
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
					IPM	6	10	9	11	13	11	9	8	7
H	40	Hardened Cast Iron	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
					IPM	2	3	3	3	4	3	3	3	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)

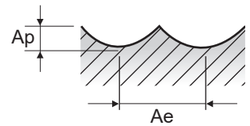


RECOMMENDED CUTTING CONDITIONS

4 FLUTE / 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	Low alloy steel	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	High alloyed steel, and tool steel	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	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)

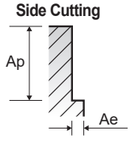


RECOMMENDED CUTTING CONDITIONS

4-FLUTE / 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	Low alloy steel	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	High alloyed steel, and tool steel	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	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	9	8	7	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

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)

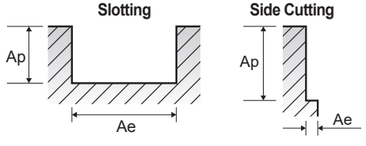


RECOMMENDED CUTTING CONDITIONS

4-FLUTE / SLOTTING & SIDE CUTTING / INCH

ISO	VDI 3323	Material Description	SLOTTING Ae	SLOTTING Ap	SIDE CUTTING Ae	SIDE CUTTING Ap	Parameter	Diameter (Ø) 1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	1
P	1-2	Non-alloy steel	1.0D	0.5D	0.3D	1.5D	SFM	230	230	230	230	250	255	250	255	255
							IPT	.0002	.0005	.0006	.0011	.0015	.0019	.0021	.0026	.0025
							RPM	7020	4680	3510	2810	2570	1930	1540	1290	970
							IPM	6	9	9	12	16	14	13	13	10
	3-4		1.0D	0.5D	0.3D	1.5D	SFM	210	205	210	210	230	230	230	230	230
							IPT	.0002	.0004	.0006	.0011	.0015	.0019	.0021	.0026	.0025
							RPM	6420	4210	3210	2570	2340	1750	1400	1170	880
							IPM	5	7	8	11	14	13	12	12	9
	5		1.0D	0.5D	0.3D	1.5D	SFM	145	145	145	145	160	160	160	160	160
							IPT	.0002	.0004	.0006	.0011	.0015	.0018	.0021	.0026	.0026
							RPM	4410	2940	2210	1760	1640	1230	980	820	610
							IPM	3	5	6	8	10	9	8	9	6
	6	Low alloy steel	1.0D	0.5D	0.3D	1.5D	SFM	230	230	230	230	250	255	250	255	255
							IPT	.0002	.0005	.0006	.0011	.0015	.0019	.0021	.0026	.0025
							RPM	7020	4680	3510	2810	2570	1930	1540	1290	970
							IPM	6	9	9	12	16	14	13	13	10
	7		1.0D	0.5D	0.3D	1.5D	SFM	210	205	210	210	230	230	230	230	230
							IPT	.0002	.0004	.0006	.0011	.0015	.0019	.0021	.0026	.0025
							RPM	6420	4210	3210	2570	2340	1750	1400	1170	880
							IPM	5	7	8	11	14	13	12	12	9
	8		1.0D	0.5D	0.3D	1.5D	SFM	145	145	145	145	160	160	160	160	160
							IPT	.0002	.0004	.0006	.0011	.0015	.0018	.0021	.0026	.0026
							RPM	4410	2940	2210	1760	1640	1230	980	820	610
							IPM	3	5	6	8	10	9	8	9	6
	9		1.0D	0.5D	0.15D	1.5D	SFM	90	90	90	90	100	95	100	100	95
							IPT	.0002	.0004	.0006	.0009	.0013	.0016	.0017	.0022	.0021
							RPM	2710	1800	1350	1080	1000	730	600	500	360
							IPM	2	3	3	4	5	5	4	4	3
	10	High alloyed steel, and tool steel	1.0D	0.5D	0.3D	1.5D	SFM	230	230	230	230	250	255	250	255	255
							IPT	.0002	.0005	.0006	.0011	.0015	.0019	.0021	.0026	.0025
							RPM	7020	4680	3510	2810	2570	1930	1540	1290	970
							IPM	6	9	9	12	16	14	13	13	10
	11.1		1.0D	0.5D	0.3D	1.5D	SFM	145	145	145	145	160	160	160	160	160
							IPT	.0002	.0004	.0006	.0011	.0015	.0018	.0021	.0026	.0026
							RPM	4410	2940	2210	1760	1640	1230	980	820	610
							IPM	3	5	6	8	10	9	8	9	6
	11.2		1.0D	0.3D	0.15D	1.5D	SFM	90	90	90	90	100	95	100	100	95
							IPT	.0002	.0004	.0006	.0009	.0013	.0016	.0017	.0022	.0021
							RPM	2710	1800	1350	1080	1000	730	600	500	360
							IPM	2	3	3	4	5	5	4	4	3
M	14.1	Stainless steel	1.0D	0.5D	0.3D	1.5D	SFM	155	160	160	160	155	155	155	155	155
							IPT	.0002	.0005	.0007	.0011	.0019	.0022	.0025	.0030	.0031
							RPM	4810	3210	2410	1930	1600	1200	960	800	600
							IPM	4	7	7	9	12	11	10	10	7
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	1.0D	0.5D	0.3D	1.5D	SFM	230	230	230	230	250	255	250	255	255
							IPT	.0002	.0005	.0006	.0011	.0015	.0019	.0021	.0026	.0025
							RPM	7020	4680	3510	2810	2570	1930	1540	1290	970
							IPM	6	9	9	12	16	14	13	13	10
H	40	Chilled Cast Iron	1.0D	0.3D	0.15D	1.5D	SFM	90	90	90	90	100	95	100	100	95
							IPT	.0002	.0004	.0006	.0009	.0013	.0016	.0017	.0022	.0021
							RPM	2710	1800	1350	1080	1000	730	600	500	360
							IPM	2	3	3	4	5	5	4	4	3

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)



RECOMMENDED CUTTING CONDITIONS

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
P	1	Non-alloy steel	0.5D	1.5D	SFM	250	285	280	285	285	285	295
					IPT	.0008	.0012	.0022	.0026	.0027	.0035	.0041
					RPM	3810	3490	2870	2180	1740	1450	1130
					IPM	12	16	25	22	24	25	23
	2		0.5D	1.5D	SFM	195	225	225	215	225	225	225
					IPT	.0008	.0012	.0021	.0027	.0027	.0034	.0042
					RPM	3010	2770	2270	1630	1380	1140	850
					IPM	10	13	19	18	19	19	18
	3-4		0.5D	1.5D	SFM	140	170	155	160	155	155	155
					IPT	.0007	.0011	.0018	.0025	.0027	.0034	.0042
					RPM	2160	2050	1570	1230	960	800	590
					IPM	6	9	11	12	13	14	12
	5		0.5D	1.5D	SFM	115	125	130	130	130	130	135
					IPT	.0008	.0012	.0018	.0024	.0026	.0032	.0040
					RPM	1750	1520	1340	1000	800	670	510
					IPM	6	7	9	10	10	11	10
	6	Low alloy steel	0.5D	1.5D	SFM	195	225	225	215	225	225	225
					IPT	.0008	.0012	.0021	.0027	.0027	.0034	.0042
					RPM	3010	2770	2270	1630	1380	1140	850
					IPM	10	13	19	18	19	19	18
	7		0.5D	1.5D	SFM	140	170	155	160	155	155	155
					IPT	.0007	.0011	.0018	.0025	.0027	.0034	.0042
					RPM	2160	2050	1570	1230	960	800	590
					IPM	6	9	11	12	13	14	12
	8-9		0.5D	1.5D	SFM	115	125	130	130	130	130	135
					IPT	.0008	.0012	.0018	.0024	.0026	.0032	.0040
					RPM	1750	1520	1340	1000	800	670	510
					IPM	6	7	9	10	10	11	10
	10	High alloyed steel, and tool steel	0.5D	1.5D	SFM	195	225	225	215	225	225	225
					IPT	.0008	.0012	.0021	.0027	.0027	.0034	.0042
					RPM	3010	2770	2270	1630	1380	1140	850
					IPM	10	13	19	18	19	19	18
	11.1		0.5D	1.5D	SFM	115	125	130	130	130	130	135
					IPT	.0008	.0012	.0018	.0024	.0026	.0032	.0040
					RPM	1750	1520	1340	1000	800	670	510
					IPM	6	7	9	10	10	11	10
	11.2		0.3D	1.5D	SFM	80	90	90	90	90	90	90
					IPT	.0008	.0011	.0017	.0024	.0026	.0031	.0039
					RPM	1250	1080	940	700	560	470	350
					IPM	4	5	6	7	7	7	7
M	14.1	Stainless steel	0.5D	1.5D	SFM	130	140	140	140	140	145	145
					IPT	.0007	.0012	.0018	.0025	.0027	.0033	.0041
					RPM	1960	1720	1440	1080	860	740	550
					IPM	6	8	10	11	12	12	11
K	15-20	Grey cast iron Nodular cast iron Malleable cast iron	0.5D	1.5D	SFM	195	225	225	215	225	225	225
					IPT	.0008	.0012	.0021	.0027	.0027	.0034	.0042
					RPM	3010	2770	2270	1630	1380	1140	850
					IPM	10	13	19	18	19	19	18
H	40	Hardened Cast Iron	0.3D	1.5D	SFM	80	90	90	90	90	90	90
					IPT	.0008	.0011	.0017	.0024	.0026	.0031	.0039
					RPM	1250	1080	940	700	560	470	350
					IPM	4	5	6	7	7	7	7

SFM = Surface Feet per Minute
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Ap : Inch (Axial Depth of Cut)
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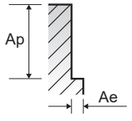
Side Cutting



ONLY ONE

RECOMMENDED CUTTING CONDITIONS

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
					IPM	10	14	21	18	20	21	19	18
	2		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
					IPM	8	11	16	15	16	16	15	13
	3-4		0.5D	1.5D	SFM	120	135	130	135	130	130	130	90
					IPT	.0009	.0015	.0018	.0025	.0034	.0042	.0042	.0045
					RPM	1800	1680	1340	1030	800	670	490	350
					IPM	5	8	10	10	11	11	10	9
	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
					IPM	5	6	8	8	8	9	8	8
	6	Low alloy steel	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
					IPM	8	11	16	15	16	16	15	13
	7		0.5D	1.5D	SFM	120	135	130	135	130	130	130	90
					IPT	.0009	.0015	.0018	.0025	.0034	.0042	.0042	.0045
					RPM	1800	1680	1340	1030	800	670	490	350
					IPM	5	8	10	10	11	11	10	9
	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
					IPM	5	6	8	8	8	9	8	8
	10	High alloyed steel, and tool steel	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
					IPM	8	11	16	15	16	16	15	13
	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
					IPM	5	6	8	8	8	9	8	8
	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
					IPM	3	4	6	5	6	6	6	5
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
					IPM	5	7	9	9	10	10	9	9
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
					IPM	8	11	16	15	16	16	15	13
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
					IPM	3	4	6	5	6	6	6	5

SFM = Surface Feet per Minute
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Ap : Inch (Axial Depth of Cut)
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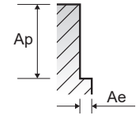
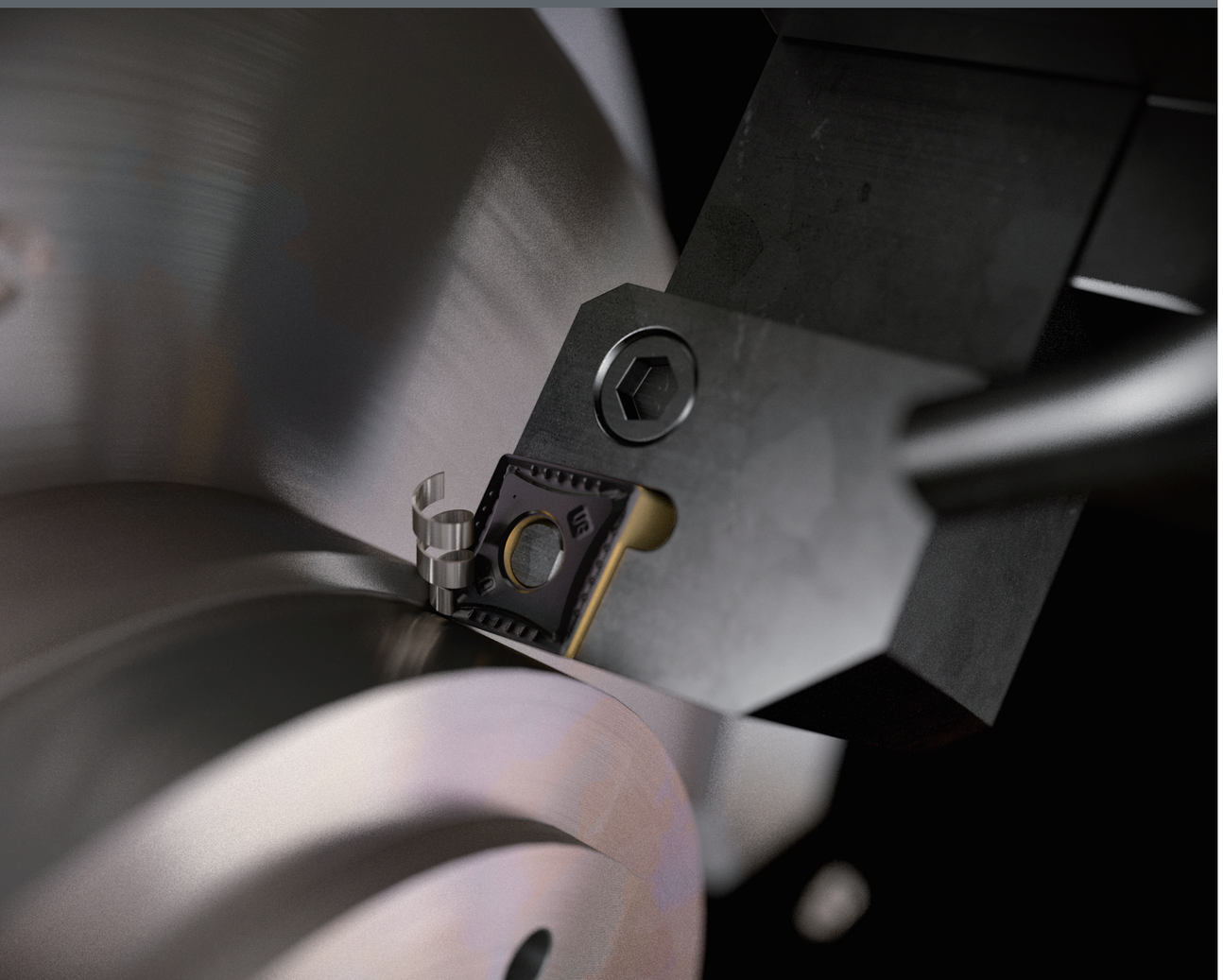
Side Cutting

