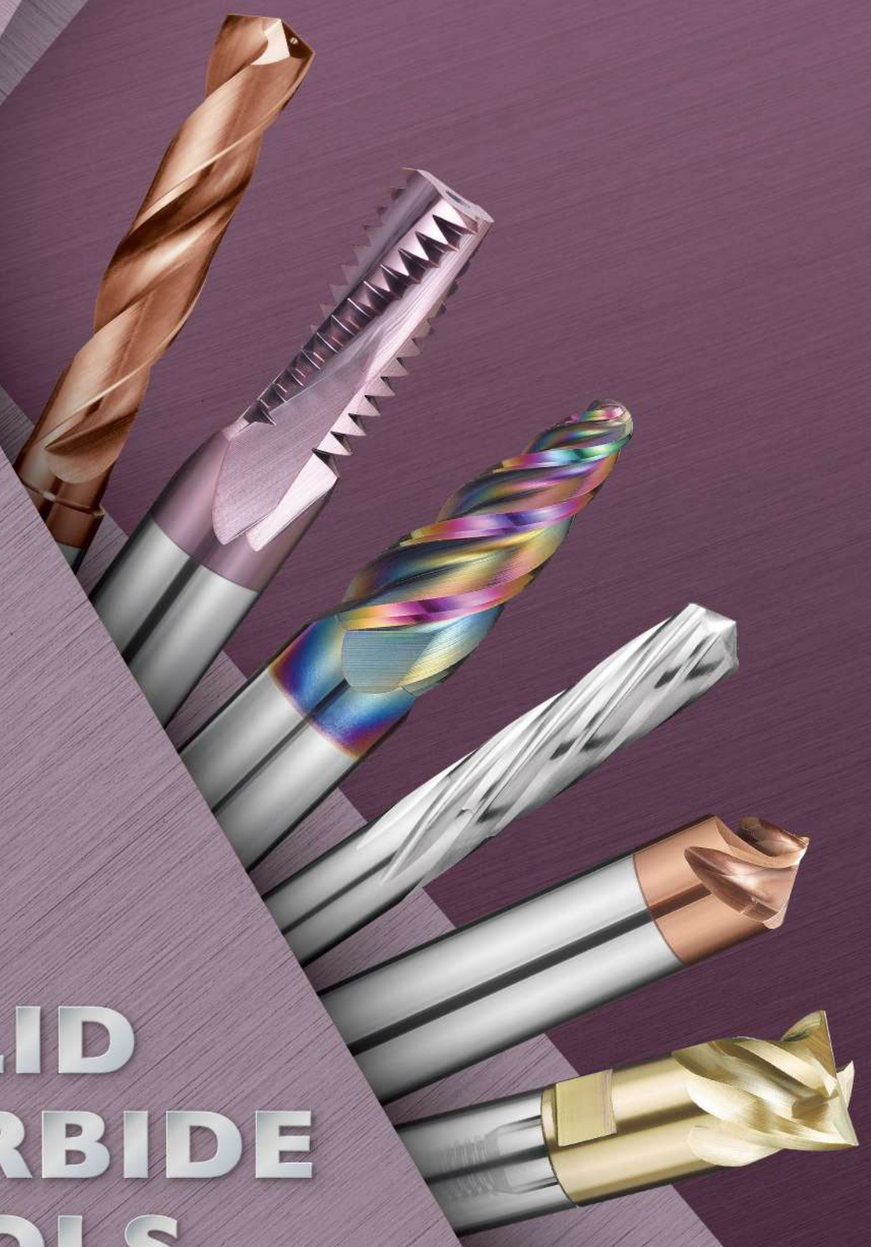
HGT®



SOLID CARBIDE TOOLS

HGT®

SOLID CARBIDE TOOLS

SCAN ME

HG TECHNOLOGY CO., LTD. mail: service@hgt.com.tw

HG TECHNOLOGY CO., LTD.,

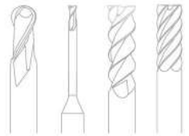
located at Changhua, Taiwan, dedicated to developing, designing, producing, and marketing cutting tools, comprises professionals with sophisticated processing experience that provide extensive services and ensure total customer satisfaction.

Our service range extensively covers 3C, semiconductor, medical care equipment, aerospace, and precision molding industries.

HG Technology continuously develops more advanced processing technologies based on the enterprise philosophy of extending the lifespan of tools, increasing work efficiencies, minimizing production costs in terms of wear and tear of tools, and maximizing customer benefits.

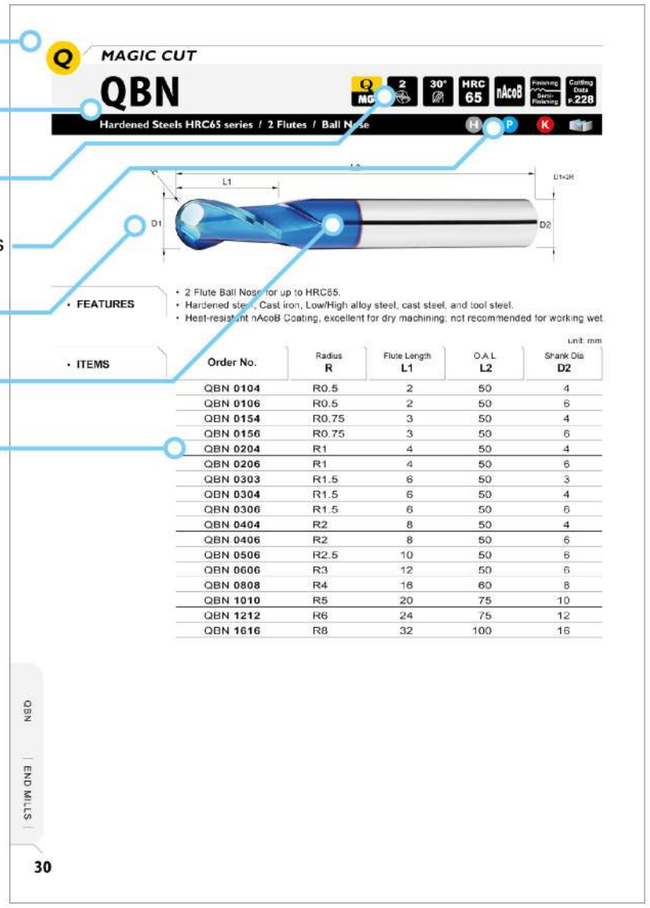
For HGT Cutting Tools, from material to finished products,
HG Technology insists on utilizing the processes provided by the original European manufacturers for the production. We only use high quality and stable Carbide Rods, German and Swiss 6-axis CNC Grinding machines, advanced Swiss Coating technologies, and sophisticated German Digital Measuring Instruments.

With reasonable prices and stable quality, HG Technology has an expanding sales network that currently covers more than 30 countries throughout the world. Based on the enterprise philosophy of maximizing customer's benefits, HG Technology continuously refines itself and grows together with all its customers.



ITEM PAGE STRUCTURE

1. Product Name
2. Item Code
3. Icons
4. Working Material and Applications
5. Product diagram
6. Product Image
7. Product specification



Q MAGIC CUT

QBN

Hardened Steels HRC65 series / 2 Flutes / Ball Nose

Q MG | 2 | 30° | HRC 65 | nAcoB | Finishing Semi-Finishing | Cutting Data P.228

H P K

L1 D1 D2 D1+2R

• FEATURES

- 2 Flute Ball Nose for up to HRC65.
- Hardened steel, Cast iron, Low/High alloy steel, cast steel, and tool steel.
- Heat-resistant nAcoB Coating, excellent for dry machining; not recommended for working wet.

• ITEMS

unit: mm

Order No.	Radius R	Flute Length L1	O.A.L L2	Shank Dia D2
QBN 0104	R0.5	2	50	4
QBN 0106	R0.5	2	50	6
QBN 0154	R0.75	3	50	4
QBN 0156	R0.75	3	50	6
QBN 0204	R1	4	50	4
QBN 0206	R1	4	50	6
QBN 0303	R1.5	6	50	3
QBN 0304	R1.5	6	50	4
QBN 0306	R1.5	6	50	6
QBN 0404	R2	8	50	4
QBN 0406	R2	8	50	6
QBN 0506	R2.5	10	50	6
QBN 0606	R3	12	50	6
QBN 0808	R4	16	60	8
QBN 1010	R5	20	75	10
QBN 1212	R6	24	75	12
QBN 1616	R8	32	100	16

QBN | END MILLS

30

HGT®

SOLID CARBIDE TOOLS

THE SYSTEM CODE INTRODUCES

V — **V70** — Hardened Steels HRC70 series — 14

Q — **MAGIC CUT** — Hardened Steels HRC65 series — 26

S — **SUPER MILL** — For HRC60 steels series — 54

E — **EFFICIENCY MILLS** — For HRC55 steels series — 94

I — **I.pro** — Titanium & Stainless cutting series — 123

D — **D MILL** — Aluminum & Copper cutting series — 138

G — **G.pro** — Graphite cutting series — 155

A — **AX MILL** — Resin & Acrylic Cutting series — 164

COM — **COM.pro** — CFRP machining series — 168

EX — **MAGIC SHANK** — Exchangeable Head End Mills series — 171

T — **T.pro** — Thread milling series — 175

C — **C.pro** — Chamfering series — 181

CD — **CD** — Carbide drills series — 186

CR — **CR** — Carbide reamers series — 198

DT — **DEN.pro** — Dental end mills — 200

INCH — **INCH SPECIFICATION** — 210

CONTENTS

	Page	Mill Dia.	Coating	HRC 45-55	HRC 55-60	HRC 60-65	HRC 65-70	Cast Iron	Titanium Alloy	Stainless Steels	Aluminum Alloy	Copper Alloy	Graphite	Superalloy, Heat-resistant Steels
V70	14													
V70B	15	1~12	i-plus	◎	◎	◎	◎							
V70BTR	16	6~12	i-plus	◎	◎	◎	◎							
V70BB	17	4~12	i-plus	◎	◎	◎	◎							
V70BBC	18	4~10	i-plus	◎	◎	◎	◎							
V70EB	19	3~16	i-plus	◎	◎	◎	◎							
V70E	20	6~16	i-plus	◎	◎	◎	◎							
V70R	21	6~12	i-plus	◎	◎	◎	◎							
V70RD	22	1~12	i-plus	◎	◎	◎	◎							
V70BF	23	0.5~4	i-plus	◎	◎	◎	◎							
V70EFB	24	1~4	i-plus	◎	◎	◎	◎							
V70RFB	25	1~3	i-plus	◎	◎	◎	◎							
MAGIC CUT	26													
QBMS(QBM)	27	0.2~1.8	i-X	◎	◎	◎								
QB	28	1~16	ALTiN	◎	◎	◎								
QBGS(QBG)	29	4~12	i-X	◎	◎	◎								
QBN	30	1~16	nAcoB	◎	◎	◎								
QBX	31	1~16	i8	◎	◎	◎								
QBHN	32	1~12	nAcoB	◎	◎	◎								
QBHX	33	1~12	i8	◎	◎	◎								
QBLS/M/L	34	2~20	ALTiN	◎	◎	◎								
QBLSX/MX/LX	35	2~20	i8	◎	◎	◎								
QBP	36	1~12	ALTiN	◎	◎	◎								
QEMS(QEM)	37	0.2~1.8	i-X	◎	◎	◎								
QEB	38	1~20	ALTiN	◎	◎	◎								
QEBGS(QEBG)	39	4~12	i-X	◎	◎	◎								
QEBN	40	1~20	nAcoB	◎	◎	◎								
QEX	41	3~20	i8	◎	◎	◎								
QELB	42	6~12	ALTiN	◎	◎	◎								
QRD	43	1~12	ALTiN	◎	◎	◎								
QRDGS(QRDG)	44	4~12	i-X	◎	◎	◎								
QRDN	45	1~12	nAcoB	◎	◎	◎								
QRHN	46	3~12	nAcoB	◎	◎	◎								
QRHX	47	3~12	i8	◎	◎	◎								
QERC	48	6~12	ALTiN	◎	◎	◎								
QRHLX	49	6~12	i8	◎	◎	◎								
QBF	50	0.5~4	ALTiN	◎	◎	◎								
QEFAS(QEFA)	51	0.5~3	i-X	◎	◎	◎								
QRFAS(QRFA)	52	1~3	i-X	◎	◎	◎								
QRFBS(QRFB)	53	1~3	i-X	◎	◎	◎								

CONTENTS

	Page	Mill Dia.	Coating	HRC 45-55	HRC 55-60	HRC 60-65	HRC 65-70	Cast Iron	Titanium Alloy	Stainless Steels	Aluminum Alloy	Copper Alloy	Graphite	Superalloy, Heat-resistant Steels
SUPER MILL	54													
SBM	55	0.2~1.8	ALTiN	◎	◎			○				○		
SBMV(SBMX)	56	0.2~1.8	i-X	◎	◎			○				○		
SB	57	1~16	ALTiN	◎	◎			○				○		
SBK	58	1~16	G100	◎	◎			○				○		
SBX	59	1~16	i8	◎	◎			○				○		
SBB	60	1~16	ALTiN	◎	◎			○				○		
SBLS/M/L	61	1~20	ALTiN	◎	◎			○				○		
SBLSX/MX/LX	62	1~20	i8	◎	◎			○				○		
SBC	63	2~6	ALTiN	◎	◎			○				○		
SBCX	64	2~6	i8	◎	◎			○				○		
SEM	65	0.2~1.8	ALTiN	◎	◎			○				○		
SEMV(SEMX)	66	0.2~1.8	i-X	◎	◎			○				○		
SEA	67	1~20	ALTiN	◎	◎			○				○		
SEB	68	1~20	ALTiN	◎	◎			○				○		
SEK	69	1~20	G100	◎	◎			○				○		
SEX	70	3~20	i8	◎	◎			○				○		
SEP	71	3~20	HELICA	◎	◎			○				○		
SEWV	72	3~20	G-plus	◎	◎			○				○		
SEPC	73	2~12	i8	◎	◎			○	○	○	○	○		○
SELA	74	6~12	ALTiN	◎	◎			○				○		
SELB	75	3~16	ALTiN	◎	◎			○				○		
SELD	76	4~12	ALTiN	◎	◎			○				○		
SHA	76	6~16	ALTiN	◎	◎			○				○		
SEZ	77	4~12	ALTiN	◎	◎			○				○		
SRW	78	3~12	G-plus	◎	◎			○				○		
SRA	79	4~16	ALTiN	◎	◎			○				○		
SRB	80	4~16	ALTiN	◎	◎			○				○		
SRC	81	3~12	ALTiN	◎	◎			○				○		
SRD	82	1.5~12	ALTiN	◎	◎			○				○		
SRDX	83	3~12	i8	◎	◎			○				○		
SRK	84	3~12	G100	◎	◎			○				○		
SERC	85	6~12	ALTiN	◎	◎			○				○		
SERCX	86	6~12	i8	◎	◎			○				○		
SRP	87	6~12	ALTiN	◎	◎			○				○		
SBF	88	0.5~4	ALTiN	◎	◎			○				○		
SBFV(SBFX)	89	0.5~4	i-X	◎	◎			○				○		
SEFA	90	1~3	ALTiN	◎	◎			○				○		
SEFAV(SEFAX)	91	1~3	i-X	◎	◎			○				○		
SEF	92	1~3	ALTiN	◎	◎			○				○		

CONTENTS

	Page	Mill Dia.	Coating	HRC 45-55	HRC 55-60	HRC 60-65	HRC 65-70	Cast Iron	Titanium Alloy	Stainless Steels	Aluminum Alloy	Copper Alloy	Graphite	Superalloy, Heat-resistant Steels
SEFV(SEFX)	93	1~3	i-X	◎	◎			◎				○		
E EFFICIENCY MILLS	94													
BM	95	0.4~1.8	TiaLN	◎				◎				○		
BS	96	1~4	TiaLN	◎				◎				○		
BA	97	1~20	TiaLN	◎				◎				○		
BB	98	1~12	TiaLN	◎				◎				○		
BLS/M/L	99	1~20	TiaLN	◎				◎				○		
EM	100	0.4~1.8	TiaLN	◎				◎				○		
ES	101	1~4	TiaLN	◎				◎				○		
EA	102	1~20	TiaLN	◎				◎				○		
EB	103	1~20	TiaLN	◎				◎				○		
EC	104	3~20	TiaLN	◎				◎				○		
EP	105	3~20	TiaLN	◎				◎				○		
ED	106	3~16	TiaLN	◎				◎	○	○		○		
ELA	107	6~12	TiaLN	◎				◎				○		
ELB	108	3~16	TiaLN	◎				◎				○		
ELC	109	2~12	TiaLN	◎				◎				○		
ELD	110	2~20	TiaLN	◎				◎				○		
EH	111	6~20	TiaLN	◎				◎				○		
EHL	112	6~20	TiaLN	◎				◎				○		
EG	113	6~20	TiaLN	◎				◎				○		
EGA	114	6~20	TiaLN	◎				◎				○		
ETL	115	1~4	TiaLN	◎				◎				○		
ET	116	0.5~10	TiaLN	◎				◎				○		
ERA	118	3~12	TiaLN	◎				◎				○		
ERB	119	3~12	TiaLN	◎				◎				○		
ERC	120	6~12	TiaLN	◎				◎				○		
BF	121	1~4	TiaLN	◎				◎				○		
EFA	122	1~3	TiaLN	◎				◎				○		
I I.pro	123													
SBBIV(SBBI)	124	3~12	G-plus	○					◎	◎				◎
SIBTR	125	6~12	G-X	○					◎	◎				◎
SEIV(SEI)	126	3~20	G-plus	○					◎	◎				◎
SEPS	127	3~20	HELICA	○					◎	◎				◎
SEPIV(SEPI)	128	3~20	G-plus	○					◎	◎				◎
SIBV(SIB)	129	3~20	G-plus	○					◎	◎				◎
SHAIV(SHAI)	130	6~16	G-plus	○					◎	◎				◎
SEGIV(SEGI)	131	6~20	G-plus	○					◎	◎				◎
SIGP	131	6~12	G-X	○					◎	◎				◎
SRIPV(SRIP)	132	3~12	G-plus	○					◎	◎				◎

CONTENTS

	Page	Mill Dia.	Coating	HRC 45-55	HRC 55-60	HRC 60-65	HRC 65-70	Cast Iron	Titanium Alloy	Stainless Steels	Aluminum Alloy	Copper Alloy	Graphite	Superalloy, Heat-resistant Steels
SIW	133	3~20	G-plus	○					◎	◎				◎
SIWH	134	3~12	G-X	○					◎	◎				◎
SIRW	135	3~12	G-plus	○					◎	◎				◎
SIRWH	136	3~12	G-X	○					◎	◎				◎
SIW5D	137	4~20	G-X	○					◎	◎				◎
D D MILL	138													
DBTR	139	6~12	D-X								◎			
DB	140	1~12									◎			
DESV	141	3~12	D-X								◎			
DES	141	2~12									◎			
DEA	142	1~16									◎			
DEB	143	1~16									◎			
DEC	144	2~20									◎			
DED	145	2~20									◎			
DEDP	146	2~20	DLC								◎			
DEL	147	2~20									◎			
DEPW	148	3~20									◎			
DEPWS	149	3~20	D-X								◎			
DEG	150	6~16									◎			
DFR	151	6~20									◎			
DRC	152	3~16									◎			
DEPWR	153	3~16									◎			
DBX	154	1~12	CRN								○	◎		
DEDX	154	2~20	CRN								○	◎		
G G.pro	155													
SGBB	156	4~12	Diamond										◎	
SGBF	157	4~12	Diamond										◎	
SGEB	158	4~12	Diamond										◎	
SGRD	159	4~12	Diamond										◎	
SGRB	160	4~12	Diamond										◎	
SGBS	161	1.0~4.0	Diamond										◎	
SGES	162	1.0~4.0	Diamond										◎	
SGRS	163	1.0~4.0	Diamond										◎	
A AX MILL	164													
APB	165	1~12		For A.B.S.										
APES	166	2~12												
APEB	167	4~12												
COM COM.pro	168													
CFPA	169	6~12	Diamond	For CFPA. CFRA.										
CFRA	170	6~12	Diamond											

CONTENTS

	Page	Mill Dia.	Coating	HRC 45-55 ▶	HRC 55-60 ▶	HRC 60-65 ▶	HRC 65-70 ▶	Cast Iron	Titanium Alloy	Stainless Steels	Aluminum Alloy	Copper Alloy	Graphite	Superalloy, Heat-resistant Steels
EX MAGIC SHANK	171													
EX2CS	172	10~20												
EX2SB	172	10~20	i8	◎	◎			○				○		
EX2SRD	173	10~20	i8	◎	◎			○				○		
EX2SEB	173	10~20	i8	◎	◎			○				○		
EX2DPW	174	10~20									◎			
EX2SIW	174	10~20	G-plus						◎	◎				◎
T T.pro	175													
EMT	176	P0.5~P2.5	G100	◎				○	○	○	○	○	○	○
EMTW	177	P0.5~P2.5	G100	◎				○	○	○	○	○	○	○
EMTH	178	P0.7~P2.5	G100	◎				○	○	○	○	○	○	○
EMTS	179	P0.5~P1.25	i8	◎				○	○	○	○	○	○	○
EMTF	180	P0.5~P1.75	G100	◎				○	○	○	○	○	○	○
C C.pro	181													
ECM	182	4~12	TiaLN	◎				○	○	○	○	○	○	○
ECMP	183	4~12	i8	◎				○	○	○	○	○	○	○
ECMV	184	4~12	i8	◎				○	○	○	○	○	○	○
ECR	185	1~12		◎				○	○	○	○	○	○	○
EMCR	185	0.5~0.9		◎				○	○	○	○	○	○	○
CD CD	186													
ESD	187	3~20		◎				◎	○	○	○	◎	○	○
ESD2	187	3~20		◎				◎	○	○	○	◎	○	○
ESDC	188	3~20	TiaLN	◎				◎	○	○	○	◎	○	○
ESDA	188	3~20	TiaLN	◎				◎	○	○	○	◎	○	○
ESDS	189	6~20	TiaLN	◎				◎	○	○	○	◎	○	○
ESDL	189	6~20	TiaLN	◎				◎	○	○	○	◎	○	○
CCD	190	0.5~5		◎				◎	○	○	○	◎	○	○
CCDA	190	0.5~5		◎				◎	○	○	○	◎	○	○
CD	191	2~13	TiaLN	◎				◎				◎		
CDA	192	3~20	TiaLN	◎				◎				◎		
CDB	193	3~20	TiaLN	◎				◎				◎		
CDC	194	3~12	TiaLN	◎				◎				◎		
CDAC	195	3~20	i8	◎				◎				◎		
CDBC	196	3~20	i8	◎				◎				◎		
CDCC	197	3~10	i8	◎				◎				◎		
CR CR	198													
CRA	199	2~12		◎				◎				◎		

CONTENTS

	Page	Mill Dia.	Coating	Zirconia	CoCr. / Titanium	PMMA. / Wax
DT DEN.pro	200					
TOBF	201	0.6~3.0	Diamond	◎		
TTBF	202	0.8~3.0	G-plus		◎	
TTFA	203	0.5~2.5	G-plus		◎	
TTRA	204	1.0~2.5	G-plus		◎	
TTRB	204	2.0~4.0	G-plus		◎	
TWBF	205	0.8~3.0				◎
TAZ	206	0.6~2.5	Diamond	◎		
TAT	206	1.0~2.0	G-plus		◎	
TIZ3	207	0.6~2.5	Diamond	◎		
TIZ6	207	1.0~2.5	Diamond	◎		
TIT6	207	0.6~3.0	G-plus		◎	
TIT3	207	0.6~3.0	G-plus		◎	
TRZ	208	0.6~2.0	Diamond	◎		
TRT	208	0.6~2.0	G-plus		◎	
TVZS	209	1.0~2.0	Diamond	◎		
TVZM	209	1.0~2.0	Diamond	◎		

CONTENTS

	Page	Mill Dia.	Coating	HRC 45-55 ▶	HRC 55-60 ▶	HRC 60-65 ▶	HRC 65-70 ▶	Cast Iron	Titanium Alloy	Stainless Steels	Aluminum Alloy	Copper Alloy	Graphite	Superalloy, Heat-resistant Steels
INCH	210													
IEA	211	1/32~3/4	TiaLN	◎				◎				○		
IEB	212	1/32~3/4	TiaLN	◎				◎				○		
IELC	213	1/8~3/4	TiaLN	◎				◎				○		
IELD	214	1/16~3/4	TiaLN	◎				◎				○		
IBA	215	1/8~3/4	TiaLN	◎				◎				○		
IBB	216	3/64~3/4	TiaLN	◎				◎				○		
IBALF	217	1/8~3/4	TiaLN	◎				◎				○		
IBBLF	218	1/8~3/4	TiaLN	◎				◎				○		
IRB	219	1/8~1/2	TiaLN	◎				◎				○		
IRC	220	1/4~1/2	TiaLN	◎				◎				○		
ISW	221	1/16~3/4	i8	◎	◎			◎				○		
ISWR	222	1/16~3/4	i8	◎	◎			◎				○		
IIA	223	1/8~5/8	G-plus						◎	◎				◎
IIAR	224	1/8~5/8	G-plus						◎	◎				◎
IAES	225	1/8~5/8	DLC-X								◎			
IAE	226	1/8~5/8									◎			

TOLERANCE

Square End Mills

(mm)

Flute Dia.	Dia. Tolerance
1.0	0~ -0.015
1.5	0~ -0.015
2.0	0~ -0.015
2.5	0~ -0.015
3.0	0~ -0.015
4.0	0~ -0.015
5.0	0~ -0.015
6.0	0~ -0.015
8.0	0~ -0.020
10.0	0~ -0.020
12.0	0~ -0.020
16.0	0~ -0.020
20.0	0~ -0.020

Ball Nose End Mills

(mm)

Flute Radius	R Tolerance
R0.5	±0.01
R1	±0.01
R1.5	±0.01
R2	±0.01
R2.5	±0.01
R3	±0.01
R4	±0.01
R5	±0.01
R6	±0.01
R8	±0.02
R10	±0.02

Corner Radius End Mills

(mm)

Flute Dia.	R Tolerance
1.0	±0.01
2.0	±0.01
3.0	±0.01
4.0	±0.01
6.0	±0.01
8.0	±0.01
10.0	±0.01
12.0	±0.01
16.0	±0.015

Shank

(mm)

Shank Dia.(h6)	Shank Tolerance
ø 3	0~ -0.008
ø 4	0~ -0.008
ø 6	0~ -0.008
ø 8	0~ -0.009
ø 10	0~ -0.009
ø 12	0~ -0.011
ø 16	0~ -0.011
ø 20	0~ -0.013

RECOMMENDED CUTTING INSTRUCTIONS

1. In order to enhance processing efficiency and extend life of cutters, please use the balanced chucks with high rigidity and high accuracy.
2. Make overhang enough for processing. If it's necessary to extend the milling cutter, please be sure to reduce spindle speed and feed speed.
3. If there's abnormal sound or vibration during processing, please adjust cutting data to prevent cutters from being influenced or broken.
4. Please choose correct cutting oil to maximize efficiency.
5. The result of cutting data depends on working materials, machines, work clips, programming and etc. Cutting datas are for reference. You may increase cutting data starting from 50%.

ICONS

- **Flutes**

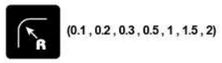
- **Helix Angle**

- **Work Material Hardness**

- **Coating**

- **Roughing Pitch**

- **Corner Radius**



- **Tip Angle**

- **Applications**

- **Statistics For Drills**

SOLID CARBIDE

Grade	V MG	Q MG	S MG	MG	G MG	T MG
ISO Classification	K05-K10	K05-K10	K10-K20	K10-K20	K10-K20	K05-K10
CO (%)	9.0	9.0	12.0	10.0	6.0	9.0
WC grain size (um)	0.2-0.4	0.2-0.4	0.5	0.6	0.8	0.2-0.4

WORK MATERIAL

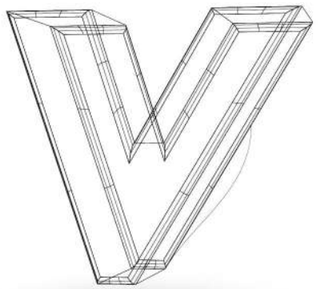
ISO	H	P	K	M	S	N
MATERIAL	Hardened steel	Low alloy steel High alloy steel, cast steel, tool steel	Cast iron	Stainless steel	High temp. alloys Titanium and Ti alloys	Aluminum alloy Copper alloys Non-metallic

HARD COATING PROPERTIES

Coating Type	Symbol Color	Nanohard-ness (GPa)	Thickness (μm)	Friction Coefficient	Max usage Temp(ºC)	Coating Temp(ºC)
TiaLN	Black	30	1 - 4	0.4	800	450↑
ALTiN	Black	38	1 - 4	0.6	900	450↑
nACoB	Blue	45	1 - 4	0.45	1200	400↑
HELICA	Copper	30	1 - 4	0.25	1000	480↑
CrN	Metal-silver	18	1 - 7	0.4	700	200 - 400
DLC	Black	20	1 - 3	0.15	400	150 - 250
G100	Burgundy-violet	30	1 - 4	0.4	800	
i8	Gold-brass	47	1 - 4	0.45	900	
Diamond	Black Gray					
G-plus	White Gold		1 - 4	0.25	1100	450
G-X	Purple gradient		2 - 7	0.4	1000	450
i-plus	Copper		1 - 3	0.3	1200	
i-X	Golden gradient		2 - 7	0.55	1100	450
D-X	Yellow-Blue gradient		0.1 -1	0.05 - 0.1	500	250 - 650
DLC-X	Full Colored		0.5 - 1	0.25	350	250

COATING APPLICATIONS

Coating Type	Symbol Color	Introduce coating on different materials
TiaLN	Black	General steels; wet cutting (HRC35~45)
ALTiN	Black	Hardened steels; dry and wet cutting (HRC45~65)
nACoB	Blue	Hardened steels; dry cutting (HRC55~65)
HELICA	Copper	General steels; wet cutting.
CrN	Metal-silver	Good adhesive force; excellent for Copper Alloy.
DLC	Black	High thermal conductivity and low coefficient of friction. Excellent for Aluminum Alloy.
G100	Burgundy-violet	General steels; wet cutting (HRC35~45)
i8	Gold-brass	Hardened steels; dry and wet cutting (HRC55-65)
Diamond	Black Gray	For Graphite, Zirconium CFRP.GFRP cutting.
G-plus	White Gold	Tough materials, Titanium, Nickel and heat-resistant alloys.
G-X	Purple gradient	Tough materials, Titanium, Nickel and heat-resistant alloys.
i-plus	Copper	Hardened steels; dry and wet cutting (HRC55~70)
i-X	Golden gradient	Hardened steels (HRC55~70)
D-X	Yellow-Blue gradient	High thermal conductivity and low coefficient of friction. Excellent for Aluminum Alloy.
DLC-X	Full Colored	Excellent for Aluminum Alloy.



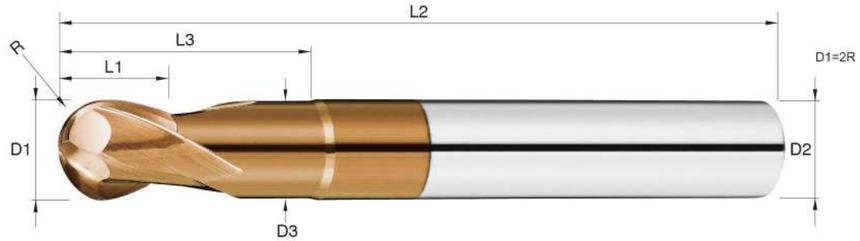
HARDENED STEELS HRC70 SERIES

V70

V70B

V MG | 2 | 30° | HRC 70 | i-plus | Finishing / Semi-Finishing | Cutting Data P.227

Hardened Steels HRC70 series / 2 Flute / Ball Nose H P



- **FEATURES**
  - 2 Flute Ball Nose with special angle ground for workpiece up to HRC70.
  - VMG Special Micro Grain Carbide. High hardness, high rigidity, and high bending resistance.
  - i-plus new coating offers great heat resistance and friction resistance; suitable for dry cutting at high speed.

- **ITEMS**

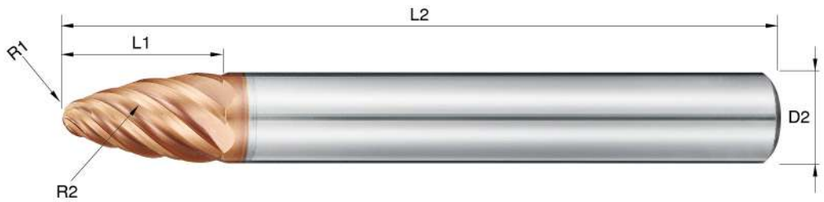
unit: mm

Order No.	Radius R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
V70B **0104**	R0.5	0.95	1.0	3	50	4
V70B **0154**	R0.75	1.45	1.0	3	50	4
V70B **0204**	R1	1.92	2.0	5	50	4
V70B **0306**	R1.5	2.90	3.0	8	50	6
V70B **0406**	R2	3.88	4.0	10	50	6
V70B **0506**	R2.5	4.80	5.0	13	50	6
V70B **0606**	R3	5.80	6.0	15	50	6
V70B **0808**	R4	7.70	8.0	20	60	8
V70B **1010**	R5	9.60	10.0	25	75	10
V70B **1212**	R6	11.50	12.0	30	75	12

V70BTR

V MG | 6 | 39° | HRC 70 | i-plus | Finishing Semi-Finishing

Hardened Steels HRC70 series / 6 Flute / Taper Barrel Type H P

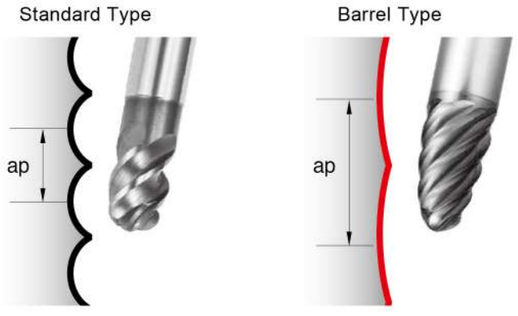


- **FEATURES**
  - 6 Flute Barrel Type for precision milling up to HRC70.
  - Large radius edge in the cutting area with multi-flute design brings higher milling efficiency.
  - Compared to ball nose end mills, Barrel Type has wider ap stepover to reduce machining time.
  - Lower cusp height to improve surface finish.
  - i-plus new coating offers great heat resistance and friction resistance; suitable for dry cutting at high speed.

- **ITEMS**

unit: mm

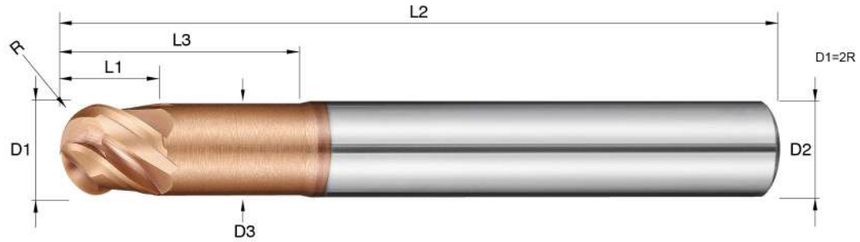
Order No.	Radius R1	Radius R2	Flute Length L1	O.A.L. L2	Shank Dia D2
V70BTR **1045D06**	R1.0	R45	14.0	6	75
V70BTR **1545D08**	R1.5	R45	16.0	8	75
V70BTR **2040D10**	R2.0	R40	17.5	10	100
V70BTR **2040D12**	R2.0	R40	18.5	12	100



V70BB

V MG | 4 | 39° | HRC 70 | i-plus | Finishing Semi-Finishing

Hardened Steels HRC70 series / 4 Flute / Ball Nose H P



- **FEATURES**
  - 4 Flute Ball Nose with special angle ground for workpiece up to HRC70.
  - Effective length design for profile milling.
  - i-plus new coating offers great heat resistance and friction resistance; suitable for dry cutting at high speed.

- **ITEMS**

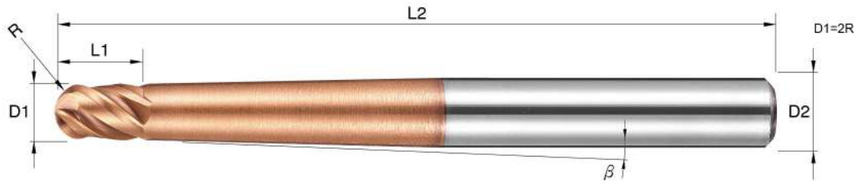
unit: mm

Order No.	Radius R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
V70BB **0406**	R2	3.88	4	10	50	6
V70BB **0606**	R3	5.80	6	15	50	6
V70BB **0808**	R4	7.70	8	20	60	8
V70BB **1010**	R5	9.60	10	25	75	10
V70BB **1212**	R6	11.50	12	30	75	12

V70BBC

V MG | 4 | 39° | HRC 70 | i-plus | Finishing Semi-Finishing

Hardened Steels HRC70 series / 4 Flute / Taper Neck / Ball Nose H P



• FEATURES

- 4 Flute Ball Nose with special angle ground for workpiece up to HRC70.
- Taper Angle(β): 1.5º，3º，5º suitable for working on an inclined surface.
- i-plus new coating offers great heat resistance and friction resistance; suitable for dry cutting at high speed.

• ITEMS

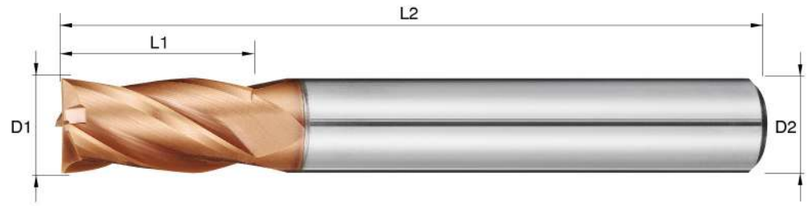
unit: mm

Order No.	Corner R R	Flute Length L1	O.A.L. L2	Shank Dia D2	Taper Angle β
V70BBC **0406**	R2	6	100	6	1.5°
V70BBC **0406A**	R2	6	100	6	3°
V70BBC **0406B**	R2	6	100	6	5°
V70BBC **0608**	R3	9	100	8	1.5°
V70BBC **0608A**	R3	9	100	8	3°
V70BBC **0608B**	R3	9	100	8	5°
V70BBC **0810**	R4	12	100	10	1.5°
V70BBC **0810A**	R4	12	100	10	3°
V70BBC **0810B**	R4	12	100	10	5°
V70BBC **1012**	R5	15	100	12	1.5°
V70BBC **1012A**	R5	15	100	12	3°
V70BBC **1012B**	R5	15	100	12	5°

V70EB

V MG | 4 | 30° | HRC 70 | i-plus | Finishing Semi-Finishing

Hardened Steels HRC70 series / 4 Flute / Square H P



• FEATURES

- 4 Flute Square with special angle ground for workpiece up to HRC70.
- VMG Special Micro Grain Carbide. High hardness, high rigidity, and high bending resistance.
- i-plus new coating offers great heat resistance and friction resistance; suitable for dry cutting at high speed.

• ITEMS

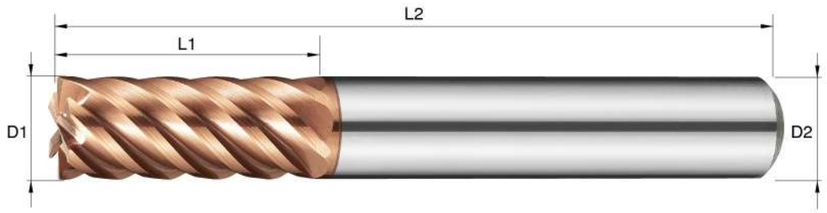
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
V70EB **0306**	3.0	8	50	6
V70EB **0406**	4.0	11	50	6
V70EB **0506**	5.0	13	50	6
V70EB **0606**	6.0	16	50	6
V70EB **0808**	8.0	20	60	8
V70EB **1010**	10.0	25	75	10
V70EB **1212**	12.0	30	75	12
V70EB **1616**	16.0	40	100	16

V70E

V MG | 6 | 45° | HRC 70 | i-plus | Finishing Semi-Finishing | Cutting Data P.227

Hardened Steels HRC70 series / 6 Flute / Square H P



• FEATURES

- 6 Flute Square with special angle ground for workpiece up to HRC70.
- VMG Special Micro Grain Carbide. High hardness, high rigidity, and high bending resistance.
- i-plus new coating offers great heat resistance and friction resistance; suitable for dry cutting at high speed.