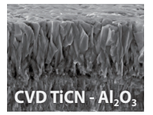
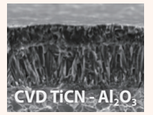
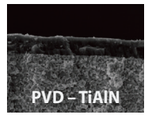


Holemaking
Threading
Milling
Indexable
Rotary Tool Holder

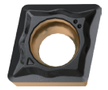
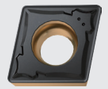
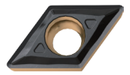
INDEXABLE INSERTS



Turning Grades

YG1010 K05 - K15		**First Choice for Cast Iron** • Effective coating structure enables high speed machining • Special post treatment for improved chipping resistance
YG3020 P15 - P30		**First Choice Grade for General Steel Application** • Substrate especially designed for good toughness • Excellent surface smoothness increases wear resistance and reliability
YG213 M20 - M35		**First Choice Grade on Low Cutting Speed of Stainless steel** • First choice on Stainless steel for Low cutting speed • For Medium to low cutting speed

Turning - CCMT DCMT

Series		EDP	Description		Grade
			Metric	Inch	
CCMT	 UF	**22000164**	CCMT060204-UF	CCMT21.51-UF	YG3020
		22000170	CCMT09T304-UF	CCMT32.51-UF	
		22000951	CCMT09T308-UF	CCMT32.52-UF	
	 UG	**22001553**	CCMT09T308-UG	CCMT32.52-UG	YG1010
		22000167	CCMT060204-UG	CCMT21.51-UG	YG3020
		22000683	CCMT060208-UG	CCMT21.52-UG	
		22000173	CCMT09T304-UG	CCMT32.51-UG	
		22000151	CCMT09T308-UG	CCMT32.52-UG	
		22000176	CCMT120404-UG	CCMT431-UG	
		22000154	CCMT120408-UG	CCMT432-UG	
		22000915	CCMT120412-UG	CCMT433-UG	
DCMT	 UF	**22000208**	DCMT070204-UF	DCMT21.51-UF	YG3020
		22000214	DCMT11T304-UF	DCMT32.51-UF	
		22000220	DCMT11T308-UF	DCMT32.52-UF	
	 UG	**22001831**	DCMT11T304-UG	DCMT32.51-UG	YG1010
		22001832	DCMT11T308-UG	DCMT32.52-UG	
		22000211	DCMT070204-UG	DCMT21.51-UG	YG3020
		22000717	DCMT070208-UG	DCMT21.52-UG	
		22000217	DCMT11T304-UG	DCMT32.51-UG	
		22000223	DCMT11T308-UG	DCMT32.52-UG	

Turning - RCMT / SCMT / TCMT

Series		EDP	Description		Grade
			Metric	Inch	
RCMT		**22002057**	RCMT0602M0		YG1010
		22002058	RCMT0803M0		
		22002059	RCMT10T3M0		
		22001833	RCMT1204M0		
		22000376	RCMT0602M0		YG3020
		22000379	RCMT0803M0		
		22000382	RCMT10T3M0		
		22000385	RCMT1204M0		
SCMT	 UF	**22000387**	SCMT09T304-UF	SCMT32.51-UF	YG3020
		22001022	SCMT09T308-UF	SCMT32.52-UF	
	 UG	**22001834**	SCMT09T304-UG	SCMT32.51-UG	YG1010
		22001835	SCMT09T308-UG	SCMT32.52-UG	
		22001836	SCMT120408-UG	SCMT432-UG	
		22000916	SCMT09T304-UG	SCMT32.51-UG	YG3020
		22000160	SCMT09T308-UG	SCMT32.52-UG	
		22000256	SCMT120408-UG	SCMT432-UG	
TCMT	 UF	**22000396**	TCMT110204-UF	TCMT21.51-UF	YG3020
		22000398	TCMT16T304-UF	TCMT32.51-UF	
		22000625	TCMT16T308-UF	TCMT32.52-UF	
	 UG	**22001839**	TCMT110204-UG	TCMT21.51-UG	YG1010
		22001840	TCMT16T304-UG	TCMT32.51-UG	
		22001841	TCMT16T308-UG	TCMT32.52-UG	
		22000265	TCMT110204-UG	TCMT21.51-UG	YG3020
		22000715	TCMT110208-UG	TCMT21.52-UG	
		22000268	TCMT16T304-UG	TCMT32.51-UG	
		22000157	TCMT16T308-UG	TCMT32.52-UG	

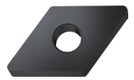
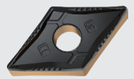
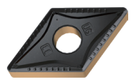
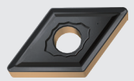
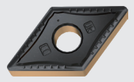
Turning - VBMT / VCMT

Series		EDP	Description		Grade
			Metric	Inch	
VBMT	 UF	**22000295**	VBMT160404-UF	VBMT331-UF	YG3020
		22000301	VBMT160408-UF	VBMT332-UF	
	 UG	**22001842**	VBMT160404-UG	VBMT331-UG	YG1010
		22001843	VBMT160408-UG	VBMT332-UG	
		22000298	VBMT160404-UG	VBMT331-UG	YG3020
		22000304	VBMT160408-UG	VBMT332-UG	
VCMT	 UF	**22000421**	VCMT160404-UF	VCMT331-UF	YG3020
		22000558	VCMT160408-UF	VCMT332-UF	
	 UG	**22000422**	VCMT160408-UG	VCMT332-UG	YG3020

Turning - CNMA / CNMG

Series		EDP	Description		Grade
			Metric	Inch	
CNMA	 NMA	**22000894**	CNMA120404	CNMA431	YG1010
		22001484	CNMA120408	CNMA432	
		22000777	CNMA120412	CNMA433	
		22001207	CNMA120416	CNMA434	
CNMG	 UF	**22000179**	CNMG120404-UF	CNMG431-UF	YG3020
		22000190	CNMG120408-UF	CNMG432-UF	
		22001360	CNMG120412-UF	CNMG433-UF	
	 UM	**22000185**	CNMG120404-UM	CNMG431-UM	YG3020
		22000100	CNMG120408-UM	CNMG432-UM	
		22000486	CNMG120412-UM	CNMG433-UM	
	 UG	**22000182**	CNMG120404-UG	CNMG431-UG	YG3020
		22000099	CNMG120408-UG	CNMG432-UG	
		22000199	CNMG120412-UG	CNMG433-UG	
	 UC	**22000895**	CNMG120404-UC	CNMG431-UC	YG1010
		22000865	CNMG120408-UC	CNMG432-UC	
		22000873	CNMG120412-UC	CNMG433-UC	
	 UR	**22000196**	CNMG120408-UR	CNMG432-UR	YG3020
		22000205	CNMG120412-UR	CNMG433-UR	
		22000623	CNMG120416-UR	CNMG434-UR	
	 KR	**22001503**	CNMG120408-KR	CNMG432-KR	YG1010
		22000879	CNMG120412-KR	CNMG433-KR	
	 MF	**22000613**	CNMG120404-MF	CNMG431-MF	YG213
		22000539	CNMG120408-MF	CNMG432-MF	
	 MM	**22000548**	CNMG120404-MM	CNMG431-MM	YG213
		22000495	CNMG120408-MM	CNMG432-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 - DNMA / DNMG

Series		EDP	Description		Grade
			Metric	Inch	
DNMA	 NMA	**22001558**	DNMA150404	DNMA431	YG1010
		22001559	DNMA150408	DNMA432	
		22001421	DNMA150412	DNMA433	
DNMG	 UF	**22000364**	DNMG150404-UF	DNMG431-UF	YG3020
		22000774	DNMG150408-UF	DNMG432-UF	
		22001368	DNMG150412-UF	DNMG433-UF	
	 UG	**22000772**	DNMG150404-UG	DNMG431-UG	YG3020
		22000367	DNMG150408-UG	DNMG432-UG	
		22000487	DNMG150412-UG	DNMG433-UG	
	 UC	**22001611**	DNMG150408-UC	DNMG432-UC	YG1010
		22001512	DNMG150412-UC	DNMG433-UC	
	 UM	**22000689**	DNMG150408-UM	DNMG432-UM	YG3020
		22000488	DNMG150412-UM	DNMG433-UM	
	 UR	**22001096**	DNMG150408-UR	DNMG432-UR	YG3020
		22001134	DNMG150412-UR	DNMG433-UR	
	 MF	**22000771**	DNMG150404-MF	DNMG431-MF	YG213
	 MM	**22000552**	DNMG150404-MM	DNMG431-MM	YG213
		22000514	DNMG150408-MM	DNMG432-MM	
		22000562	DNMG150412-MM	DNMG433-MM	
	 MR	**22000808**	DNMG150408-MR	DNMG432-MR	YG213
		22000930	DNMG150412-MR	DNMG433-MR	

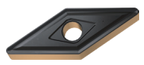
Turning - SNMA / SNMG

Series		EDP	Description		Grade
			Metric	Inch	
SNMA	 NMA	**22000767**	SNMA120408	SNMA432	YG1010
		22000768	SNMA120412	SNMA433	
SNMG	 UF	**22001459**	SNMG120404-UF	SNMG431-UF	YG3020
		22001433	SNMG120408-UF	SNMG432-UF	
	 UM	**22000784**	SNMG120408-UM	SNMG432-UM	YG3020
	 UG	**22000142**	SNMG120408-UG	SNMG432-UG	YG3020
		22000259	SNMG120412-UG	SNMG433-UG	
		22001169	SNMG120416-UG	SNMG434-UG	
	 UC	**22000899**	SNMG120408-UC	SNMG432-UC	YG1010
		22000900	SNMG120412-UC	SNMG433-UC	
	 KR	**22001064**	SNMG120412-KR	SNMG433-KR	YG1010
		22001208	SNMG120416-KR	SNMG434-KR	
	 MF	**22000979**	SNMG120404-MF	SNMG431-MF	YG213
		22000654	SNMG120408-MF	SNMG432-MF	
		22000656	SNMG120412-MF	SNMG433-MF	
	 MM	**22000556**	SNMG120408-MM	SNMG432-MM	YG213
		22000566	SNMG120412-MM	SNMG433-MM	
	 MR	**22000658**	SNMG120408-MR	SNMG432-MR	YG213
		22000660	SNMG120412-MR	SNMG433-MR	

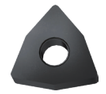
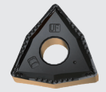
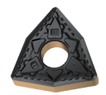
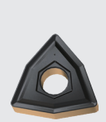
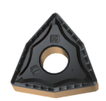
Turning - TNMA / TNMG

Series		EDP	Description		Grade
			Metric	Inch	
TNMA	 NMA	**22001582**	TNMA160404	TMNA331	YG1010
		22001486	TNMA160408	TNMA332	
		22001485	TNMA160412	TNMA333	
TNMG	 UF	**22000271**	TNMG160404-UF	TNMG331-UF	YG3020
		22000277	TNMG160408-UF	TNMG332-UF	
		22000588	TNMG160412-UF	TNMG333-UF	
	 UG	**22000274**	TNMG160404-UG	TNMG331-UG	YG3020
		22000145	TNMG160408-UG	TNMG332-UG	
		22000587	TNMG160412-UG	TNMG333-UG	
	 UC	**22001316**	TNMG160404-UC	TNMG331-UC	YG1010
		22000901	TNMG160408-UC	TNMG332-UC	
		22000902	TNMG160412-UC	TNMG333-UC	
	 UM	**22000952**	TNMG160404-UM	TNMG331-UM	YG3020
		22000283	TNMG160408-UM	TNMG332-UM	
		22000586	TNMG160412-UM	TNMG333-UM	
	 UR	**22000670**	TNMG160408-UR	TNMG332-UR	YG3020
		22000405	TNMG160412-UR	TNMG333-UR	
	 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	