• ITEMS

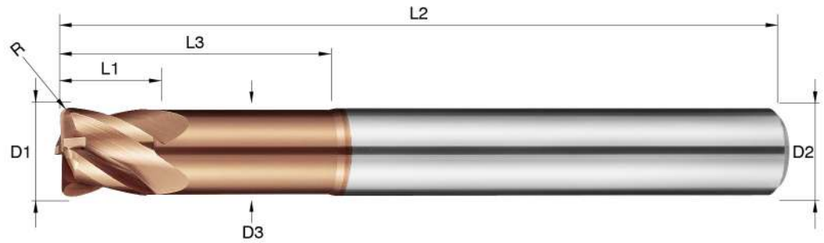
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
V70E **0606**	6.0	16	50	6
V70E **0808**	8.0	20	60	8
V70E **1010**	10.0	25	75	10
V70E **1212**	12.0	30	75	12
V70E **1616**	16.0	40	100	16

V70R

V MG | 4 | 30° | R | HRC 70 | i-plus | Finishing Semi-Finishing | Cutting Data P.227

Hardened Steels HRC70 series / 4 Flute / Coener Radius H P



• FEATURES

- 4 Flute Corner Radius with special angle ground for workpiece up to HRC70.
- VMG Special Micro Grain Carbide. High hardness, high rigidity, and high bending resistance.
- i-plus new coating offers great heat resistance and friction resistance; suitable for dry cutting at high speed.

• ITEMS

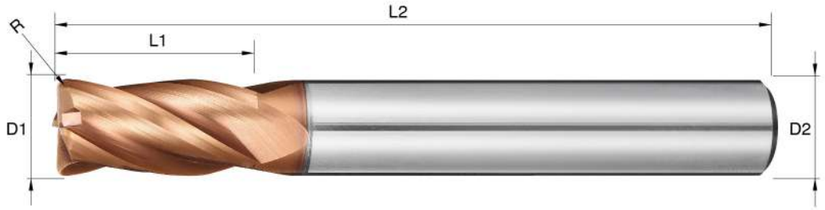
unit: mm

Order No.	Diameter D1	Corner R R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
V70R **0605**	6.0	0.5	5.80	6	18	50	6
V70R **0610**	6.0	1.0	5.80	6	18	50	6
V70R **0805**	8.0	0.5	7.70	8	24	60	8
V70R **0810**	8.0	1.0	7.70	8	24	60	8
V70R **1005**	10.0	0.5	9.60	10	30	75	10
V70R **1010**	10.0	1.0	9.60	10	30	75	10
V70R **1020**	10.0	2.0	9.60	10	30	75	10
V70R **1205**	12.0	0.5	11.50	12	36	75	12
V70R **1210**	12.0	1.0	11.50	12	36	75	12
V70R **1220**	12.0	2.0	11.50	12	36	75	12

V70RD

V MG | 4 | 30° | R | HRC 70 | i-plus | Finishing Semi-Finishing

Hardened Steels HRC70 series / 4 Flute / Coener Radius H P



- **FEATURES**
  - 4 Flute Corner Radius with special angle ground for workpiece up to HRC70.
  - VMG Special Micro Grain Carbide. High hardness, high rigidity, and high bending resistance.
  - i-plus new coating offers great heat resistance and friction resistance; suitable for dry cutting at high speed.

- **ITEMS**

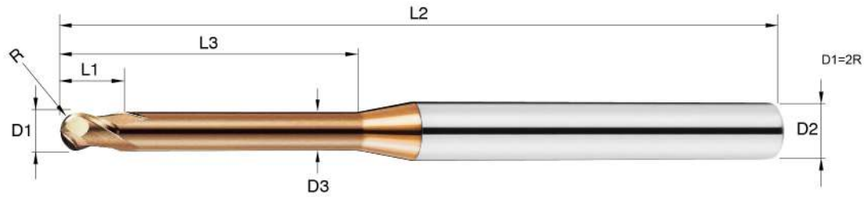
unit: mm

Order No.	Diameter D1	Corner R R	Flute Length L1	O.A.L. L2	Shank Dia D2
V70RD **0102**	1.0	0.2	2	50	4
V70RD **01502**	1.5	0.2	3	50	4
V70RD **01503**	1.5	0.3	3	50	4
V70RD **0202**	2.0	0.2	4	50	4
V70RD **0203**	2.0	0.3	4	50	4
V70RD **0205**	2.0	0.5	4	50	4
V70RD **0302**	3.0	0.2	6	50	6
V70RD **0305**	3.0	0.5	6	50	6
V70RD **0402**	4.0	0.2	8	50	6
V70RD **0405**	4.0	0.5	8	50	6
V70RD **0410**	4.0	1.0	8	50	6
V70RD **0605**	6.0	0.5	12	50	6
V70RD **0610**	6.0	1.0	12	50	6
V70RD **0805**	8.0	0.5	16	60	8
V70RD **0810**	8.0	1.0	16	60	8
V70RD **1005**	10.0	0.5	20	75	10
V70RD **1010**	10.0	1.0	20	75	10
V70RD **1020**	10.0	2.0	20	75	10
V70RD **1030**	10.0	3.0	20	75	10
V70RD **1205**	12.0	0.5	24	75	12
V70RD **1210**	12.0	1.0	24	75	12
V70RD **1220**	12.0	2.0	24	75	12
V70RD **1230**	12.0	3.0	24	75	12

V70BF

V MG | 2 | 30° | HRC 70 | i-plus | Finishing Semi-Finishing

Hardened Steels HRC70 series / 2 Flute / Long Neck / Ball Nose H P



- **FEATURES**
  - R0.25~R2 mm 2 Flute long neck Ball Nose for precision milling up to HRC70.
  - Effective length 4~30 mm excellent for rib milling.
  - i-plus new coating offers great heat resistance and friction resistance; suitable for dry cutting at high speed.

- **ITEMS**

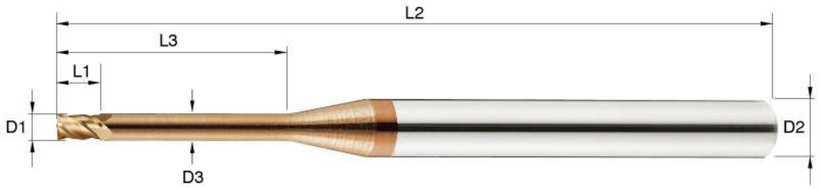
unit: mm

Order No.	Radius R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
V70BF **00504**	R0.25	0.46	0.5	4	50	4
V70BF **00506**	R0.25	0.46	0.5	6	50	4
V70BF **00604**	R0.3	0.56	0.6	4	50	4
V70BF **00606**	R0.3	0.56	0.6	6	50	4
V70BF **00806**	R0.4	0.76	0.8	6	50	4
V70BF **00808**	R0.4	0.76	0.8	8	50	4
V70BF **01006**	R0.5	0.95	1.5	6	50	4
V70BF **01008**	R0.5	0.95	1.5	8	50	4
V70BF **01010**	R0.5	0.95	1.5	10	50	4
V70BF **01012**	R0.5	0.95	1.5	12	50	4
V70BF **01208**	R0.6	1.15	2	8	50	4
V70BF **01212**	R0.6	1.15	2	12	50	4
V70BF **01508**	R0.75	1.45	2	8	50	4
V70BF **01512**	R0.75	1.45	2	12	50	4
V70BF **01516**	R0.75	1.45	2	16	50	4
V70BF **01520**	R0.75	1.45	2	20	50	4
V70BF **01608**	R0.8	1.54	2.5	8	50	4
V70BF **01612**	R0.8	1.54	2.5	12	50	4
V70BF **01616**	R0.8	1.54	2.5	16	50	4
V70BF **02008**	R1	1.92	3	8	50	4
V70BF **02012**	R1	1.92	3	12	50	4
V70BF **02016**	R1	1.92	3	16	50	4
V70BF **02020**	R1	1.92	3	20	50	4
V70BF **03008**	R1.5	2.90	4	8	75	6
V70BF **03010**	R1.5	2.90	4	10	75	6
V70BF **03016**	R1.5	2.90	4	16	75	6
V70BF **03020**	R1.5	2.90	4	20	75	6
V70BF **03025**	R1.5	2.90	4	25	75	6
V70BF **04010**	R2	3.88	5	10	75	6
V70BF **04015**	R2	3.88	5	15	75	6
V70BF **04020**	R2	3.88	5	20	75	6
V70BF **04025**	R2	3.88	5	25	75	6
V70BF **04030**	R2	3.88	5	30	75	6

V70EFB

V MG | 4 | 30° | HRC 70 | i-plus | Finishing Semi-Finishing

Hardened Steels HRC70 series / 4 Flute / Long Neck / Square H P



- **FEATURES**
  - 1.0~4.0 mm 4 Flute long neck Square for precision milling up to HRC70.
  - Effective length 6~30 mm excellent for rib milling.
  - i-plus new coating offers great heat resistance and friction resistance; suitable for dry cutting at high speed.

- **ITEMS**

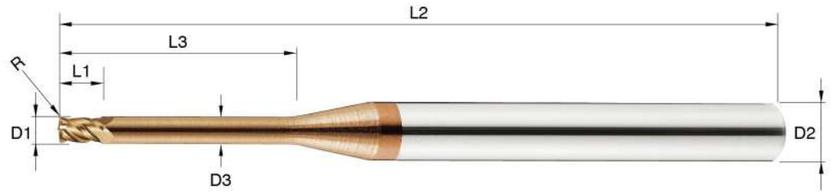
unit: mm

Order No.	Diameter D1	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
V70EFB **01006**	1.0	0.95	1.5	6	50	4
V70EFB **01008**	1.0	0.95	1.5	8	50	4
V70EFB **01010**	1.0	0.95	1.5	10	50	4
V70EFB **01012**	1.0	0.95	1.5	12	50	4
V70EFB **01208**	1.2	1.15	2	8	50	4
V70EFB **01212**	1.2	1.15	2	12	50	4
V70EFB **01508**	1.5	1.45	2	8	50	4
V70EFB **01510**	1.5	1.45	2	10	50	4
V70EFB **01512**	1.5	1.45	2	12	50	4
V70EFB **01516**	1.5	1.45	2	16	50	4
V70EFB **01608**	1.6	1.54	2.5	8	50	4
V70EFB **01612**	1.6	1.54	2.5	12	50	4
V70EFB **01616**	1.6	1.54	2.5	16	50	4
V70EFB **02008**	2.0	1.92	3	8	50	4
V70EFB **02010**	2.0	1.92	3	10	50	4
V70EFB **02012**	2.0	1.92	3	12	50	4
V70EFB **02016**	2.0	1.92	3	16	50	4
V70EFB **02020**	2.0	1.92	3	20	50	4
V70EFB **02510**	2.5	2.40	3	10	50	4
V70EFB **02512**	2.5	2.40	3	12	50	4
V70EFB **02516**	2.5	2.40	3	16	50	4
V70EFB **02520**	2.5	2.40	3	20	50	4
V70EFB **03010**	3.0	2.90	4	10	75	6
V70EFB **03012**	3.0	2.90	4	12	75	6
V70EFB **03016**	3.0	2.90	4	16	75	6
V70EFB **03020**	3.0	2.90	4	20	75	6
V70EFB **03025**	3.0	2.90	4	25	75	6
V70EFB **04010**	4.0	3.88	5	10	75	6
V70EFB **04015**	4.0	3.88	5	15	75	6
V70EFB **04020**	4.0	3.88	5	20	75	6
V70EFB **04025**	4.0	3.88	5	25	75	6
V70EFB **04030**	4.0	3.88	5	30	75	6

V70RFB

V MG | 4 | 30° | R | HRC 70 | i-plus | Finishing Semi-Finishing

Hardened Steels HRC70 series / 4 Flute / Long Neck / Corner Radius H P

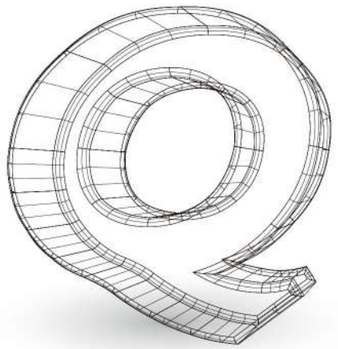


- **FEATURES**
  - 1.0~3.0 mm 4 Flute long neck Corner Radius for precision milling up to HRC70.
  - Effective length 4~20 mm excellent for rib milling.
  - i-plus new coating offers great heat resistance and friction resistance; suitable for dry cutting at high speed.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Corner R R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
V70RFB **01004**	1.0	0.1	0.95	1.0	4	50	4
V70RFB **01006**	1.0	0.1	0.95	1.0	6	50	4
V70RFB **01008**	1.0	0.1	0.95	1.0	8	50	4
V70RFB **01010**	1.0	0.1	0.95	1.0	10	50	4
V70RFB **01504**	1.5	0.2	1.45	1.5	4	50	4
V70RFB **01506**	1.5	0.2	1.45	1.5	6	50	4
V70RFB **01508**	1.5	0.2	1.45	1.5	8	50	4
V70RFB **01510**	1.5	0.2	1.45	1.5	10	50	4
V70RFB **01512**	1.5	0.2	1.45	1.5	12	50	4
V70RFB **02008**	2.0	0.2	1.92	2.0	8	50	4
V70RFB **02010**	2.0	0.2	1.92	2.0	10	50	4
V70RFB **02012**	2.0	0.2	1.92	2.0	12	50	4
V70RFB **02016**	2.0	0.2	1.92	2.0	16	50	4
V70RFB **03008**	3.0	0.2	2.90	3.0	8	75	6
V70RFB **03010**	3.0	0.2	2.90	3.0	10	75	6
V70RFB **03012**	3.0	0.2	2.90	3.0	12	75	6
V70RFB **03016**	3.0	0.2	2.90	3.0	16	75	6
V70RFB **03020**	3.0	0.2	2.90	3.0	20	75	6



HARDENED STEELS HRC65 SERIES

MAGIC CUT

QBMS

MG | 2 | 30° | HRC 65 | i-X | Finishing / Semi-Finishing | Cutting Data P.228

Hardened Steels HRC65 series / 2 Flute / Micro Diameter / Ball Nose H P K

- **FEATURES**
  - Micro Diameter 2 Flute Ball Nose for up to HRC65.
  - R0.1~R0.9 mm suitable for general purpose precision milling.
  - i-X new coating offers great heat resistance and friction resistance; suitable for Hardened steel.

- **ITEMS**

unit: mm

Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2
QBMS **0024**	R0.1	0.4	50	4
QBMS **0034**	R0.15	0.6	50	4
QBMS **0044**	R0.2	0.8	50	4
QBMS **0054**	R0.25	1.0	50	4
QBMS **0064**	R0.3	1.2	50	4
QBMS **0074**	R0.35	1.4	50	4
QBMS **0084**	R0.4	1.6	50	4
QBMS **0094**	R0.45	1.8	50	4
QBMS **0124**	R0.6	2.4	50	4
QBMS **0144**	R0.7	2.8	50	4
QBMS **0164**	R0.8	3.2	50	4
QBMS **0184**	R0.9	3.6	50	4

QBM

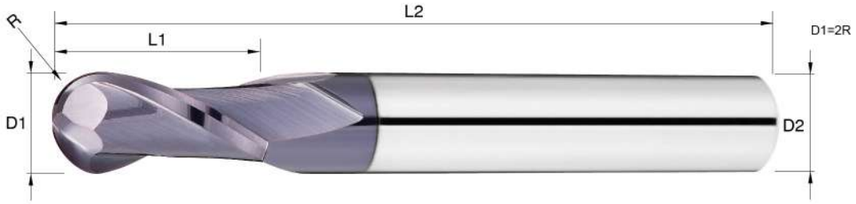
- **discontinuation**

QBM Product Series with Aldura coating will be discontinued after Dec. 2024.
We will continue to ship QBM orders until our inventory is depleted.
If you'd like to purchase QBM products, please contact your HGT sales representative while stocks last.
The replacement of QBM is QBMS Product Series, which is original QBM with new coating i-X.

QB

Q MG | 2 | 30° | HRC 65 | ALTiN | Finishing Semi-Finishing | Cutting Data P.228

Hardened Steels HRC65 series / 2 Flute / Ball Nose H P K



- **FEATURES**
  - 2 Flute Ball Nose for up to HRC65.
  - Hardened steel, Cast iron, Low/High alloy steel, cast steel, and tool steel.
  - ALTiN coating for Hardened steel.

- **ITEMS**

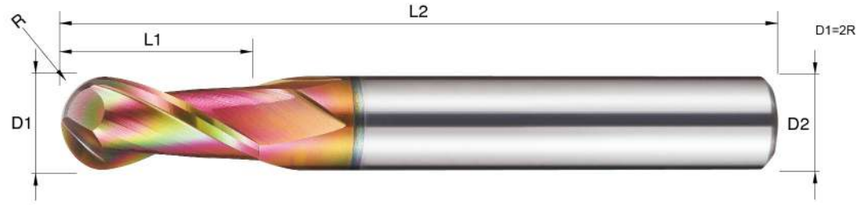
unit: mm

Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2
QB **0104**	R0.5	2	50	4
QB **0106**	R0.5	2	50	6
QB **0154**	R0.75	3	50	4
QB **0156**	R0.75	3	50	6
QB **0204**	R1	4	50	4
QB **0206**	R1	4	50	6
QB **0303**	R1.5	6	50	3
QB **0304**	R1.5	6	50	4
QB **0306**	R1.5	6	50	6
QB **0404**	R2	8	50	4
QB **0406**	R2	8	50	6
QB **0506**	R2.5	10	50	6
QB **0606**	R3	12	50	6
QB **0808**	R4	16	60	8
QB **1010**	R5	20	75	10
QB **1212**	R6	24	75	12
QB **1616**	R8	32	100	16

QBGS

Q MG | 2 | 30° | HRC 65 | i-X | Finishing Semi-Finishing | Cutting Data P.228

Hardened Steels HRC65 series / 2 Flute / Ball Nose H P K



- **FEATURES**
  - 2 Flute Ball Nose for up to HRC65.
  - Hardened steel, Cast iron, Low/High alloy steel, cast steel, and tool steel.
  - i-X new coating offers great heat resistance and friction resistance; suitable for Hardened steel.

- **ITEMS**

unit: mm

Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2
QBGS **0404**	R2	8	50	6
QBGS **0606**	R3	12	50	6
QBGS **0808**	R4	16	60	8
QBGS **1010**	R5	20	75	10
QBGS **1212**	R6	24	75	12

QBG

- **discontinuation**

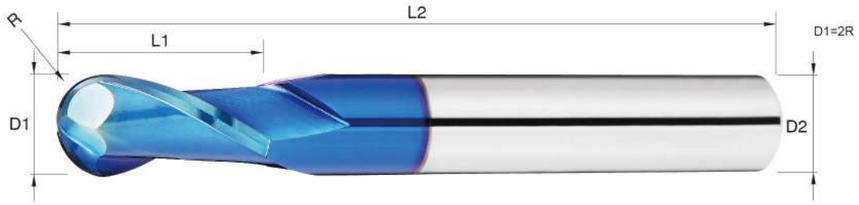
QBG Product Series with Aldura coating will be discontinued after Dec. 2024.
We will continue to ship QBG orders until our inventory is depleted.
If you'd like to purchase QBG products, please contact your HGT sales representative while stocks last.
The replacement of QBG is QBGS Product Series, which is original QBG with new coating i-X.

MAGIC CUT

QBN

Q MG | 2 | 30° | HRC 65 | nAcoB | Finishing Semi-Finishing | Cutting Data P.228

Hardened Steels HRC65 series / 2 Flute / Ball Nose H P K



- **FEATURES**
  - 2 Flute Ball Nose for up to HRC65.
  - Hardened steel, Cast iron, Low/High alloy steel, cast steel, and tool steel.
  - Heat-resistant nAcoB Coating, excellent for dry machining; not recommended for working wet.

- **ITEMS**

unit: mm

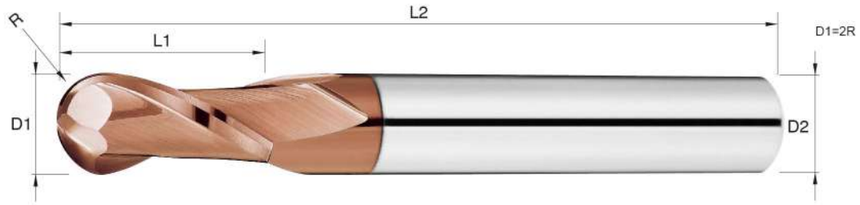
Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2
QBN **0104**	R0.5	2	50	4
QBN **0106**	R0.5	2	50	6
QBN **0154**	R0.75	3	50	4
QBN **0156**	R0.75	3	50	6
QBN **0204**	R1	4	50	4
QBN **0206**	R1	4	50	6
QBN **0303**	R1.5	6	50	3
QBN **0304**	R1.5	6	50	4
QBN **0306**	R1.5	6	50	6
QBN **0404**	R2	8	50	4
QBN **0406**	R2	8	50	6
QBN **0506**	R2.5	10	50	6
QBN **0606**	R3	12	50	6
QBN **0808**	R4	16	60	8
QBN **1010**	R5	20	75	10
QBN **1212**	R6	24	75	12
QBN **1616**	R8	32	100	16

MAGIC CUT

QBX

Q MG | 2 | 30° | HRC 65 | i8 | Finishing Semi-Finishing | Cutting Data P.228

Hardened Steels HRC65 series / 2 Flute / Ball Nose H P K



- **FEATURES**
  - 2 Flute Ball Nose for up to HRC65.
  - Hardened steel, Cast iron, Low/High alloy steel, cast steel, and tool steel.
  - i8 Coating: High temperature resistance and low wear.

- **ITEMS**

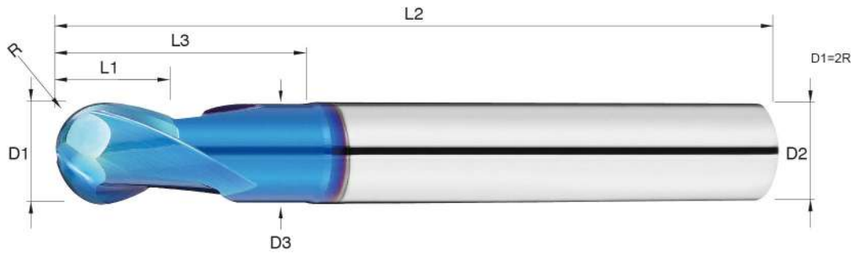
unit: mm

Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2
QBX **0104**	R0.5	2	50	4
QBX **0106**	R0.5	2	50	6
QBX **0154**	R0.75	3	50	4
QBX **0156**	R0.75	3	50	6
QBX **0204**	R1	4	50	4
QBX **0206**	R1	4	50	6
QBX **0303**	R1.5	6	50	3
QBX **0304**	R1.5	6	50	4
QBX **0306**	R1.5	6	50	6
QBX **0404**	R2	8	50	4
QBX **0406**	R2	8	50	6
QBX **0506**	R2.5	10	50	6
QBX **0606**	R3	12	50	6
QBX **0808**	R4	16	60	8
QBX **1010**	R5	20	75	10
QBX **1212**	R6	24	75	12
QBX **1616**	R8	32	100	16

QBHN

Q MG | 2 | 30° | HRC 65 | nAcoB | Finishing Semi-Finishing | Cutting Data P.228

Hardened Steels HRC65 series / 2 Flute / Ball Nose H P K



- **FEATURES**
  - 2 Flute Ball Nose for up to HRC65.
  - With Effective length design for profile milling.
  - Heat-resistant nAcoB Coating, excellent for dry machining; not recommended for working wet.

- **ITEMS**

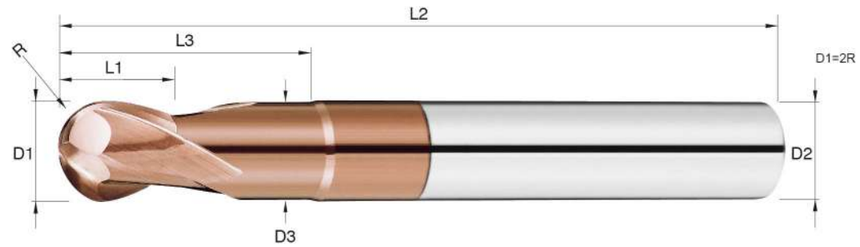
unit: mm

Order No.	Radius R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
QBHN **0104**	R0.5	0.95	1	3	50	4
QBHN **0154**	R0.75	1.45	1	3	50	4
QBHN **0204**	R1	1.92	2	5	50	4
QBHN **0306**	R1.5	2.90	3	8	50	6
QBHN **0406**	R2	3.88	4	10	50	6
QBHN **0506**	R2.5	4.80	5	13	50	6
QBHN **0606**	R3	5.80	6	15	50	6
QBHN **0808**	R4	7.70	8	20	60	8
QBHN **1010**	R5	9.60	10	25	75	10
QBHN **1212**	R6	11.50	12	30	75	12

QBHX

Q MG | 2 | 30° | HRC 65 | i8 | Finishing Semi-Finishing | Cutting Data P.228

Hardened Steels HRC65 series / 2 Flute / Ball Nose H P K



- **FEATURES**
  - 2 Flute Ball Nose for up to HRC65.
  - With Effective length design for profile milling.
  - i8 Coating: High temperature resistance and low wear.

- **ITEMS**

unit: mm

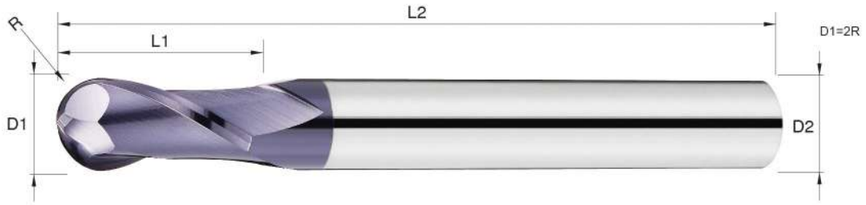
Order No.	Radius R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
QBHX **0104**	R0.5	0.95	1	3	50	4
QBHX **0154**	R0.75	1.45	1	3	50	4
QBHX **0204**	R1	1.92	2	5	50	4
QBHX **0306**	R1.5	2.90	3	8	50	6
QBHX **0406**	R2	3.88	4	10	50	6
QBHX **0506**	R2.5	4.80	5	13	50	6
QBHX **0606**	R3	5.80	6	15	50	6
QBHX **0808**	R4	7.70	8	20	60	8
QBHX **1010**	R5	9.60	10	25	75	10
QBHX **1212**	R6	11.50	12	30	75	12

MAGIC CUT

QBLS.M.L

Q MG | 2 | 30° | HRC 65 | ALTiN | Finishing Semi-Finishing | Cutting Data P.228

Hardened Steels HRC65 series / 2 Flute / Long Shank / Ball Nose H P K



- **FEATURES**
  - Long Shank 2 Flute Ball Nose for up to HRC65.
  - Extended overall length for greater depth of cut.
  - ALTiN coating for Hardened steel.

- **ITEMS**

unit: mm

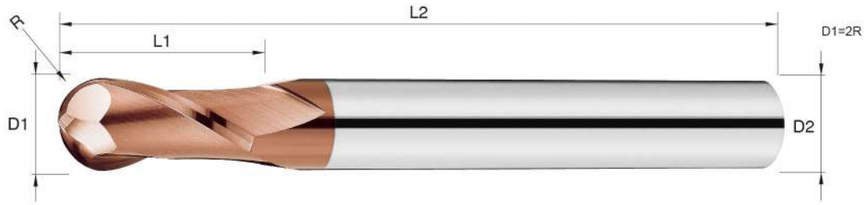
Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2
QBLS **0206**	R1	4	75	6
QBLS **0306**	R1.5	6	75	6
QBLS **0406**	R2	8	75	6
QBLS **0506**	R2.5	10	75	6
QBLS **0606**	R3	12	75	6
QBLS **0808**	R4	16	75	8
QBLM **0606**	R3	12	100	6
QBLM **0808**	R4	16	100	8
QBLM **1010**	R5	20	100	10
QBLM **1212**	R6	24	100	12
QBLL **1010**	R5	20	150	10
QBLL **1212**	R6	24	150	12
QBLL **1616**	R8	32	150	16
QBLL **2020**	R10	40	150	20

MAGIC CUT

QBLSX.MX.LX

Q MG | 2 | 30° | HRC 65 | i8 | Finishing Semi-Finishing | Cutting Data P.228

Hardened Steels HRC65 series / 2 Flute / Long Shank / Ball Nose H P K



- **FEATURES**
  - Long Shank 2 Flute Ball Nose for up to HRC65.
  - Extended overall length for greater depth of cut.
  - i8 Coating: High temperature resistance and low wear.

- **ITEMS**

unit: mm

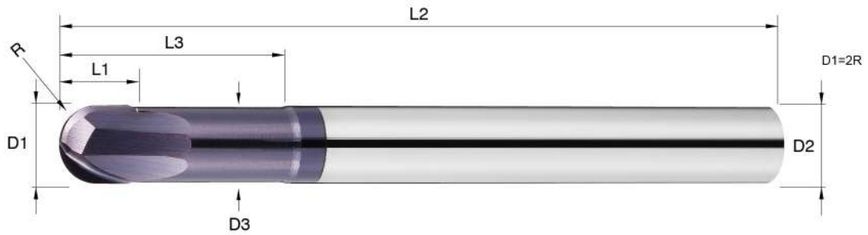
Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2
QBLSX **0206**	R1	4	75	6
QBLSX **0306**	R1.5	6	75	6
QBLSX **0406**	R2	8	75	6
QBLSX **0506**	R2.5	10	75	6
QBLSX **0606**	R3	12	75	6
QBLSX **0808**	R4	16	75	8
QBLMX **0606**	R3	12	100	6
QBLMX **0808**	R4	16	100	8
QBLMX **1010**	R5	20	100	10
QBLMX **1212**	R6	24	100	12
QBLLX **1010**	R5	20	150	10
QBLLX **1212**	R6	24	150	12
QBLLX **1616**	R8	32	150	16
QBLLX **2020**	R10	40	150	20

MAGIC CUT

QBP

Q MG | 2 | 5° | HRC 65 | ALTiN | Roughing | Semi-Finishing | Cutting Data P.228

Hardened Steels HRC65 series / 2 Flute / Power Ball Nose H P K



- **FEATURES**
  - Power 2 Flute Ball Nose for up to HRC65.
  - Helix Angle 5 ° for heavy duty cutting and brings better chip removal.
  - With Effective length design for profile milling.

- **ITEMS**

unit: mm

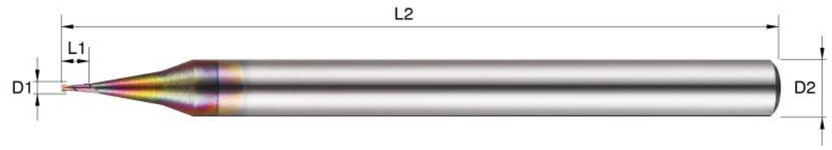
Order No.	Radius R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
QBP **0104**	R0.5	0.95	1	3	50	4
QBP **0154**	R0.75	1.45	2	5	50	4
QBP **0206**	R1	1.92	3	6	50	6
QBP **0306**	R1.5	2.90	4	8	50	6
QBP **0306A**	R1.5	2.90	4	8	75	6
QBP **0406**	R2	3.88	5	10	50	6
QBP **0406A**	R2	3.88	5	10	75	6
QBP **0606**	R3	5.80	6	12	50	6
QBP **0606A**	R3	5.80	6	16	75	6
QBP **0808**	R4	7.70	8	16	60	8
QBP **0808A**	R4	7.70	8	25	100	8
QBP **1010**	R5	9.60	10	20	75	10
QBP **1010A**	R5	9.60	10	30	100	10
QBP **1212**	R6	11.50	12	25	75	12
QBP **1212A**	R6	11.50	12	35	100	12

MAGIC CUT

QEMS

Q MG | 2 | 35° | HRC 65 | i-X | Finishing Semi-Finishing | Cutting Data P.229

Hardened Steels HRC65 series / 2 Flute / Micro Diameter / Square H P K



- **FEATURES**
  - Micro Diameter 2 Flute Square for up to HRC65.
  - Dia 0.2~1.8 mm suitable for general purpose precision milling.
  - i-X new coating offers great heat resistance and friction resistance; suitable for Hardened steel.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
QEMS **0024**	0.2	0.4	50	4
QEMS **0034**	0.3	0.6	50	4
QEMS **0044**	0.4	0.8	50	4
QEMS **0054**	0.5	1.0	50	4
QEMS **0064**	0.6	1.2	50	4
QEMS **0074**	0.7	1.4	50	4
QEMS **0084**	0.8	1.6	50	4
QEMS **0094**	0.9	1.8	50	4
QEMS **0124**	1.2	3.0	50	4
QEMS **0144**	1.4	3.0	50	4
QEMS **0164**	1.6	4.0	50	4
QEMS **0184**	1.8	5.0	50	4

QEM

- **discontinuation**

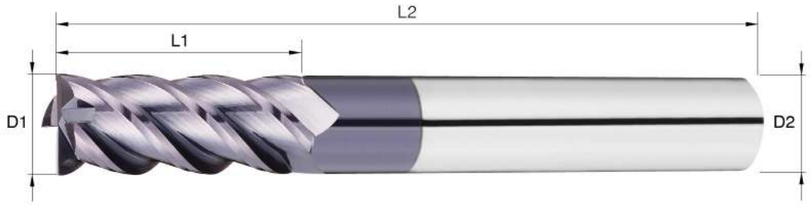
QEM Product Series with Aldura coating will be discontinued after Dec. 2024.
We will continue to ship QEM orders until our inventory is depleted.
If you'd like to purchase QEM products, please contact your HGT sales representative while stocks last.
The replacement of QEM is QEMS Product Series, which is original QEM with new coating i-X.

MAGIC CUT

QEB

Q MG | 4 | 45° | HRC 65 | ALTiN | Finishing Semi-Finishing | Cutting Data P.229

Hardened Steels HRC65 series / 4 Flute / Square H P K



- **FEATURES**
  - 4 Flute Square for HRC65.
  - Hardened steel, Cast iron, Low/High alloy steel, cast steel, and tool steel.
  - ALTiN coating for Hardened steel.

- **ITEMS**

unit: mm

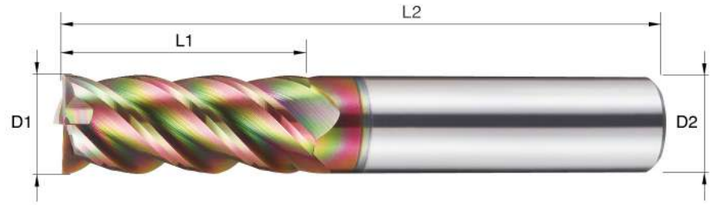
Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
QEB **0104**	1.0	3	50	4
QEB **0154**	1.5	4	50	4
QEB **0204**	2.0	6	50	4
QEB **0303**	3.0	8	50	3
QEB **0304**	3.0	8	50	4
QEB **0404**	4.0	11	50	4
QEB **0506**	5.0	13	50	6
QEB **0606**	6.0	16	50	6
QEB **0808**	8.0	20	60	8
QEB **1010**	10.0	25	75	10
QEB **1212**	12.0	30	75	12
QEB **1616**	16.0	40	100	16
QEB **2020**	20.0	45	100	20

MAGIC CUT

QEBGS

Q MG | 4 | 45° | HRC 65 | i-X | Finishing Semi-Finishing | Cutting Data P.229

Hardened Steels HRC65 series / 4 Flute / Square H P K



- **FEATURES**
  - 4 Flute Square for HRC65.
  - Hardened steel, Cast iron, Low/High alloy steel, cast steel, and tool steel.
  - i-X new coating offers great heat resistance and friction resistance; suitable for Hardened steel.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
QEBGS **0404**	4.0	11	50	4
QEBGS **0606**	6.0	16	50	6
QEBGS **0808**	8.0	20	60	8
QEBGS **1010**	10.0	25	75	10
QEBGS **1212**	12.0	30	75	12

QEBG

- **discontinuation**

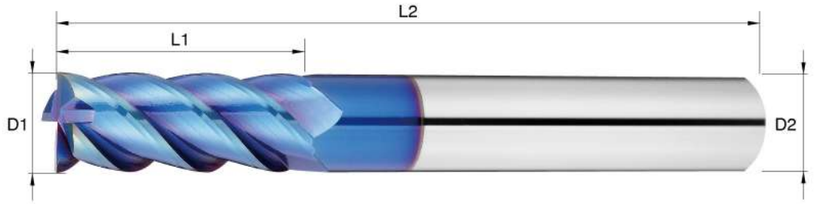
QEBG Product Series with Aldura coating will be discontinued after Dec. 2024.
We will continue to ship QEBG orders until our inventory is depleted.
If you'd like to purchase QEBG products, please contact your HGT sales representative while stocks last.
The replacement of QEBG is QEBGS Product Series, which is original QEBG with new coating i-X.

MAGIC CUT

QEBN

Q MG | 4 | 45° | HRC 65 | nAcoB | Finishing Semi-Finishing | Cutting Data P.229

Hardened Steels HRC65 series / 4 Flute / Square H P K



- **FEATURES**
  - 4 Flute Square for HRC65.
  - Hardened steel, Cast iron, Low/High alloy steel, cast steel, and tool steel.
  - Heat-resistant nAcoB Coating, excellent for dry machining; not recommended for working wet.

- **ITEMS**

unit: mm

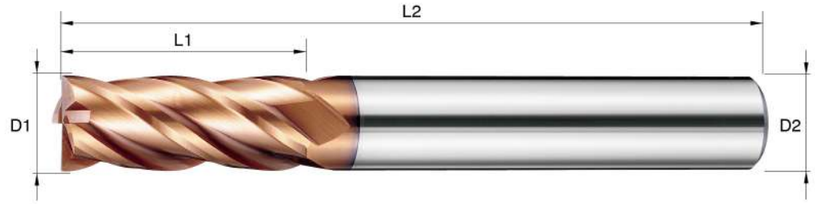
Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
QEBN **0104**	1.0	3	50	4
QEBN **0154**	1.5	4	50	4
QEBN **0204**	2.0	6	50	4
QEBN **0303**	3.0	8	50	3
QEBN **0304**	3.0	8	50	4
QEBN **0404**	4.0	11	50	4
QEBN **0506**	5.0	13	50	6
QEBN **0606**	6.0	16	50	6
QEBN **0808**	8.0	20	60	8
QEBN **1010**	10.0	25	75	10
QEBN **1212**	12.0	30	75	12
QEBN **1616**	16.0	40	100	16
QEBN **2020**	20.0	45	100	20

MAGIC CUT

QEX

Q MG | 4 | 35° | HRC 65 | i8 | Finishing Semi-Finishing | Cutting Data P.229

Hardened Steels HRC65 series / 4 Flute / Square H P K



- **FEATURES**
  - 4 Flute Square for HRC65.
  - Hardened steel, Cast iron, Low/High alloy steel, cast steel, and tool steel.
  - i8 Coating: High temperature resistance and low wear.

- **ITEMS**

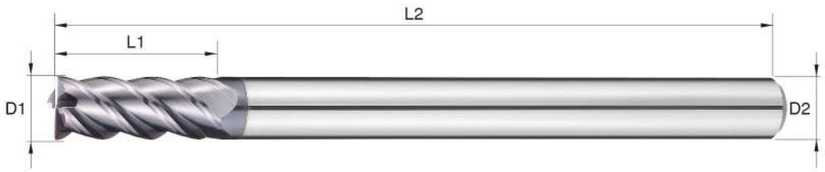
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
QEX **0304**	3.0	8	50	4
QEX **0404**	4.0	11	50	4
QEX **0506**	5.0	13	50	6
QEX **0606**	6.0	16	50	6
QEX **0808**	8.0	20	60	8
QEX **1010**	10.0	25	75	10
QEX **1212**	12.0	30	75	12
QEX **1616**	16.0	40	100	16
QEX **2020**	20.0	45	100	20

QELB

Q MG | 4 | 45° | HRC 65 | ALTiN | Finishing Semi-Finishing | Cutting Data P.230

Hardened Steels HRC65 series / 4 Flute / Long Shank / Square H P K



- **FEATURES**
  - 4 Flute Long Shank Square for up to HRC65.
  - Extended overall length for greater depth of cut.
  - ALTiN coating for Hardened steel.

- **ITEMS**

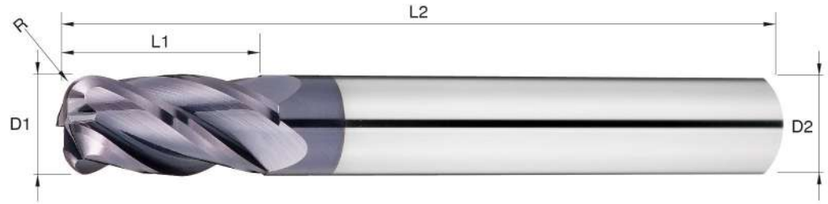
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
QELB **0606**	6.0	15	75	6
QELB **0606A**	6.0	15	100	6
QELB **0808**	8.0	20	100	8
QELB **1010**	10.0	25	100	10
QELB **1212**	12.0	30	100	12

QRD

Q MG | 4 | 35° | R | HRC 65 | ALTiN | Finishing Semi-Finishing | Cutting Data P.231

Hardened Steels HRC65 series / 4 Flute / Corner Radius H P K



- **FEATURES**
  - 4 Flute Corner Radius for HRC65
  - Hardened steel, Cast iron, Low/High alloy steel, cast steel, and tool steel.
  - ALTiN coating for Hardened steel.