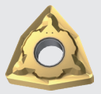
Turning - VNMA / VNMG

Series		EDP	Description		Grade
			Metric	Inch	
VNMA	 NMA	**22001573**	VNMA160408	VNMA332	YG1010
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	**22000940**	VNMG160404-UG	VNMG331-UG	YG3020
		22000313	VNMG160408-UG	VNMG332-UG	
		22000927	VNMG160412-UG	VNMG333-UG	
	 UC	**22001612**	VNMG160404-UC	VNMG331-UC	YG1010
		22000980	VNMG160408-UC	VNMG332-UC	
		22001587	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	
WNMA	 NMA	**22000903**	WNMA080404	WNMA431	YG1010
		22000904	WNMA080408	WNMA432	
		22000905	WNMA080412	WNMA433	
WNMG	 UF	**22000316**	WNMG080404-UF	WNMG431-UF	YG3020
		22000322	WNMG080408-UF	WNMG432-UF	
		22001410	WNMG080412-UF	WNMG433-UF	
	 UM	**22000787**	WNMG080404-UM	WNMG431-UM	YG3020
		22000328	WNMG080408-UM	WNMG432-UM	
		22000598	WNMG080412-UM	WNMG433-UM	
		22000584	WNMG080416-UM	WNMG434-UM	
	 UC	**22000906**	WNMG080404-UC	WNMG431-UC	YG1010
		22000907	WNMG080408-UC	WNMG432-UC	
		22000909	WNMG080412-UC	WNMG433-UC	
		22001187	WNMG080416-UC	WNMG434-UC	
	 UG	**22000319**	WNMG080404-UG	WNMG431-UG	YG3020
		22000148	WNMG080408-UG	WNMG432-UG	
		22000490	WNMG080412-UG	WNMG433-UG	
		22000583	WNMG080416-UG	WNMG434-UG	
	 UR	**22000471**	WNMG080408-UR	WNMG432-UR	YG3020
		22000443	WNMG080412-UR	WNMG433-UR	
		22000725	WNMG080416-UR	WNMG434-UR	
	 KR	**22000932**	WNMG080408-KR	WNMG432-KR	YG1010
		22000933	WNMG080412-KR	WNMG433-KR	

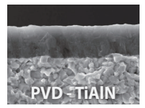
Turning - WNMG (continued)

Series		EDP	Description		Grade
			Metric	Inch	
WNMG	 MF	**22000668**	WNMG080404-MF	WNMG431-MF	YG213
		22000618	WNMG080408-MF	WNMG432-MF	
	 MM	**22000572**	WNMG080404-MM	WNMG431-MM	YG213
		22000498	WNMG080408-MM	WNMG432-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 Grades

YG602

P20 - P35 | M20 - M40 | K20 - K40 | S15 - S25



Universal grade for General Milling Application

- Ultra Dense PVD Coating with optimal thermal resistance & strength
- Sub-Micron substrate designed for demanding application

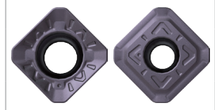
Milling - APKT / RDKT

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	**12000492**	APKT160404-TR		YG602
		12000256	APKT160408-TR		
		12000493	APKT160412-TR		
		12000472	APKT160416-TR		
		12000494	APKT160424-TR		
RDKT		**12000035**	RDKT0802M0		YG602
		12000041	RDKT10T3M0		
		12000034	RDKT1204M0		
	 TR	**12000284**	RDKT0802M0-TR		YG602
		12000285	RDKT10T3M0-TR		
		12000272	RDKT1204M0-TR		
	 ST	**12000292**	RDKT0802M0-ST		YG602
		12000293	RDKT10T3M0-ST		
		12000294	RDKT1204M0-ST		

Milling - RDKW / RPMT / RPMW

Series		EDP	Description		Grade
			Metric	Inch	
RDKW		12000043	RDKW0802M0		YG602
		12000040	RDKW10T3M0		
		12000042	RDKW1204M0		
RPMT		12000038	RPMT08T2M0		YG602
		12000036	RPMT10T3M0		
		12000037	RPMT1204M0		
		12000230	RPMT1204M0-ST		
RPMW		12000204	RPMW1003M0		YG602
		12000039	RPMW1204M0		

Milling - SEKT / SPKN / SPKR / TPKN / TPKR

Series		EDP	Description		Grade
			Metric	Inch	
SEKT		12000056	SEKT12T3AGTN		YG602
		12000057	SEKT13T3AGTN		
		12000055	SEKT1204AFTN		
	 ST	12000271	SEKT12T3-ST		YG602
		12000257	SEKT1204-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	

INDEXABLE INSERTS – KITS

APKT

Series	EDP	Contents of Kit	
		Cutter Body	Inserts
APKT10	**KIT EM 0.625X.625-10**	E90-APKT10-D0625Z2W0625-L350I	APKT100305PDTR (10 inserts)
	KIT EM 0.750X.750-10	E90-APKT10-D075Z3W075-L320I	APKT100305PDTR (10 inserts)
	KIT EM 1.00X.75-10	E90-APKT10-D100Z4C075-L350I	APKT100305PDTR (10 inserts)
	KIT EM 1.00X1.00-10	E90-APKT10-D100Z4W100-L350I	APKT100305PDTR (10 inserts)
	KIT FM 1.50-4FL-10	F90-APKT10-D150Z4S075I	APKT100305PDTR (10 inserts)
	KIT FM 2.00-7FL-10	F90-APKT10-D200Z7S075I	APKT100305PDTR (20 inserts)
APKT16	**KIT EM 1.00X1.00-16**	E90-APKT16-D100Z2W100-L400I	APKT160408PDTR (10 inserts)
	KIT EM 1.25X1.00-16	E90-APKT16-D125Z3C100-L428I	APKT160408PDTR (10 inserts)
	KIT FM 2.00-5FL-16	F90-APKT16-D200Z5S075I	APKT160408PDTR (20 inserts)
	KIT FM 2.50-6FL-16	F90-APKT16-D250Z6S075I	APKT160408PDTR (20 inserts)
	KIT FM 3.00-7FL-16	F90-APKT16-D300Z7S100I	APKT160408PDTR (20 inserts)
	KIT FM 4.00-8FL-16	F90-APKT16-D400Z8S150I	APKT160408PDTR (20 inserts)

RDKT / SEKT

Series	EDP	Contents of Kit	
		Cutter Body	Inserts
RDKT	**KIT R08E-D075Z2**	E-RDKT08-D075Z2C075-L700i	RDKT0802M0 YG602 (10 inserts)
	KIT R08E-D100Z3	E-RDKT08-D100Z3C075-L700i	RDKT0802M0 YG602 (10 inserts)
	KIT R10E-D100Z2	E-RDKT10-D100Z2C100-L700i	RDKT10T3M0 YG602 (10 inserts)
	KIT R10F-D150Z5	F-RDKT10-D150Z5S050i	RDKT10T3M0 YG602 (10 inserts)
	KIT R10F-D200Z6	F-RDKT10-D200Z6S075i	RDKT10T3M0 YG602 (20 inserts)
	KIT R12E-D100Z2	E-RDKT12-D100Z2C100-L700i	RDKT1204M0 YG602 (10 inserts)
	KIT R12E-D125Z2	E-RDKT12-D125Z2C125-L800i	RDKT1204M0 YG602 (10 inserts)
	KIT R12E-D125Z3	E-RDKT12-D125Z3C125-L600i	RDKT1204M0 YG602 (10 inserts)
	KIT R12F-D150Z4	F-RDKT12-D150Z4S050i	RDKT1204M0 YG602 (10 inserts)
	KIT R12F-D200Z5	F-RDKT12-D200Z5S075i	RDKT1204M0 YG602 (20 inserts)
	KIT R12F-D250Z6	F-RDKT12-D250Z6S075i	RDKT1204M0 YG602 (20 inserts)
SEKT	**KIT F45-SEKT-D150Z4**	F45-SEKT12-D150Z4S050i	SEKT1204AFTN YG602 (10 inserts)
	KIT F45-SEKT-D200Z5	F45-SEKT12-D200Z5S075i	SEKT1204AFTN YG602 (10 inserts)
	KIT F45-SEKT-D250Z4	F45-SEKT12-D250Z4S075i	SEKT1204AFTN YG602 (10 inserts)
	KIT F45-SEKT-D250Z6	F45-SEKT12-D250Z6S075i	SEKT1204AFTN YG602 (20 inserts)
	KIT F45-SEKT-D300Z4	F45-SEKT12-D300Z4S100i	SEKT1204AFTN YG602 (20 inserts)
	KIT F45-SEKT-D300Z7	F45-SEKT12-D300Z7S100i	SEKT1204AFTN YG602 (20 inserts)
	KIT F45-SEKT-D400Z8	F45-SEKT12-D400Z8S125i	SEKT1204AFTN YG602 (20 inserts)
	KIT F45-SEKT-D500Z10	F45-SEKT12-D500Z10S150i	SEKT1204AFTN YG602 (30 inserts)
	KIT F45-SEKT-D600Z12	F45-SEKT12-D600Z12S200i	SEKT1204AFTN YG602 (30 inserts)

E = End Mill Style
F = Face Mill Style
D = Cutter Diameter
Z = Flute Count
C = Cylindrical Shank Dia.
W = Weldon Shank Dia.
S = Arbor Size
i = Inch

TOOLING SYSTEM

END MILL HOLDER

CAT

FIG.1

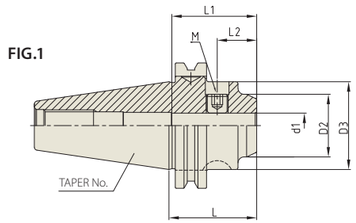
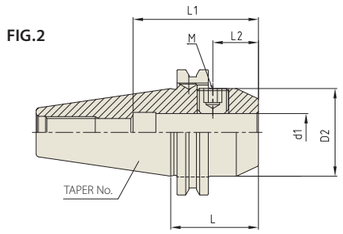


FIG.2



ASME B5.50 - CAT | AT3 | 6.3G | 15,000 RPM | AD

ASME B5.50-2009-CAT

• STUB

Unit: Inch

EDP No.	Taper No.	Model No.	d1	D2	D3	L	L1	L2	M	Fig.
AK206X	40	CAT40 - EMH 1/2 - 1.75	0.500	1.250	1.750	1.750	1.690	0.790	UNF7/16-20 3/8L	1
AK208X		CAT40 - EMH 5/8 - 1.75	0.625	1.500	1.750	1.750	1.930	0.880	UNF1/2-20 1/2L	1
AK210X		CAT40 - EMH 3/4 - 1.75	0.750	1.750	-	1.750	2.050	0.910	UNF5/8-18 1/2L	2
AK214X		CAT40 - EMH 1.0 - 1.75	1.000	1.750	-	1.750	2.170	0.830	UNF3/4-16 3/8L	2
AK217X		CAT40 - EMH 1 1/4 - 2.00	1.250	2.250	-	2.000	2.220	0.830	UNF3/4-16 1/2L	2

END MILL HOLDER

CAT

FIG.1

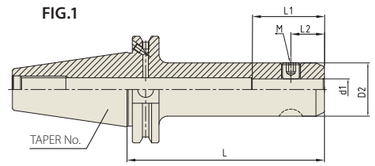
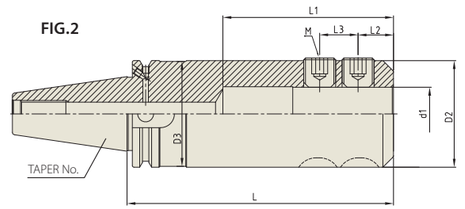


FIG.2



ASME B5.50 - CAT | AT3 | 6.3G | 15,000 RPM | AD/B

ASME B5.50-2009-CAT

• STANDARD

Unit: Inch

EDP No.	Taper No.	Model No.	d1	D2	D3	L	L1	L2	L3	M	Fig.
AK000BX	40	CAT40 AD/B - EMH 1/8 - 2.50	0.125	0.690	-	2.500	0.591	0.295	-	UNC#8-32 1/4L	1
AK001BX		CAT40 AD/B - EMH 3/16 - 2.50	0.188	0.690	-	2.500	0.787	0.441	-	UNC#10-32 1/4L	1
AK002BX		CAT40 AD/B - EMH 1/4 - 2.50	0.250	0.780	-	2.500	1.299	0.598	-	UNF1/4-28 1/4L	1
AK003BX		CAT40 AD/B - EMH 5/16 - 2.50	0.313	0.880	-	2.500	1.358	0.630	-	UNF5/16-24 1/4L	1
AK004BX		CAT40 AD/B - EMH 3/8 - 2.50	0.375	1.000	-	2.500	1.417	0.630	-	UNF3/8-24 5/16L	1
AK005BX		CAT40 AD/B - EMH 7/16 - 2.50	0.438	1.130	-	2.500	1.417	0.630	-	UNF3/8-24 25/64L	1
AK006BX		CAT40 AD/B - EMH 1/2 - 2.63	0.500	1.250	-	2.630	1.693	0.787	-	UNF7/16-20 3/8L	1
AK008BX		CAT40 AD/B - EMH 5/8 - 3.75	0.625	1.500	-	3.750	3.600	0.881	-	UNF1/2-20 1/2L	1
AK010BX		CAT40 AD/B - EMH 3/4 - 3.75	0.750	1.750	-	3.750	3.900	0.909	-	UNF5/8-18 1/2L	1
AK012BX		CAT40 AD/B - EMH 7/8 - 4.00	0.875	1.880	-	4.000	4.200	0.650	0.811	UNF5/8-18 1/2L	2
AK014BX		CAT40 AD/B - EMH 1.0 - 4.00	1.000	2.000	-	4.000	4.400	0.831	0.902	UNF3/4-16 1/2L	2
AK017BX		CAT40 AD/B - EMH 1 1/4 - 4.25	1.250	2.500	2.461	4.250	4.000	0.831	0.902	UNF3/4-16 11/16L	2
AK021BX		CAT40 AD/B - EMH 1 1/2 - 4.63	1.500	2.500	2.461	4.630	3.978	0.881	1.063	UNF3/4-16 1/2L	2
AL002BX	50	CAT50 AD/B - EMH 1/4 - 2.50	0.250	0.780	-	2.500	1.299	0.598	-	UNF1/4-28 1/4L	1
AL003BX		CA50 AD/B - EMH 5/16 - 2.50	0.313	0.880	-	2.500	1.358	0.630	-	UNF5/16-24 1/4L	1
AL004BX		CAT50 AD/B - EMH 3/8 - 2.50	0.375	1.000	-	2.500	1.417	0.630	-	UNF3/8-24 5/16L	1
AL005BX		CAT50 AD/B - EMH 7/16 - 2.63	0.438	1.130	-	2.630	1.417	0.630	-	UNF3/8-24 25/64L	1
AL006BX		CAT50 AD/B - EMH 1/2 - 2.63	0.500	1.250	-	2.630	1.693	0.787	-	UNF7/16-20 3/8L	1
AL008BX		CAT50 AD/B - EMH 5/8 - 3.75	0.625	1.500	-	3.750	1.929	0.881	-	UNF1/2-20 1/2L	1
AL010BX		CAT50 AD/B - EMH 3/4 - 3.75	0.750	1.750	-	3.750	2.047	0.909	-	UNF5/8-18 1/2L	1
AL012BX		CAT50 AD/B - EMH 7/8 - 3.75	0.875	1.880	-	3.750	4.200	0.650	0.811	UNF5/8-18 1/2L	2
AL014BX		CAT50 AD/B - EMH 1.0 - 4.00	1.000	2.000	-	4.000	4.400	0.831	0.902	UNF3/4-16 1/2L	2
AL017BX		CAT50 AD/B - EMH 1 1/4 - 4.00	1.250	2.500	-	4.000	4.000	0.831	0.902	UNF3/4-16 11/16L	2
AL021BX		CAT50 AD/B - EMH 1 1/2 - 4.00	1.500	2.500	-	4.000	3.978	0.881	1.063	UNF3/4-16 1/2L	2
AL029BX		CAT50 AD/B - EMH 2.0 - 5.63	2.000	3.750	-	5.630	5.000	1.299	1.358	UNS1-14 7/8L	2

END MILL HOLDER

CAT

FIG.1

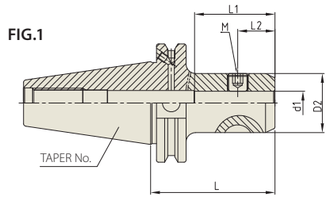
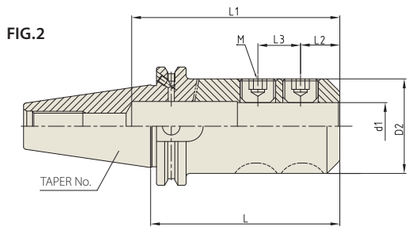


FIG.2



ASME B5.50 - CAT | AT3 | 6.3G | 15,000 RPM | AD/B

ASME B5.50-2009-CAT

• EXTENDED

Unit: Inch

EDP No.	Taper No.	Model No.	d1	D2	D3	L	L1	L2	L3	M	Fig.
AK104BX	40	CAT40 AD/B - EMH 3/8 - 4.50	0.375	1.000	-	4.500	1.417	0.630	-	UNF3/8-24 5/16L	1
AK106BX		CAT40 AD/B - EMH 1/2 - 4.63	0.500	1.250	-	4.630	1.693	0.787	-	UNF7/16-20 3/8L	1
AK108BX		CAT40 AD/B - EMH 5/8 - 5.75	0.625	1.500	-	5.750	3.600	0.881	-	UNF1/2-20 1/2L	1
AK110BX		CAT40 AD/B - EMH 3/4 - 5.75	0.750	1.750	-	5.750	3.900	0.909	-	UNF5/8-18 1/2L	1
AK112BX		CAT40 AD/B - EMH 7/8 - 6.00	0.875	1.880	-	6.000	4.200	0.650	0.811	UNF5/8-18 1/2L	2
AK114BX		CAT40 AD/B - EMH 1.0 - 6.00	1.000	2.000	-	6.000	4.400	0.831	0.902	UNF3/4-16 1/2L	2
AK117BX		CAT40 AD/B - EMH 1 1/4 - 6.25	1.250	2.500	2.461	6.250	4.000	0.831	0.902	UNF3/4-16 11/16L	2
AK121BX		CAT40 AD/B - EMH 1 1/2 - 6.63	1.500	2.500	2.461	6.630	3.978	0.881	1.063	UNF3/4-16 1/2L	2
AL104BX	50	CAT50 AD/B - EMH 3/8 - 4.50	0.375	1.000	-	4.500	1.417	0.630	-	UNF3/8-24 5/16L	1
AL106BX		CAT50 AD/B - EMH 1/2 - 4.63	0.500	1.250	-	4.630	1.693	0.787	-	UNF7/16-20 3/8L	1
AL108BX		CAT50 AD/B - EMH 5/8 - 5.75	0.625	1.500	-	5.750	3.449	0.881	-	UNF1/2-20 1/2L	1
AL110BX		CAT50 AD/B - EMH 3/4 - 5.75	0.750	1.750	-	5.750	3.203	0.909	-	UNF5/8-18 1/2L	1
AL112BX		CAT50 AD/B - EMH 7/8 - 5.75	0.875	1.880	-	5.750	4.200	0.650	0.811	UNF5/8-18 1/2L	2
AL114BX		CAT50 AD/B - EMH 1.0 - 6.00	1.000	2.000	-	6.000	4.400	0.831	0.902	UNF3/4-16 1/2L	2
AL117BX		CAT50 AD/B - EMH 1 1/4 - 6.00	1.250	2.500	-	6.000	4.000	0.831	0.902	UNF3/4-16 11/16L	2
AL121BX		CAT50 AD/B - EMH 1 1/2 - 6.00	1.500	2.500	-	6.000	3.978	0.881	1.063	UNF3/4-16 1/2L	2
AL129BX		CAT50 AD/B - EMH 2.0 - 7.63	2.000	3.750	-	7.630	5.000	1.299	1.358	UNS1-14 7/8L	2

END MILL HOLDER

CAT

FIG.1

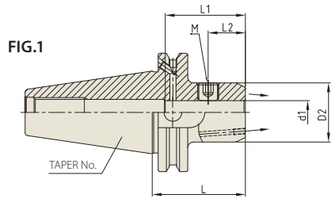
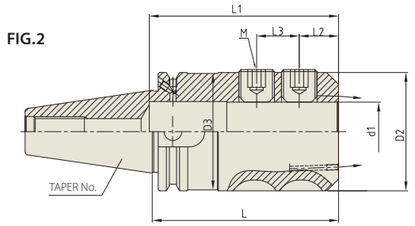


FIG.2



ASME B5.50 - CAT | AT3 | 6.3G | 15,000 RPM | AD/B+C

ASME B5.50-2009-CAT

Unit: Inch

EDP No.	Taper No.	Model No.	d1	D2	D3	L	L1	L2	L3	M	Fig.
AK002CX	40	CAT40 AD/B - EMH 1/4C - 1.97	0.250	0.780	-	1.969	1.299	0.598	-	UNF1/4-28 1/4L	1
AK003CX		CAT40 AD/B - EMH 5/16C - 1.97	0.313	0.880	-	1.969	1.359	0.630	-	UNF5/16-24 1/4L	1
AK004CX		CAT40 AD/B - EMH 3/8C - 1.97	0.375	1.000	-	1.969	1.417	0.630	-	UNF3/8-24 5/16L	1
AK005CX		CAT40 AD/B - EMH 1/2C - 1.97	0.500	1.250	-	1.969	1.693	0.787	-	UNF7/16-20 3/8L	1
AK008CX		CAT40 AD/B - EMH 5/8C - 2.48	0.625	1.500	-	2.480	3.600	0.882	-	UNF1/2-20 1/2L	1
AK010CX		CAT40 AD/B - EMH 3/4C - 2.48	0.750	1.750	-	2.480	3.900	0.909	-	UNF5/8-18 1/2L	1
AK012CX		CAT40 AD/B - EMH 1.0C - 3.94	1.000	2.000	-	3.937	4.400	0.831	0.902	UNF3/4-16 1/2L	2
AK017CX		CAT40 AD/B - EMH 1 1/4C - 3.94	1.250	2.500	2.461	3.937	4.000	0.831	0.902	UNF3/4-16 11/16L	2
AL002CX	50	CAT50 AD/B - EMH 1/4C - 2.48	0.250	0.780	-	2.480	1.299	0.591	-	UNF1/4-28 1/4L	1
AL003CX		CAT50 AD/B - EMH 5/16C - 2.48	0.313	0.880	-	2.480	1.358	0.630	-	UNF5/16-24 1/4L	1
AL004CX		CAT50 AD/B - EMH 3/8C - 2.48	0.375	1.000	-	2.480	1.417	0.630	-	UNF3/8-24 5/16L	1
AL005CX		CAT50 AD/B - EMH 1/2C - 2.48	0.500	1.250	-	2.480	1.693	0.787	-	UNF3/8-24 25/64L	1
AL008CX		CAT50 AD/B - EMH 5/8C - 2.48	0.625	1.500	-	2.480	1.890	0.882	-	UNF1/2-20 1/2L	1
AL010CX		CAT50 AD/B - EMH 3/4C - 2.48	0.750	1.750	-	2.480	1.925	0.909	-	UNF5/8-18 1/2L	1
AL012CX		CAT50 AD/B - EMH 1.0C - 3.15	1.000	2.000	-	3.150	4.400	0.831	0.902	UNF3/4-16 1/2L	2
AL017CX		CAT50 AD/B - EMH 1 1/4C - 3.94	1.250	2.500	-	3.937	4.000	0.831	0.902	UNF3/4-16 11/16L	2

Holemaking
Threading
Milling
Indexable
Rotary Tool Holder

END MILL HOLDER CAT

FIG.1

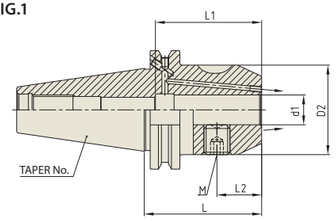
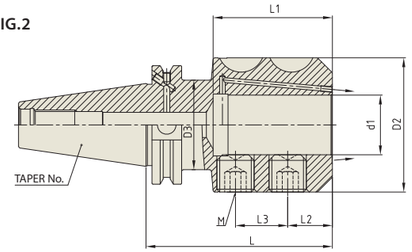


FIG.2



ASME B5.50 - CAT | AT3 | 6.3G | 15,000 RPM | AD/B+C

ASME B5.50-2009-CAT

Unit : mm

EDP No.	Taper No.	Model No.	d1	D2	L	L1	L2	L3	M	Fig.	Weight (Kg)
AK311B15X	40	CAT40 AD/B - EMH 6 - 50	6	25	50	35	18	-	M6	1	0.86
AK312B15X		CAT40 AD/B - EMH 8 - 50	8	28	50	35	18	-	M8	1	0.89
AK313B15X		CAT40 AD/B - EMH 10 - 50	10	35	50	39	20	-	M10	1	0.95
AK314B15X		CAT40 AD/B - EMH 12 - 50	12	42	50	36	22.5	-	M12	1	1.03
AK315B15X		CAT40 AD/B - EMH 14 - 50	14	44	50	48	22.5	-	M12	1	1.26
AK316B15X		CAT40 AD/B - EMH 16 - 63	16	48	63	54	24	-	M14	1	1.28
AK317B15X		CAT40 AD/B - EMH 18 - 63	18	50	63	54	24	-	M14	1	1.35
AK318B15X		CAT40 AD/B - EMH 20 - 63	20	52	63	55	25	-	M16	1	1.28
AK319B15X		CAT40 AD/B - EMH 25 - 100	25	65	100	69	24	25	M18	2	2.28
AL311B15X	50	CAT50 AD/B - EMH 6 - 63	6	25	63	35	18	-	M6	1	2.70
AL312B15X		CAT50 AD/B - EMH 8 - 63	8	28	63	35	18	-	M8	1	2.70
AL313B15X		CAT50 AD/B - EMH 10 - 63	10	35	63	39	20	-	M10	1	2.90
AL314B15X		CAT50 AD/B - EMH 12 - 63	12	42	63	46	22.5	-	M12	1	2.90
AL315B15X		CAT50 AD/B - EMH 14 - 63	14	44	63	46	22.5	-	M12	1	2.90
AL316B15X		CAT50 AD/B - EMH 16 - 63	16	48	63	46	24	-	M14	1	3.00
AL317B15X		CAT50 AD/B - EMH 18 - 63	18	50	63	46	24	-	M14	1	3.00
AL318B15X		CAT50 AD/B - EMH 20 - 63	20	52	63	56	25	-	M16	1	3.05
AL319B15X		CAT50 AD/B - EMH 25 - 80	25	65	80	60	24	25	M18	2	3.73
AL320B15X		CAT50 AD/B - EMH 32 - 100	32	72	100	64	24	28	M20	2	4.53
AL321B15X		CAT50 AD/B - EMH 40 - 120	40	80	120	74	30	32	M20	2	4.77
AL322B15X		CAT50 AD/B - EMH 50 - 125	50	100	125	84	35	35	M24	2	7.03