- **ITEMS**

unit: mm

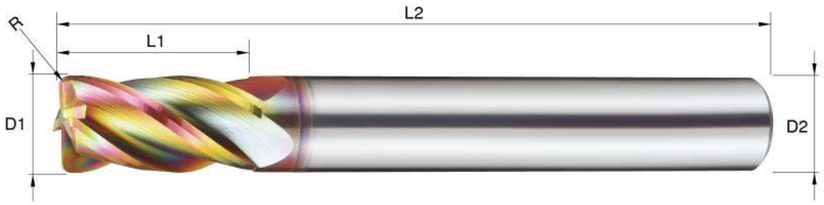
Order No.	Diameter D1	Corner R R	Flute Length L1	O.A.L. L2	Shank Dia D2
QRD **0102**	1.0	0.2	2	50	4
QRD **01502**	1.5	0.2	3	50	4
QRD **01503**	1.5	0.3	3	50	4
QRD **0202**	2.0	0.2	4	50	4
QRD **0203**	2.0	0.3	4	50	4
QRD **0205**	2.0	0.5	4	50	4
QRD **0302**	3.0	0.2	6	50	3
QRD **0305**	3.0	0.5	6	50	3
QRD **0402**	4.0	0.2	8	50	4
QRD **0405**	4.0	0.5	8	50	4
QRD **0410**	4.0	1.0	8	50	4
QRD **0605**	6.0	0.5	12	50	6
QRD **0610**	6.0	1.0	12	50	6
QRD **0805**	8.0	0.5	16	60	8
QRD **0810**	8.0	1.0	16	60	8
QRD **1005**	10.0	0.5	20	75	10
QRD **1010**	10.0	1.0	20	75	10
QRD **1020**	10.0	2.0	20	75	10
QRD **1030**	10.0	3.0	20	75	10
QRD **1205**	12.0	0.5	24	75	12
QRD **1210**	12.0	1.0	24	75	12
QRD **1220**	12.0	2.0	24	75	12
QRD **1230**	12.0	3.0	24	75	12

MAGIC CUT

QRDGS

Q MG | 4 | 35° | R | HRC 65 | i-X | Finishing Semi-Finishing | Cutting Data P.231

Hardened Steels HRC65 series / 4 Flute / Corner Radius H P K



- **FEATURES**
  - 4 Flute Corner Radius for HRC65
  - Hardened steel, Cåst iron, Low/High alloy steel, cast steel, and tool steel.
  - i-X new coating offers great heat resistance and friction resistance; suitable for Hardened steel.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Corner R R	Flute Length L1	O.A.L. L2	Shank Dia D2
QRDGS **0405**	4.0	0.5	8	50	4
QRDGS **0605**	6.0	0.5	12	50	6
QRDGS **0610**	6.0	1.0	12	50	6
QRDGS **0805**	8.0	0.5	16	60	8
QRDGS **0810**	8.0	1.0	16	60	8
QRDGS **1005**	10.0	0.5	20	75	10
QRDGS **1010**	10.0	1.0	20	75	10
QRDGS **1205**	12.0	0.5	24	75	12
QRDGS **1210**	12.0	1.0	24	75	12

QRDG

- **discontinuation**

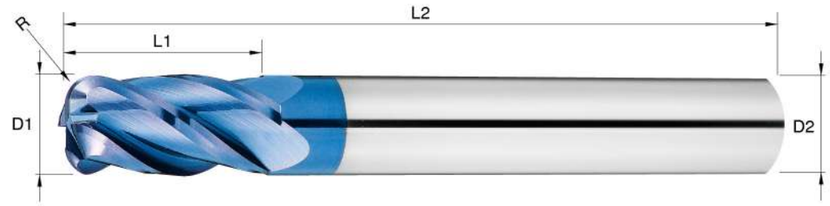
QRDG Product Series with Aldura coating will be discontinued after Dec. 2024.
We will continue to ship QRDG orders until our inventory is depleted.
If you'd like to purchase QRDG products, please contact your HGT sales representative while stocks last.
The replacement of QRDG is QRDGS Product Series, which is original QRDG with new coating i-X.

MAGIC CUT

QRDN

Q MG | 4 | 35° | R | HRC 65 | nAcoB | Finishing Semi-Finishing | Cutting Data P.231

Hardened Steels HRC65 series / 4 Flute / Corner Radius H P K



- **FEATURES**
  - 4 Flute Corner Radius for HRC65
  - Hardened steel, Cåst iron, Low/High alloy steel, cast steel, and tool steel.
  - Heat-resistant nAcoB Coating, excellent for dry machining; not recommended for working wet.

- **ITEMS**

unit: mm

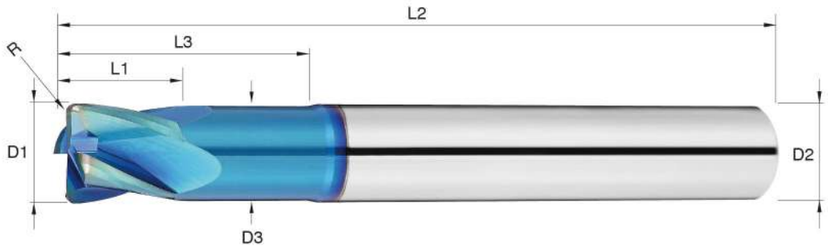
Order No.	Diameter D1	Corner R R	Flute Length L1	O.A.L. L2	Shank Dia D2
QRDN **0102**	1.0	0.2	2	50	4
QRDN **01502**	1.5	0.2	3	50	4
QRDN **01503**	1.5	0.3	3	50	4
QRDN **0202**	2.0	0.2	4	50	4
QRDN **0203**	2.0	0.3	4	50	4
QRDN **0205**	2.0	0.5	4	50	4
QRDN **0302**	3.0	0.2	6	50	3
QRDN **0305**	3.0	0.5	6	50	3
QRDN **0402**	4.0	0.2	8	50	4
QRDN **0405**	4.0	0.5	8	50	4
QRDN **0410**	4.0	1.0	8	50	4
QRDN **0605**	6.0	0.5	12	50	6
QRDN **0610**	6.0	1.0	12	50	6
QRDN **0805**	8.0	0.5	16	60	8
QRDN **0810**	8.0	1.0	16	60	8
QRDN **1005**	10.0	0.5	20	75	10
QRDN **1010**	10.0	1.0	20	75	10
QRDN **1020**	10.0	2.0	20	75	10
QRDN **1030**	10.0	3.0	20	75	10
QRDN **1205**	12.0	0.5	24	75	12
QRDN **1210**	12.0	1.0	24	75	12
QRDN **1220**	12.0	2.0	24	75	12
QRDN **1230**	12.0	3.0	24	75	12

MAGIC CUT

QRHN

Q MG | 4 | 25° | R | HRC 65 | nAcoB | Finishing Semi-Finishing | Cutting Data P.231

Hardened Steels HRC65 series / 4 Flute / Corner Radius H P K



- **FEATURES**
  - 4 Flute Corner Radius for workpiece up to HRC65.
  - Helix Angle 25 º & short flute designed for heavy duty milling.
  - Heat-resistant nAcoB Coating, excellent for dry machining; not recommended for working wet.

- **ITEMS**

unit: mm

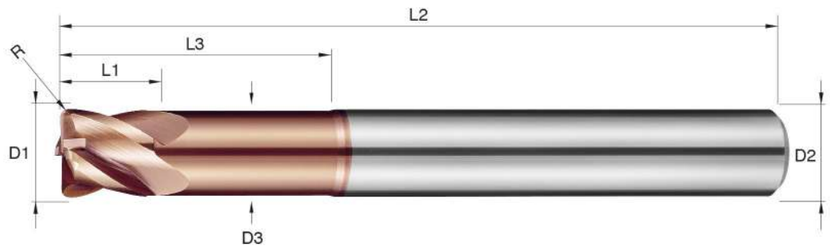
Order No.	Diameter D1	Corner R R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
QRHN **0305**	3.0	0.5	2.90	3	9	50	6
QRHN **0405**	4.0	0.5	3.88	4	12	50	6
QRHN **0605**	6.0	0.5	5.80	6	15	50	6
QRHN **0610**	6.0	1.0	5.80	6	15	50	6
QRHN **0805**	8.0	0.5	7.70	8	20	60	8
QRHN **0810**	8.0	1.0	7.70	8	20	60	8
QRHN **1010**	10.0	1.0	9.60	10	25	75	10
QRHN **1020**	10.0	2.0	9.60	10	25	75	10
QRHN **1030**	10.0	3.0	9.60	10	25	75	10
QRHN **1210**	12.0	1.0	11.50	12	30	75	12
QRHN **1220**	12.0	2.0	11.50	12	30	75	12

MAGIC CUT

QRHX

Q MG | 4 | 35° | R | HRC 65 | i8 | Finishing Semi-Finishing | Cutting Data P.231

Hardened Steels HRC65 series / 4 Flute / Corner Radius H P K



- **FEATURES**
  - 4 Flute Corner Radius for up to HRC65.
  - 1D flute length works great for high speed machining.
  - i8 Coating: High temperature resistance and low wear.

- **ITEMS**

unit: mm

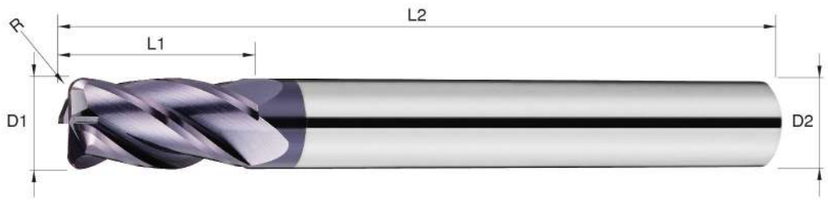
Order No.	Diameter D1	Corner R R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
QRHX **0305**	3.0	0.5	2.90	3	9	50	6
QRHX **0405**	4.0	0.5	3.88	4	12	50	6
QRHX **0605**	6.0	0.5	5.80	6	18	50	6
QRHX **0610**	6.0	1.0	5.80	6	18	50	6
QRHX **0805**	8.0	0.5	7.70	8	24	60	8
QRHX **0810**	8.0	1.0	7.70	8	24	60	8
QRHX **1010**	10.0	1.0	9.60	10	30	75	10
QRHX **1020**	10.0	2.0	9.60	10	30	75	10
QRHX **1030**	10.0	3.0	9.60	10	30	75	10
QRHX **1210**	12.0	1.0	11.50	12	36	75	12
QRHX **1220**	12.0	2.0	11.50	12	36	75	12

MAGIC CUT

QERC

Q MG | 4 | 35° | R | HRC 65 | ALTiN | Finishing Semi-Finishing | Cutting Data P.231

Hardened Steels HRC65 series / 4 Flute / Long Shank / Corner Radius H P K



- **FEATURES**
  - 4 Flute long shank Corner Radius for HRC65.
  - Hardened steel, Cast iron, Low/High alloy steel, cast steel, and tool steel.
  - ALTiN coating for Hardened steel.

- **ITEMS**

unit: mm

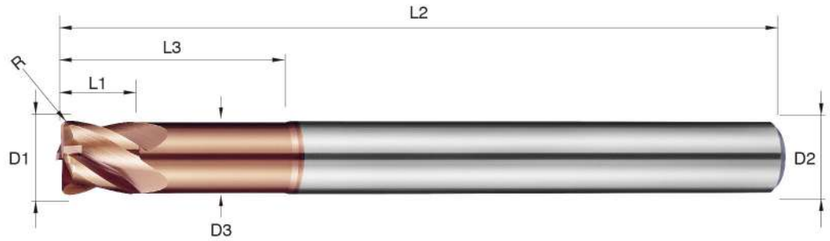
Order No.	Diameter D1	Corner R R	Flute Length L1	O.A.L. L2	Shank Dia D2
QERC **0605**	6.0	0.5	12	75	6
QERC **0605A**	6.0	0.5	12	100	6
QERC **0610**	6.0	1.0	12	75	6
QERC **0610A**	6.0	1.0	12	100	6
QERC **0805**	8.0	0.5	16	100	8
QERC **0810**	8.0	1.0	16	100	8
QERC **1005**	10.0	0.5	20	100	10
QERC **1010**	10.0	1.0	20	100	10
QERC **1020**	10.0	2.0	20	100	10
QERC **1205**	12.0	0.5	24	100	12
QERC **1210**	12.0	1.0	24	100	12
QERC **1220**	12.0	2.0	24	100	12

MAGIC CUT

QRHLX

Q MG | 4 | 35° | R | HRC 65 | i8 | Finishing Semi-Finishing | Cutting Data P.231

Hardened Steels HRC65 series / 4 Flute / Long Shank / Corner Radius H P K



- **FEATURES**
  - 4 Flute long shank Corner Radius for up to HRC65.
  - 1D flute length for high speed machining extended overall length for greater depth of cut.
  - i8 Coating: High temperature resistance and low wear.

- **ITEMS**

unit: mm

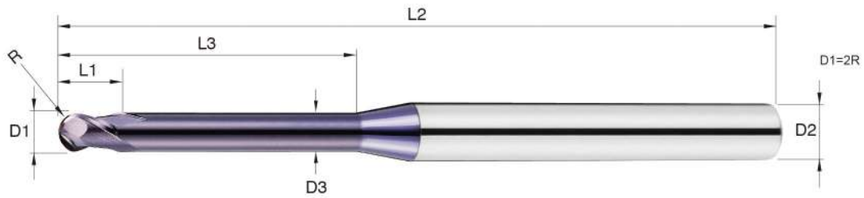
Order No.	Diameter D1	Corner R R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
QRHLX **0605**	6.0	0.5	5.8	6	18	75	6
QRHLX **0610**	6.0	1.0	5.8	6	18	75	6
QRHLX **0805**	8.0	0.5	7.7	8	24	100	8
QRHLX **0810**	8.0	1.0	7.7	8	24	100	8
QRHLX **1005**	10.0	0.5	9.6	10	30	100	10
QRHLX **1010**	10.0	1.0	9.6	10	30	100	10
QRHLX **1020**	10.0	2.0	9.6	10	30	100	10
QRHLX **1205**	12.0	0.5	11.5	12	36	100	12
QRHLX **1210**	12.0	1.0	11.5	12	36	100	12
QRHLX **1220**	12.0	2.0	11.5	12	36	100	12

MAGIC CUT

QBF

Q MG | 2 | 30° | HRC 65 | ALTiN | Finishing Semi-Finishing | Cutting Data P.230

Hardened Steels HRC65 series / 2 Flute / Long Neck / Ball Nose H P K



- **FEATURES**
  - R0.25~R2 mm 2 Flute long neck Ball Nose for precision milling up to HRC65.
  - Effective length 4~30 mm excellent for rib milling.
  - ALTiN coating for Hardened steel.

- **ITEMS**

unit: mm

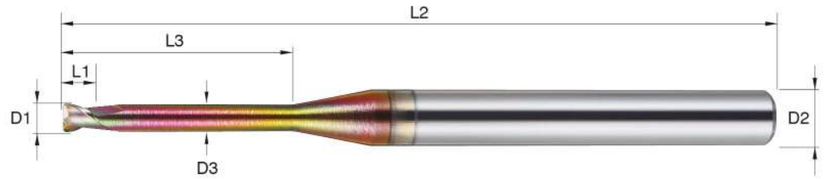
Order No.	Radius R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
QBF **00504**	R0.25	0.46	0.5	4	50	4
QBF **00506**	R0.25	0.46	0.5	6	50	4
QBF **00604**	R0.3	0.56	0.6	4	50	4
QBF **00606**	R0.3	0.56	0.6	6	50	4
QBF **00806**	R0.4	0.76	0.8	6	50	4
QBF **00808**	R0.4	0.76	0.8	8	50	4
QBF **01006**	R0.5	0.95	1.5	6	50	4
QBF **01008**	R0.5	0.95	1.5	8	50	4
QBF **01010**	R0.5	0.95	1.5	10	50	4
QBF **01012**	R0.5	0.95	1.5	12	50	4
QBF **01208**	R0.6	1.15	2.0	8	50	4
QBF **01212**	R0.6	1.15	2.0	12	50	4
QBF **01508**	R0.75	1.45	2.0	8	50	4
QBF **01512**	R0.75	1.45	2.0	12	50	4
QBF **01516**	R0.75	1.45	2.0	16	50	4
QBF **01520**	R0.75	1.45	2.0	20	50	4
QBF **01608**	R0.8	1.54	2.5	8	50	4
QBF **01612**	R0.8	1.54	2.5	12	50	4
QBF **01616**	R0.8	1.54	2.5	16	50	4
QBF **02008**	R1	1.92	3.0	8	50	4
QBF **02012**	R1	1.92	3.0	12	50	4
QBF **02016**	R1	1.92	3.0	16	50	4
QBF **02020**	R1	1.92	3.0	20	50	4
QBF **03008**	R1.5	2.90	4.0	8	50	6
QBF **03010**	R1.5	2.90	4.0	10	50	6
QBF **03016**	R1.5	2.90	4.0	16	50	6
QBF **03020**	R1.5	2.90	4.0	20	75	6
QBF **03025**	R1.5	2.90	4.0	25	75	6
QBF **04010**	R2	3.88	5.0	10	75	6
QBF **04015**	R2	3.88	5.0	15	75	6
QBF **04020**	R2	3.88	5.0	20	75	6
QBF **04025**	R2	3.88	5.0	25	75	6
QBF **04030**	R2	3.88	5.0	30	75	6

MAGIC CUT

QEFAS

Q MG | 2 | 35° | HRC 65 | i-X | Finishing Semi-Finishing | Cutting Data P.231

Hardened Steels HRC65 series / 2 Flute / Long Shank / Square H P K



- **FEATURES**
  - Long neck 2 flute Square for HRC65.
  - Dia 0.5~3.0 mm with effective length 4~25 mm excellent for rib milling.
  - i-X new coating offers great heat resistance and friction resistance; suitable for Hardened steel.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
QEFAS **00504**	0.5	0.46	1.0	4	50	4
QEFAS **00506**	0.5	0.46	1.0	6	50	4
QEFAS **00604**	0.6	0.56	1.2	4	50	4
QEFAS **00606**	0.6	0.56	1.2	6	50	4
QEFAS **00804**	0.8	0.76	1.2	4	50	4
QEFAS **00806**	0.8	0.76	1.2	6	50	4
QEFAS **00808**	0.8	0.76	1.2	8	50	4
QEFAS **01006**	1.0	0.95	1.5	6	50	4
QEFAS **01008**	1.0	0.95	1.5	8	50	4
QEFAS **01010**	1.0	0.95	1.5	10	50	4
QEFAS **01012**	1.0	0.95	1.5	12	50	4
QEFAS **01208**	1.2	1.15	2.0	8	50	4
QEFAS **01212**	1.2	1.15	2.0	12	50	4
QEFAS **01508**	1.5	1.45	2.0	8	50	4
QEFAS **01510**	1.5	1.45	2.0	10	50	4
QEFAS **01512**	1.5	1.45	2.0	12	50	4
QEFAS **01516**	1.5	1.45	2.0	16	50	4
QEFAS **01608**	1.6	1.54	2.5	8	50	4
QEFAS **01612**	1.6	1.54	2.5	12	50	4
QEFAS **01616**	1.6	1.54	2.5	16	50	4
QEFAS **02008**	2.0	1.92	3.0	8	50	4
QEFAS **02010**	2.0	1.92	3.0	10	50	4
QEFAS **02012**	2.0	1.92	3.0	12	50	4
QEFAS **02016**	2.0	1.92	3.0	16	50	4
QEFAS **02020**	2.0	1.92	3.0	20	50	4
QEFAS **02510**	2.5	2.40	3.0	10	50	4
QEFAS **02512**	2.5	2.40	3.0	12	50	4
QEFAS **02516**	2.5	2.40	3.0	16	50	4
QEFAS **02520**	2.5	2.40	3.0	20	50	4
QEFAS **03010**	3.0	2.90	4.0	10	50	6
QEFAS **03012**	3.0	2.90	4.0	12	50	6
QEFAS **03016**	3.0	2.90	4.0	16	50	6
QEFAS **03020**	3.0	2.90	4.0	20	75	6
QEFAS **03025**	3.0	2.90	4.0	25	75	6

QEFA

- **discontinuation**

QEFA Product Series with Aldura coating will be discontinued after Dec. 2024.
We will continue to ship QEFA orders until our inventory is depleted.
If you'd like to purchase QEFA products, please contact your HGT sales representative while stocks last.
The replacement of QEFA is QEFAS Product Series, which is original QEFA with new coating i-X.

MAGIC CUT

QRFAS

Q MG | 2 | 35° | R | HRC 65 | i-X | Finishing Semi-Finishing | Cutting Data P.231

Hardened Steels HRC65 series / 2 Flute / Long Neck / Corner Radius H P K

- **FEATURES**
  - Long neck 2 Flute Corner Radius for up to HRC65.
  - Dia 1.0~3.0 mm with effective length 4~20 mm excellent for rib milling.
  - i-X new coating offers great heat resistance and friction resistance; suitable for Hardened steel.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Corner R R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
QRFAS **01004**	1.0	0.1	0.95	1.0	4	50	4
QRFAS **01006**	1.0	0.1	0.95	1.0	6	50	4
QRFAS **01008**	1.0	0.1	0.95	1.0	8	50	4
QRFAS **01010**	1.0	0.1	0.95	1.0	10	50	4
QRFAS **01504**	1.5	0.2	1.45	1.5	4	50	4
QRFAS **01506**	1.5	0.2	1.45	1.5	6	50	4
QRFAS **01508**	1.5	0.2	1.45	1.5	8	50	4
QRFAS **01510**	1.5	0.2	1.45	1.5	10	50	4
QRFAS **01512**	1.5	0.2	1.45	1.5	12	50	4
QRFAS **02008**	2.0	0.2	1.92	2.0	8	50	4
QRFAS **02010**	2.0	0.2	1.92	2.0	10	50	4
QRFAS **02012**	2.0	0.2	1.92	2.0	12	50	4
QRFAS **02016**	2.0	0.2	1.92	2.0	16	50	4
QRFAS **03008**	3.0	0.2	2.90	3.0	8	50	6
QRFAS **03010**	3.0	0.2	2.90	3.0	10	50	6
QRFAS **03012**	3.0	0.2	2.90	3.0	12	50	6
QRFAS **03016**	3.0	0.2	2.90	3.0	16	50	6
QRFAS **03020**	3.0	0.2	2.90	3.0	20	50	6

QRFA

- **discontinuation**

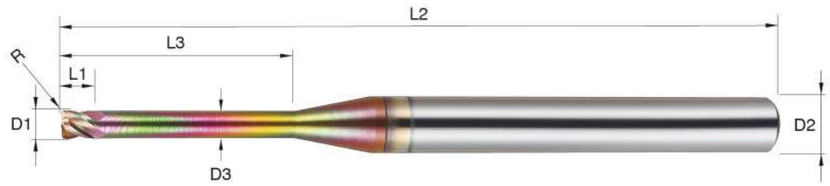
QRFA Product Series with Aldura coating will be discontinued after Dec. 2024.
We will continue to ship QRFA orders until our inventory is depleted.
If you'd like to purchase QRFA products, please contact your HGT sales representative while stocks last.
The replacement of QRFA is QRFAS Product Series, which is original QRFA with new coating i-X.

MAGIC CUT

QRFBS

Q MG | 4 | 35° | R | HRC 65 | i-X | Finishing Semi-Finishing

Hardened Steels HRC65 series / 4 Flute / Long Neck / Corner Radius H P K



- **FEATURES**
  - Long neck 4 Flute Corner Radius for up to HRC65.
  - Dia 1.0~3.0 mm with effective length 4~20 mm excellent for rib milling.
  - i-X new coating offers great heat resistance and friction resistance; suitable for Hardened steel.

- **ITEMS**

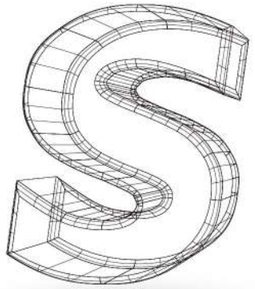
unit: mm

Order No.	Diameter D1	Corner R R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
QRFBS **01004**	1.0	0.1	0.95	1.0	4	50	4
QRFBS **01006**	1.0	0.1	0.95	1.0	6	50	4
QRFBS **01008**	1.0	0.1	0.95	1.0	8	50	4
QRFBS **01010**	1.0	0.1	0.95	1.0	10	50	4
QRFBS **01504**	1.5	0.2	1.45	1.5	4	50	4
QRFBS **01506**	1.5	0.2	1.45	1.5	6	50	4
QRFBS **01508**	1.5	0.2	1.45	1.5	8	50	4
QRFBS **01510**	1.5	0.2	1.45	1.5	10	50	4
QRFBS **01512**	1.5	0.2	1.45	1.5	12	50	4
QRFBS **02008**	2.0	0.2	1.92	2.0	8	50	4
QRFBS **02010**	2.0	0.2	1.92	2.0	10	50	4
QRFBS **02012**	2.0	0.2	1.92	2.0	12	50	4
QRFBS **02016**	2.0	0.2	1.92	2.0	16	50	4
QRFBS **03008**	3.0	0.2	2.90	3.0	8	50	6
QRFBS **03010**	3.0	0.2	2.90	3.0	10	50	6
QRFBS **03012**	3.0	0.2	2.90	3.0	12	50	6
QRFBS **03016**	3.0	0.2	2.90	3.0	16	50	6
QRFBS **03020**	3.0	0.2	2.90	3.0	20	50	6

QRFB

- **discontinuation**

QRFB Product Series with Aldura coating will be discontinued after Dec. 2024.
We will continue to ship QRFB orders until our inventory is depleted.
If you'd like to purchase QRFB products, please contact your HGT sales representative while stocks last.
The replacement of QRFB is QRFBS Product Series, which is original QRFB with new coating i-X.



FOR HRC60 STEELS

SUPER MILL

S

SUPER MILL

SBM

S MG | 2 | 30° | HRC 60 | ALTiN | Finishing Semi-Finishing | Cutting Data P.232

For HRC60 Steels / 2 Flute / Micro Diameter / Ball Nose H P K

• FEATURES

- Micro Diameter 2 Flute Ball Nose for up to HRC60.
- R0.1~R1 mm suitable for general purpose precision milling.
- ALTiN Coating for Hardened steel.

• ITEMS

unit: mm

Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2
SBM **0024**	R0.1	0.4	50	4
SBM **0034**	R0.15	0.6	50	4
SBM **0044**	R0.2	0.8	50	4
SBM **0054**	R0.25	1.0	50	4
SBM **0064**	R0.3	1.2	50	4
SBM **0074**	R0.35	1.4	50	4
SBM **0084**	R0.4	1.6	50	4
SBM **0094**	R0.45	1.8	50	4
SBM **0124**	R0.6	2.4	50	4
SBM **0144**	R0.7	2.8	50	4
SBM **0164**	R0.8	3.2	50	4
SBM **0184**	R0.9	3.6	50	4

SBMV

S MG | 2 | 30° | HRC 60 | i-X | Finishing Semi-Finishing | Cutting Data P.232

For HRC60 Steels / 2 Flute / Micro Diameter / Ball Nose H P K

- **FEATURES**
  - Micro Diameter 2 Flute Ball Nose for up to HRC60.
  - R0.1~R1 mm suitable for general purpose precision milling.
  - i-X new coating offers great heat resistance and friction resistance; suitable for Hardened steel.

- **ITEMS**

unit: mm

Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2
SBMV **0024**	R0.1	0.4	50	4
SBMV **0034**	R0.15	0.6	50	4
SBMV **0044**	R0.2	0.8	50	4
SBMV **0054**	R0.25	1.0	50	4
SBMV **0064**	R0.3	1.2	50	4
SBMV **0074**	R0.35	1.4	50	4
SBMV **0084**	R0.4	1.6	50	4
SBMV **0094**	R0.45	1.8	50	4
SBMV **0124**	R0.6	2.4	50	4
SBMV **0144**	R0.7	2.8	50	4
SBMV **0164**	R0.8	3.2	50	4
SBMV **0184**	R0.9	3.6	50	4

SBMX

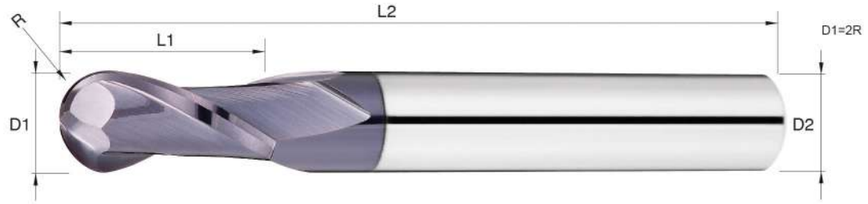
- **discontinuation**

SBMX Product Series with i8 coating will be discontinued after Dec. 2024.
We will continue to ship SBMX orders until our inventory is depleted.
If you'd like to purchase SBMX products, please contact your HGT sales representative while stocks last.
The replacement of SBMX is SBMV Product Series, which is original SBMX with new coating i-X.

SB

S MG | 2 | 30° | HRC 60 | ALTiN | Finishing Semi-Finishing | Cutting Data P.232

For HRC60 Steels / 2 Flute / Ball Nose H P K



- **FEATURES**
  - 2 Flute Ball Nose for up to HRC60.
  - Hardened steel, Cast iron, Low/High alloy steel, cast steel, and tool steel.
  - ALTiN Coating for Hardened steel.

- **ITEMS**

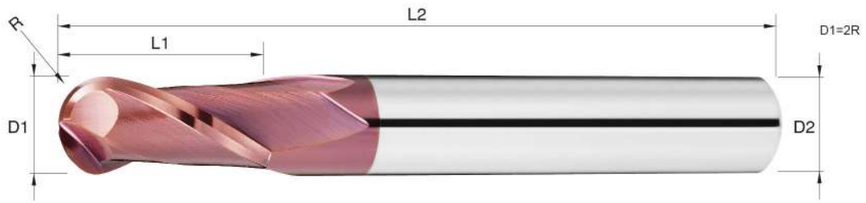
unit: mm

Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2
SB **0104**	R0.5	2	50	4
SB **0106**	R0.5	2	50	6
SB **0154**	R0.75	3	50	4
SB **0156**	R0.75	3	50	6
SB **0204**	R1	4	50	4
SB **0206**	R1	4	50	6
SB **0254**	R1.25	5	50	4
SB **0256**	R1.25	5	50	6
SB **0303**	R1.5	6	50	3
SB **0304**	R1.5	6	50	4
SB **0306**	R1.5	6	50	6
SB **0404**	R2	8	50	4
SB **0406**	R2	8	50	6
SB **0505**	R2.5	10	50	5
SB **0506**	R2.5	10	50	6
SB **0606**	R3	12	50	6
SB **0808**	R4	16	60	8
SB **1010**	R5	20	75	10
SB **1212**	R6	24	75	12
SB **1616**	R8	32	100	16

SBK

S MG | 2 | 30° | HRC 60 | G100 | Finishing Semi-Finishing | Cutting Data P.232

For HRC60 Steels / 2 Flute / Ball Nose H P K



- **FEATURES**
  - 2 Flute Ball Nose for up to HRC60.
  - Hardened steel, Cast iron, Low/High alloy steel, cast steel, and tool steel.
  - G100 Coating for General steel.

- **ITEMS**

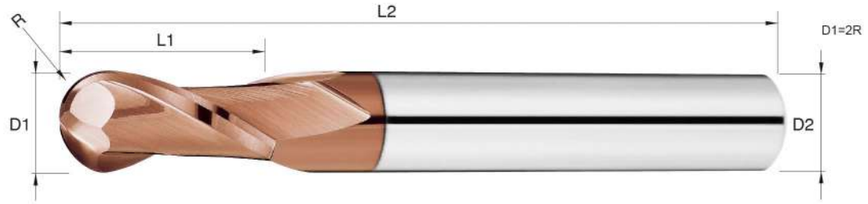
unit: mm

Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2
SBK **0104**	R0.5	2	50	4
SBK **0106**	R0.5	2	50	6
SBK **0154**	R0.75	3	50	4
SBK **0156**	R0.75	3	50	6
SBK **0204**	R1	4	50	4
SBK **0206**	R1	4	50	6
SBK **0254**	R1.25	5	50	4
SBK **0256**	R1.25	5	50	6
SBK **0303**	R1.5	6	50	3
SBK **0304**	R1.5	6	50	4
SBK **0306**	R1.5	6	50	6
SBK **0404**	R2	8	50	4
SBK **0406**	R2	8	50	6
SBK **0506**	R2.5	10	50	6
SBK **0606**	R3	12	50	6
SBK **0808**	R4	16	60	8
SBK **1010**	R5	20	75	10
SBK **1212**	R6	24	75	12
SBK **1616**	R8	32	100	16

SBX

S MG | 2 | 30° | HRC 60 | i8 | Finishing Semi-Finishing | Cutting Data P.232

For HRC60 Steels / 2 Flute / Ball Nose H P K



- **FEATURES**
  - 2 Flute Ball Nose for up to HRC60.
  - Hardened steel, Cast iron, Low/High alloy steel, cast steel, and tool steel.
  - i8 Coating: High temperature resistance and low wear.

- **ITEMS**

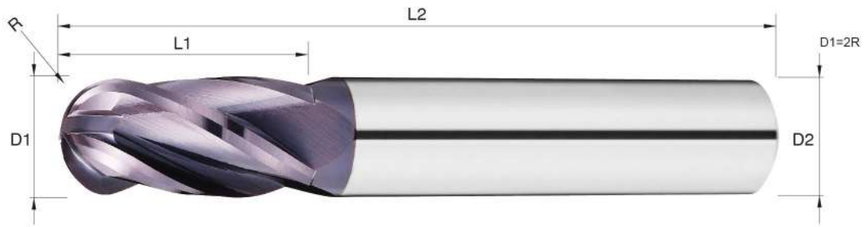
unit: mm

Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2
SBX **0104**	R0.5	2	50	4
SBX **0106**	R0.5	2	50	6
SBX **0154**	R0.75	3	50	4
SBX **0156**	R0.75	3	50	6
SBX **0204**	R1	4	50	4
SBX **0206**	R1	4	50	6
SBX **0254**	R1.25	5	50	4
SBX **0256**	R1.25	5	50	6
SBX **0303**	R1.5	6	50	3
SBX **0304**	R1.5	6	50	4
SBX **0306**	R1.5	6	50	6
SBX **0404**	R2	8	50	4
SBX **0406**	R2	8	50	6
SBX **0505**	R2.5	10	50	5
SBX **0506**	R2.5	10	50	6
SBX **0606**	R3	12	50	6
SBX **0808**	R4	16	60	8
SBX **1010**	R5	20	75	10
SBX **1212**	R6	24	75	12
SBX **1616**	R8	32	100	16

SBB

S MG | 4 | 30° | HRC 60 | ALTiN | Finishing Semi-Finishing | Cutting Data P.232

For HRC60 Steels / 4 Flute / Ball Nose H P K



• FEATURES

- 4 Flute Ball Nose for up to HRC60.
- Hardened steel, Cast iron, Low/High alloy steel, cast steel, and tool steel.
- ALTiN Coating for Hardened steel.

• ITEMS

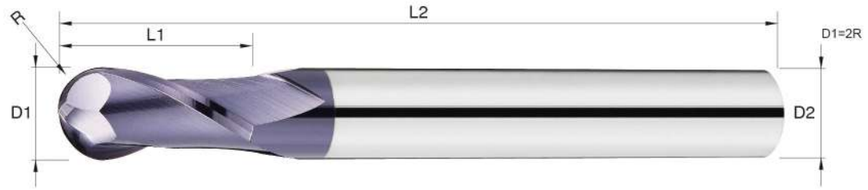
unit: mm

Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2
SBB **0104**	R0.5	2	50	4
SBB **0154**	R0.75	3	50	4
SBB **0204**	R1	4	50	4
SBB **0254**	R1.25	5	50	4
SBB **0304**	R1.5	6	50	4
SBB **0404**	R2	8	50	4
SBB **0506**	R2.5	10	50	6
SBB **0606**	R3	12	50	6
SBB **0808**	R4	16	60	8
SBB **1010**	R5	20	75	10
SBB **1212**	R6	24	75	12
SBB **1616**	R8	32	100	16

SBLS.M.L

S MG | 2 | 30° | HRC 60 | ALTiN | Finishing Semi-Finishing | Cutting Data P.232

For HRC60 Steels / 2 Flute / Long Shank / Ball Nose H P K



• FEATURES

- Long Shank 2 Flute Ball Nose for up to HRC60.
- Extended overall length for greater depth of cut.
- ALTiN Coating for Hardened steel.

• ITEMS

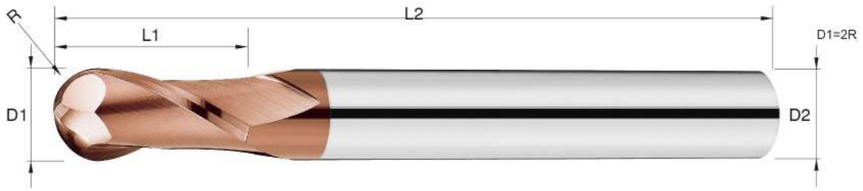
unit: mm

Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2
SBLS **0104**	R0.5	2	75	4
SBLS **0106**	R0.5	2	75	6
SBLS **0154**	R0.75	3	75	4
SBLS **0156**	R0.75	3	75	6
SBLS **0206**	R1	4	75	6
SBLS **0256**	R1.25	5	75	6
SBLS **0303**	R1.5	6	75	3
SBLS **0306**	R1.5	6	75	6
SBLS **0404**	R2	8	75	4
SBLS **0406**	R2	8	75	6
SBLS **0506**	R2.5	10	75	6
SBLS **0606**	R3	12	75	6
SBLS **0808**	R4	16	75	8
SBLM **0206**	R1	4	100	6
SBLM **0306**	R1.5	6	100	6
SBLM **0406**	R2	8	100	6
SBLM **0606**	R3	12	100	6
SBLM **0808**	R4	16	100	8
SBLM **1010**	R5	20	100	10
SBLM **1212**	R6	24	100	12
SBLL **0606**	R3	12	150	6
SBLL **0808**	R4	16	150	8
SBLL **1010**	R5	20	150	10
SBLL **1212**	R6	24	150	12
SBLL **1616**	R8	32	150	16
SBLL **2020**	R10	40	150	20

SBLSX.MX.LX

S MG | 2 | 30° | HRC 60 | i8 | Finishing Semi-Finishing | Cutting Data P.232

For HRC60 Steels / 2 Flute / Long Shank / Ball Nose H P K



- **FEATURES**
  - Long Shank 2 Flute Ball Nose for up to HRC60.
  - Extended overall length for greater depth of cut.
  - i8 Coating: High temperature resistance and low wear.

- **ITEMS**

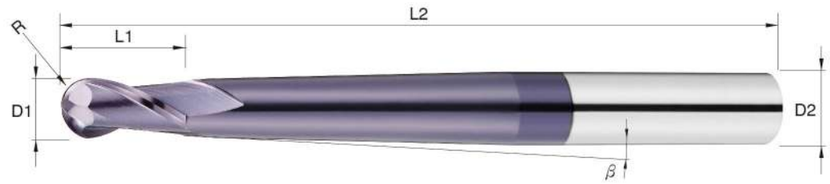
unit: mm

Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2
SBLSX **0104**	R0.5	2	75	4
SBLSX **0106**	R0.5	2	75	6
SBLSX **0154**	R0.75	3	75	4
SBLSX **0156**	R0.75	3	75	6
SBLSX **0206**	R1	4	75	6
SBLSX **0256**	R1.25	5	75	6
SBLSX **0303**	R1.5	6	75	3
SBLSX **0306**	R1.5	6	75	6
SBLSX **0404**	R2	8	75	4
SBLSX **0406**	R2	8	75	6
SBLSX **0506**	R2.5	10	75	6
SBLSX **0606**	R3	12	75	6
SBLSX **0808**	R4	16	75	8
SBLMX **0206**	R1	4	100	6
SBLMX **0306**	R1.5	6	100	6
SBLMX **0406**	R2	8	100	6
SBLMX **0606**	R3	12	100	6
SBLMX **0808**	R4	16	100	8
SBLMX **1010**	R5	20	100	10
SBLMX **1212**	R6	24	100	12
SBLLX **0606**	R3	12	150	6
SBLLX **0808**	R4	16	150	8
SBLLX **1010**	R5	20	150	10
SBLLX **1212**	R6	24	150	12
SBLLX **1616**	R8	32	150	16
SBLLX **2020**	R10	40	150	20

SBC

S MG | 2 | 30° | HRC 60 | ALTiN | Finishing Semi-Finishing | Cutting Data P.233

For HRC60 Steels / 2 Flute / Taper Neck / Ball Nose H P K



- **FEATURES**
  - Taper Neck 2 Flute Ball Nose for up to HRC60.
  - Taper Angle(β): 1.5º，3º，5º suitable for working on an inclined surface.
  - ALTiN Coating for Hardened steel.