END MILL HOLDER BT

FIG.1

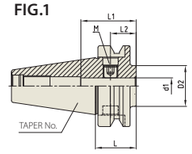


FIG.3

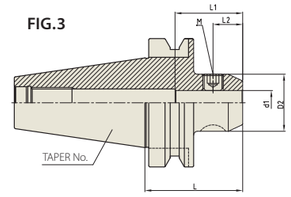


FIG.2

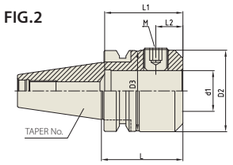
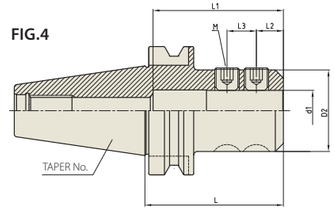


FIG.4



JIS B6339-BT | AT3 | 6.3G | 15,000 RPM | AD

JIS B6339/MAS 403-BT

• STUB

Unit: Inch

EDP No.	Taper No.	Model No.	d1	D2	D3	L	L1	L2	L3	M	Fig.
AH206X	40	BT40 - EMH 1/2 - 1.25	0.500	1.250	-	1.250	1.693	0.787	-	UNF7/16-20 3/8L	1
AH208X		BT40 - EMH 5/8 - 1.38	0.625	1.500	-	1.380	2.400	0.866	-	UNF1/2-20 1/2L	1
AH210X		BT40 - EMH 3/4 - 1.44	0.750	1.750	-	1.440	2.500	0.909	-	UNF5/8-18 1/2L	1
AH214X		BT40 - EMH 1.0 - 2.50	1.000	2.000	-	2.500	2.500	0.831	-	UNF3/4-16 1/2L	1
AH217X		BT40 - EMH 1 1/4 - 2.50	1.250	2.500	2.441	2.500	2.500	0.831	-	UNF3/4-16 11/16L	2

• STANDARD

Unit: Inch

EDP No.	Taper No.	Model No.	d1	D2	D3	L	L1	L2	L3	M	Fig.
AI002X	50	BT50 - EMH 1/4 - 3.00	0.250	0.780	-	3.000	1.299	0.598	-	UNF1/4-28 1/4L	3
AI004X		BT50 - EMH 3/8 - 3.00	0.375	1.000	-	3.000	1.417	0.630	-	UNF3/8-24 5/16L	3
AI006X		BT50 - EMH 1/2 - 3.00	0.500	1.250	-	3.000	1.693	0.787	-	UNF7/16-20 3/8L	3
AI008X		BT50 - EMH 5/8 - 3.00	0.625	1.500	-	3.000	1.929	0.882	-	UNF1/2-20 1/2L	3
AI010X		BT50 - EMH 3/4 - 3.00	0.750	1.750	-	3.000	2.047	0.909	-	UNF5/8-18 1/2L	3
AI012X		BT50 - EMH 7/8 - 4.00	0.875	1.880	-	4.000	4.200	0.650	-	UNF5/8-18 1/2L	4
AI014X		BT50 - EMH 1.0 - 4.25	1.000	2.000	-	4.250	4.636	0.831	0.902	UNF3/4-16 1/2L	4
AI017X		BT50 - EMH 1 1/4 - 4.25	1.250	2.500	-	4.250	4.000	0.831	0.902	UNF3/4-16 11/16L	4
AI021X		BT50 - EMH 1 1/2 - 4.25	1.500	2.500	-	4.250	3.976	0.882	1.063	UNF3/4-16 1/2L	4
AI029X		BT50 - EMH 2.0 - 5.00	2.000	3.750	-	5.000	5.000	1.299	1.358	UNS1-14 7/8L	4

• EXTENDED

Unit: Inch

EDP No.	Taper No.	Model No.	d1	D2	D3	L	L1	L2	L3	M	Fig.
AI104X	50	BT50 - EMH 3/8 - 6.00	0.375	1.000	-	6.000	1.417	0.630	-	UNF3/8-24 5/16L	3
AI106X		BT50 - EMH 1/2 - 6.00	0.500	1.250	-	6.000	1.693	0.787	-	UNF7/16-20 3/8L	3
AI108X		BT50 - EMH 5/8 - 6.00	0.625	1.500	-	6.000	1.929	0.882	-	UNF1/2-20 1/2L	3
AI110X		BT50 - EMH 3/4 - 6.00	0.750	1.750	-	6.000	2.047	0.909	-	UNF5/8-18 1/2L	3
AI112X		BT50 - EMH 7/8 - 6.00	0.875	1.880	-	6.000	4.200	0.650	-	UNF5/8-18 1/2L	4
AI114X		BT50 - EMH 1.0 - 6.00	1.000	2.000	-	6.000	4.636	0.831	0.902	UNF3/4-16 1/2L	4
AI117X		BT50 - EMH 1 1/4 - 6.00	1.250	2.500	-	6.000	4.000	0.831	0.902	UNF3/4-16 11/16L	4
AI121X		BT50 - EMH 1 1/2 - 6.00	1.500	2.500	-	6.000	3.976	0.882	1.063	UNF3/4-16 1/2L	4
AI129X		BT50 - EMH 2.0 - 6.00	2.000	3.750	-	6.000	5.000	1.299	1.358	UNS1-14 7/8L	4

END MILL HOLDER

BT

FIG.1

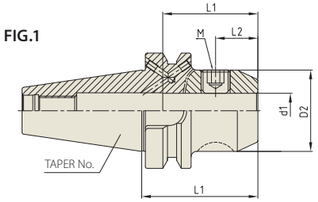
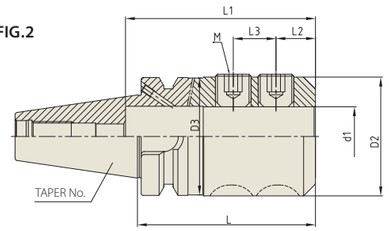


FIG.2



JIS B6339-BT | AT3 | 6.3G | 15,000 RPM | AD/B

JIS B6339/MAS 403-BT

• STANDARD

Unit: Inch

EDP No.	Taper No.	Model No.	d1	D2	D3	L	L1	L2	L3	M	Fig.
AH000BX	40	BT40 AD/B - EMH 1/8 - 2.50	0.125	0.690	-	2.500	0.591	0.295	-	UNC#8-32 1/4L	1
AH001BX		BT40 AD/B - EMH 3/16 - 2.50	0.187	0.690	-	2.500	0.787	0.441	-	UNC#10-32 1/4L	1
AH002BX		BT40 AD/B - EMH 1/4 - 2.50	0.250	0.780	-	2.500	1.299	0.598	-	UNF1/4-28 1/4L	1
AH003BX		BT40 AD/B - EMH 5/16 - 2.50	0.312	0.880	-	2.500	1.358	0.630	-	UNF5/16-24 1/4L	1
AH004BX		BT40 AD/B - EMH 3/8 - 2.50	0.375	1.000	-	2.500	1.417	0.630	-	UNF3/8-24 5/16L	1
AH005BX		BT40 AD/B - EMH 7/16 - 2.50	0.437	1.130	-	2.500	1.417	0.630	-	UNF3/8-24 25/64L	1
AH006BX		BT40 AD/B - EMH 1/2 - 2.50	0.500	1.250	-	2.500	1.693	0.787	-	UNF7/16-20 3/8L	1
AH008BX		BT40 AD/B - EMH 5/8 - 2.50	0.625	1.500	-	2.500	3.600	0.881	-	UNF1/2-20 1/2L	1
AH010BX		BT40 AD/B - EMH 3/4 - 2.50	0.750	1.750	-	2.500	3.900	0.909	-	UNF5/8-18 1/2L	1
AH012BX		BT40 AD/B - EMH 7/8 - 3.50	0.875	1.880	-	3.500	4.200	0.650	0.811	UNF5/8-18 1/2L	2
AH014BX		BT40 AD/B - EMH 1.0 - 3.75	1.000	2.000	-	3.750	4.400	0.831	0.902	UNF3/4-16 1/2L	2
AH017BX		BT40 AD/B - EMH 1 1/4 - 3.75	1.250	2.500	2.461	3.750	4.000	0.831	0.902	UNF3/4-16 11/16L	2
AH021BX		BT40 AD/B - EMH 1 1/2 - 4.25	1.500	2.500	2.461	4.250	3.978	0.881	1.063	UNF3/4-16 1/2L	2

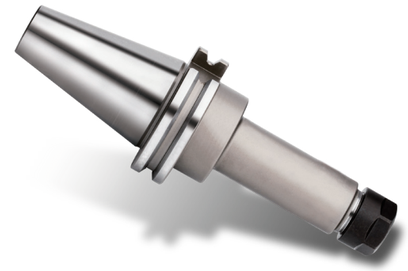
• EXTENDED

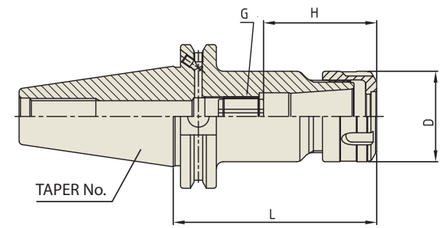
Unit: Inch

EDP No.	Taper No.	Model No.	d1	D2	D3	L	L1	L2	L3	M	Fig.
AH104BX	40	BT40 AD/B - EMH 3/8 - 4.00	0.375	1.000	-	4.000	1.417	0.630	-	UNF3/8-24 5/16L	1
AH106BX		BT40 AD/B - EMH 1/2 - 4.00	0.500	1.250	-	4.000	1.693	0.787	-	UNF7/16-20 3/8L	1
AH108BX		BT40 AD/B - EMH 5/8 - 4.00	0.625	1.500	-	4.000	3.600	0.881	-	UNF1/2-20 1/2L	1
AH110BX		BT40 AD/B - EMH 3/4 - 4.00	0.750	1.750	-	4.000	2.047	0.909	-	UNF5/8-18 1/2L	1
AH114BX		BT40 AD/B - EMH 1.0 - 5.00	1.000	2.000	-	5.000	4.400	0.831	0.902	UNF3/4-16 1/2L	2
AH117BX		BT40 AD/B - EMH 1 1/4 - 5.00	1.250	2.500	2.461	5.000	4.000	0.831	0.902	UNF3/4-16 11/16L	2
AH121BX		BT40 AD/B - EMH 1 1/2 - 6.00	1.500	2.500	2.461	6.000	3.978	0.881	1.063	UNF3/4-16 1/2L	2

ER COLLET CHUCK

CAT





ASME B5.50 - CAT | AT3 | 6.3G | 15,000 RPM | AD/B

ASME B5.50-2009-CAT

• STUB

Unit: Inch

EDP No.	Taper No.	Model No.	Clamping Range	D	L	H		G	Collet Series
						Min.	Max.		
BK232BX	40	CAT40 AD/B - ER 20 - 2.55	0.039 - 0.511	1.339	2.55	1.220	2.315	UN9/16-16 1/2L	ER20
BK233BX		CAT40 AD/B - ER 25 - 2.50	0.039 - 0.629	1.654	2.50	1.339	2.335	UN11/16-16 1/2L	ER25
BK234BX		CAT40 AD/B - ER 32 - 2.70	0.078 - 0.787	1.969	2.70	1.575	3.555	UN7/8-16 1/2L	ER32

• STANDARD

Unit: Inch

EDP No.	Taper No.	Model No.	Clamping Range	D	L	H		G	Collet Series
						Min.	Max.		
BK030BX	40	CAT40 AD/B - ER 11 - 3.00	0.019 - 0.275	0.748	3.00	0.654	1.177	UN5/16-18 1/2L	ER11
BK031BX		CAT40 AD/B - ER 16 - 3.00	0.019 - 0.393	1.102	3.00	1.008	2.240	UN7/16-18 1/2L	ER16
BK032BX		CAT40 AD/B - ER 20 - 4.00	0.039 - 0.511	1.339	4.00	1.220	2.315	UN9/16-16 1/2L	ER20
BK133BX		CAT40 AD/B - ER 25 - 4.00	0.039 - 0.629	1.654	4.00	1.339	2.335	UN11/16-16 1/2L	ER25
BK134BX		CAT40 AD/B - ER 32 - 4.00	0.078 - 0.787	1.969	4.00	1.575	3.555	UN7/8-16 1/2L	ER32
BK136BX		CAT40 AD/B - ER 40 - 4.00	0.118 - 1.024	2.480	4.00	2.283	3.634	UN1 1/8-16 1/2L	ER40
BL031BX	50	CAT50 AD/B - ER 16 - 3.00	0.019 - 0.393	1.100	4.00	1.008	1.839	UN7/16-18 1/2L	ER16
BL032BX		CAT50 AD/B - ER 20 - 4.00	0.039 - 0.511	1.339	4.00	1.220	2.315	UN9/16-16 1/2L	ER20
BL033BX		CAT50 AD/B - ER 25 - 4.00	0.039 - 0.629	1.654	4.00	1.339	2.335	UN11/16-16 1/2L	ER25
BL034BX		CAT50 AD/B - ER 32 - 4.00	0.078 - 0.787	1.969	4.00	1.575	3.555	UN7/8-16 1/2L	ER32
BL036BX		CAT50 AD/B - ER 40 - 4.00	0.118 - 1.024	2.480	4.00	2.283	3.634	UN1 1/8-16 1/2L	ER40

• EXTENDED

Unit: Inch

EDP No.	Taper No.	Model No.	Clamping Range	D	L	H		G	Collet Series
						Min.	Max.		
BK331BX	40	CAT40 AD/B - ER 16 - 6.00	0.019 - 0.393	1.102	6.00	1.008	2.240	UN7/16-18 1/2L	ER16
BK332BX		CAT40 AD/B - ER 20 - 6.00	0.039 - 0.511	1.339	6.00	1.220	2.315	UN9/16-16 1/2L	ER20
BK333BX		CAT40 AD/B - ER 25 - 6.00	0.039 - 0.629	1.654	6.00	1.339	2.335	UN11/16-16 1/2L	ER25
BK334BX		CAT40 AD/B - ER 32 - 6.00	0.078 - 0.787	1.969	6.00	1.575	3.555	UN7/8-16 1/2L	ER32
BL331BX	50	CAT50 AD/B - ER 16 - 6.00	0.019 - 0.393	1.100	6.00	1.008	1.839	UN7/16-18 1/2L	ER16
BL332BX		CAT50 AD/B - ER 20 - 6.00	0.039 - 0.511	1.330	6.00	1.220	2.315	UN9/16-16 1/2L	ER20
BL333BX		CAT50 AD/B - ER 25 - 6.00	0.039 - 0.629	1.650	6.00	1.339	2.335	UN11/16-16 1/2L	ER25
BL334BX		CAT50 AD/B - ER 32 - 6.00	0.078 - 0.787	1.960	6.00	1.575	3.555	UN7/8-16 1/2L	ER32

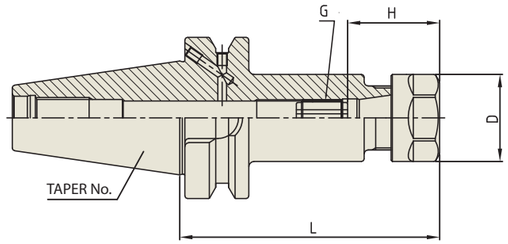
• EXTRA EXTENDED

Unit: Inch

EDP No.	Taper No.	Model No.	Clamping Range	D	L	H		G	Collet Series
						Min.	Max.		
BK434BX	40	CAT40 AD/B - ER 16 - 8.00	0.019 - 0.393	1.102	8.00	1.008	2.240	UN7/16-18 1/2L	ER16
BK432BX		CAT40 AD/B - ER 20 - 8.00	0.039 - 0.511	1.339	8.00	2.283	3.634	UN9/16-16 1/2L	ER20
BK435BX		CAT40 AD/B - ER 25 - 8.00	0.039 - 0.629	1.654	8.00	1.339	2.335	UN11/16-16 1/2L	ER25
BK433BX		CAT40 AD/B - ER 32 - 8.00	0.078 - 0.787	1.969	8.00	1.575	3.555	UN7/8-16 1/2L	ER32

ER COLLET CHUCK

BT



JIS B6339-BT | AT3 | 6.3G | 15,000 RPM | AD/B

JIS B6339/MAS 403-BT

• STUB

Unit: Inch

EDP No.	Taper No.	Model No.	Clamping Range	D	L	H		G	Collet Series
						Min.	Max.		
BH232BX	40	BT40 AD/B - ER 20 - 2.20	0.039 - 0.511	1.339	2.200	1.220	2.315	UN9/16-16 1/2L	ER20
BH233BX		BT40 AD/B - ER 25 - 2.50	0.039 - 0.629	1.654	2.500	1.339	2.335	UN11/16-16 1/2L	ER25
BH234BX		BT40 AD/B - ER 32 - 2.40	0.078 - 0.787	1.969	2.400	1.575	3.161	UN7/8-16 1/2L	ER32

• STANDARD

Unit: Inch

EDP No.	Taper No.	Model No.	Clamping Range	D	L	H		G	Collet Series
						Min.	Max.		
BH030BX	40	BT40 AD/B - ER 11 - 3.00	0.019 - 0.275	0.748	3.000	0.654	1.453	UN5/16-18 1/2L	ER11
BH031BX		BT40 AD/B - ER 16 - 3.00	0.019 - 0.393	1.102	3.000	1.008	1.886	UN7/16-18 1/2L	ER16
BH032BX		BT40 AD/B - ER 20 - 4.00	0.039 - 0.511	1.339	4.000	1.220	2.315	UN9/16-16 1/2L	ER20
BH133BX		BT40 AD/B - ER 25 - 4.00	0.039 - 0.629	1.654	4.000	1.339	2.335	UN11/16-16 1/2L	ER25
BH134BX		BT40 AD/B - ER 32 - 4.00	0.078 - 0.787	1.969	4.000	1.575	3.555	UN7/8-16 1/2L	ER32
BH136BX		BT40 AD/B - ER 40 - 4.00	0.118 - 1.024	2.480	4.000	2.283	3.437	UN1 1/8-16 1/2L	ER40

• EXTENDED

Unit: Inch

EDP No.	Taper No.	Model No.	Clamping Range	D	L	H		G	Collet Series
						Min.	Max.		
BH331BX	40	BT40 AD/B - ER 16 - 6.00	0.019 - 0.393	1.102	6.000	1.008	1.886	UN7/16-18 1/2L	ER16
BH332BX		BT40 AD/B - ER 20 - 6.00	0.039 - 0.511	1.339	6.000	1.220	2.315	UN9/16-16 1/2L	ER20
BH333BX		BT40 AD/B - ER 25 - 6.00	0.039 - 0.629	1.654	6.000	1.339	2.335	UN11/16-16 1/2L	ER25
BH334BX		BT40 AD/B - ER 32 - 6.00	0.078 - 0.787	1.969	6.000	1.575	3.555	UN7/8-16 1/2L	ER32

• EXTRA EXTENDED

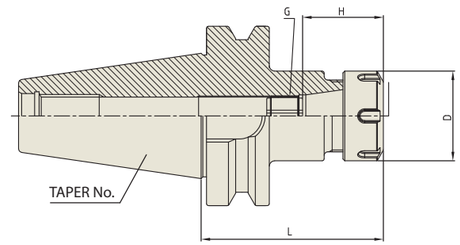
Unit: Inch

EDP No.	Taper No.	Model No.	Clamping Range	D	L	H		G	Collet Series
						Min.	Max.		
BH434BX	40	BT40 AD/B - ER 16 - 8.00	0.019 - 0.393	1.102	8.000	1.008	1.886	UN7/16-18 1/2L	ER16
BH432BX		BT40 AD/B - ER 20 - 8.00	0.039 - 0.511	1.339	8.000	1.220	2.315	UN9/16-16 1/2L	ER20
BH435BX		BT40 AD/B - ER 25 - 8.00	0.039 - 0.629	1.654	8.000	1.339	2.335	UN11/16-16 1/2L	ER25
BH433BX		BT40 AD/B - ER 32 - 8.00	0.078 - 0.787	1.969	8.000	1.575	3.555	UN7/8-16 1/2L	ER32

* Supplied without wrench.

ER COLLET CHUCK

BT



JIS B6339-BT | AT3 | 6.3G | 15,000 RPM | AD

JIS B6339/MAS 403-BT

• STANDARD

Unit: Inch

EDP No.	Taper No.	Model No.	Clamping Range	D	L	H		G	Collet Series
						Min.	Max.		
BI031X	50	BT50 - ER 16 - 4.88	0.019 - 0.393	1.102	4.880	1.008	1.886	UN7/16-18 1/2L	ER16
BI032X		BT50 - ER 20 - 2.63	0.039 - 0.511	1.339	2.630	1.220	3.102	UN9/16-16 1/2L	ER20
BI033X		BT50 - ER 25 - 2.63	0.039 - 0.629	1.654	2.630	1.339	2.335	UN11/16-16 1/2L	ER25
BI034X		BT50 - ER 32 - 4.00	0.078 - 0.787	1.969	4.000	1.575	3.555	UN7/8-16 1/2L	ER32

• EXTENDED

Unit: Inch

EDP No.	Taper No.	Model No.	Clamping Range	D	L	H		G	Collet Series
						Min.	Max.		
BI331X	50	BT50 - ER 16 - 6.00	0.019 - 0.393	1.102	6.000	1.008	1.886	UN7/16-18 1/2L	ER16
BI332X		BT50 - ER 20 - 6.00	0.039 - 0.511	1.339	6.000	1.220	3.102	UN9/16-16 1/2L	ER20
BI333X		BT50 - ER 25 - 6.00	0.039 - 0.629	1.654	6.000	1.339	2.335	UN11/16-16 1/2L	ER25
BI334X		BT50 - ER 32 - 6.00	0.078 - 0.787	1.969	6.000	1.575	3.555	UN7/8-16 1/2L	ER32

* Supplied without wrench.

SHORT

FIG.1

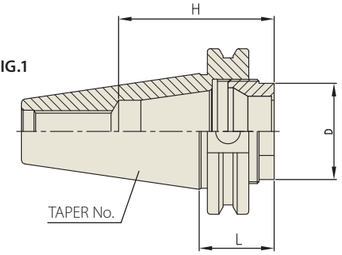
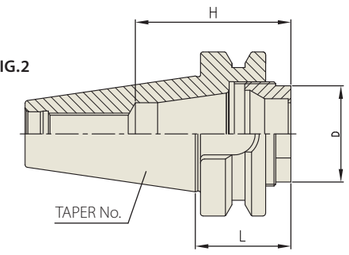


FIG.2



ASME B5.50-2009-CAT

Unit: Inch

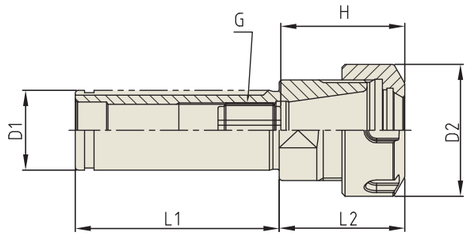
EDP No.	Taper No.	Model No.	Clamping Range	D	L	H	Collet Series	Fig.
BK020SHTX	40	CAT40 - ER 32 - SHORT	0.078 - 0.787	1.455	1.134	2.350	ER32 (For Hex. Nut)	1

JIS B6339/MAS 403-BT

Unit: Inch

EDP No.	Taper No.	Model No.	Clamping Range	D	L	H	Collet Series	Fig.
BH020SHTX	40	BT40 - ER 32 - SHORT	0.078 - 0.787	1.455	1.446	2.350	ER32 (For Hex. Nut)	2

For CNC LATHE



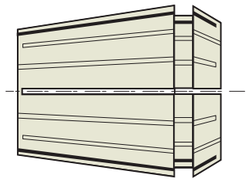
NC-ER

Unit: Inch

EDP No.	Shank Dia.	Model No.	Clamping Range	D1	D2	L1	L2	H		G	Collet Series
								Min.	Max.		
BN110X	1	NC1 - ER 11	0.019 - 0.275	1.000	0.748	2.559	1.260	0.654	1.350	UN5/16-18 1/2L	ER11
BN111X		NC1 - ER 16	0.019 - 0.393	1.000	1.102	2.559	1.417	1.008	1.886	UN7/16-18 1/2L	ER16
BN112X		NC1 - ER 20	0.039 - 0.511	1.000	1.339	2.559	1.575	1.220	2.315	UN9/16-16 1/2L	ER20
BN113X		NC1 - ER 25	0.039 - 0.629	1.000	1.654	2.559	1.575	1.339	2.315	UN11/16-16 1/2L	ER25
BN114X	1-1/4	NC1-1/4 - ER 20	0.039 - 0.511	1.250	1.339	2.756	1.161	1.220	2.315	UN9/16-16 1/2L	ER20
BN115X		NC1-1/4 - ER 25	0.039 - 0.629	1.250	1.654	2.756	1.575	1.339	2.335	UN11/16-16 1/2L	ER25
BN116X		NC1-1/4 - ER 32	0.078 - 0.787	1.250	1.969	2.756	1.772	1.575	2.453	UN7/8-16 1/2L	ER32
BN117X		NC1-1/4 - ER 40	0.118 - 1.180	1.250	2.480	2.756	3.150	2.441	3.555	UN1 1/8-16 1/2L	ER40

* Supplied without wrench.