- **ITEMS**

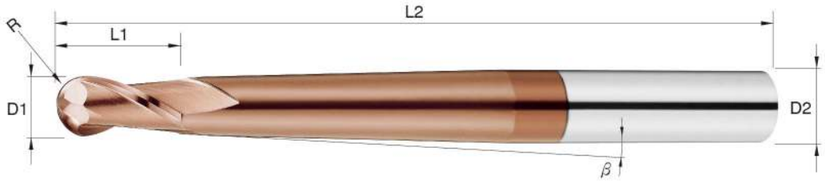
unit: mm

Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2	Taper Angle ß
SBC **0206**	R1	4	75	6	3°
SBC **0206A**	R1	4	75	6	5°
SBC **0306**	R1.5	6	100	6	1.5°
SBC **0306A**	R1.5	6	75	6	3°
SBC **0306B**	R1.5	6	75	6	5°
SBC **0406**	R2	8	100	6	1.5°
SBC **0406A**	R2	8	100	6	3°
SBC **0406B**	R2	8	75	6	5°
SBC **0608**	R3	12	100	8	1.5°
SBC **0608A**	R3	12	75	8	3°
SBC **0608B**	R3	12	100	8	5°

SBCX

S MG | 2 | 30° | HRC 60 | i8 | Finishing Semi-Finishing | Cutting Data P.233

For HRC60 Steels / 2 Flute / Taper Neck / Ball Nose H P K



- **FEATURES**
  - Taper Neck 2 Flute Ball Nose for up to HRC60.
  - Taper Angle(β): 1.5º，3º，5º suitable for working on an inclined surface.
  - i8 Coating: High temperature resistance and low wear.

- **ITEMS**

unit: mm

Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2	Taper Angle ß
SBCX **0206**	R1	4	75	6	3°
SBCX **0206A**	R1	4	75	6	5°
SBCX **0306**	R1.5	6	100	6	1.5°
SBCX **0306A**	R1.5	6	75	6	3°
SBCX **0306B**	R1.5	6	75	6	5°
SBCX **0406**	R2	8	100	6	1.5°
SBCX **0406A**	R2	8	100	6	3°
SBCX **0406B**	R2	8	75	6	5°
SBCX **0608**	R3	12	100	8	1.5°
SBCX **0608A**	R3	12	75	8	3°
SBCX **0608B**	R3	12	100	8	5°

SEM

S MG | 2 | 35° | HRC 60 | ALTiN | Finishing Semi-Finishing | Cutting Data P.234

For HRC60 Steels / 2 Flute / Micro Diameter / Square H P K

- **FEATURES**
  - Micro Diameter 2 Flute Square for up to HRC60.
  - Dia 0.2~1.8 mm suitable for general purpose precision milling.
  - ALTiN Coating for Hardened steel.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
SEM **0024**	0.2	0.4	50	4
SEM **0034**	0.3	0.6	50	4
SEM **0044**	0.4	0.8	50	4
SEM **0054**	0.5	1.0	50	4
SEM **0064**	0.6	1.2	50	4
SEM **0074**	0.7	1.4	50	4
SEM **0084**	0.8	1.6	50	4
SEM **0094**	0.9	1.8	50	4
SEM **0124**	1.2	3.0	50	4
SEM **0144**	1.4	3.0	50	4
SEM **0164**	1.6	4.0	50	4
SEM **0184**	1.8	5.0	50	4

SEMV

S MG | 2 | 35° | HRC 60 | i-X | Finishing Semi-Finishing | Cutting Data P.234

For HRC60 Steels / 2 Flute / Micro Diameter / Square H P K

- **FEATURES**
  - Micro Diameter 2 Flute Square for up to HRC60.
  - Dia 0.2~1.8 mm suitable for general purpose precision milling.
  - i-X new coating offers great heat resistance and friction resistance; suitable for Hardened steel.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
SEMV **0024**	0.2	0.4	50	4
SEMV **0034**	0.3	0.6	50	4
SEMV **0044**	0.4	0.8	50	4
SEMV **0054**	0.5	1.0	50	4
SEMV **0064**	0.6	1.2	50	4
SEMV **0074**	0.7	1.4	50	4
SEMV **0084**	0.8	1.6	50	4
SEMV **0094**	0.9	1.8	50	4
SEMV **0124**	1.2	3.0	50	4
SEMV **0144**	1.4	3.0	50	4
SEMV **0164**	1.6	4.0	50	4
SEMV **0184**	1.8	5.0	50	4

SEMX

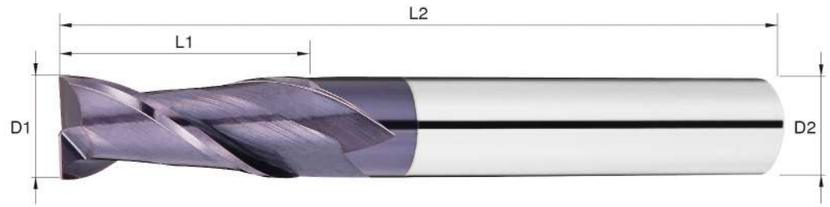
- **discontinuation**

SEMX Product Series with i8 coating will be discontinued after Dec. 2024.
We will continue to ship SEMX orders until our inventory is depleted.
If you'd like to purchase SEMX products, please contact your HGT sales representative while stocks last.
The replacement of SEMX is SEMV Product Series, which is original SEMX with new coating i-X.

SEA

S MG | 2 | 35° | HRC 60 | ALTiN | Finishing Semi-Finishing | Cutting Data P.233

For HRC60 Steels / 2 Flute / Square H P K



- **FEATURES**
  - 2 Flute Square for up to HRC60.
  - Hardened steel, Cast iron, Low/High alloy steel, cast steel, and tool steel.
  - ALTiN Coating for Hardened steel.

- **ITEMS**

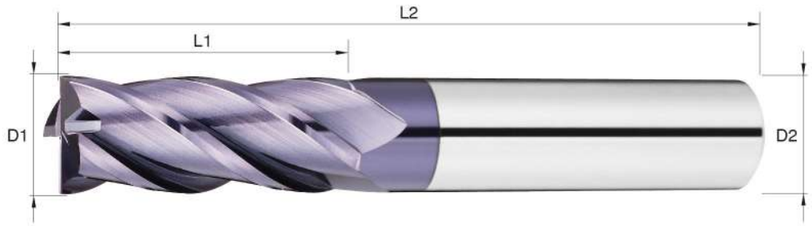
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
SEA **0104**	1.0	3	50	4
SEA **0154**	1.5	4	50	4
SEA **0204**	2.0	6	50	4
SEA **0306**	3.0	8	50	6
SEA **0406**	4.0	11	50	6
SEA **0506**	5.0	13	50	6
SEA **0606**	6.0	16	50	6
SEA **0808**	8.0	20	60	8
SEA **1010**	10.0	25	75	10
SEA **1212**	12.0	30	75	12
SEA **1616**	16.0	40	100	16
SEA **2020**	20.0	45	100	20

SEB

S MG | 4 | 35° | HRC 60 | ALTiN | Finishing Semi-Finishing | Cutting Data P.233

For HRC60 Steels / 4 Flute / Square H P K



- **FEATURES**
  - 4 Flute Square for up to HRC60.
  - Hardened steel, Cast iron, Low/High alloy steel, cast steel, and tool steel.
  - ALTiN Coating for Hardened steel.

- **ITEMS**

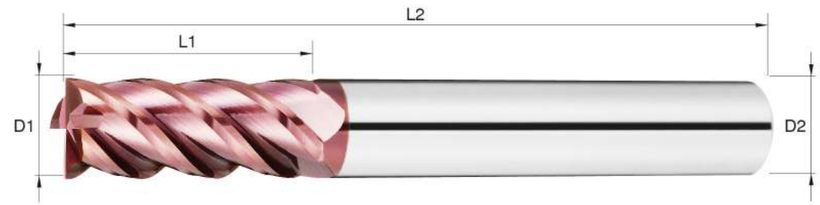
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
SEB **0104**	1.0	3	50	4
SEB **0106**	1.0	3	50	6
SEB **0154**	1.5	4	50	4
SEB **0156**	1.5	4	50	6
SEB **0204**	2.0	6	50	4
SEB **0206**	2.0	6	50	6
SEB **0254**	2.5	8	50	4
SEB **0256**	2.5	8	50	6
SEB **0303**	3.0	8	50	3
SEB **0304**	3.0	8	50	4
SEB **0306**	3.0	8	50	6
SEB **0404**	4.0	11	50	4
SEB **0406**	4.0	11	50	6
SEB **0505**	5.0	13	50	5
SEB **0506**	5.0	13	50	6
SEB **0606**	6.0	16	50	6
SEB **0808**	8.0	20	60	8
SEB **1010**	10.0	25	75	10
SEB **1212**	12.0	30	75	12
SEB **1414**	14.0	35	100	14
SEB **1616**	16.0	40	100	16
SEB **1818**	18.0	45	100	18
SEB **2020**	20.0	45	100	20

SEK

S MG | 4 | 45° | HRC 60 | G100 | Finishing Semi-Finishing | Cutting Data P.233

For HRC60 Steels / 4 Flute / Square H P K



- **FEATURES**
  - 4 Flute Square for up to HRC60.
  - Hardened steel, Cast iron, Low/High alloy steel, cast steel, and tool steel.
  - G100 Coating for General steel.

- **ITEMS**

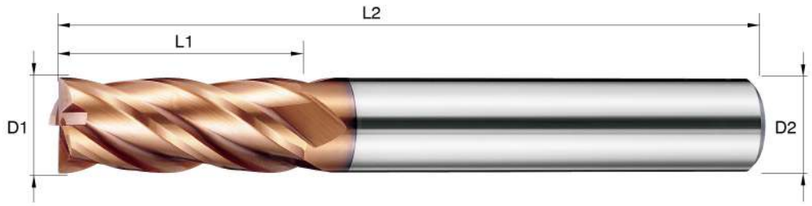
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
SEK **0104**	1.0	3	50	4
SEK **0154**	1.5	4	50	4
SEK **0204**	2.0	6	50	4
SEK **0306**	3.0	8	50	6
SEK **0406**	4.0	11	50	6
SEK **0506**	5.0	13	50	6
SEK **0606**	6.0	16	50	6
SEK **0808**	8.0	20	60	8
SEK **1010**	10.0	25	75	10
SEK **1212**	12.0	30	75	12
SEK **1616**	16.0	40	100	16
SEK **2020**	20.0	45	100	20

SEX

S MG | 4 | 35° | HRC 60 | i8 | Finishing Semi-Finishing | Cutting Data P.233

For HRC60 Steels / 4 Flute / Square H P K



- **FEATURES**
  - 4 Flute Square for up to HRC60.
  - Hardened steel, Cast iron, Low/High alloy steel, cast steel, and tool steel.
  - i8 Coating: High temperature resistance and low wear.

- **ITEMS**

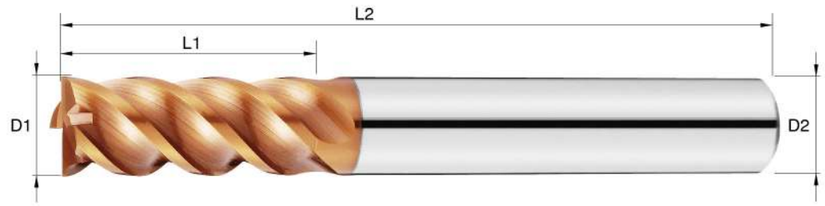
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
SEX **0304**	3.0	8	50	4
SEX **0404**	4.0	11	50	4
SEX **0506**	5.0	13	50	6
SEX **0606**	6.0	16	50	6
SEX **0808**	8.0	20	60	8
SEX **1010**	10.0	25	75	10
SEX **1212**	12.0	30	75	12
SEX **1616**	16.0	40	100	16
SEX **2020**	20.0	45	100	20

SEP

S MG | 4 | 45° | HRC 60 | HELICA | Roughing | Cutting Data P.234

For HRC60 Steels / 4 Flute / Power / Square H P K



- **FEATURES**
  - Power roughing 4 Flute Square for up to HRC60.
  - Round and wide chip gullet designed for heavy duty milling.
  - HELICA Coating: Heat resistance and low wear.

- **ITEMS**

unit: mm

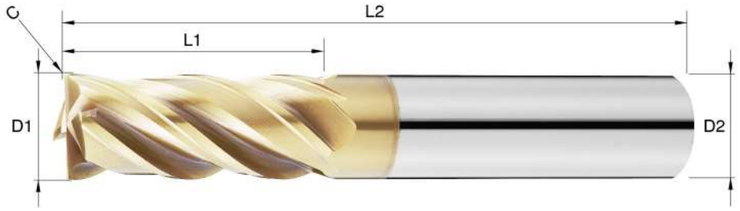
Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
SEP **0306**	3.0	8	50	6
SEP **0406**	4.0	11	50	6
SEP **0506**	5.0	13	50	6
SEP **0606**	6.0	16	50	6
SEP **0808**	8.0	20	60	8
SEP **1010**	10.0	25	75	10
SEP **1212**	12.0	30	75	12
SEP **1616**	16.0	40	100	16
SEP **2020**	20.0	45	100	20

S SUPER MILL

SEWV

S MG | 4 | 35°/38° | α°≠β° | HRC 60 | G-plus | Finishing Semi-Finishing | Cutting Data P.234

For HRC60 Steels / 4 Flute / Square H P K



- **FEATURES**
  - 4 Flute Square for up to HRC60.
  - Variable helix angle and unequal flute spacing designed for stability and anti-vibration.
  - G-plus Coating: Excellent wear resistance and heat resistant.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Chamfer C	Flute Length L1	O.A.L. L2	Shank Dia D2
SEWV **0306**	3.0	0.2	8	50	6
SEWV **0406**	4.0	0.2	11	50	6
SEWV **0506**	5.0	0.2	13	50	6
SEWV **0606**	6.0	0.2	16	50	6
SEWV **0808**	8.0	0.2	20	60	8
SEWV **1010**	10.0	0.3	25	75	10
SEWV **1212**	12.0	0.3	30	75	12
SEWV **1616**	16.0	0.5	40	100	16
SEWV **2020**	20.0	0.5	45	100	20

SEW

- **discontinuation**

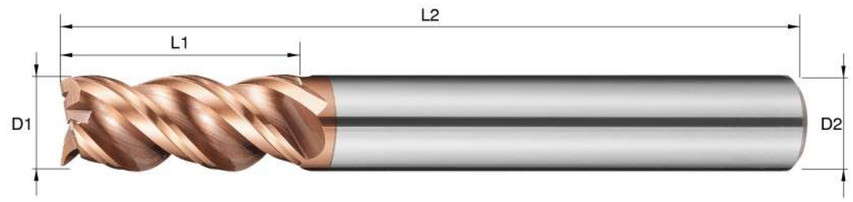
SEW Product Series with G300 coating will be discontinued after Dec. 2024.
We will continue to ship SEW orders until our inventory is depleted.
If you'd like to purchase SEW products, please contact your HGT sales representative while stocks last.
The replacement of SEW is SEWV Product Series, which is original SEW with new coating G-plus.

S SUPER MILL

SEPC

S MG | 3 | 45° | i8 | Cutting Data P.235

For HRC60 Steels / 3 Flute / Square H P K



- **FEATURES**
  - 3 Flute Square for up to HRC60.
  - Unique chip-removal flute design; excellent for plunging & slotting on special-shaped workpiece.
  - i8 Coated SEPC brings unexpected high performance on most steels.

- **ITEMS**

unit: mm

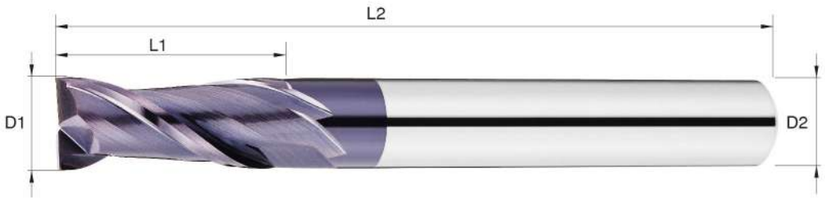
Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
SEPC **0206**	2.0	6	50	6
SEPC **0256**	2.5	6	50	6
SEPC **0306**	3.0	8	50	6
SEPC **0356**	3.5	8	50	6
SEPC **0406**	4.0	11	50	6
SEPC **0456**	4.5	11	50	6
SEPC **0506**	5.0	13	50	6
SEPC **0606**	6.0	16	50	6
SEPC **0808**	8.0	21	65	8
SEPC **1010**	10.0	25	80	10
SEPC **1212**	12.0	30	80	12

S SUPER MILL

SELA

S MG | 2 | 35° | HRC 60 | ALTiN | Finishing Semi-Finishing | Cutting Data P.233

For HRC60 Steels / 2 Flute / Long Shank / Square H P K



- **FEATURES**
  - Long Shank 2 Flute Square for up to HRC60.
  - Extended overall length for greater depth of cut.
  - ALTiN Coating for Hardened steel.

- **ITEMS**

unit: mm

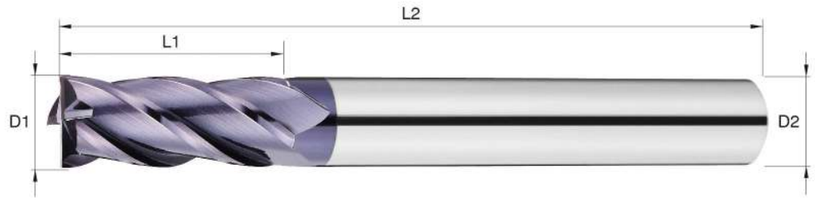
Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
SELA **0606**	6.0	15	75	6
SELA **0606A**	6.0	15	100	6
SELA **0808**	8.0	20	100	8
SELA **1010**	10.0	25	100	10
SELA **1010A**	10.0	25	150	10
SELA **1212**	12.0	30	100	12
SELA **1212A**	12.0	30	150	12

S SUPER MILL

SELB

S MG | 4 | 35° | HRC 60 | ALTiN | Finishing Semi-Finishing | Cutting Data P.233

For HRC60 Steels / 4 Flute / Long Shank / Square H P K



- **FEATURES**
  - Long Shank 4 Flute Square for up to HRC60.
  - Extended overall length for greater depth of cut.
  - ALTiN Coating for Hardened steel.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
SELB **0303**	3.0	8	75	3
SELB **0404**	4.0	11	75	4
SELB **0606**	6.0	15	75	6
SELB **0606A**	6.0	15	100	6
SELB **0808**	8.0	20	100	8
SELB **1010**	10.0	25	100	10
SELB **1010A**	10.0	25	150	10
SELB **1212**	12.0	30	100	12
SELB **1212A**	12.0	30	150	12
SELB **1616**	16.0	40	150	16

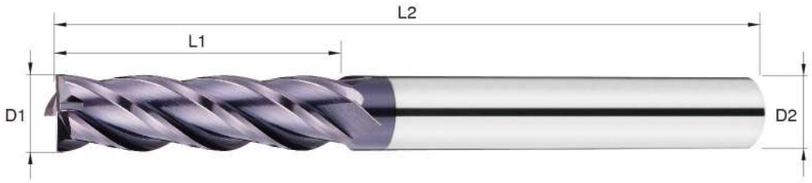
S SUPER MILL

SELD

S MG | 4 | 35° | HRC 60 | ALTiN | Finishing Semi-Finishing | Cutting Data P.235

For HRC60 Steels / 4 Flute / Long Flute / Square

H P K



• FEATURES

- Long Flute 4 Flute Square for up to HRC60.
- Extended flute length (L1) suitable for deep side milling.
- ALTiN Coating for Hardened steel.

• ITEMS

unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
SELD **0404**	4.0	25	75	4
SELD **0506**	5.0	30	75	6
SELD **0606**	6.0	30	75	6
SELD **0808**	8.0	40	100	8
SELD **1010**	10.0	40	100	10
SELD **1212**	12.0	45	100	12

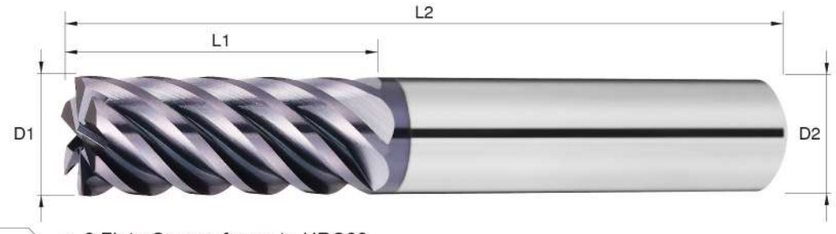
S

SHA

S MG | 6 | 45° | HRC 60 | ALTiN | Finishing | Cutting Data P.235

For HRC60 Steels / 6 Flute / Square

H P K



• FEATURES

- 6 Flute Square for up to HRC60.
- 6 Flute designed to bring excellent finishing for side milling.
- ALTiN Coating for Hardened steel.

• ITEMS

unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
SHA **0606**	6.0	16	50	6
SHA **0808**	8.0	20	60	8
SHA **1010**	10.0	25	75	10
SHA **1212**	12.0	30	75	12
SHA **1616**	16.0	40	100	16

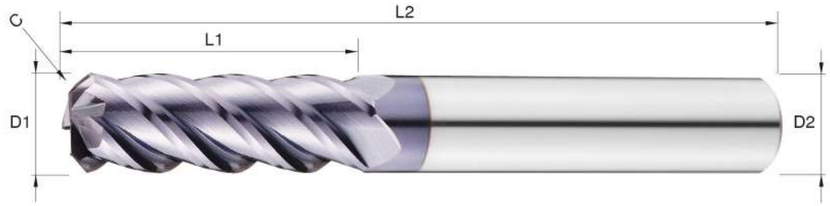
S SUPER MILL

SEZ

S MG | 4 | 45° | HRC 60 | ALTiN | Finishing Semi-Finishing | Cutting Data P.236

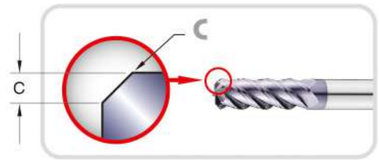
For HRC60 Steels / 4 Flute / Chamfer / Square

H P K



• FEATURES

- Chamfer 4 Flute Square for up to HRC60.
- Multi function corner chamfer designed for milling and chamfering at the same time.
- ALTiN Coating for Hardened steel.



• ITEMS

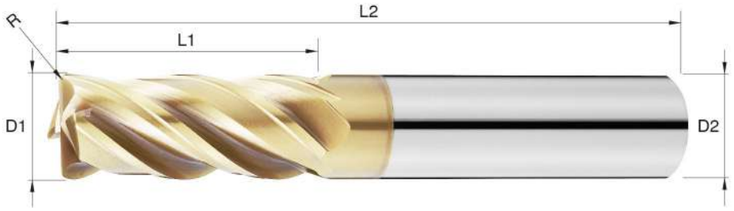
unit: mm

Order No.	Diameter D1	Chamfer C	Flute Length L1	O.A.L. L2	Shank Dia D2
SEZ **0405**	4.0	0.5	11	50	6
SEZ **0410**	4.0	1.0	11	50	6
SEZ **0605**	6.0	0.5	16	50	6
SEZ **0610**	6.0	1.0	16	50	6
SEZ **0805**	8.0	0.5	20	60	8
SEZ **0810**	8.0	1.0	20	60	8
SEZ **1005**	10.0	0.5	25	75	10
SEZ **1010**	10.0	1.0	25	75	10
SEZ **1020**	10.0	2.0	25	75	10
SEZ **1205**	12.0	0.5	30	75	12
SEZ **1210**	12.0	1.0	30	75	12
SEZ **1220**	12.0	2.0	30	75	12

SRW

S MG | 4 | 35°/38° | α°≠β° | R | HRC 60 | G-plus | Finishing Semi-Finishing | Cutting Data P.236

For HRC60 Steels / 4 Flute / Corner Radius H P K



- **FEATURES**
  - 4 Flute Corner Radius for HRC60.
  - Variable helix angle and unequal flute spacing offer great stability and anti-vibration.
  - G-plus Coating: High temperature resistance and low wear.

- **ITEMS**

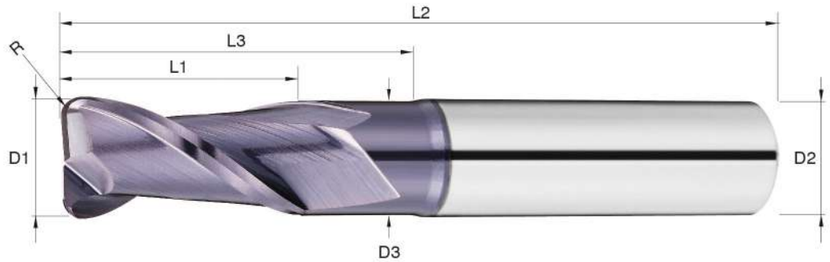
unit: mm

Order No.	Diameter D1	Corner R R	Flute Length L1	O.A.L. L2	Shank Dia D2
SRW **0302**	3.0	0.2	8	50	6
SRW **0305**	3.0	0.5	8	50	6
SRW **0402**	4.0	0.2	11	50	6
SRW **0405**	4.0	0.5	11	50	6
SRW **0605**	6.0	0.5	16	50	6
SRW **0610**	6.0	1.0	16	50	6
SRW **0805**	8.0	0.5	20	60	8
SRW **0810**	8.0	1.0	20	60	8
SRW **1005**	10.0	0.5	25	75	10
SRW **1010**	10.0	1.0	25	75	10
SRW **1020**	10.0	2.0	25	75	10
SRW **1030**	10.0	3.0	25	75	10
SRW **1205**	12.0	0.5	30	75	12
SRW **1210**	12.0	1.0	30	75	12
SRW **1220**	12.0	2.0	30	75	12
SRW **1230**	12.0	3.0	30	75	12

SRA

S MG | 2 | 35° | R | HRC 60 | ALTiN | Finishing Semi-Finishing | Cutting Data P.236

For HRC60 Steels / 2 Flute / Corner Radius H P K



- **FEATURES**
  - 2 Flute Corner Radius for HRC60.
  - Hardened steel, Cast iron, Low/High alloy steel, cast steel, and tool steel.
  - ALTiN Coating for Hardened steel.

- **ITEMS**

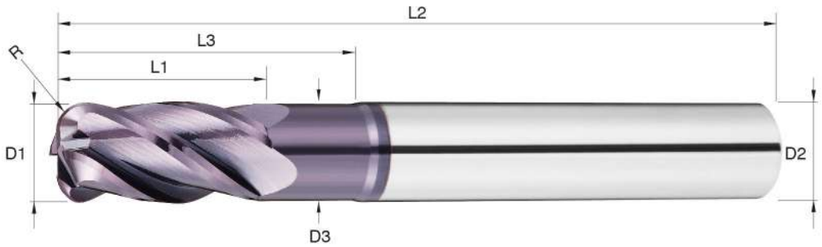
unit: mm

Order No.	Diameter D1	Corner R R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
SRA **0402**	4.0	0.2	3.88	8	12	50	4
SRA **0405**	4.0	0.5	3.88	8	12	50	4
SRA **0602**	6.0	0.2	5.80	12	18	50	6
SRA **0605**	6.0	0.5	5.80	12	18	50	6
SRA **0610**	6.0	1.0	5.80	12	18	50	6
SRA **0803**	8.0	0.3	7.70	16	24	60	8
SRA **0805**	8.0	0.5	7.70	16	24	60	8
SRA **0810**	8.0	1.0	7.70	16	24	60	8
SRA **1003**	10.0	0.3	9.60	20	30	75	10
SRA **1005**	10.0	0.5	9.60	20	30	75	10
SRA **1010**	10.0	1.0	9.60	20	30	75	10
SRA **1020**	10.0	2.0	9.60	20	30	75	10
SRA **1210**	12.0	1.0	11.50	24	36	75	12
SRA **1220**	12.0	2.0	11.50	24	36	75	12
SRA **1605**	16.0	0.5	15.40	30	40	100	16
SRA **1610**	16.0	1.0	15.40	30	40	100	16

SRB

S MG | 4 | 35° | R | HRC 60 | ALTiN | Finishing Semi-Finishing | Cutting Data P.236

For HRC60 Steels / 4 Flute / Corner Radius H P K



- **FEATURES**
  - 4 Flute Corner Radius for HRC60.
  - Hardened steel, Cast iron, Low/High alloy steel, cast steel, and tool steel.
  - ALTiN Coating for Hardened steel.

- **ITEMS**

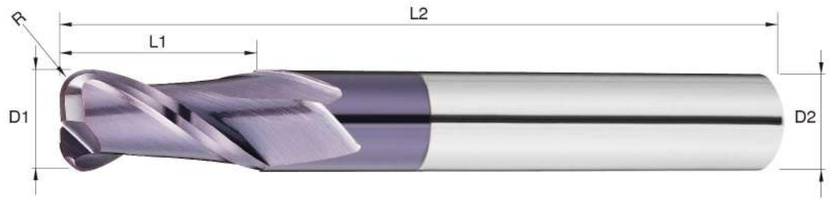
unit: mm

Order No.	Diameter D1	Corner R R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
SRB **0402**	4.0	0.2	3.88	8	12	50	4
SRB **0405**	4.0	0.5	3.88	8	12	50	4
SRB **0602**	6.0	0.2	5.80	12	18	50	6
SRB **0605**	6.0	0.5	5.80	12	18	50	6
SRB **0610**	6.0	1.0	5.80	12	18	50	6
SRB **0803**	8.0	0.3	7.70	16	24	60	8
SRB **0805**	8.0	0.5	7.70	16	24	60	8
SRB **0810**	8.0	1.0	7.70	16	24	60	8
SRB **1005**	10.0	0.5	9.60	20	30	75	10
SRB **1010**	10.0	1.0	9.60	20	30	75	10
SRB **1020**	10.0	2.0	9.60	20	30	75	10
SRB **1030**	10.0	3.0	9.60	20	30	75	10
SRB **1205**	12.0	0.5	11.50	24	36	75	12
SRB **1210**	12.0	1.0	11.50	24	36	75	12
SRB **1605**	16.0	0.5	15.40	30	40	100	16
SRB **1610**	16.0	1.0	15.40	30	40	100	16

SRC

S MG | 2 | 35° | R | HRC 60 | ALTiN | Finishing Semi-Finishing | Cutting Data P.236

For HRC60 Steels / 2 Flute / Corner Radius H P K



- **FEATURES**
  - 2 Flute Corner Radius for HRC60.
  - Hardened steel, Cast iron, Low/High alloy steel, cast steel, and tool steel.
  - ALTiN Coating for Hardened steel.

- **ITEMS**

Order No.	Diameter D1	Corner R R	Flute Length L1	O.A.L. L2	Shank Dia D2
SRC **0302**	3.0	0.2	6	50	3
SRC **0305**	3.0	0.5	6	50	3
SRC **0402**	4.0	0.2	8	50	4
SRC **0405**	4.0	0.5	8	50	4
SRC **0410**	4.0	1.0	8	50	4
SRC **0602**	6.0	0.2	12	50	6
SRC **0605**	6.0	0.5	12	50	6
SRC **0610**	6.0	1.0	12	50	6
SRC **0615**	6.0	1.5	12	50	6
SRC **0620**	6.0	2.0	12	50	6
SRC **0803**	8.0	0.3	16	60	8
SRC **0805**	8.0	0.5	16	60	8
SRC **0810**	8.0	1.0	16	60	8
SRC **0815**	8.0	1.5	16	60	8
SRC **0820**	8.0	2.0	16	60	8
SRC **1003**	10.0	0.3	20	75	10
SRC **1005**	10.0	0.5	20	75	10
SRC **1010**	10.0	1.0	20	75	10
SRC **1015**	10.0	1.5	20	75	10
SRC **1020**	10.0	2.0	20	75	10
SRC **1030**	10.0	3.0	20	75	10
SRC **1205**	12.0	0.5	24	75	12
SRC **1210**	12.0	1.0	24	75	12
SRC **1215**	12.0	1.5	24	75	12
SRC **1220**	12.0	2.0	24	75	12
SRC **1230**	12.0	3.0	24	75	12

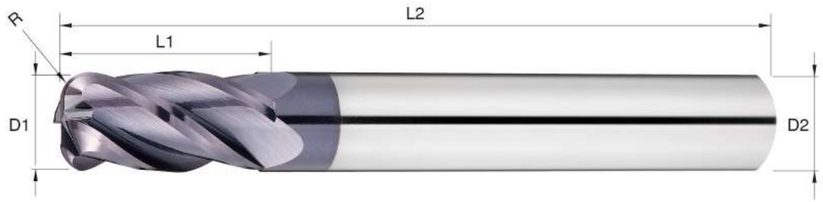
S SUPER MILL

SRD

S MG | 4 | 35° | R | HRC 60 | ALTiN | Finishing Semi-Finishing | Cutting Data P.236

For HRC60 Steels / 4 Flute / Corner Radius

H P K



• **FEATURES**

- 4 Flute Corner Radius for HRC60.
- Hardened steel, Cast iron, Low/High alloy steel, cast steel, and tool steel.
- ALTiN Coating for Hardened steel.

• **ITEMS**

unit: mm

Order No.	Diameter D1	Corner R R	Flute Length L1	O.A.L. L2	Shank Dia D2
SRD **01502**	1.5	0.2	3	50	4
SRD **0202**	2.0	0.2	4	50	4
SRD **0205**	2.0	0.5	4	50	4
SRD **0302**	3.0	0.2	6	50	3
SRD **0302.4**	3.0	0.2	6	50	4
SRD **0303.4**	3.0	0.3	6	50	4
SRD **0305**	3.0	0.5	6	50	3
SRD **0305.4**	3.0	0.5	6	50	4
SRD **0310.4**	3.0	1.0	6	50	4
SRD **0402**	4.0	0.2	8	50	4
SRD **0405**	4.0	0.5	8	50	4
SRD **0410**	4.0	1.0	8	50	4
SRD **0602**	6.0	0.2	12	50	6
SRD **0603**	6.0	0.3	12	50	6
SRD **0605**	6.0	0.5	12	50	6
SRD **0610**	6.0	1.0	12	50	6
SRD **0615**	6.0	1.5	12	50	6
SRD **0620**	6.0	2.0	12	50	6
SRD **0803**	8.0	0.3	16	60	8
SRD **0805**	8.0	0.5	16	60	8
SRD **0810**	8.0	1.0	16	60	8
SRD **0815**	8.0	1.5	16	60	8
SRD **0820**	8.0	2.0	16	60	8
SRD **1003**	10.0	0.3	20	75	10
SRD **1005**	10.0	0.5	20	75	10
SRD **1010**	10.0	1.0	20	75	10
SRD **1015**	10.0	1.5	20	75	10
SRD **1020**	10.0	2.0	20	75	10
SRD **1030**	10.0	3.0	20	75	10
SRD **1205**	12.0	0.5	24	75	12
SRD **1210**	12.0	1.0	24	75	12
SRD **1215**	12.0	1.5	24	75	12
SRD **1220**	12.0	2.0	24	75	12
SRD **1230**	12.0	3.0	24	75	12

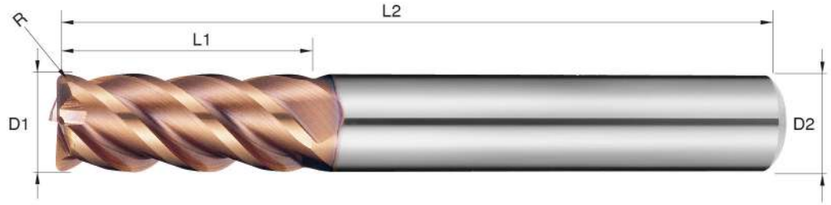
S SUPER MILL

SRDX

S MG | 4 | 45° | R | HRC 60 | i8 | Finishing Semi-Finishing | Cutting Data P.236

For HRC60 Steels / 4 Flute / Corner Radius

H P K



• **FEATURES**

- 4 Flute Corner Radius for HRC60.
- Hardened steel, Cast iron, Low/High alloy steel, cast steel, and tool steel.
- i8 Coating: High temperature resistance and low wear.

• **ITEMS**

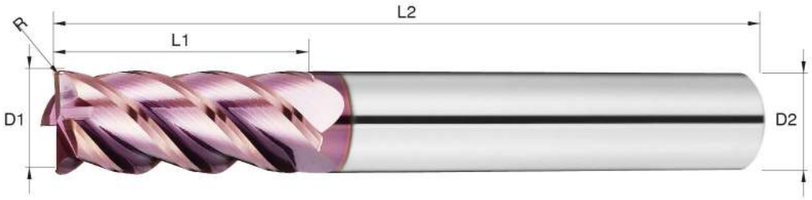
unit: mm

Order No.	Diameter D1	Corner R R	Flute Length L1	O.A.L. L2	Shank Dia D2
SRDX **0302**	3.0	0.2	6	50	3
SRDX **0305**	3.0	0.5	6	50	3
SRDX **0402**	4.0	0.2	8	50	4
SRDX **0405**	4.0	0.5	8	50	4
SRDX **0605**	6.0	0.5	12	50	6
SRDX **0610**	6.0	1.0	12	50	6
SRDX **0805**	8.0	0.5	16	60	8
SRDX **0810**	8.0	1.0	16	60	8
SRDX **1005**	10.0	0.5	20	75	10
SRDX **1010**	10.0	1.0	20	75	10
SRDX **1020**	10.0	2.0	20	75	10
SRDX **1030**	10.0	3.0	20	75	10
SRDX **1205**	12.0	0.5	24	75	12
SRDX **1210**	12.0	1.0	24	75	12
SRDX **1220**	12.0	2.0	24	75	12
SRDX **1230**	12.0	3.0	24	75	12

SRK

S MG | 4 | 45° | R | HRC 60 | G100 | Finishing Semi-Finishing | Cutting Data P.236

For HRC60 Steels / 4 Flute / Corner Radius H P K



• FEATURES

- 4 Flute Corner Radius for HRC60.
- Hardened steel, Cast iron, Low/High alloy steel, cast steel, and tool steel.
- G100 Coating for General steel.

• ITEMS

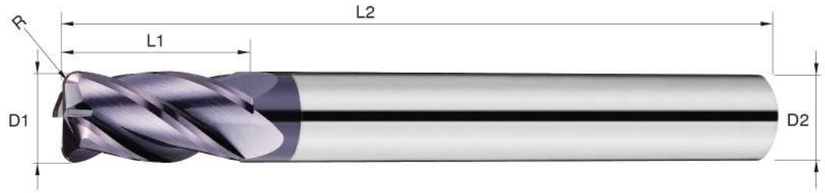
unit: mm

Order No.	Diameter D1	Corner R R	Flute Length L1	O.A.L. L2	Shank Dia D2
SRK **0302**	3.0	0.2	8	50	3
SRK **0305**	3.0	0.5	8	50	3
SRK **0402**	4.0	0.2	11	50	4
SRK **0405**	4.0	0.5	11	50	4
SRK **0410**	4.0	1.0	11	50	4
SRK **0602**	6.0	0.2	16	50	6
SRK **0605**	6.0	0.5	16	50	6
SRK **0610**	6.0	1.0	16	50	6
SRK **0615**	6.0	1.5	16	50	6
SRK **0620**	6.0	2.0	16	50	6
SRK **0803**	8.0	0.3	20	60	8
SRK **0805**	8.0	0.5	20	60	8
SRK **0810**	8.0	1.0	20	60	8
SRK **0815**	8.0	1.5	20	60	8
SRK **0820**	8.0	2.0	20	60	8
SRK **1003**	10.0	0.3	25	75	10
SRK **1005**	10.0	0.5	25	75	10
SRK **1010**	10.0	1.0	25	75	10
SRK **1015**	10.0	1.5	25	75	10
SRK **1020**	10.0	2.0	25	75	10
SRK **1030**	10.0	3.0	25	75	10
SRK **1205**	12.0	0.5	30	75	12
SRK **1210**	12.0	1.0	30	75	12
SRK **1215**	12.0	1.5	30	75	12
SRK **1220**	12.0	2.0	30	75	12
SRK **1230**	12.0	3.0	30	75	12

SERC

S MG | 4 | 35° | R | HRC 60 | ALTiN | Finishing Semi-Finishing | Cutting Data P.236

For HRC60 Steels / 4 Flute / Long Shank Corner Radius H P K



• FEATURES

- Long Shank 4 Flute Corner Radius for HRC60.•
- Extended overall length for greater depth of cut.
- ALTiN Coating for Hardened steel.

• ITEMS

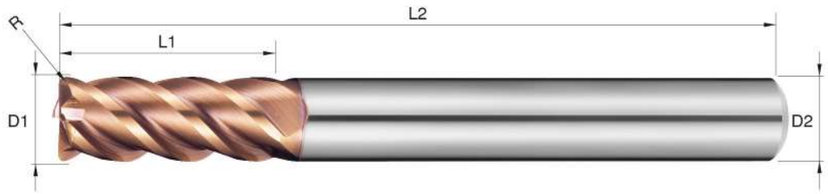
unit: mm

Order No.	Diameter D1	Corner R R	Flute Length L1	O.A.L. L2	Shank Dia D2
SERC **0605**	6.0	0.5	12	75	6
SERC **0605A**	6.0	0.5	12	100	6
SERC **0610**	6.0	1.0	12	75	6
SERC **0610A**	6.0	1.0	12	100	6
SERC **0805**	8.0	0.5	16	100	8
SERC **0810**	8.0	1.0	16	100	8
SERC **1005**	10.0	0.5	20	100	10
SERC **1010**	10.0	1.0	20	100	10
SERC **1020**	10.0	2.0	20	100	10
SERC **1205**	12.0	0.5	24	100	12
SERC **1210**	12.0	1.0	24	100	12
SERC **1220**	12.0	2.0	24	100	12

SERCX

S MG | 4 | 45° | R | HRC 60 | i8 | Finishing Semi-Finishing | Cutting Data P.236

For HRC60 Steels / 4 Flute / Long Shank Corner Radius H P K



- **FEATURES**
  - Long Shank 4 Flute Corner Radius for HRC60.
  - Extended overall length for greater depth of cut.
  - i8 Coating: High temperature resistance and low wear.

- **ITEMS**

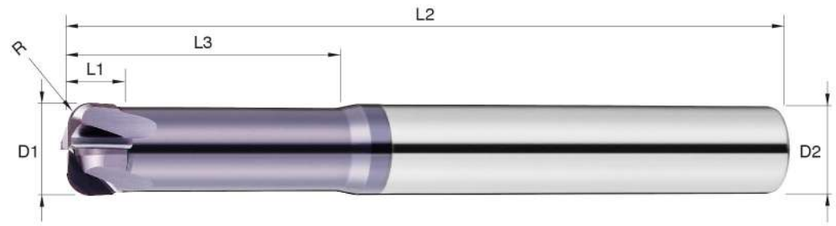
unit: mm

Order No.	Diameter D1	Corner R R	Flute Length L1	O.A.L. L2	Shank Dia D2
SERCX **0605**	6.0	0.5	12	75	6
SERCX **0610**	6.0	1.0	12	75	6
SERCX **0805**	8.0	0.5	16	100	8
SERCX **0810**	8.0	1.0	16	100	8
SERCX **1005**	10.0	0.5	20	100	10
SERCX **1010**	10.0	1.0	20	100	10
SERCX **1020**	10.0	2.0	20	100	10
SERCX **1205**	12.0	0.5	24	100	12
SERCX **1210**	12.0	1.0	24	100	12
SERCX **1220**	12.0	2.0	24	100	12

SRP

S MG | 4 | 5° | R | HRC 60 | ALTiN | Roughing | Cutting Data P.236

For HRC60 Steels / 4 Flute / Power Corner Radius H P K



- **FEATURES**
  - Power 4 Flute Corner Radius for HRC60.
  - Helix Angle 5 º with flute length 0.5D designed for heavy duty profile milling.
  - ALTiN Coating for Hardened steel.

- **ITEMS**

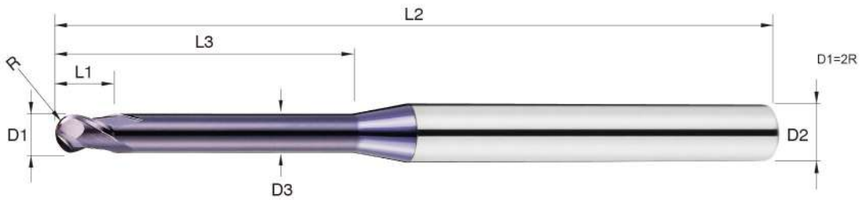
unit: mm

Order No.	Diameter D1	Corner R	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
SRP **0615**	6.0	1.5	3	18	50	6
SRP **0615A**	6.0	1.5	3	18	75	6
SRP **0820**	8.0	2.0	4	24	60	8
SRP **0820A**	8.0	2.0	4	24	100	8
SRP **1020**	10.0	2.0	5	30	75	10
SRP **1020A**	10.0	2.0	5	30	100	10
SRP **1230**	12.0	3.0	6	36	75	12
SRP **1230A**	12.0	3.0	6	36	100	12

SBF

S MG | 2 | 30° | HRC 60 | ALTiN | Finishing Semi-Finishing | Cutting Data P.237

For HRC60 Steels / 2 Flute / Long Neck / Ball Nose H P K



- **FEATURES**
  - Long Neck 2 Flute Ball Nose for HRC60.
  - R0.25~R2.0 mm with effective length 4~30 mm excellent for rib milling.
  - ALTiN Coating for Hardened steel.
- **ITEMS**

unit: mm

Order No.	Radius R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
SBF **00504**	R0.25	0.46	0.5	4	50	4
SBF **00506**	R0.25	0.46	0.5	6	50	4
SBF **00604**	R0.3	0.56	0.6	4	50	4
SBF **00606**	R0.3	0.56	0.6	6	50	4
SBF **00806**	R0.4	0.76	0.8	6	50	4
SBF **00808**	R0.4	0.76	0.8	8	50	4
SBF **01006**	R0.5	0.95	1.5	6	50	4
SBF **01008**	R0.5	0.95	1.5	8	50	4
SBF **01010**	R0.5	0.95	1.5	10	50	4
SBF **01012**	R0.5	0.95	1.5	12	50	4
SBF **01208**	R0.6	1.15	2	8	50	4
SBF **01212**	R0.6	1.15	2	12	50	4
SBF **01508**	R0.75	1.45	2	8	50	4
SBF **01512**	R0.75	1.45	2	12	50	4
SBF **01516**	R0.75	1.45	2	16	50	4
SBF **01520**	R0.75	1.45	2	20	50	4
SBF **01608**	R0.8	1.54	2.5	8	50	4
SBF **01612**	R0.8	1.54	2.5	12	50	4
SBF **01616**	R0.8	1.54	2.5	16	50	4
SBF **02008**	R1.0	1.92	3	8	50	4
SBF **02012**	R1.0	1.92	3	12	50	4
SBF **02016**	R1.0	1.92	3	16	50	4
SBF **02020**	R1.0	1.92	3	20	50	4
SBF **03008**	R1.5	2.90	4	8	50	6
SBF **03010**	R1.5	2.90	4	10	50	6
SBF **03016**	R1.5	2.90	4	16	50	6
SBF **03020**	R1.5	2.90	4	20	75	6
SBF **03025**	R1.5	2.90	4	25	75	6
SBF **04010**	R2.0	3.88	5	10	75	6
SBF **04015**	R2.0	3.88	5	15	75	6
SBF **04020**	R2.0	3.88	5	20	75	6
SBF **04025**	R2.0	3.88	5	25	75	6
SBF **04030**	R2.0	3.88	5	30	75	6

SBFV

S MG | 2 | 30° | HRC 60 | i-X | Finishing Semi-Finishing | Cutting Data P.237

For HRC60 Steels / 2 Flute / Long Neck / Ball Nose H P K

- **FEATURES**
  - Long Neck 2 Flute Ball Nose for HRC60.
  - R0.25~R2.0 mm with effective length 4~30 mm excellent for rib milling.
  - i-X new coating offers great heat resistance and friction resistance; suitable for Hardened steel.
- **ITEMS**

unit: mm

Order No.	Radius R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
SBFV **00504**	R0.25	0.46	0.5	4	50	4
SBFV **00506**	R0.25	0.46	0.5	6	50	4
SBFV **00604**	R0.3	0.56	0.6	4	50	4
SBFV **00606**	R0.3	0.56	0.6	6	50	4
SBFV **00806**	R0.4	0.76	0.8	6	50	4
SBFV **00808**	R0.4	0.76	0.8	8	50	4
SBFV **01006**	R0.5	0.95	1.5	6	50	4
SBFV **01008**	R0.5	0.95	1.5	8	50	4
SBFV **01010**	R0.5	0.95	1.5	10	50	4
SBFV **01012**	R0.5	0.95	1.5	12	50	4
SBFV **01208**	R0.6	1.15	2	8	50	4
SBFV **01212**	R0.6	1.15	2	12	50	4
SBFV **01508**	R0.75	1.45	2	8	50	4
SBFV **01512**	R0.75	1.45	2	12	50	4
SBFV **01516**	R0.75	1.45	2	16	50	4
SBFV **01520**	R0.75	1.45	2	20	50	4
SBFV **01608**	R0.8	1.54	2.5	8	50	4
SBFV **01612**	R0.8	1.54	2.5	12	50	4
SBFV **01616**	R0.8	1.54	2.5	16	50	4
SBFV **02008**	R1.0	1.92	3	8	50	4
SBFV **02012**	R1.0	1.92	3	12	50	4
SBFV **02016**	R1.0	1.92	3	16	50	4
SBFV **02020**	R1.0	1.92	3	20	50	4
SBFV **03008**	R1.5	2.90	4	8	50	6
SBFV **03010**	R1.5	2.90	4	10	50	6
SBFV **03016**	R1.5	2.90	4	16	50	6
SBFV **03020**	R1.5	2.90	4	20	75	6
SBFV **03025**	R1.5	2.90	4	25	75	6
SBFV **04010**	R2.0	3.88	5	10	75	6
SBFV **04015**	R2.0	3.88	5	15	75	6
SBFV **04020**	R2.0	3.88	5	20	75	6
SBFV **04025**	R2.0	3.88	5	25	75	6
SBFV **04030**	R2.0	3.88	5	30	75	6

SBFX

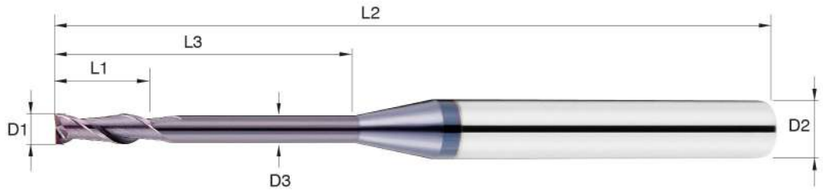
- **discontinuation**

SBFX Product Series with i8 coating will be discontinued after Dec. 2024.
We will continue to ship SBFX orders until our inventory is depleted.
If you'd like to purchase SBFX products, please contact your HGT sales representative while stocks last.
The replacement of SBFX is SBFV Product Series, which is original SBFX with new coating i-X.

SEFA

S MG | 2 | 35° | HRC 60 | ALTiN | Finishing Semi-Finishing | Cutting Data P.237

For HRC60 Steels / 2 Flute / Long Neck / Square H P K



- **FEATURES**
  - Long Neck 2 Flute Square for HRC60.
  - Dia 1.0~3.0 mm with effective length 6~25 mm excellent for rib milling.
  - ALTiN Coating for Hardened steel.

- **ITEMS**

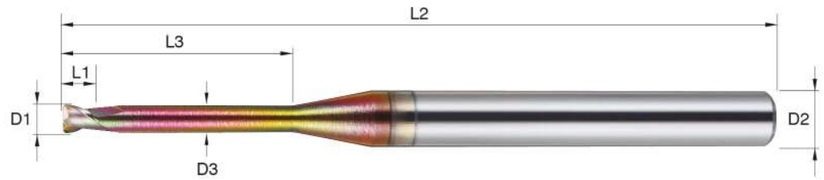
unit: mm

Order No.	Diameter D1	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
SEFA **01006**	1.0	0.95	3	6	50	4
SEFA **01008**	1.0	0.95	3	8	50	4
SEFA **01010**	1.0	0.95	3	10	50	4
SEFA **01012**	1.0	0.95	3	12	50	4
SEFA **01508**	1.5	1.45	4	8	50	4
SEFA **01510**	1.5	1.45	4	10	50	4
SEFA **01512**	1.5	1.45	4	12	50	4
SEFA **01516**	1.5	1.45	4	16	50	4
SEFA **02008**	2.0	1.92	6	8	50	4
SEFA **02010**	2.0	1.92	6	10	50	4
SEFA **02012**	2.0	1.92	6	12	50	4
SEFA **02016**	2.0	1.92	6	16	50	4
SEFA **02020**	2.0	1.92	6	20	50	4
SEFA **02510**	2.5	2.40	8	10	50	4
SEFA **02512**	2.5	2.40	8	12	50	4
SEFA **02516**	2.5	2.40	8	16	50	4
SEFA **02520**	2.5	2.40	8	20	50	4
SEFA **03010**	3.0	2.90	8	10	50	6
SEFA **03012**	3.0	2.90	8	12	50	6
SEFA **03016**	3.0	2.90	8	16	50	6
SEFA **03020**	3.0	2.90	8	20	75	6
SEFA **03025**	3.0	2.90	8	25	75	6

SEFAV

S MG | 2 | 35° | HRC 60 | i-X | Finishing Semi-Finishing | Cutting Data P.237

For HRC60 Steels / 2 Flute / Long Neck / Square H P K



- **FEATURES**
  - Long Neck 2 Flute Square for HRC60.
  - Dia 1.0~3.0 mm with effective length 6~25 mm excellent for rib milling.
  - i-X new coating offers great heat resistance and friction resistance; suitable for Hardened steel.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
SEFAV **01006**	1.0	0.95	3	6	50	4
SEFAV **01008**	1.0	0.95	3	8	50	4
SEFAV **01010**	1.0	0.95	3	10	50	4
SEFAV **01012**	1.0	0.95	3	12	50	4
SEFAV **01508**	1.5	1.45	4	8	50	4
SEFAV **01510**	1.5	1.45	4	10	50	4
SEFAV **01512**	1.5	1.45	4	12	50	4
SEFAV **01516**	1.5	1.45	4	16	50	4
SEFAV **02008**	2.0	1.92	6	8	50	4
SEFAV **02010**	2.0	1.92	6	10	50	4
SEFAV **02012**	2.0	1.92	6	12	50	4
SEFAV **02016**	2.0	1.92	6	16	50	4
SEFAV **02020**	2.0	1.92	6	20	50	4
SEFAV **02510**	2.5	2.40	8	10	50	4
SEFAV **02512**	2.5	2.40	8	12	50	4
SEFAV **02516**	2.5	2.40	8	16	50	4
SEFAV **02520**	2.5	2.40	8	20	50	4
SEFAV **03010**	3.0	2.90	8	10	50	6
SEFAV **03012**	3.0	2.90	8	12	50	6
SEFAV **03016**	3.0	2.90	8	16	50	6
SEFAV **03020**	3.0	2.90	8	20	75	6
SEFAV **03025**	3.0	2.90	8	25	75	6

SEFAX

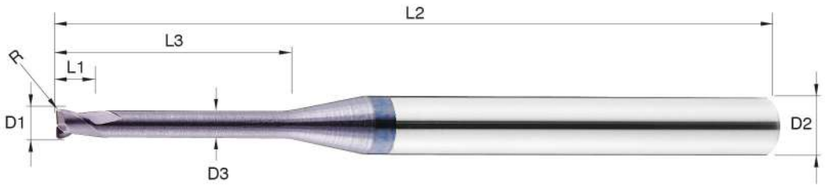
- **discontinuation**

SEFAX Product Series with i8 coating will be discontinued after Dec. 2024.
We will continue to ship SEFAX orders until our inventory is depleted.
If you'd like to purchase SEFAX products, please contact your HGT sales representative while stocks last.
The replacement of SEFAX is SEFAV Product Series, which is original SEFAX with new coating i-X.

SEF

S MG | 2 | 35° | R | HRC 60 | ALTiN | Finishing Semi-Finishing | Cutting Data P.237

For HRC60 Steels / 2 Flute / Long Neck / Corner Radius H P K



- **FEATURES**
  - Long Neck 2 Flute Corner Radius for HRC60.
  - Corner R0.1~R0.2 mm with effective length 4~20 mm excellent for rib milling.
  - ALTiN Coating for Hardened steel.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Corner R R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
SEF **01004**	1.0	0.1	0.95	1.0	4	50	4
SEF **01006**	1.0	0.1	0.95	1.0	6	50	4
SEF **01008**	1.0	0.1	0.95	1.0	8	50	4
SEF **01010**	1.0	0.1	0.95	1.0	10	50	4
SEF **01504**	1.5	0.2	1.45	1.5	4	50	4
SEF **01506**	1.5	0.2	1.45	1.5	6	50	4
SEF **01508**	1.5	0.2	1.45	1.5	8	50	4
SEF **01510**	1.5	0.2	1.45	1.5	10	50	4
SEF **01512**	1.5	0.2	1.45	1.5	12	50	4
SEF **02008**	2.0	0.2	1.92	2.0	8	50	4
SEF **02010**	2.0	0.2	1.92	2.0	10	50	4
SEF **02012**	2.0	0.2	1.92	2.0	12	50	4
SEF **02016**	2.0	0.2	1.92	2.0	16	50	4
SEF **03008**	3.0	0.2	2.90	3.0	8	50	6
SEF **03010**	3.0	0.2	2.90	3.0	10	50	6
SEF **03012**	3.0	0.2	2.90	3.0	12	50	6
SEF **03016**	3.0	0.2	2.90	3.0	16	50	6
SEF **03020**	3.0	0.2	2.90	3.0	20	50	6

SEFV

S MG | 2 | 35° | R | HRC 60 | i-X | Finishing Semi-Finishing | Cutting Data P.237

For HRC60 Steels / 2 Flute / Long Neck / Corner Radius H P K

- **FEATURES**
  - Long Neck 2 Flute Corner Radius for HRC60.
  - Corner R0.1~R0.2 mm with effective length 4~20 mm excellent for rib milling.
  - i-X new coating offers great heat resistance and friction resistance; suitable for Hardened steel.

- **ITEMS**

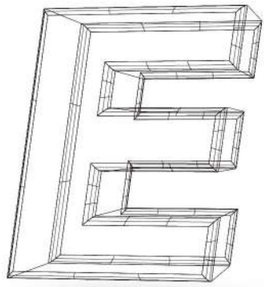
unit: mm

Order No.	Diameter D1	Corner R R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
SEFV **01004**	1.0	0.1	0.95	1.0	4	50	4
SEFV **01006**	1.0	0.1	0.95	1.0	6	50	4
SEFV **01008**	1.0	0.1	0.95	1.0	8	50	4
SEFV **01010**	1.0	0.1	0.95	1.0	10	50	4
SEFV **01504**	1.5	0.2	1.45	1.5	4	50	4
SEFV **01506**	1.5	0.2	1.45	1.5	6	50	4
SEFV **01508**	1.5	0.2	1.45	1.5	8	50	4
SEFV **01510**	1.5	0.2	1.45	1.5	10	50	4
SEFV **01512**	1.5	0.2	1.45	1.5	12	50	4
SEFV **02008**	2.0	0.2	1.92	2.0	8	50	4
SEFV **02010**	2.0	0.2	1.92	2.0	10	50	4
SEFV **02012**	2.0	0.2	1.92	2.0	12	50	4
SEFV **02016**	2.0	0.2	1.92	2.0	16	50	4
SEFV **03008**	3.0	0.2	2.90	3.0	8	50	6
SEFV **03010**	3.0	0.2	2.90	3.0	10	50	6
SEFV **03012**	3.0	0.2	2.90	3.0	12	50	6
SEFV **03016**	3.0	0.2	2.90	3.0	16	50	6
SEFV **03020**	3.0	0.2	2.90	3.0	20	50	6

SEFX

- **discontinuation**

SEFX Product Series with i8 coating will be discontinued after Dec. 2024.
We will continue to ship SEFX orders until our inventory is depleted.
If you'd like to purchase SEFX products, please contact your HGT sales representative while stocks last.
The replacement of SEFX is SEFV Product Series, which is original SEFX with new coating i-X.



FOR HRC55 STEELS

EFFICIENCY MILLS

BM

MG | 2 | 30° | HRC 55 | TiaLN | Finishing / Semi-Finishing | Cutting Data P.238

For HRC55 Steels / 2 Flute / Micro Diameter / Ball Nose P K

- **FEATURES**
  - Micro Diameter 2 Flute Ball Nose for up to HRC55.
  - TiaLN Coating for General steel.
  - Radius(mm): R0.2~R0.9

- **ITEMS**

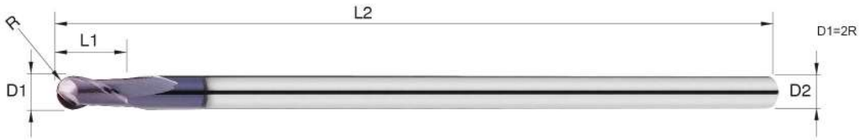
unit: mm

Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2
BM **0044**	R0.2	0.8	50	4
BM **0054**	R0.25	1.0	50	4
BM **0064**	R0.3	1.2	50	4
BM **0074**	R0.35	1.4	50	4
BM **0084**	R0.4	1.6	50	4
BM **0094**	R0.45	1.8	50	4
BM **0124**	R0.6	2.4	50	4
BM **0144**	R0.7	2.8	50	4
BM **0164**	R0.8	3.2	50	4
BM **0184**	R0.9	3.6	50	4

BS

MG | 2 | 30° | HRC 55 | TiaLN | Finishing Semi-Finishing | Cutting Data P.238

For HRC55 Steels / 2 Flute / Small Shank / Ball Nose P K



- **FEATURES**
  - Small Shank 2 Flute Ball Nose for up to HRC55.
  - TiaLN Coating for General steel.
  - Radius(mm): R0.5~R2

- **ITEMS**

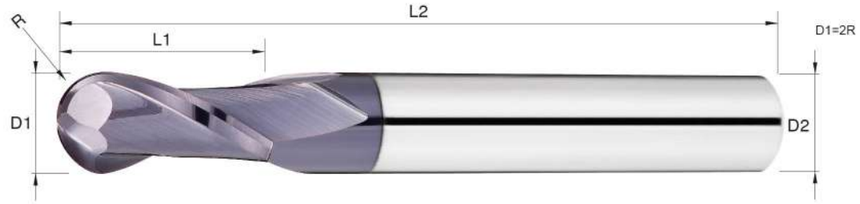
unit: mm

Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2
BS **0103**	R0.5	2	50	3
BS **0153**	R0.75	3	50	3
BS **0203**	R1	4	50	3
BS **0253**	R1.25	5	50	3
BS **0303**	R1.5	6	50	3
BS **0303A**	R1.5	6	75	3
BS **0303B**	R1.5	6	100	3
BS **0404**	R2	8	75	4
BS **0404A**	R2	8	100	4

BA

MG | 2 | 30° | HRC 55 | TiaLN | Finishing Semi-Finishing | Cutting Data P.238

For HRC55 Steels / 2 Flute / Ball Nose P K



- **FEATURES**
  - 2 Flute Ball Nose for workpiece up to HRC55.
  - Low/High alloy steel, cast steel, tool steel, and Cast iron.
  - TiaLN Coating for General steel.

- **ITEMS**

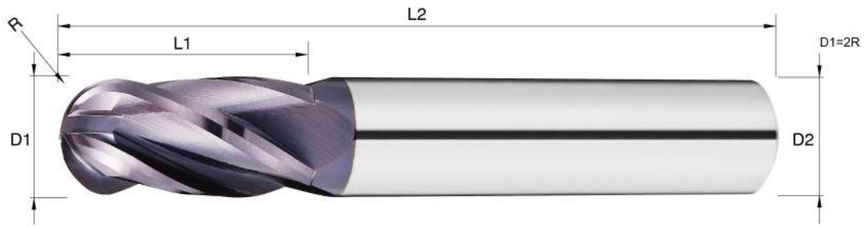
unit: mm

Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2
BA **0104**	R0.5	2	50	4
BA **0154**	R0.75	3	50	4
BA **0202**	R1	4	50	2
BA **0204**	R1	4	50	4
BA **0254**	R1.25	5	50	4
BA **0304**	R1.5	6	50	4
BA **0354**	R1.75	7	50	4
BA **0404**	R2	8	50	4
BA **0456**	R2.25	9	50	6
BA **0505**	R2.5	10	50	5
BA **0506**	R2.5	10	50	6
BA **0556**	R2.75	11	50	6
BA **0606**	R3	12	50	6
BA **0707**	R3.5	14	60	7
BA **0708**	R3.5	14	60	8
BA **0808**	R4	16	60	8
BA **0910**	R4.5	18	75	10
BA **1010**	R5	20	75	10
BA **1212**	R6	24	75	12
BA **1616**	R8	32	100	16
BA **2020**	R10	40	100	20

BB

MG | 4 | 30° | HRC 55 | TiaLN | Finishing Semi-Finishing | Cutting Data P.238

For HRC55 Steels / 4 Flute / Ball Nose P K



- **FEATURES**
  - 4 Flute Ball Nose for workpiece up to HRC55.
  - Low/High alloy steel, cast steel, tool steel, and Cast iron.
  - TiaLN Coating for General steel.

- **ITEMS**

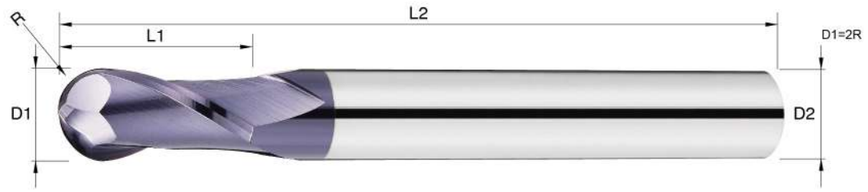
unit: mm

Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2
BB **0104**	R0.5	2	50	4
BB **0154**	R0.75	3	50	4
BB **0204**	R1	4	50	4
BB **0254**	R1.25	5	50	4
BB **0304**	R1.5	6	50	4
BB **0404**	R2	8	50	4
BB **0506**	R2.5	10	50	6
BB **0606**	R3	12	50	6
BB **0808**	R4	16	60	8
BB **1010**	R5	20	75	10
BB **1212**	R6	24	75	12

BLS.BLM.BLL

MG | 2 | 30° | HRC 55 | TiaLN | Finishing Semi-Finishing | Cutting Data P.238

For HRC55 Steels / 2 Flute / Long Shank / Ball Nose P K



- **FEATURES**
  - Long Shank 2 Flute Ball Nose for up to HRC55.
  - Extended overall length for greater depth of cut.
  - TiaLN Coating for General steel.

- **ITEMS**

unit: mm

Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2
BLS **0104**	R0.5	2	75	4
BLS **0106**	R0.5	2	75	6
BLS **0154**	R0.75	3	75	4
BLS **0156**	R0.75	3	75	6
BLS **0206**	R1	4	75	6
BLS **0256**	R1.25	5	75	6
BLS **0306**	R1.5	6	75	6
BLS **0406**	R2	8	75	6
BLS **0506**	R2.5	10	75	6
BLS **0606**	R3	12	75	6
BLM **0206**	R1	4	100	6
BLM **0306**	R1.5	6	100	6
BLM **0406**	R2	8	100	6
BLM **0606**	R3	12	100	6
BLM **0808**	R4	16	100	8
BLM **1010**	R5	20	100	10
BLM **1212**	R6	24	100	12
BLL **0606**	R3	12	150	6
BLL **0808**	R4	16	150	8
BLL **1010**	R5	20	150	10
BLL **1212**	R6	24	150	12
BLL **1616**	R8	32	150	16
BLL **2020**	R10	40	150	20

EM

MG | 2 | 35° | HRC 55 | TiaLN | Finishing Semi-Finishing | Cutting Data P.239

For HRC55 Steels / 2 Flute / Micro Diameter / Square P K

- **FEATURES**
  - Micro Diameter 2 Flute Square for up to HRC55.
  - Dia 0.4~1.8 mm suitable for general purpose micro milling.
  - TiaLN Coating for General steel.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
EM **0044**	0.4	0.8	50	4
EM **0054**	0.5	1.0	50	4
EM **0064**	0.6	1.2	50	4
EM **0074**	0.7	1.4	50	4
EM **0084**	0.8	1.6	50	4
EM **0094**	0.9	1.8	50	4
EM **0124**	1.2	3.0	50	4
EM **0144**	1.4	3.0	50	4
EM **0164**	1.6	4.0	50	4
EM **0184**	1.8	5.0	50	4

ES

MG | 2 | 35° | HRC 55 | TiaLN | Finishing Semi-Finishing | Cutting Data P.239

For HRC55 Steels / 2 Flute / Small Shank / Square P K

- **FEATURES**
  - Small Shank 2 Flute Square for up to HRC55.
  - Shank Diameter 3~4 mm with extended overall length; suitable for deeper narrow part milling.
  - TiaLN Coating for General steel.

- **ITEMS**

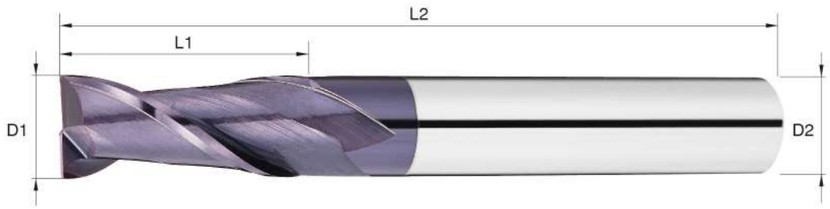
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
ES **0103**	1.0	3	50	3
ES **0153**	1.5	4	50	3
ES **0203**	2.0	6	50	3
ES **0253**	2.5	8	50	3
ES **0303**	3.0	8	50	3
ES **0303A**	3.0	8	75	3
ES **0303B**	3.0	8	100	3
ES **0404**	4.0	11	75	4
ES **0404A**	4.0	11	100	4

EA

MG | 2 | 35° | HRC 55 | TiaLN | Finishing Semi-Finishing | Cutting Data P.239

For HRC55 Steels / 2 Flute / Square P K



- **FEATURES**
  - 2 Flute Square for up to HRC55.
  - Low/High alloy steel, cast steel, tool steel, and Cast iron.
  - TiaLN Coating for General steel.

- **ITEMS**

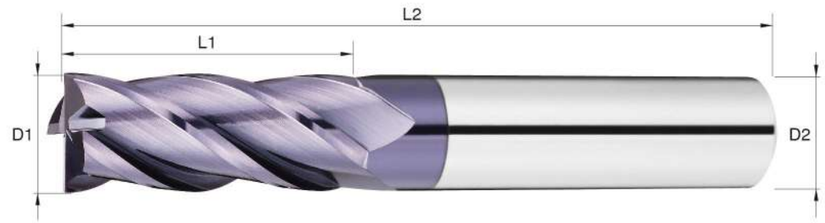
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
EA **0104**	1.0	3	50	4
EA **0154**	1.5	4	50	4
EA **0204**	2.0	6	50	4
EA **0254**	2.5	8	50	4
EA **0304**	3.0	8	50	4
EA **0404**	4.0	11	50	4
EA **0506**	5.0	13	50	6
EA **0606**	6.0	16	50	6
EA **0808**	8.0	20	60	8
EA **1010**	10.0	25	75	10
EA **1212**	12.0	30	75	12
EA **1616**	16.0	40	100	16
EA **2020**	20.0	45	100	20

EB

MG | 4 | 35° | HRC 55 | TiaLN | Finishing Semi-Finishing | Cutting Data P.239

For HRC55 Steels / 4 Flute / Square P K



- **FEATURES**
  - 4 Flute Square for up to HRC55.
  - Low/High alloy steel, cast steel, tool steel, and Cast iron.
  - TiaLN Coating for General steel.

- **ITEMS**

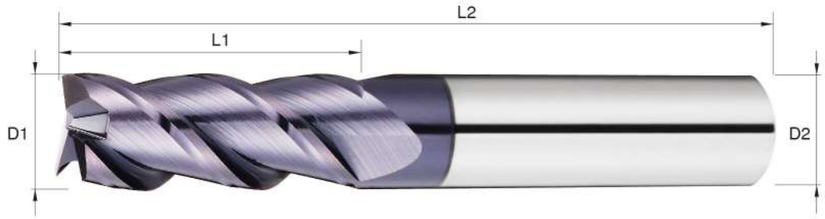
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
EB **0104**	1.0	3	50	4
EB **0154**	1.5	4	50	4
EB **0202**	2.0	6	50	2
EB **0204**	2.0	6	50	4
EB **0254**	2.5	8	50	4
EB **0303**	3.0	8	50	3
EB **0304**	3.0	8	50	4
EB **0404**	4.0	11	50	4
EB **0505**	5.0	13	50	5
EB **0506**	5.0	13	50	6
EB **0606**	6.0	16	50	6
EB **0707**	7.0	18	60	7
EB **0808**	8.0	20	60	8
EB **1010**	10.0	25	75	10
EB **1212**	12.0	30	75	12
EB **1414**	14.0	35	100	14
EB **1616**	16.0	40	100	16
EB **1818**	18.0	45	100	18
EB **2020**	20.0	45	100	20

EC

MG | 3 | 45° | HRC 55 | TiaLN | Finishing Semi-Finishing | Cutting Data P.240

For HRC55 Steels / 3 Flute / Square P K



- **FEATURES**
  - 3 Flute Square for up to HRC55.
  - Helix Angle 45 º to reduce cutting force.
  - TiaLN Coating for General steel.

- **ITEMS**

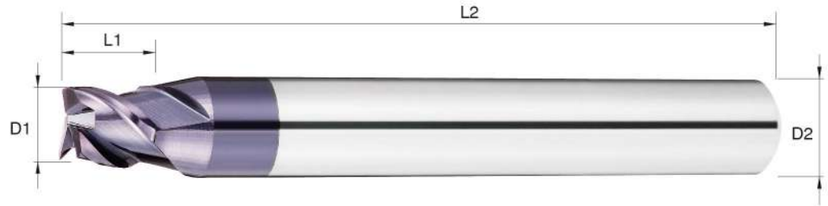
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
EC **0304**	3.0	8	50	4
EC **0404**	4.0	11	50	4
EC **0506**	5.0	13	50	6
EC **0606**	6.0	16	50	6
EC **0808**	8.0	20	60	8
EC **1010**	10.0	25	75	10
EC **1212**	12.0	30	75	12
EC **1616**	16.0	40	100	16
EC **2020**	20.0	45	100	20

EP

MG | 3 | 45° | HRC 55 | TiaLN | Finishing Semi-Finishing | Cutting Data P.240

For HRC55 Steels / 3 Flute / Square P K



- **FEATURES**
  - 3 Flute Square for up to HRC55.
  - With larger shank diameter to increase tool's rigidity; suitable for keyway milling.
  - TiaLN Coating for General steel.

- **ITEMS**

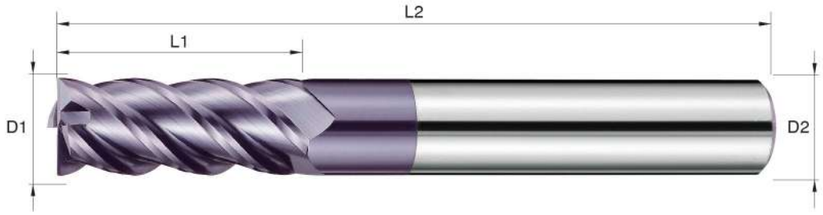
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
EP **0306**	3.0	3	50	6
EP **0406**	4.0	4	50	6
EP **0506**	5.0	5	50	6
EP **0608**	6.0	6	60	8
EP **0810**	8.0	8	75	10
EP **1012**	10.0	10	75	12

ED

MG | 4 | 45° | HRC 55 | TiaLN | Finishing Semi-Finishing | Cutting Data P.241

For HRC55 Steels / 4 Flute / Square P K M S



- **FEATURES**
  - Helix Angle 45 º 4 Flute Square for up to HRC55.
  - Low/High alloy steel, cast steel, tool steel, and Cast iron.
  - Also for Stainless steel, High temp. alloy, and Titanium & Ti alloys,

- **ITEMS**

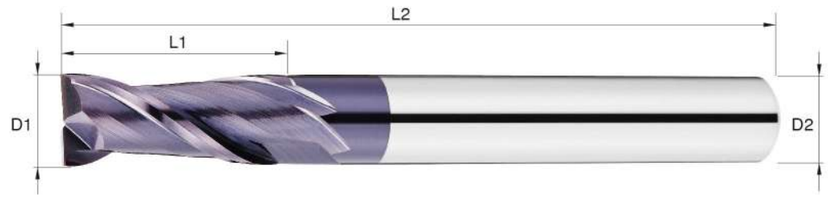
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
ED **0304**	3.0	8	50	4
ED **0404**	4.0	11	50	4
ED **0506**	5.0	13	50	6
ED **0606**	6.0	16	50	6
ED **0808**	8.0	20	60	8
ED **1010**	10.0	25	75	10
ED **1212**	12.0	30	75	12
ED **1616**	16.0	40	100	16

ELA

MG | 2 | 35° | HRC 55 | TiaLN | Finishing Semi-Finishing | Cutting Data P.239

For HRC55 Steels / 2 Flute / Long Shank / Square P K



- **FEATURES**
  - Long Shank 2 Flute Square for up to HRC55.
  - Extended overall length for greater depth of cut.
  - TiaLN Coating for General steel.

- **ITEMS**

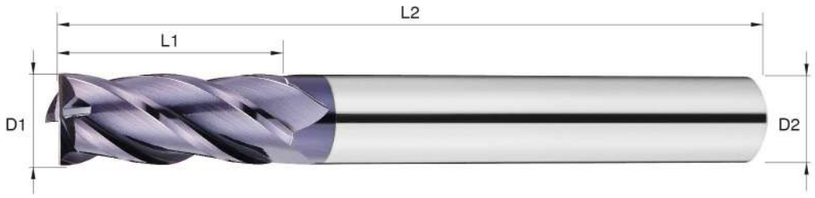
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
ELA **0606**	6.0	15	75	6
ELA **0606A**	6.0	15	100	6
ELA **0808**	8.0	20	100	8
ELA **1010**	10.0	25	100	10
ELA **1010A**	10.0	25	150	10
ELA **1212**	12.0	30	100	12
ELA **1212A**	12.0	30	150	12

ELB

MG | 4 | 35° | HRC 55 | TiaLN | Finishing Semi-Finishing | Cutting Data P.239

For HRC55 Steels / 4 Flute / Long Shank / Square P K



- **FEATURES**
  - Long Shank 4 Flute Square for up to HRC55.
  - Extended overall length for greater depth of cut.
  - TiaLN Coating for General steel.

- **ITEMS**

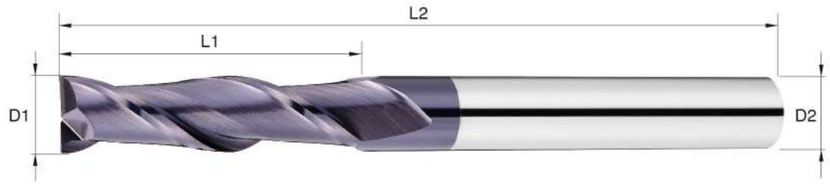
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
ELB **0303**	3.0	8	75	3
ELB **0404**	4.0	11	75	4
ELB **0606**	6.0	15	75	6
ELB **0606A**	6.0	15	100	6
ELB **0808**	8.0	20	100	8
ELB **1010**	10.0	25	100	10
ELB **1010A**	10.0	25	150	10
ELB **1212**	12.0	30	100	12
ELB **1212A**	12.0	30	150	12
ELB **1616**	16.0	40	150	16

ELC

MG | 2 | 35° | HRC 55 | TiaLN | Finishing Semi-Finishing | Cutting Data P.240

For HRC55 Steels / 2 Flute / Long Flute / Square P K



- **FEATURES**
  - Long flute 2 Flute Square for up to HRC55.
  - Extended flute length (L1) suitable for deep side milling.
  - TiaLN Coating for General steel.

- **ITEMS**

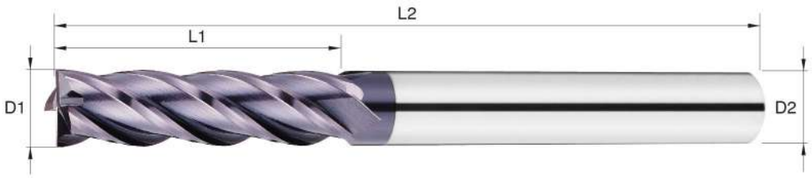
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
ELC **0204**	2.0	12	50	4
ELC **0304**	3.0	20	50	4
ELC **0404**	4.0	25	75	4
ELC **0506**	5.0	30	75	6
ELC **0606**	6.0	30	75	6
ELC **0808**	8.0	40	100	8
ELC **1010**	10.0	40	100	10
ELC **1212**	12.0	45	100	12

ELD

MG | 4 | 35° | HRC 55 | TiaLN | Finishing / Semi-Finishing | Cutting Data P.240

For HRC55 Steels / 4 Flute / Long Flute / Square P K



- **FEATURES**
  - Long flute 4 Flute Square for up to HRC55.
  - Extended flute length (L1) suitable for deep side milling.
  - TiaLN Coating for General steel.