Inch Type



Unit: Inch

ER 11	
EDP No.	Clamping Range
110116	1/16
110332	3/32
110108	1/8
110532	5/32
110316	3/16
110732	7/32
110104	1/4

ER11S07	Standard Set
Ø1/16″ to 1/4″	
7 pcs	

ER 16	
EDP No.	Clamping Range
160116	1/16
160332	3/32
160108	1/8
160532	5/32
160316	3/16
160732	7/32
160104	1/4
160932	9/32
160516	5/16
161132	11/32
160308	3/8
161332	13/32

ER16S12	Standard Set
Ø1/16″ to 13/32″	
12 pcs	

ER 20	
EDP No.	Clamping Range
200116	1/16
200332	3/32
200108	1/8
200532	5/32
200316	3/16
200732	7/32
200104	1/4
200932	9/32
200516	5/16
201132	11/32
200308	3/8
201332	13/32
200716	7/16
201532	15/32
200102	1/2

ER20S15	Standard Set
Ø1/16″ to 1/2″	
15 pcs	

Inch Type

Unit: Inch

ER 25	
EDP No.	Clamping Range
250116	1/16
250332	3/32
250108	1/8
250532	5/32
250316	3/16
250732	7/32
250104	1/4
250932	9/32
250516	5/16
251132	11/32
250308	3/8
251332	13/32
250716	7/16
251532	15/32
250102	1/2
251732	17/32
250916	9/16
251932	19/32
250508	5/8

ER25S19	Standard Set
Ø1/16″ to 5/8″	
19 pcs	

ER 32	
EDP No.	Clamping Range
320332	3/32
320108	1/8
320532	5/32
320316	3/16
320732	7/32
320104	1/4
320932	9/32
320516	5/16
321132	11/32
320308	3/8
321332	13/32
320716	7/16
321532	15/32
320102	1/2
321732	17/32
320916	9/16
321932	19/32
320508	5/8
322132	21/32
321116	11/16
322332	23/32
320304	3/4

ER32S22	Standard Set
Ø3/32″ to 3/4″	
22 pcs	

ER 40	
EDP No.	Clamping Range
400108	1/8
400532	5/32
400316	3/16
400732	7/32
400104	1/4
400932	9/32
400516	5/16
401132	11/32
400308	3/8
401332	13/32
400716	7/16
401532	15/32
400102	1/2
401732	17/32
400916	9/16
401932	19/32
400508	5/8
402132	21/32
401116	11/16
402332	23/32
400304	3/4
402532	25/32
401316	13/16
402732	27/32
400708	7/8
402932	29/32
401516	15/16
403132	31/32
401000	1

ER40S29	Standard Set
Ø1/8″ to 1″	
29 pcs	

Metric Type

Unit : mm

ER 8	
EDP No.	Clamping Range
208010	1.0 - 0.5
208015	1.5 - 1.0
208020	2.0 - 1.5
208025	2.5 - 2.0
208030	3.0 - 2.5
208035	3.5 - 3.0
208040	4.0 - 3.5
208045	4.5 - 4.0
208050	5.0 - 4.5

208000	Standard Set
Ø1.0 - 5.0mm	
9 pcs	

ER 11	
EDP No.	Clamping Range
211010	1.0 - 0.5
211015	1.5 - 1.0
211020	2.0 - 1.5
211025	2.5 - 2.0
211030	3.0 - 2.5
211035	3.5 - 3.0
211040	4.0 - 3.5
211045	4.5 - 4.0
211050	5.0 - 4.5
211055	5.5 - 5.0
211060	6.0 - 5.5
211065	6.5 - 6.0
211070	7.0 - 6.5

211000	Standard Set
Ø1.0 - 7.0mm	
13 pcs	

ER 16	
EDP No.	Clamping Range
216010	1.0 - 0.5
216015	1.5 - 1.0
216020	2.0 - 1.0
216025	2.5 - 2.0
216030	3.0 - 2.0
216040	4.0 - 3.0
216050	5.0 - 4.0
216060	6.0 - 5.0
216070	7.0 - 6.0
216080	8.0 - 7.0
216090	9.0 - 8.0
216100	10.0 - 9.0

216000	Standard Set
Ø1.0 - 10.0mm	
10 pcs	

ER COLLET

ER

Metric Type

Unit : mm

ER 20	
EDP No.	Clamping Range
220010	1.0 - 0.5
220015	1.5 - 1.0
220020	2.0 - 1.0
220025	2.5 - 2.0
220030	3.0 - 2.0
220040	4.0 - 3.0
220050	5.0 - 4.0
220060	6.0 - 5.0
220070	7.0 - 6.0
220080	8.0 - 7.0
220090	9.0 - 8.0
220100	10.0 - 9.0
220110	11.0 - 10.0
220120	12.0 - 11.0
220130	13.0 - 12.0

220000	Standard Set
Ø2.0 - 13.0mm	
12 pcs	

ER 25	
EDP No.	Clamping Range
225010	1.0 - 1.5
225015	1.5 - 1.0
225020	2.0 - 1.0
225025	2.5 - 2.0
225030	3.0 - 2.0
225040	4.0 - 3.0
225050	5.0 - 4.0
225060	6.0 - 5.0
225070	7.0 - 6.0
225080	8.0 - 7.0
225090	9.0 - 8.0
225100	10.0 - 9.0
225110	11.0 - 10.0
225120	12.0 - 11.0
225130	13.0 - 12.0
225140	14.0 - 13.0
225150	15.0 - 14.0
225160	16.0 - 15.0

225000	Standard Set
Ø2.0 - 16.0mm	
15 pcs	

ER 32	
EDP No.	Clamping Range
232020	2.0 - 1.0
232025	2.5 - 2.0
232030	3.0 - 2.0
232040	4.0 - 3.0
232050	5.0 - 4.0
232060	6.0 - 5.0
232070	7.0 - 6.0
232080	8.0 - 7.0
232090	9.0 - 8.0
232100	10.0 - 9.0
232110	11.0 - 10.0
232120	12.0 - 11.0
232130	13.0 - 12.0
232140	14.0 - 13.0
232150	15.0 - 14.0
232160	16.0 - 15.0
232170	17.0 - 16.0
232180	18.0 - 17.0
232190	19.0 - 18.0
232200	20.0 - 19.0

232000	Standard Set
Ø3.0 - 20.0mm	
18 pcs	

ER COLLET

ER

Metric Type

Unit : mm

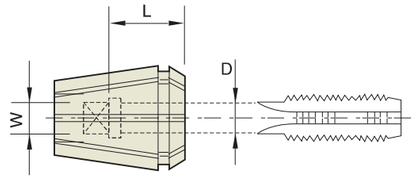
ER 40	
EDP No.	Clamping Range
240030	3.0 - 2.0
240040	4.0 - 3.0
240050	5.0 - 4.0
240060	6.0 - 5.0
240070	7.0 - 6.0
240080	8.0 - 7.0
240090	9.0 - 8.0
240100	10.0 - 9.0
240110	11.0 - 10.0
240120	12.0 - 11.0
240130	13.0 - 12.0
240140	14.0 - 13.0
240150	15.0 - 14.0
240160	16.0 - 15.0
240170	17.0 - 16.0
240180	18.0 - 17.0
240190	19.0 - 18.0
240200	20.0 - 19.0
240210	21.0 - 20.0
240220	22.0 - 21.0
240230	23.0 - 22.0
240240	24.0 - 23.0
240250	25.0 - 24.0
240260	26.0 - 25.0
240270	27.0 - 26.0
240280	28.0 - 27.0
240290	29.0 - 28.0
240300	30.0 - 29.0

240000	Standard Set
Ø4.0 - 26.0mm	
23 pcs	

ER 50	
EDP No.	Clamping Range
250060	6.0 - 4.0
250080	8.0 - 6.0
250100	10.0 - 8.0
250120	12.0 - 10.0
250140	14.0 - 12.0
250160	16.0 - 14.0
250180	18.0 - 16.0
250200	20.0 - 18.0
250220	22.0 - 20.0
250240	24.0 - 22.0
250250	25.0 - 23.0
250260	26.0 - 24.0
250280	28.0 - 26.0
250300	30.0 - 28.0
250320	32.0 - 30.0
250340	34.0 - 32.0

250000	Standard Set
Ø12.0 - 34.0mm	
12 pcs	

Inch Type: ANSI



Below standard TAP ER Collet conforms to ANSI (For STANDARD TAPS)

Unit: Inch

ER 11					
EDP No.	TAP		D(Ø)	W(□)	L
	Inch	Metric			
11TC1411	#6	M3	0.141	0.110	0.472
11TC1613	#8	M4	0.168	0.131	0.472
11TC1915	#10	M4.5+M5	0.194	0.152	0.472
11TC2216	#12	-	0.220	0.165	0.551
11TC2519	1/4	M6	0.255	0.191	0.551

ER 16					
EDP No.	TAP		D(Ø)	W(□)	L
	Inch	Metric			
16TC1411	#6	M3	0.141	0.110	0.709
16TC1613	#8	M4	0.168	0.131	0.709
16TC1915	#10	M4.5+M5	0.194	0.152	0.709
16TC2216	#12	-	0.220	0.165	0.709
16TC2519	1/4	M6	0.255	0.191	0.709
16TC3123	5/16	M7+M8	0.318	0.238	0.709
16TC3224	7/16	–	0.323	0.242	0.709

ER 20					
EDP No.	TAP		D(Ø)	W(□)	L
	Inch	Metric			
20TC1411	#6	M3	0.141	0.110	0.709
20TC1613	#8	M4	0.168	0.131	0.709
20TC1915	#10	M4.5+M5	0.194	0.152	0.709
20TC2216	#12	-	0.220	0.165	0.709
20TC2519	1/4	M6	0.255	0.191	0.709
20TC3123	5/16	M7+M8	0.318	0.238	0.866
20TC3828	3/8	M10	0.381	0.286	0.866
20TC3224	7/16	-	0.323	0.242	0.866
20TC3622	1/2	M12	0.367	0.275	0.866

▶ NEXT PAGE

TAP ER COLLET RD

Below standard TAP ER Collet conforms to ANSI (For STANDARD TAPS)

Unit: Inch

ER 25					
EDP No.	TAP		D(Ø)	W(□)	L
	Inch	Metric			
25TC1411	#6	M3	0.141	0.110	0.709
25TC1613	#8	M4	0.168	0.131	0.709
25TC1915	#10	M4.5+M5	0.194	0.152	0.709
25TC2216	#12	-	0.220	0.165	0.709
25TC2519	1/4	M6	0.255	0.191	0.709
25TC3123	5/16	M7+M8	0.318	0.238	0.866
25TC3828	3/8	M10	0.381	0.286	0.866
25TC3224	7/16	-	0.323	0.242	0.866
25TC3622	1/2	M12	0.367	0.275	0.866
25TC4232	9/16	M14	0.429	0.322	0.984
25TC4836	5/8	M16	0.480	0.360	0.984
25TC5440	11/16	M18	0.542	0.406	0.984
25TC5944	3/4	-	0.590	0.442	0.984

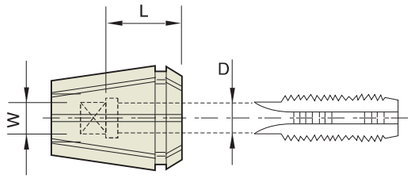
ER 32					
EDP No.	TAP		D(Ø)	W(□)	L
	Inch	Metric			
32TC1411	#6	M3	0.141	0.110	0.709
32TC1613	#8	M4	0.168	0.131	0.709
32TC1915	#10	M4.5+M5	0.194	0.152	0.709
32TC2216	#12	-	0.220	0.165	0.709
32TC2519	1/4	M6	0.255	0.191	0.709
32TC3123	5/16	M7+M8	0.318	0.238	0.866
32TC3828	3/8	M10	0.381	0.286	0.866
32TC3224	7/16	-	0.323	0.242	0.866
32TC3627	1/2	M12	0.367	0.275	0.866
32TC4232	9/16	M14	0.429	0.322	0.984
32TC4836	5/8	M16	0.480	0.360	0.984
32TC5440	11/16	M18	0.542	0.406	0.984
32TC5944	3/4	-	0.590	0.442	0.984
32TC6548	13/16	M20	0.652	0.489	0.984

ER 40					
EDP No.	TAP		D(Ø)	W(□)	L
	Inch	Metric			
40TC1411	#6	M3	0.141	0.110	0.709
40TC1613	#8	M4	0.168	0.131	0.709
40TC1915	#10	M4.5+M5	0.194	0.152	0.709
40TC2216	#12	-	0.220	0.165	0.709
40TC2519	1/4	M6	0.255	0.191	0.709
40TC3123	5/16	M7+M8	0.318	0.238	0.866
40TC3828	3/8	M10	0.381	0.286	0.866
40TC3224	7/16	-	0.323	0.242	0.866
40TC3627	1/2	M12	0.367	0.275	0.866
40TC4232	9/16	M14	0.429	0.322	0.984
40TC4836	5/8	M16	0.480	0.360	0.984
40TC5440	11/16	M18	0.542	0.406	0.984
40TC5944	3/4	-	0.590	0.442	0.984
40TC6548	13/16	M20	0.652	0.489	0.984
40TC6952	7/8	M22	0.697	0.523	0.984
40TC7657	15/16	M24	0.760	0.570	0.984
40TC8060	1	M25	0.800	0.600	1.102

Holemaking
Threading
Milling
Indexable
Rotary Tool Holder

TAP ER COLLET RD

Inch Type: ANSI



Below standard TAP ER Collet conforms to ANSI (For PIPE TAPS)

Unit: Inch

ER 16				
EDP No.	TAP Inch	D(Ø)	W(□)	L
16TP3123	1/8(SS)	0.312	0.234	0.709
16TP4332	1/8(LS)	0.437	0.328	0.709

ER 20				
EDP No.	TAP Inch	D(Ø)	W(□)	L
20TP3123	1/8(SS)	0.312	0.234	0.787
20TP4332	1/8(LS)	0.437	0.328	0.787

ER 25				
EDP No.	TAP Inch	D(Ø)	W(□)	L
25TP3123	1/8(SS)	0.312	0.234	0.787
25TP4332	1/8(LS)	0.437	0.328	0.787
25TP5642	1/4	0.562	0.420	0.787

ER 32				
EDP No.	TAP Inch	D(Ø)	W(□)	L
32TP3123	1/8(SS)	0.312	0.234	0.787
32TP4332	1/8(LS)	0.437	0.328	0.787
32TP5642	1/4	0.562	0.420	0.787