- **ITEMS**

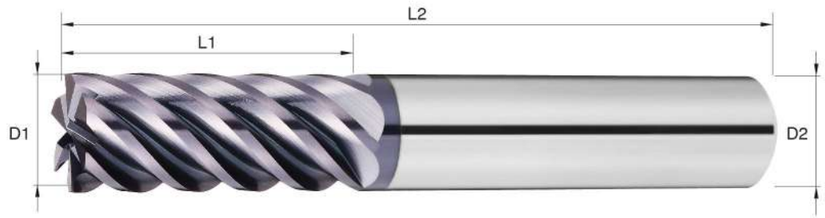
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
ELD **0204**	2.0	15	50	4
ELD **0304**	3.0	20	50	4
ELD **0404**	4.0	25	75	4
ELD **0506**	5.0	30	75	6
ELD **0606**	6.0	30	75	6
ELD **0808**	8.0	40	100	8
ELD **1010**	10.0	40	100	10
ELD **1212**	12.0	45	100	12
ELD **1616**	16.0	60	150	16
ELD **2020**	20.0	60	150	20

EH

MG | 6 | 45° | HRC 55 | TiaLN | Finishing | Cutting Data P.241

For HRC55 Steels / 6 Flute / Square P K



- **FEATURES**
  - 6 Flute Square for up to HRC55.
  - Suitable for side milling with great workpiece surface after finish.
  - TiaLN Coating for General steel.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
EH **0606**	6.0	16	50	6
EH **0808**	8.0	20	60	8
EH **1010**	10.0	25	75	10
EH **1212**	12.0	30	75	12
EH **1616**	16.0	40	100	16
EH **2020**	20.0	45	100	20

EHL

MG | 6 | 45° | HRC 55 | TiaLN | Finishing | Cutting Data P.241

For HRC55 Steels / 6 Flute / Long Flute / Square P K

• FEATURES

- Long flute 6 Flute Square for up to HRC55.
- Extended flute length (L1) suitable for deep side milling.
- TiaLN Coating for General steel.

• ITEMS

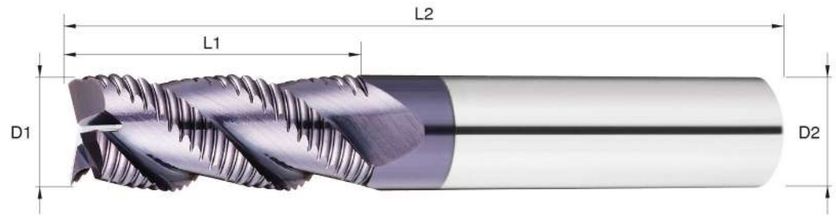
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
EHL **0606**	6.0	24	75	6
EHL **0808**	8.0	32	75	8
EHL **1010**	10.0	40	100	10
EHL **1212**	12.0	45	100	12
EHL **1616**	16.0	64	150	16
EHL **2020**	20.0	75	150	20

EG

MG | 3 | Fine | 45° | HRC 55 | TiaLN | Roughing | Cutting Data P.242

For HRC55 Steels / 3 Flute / Roughing / Square P K



• FEATURES

- Roughing 3 Flute Square for up to HRC55.
- Chip breaker design dedicated to excellent chip removal.
- TiaLN Coating for General steel.

• ITEMS

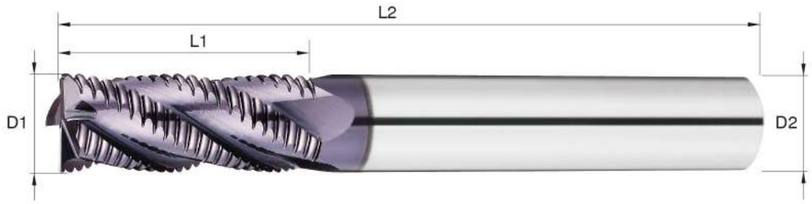
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
EG **0606**	6.0	16	50	6
EG **0808**	8.0	20	60	8
EG **1010**	10.0	25	75	10
EG **1212**	12.0	30	75	12
EG **1616**	16.0	40	100	16
EG **2020**	20.0	45	100	20

EGA

MG | 4 | Fine | 35° | HRC 55 | TiaLN | Roughing | Cutting Data P.242

For HRC55 Steels / 4 Flute / Roughing / Square P K



- **FEATURES**
  - Roughing 4 Flute Square for up to HRC55.
  - Chip breaker design dedicated to excellent chip removal.
  - TiaLN Coating for General steel.

- **ITEMS**

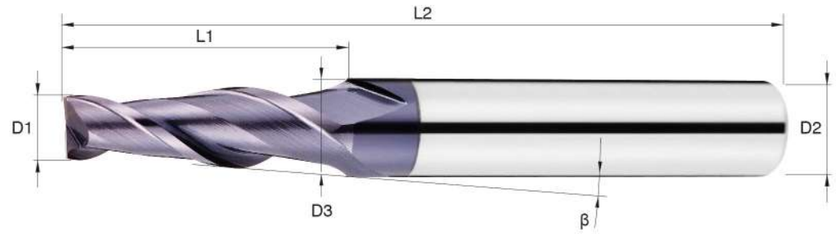
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
EGA **0606**	6.0	16	50	6
EGA **0808**	8.0	20	60	8
EGA **1010**	10.0	25	75	10
EGA **1212**	12.0	30	75	12
EGA **1616**	16.0	40	100	16
EGA **2020**	20.0	45	100	20

ETL

MG | 2 | 35° | HRC 55 | TiaLN | Finishing Semi-Finishing | Cutting Data P.242

For HRC55 Steels / 2 Flute / Long Flute . Taper P K



- **FEATURES**
  - Long flute 2 Flute Taper End for up to HRC55.
  - Suitable for deep inclined surface milling.
  - TiaLN Coating for General steel.

- **ITEMS**

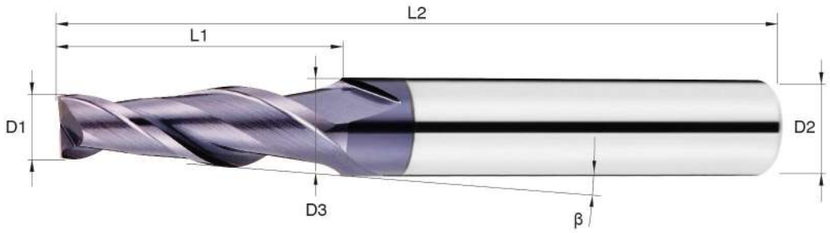
unit: mm

Order No.	Small Mill Dia D1	Flute Length L1	Taper Angle ß	Large Mill Dia D3	O.A.L. L2	Shank Dia D2
ETL **01005**	1.0	10	30'	1.17	50	4
ETL **01010**	1.0	10	1°	1.35	50	4
ETL **01015**	1.0	10	1° 30'	1.52	50	4
ETL **01020**	1.0	10	2°	1.70	50	4
ETL **01025**	1.0	10	2° 30'	1.87	50	4
ETL **01030**	1.0	10	3°	2.05	50	4
ETL **01050**	1.0	10	5°	2.74	50	4
ETL **01070**	1.0	10	7°	3.44	50	4
ETL **01505**	1.5	10	30'	1.67	50	4
ETL **01510**	1.5	10	1°	1.87	50	4
ETL **01515**	1.5	10	1° 30'	2.02	50	4
ETL **01520**	1.5	10	2°	2.20	50	4
ETL **01525**	1.5	10	2° 30'	2.37	50	4
ETL **01530**	1.5	10	3°	2.55	50	4
ETL **02005**	2.0	13	30'	2.22	50	4
ETL **02010**	2.0	13	1°	2.45	50	4
ETL **02015**	2.0	13	1° 30'	2.68	50	4
ETL **02020**	2.0	13	2°	2.90	50	4
ETL **02025**	2.0	13	2° 30'	3.13	50	4
ETL **02030**	2.0	13	3°	3.36	50	4
ETL **02050**	2.0	13	5°	4.27	50	6
ETL **02505**	2.5	15	30'	2.76	50	4
ETL **02510**	2.5	15	1°	3.03	50	4
ETL **02515**	2.5	15	1° 30'	3.29	50	4
ETL **02520**	2.5	15	2°	3.56	50	4
ETL **02525**	2.5	15	2° 30'	3.81	50	4
ETL **02530**	2.5	15	3°	4.07	50	6
ETL **02550**	2.5	15	5°	5.13	50	6
ETL **03005**	3.0	20	30'	3.35	60	6
ETL **03010**	3.0	20	1°	3.70	60	6
ETL **03015**	3.0	20	1° 30'	4.05	60	6
ETL **03020**	3.0	20	2°	4.39	60	6
ETL **03025**	3.0	20	2° 30'	4.65	60	6
ETL **03030**	3.0	20	3°	5.10	60	6
ETL **03050**	3.0	20	5°	6.50	60	8
ETL **04005**	4.0	25	30'	4.44	60	6
ETL **04010**	4.0	25	1°	4.88	60	6
ETL **04015**	4.0	25	1° 30'	5.13	60	6
ETL **04020**	4.0	25	2°	5.75	60	6
ETL **04025**	4.0	25	2° 30'	6.19	60	8
ETL **04030**	4.0	25	3°	6.62	60	8
ETL **04050**	4.0	25	5°	8.38	75	10

ET

MG | 2 | 35° | HRC 55 | TiaLN | Finishing / Semi-Finishing | Cutting Data P.242

For HRC55 Steels / 2 Flute / Taper Flute P K



- **FEATURES**
  - 2 Flute Taper End for up to HRC55.
  - Suitable for inclined surface milling.
  - TiaLN Coating for General steel.

- **ITEMS**

unit: mm

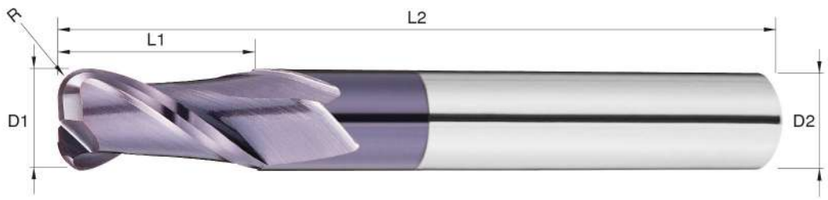
Order No.	Small Mill Dia D1	Flute Length L1	Taper Angle ß	Large Mill Dia D3	O.A.L. L2	Shank Dia D2
ET **005005**	0.5	2	30'	0.53	50	4
ET **005010**	0.5	2	1°	0.57	50	4
ET **005015**	0.5	2	1° 30'	0.60	50	4
ET **005020**	0.5	2	2°	0.64	50	4
ET **005025**	0.5	2	2° 30'	0.67	50	4
ET **005030**	0.5	2	3°	0.71	50	4
ET **005050**	0.5	2	5°	0.85	50	4
ET **005070**	0.5	2	7°	0.99	50	4
ET **005100**	0.5	2	10°	1.21	50	4
ET **010005**	1.0	4	30'	1.07	50	4
ET **010010**	1.0	4	1°	1.14	50	4
ET **010015**	1.0	4	1° 30'	1.21	50	4
ET **010020**	1.0	4	2°	1.28	50	4
ET **010025**	1.0	4	2° 30'	1.35	50	4
ET **010030**	1.0	4	3°	1.42	50	4
ET **010050**	1.0	4	5°	1.70	50	4
ET **010070**	1.0	4	7°	1.98	50	4
ET **010100**	1.0	4	10°	2.41	50	4
ET **015005**	1.5	5	30'	1.59	50	4
ET **015010**	1.5	5	1°	1.67	50	4
ET **015015**	1.5	5	1° 30'	1.76	50	4
ET **015020**	1.5	5	2°	1.85	50	4
ET **015025**	1.5	5	2° 30'	1.93	50	4
ET **015030**	1.5	5	3°	2.02	50	4
ET **015050**	1.5	5	5°	2.37	50	4
ET **015070**	1.5	5	7°	2.72	50	4
ET **015100**	1.5	5	10°	3.26	50	4
ET **020005**	2.0	6	30'	2.10	50	4
ET **020010**	2.0	6	1°	2.21	50	4
ET **020015**	2.0	6	1° 30'	2.31	50	4
ET **020020**	2.0	6	2°	2.41	50	4
ET **020025**	2.0	6	2° 30'	2.52	50	4
ET **020030**	2.0	6	3°	2.62	50	4
ET **020050**	2.0	6	5°	3.05	50	4
ET **020070**	2.0	6	7°	3.47	50	4
ET **020100**	2.0	6	10°	4.11	50	4
ET **025005**	2.5	8	30'	2.64	50	4
ET **025010**	2.5	8	1°	2.78	50	4
ET **025015**	2.5	8	1° 30'	2.91	50	4
ET **025020**	2.5	8	2°	3.05	50	4

Order No.	Small Mill Dia D1	Flute Length L1	Taper Angle ß	Large Mill Dia D3	O.A.L. L2	Shank Dia D2
ET **025025**	2.5	8	2° 30'	3.20	50	4
ET **025030**	2.5	8	3°	3.33	50	4
ET **025050**	2.5	8	5°	3.90	50	4
ET **025070**	2.5	8	7°	4.46	50	6
ET **025100**	2.5	8	10°	5.32	50	6
ET **030005**	3.0	10	30'	3.17	50	6
ET **030010**	3.0	10	1°	3.35	50	6
ET **030015**	3.0	10	1° 30'	3.52	50	6
ET **030020**	3.0	10	2°	3.69	50	6
ET **030025**	3.0	10	2° 30'	3.87	50	6
ET **030030**	3.0	10	3°	4.05	50	6
ET **030050**	3.0	10	5°	4.75	50	6
ET **030070**	3.0	10	7°	5.46	50	6
ET **030100**	3.0	10	10°	6.53	60	8
ET **040005**	4.0	15	30'	4.26	50	6
ET **040010**	4.0	15	1°	4.52	50	6
ET **040015**	4.0	15	1° 30'	4.79	50	6
ET **040020**	4.0	15	2°	5.04	50	6
ET **040025**	4.0	15	2° 30'	5.31	50	6
ET **040030**	4.0	15	3°	5.57	50	6
ET **040050**	4.0	15	5°	6.62	60	8
ET **040070**	4.0	15	7°	7.68	60	8
ET **050005**	5.0	20	30'	5.34	60	6
ET **050010**	5.0	20	1°	5.70	60	6
ET **050015**	5.0	20	1° 30'	6.04	60	8
ET **050020**	5.0	20	2°	6.39	60	8
ET **050025**	5.0	20	2° 30'	6.74	60	8
ET **050030**	5.0	20	3°	7.10	60	8
ET **050050**	5.0	20	5°	8.50	75	10
ET **050070**	5.0	20	7°	9.91	75	10
ET **060005**	6.0	20	30'	6.35	60	8
ET **060010**	6.0	20	1°	6.70	60	8
ET **060015**	6.0	20	1° 30'	7.05	60	8
ET **060020**	6.0	20	2°	7.40	60	8
ET **060025**	6.0	20	2° 30'	7.75	60	8
ET **060030**	6.0	20	3°	8.10	60	8
ET **060050**	6.0	20	5°	9.50	75	10
ET **080005**	8.0	25	30'	8.44	75	10
ET **080010**	8.0	25	1°	8.87	75	10
ET **080015**	8.0	25	1° 30'	9.31	75	10
ET **080020**	8.0	25	2°	9.74	75	10
ET **080025**	8.0	25	2° 30'	10.18	75	12
ET **080030**	8.0	25	3°	10.62	75	12
ET **080050**	8.0	25	5°	12.37	100	16
ET **100005**	10.0	35	30'	10.61	100	12
ET **100010**	10.0	35	1°	11.22	100	12
ET **100015**	10.0	35	1° 30'	11.83	100	12
ET **100020**	10.0	35	2°	12.44	100	16
ET **100025**	10.0	35	2° 30'	13.06	100	16
ET **100030**	10.0	35	3°	13.67	100	16
ET **100050**	10.0	35	5°	16.12	100	16

ERA

MG | 2 | 35° | R | HRC 55 | TiaLN | Finishing Semi-Finishing | Cutting Data P.242

For HRC55 Steels / 2 Flute / Corner Radius P K



- **FEATURES**
  - 2 Flute Corner Radius for up to HRC55.
  - Low/High alloy steel, cast steel, tool steel, and Cast iron.
  - TiaLN Coating for General steel.

- **ITEMS**

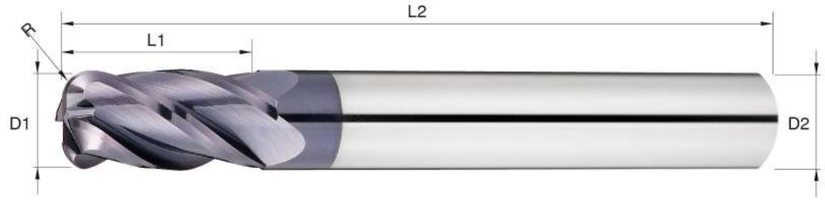
unit: mm

Order No.	Diameter D1	Corner R R	Flute Length L1	O.A.L. L2	Shank Dia D2
ERA **0302**	3.0	0.2	6	50	3
ERA **0305**	3.0	0.5	6	50	3
ERA **0402**	4.0	0.2	8	50	4
ERA **0405**	4.0	0.5	8	50	4
ERA **0410**	4.0	1.0	8	50	4
ERA **0602**	6.0	0.2	12	50	6
ERA **0605**	6.0	0.5	12	50	6
ERA **0610**	6.0	1.0	12	50	6
ERA **0615**	6.0	1.5	12	50	6
ERA **0620**	6.0	2.0	12	50	6
ERA **0803**	8.0	0.3	16	60	8
ERA **0805**	8.0	0.5	16	60	8
ERA **0810**	8.0	1.0	16	60	8
ERA **0815**	8.0	1.5	16	60	8
ERA **0820**	8.0	2.0	16	60	8
ERA **1005**	10.0	0.5	20	75	10
ERA **1010**	10.0	1.0	20	75	10
ERA **1015**	10.0	1.5	20	75	10
ERA **1020**	10.0	2.0	20	75	10
ERA **1030**	10.0	3.0	20	75	10
ERA **1205**	12.0	0.5	24	75	12
ERA **1210**	12.0	1.0	24	75	12
ERA **1215**	12.0	1.5	24	75	12
ERA **1220**	12.0	2.0	24	75	12
ERA **1230**	12.0	3.0	24	75	12

ERB

MG | 4 | 35° | R | HRC 55 | TiaLN | Finishing Semi-Finishing | Cutting Data P.243

For HRC55 Steels / 4 Flute / Corner Radius P K



- **FEATURES**
  - 4 Flute Corner Radius for up to HRC55.
  - Low/High alloy steel, cast steel, tool steel, and Cast iron.
  - TiaLN Coating for General steel.

- **ITEMS**

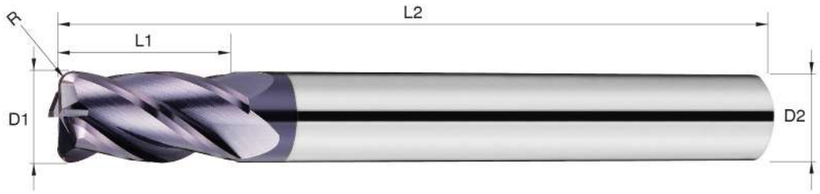
unit: mm

Order No.	Diameter D1	Corner R R	Flute Length L1	O.A.L. L2	Shank Dia D2
ERB **0302**	3.0	0.2	6	50	3
ERB **0302.4**	3.0	0.2	6	50	4
ERB **0305**	3.0	0.5	6	50	3
ERB **0305.4**	3.0	0.5	6	50	4
ERB **0310**	3.0	1.0	6	50	3
ERB **0310.4**	3.0	1.0	6	50	4
ERB **0402**	4.0	0.2	8	50	4
ERB **0405**	4.0	0.5	8	50	4
ERB **0410**	4.0	1.0	8	50	4
ERB **0602**	6.0	0.2	12	50	6
ERB **0605**	6.0	0.5	12	50	6
ERB **0610**	6.0	1.0	12	50	6
ERB **0615**	6.0	1.5	12	50	6
ERB **0620**	6.0	2.0	12	50	6
ERB **0803**	8.0	0.3	16	60	8
ERB **0805**	8.0	0.5	16	60	8
ERB **0810**	8.0	1.0	16	60	8
ERB **0815**	8.0	1.5	16	60	8
ERB **0820**	8.0	2.0	16	60	8
ERB **1005**	10.0	0.5	20	75	10
ERB **1010**	10.0	1.0	20	75	10
ERB **1015**	10.0	1.5	20	75	10
ERB **1020**	10.0	2.0	20	75	10
ERB **1030**	10.0	3.0	20	75	10
ERB **1205**	12.0	0.5	24	75	12
ERB **1210**	12.0	1.0	24	75	12
ERB **1215**	12.0	1.5	24	75	12
ERB **1220**	12.0	2.0	24	75	12
ERB **1230**	12.0	3.0	24	75	12

ERC

MG | 4 | 35° | R | HRC 55 | TiaLN | Finishing Semi-Finishing | Cutting Data P.243

For HRC55 Steels / 4 Flute / Long Shank Corner Radius P K



• FEATURES

- Long shank 4 Flute Corner Radius for up to HRC55.
- Extended overall length for greater depth of cut.
- TiaLN Coating for General steel.

• ITEMS

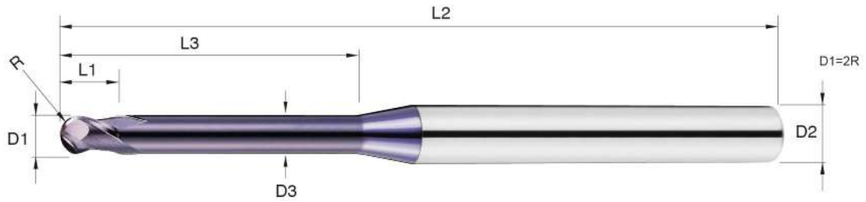
unit: mm

Order No.	Diameter D1	Corner R R	Flute Length L1	O.A.L. L2	Shank Dia D2
ERC **0605**	6.0	0.5	12	75	6
ERC **0605A**	6.0	0.5	12	100	6
ERC **0610**	6.0	1.0	12	75	6
ERC **0610A**	6.0	1.0	12	100	6
ERC **0805**	8.0	0.5	16	100	8
ERC **0810**	8.0	1.0	16	100	8
ERC **1005**	10.0	0.5	20	100	10
ERC **1010**	10.0	1.0	20	100	10
ERC **1020**	10.0	2.0	20	100	10
ERC **1205**	12.0	0.5	24	100	12
ERC **1210**	12.0	1.0	24	100	12
ERC **1220**	12.0	2.0	24	100	12

BF

MG | 2 | 30° | HRC 55 | TiaLN | Finishing Semi-Finishing | Cutting Data P.243

For HRC55 Steels / 2 Flute / Long Neck / Ball Nose P K



• FEATURES

- Long neck 2 Flute Ball Nose for up to HRC55.
- R0.5~R2.0 mm with effective length 6~30 mm excellent for rib milling.
- TiaLN Coating for General steel.

• ITEMS

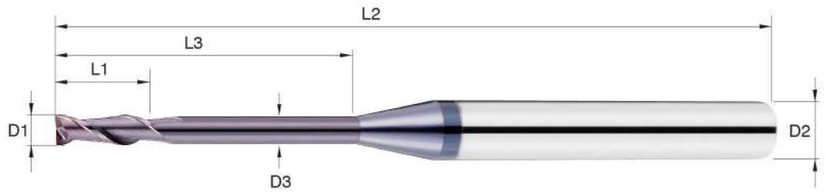
unit: mm

Order No.	Radius R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
BF **01006**	R0.5	0.95	2	6	50	4
BF **01008**	R0.5	0.95	2	8	50	4
BF **01010**	R0.5	0.95	2	10	50	4
BF **01012**	R0.5	0.95	2	12	50	4
BF **01508**	R0.75	1.45	3	8	50	4
BF **01510**	R0.75	1.45	3	10	50	4
BF **01512**	R0.75	1.45	3	12	50	4
BF **01516**	R0.75	1.45	3	16	50	4
BF **01520**	R0.75	1.45	3	20	50	4
BF **02008**	R1.0	1.92	4	8	50	4
BF **02010**	R1.0	1.92	4	10	50	4
BF **02012**	R1.0	1.92	4	12	50	4
BF **02016**	R1.0	1.92	4	16	50	4
BF **02020**	R1.0	1.92	4	20	50	4
BF **03008**	R1.5	2.90	6	8	50	6
BF **03010**	R1.5	2.90	6	10	50	6
BF **03012**	R1.5	2.90	6	12	50	6
BF **03016**	R1.5	2.90	6	16	50	6
BF **03020**	R1.5	2.90	6	20	75	6
BF **03025**	R1.5	2.90	6	25	75	6
BF **04012**	R2.0	3.88	8	12	50	6
BF **04016**	R2.0	3.88	8	16	50	6
BF **04020**	R2.0	3.88	8	20	50	6
BF **04025**	R2.0	3.88	8	25	75	6
BF **04030**	R2.0	3.88	8	30	75	6

EFA

MG | 2 | 35° | HRC 55 | TiaLN | Finishing / Semi-Finishing | Cutting Data P.243

For HRC55 Steels / 2 Flute / Long Neck / Square P K

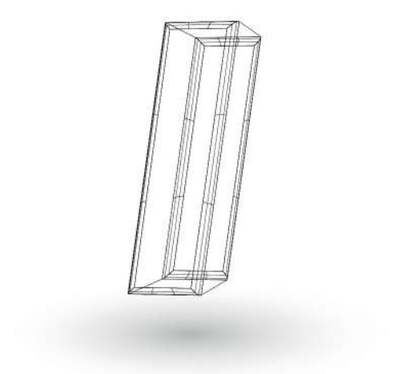


- **FEATURES**
  - Long neck 2 Flute Square for up to HRC55.
  - Dia 1.0~3.0 mm with effective length 6~25 mm excellent for rib milling.
  - TiaLN Coating for General steel.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
EFA **01006**	1.0	0.95	3	6	50	4
EFA **01008**	1.0	0.95	3	8	50	4
EFA **01010**	1.0	0.95	3	10	50	4
EFA **01012**	1.0	0.95	3	12	50	4
EFA **01508**	1.5	1.45	4	8	50	4
EFA **01510**	1.5	1.45	4	10	50	4
EFA **01512**	1.5	1.45	4	12	50	4
EFA **01516**	1.5	1.45	4	16	50	4
EFA **02008**	2.0	1.92	6	8	50	4
EFA **02010**	2.0	1.92	6	10	50	4
EFA **02012**	2.0	1.92	6	12	50	4
EFA **02016**	2.0	1.92	6	16	50	4
EFA **02020**	2.0	1.92	6	20	50	4
EFA **02510**	2.5	2.40	8	10	50	4
EFA **02512**	2.5	2.40	8	12	50	4
EFA **02516**	2.5	2.40	8	16	50	4
EFA **02520**	2.5	2.40	8	20	50	4
EFA **03010**	3.0	2.90	8	10	50	6
EFA **03012**	3.0	2.90	8	12	50	6
EFA **03016**	3.0	2.90	8	16	50	6
EFA **03020**	3.0	2.90	8	20	75	6
EFA **03025**	3.0	2.90	8	25	75	6



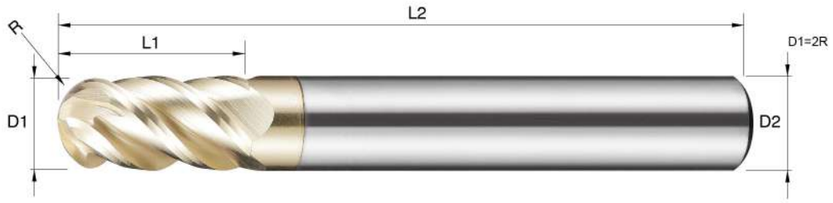
TITANIUM & STAINLESS CUTTING SERIES

I.pro

SBBIV

S MG | 4 | 45° | G-plus | Finishing Semi-Finishing | Cutting Data P.244

Titanium & Stainless cutting series / 4 Flute / Ball Nose



- **FEATURES**
  - 4 Flute Ball Nose for Stainless Steel, Titanium alloys, and High temp. alloy.
  - Superior performance at high feed cutting compared to regular 4-flute design.
  - G-plus Coating: Excellent wear resistance and heat resistant.

- **ITEMS**

unit: mm

Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2
SBBIV **0306**	R1.5	6	50	6
SBBIV **0406**	R2	8	50	6
SBBIV **0506**	R2.5	10	50	6
SBBIV **0606**	R3	12	50	6
SBBIV **0808**	R4	16	60	8
SBBIV **1010**	R5	20	75	10
SBBIV **1212**	R6	24	75	12

SBBI

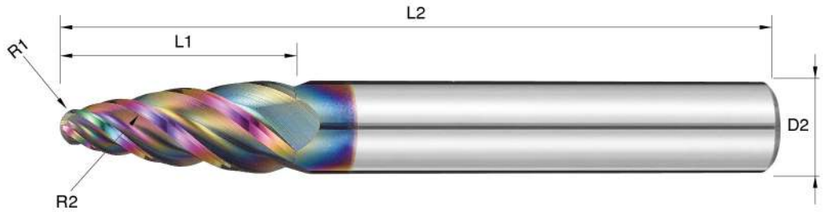
- **discontinuation**

SBBI Product Series with G300 coating will be discontinued after Dec. 2024.
We will continue to ship SBBI orders until our inventory is depleted.
If you'd like to purchase SBBI products, please contact your HGT sales representative while stocks last.
The replacement of SBBI is SBBIV Product Series, which is original SBBI with new coating G-plus.

SIBTR

S MG | 4 | 39° | G-X

Titanium & Stainless cutting series / 4 Flute / Taper Barrel Type

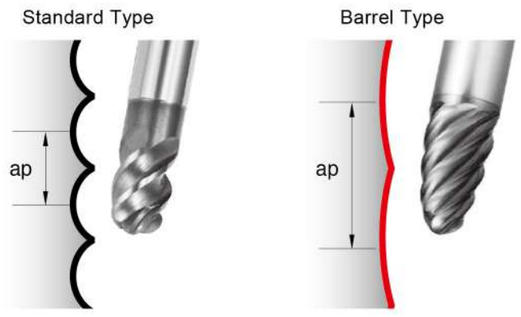


- **FEATURES**
  - 4 Flute Barrel Type for Stainless Steel, Titanium & Ti alloys, and High temp. alloy.
  - Larger radius edge in the cutting area together with multi-flute design brings higher milling efficiency.
  - Compared to ball nose end mills, Barrel Type has wider ap stepover to reduce machining time.
  - Lower cusp height Improves surface finish.
  - G-X Coating: Excellent wear resistance and heat resistant.

- **ITEMS**

unit: mm

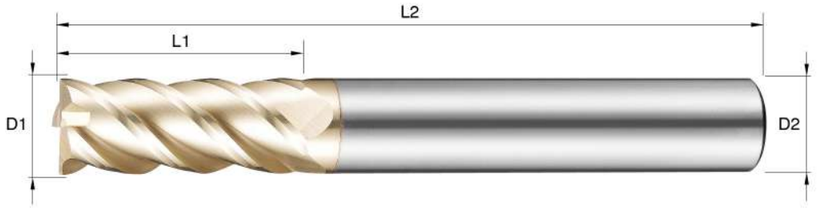
Order No.	Radius R1	Radius R2	Flute Length L1	O.A.L. L2	Shank Dia D2
SIBTR **10100D06**	R1.0	R100	20.5	75	6
SIBTR **15095D08**	R1.5	R95	22.0	75	8
SIBTR **20090D10**	R2.0	R90	24.5	100	10
SIBTR **20085D12**	R2.0	R85	27.0	100	12



SEIV

S MG | 4 | 45° | G-plus | Finishing Semi-Finishing | Cutting Data P.244

Titanium & Stainless cutting series / 4 Flute / Square



- **FEATURES**
  - 4 Flute Square for Stainless Steel, Titanium alloys, and High temp. alloy.
  - G-plus Coating: Excellent wear resistance and heat resistant.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
SEIV **0306**	3.0	8	50	6
SEIV **0406**	4.0	11	50	6
SEIV **0506**	5.0	13	50	6
SEIV **0606**	6.0	16	50	6
SEIV **0808**	8.0	20	60	8
SEIV **1010**	10.0	25	75	10
SEIV **1212**	12.0	30	75	12
SEIV **1616**	16.0	40	100	16
SEIV **2020**	20.0	45	100	20

SEI

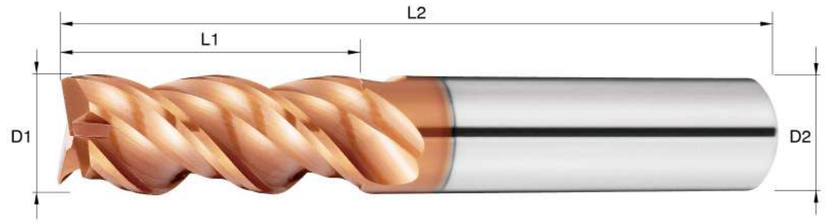
- **discontinuation**

SEI Product Series with G300 coating will be discontinued after Dec. 2024.
We will continue to ship SEI orders until our inventory is depleted.
If you'd like to purchase SEI products, please contact your HGT sales representative while stocks last.
The replacement of SEI is SEIV Product Series, which is original SEI with new coating G-plus.

SEPS

S MG | 3 | 45° | HELICA | Roughing | Finishing Semi-Finishing | Cutting Data P.244

Titanium & Stainless cutting series / 3 Flute / Square



- **FEATURES**
  - Roughing 3 Flute Square for Stainless Steel, Titanium alloys, and High temp. alloy.
  - 45 ° Helix angle and large, wide gullet make smooth & fast chip removal possible.
  - HELICA Coating for general steels; wet cutting.

- **ITEMS**

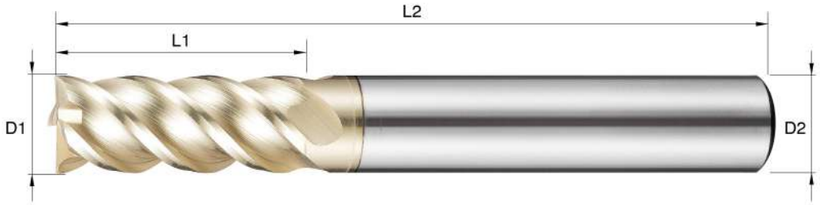
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
SEPS **0306**	3.0	8	50	6
SEPS **0406**	4.0	11	50	6
SEPS **0506**	5.0	13	50	6
SEPS **0606**	6.0	16	50	6
SEPS **0808**	8.0	20	60	8
SEPS **1010**	10.0	25	75	10
SEPS **1212**	12.0	30	75	12
SEPS **1616**	16.0	40	100	16
SEPS **2020**	20.0	45	100	20

SEPIV

S MG | 4 | 45° | G-plus | Roughing | Finishing Semi-Finishing | Cutting Data P.245

Titanium & Stainless cutting series / 4 Flute / Square



- **FEATURES**
  - Roughing 4 Flute Square for Stainless Steel, Titanium alloys, and High temp. alloy.
  - 45 ° Helix angle and large, wide gullet make smooth & fast chip removal possible.
  - G-plus Coating: Excellent wear resistance and heat resistant.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
SEPIV **0306**	3.0	8	50	6
SEPIV **0406**	4.0	11	50	6
SEPIV **0506**	5.0	13	50	6
SEPIV **0606**	6.0	16	50	6
SEPIV **0808**	8.0	20	60	8
SEPIV **1010**	10.0	25	75	10
SEPIV **1212**	12.0	30	75	12
SEPIV **1616**	16.0	40	100	16
SEPIV **2020**	20.0	45	100	20

SEPI

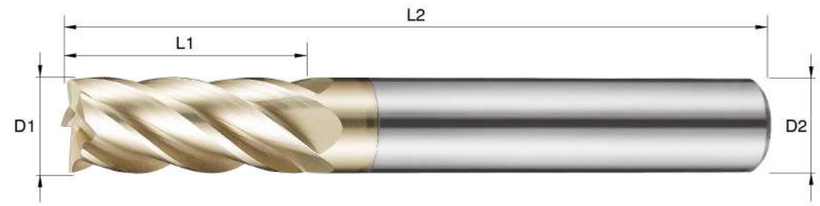
- **discontinuation**

SEPI Product Series with G300 coating will be discontinued after Dec. 2024.
We will continue to ship SEPI orders until our inventory is depleted.
If you'd like to purchase SEPI products, please contact your HGT sales representative while stocks last.
The replacement of SEPI is SEPIV Product Series, which is original SEPI with new coating G-plus.

SIBV

S MG | 5 | 37° | α°≠β° | G-plus | Finishing Semi-Finishing | Cutting Data P.245

Titanium & Stainless cutting series / 5 Flute / Square



- **FEATURES**
  - 5 Flute Square for Stainless Steel, Titanium & Ti alloys, and High temp. alloy.
  - 37 ° Helix angle and unequal flute spacing on end edge to reduce cutting force for better anti-vibration.
  - G-plus Coating: Excellent wear resistance and heat resistant.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
SIBV **0306**	3.0	8	50	6
SIBV **0406**	4.0	11	50	6
SIBV **0506**	5.0	13	50	6
SIBV **0606**	6.0	16	50	6
SIBV **0808**	8.0	20	60	8
SIBV **1010**	10.0	25	75	10
SIBV **1212**	12.0	30	75	12
SIBV **1616**	16.0	40	100	16
SIBV **2020**	20.0	45	100	20

SIB

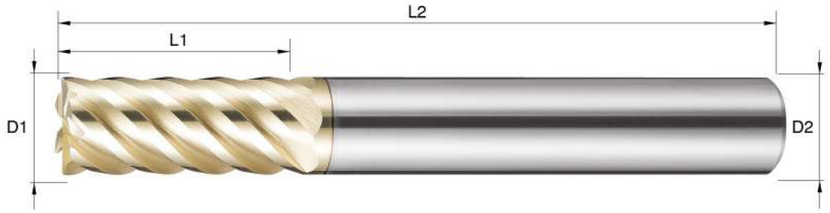
- **discontinuation**

SIB Product Series with G300 coating will be discontinued after Dec. 2024.
We will continue to ship SIB orders until our inventory is depleted.
If you'd like to purchase SIB products, please contact your HGT sales representative while stocks last.
The replacement of SIB is SIBV Product Series, which is original SIB with new coating G-plus.

SHAIV

S MG | 6 | 45° | G-plus | Finishing | Cutting Data P.245

Titanium & Stainless cutting series / 6 Flute / Square



- **FEATURES**
  - 6 Flute Square for Stainless Steel, Titanium & Ti alloys, and High temp. alloy.
  - Great for side milling with excellent workpiece surface after processed.
  - G-plus Coating: Excellent wear resistance and heat resistant.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
SHAIV **0606**	6.0	16	50	6
SHAIV **0808**	8.0	20	60	8
SHAIV **1010**	10.0	25	75	10
SHAIV **1212**	12.0	30	75	12
SHAIV **1616**	16.0	40	100	16

SHAI

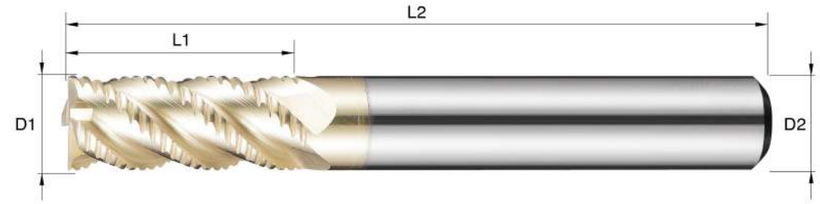
- **discontinuation**

SHAI Product Series with G300 coating will be discontinued after Dec. 2024.
We will continue to ship SHAI orders until our inventory is depleted.
If you'd like to purchase SHAI products, please contact your HGT sales representative while stocks last.
The replacement of SHAI is SHAIV Product Series, which is original SHAI with new coating G-plus.

SEGIV

S MG | 4 | 45° | Fine | G-plus | Roughing | Cutting Data P.246

Titanium & Stainless cutting series / 4 Flute / Roughing Square



- **FEATURES**
  - Roughing 4 Flute Square for Stainless Steel, Titanium & Ti alloys, and High temp. alloy.
  - Chip breaker design dedicated to excellent chip removal ability.
  - G-plus Coating: Excellent wear resistance and heat resistant.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
SEGIV **0606**	6.0	16	50	6
SEGIV **0808**	8.0	20	60	8
SEGIV **1010**	10.0	25	75	10
SEGIV **1212**	12.0	30	75	12
SEGIV **1616**	16.0	40	100	16
SEGIV **2020**	20.0	45	100	20

SEGI

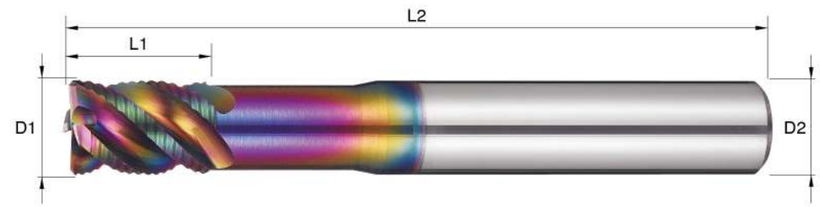
- **discontinuation**

SEGI Product Series with G300 coating will be discontinued after Dec. 2024.
We will continue to ship SEGI orders until our inventory is depleted.
If you'd like to purchase SEGI products, please contact your HGT sales representative while stocks last.
The replacement of SEGI is SEGIV Product Series, which is original SEGI with new coating G-plus.

SIGP

S MG | 4 | 40° | α°≠β° | C | G-X | Finishing Semi-Finishing

Titanium & Stainless cutting series / 4 Flute / Roughing Square



- **FEATURES**
  - Roughing 4 Flute Square for Stainless Steel, Titanium alloys, and High temp. alloy.
  - Variable helix angle and unequal flute spacing offer great stability and anti-vibration.
  - G-X Coating: Excellent wear resistance and heat resistant.

- **ITEMS**

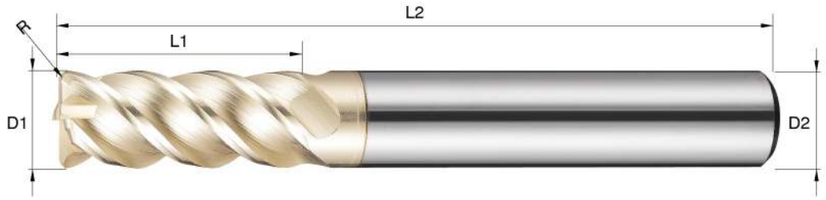
unit: mm

Order No.	Diameter D1	Chamfer C	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
SIGP **0606**	6.0	0.3	9	18	50	6
SIGP **0808**	8.0	0.4	12	24	60	8
SIGP **1010**	10.0	0.5	15	30	75	10
SIGP **1212**	12.0	0.6	18	36	75	12

SRIPV

S MG | 4 | 45° | R | G-plus | Finishing Semi-Finishing | Cutting Data P.246

Titanium & Stainless cutting series / 4 Flute / Corner Radius M S



- **FEATURES**
  - 4 Flute Corner Radius for Stainless Steel, Titanium & Ti alloys, and High temp. alloy.
  - 45 ° Helix angle and large, wide gullet make smooth & fast chip removal possible.
  - G-plus Coating: Excellent wear resistance and heat resistant.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Corner R R	Flute Length L1	O.A.L. L2	Shank Dia D2
SRIPV **0305**	3.0	0.5	8	50	6
SRIPV **0405**	4.0	0.5	11	50	6
SRIPV **0605**	6.0	0.5	16	50	6
SRIPV **0610**	6.0	1.0	16	50	6
SRIPV **0805**	8.0	0.5	20	60	8
SRIPV **0810**	8.0	1.0	20	60	8
SRIPV **1005**	10.0	0.5	25	75	10
SRIPV **1010**	10.0	1.0	25	75	10
SRIPV **1205**	12.0	0.5	30	75	12
SRIPV **1210**	12.0	1.0	30	75	12

SRIP

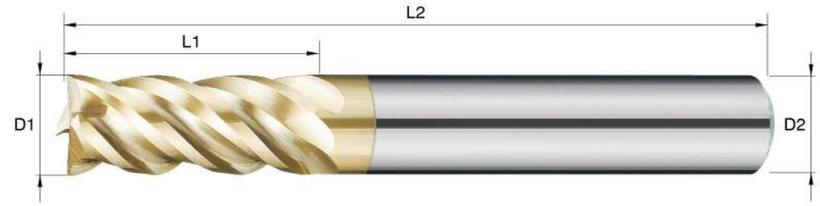
- **discontinuation**

SRIP Product Series with G300 coating will be discontinued after Dec. 2024.
We will continue to ship SRIP orders until our inventory is depleted.
If you'd like to purchase SRIP products, please contact your HGT sales representative while stocks last.
The replacement of SRIP is SRIPV Product Series, which is original SRIP with new coating G-plus.

SIW

S MG | 4 | 40°/43° | α°≠β° | G-plus | Cutting Data P.247

Titanium & Stainless cutting series / 4 Flute / Square M S



- **FEATURES**
  - 4 Flute Square for Stainless Steel, Titanium & Ti alloys, and High temp. alloy.
  - Variable helix angle and unequal flute spacing offer great stability and anti-vibration.
  - G-plus Coating: Higher efficiency and longer tool life.

- **ITEMS**

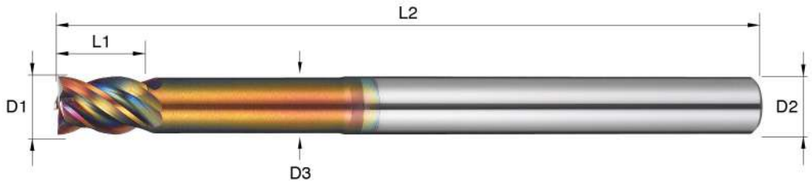
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
SIW **0306**	3.0	8	50	6
SIW **0406**	4.0	11	50	6
SIW **0506**	5.0	13	50	6
SIW **0606**	6.0	16	50	6
SIW **0808**	8.0	20	60	8
SIW **1010**	10.0	25	75	10
SIW **1212**	12.0	30	75	12
SIW **1616**	16.0	40	100	16
SIW **2020**	20.0	45	100	20

SIWH

S MG | 4 | 40°/43° | α°≠β° | G-X

Titanium & Stainless cutting series / 4 Flute / Square



- **FEATURES**
  - 4 Flute Square for Stainless Steel, Titanium & Ti alloys, and High temp. alloy.
  - Variable helix angle and unequal flute spacing offer great stability and anti-vibration.
  - G-X Coating: Excellent wear resistance and heat resistant.

- **ITEMS**

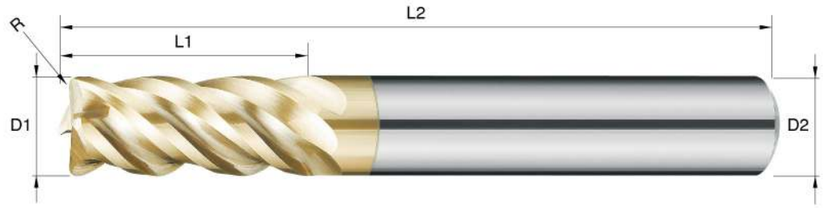
unit: mm

Order No.	Diameter D1	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
SIWH **03010**	3.0	2.9	4.5	10	75	6
SIWH **03030**	3.0	2.9	4.5	30	75	6
SIWH **04012**	4.0	3.88	6	12	75	6
SIWH **04030**	4.0	3.88	6	30	75	6
SIWH **05016**	5.0	4.8	7.5	16	75	6
SIWH **05030**	5.0	4.8	7.5	30	75	6
SIWH **06030**	6.0	5.8	9	30	100	6
SIWH **08040**	8.0	7.7	12	40	100	8
SIWH **10040**	10.0	9.6	15	40	100	10
SIWH **12050**	12.0	11.5	18	50	100	12

SIRW

S MG | 4 | 40°/43° | α°≠β° | R | G-plus | Cutting Data P.247

Titanium & Stainless cutting series / 4 Flute / Corner Radius



- **FEATURES**
  - 4 Flute Corner Radius for Stainless Steel, Titanium & Ti alloys, and High temp. alloy.
  - Variable helix angle and unequal flute spacing offer great stability and anti-vibration.
  - G-plus Coating: Higher efficiency and longer tool life.

- **ITEMS**

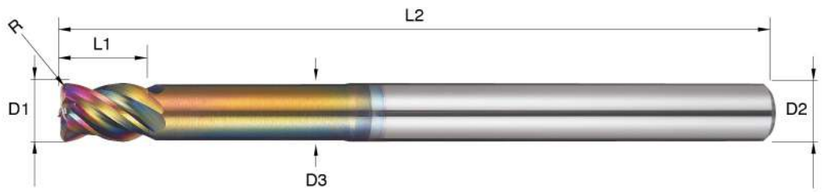
unit: mm

Order No.	Diameter D1	Corner R R	Flute Length L1	O.A.L. L2	Shank Dia D2
SIRW **0305**	3.0	0.5	7.5	50	6
SIRW **0405**	4.0	0.5	10	50	6
SIRW **0605**	6.0	0.5	15	50	6
SIRW **0610**	6.0	1.0	15	50	6
SIRW **0805**	8.0	0.5	20	60	8
SIRW **0810**	8.0	1.0	20	60	8
SIRW **1005**	10.0	0.5	25	75	10
SIRW **1010**	10.0	1.0	25	75	10
SIRW **1205**	12.0	0.5	30	75	12
SIRW **1210**	12.0	1.0	30	75	12

SIRWH

S MG | 4 | 40°/43° | α°≠β° | R | G-X

Titanium & Stainless cutting series / 4 Flute / Corner Radius M S



- **FEATURES**
  - 4 Flute Corner Radius for Stainless Steel, Titanium & Ti alloys, and High temp. alloy.
  - Variable helix angle and unequal flute spacing offer great stability and anti-vibration.
  - G-X Coating: Excellent wear resistance and heat resistant.

- **ITEMS**

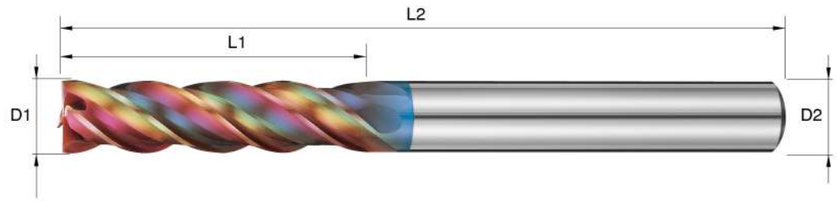
unit: mm

Order No.	Diameter D1	Corner R R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
SIRWH **0305-10**	3.0	0.5	2.9	4.5	10	75	6
SIRWH **0305-30**	3.0	0.5	2.9	4.5	30	75	6
SIRWH **0405-12**	4.0	0.5	3.88	6	12	75	6
SIRWH **0405-30**	4.0	0.5	3.88	6	30	75	6
SIRWH **0605-30**	6.0	0.5	5.8	9	30	100	6
SIRWH **0610-30**	6.0	1	5.8	9	30	100	6
SIRWH **0805-40**	8.0	0.5	7.7	12	40	100	8
SIRWH **0810-40**	8.0	1	7.7	12	40	100	8
SIRWH **1005-40**	10.0	0.5	9.6	15	40	100	10
SIRWH **1010-40**	10.0	1	9.6	15	40	100	10
SIRWH **1205-50**	12.0	0.5	11.5	18	50	100	12
SIRWH **1210-50**	12.0	1	11.5	18	50	100	12

SIW5D

S MG | 4 | 40°/43° | α°≠β° | G-X

Titanium & Stainless cutting series / 4 Flute / Long Flute / Square M S

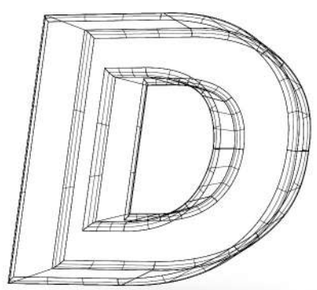


- **FEATURES**
  - 4 Flute Square for Stainless Steel, Titanium & Ti alloys, and High temp. alloy.
  - Variable helix angle and unequal flute spacing offer great stability and anti-vibration.
  - 5D extended flute length(L1) suitable for deep side milling.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
SIW5D **0406**	4.0	21	60	6
SIW5D **0506**	5.0	26	60	6
SIW5D **0606**	6.0	31	70	6
SIW5D **0808**	8.0	41	90	8
SIW5D **1010**	10.0	51	100	10
SIW5D **1212**	12.0	61	110	12
SIW5D **1616**	16.0	81	160	16
SIW5D **2020**	20.0	101	200	20



ALUMINUM & COPPER CUTTING SERIES

D MILL

D

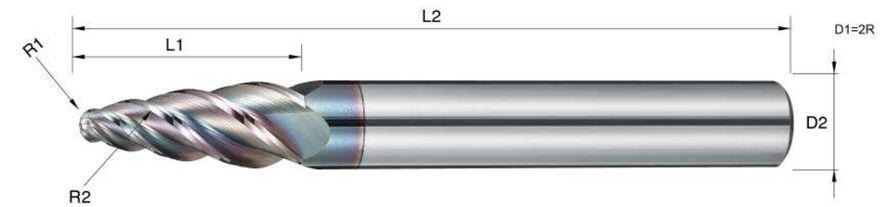
D MILL

DBTR

S MG | 4 | 41° | D-X | Finishing / Semi-Finishing

Aluminum & Copper cutting series / 4 Flute / Taper Barrel Type

N

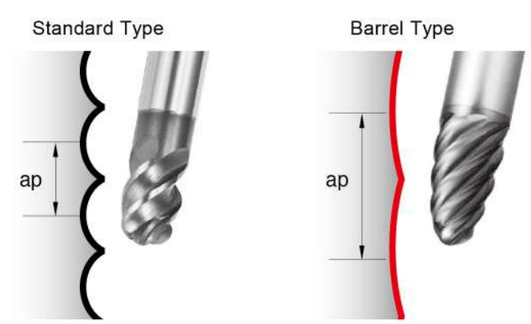


- **FEATURES**
  - 4 Flute Barrel Type for Aluminum.
  - Larger radius edge in the cutting area together with multi-flute design brings higher milling efficiency.
  - Compared to ball nose end mills, Barrel Type has wider ap stepover to reduce machining time.
  - Lower cusp height Improves surface finish.
  - D-X Coating: Excellent wear resistance and heat resistant.

- **ITEMS**

unit: mm

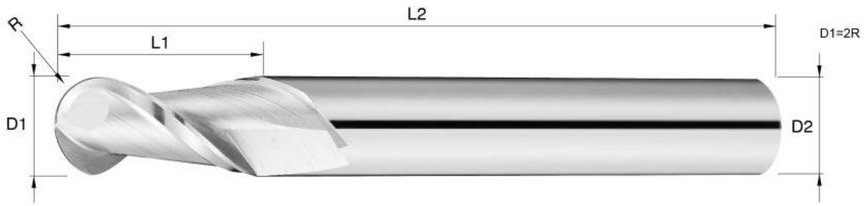
Order No.	Radius R1	Radius R2	Flute Length L1	O.A.L. L2	Shank Dia D2
DBTR **10100D06**	R1.0	R100	20.5	75	6
DBTR **15095D08**	R1.5	R95	22.0	75	8
DBTR **20090D10**	R2.0	R90	24.5	100	10
DBTR **20085D12**	R2.0	R85	27.0	100	12



DB

MG | 2 | 45° | Finishing | Cutting Data P.248

Aluminum & Copper cutting series / 2 Flute / Ball Nose N



- **FEATURES**
  - 2 Flute Ball Nose for Aluminum.
  - Helix Angle(Degrees): 45
  - Profiling.

- **ITEMS**

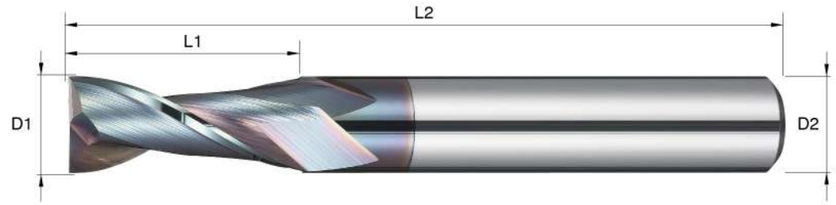
unit: mm

Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2
DB **0104**	R0.5	3	50	4
DB **0154**	R0.75	4	50	4
DB **0204**	R1	6	50	4
DB **0303**	R1.5	6	50	3
DB **0404**	R2	8	50	4
DB **0606**	R3	12	50	6
DB **0808**	R4	16	60	8
DB **1010**	R5	20	75	10
DB **1212**	R6	24	75	12

DESV

S MG | 2 | 30° | D-X | Finishing

Aluminum & Copper cutting series / 2 Flute / Square N



- **FEATURES**
  - 2 Flute Square for Aluminum.
  - Fine & bright workpiece surface after processed.
  - D-X Coating: Excellent wear resistance and heat resistant.

- **ITEMS**

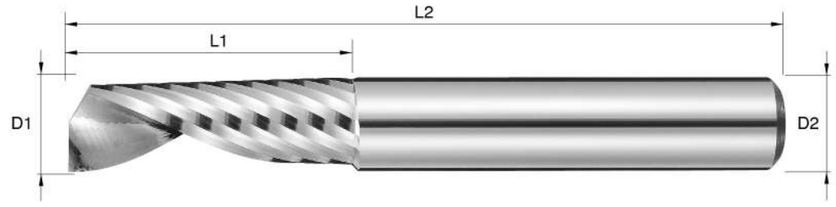
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
DESV **0306**	3.0	9	50	6
DESV **0406**	4.0	12	50	6
DESV **0506**	5.0	15	50	6
DESV **0606**	6.0	18	50	6
DESV **0808**	8.0	20	60	8
DESV **1010**	10.0	30	75	10
DESV **1212**	12.0	30	75	12

DES

S MG | 1 Flutes | 30° | Finishing Semi-Finishing

Aluminum & Copper cutting series / I Flute / Square N



- **FEATURES**
  - Single Flute Square for Aluminum.
  - Fine & bright workpiece surface after processed.
  - SMG 0.4μm Micro Grain Carbide features excellent wear resistance.

- **ITEMS**

unit: mm

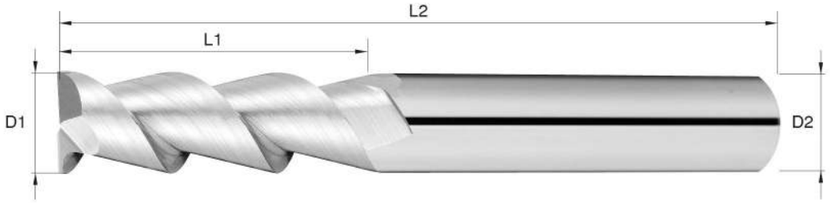
Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
DES **0206**	2.0	6	50	6
DES **0306**	3.0	9	50	6
DES **0406**	4.0	12	50	6
DES **0506**	5.0	15	50	6
DES **0606**	6.0	18	50	6
DES **0808**	8.0	20	60	8
DES **1010**	10.0	30	75	10
DES **1212**	12.0	30	75	12

DEA

MG | 2 | 55° | Finishing | Cutting Data P.248

Aluminum & Copper cutting series / 2 Flute / Square

N



- **FEATURES**
  - 2 Flute Square for Aluminum.
  - Helix Angle: 55°
  - Fine & bright workpiece surface after processed.
  - Planing, Slotting, and Side Milling.

- **ITEMS**

unit: mm

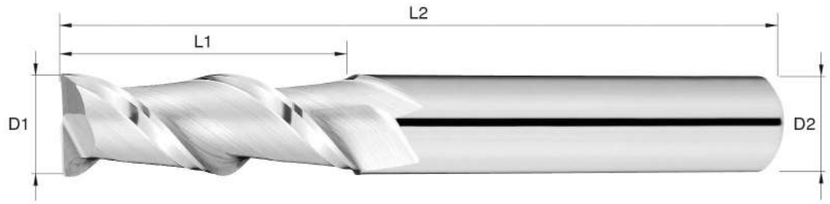
Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
DEA **0106**	1.0	3	50	6
DEA **0206**	2.0	6	50	6
DEA **0306**	3.0	9	50	6
DEA **0406**	4.0	12	50	6
DEA **0506**	5.0	15	50	6
DEA **0606**	6.0	18	50	6
DEA **0808**	8.0	20	60	8
DEA **1010**	10.0	30	75	10
DEA **1212**	12.0	30	75	12
DEA **1616**	16.0	45	100	16

DEB

MG | 2 | 45° | Finishing | Cutting Data P.248

Aluminum & Copper cutting series / 2 Flute / Square

N



- **FEATURES**
  - 2 Flute Square for Aluminum.
  - Helix Angle: 45°
  - Planing, Slotting, and Side Milling.

- **ITEMS**

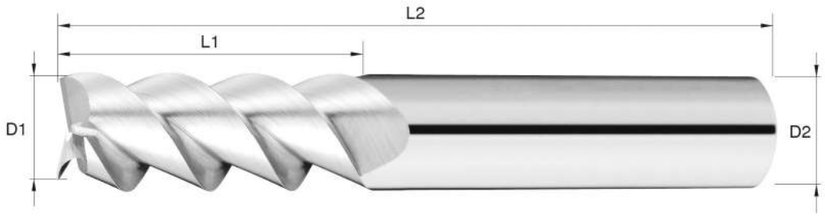
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
DEB **0106**	1.0	3	50	6
DEB **0206**	2.0	6	50	6
DEB **0306**	3.0	9	50	6
DEB **0406**	4.0	12	50	6
DEB **0506**	5.0	15	50	6
DEB **0606**	6.0	18	50	6
DEB **0808**	8.0	20	60	8
DEB **1010**	10.0	30	75	10
DEB **1212**	12.0	30	75	12
DEB **1616**	16.0	45	100	16

DEC

MG | 3 | 55° | Finishing | Cutting Data P.248

Aluminum & Copper cutting series / 3 Flute / Square N



- **FEATURES**
  - 3 Flute Square for Aluminum.
  - Helix Angle: 55°
  - Fine & bright workpiece surface after processed.
  - Planing, Slotting, and Side Milling.

- **ITEMS**

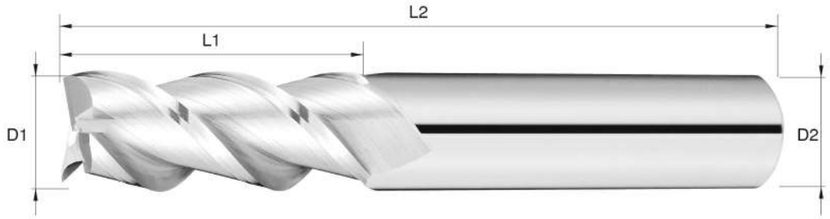
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
DEC **0206**	2.0	6	50	6
DEC **0306**	3.0	9	50	6
DEC **0406**	4.0	12	50	6
DEC **0506**	5.0	15	50	6
DEC **0606**	6.0	18	50	6
DEC **0808**	8.0	20	60	8
DEC **1010**	10.0	30	75	10
DEC **1212**	12.0	30	75	12
DEC **1616**	16.0	45	100	16
DEC **2020**	20.0	45	100	20

DED

MG | 3 | 45° | Finishing | Cutting Data P.248

Aluminum & Copper cutting series / 3 Flute / Square N



- **FEATURES**
  - 3 Flute Square for Aluminum.
  - Helix Angle: 45°
  - Planing, Slotting, and Side Milling.

- **ITEMS**

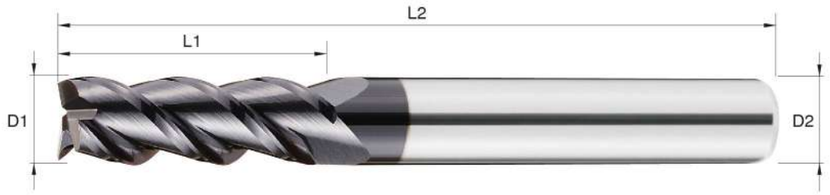
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
DED **0206**	2.0	6	50	6
DED **0306**	3.0	9	50	6
DED **0406**	4.0	12	50	6
DED **0506**	5.0	15	50	6
DED **0606**	6.0	18	50	6
DED **0808**	8.0	20	60	8
DED **1010**	10.0	30	75	10
DED **1212**	12.0	30	75	12
DED **1616**	16.0	45	100	16
DED **2020**	20.0	45	100	20

DEDP

MG | 3 | 45° | DLC | Finishing | Cutting Data P.248

Aluminum & Copper cutting series / 3 Flute / Square N



- **FEATURES**
  - 3 Flute Square for Aluminum.
  - DLC Coating: High thermal conductivity and low coefficient of friction. Excellent for Aluminum Alloy.
  - Helix Angle: 45°

- **ITEMS**

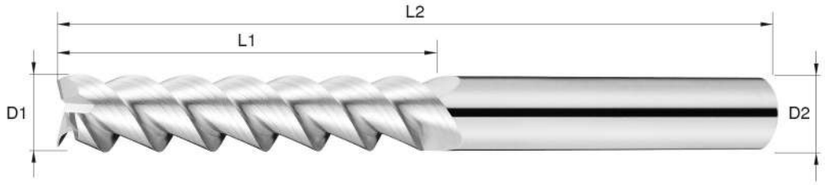
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
DEDP **0206**	2.0	6	50	6
DEDP **0306**	3.0	9	50	6
DEDP **0406**	4.0	12	50	6
DEDP **0506**	5.0	15	50	6
DEDP **0606**	6.0	18	50	6
DEDP **0808**	8.0	20	60	8
DEDP **1010**	10.0	30	75	10
DEDP **1212**	12.0	30	75	12
DEDP **1616**	16.0	45	100	16
DEDP **2020**	20.0	45	100	20

DEL

MG | 3 | 55° | Finishing | Cutting Data P.249

Aluminum & Copper cutting series / 3 Flute / Long Flute / Square N



- **FEATURES**
  - Long flute 3 Flute Square for Aluminum.
  - Extended flute length for greater depth of cut.
  - Planing, Slotting, and Side Milling.

- **ITEMS**

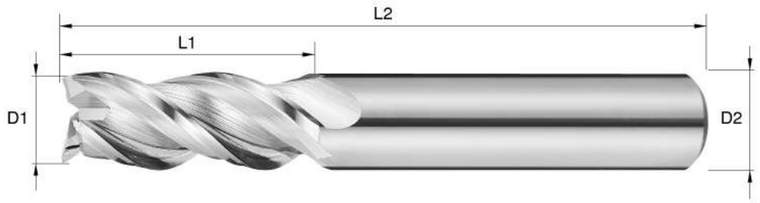
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
DEL **0206**	2.0	9	75	6
DEL **0306**	3.0	12	75	6
DEL **0406**	4.0	16	75	6
DEL **0506**	5.0	20	75	6
DEL **0606**	6.0	25	75	6
DEL **0808**	8.0	32	75	8
DEL **1010**	10.0	50	100	10
DEL **1212**	12.0	50	100	12
DEL **1616**	16.0	65	150	16
DEL **2020**	20.0	75	150	20

DEPW

S MG | 3 | 39°/40°/41° | Cutting Data P.249

Aluminum & Copper cutting series / 3 Flute / Square



- **FEATURES**
  - 3 Flute Square for Aluminum.
  - Variable helix angle for great stability and anti-vibration. Large flute gullet for better chip removal.
  - Suitable for both roughing and finishing.

- **ITEMS**

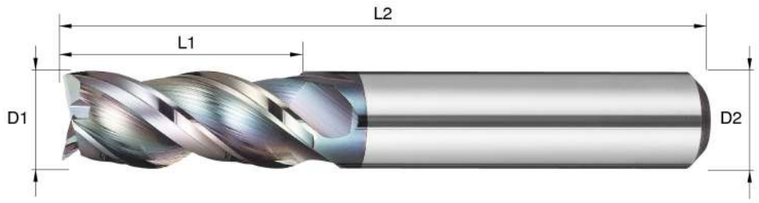
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
DEPW **0306**	3.0	8	50	6
DEPW **0406**	4.0	11	50	6
DEPW **0506**	5.0	13	50	6
DEPW **0606**	6.0	16	50	6
DEPW **0808**	8.0	20	65	8
DEPW **1010**	10.0	25	80	10
DEPW **1212**	12.0	30	80	12
DEPW **1616**	16.0	50	110	16
DEPW **2020**	20.0	60	150	20

DEPWS

S MG | 3 | 39°/40°/41° | D-X | Cutting Data P.249

Aluminum & Copper cutting series / 3 Flute / Square



- **FEATURES**
  - 3 Flute Square for Aluminum.
  - Variable helix angle for great stability and anti-vibration. Large flute gullet for better chip removal.
  - D-X Coating: Excellent wear resistance and heat resistant.

- **ITEMS**

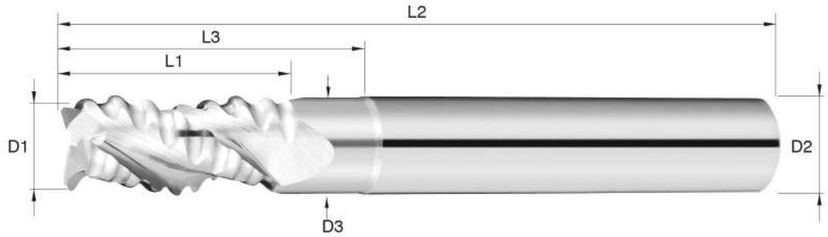
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
DEPWS **0306**	3.0	8	50	6
DEPWS **0406**	4.0	11	50	6
DEPWS **0506**	5.0	13	50	6
DEPWS **0606**	6.0	16	50	6
DEPWS **0808**	8.0	20	65	8
DEPWS **1010**	10.0	25	80	10
DEPWS **1212**	12.0	30	80	12
DEPWS **1616**	16.0	50	110	16
DEPWS **2020**	20.0	60	150	20

DEG

MG | 3 | Rough | 38° | Roughing | Semi-Finishing | Cutting Data P.250

Aluminum & Copper cutting series / 3 Flute / Roughing / Square N



- **FEATURES**
  - Roughing 3 Flute Square for Aluminum.
  - Unique flute cutting edge especially designed for rough milling.
  - Chip breaker design dedicated to excellent chip removal ability.

- **ITEMS**

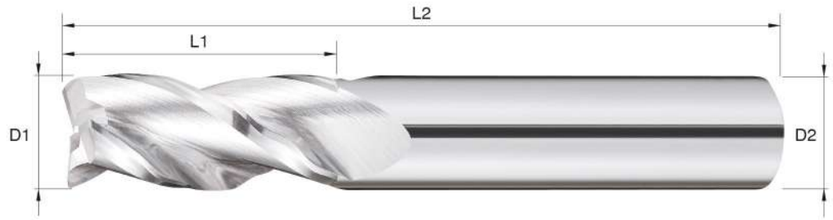
unit: mm

Order No.	Diameter D1	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
DEG **0606**	6.0	5.80	12	18	50	6
DEG **0808**	8.0	7.70	16	24	60	8
DEG **1010**	10.0	9.60	20	30	75	10
DEG **1212**	12.0	11.50	24	36	75	12
DEG **1616**	16.0	15.40	32	45	100	16

DFR

S MG | 3 | 45° | Roughing | Semi-Finishing

Aluminum & Copper cutting series / 3 Flute / Square N



- **FEATURES**
  - Roughing 3 Flute Square for Aluminum.
  - Wave-shaped peripheral cutting edge design brings great chip removal.
  - Fine & bright workpiece surface after processed.

- **ITEMS**

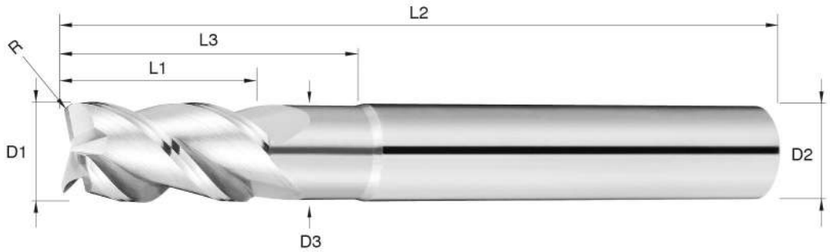
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
DFR **0606**	6.0	16	50	6
DFR **0808**	8.0	20	60	8
DFR **1010**	10.0	25	75	10
DFR **1212**	12.0	30	75	12
DFR **1616**	16.0	40	100	16
DFR **2020**	20.0	45	100	20

DRC

S MG | 3 | 45° | R | Finishing Semi-Finishing | Cutting Data P.250

Aluminum & Copper cutting series / 3 Flute / Corner Radius N



- **FEATURES**
  - 3 Flute Corner Radius for Aluminum.
  - Great performance when profile milling at high speed.

- **ITEMS**

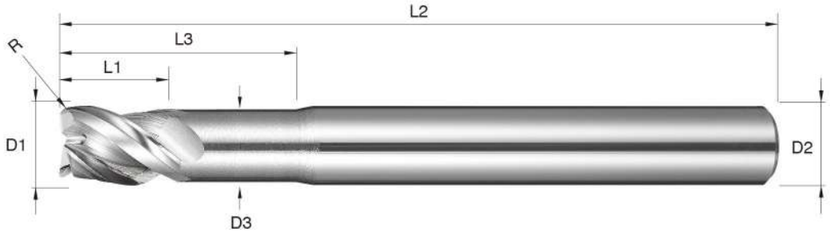
unit: mm

Order No.	Diameter D1	Corner R R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L L2	Shank Dia D2
DRC **0305**	3.0	0.5	2.90	6	9	50	6
DRC **0405**	4.0	0.5	3.88	8	12	50	6
DRC **0605**	6.0	0.5	5.80	12	18	50	6
DRC **0610**	6.0	1.0	5.80	12	18	50	6
DRC **0805**	8.0	0.5	7.70	16	24	60	8
DRC **0810**	8.0	1.0	7.70	16	24	60	8
DRC **1002**	10.0	0.2	9.60	20	30	75	10
DRC **1005**	10.0	0.5	9.60	20	30	75	10
DRC **1010**	10.0	1.0	9.60	20	30	75	10
DRC **1202**	12.0	0.2	11.50	24	36	75	12
DRC **1205**	12.0	0.5	11.50	24	36	75	12
DRC **1210**	12.0	1.0	11.50	24	36	75	12
DRC **1603**	16.0	0.3	15.40	30	40	100	16
DRC **1605**	16.0	0.5	15.40	30	40	100	16
DRC **1610**	16.0	1.0	15.40	30	40	100	16
DRC **1630**	16.0	3.0	15.40	30	40	100	16

DEPWR

S MG | 3 | 39°/40°/41° | R

Aluminum & Copper cutting series / 3 Flute / Corner Radius N



- **FEATURES**
  - 3 Flute Corner Radius for Aluminum.
  - Variable helix angle for great stability and anti-vibration. Large flute gullet for better chip removal.
  - Great performance when profile milling at high speed.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Corner R R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
DEPWR **0305**	3.0	0.5	2.8	4.5	9	50	6
DEPWR **0405**	4.0	0.5	3.7	6	12	50	6
DEPWR **0605**	6.0	0.5	5.5	9	18	60	6
DEPWR **0610**	6.0	1	5.5	9	18	60	6
DEPWR **0805**	8.0	0.5	7.3	12	24	75	8
DEPWR **0810**	8.0	1	7.3	12	24	75	8
DEPWR **1005**	10.0	0.5	9.2	15	30	80	10
DEPWR **1010**	10.0	1	9.2	15	30	80	10
DEPWR **1205**	12.0	0.5	11	18	36	110	12
DEPWR **1210**	12.0	1	11	18	36	110	12
DEPWR **1605**	16.0	0.5	14.5	24	48	110	16
DEPWR **1610**	16.0	1	14.5	24	48	110	16

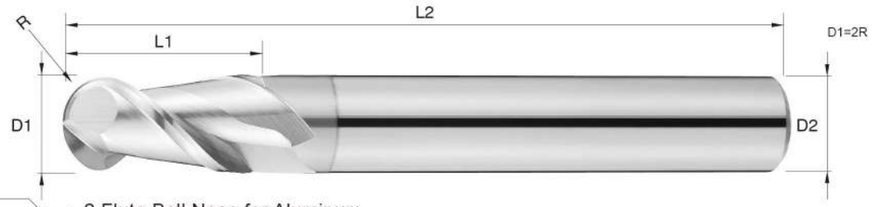
D

D MILL

DBX

MG | 2 | 45° | CRN | Finishing | Cutting Data P.248

Aluminum & Copper cutting series / 2 Flute / Ball Nose N



- **FEATURES**
  - 2 Flute Ball Nose for Aluminum.
  - CRN Coating possesses high thermal conductivity and low coefficient of friction excellent for Copper Alloy.

unit: mm

- **ITEMS**

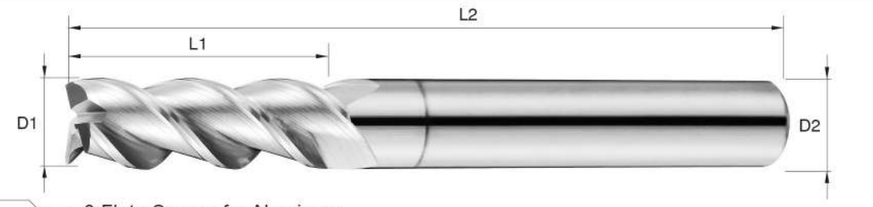
Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2
DBX **0104**	R0.5	3	50	4
DBX **0154**	R0.75	4	50	4
DBX **0204**	R1	6	50	4
DBX **0303**	R1.5	6	50	3
DBX **0404**	R2	8	50	4
DBX **0606**	R3	12	50	6
DBX **0808**	R4	16	60	8
DBX **1010**	R5	20	75	10
DBX **1212**	R6	24	75	12

D

DEDX

MG | 3 | 45° | CRN | Finishing | Cutting Data P.248

Aluminum & Copper cutting series / 3 Flute / Square N

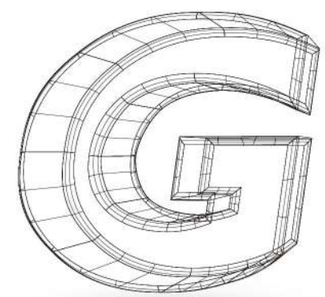


- **FEATURES**
  - 3 Flute Square for Aluminum.
  - CRN Coating possesses high thermal conductivity and low coefficient of friction excellent for Copper Alloy.

unit: mm

- **ITEMS**

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
DEDX **0206**	2.0	6	50	6
DEDX **0306**	3.0	9	50	6
DEDX **0406**	4.0	12	50	6
DEDX **0506**	5.0	15	50	6
DEDX **0606**	6.0	18	50	6
DEDX **0808**	8.0	20	60	8
DEDX **1010**	10.0	30	75	10
DEDX **1212**	12.0	30	75	12
DEDX **1616**	16.0	45	100	16
DEDX **2020**	20.0	45	100	20



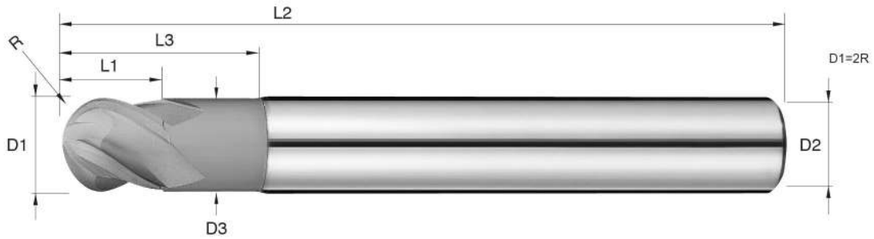
GRAPHITE CUTTING SERIES

G.pro

SGBB

G MG | 4 | 35° | Diamond | Finishing Semi-Finishing

Graphite cutting series / 4 Flute / Ball Nose N



- **FEATURES**
  - 4 Flute Ball Nose for Graphite.
  - CVD Diamond Coating maximize abrasion resistance and extend tool life.
  - GMG carbide material with perfect anti-vibration, suitable for CVD Diamond Coating.

- **ITEMS**

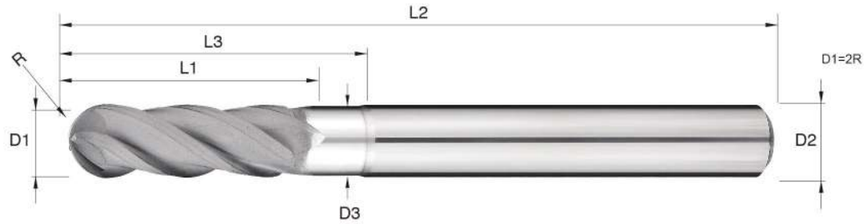
unit: mm

Order No.	Radius R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
SGBB **0404**	R2	3.88	4	8	50	4
SGBB **0606**	R3	5.80	6	12	50	6
SGBB **0808**	R4	7.70	8	16	60	8
SGBB **1010**	R5	9.60	10	20	75	10
SGBB **1212**	R6	11.50	12	20	75	12

SGBF

G MG | 4 | 35° | Diamond | Finishing Semi-Finishing

Graphite cutting series / 4 Flute / Ball Nose N



- **FEATURES**
  - 4 Flute Ball Nose for Graphite.
  - CVD Diamond Coating maximize abrasion resistance and extend tool life.
  - GMG Carbide material with perfect anti-vibration, suitable for CVD Diamond Coating.