ER 40				
EDP No.	TAP Inch	D(Ø)	W(□)	L
40TP3123	1/8(SS)	0.312	0.234	0.787
40TP4332	1/8(LS)	0.437	0.328	0.787
40TP5642	1/4	0.562	0.420	0.787
40TP7053	3/8	0.700	0.530	0.866
40TP6851	1/2	0.687	0.515	0.866
40TP9067	3/4	0.906	0.679	0.945

* SS (Small Shank Series)
LS (Large Shank Series)

ER NUT PART

FIG. 1

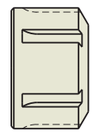
EDP No.	Series	Type
ZZ061	ER11 - NUT	FIG. 1
ZZ063	ER16 - NUT	FIG. 1
ZZ066	ER20 - NUT	FIG. 1

FIG. 2

EDP No.	Series	Type
ZZ069	ER25 - NUT	FIG. 2
ZZ072	ER32 - NUT	FIG. 2
ZZ077	ER40 - NUT	FIG. 2

FIG. 1

FIG. 2



END WRENCH

FIG. 1

EDP No.	Series	Type
ZZ062	ER11	FIG. 1
ZZ064	ER16	FIG. 1
ZZ067	ER20	FIG. 1

FIG. 1

FIG. 2

EDP No.	Series	Type
ZZ070	ER25	FIG. 2
ZZ073	ER32	FIG. 2
ZZ076	ER40	FIG. 2

FIG. 2

END STOP SCREW

FIG. 1

EDP No.	Series	L	d	D	Type
ZZ060	ER11	0.50	0.25	UN 5/16 - 18	FIG. 1

FIG. 1

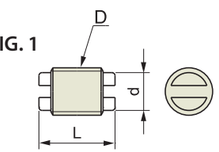
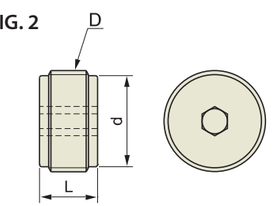


FIG. 2

EDP No.	Series	L	d	D	Type
ZZ065	ER16	0.50	0.35	UN 7/16 - 16	FIG. 2
ZZ068	ER20	0.50	0.48	UN 9/16 - 16	FIG. 2
ZZ071	ER25	0.50	0.60	UN 11/16 - 16	FIG. 2
ZZ074	ER32	0.50	0.79	UN 7/8 - 16	FIG. 2

FIG. 2



SHELL MILL ARBOR CAT

FIG.1

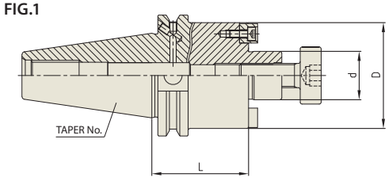
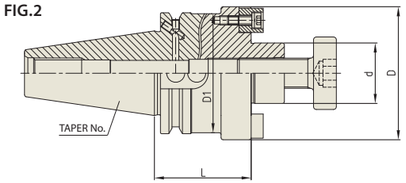


FIG.2



ASME B5.50 - CAT | AT3 | 6.3G | 15,000↑ RPM | AD/B

ASME B5.50-2009-CAT

• STANDARD

Unit: Inch

Edp No.	Taper No.	Model No.	d	L	D	D1	Collar Bolt	Fig.
EK006BX	40	CAT40 AD/B - SMA 1/2 - 1.50	0.500	1.50	1.44	-	UNF1/4-28x16L	1
EK010BX		CAT40 AD/B - SMA 3/4 - 1.50	0.750	1.50	1.69	-	UNF3/8-24x24L	1
EK014BX		CAT40 AD/B - SMA 1.0 - 2.00	1.000	2.00	2.19	-	UNF1/2-20x32L	1
EK017BX		CAT40 AD/B - SMA 1 1/4 - 2.00	1.250	2.00	2.75	2.46	UNF5/8-18x40L	2
EK021BX		CAT40 AD/B - SMA 1 1/2 - 3.00	1.500	3.00	3.81	2.46	UNF3/4-16x47L	2
EL010BX	50	CAT50 AD/B - SMA 3/4 - 1.50	0.750	1.50	1.69	-	UNF3/8-24x24L	1
EL014BX		CAT50 AD/B - SMA 1.0 - 2.00	1.000	2.00	2.19	-	UNF1/2-20x32L	1
EL017BX		CAT50 AD/B - SMA 1 1/4 - 2.00	1.250	2.00	2.75	-	UNF5/8-18x40L	1
EL021BX		CAT50 AD/B - SMA 1 1/2 - 2.50	1.500	2.50	3.81	-	UNF3/4-16x47L	1
EL029BX		CAT50 AD/B - SMA 2.00 - 3.00	2.000	3.00	4.88	3.84	UN1-14x48L	2

• EXTENDED

Unit: Inch

Edp No.	Taper No.	Model No.	d	L	D	D1	Collar Bolt	Fig.
EK306BX	40	CAT40 AD/B - SMA 1/2 - 3.50	0.500	3.50	1.44	-	UNF1/4-28x16L	1
EK310BX		CAT40 AD/B - SMA 3/4 - 3.50	0.750	3.50	1.69	-	UNF3/8-24x24L	1
EK314BX		CAT40 AD/B - SMA 1.0 - 4.00	1.000	4.00	2.19	-	UNF1/2-20x32L	1
EK317BX		CAT40 AD/B - SMA 1 1/4 - 4.00	1.250	4.00	2.75	2.46	UNF5/8-18x40L	2
EK321BX		CAT40 AD/B - SMA 1 1/2 - 4.00	1.500	4.00	3.81	2.46	UNF3/4-16x47L	2
EL310BX	50	CAT50 AD/B - SMA 3/4 - 3.50	0.750	3.50	1.69	-	UNF3/8-24x24L	1
EL314BX		CAT50 AD/B - SMA 1.0 - 4.00	1.000	4.00	2.19	-	UNF1/2-20x32L	1
EL317BX		CAT50 AD/B - SMA 1 1/4 - 4.00	1.250	4.00	2.75	-	UNF5/8-18x40L	1
EL321BX		CAT50 AD/B - SMA 1 1/2 - 4.00	1.500	4.00	3.81	-	UNF3/4-16x47L	1
EL329BX		CAT50 AD/B - SMA 2.0 - 4.00	2.000	4.00	4.88	3.84	UN1-14x48L	2

SHELL MILL ARBOR BT

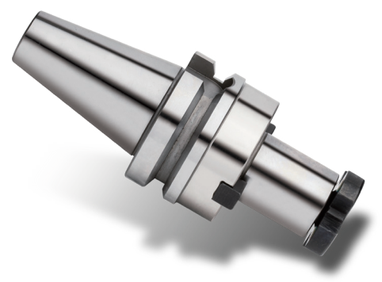


FIG.1

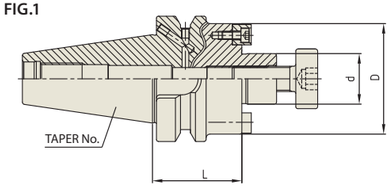
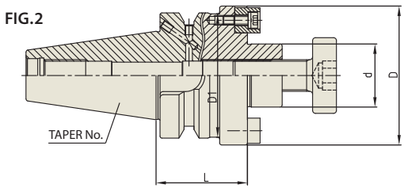


FIG.2



JIS B6339-BT | AT3 | 6.3G | 15,000↑ RPM | AD/B | AD

JIS B6339/MAS 403-BT

• STANDARD

Unit: Inch

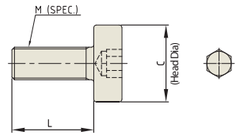
EDP No.	Taper No.	Model No.	d	L	D	D1	Collar Bolt	Fig.
EH006BX	40	BT40 AD/B - SMA 1/2 - 1.75	0.500	1.75	1.44	-	UNF1/4-28x16L	1
EH010BX		BT40 AD/B - SMA 3/4 - 1.77	0.750	1.77	1.69	-	UNF3/8-24x24L	1
EH014BX		BT40 AD/B - SMA 1.0 - 1.77	1.000	1.77	2.19	-	UNF1/2-20x32L	1
EH017BX		BT40 AD/B - SMA 1 1/4 - 1.81	1.250	1.81	2.75	2.44	UNF5/8-18x40L	2
EH021BX		BT40 AD/B - SMA 1 1/2 - 2.36	1.500	2.36	3.81	2.44	UNF3/4-16x47L	2
EI010X	50	BT50 - SMA 3/4 - 1.75	0.750	1.75	1.69	-	UNF3/8-24x24L	1
EI014X		BT50 - SMA 1.0 - 1.75	1.000	1.75	2.19	-	UNF1/2-20x32L	1
EI017X		BT50 - SMA 1 1/4 - 1.75	1.250	1.75	2.75	-	UNF5/8-18x40L	1
EI021X		BT50 - SMA 1 1/2 - 1.75	1.500	1.75	3.81	-	UNF3/4-16x47L	1
EI029X		BT50 - SMA 2.0 - 3.00	2.000	3.00	4.88	3.86	UN1-14x48L	2

• EXTENDED

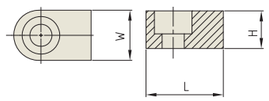
Unit: Inch

EDP No.	Taper No.	Model No.	d	L	D	D1	Collar Bolt	Fig.
EH306BX	40	BT40 AD/B - SMA 1/2 - 3.50	0.500	3.50	1.44	-	UNF1/4-28x16L	1
EH310BX		BT40 AD/B - SMA 3/4 - 4.13	0.750	4.13	1.69	-	UNF3/8-24x24L	1
EH314BX		BT40 AD/B - SMA 1.0 - 4.13	1.000	4.13	2.19	-	UNF1/2-20x32L	1
EH317BX		BT40 AD/B - SMA 1 1/4 - 4.13	1.250	4.13	2.75	2.44	UNF5/8-18x40L	2
EH321BX		BT40 AD/B - SMA 1 1/2 - 4.72	1.500	4.72	3.81	2.44	UNF3/4-16x47L	2
EI310X	50	BT50 - SMA 3/4 - 3.50	0.750	3.50	1.69	-	UNF3/8-24x24L	1
EI314X		BT50 - SMA 1.0 - 4.00	1.000	4.00	2.19	-	UNF1/2-20x32L	1
EI317X		BT50 - SMA 1 1/4 - 4.00	1.250	4.00	2.75	-	UNF5/8-18x40L	1
EI321X		BT50 - SMA 1 1/2 - 4.00	1.500	4.00	3.81	-	UNF3/4-16x47L	1
EI329X		BT50 - SMA 2.0 - 4.00	2.000	4.00	4.88	3.86	UN1-14x48L	2

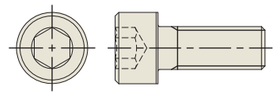
COLLAR BOLT



DRIVE KEY



KEY BOLT



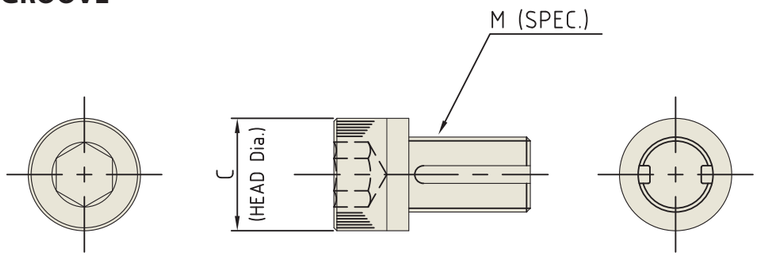
Accessory (Inch)

Unit: Inch

Pilot Dia.	Collar Bolt			Drive Key	
	Spec.	Head Dia. (mm)	EDP No.	Spec. (W x H x L)	EDP No.
1/2	UNF1/4-28x16L	15.7	**ZZ031**	1/4x1/4x5/16	**ZZ021**
3/4	UNF3/8-24x24L	22.4	**ZZ032**	5/16x5/16x3/8	**ZZ022**
1	UNF1/2-20x32L	30.0	**ZZ033**	3/8x3/8x2/5	**ZZ023**
1-1/4	UNF5/8-18x40L	38.1	**ZZ034**	1/2x1/2x1/2	**ZZ024**
1-1/2	UNF3/4-16x47L	47.7	**ZZ035**	5/8x7/15x0.73	**ZZ025**
2	UN1-14x48L	50.8	**ZZ036**	3/4x0.7x0.87	**ZZ026**

* Key Bolt is included with the Drive Key.

COOLANT GROOVE



Accessory (Inch)

Unit: Inch

Pilot Dia.	Collar Bolt		
	Spec.	Head Dia. (mm)	EDP No.
1/2	UNF1/4-28x25.4L	3/8 (9.52)	**ZZ251**
3/4	UNF3/8-24x25.4L	9/16 (14.27)	**ZZ252**
3/4	UNF3/8-24x38.1L	9/16 (14.27)	**ZZ254**
1	UNF1/2-20x31.75L	3/4 (19.05)	**ZZ253**
1	UNF1/2-20x50.8L	3/4 (19.05)	**ZZ255**
1-1/4	UNF5/8-18x38.1L	15/16 (23.81)	**ZZ256**
1-1/2	UNF3/4-16x44.45L	1 1/8 (28.575)	**ZZ257**
2	UN1-14x50.8L	1 1/2 (38.1)	**ZZ258**

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