- **ITEMS**

unit: mm

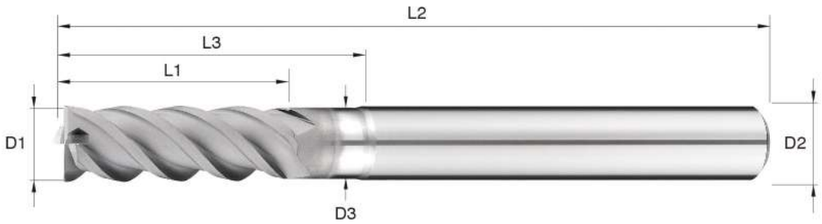
Order No.	Radius R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
SGBF **0404**	R2	3.88	20	25	75	4
SGBF **0404A**	R2	3.88	20	25	100	4
SGBF **0606**	R3	5.80	25	30	75	6
SGBF **0606A**	R3	5.80	25	30	100	6
SGBF **0606B**	R3	5.80	25	30	150	6
SGBF **0808**	R4	7.70	30	40	100	8
SGBF **0808B**	R4	7.70	30	40	150	8
SGBF **1010**	R5	9.60	30	40	100	10
SGBF **1010B**	R5	9.60	30	40	150	10
SGBF **1212**	R6	11.50	30	40	100	12
SGBF **1212B**	R6	11.50	30	40	150	12

SGEB

G MG | 4 | 45° | Diamond | Finishing Semi-Finishing

Graphite cutting series / 4 Flute / Square

N



- **FEATURES**
  - 4 Flute Square for Graphite.
  - CVD Diamond Coating maximize abrasion resistance and extend tool life.
  - GMG Carbide material with perfect anti-vibration, suitable for CVD Diamond Coating.

- **ITEMS**

unit: mm

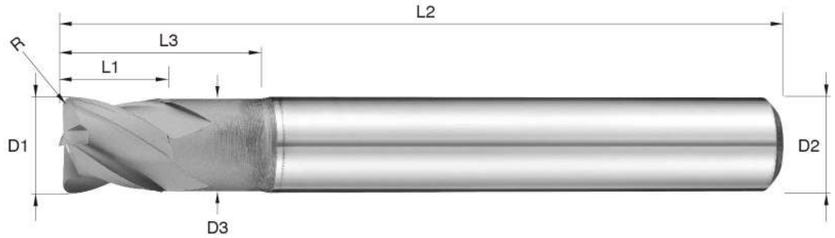
Order No.	Diameter D1	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
SGEB **0404**	4.0	3.88	20	25	75	4
SGEB **0404A**	4.0	3.88	20	25	100	4
SGEB **0606**	6.0	5.80	25	30	75	6
SGEB **0606A**	6.0	5.80	25	30	100	6
SGEB **0606B**	6.0	5.80	25	30	150	6
SGEB **0808**	8.0	7.70	30	40	100	8
SGEB **0808B**	8.0	7.70	30	40	150	8
SGEB **1010**	10.0	9.60	30	40	100	10
SGEB **1010B**	10.0	9.60	30	40	150	10
SGEB **1212**	12.0	11.50	30	40	100	12
SGEB **1212B**	12.0	11.50	30	40	150	12

SGRD

G MG | 4 | 35° | R | Diamond | Finishing Semi-Finishing

Graphite cutting series / 4 Flute / Corner Radius

N



- **FEATURES**
  - 4 Flute Corner Radius for Graphite.
  - CVD Diamond Coating maximize abrasion resistance and extend tool life.
  - GMG Carbide material with perfect anti-vibration, suitable for CVD Diamond Coating.

- **ITEMS**

unit: mm

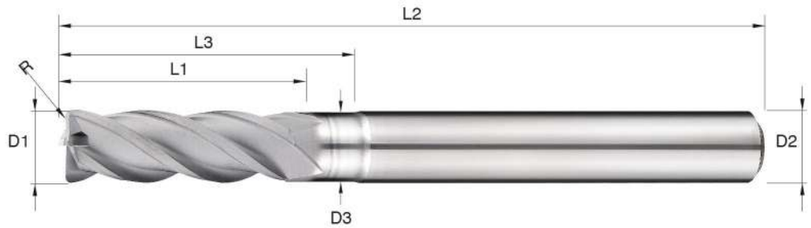
Order No.	Diameter D1	Corner R R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L L2	Shank Dia D2
SGRD **0403**	4.0	0.3	3.88	4	8	50	4
SGRD **0405**	4.0	0.5	3.88	4	8	50	4
SGRD **0603**	6.0	0.3	5.80	6	12	50	6
SGRD **0605**	6.0	0.5	5.80	6	12	50	6
SGRD **0805**	8.0	0.5	7.70	8	16	60	8
SGRD **1010**	10.0	1.0	9.60	10	20	75	10
SGRD **1210**	12.0	1.0	11.50	12	20	75	12

G.pro

SGRB

G MG | 4 | 35° | R | Diamond | Finishing Semi-Finishing

Graphite cutting series / 4 Flute / Corner Radius N



- **FEATURES**
  - 4 Flute Corner Radius for Graphite.
  - CVD Diamond Coating maximize abrasion resistance and extend tool life.
  - GMG Carbide material with perfect anti-vibration, suitable for CVD Diamond Coating.

- **ITEMS**

unit: mm

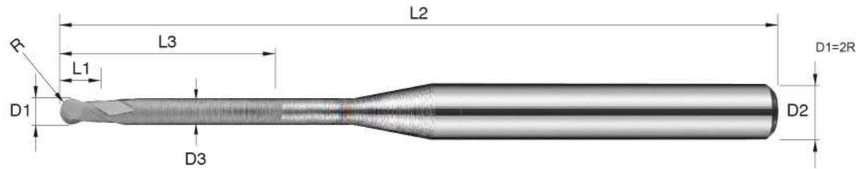
Order No.	Diameter D1	Corner R R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L L2	Shank Dia D2
SGRB **0403**	4.0	0.3	3.88	20	25	75	4
SGRB **0403A**	4.0	0.3	3.88	20	25	100	4
SGRB **0405**	4.0	0.5	3.88	20	25	75	4
SGRB **0405A**	4.0	0.5	3.88	20	25	100	4
SGRB **0603**	6.0	0.3	5.80	25	30	75	6
SGRB **0603A**	6.0	0.3	5.80	25	30	100	6
SGRB **0603B**	6.0	0.3	5.80	25	30	150	6
SGRB **0605**	6.0	0.5	5.80	25	30	75	6
SGRB **0605A**	6.0	0.5	5.80	25	30	100	6
SGRB **0605B**	6.0	0.5	5.80	25	30	150	6
SGRB **0805**	8.0	0.5	7.70	30	40	100	8
SGRB **0805B**	8.0	0.5	7.70	30	40	150	8
SGRB **1010**	10.0	1.0	9.60	30	40	100	10
SGRB **1010B**	10.0	1.0	9.60	30	40	150	10
SGRB **1210**	12.0	1.0	11.50	30	40	100	12
SGRB **1210B**	12.0	1.0	11.50	30	40	150	12

G.pro

SGBS

G MG | 2 | 30° | Diamond | Finishing Semi-Finishing

Graphite cutting series / 2 Flute / Long Neck / Ball Nose N



- **FEATURES**
  - Long Neck 2 Flute Ball Nose for Graphite.
  - CVD Diamond Coating maximize abrasion resistance and extend tool life.
  - GMG Carbide material with perfect anti-vibration, suitable for CVD Diamond Coating.

- **ITEMS**

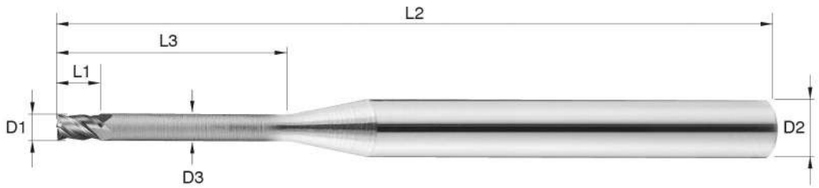
unit: mm

Order No.	Radius R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
SGBS **01006**	R0.5	0.95	1.5	6	50	4
SGBS **01008**	R0.5	0.95	1.5	8	50	4
SGBS **01010**	R0.5	0.95	1.5	10	50	4
SGBS **01012**	R0.5	0.95	1.5	12	50	4
SGBS **01508**	R0.75	1.45	2	8	50	4
SGBS **01510**	R0.75	1.45	2	10	50	4
SGBS **01512**	R0.75	1.45	2	12	50	4
SGBS **01516**	R0.75	1.45	2	16	50	4
SGBS **01520**	R0.75	1.45	2	20	50	4
SGBS **02008**	R1	1.92	3	8	50	4
SGBS **02010**	R1	1.92	3	10	50	4
SGBS **02012**	R1	1.92	3	12	50	4
SGBS **02016**	R1	1.92	3	16	50	4
SGBS **02020**	R1	1.92	3	20	50	4
SGBS **03016**	R1.5	2.90	4	16	50	4
SGBS **03025**	R1.5	2.90	4	25	75	4
SGBS **04020**	R2	3.88	5	20	50	4
SGBS **04030**	R2	3.88	5	30	75	4

SGES

G MG | 4 | 30° | Diamond | Finishing Semi-Finishing

Graphite cutting series / 4 Flute / Long Neck / Square N



- **FEATURES**
  - Long Neck 4 Flute Square for Graphite.
  - CVD Diamond Coating maximize abrasion resistance and extend tool life.
  - GMG Carbide material with perfect anti-vibration, suitable for CVD Diamond Coating.

- **ITEMS**

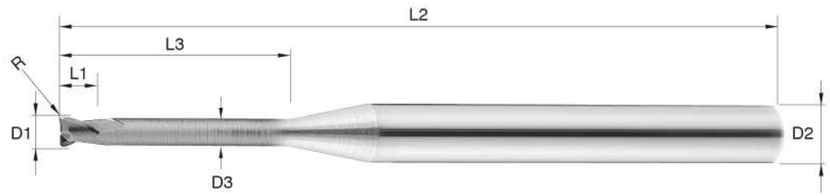
unit: mm

Order No.	Diameter D1	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
SGES **01006**	1.0	0.95	1.5	6	50	4
SGES **01008**	1.0	0.95	1.5	8	50	4
SGES **01010**	1.0	0.95	1.5	10	50	4
SGES **01510**	1.5	1.45	2	10	50	4
SGES **01512**	1.5	1.45	2	12	50	4
SGES **01516**	1.5	1.45	2	16	50	4
SGES **02010**	2.0	1.92	3	10	50	4
SGES **02012**	2.0	1.92	3	12	50	4
SGES **02016**	2.0	1.92	3	16	50	4
SGES **02020**	2.0	1.92	3	20	50	4
SGES **03016**	3.0	2.90	4	16	50	4
SGES **03020**	3.0	2.90	4	20	50	4
SGES **03025**	3.0	2.90	4	25	75	4
SGES **04020**	4.0	3.88	5	20	50	4
SGES **04030**	4.0	3.88	5	30	75	4

SGRS

G MG | 2 | 4 | 30° | R | Diamond | Finishing Semi-Finishing

Graphite cutting series / 2 & 4 Flute / Long Neck / Corner Radius N

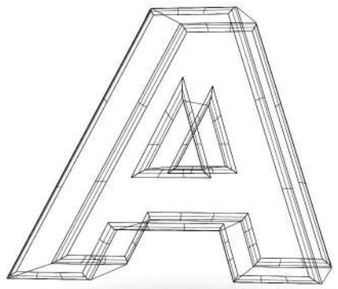


- **FEATURES**
  - Long neck 2 & 4 Flute Corner Radius for Graphite.
  - CVD Diamond Coating maximize abrasion resistance and extend tool life.
  - GMG Carbide material with perfect anti-vibration, suitable for CVD Diamond Coating.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Corner R R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L L2	Shank Dia D2	Flutes
SGRS **01008**	1.0	0.2	0.95	1.0	8	50	4	2
SGRS **01010**	1.0	0.2	0.95	1.0	10	50	4	2
SGRS **01012**	1.0	0.2	0.95	1.0	12	50	4	2
SGRS **01016**	1.0	0.2	0.95	1.0	16	50	4	2
SGRS **01020**	1.0	0.2	0.95	1.0	20	50	4	2
SGRS **01508**	1.5	0.2	1.45	1.5	8	50	4	2
SGRS **01510**	1.5	0.2	1.45	1.5	10	50	4	2
SGRS **01512**	1.5	0.2	1.45	1.5	12	50	4	2
SGRS **01516**	1.5	0.2	1.45	1.5	16	50	4	2
SGRS **01520**	1.5	0.2	1.45	1.5	20	50	4	2
SGRS **02010**	2.0	0.2	1.92	2.0	10	50	4	4
SGRS **02012**	2.0	0.2	1.92	2.0	12	50	4	4
SGRS **02016**	2.0	0.2	1.92	2.0	16	50	4	4
SGRS **02020**	2.0	0.2	1.92	2.0	20	50	4	4
SGRS **03020**	3.0	0.2	2.90	3.0	20	50	4	4
SGRS **03025**	3.0	0.2	2.90	3.0	25	75	4	4
SGRS **030201**	3.0	0.5	2.90	3.0	20	50	4	4
SGRS **030251**	3.0	0.5	2.90	3.0	25	75	4	4
SGRS **04020**	4.0	0.2	3.88	4.0	20	50	4	4
SGRS **04030**	4.0	0.2	3.88	4.0	30	75	4	4
SGRS **040201**	4.0	0.5	3.88	4.0	20	50	4	4
SGRS **040301**	4.0	0.5	3.88	4.0	30	75	4	4



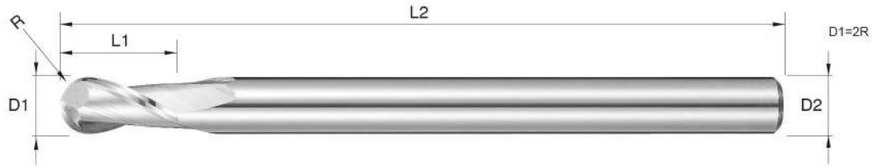
RESIN & ACRYLIC CUTTING SERIES

AX MILL

APB

S MG | 2 | 30° | Finishing / Semi-Finishing

Resin & Acrylic cutting series / 2 Flute / Ball Nose — **A.B.S**



- **FEATURES**
  - 2 Flute Ball Nose for A.B.S
  - Special angle ground for fine workpiece surface after processed.
  - SMG 0.4μm Micro Grain Carbide features excellent wear resistance.

- **ITEMS**

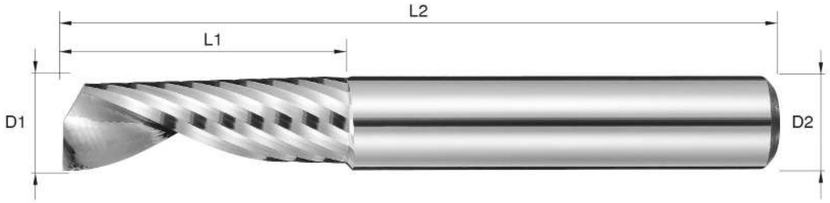
unit: mm

Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2
APB **0104**	R0.5	3	50	4
APB **0154**	R0.75	4	50	4
APB **0204**	R1	5	50	4
APB **0304**	R1.5	8	50	4
APB **0404**	R2	10	50	4
APB **0606**	R3	12	75	6
APB **0808**	R4	16	100	8
APB **1010**	R5	20	100	10
APB **1212**	R6	24	100	12

APES

S MG | 1 Flutes | 30° | Finishing Semi-Finishing

Resin & Acrylic cutting series / 1 Flute / Square A.B.S



- **FEATURES**
  - Single Flute Square for A.B.S
  - Sharp edge design brings excellent machining accuracy and fine, bright workpiece surface.
  - SMG 0.4μm Micro Grain Carbide features excellent wear resistance.

- **ITEMS**

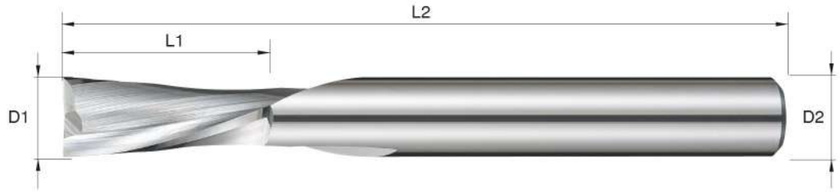
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
APES **0206**	2.0	6	50	6
APES **0306**	3.0	9	50	6
APES **0406**	4.0	12	50	6
APES **0506**	5.0	15	50	6
APES **0606**	6.0	18	50	6
APES **0808**	8.0	20	60	8
APES **1010**	10.0	30	75	10
APES **1212**	12.0	30	75	12

APEB

S MG | 2 | 20° | Finishing Semi-Finishing

Resin & Acrylic cutting series / 2 Flute / Square A.B.S

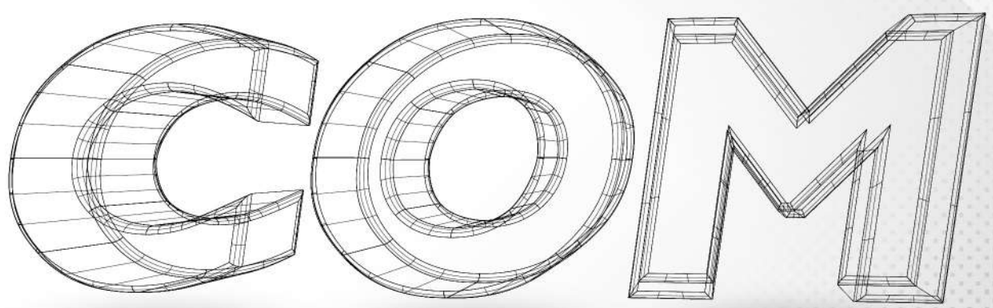


- **FEATURES**
  - 2 Flute square for A.B.S
  - Left hand spiral, right hand cut end mill can push the chip down to remove, not to lift it up.
  - Sharp edge design brings excellent machining accuracy and fine, bright workpiece surface.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
APEB **0406**	4.0	15	75	4
APEB **0606**	6.0	15	75	6
APEB **0808**	8.0	20	75	8
APEB **1010**	10.0	25	100	10
APEB **1212**	12.0	30	100	12



CFRP MACHINING SERIES

COM.pro

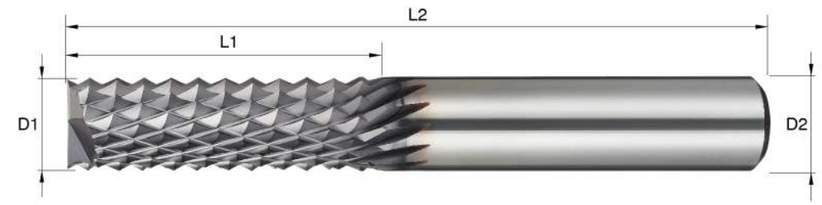
HG TECHNOLOGY CO., LTD. http://www.hgt.com.tw

COM.pro

CFPA

G MG | 10 flutes | 12 flutes | 15° | Diamond | Finishing Semi-Finishing

CFRP machining series / 10 & 12 Flute / Square / for CFRP



- **FEATURES**
  - Roughing 10 & 12 Flute Square for CFRP.
  - CVD Diamond Coating to maximize wear resistance and extend tool life.
  - Unique cutting edge design to reduce cutting force. Eexcellent performance for roughing.

- **ITEMS**

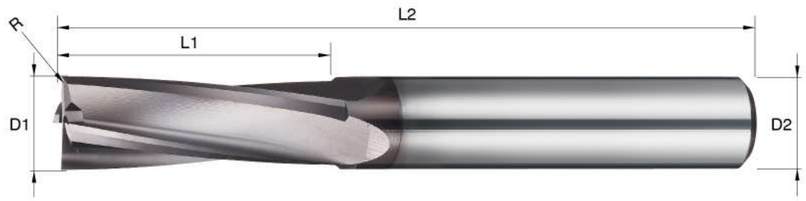
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2	Flutes
CFPA **0606**	6.0	18	75	6	10
CFPA **0808**	8.0	24	75	8	10
CFPA **1010**	10.0	30	100	10	12
CFPA **1212**	12.0	36	100	12	12

CFRA

G MG | 4 | 15° | Diamond | Finishing Semi-Finishing

CFRP machining series / 4 Flute / Square / for CFRP

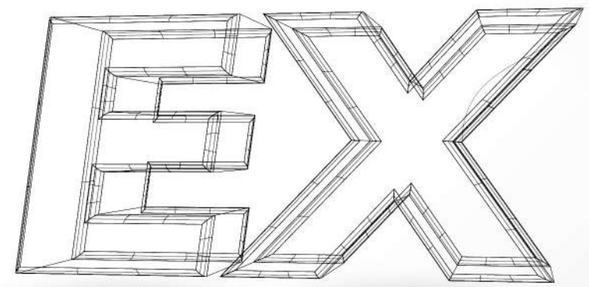


- **FEATURES**
  - Finishing 4 Flute Square for CFRP.
  - CVD Diamond Coating to maximize wear resistance and extend tool life.
  - Unique cutting edge design to reduce cutting force. Eexcellent performance for finishing.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
CFRA **0602**	6.0	18	75	6
CFRA **0802**	8.0	24	75	8
CFRA **1002**	10.0	30	100	10
CFRA **1202**	12.0	36	100	12



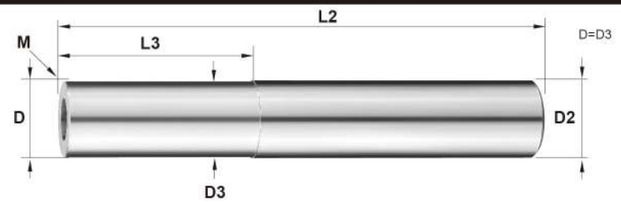
EXCHANGEABLE HEAD END MILLS SERIES

MAGIC SHANK

EX MAGIC SHANK

EX2CS

Exchangeable Head End Mills series / Carbide Shank



- **FEATURES**
  - Special Carbide material with great anti-vibration.
  - Shank Dia: 10.0~25.0 mm; OAL: 100~300 mm

- **ITEMS**

unit: mm

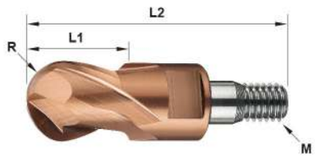
Order No.	Neck Dia D	Shank Dia D2	Neck Length L3	Thread M	O.A.L. L2
EX2CS **10100**	9.7	10.0	40	M5	100
EX2CS **10150**	9.7	10.0	90	M5	150
EX2CS **12100**	11.7	12.0	40	M6	100
EX2CS **12150**	11.7	12.0	90	M6	150
EX2CS **12200**	11.7	12.0	110	M6	200
EX2CS **16100**	15.5	16.0	40	M8	100
EX2CS **16150**	15.5	16.0	90	M8	150
EX2CS **16200**	15.5	16.0	110	M8	200
EX2CS **20100**	19.5	20.0	40	M10	100
EX2CS **20150**	19.5	20.0	90	M10	150
EX2CS **20200**	19.5	20.0	110	M10	200
EX2CS **20250**	19.5	20.0	150	M10	250

EX

EX2SB

S MG | 2 | 30° | HRC 60 | i8 | Semi-Finishing | Cutting Data P.251

Exchangeable Head End Mills series / 2 Flute / Ex Ball Nose H P K



- **FEATURES**
  - Combination of Carbide and Stainless steel: Greater anti-vibration and wear resistance.
  - i8 Coating: High temperature resistance and low wear.

- **ITEMS**

unit: mm

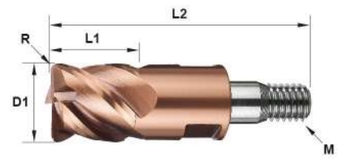
Order No.	Radius R	Flute Length L1	Thread M	O.A.L. L2
EX2SB **1010**	R5	10	M5	32
EX2SB **1212**	R6	11	M6	40
EX2SB **1616**	R8	16	M8	48
EX2SB **2020**	R10	20	M10	55

EX MAGIC SHANK

EX2SRD

S MG | 4 | 45° | HRC 60 | i8 | Finishing Semi-Finishing | Cutting Data P.251

Exchangeable Head End Mills series / 4 Flute / Ex Corner Radius H P K



- **FEATURES**
  - Combination of Carbide and Stainless steel: Greater anti-vibration and wear resistance.
  - i8 Coating: High temperature resistance and low wear.

- **ITEMS**

unit: mm

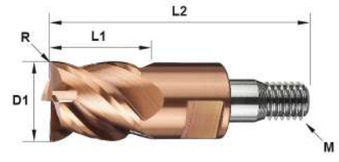
Order No.	Diameter D1	Corner R R	Flute Length L1	Thread M	O.A.L. L2
EX2SRD **1005**	10.0	0.5	10	M5	32
EX2SRD **1010**	10.0	1.0	10	M5	32
EX2SRD **1205**	12.0	0.5	12	M6	40
EX2SRD **1210**	12.0	1.0	12	M6	40
EX2SRD **1605**	16.0	0.5	16	M8	48
EX2SRD **1610**	16.0	1.0	16	M8	48
EX2SRD **2010**	20.0	1.0	20	M10	55
EX2SRD **2020**	20.0	2.0	20	M10	55

EX

EX2SEB

S MG | 4 | 45° | HRC 60 | i8 | Finishing Semi-Finishing | Cutting Data P.251

Exchangeable Head End Mills series / 4 Flute / Ex Square H P K



- **FEATURES**
  - Combination of Carbide and Stainless steel: Greater anti-vibration and wear resistance.
  - i8 Coating: High temperature resistance and low wear.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Flute Length L1	Thread M	O.A.L. L2
EX2SEB **1010**	10.0	10	M5	32
EX2SEB **1212**	12.0	12	M6	40
EX2SEB **1616**	16.0	16	M8	48
EX2SEB **2020**	20.0	20	M10	55

EX

MAGIC SHANK

EX2DPW

S MG | 3 | 39°/40°/45° | Finishing / Semi-Finishing

Exchangeable Head End Mills series / 3 Flute / EX Square

- **FEATURES**
  - Variable helix angle for great stability and anti-vibration. Large flute gullet for better chip removal.
  - Suitable for both roughing and finishing.

- **ITEMS**

unit: mm

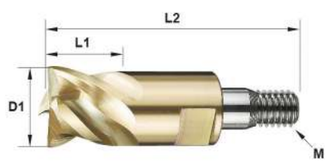
Order No.	Diameter D1	Flute Length L1	Thread M	O.A.L. L2
EX2DPW **1010**	10.0	10	M5	32
EX2DPW **1212**	12.0	12	M6	40
EX2DPW **1616**	16.0	16	M8	48
EX2DPW **2020**	20.0	20	M10	55

EX

EX2SIW

S MG | 4 | 40°/43° | α°≠β° | G-plus | Finishing / Semi-Finishing

Exchangeable Head End Mills series / 4 Flute / EX Square

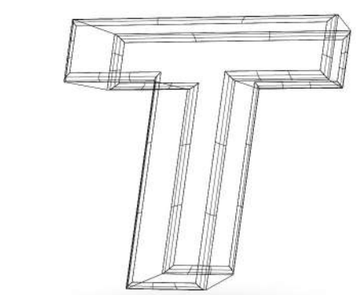


- **FEATURES**
  - Variable helix angle and unequal flute spacing offer great stability and anti-vibration.
  - G-plus Coating: Higher efficiency and longer tool life.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Flute Length L1	Thread M	O.A.L. L2
EX2SIW **1010**	10.0	10	M5	32
EX2SIW **1212**	12.0	12	M6	40
EX2SIW **1616**	16.0	16	M8	48
EX2SIW **2020**	20.0	20	M10	55



THREAD MILLING SERIES

T.pro

EMT

MG | HRC 55 | G100 | Finishing Semi-Finishing | Cutting Data P.252

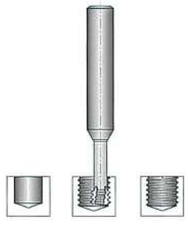
Thread milling series / Internal Threading H P K M S N

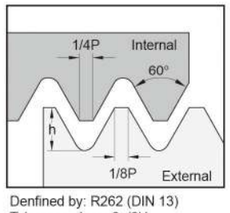
- **FEATURES**
  - New cutting edge better than old design to improve chip removal.
  - Straight Flute for higher efficiency.

- **ITEMS**

unit: mm

Order No.	Thread SIZE	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2	Flute
EMT **03P050**	M3x0.5	2.2	5.5	50	6	3
EMT **04P070**	M4x0.7	3.1	7.7	50	6	3
EMT **05P080**	M5x0.8	3.6	9.6	50	6	3
EMT **06P100**	M6x1.0	4.0	11.0	50	6	3
EMT **08P125**	M8x1.25	5.0	15.0	50	6	3
EMT **10P150**	M10x1.5	7.0	18.0	60	8	3
EMT **12P175**	M12x1.75	8.0	21.0	60	8	3
EMT **16P200**	M16x2.0	10.0	28.0	75	10	3
EMT **20P250**	M20x2.5	14.0	35.0	100	14	4



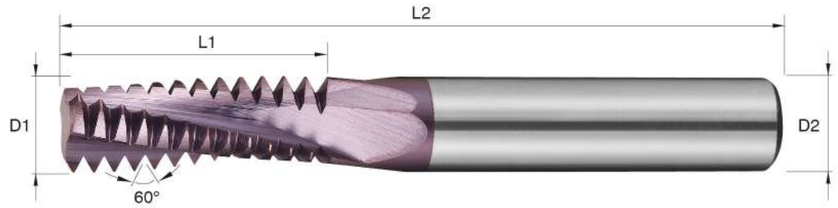


Denfined by: R262 (DIN 13)
Tolerance class: 6g/6H

EMTW

S MG | HRC 60 | G100 | Finishing Semi-Finishing

Thread milling series / Internal Threading / Helical Flute H P K M S N

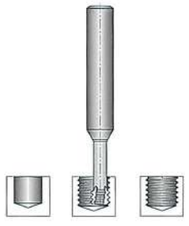


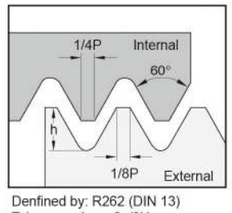
- **FEATURES**
  - New cutting edge better than old design to improve chip removal.
  - Helical Flute can reduce cutting force.
  - Fine workpiece surface after processing.

- **ITEMS**

unit: mm

Order No.	Thread SIZE	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2	Flute
EMTW **03P050**	M3x0.5	2.2	5.3	50	6	3
EMTW **04P070**	M4x0.7	3.1	7.4	50	6	3
EMTW **05P080**	M5x0.8	3.6	9.2	50	6	3
EMTW **06P100**	M6x1.0	4.0	10.5	50	6	3
EMTW **08P125**	M8x1.25	5.0	14.4	50	6	3
EMTW **10P150**	M10x1.5	7.0	17.3	60	8	3
EMTW **12P175**	M12x1.75	8.0	20.1	60	8	3
EMTW **16P200**	M16x2.0	10.0	27.0	75	10	3
EMTW **20P250**	M20x2.5	14.0	33.8	100	14	4





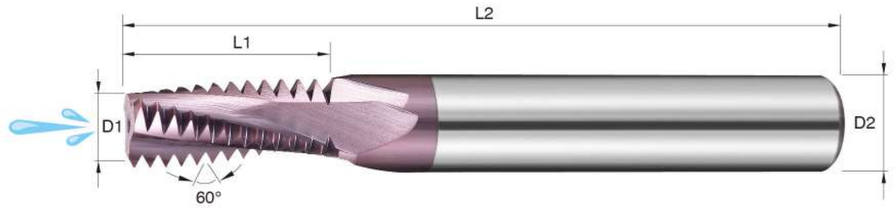
Denfined by: R262 (DIN 13)
Tolerance class: 6g/6H

T.pro

EMTH

S MG | HRC 60 | G100 | Finishing Semi-Finishing

Thread milling series / Internal Threading / Helical Flute / Hole Coolant H P K M S N



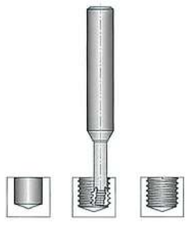
• FEATURES

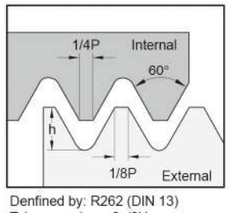
- New cutting edge better than old design to improve chip removal.
- Straight coolant holes to lower down the heat and for better chip removal.

• ITEMS

unit: mm

Order No.	Thread SIZE	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2	Flute
EMTH **04P070**	M4x0.7	3.1	7.4	50	6	3
EMTH **05P080**	M5x0.8	3.8	9.2	50	6	3
EMTH **06P100**	M6x1.0	4.6	10.5	50	6	3
EMTH **08P125**	M8x1.25	6.0	14.4	50	6	3
EMTH **10P150**	M10x1.5	7.8	17.3	60	8	3
EMTH **12P175**	M12x1.75	9.0	20.1	75	10	3
EMTH **16P200**	M16x2.0	11.8	27.0	75	12	3
EMTH **20P250**	M20x2.5	15.0	33.8	100	16	4





Denfined by: R262 (DIN 13)
Tolerance class: 6g/6H

T.pro

EMTS

S MG | HRC 60 | i8 | Finishing Semi-Finishing | Cutting Data P.252

Thread milling series / Internal Threading H P K M S N

• FEATURES

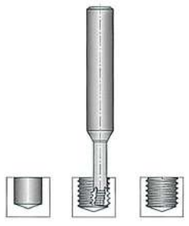
- New cutting edge better than old design to improve chip removal.
- Excellent for thread milling in great depth.
- i8 Coating: High temperature resistance and low wear.

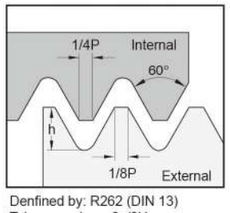
• ITEMS

unit: mm

Order No.	Thread SIZE	Diameter D1	Effective Length L3	O.A.L. L2	Shank Dia D2	Flute
EMTS **03P050**	M3x0.5	2.35	10	50	6	3
EMTS **04P070**	M4x0.7	3.10	13	50	6	3
EMTS **05P080**	M5x0.8	3.80	16	50	6	3
EMTS **06P100**	M6x1.0	4.65	20	75	6	3
EMTS **08P125**	M8x1.25	5.95	24	75	6	3

Flute Length (**L1**) = Pitch x 3





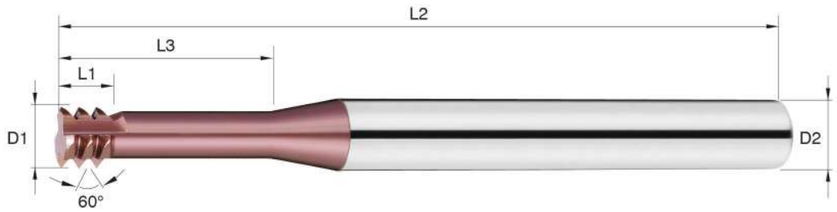
Denfined by: R262 (DIN 13)
Tolerance class: 6g/6H

T.pro

EMTF

MG | HRC 55 | G100 | Finishing / Semi-Finishing | Cutting Data P.252

Thread milling series / Internal Threading H P K M S N



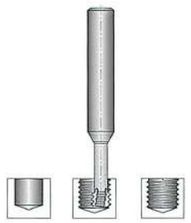
- **FEATURES**
  - New cutting edge better than old design to improve chip removal.
  - Excellent for thread milling in great depth.
  - G100 Coating for General steel.

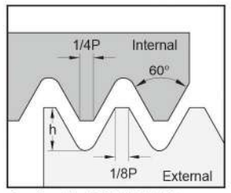
- **ITEMS**

unit: mm

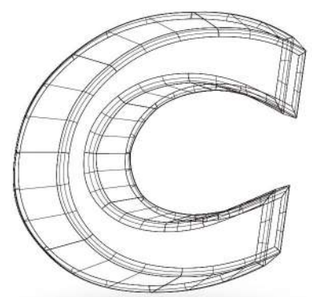
Order No.	Thread SIZE	Diameter D1	Effective Length L3	O.A.L. L2	Shank Dia D2	Flute
EMTF **03P050**	M3x0.5	2.35	6	50	6	3
EMTF **04P070**	M4x0.7	3.10	8	50	6	3
EMTF **05P080**	M5x0.8	3.80	12	50	6	3
EMTF **06P100**	M6x1.0	4.65	14	50	6	3
EMTF **08P125**	M8x1.25	5.95	18	50	6	3
EMTF **10P150**	M10x1.5	7.80	25	60	8	3
EMTF **12P175**	M12x1.75	9.00	25	75	10	3

Flute Length (**L1**) = Pitch x 3





Denfined by: R262 (DIN 13)
Tolerance class: 6g/6H



CHAMFERING SERIES

C.pro

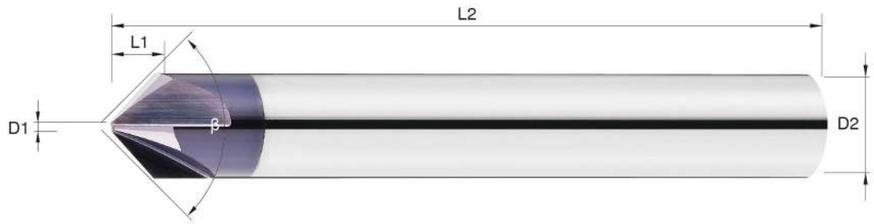
C.pro

ECM

MG | 4 | 90° ß | HRC 55 | TiaLN | Finishing Semi-Finishing

Chamfering series / 4 Flute / Straight Chamfering

H P K M S N



• **FEATURES**

- Straight Chamfering 4 Flute design to prevent sudden fracturing.
- Short chip breaker groove design can reduce vibration.

• **ITEMS**

unit: mm

Order No.	Tip Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
ECM **0104**	1.0	1.5	50	4
ECM **0206**	2.0	2.0	50	6
ECM **0208**	2.0	3.0	60	8
ECM **0210**	2.0	4.0	75	10
ECM **0212**	2.0	5.0	75	12

C.pro

ECMP

S MG | 4 | 90° ß | HRC 55 | i8 | Finishing Semi-Finishing | Cutting Data P.252

Chamfering series / 4 Flute / Straight Chamfering

H P K M S N

• **FEATURES**

- Straight Chamfering 4 Flute design to prevent sudden fracturing.
- Unique chip breaker groove design brings effective chip removal.

• **ITEMS**

unit: mm

Order No.	Diameter D1	Tip Diameter D4	Flute Length L1	O.A.L. L2	Shank Dia D2
ECMP **0404**	4.0	0.2	9	50	4
ECMP **0406**	4.0	0.2	9	50	6
ECMP **0404B**	4.0	0.2	9	100	4
ECMP **0606**	6.0	0.2	12	50	6
ECMP **0606B**	6.0	0.2	12	110	6
ECMP **0808**	8.0	0.2	15	60	8
ECMP **0808B**	8.0	0.2	15	110	8
ECMP **1010**	10.0	0.2	16	75	10
ECMP **1010A**	10.0	0.2	16	110	10
ECMP **1212**	12.0	0.2	18	75	12

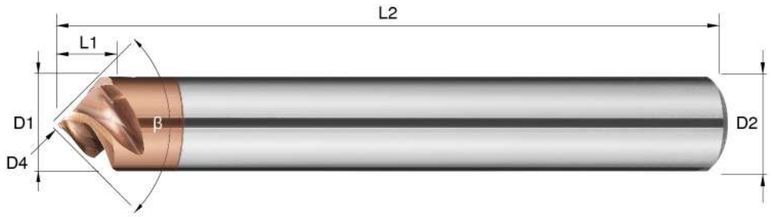
C.pro

ECMV

S MG | 3 | 90° ß | HRC 55 | i8 | Finishing Semi-Finishing | Cutting Data P.252

Chamfering series / 3 Flute / Straight Chamfering

H P K M S N



- **FEATURES**
  - Sharp helix flute design with best helix angle brings good sharpness and prevent burrs occurring.
  - End cutting edge design can do V-grooving and chamfering.

- **ITEMS**

unit: mm

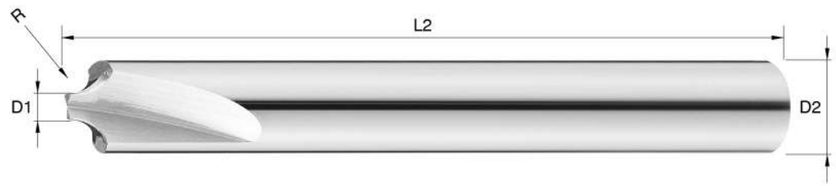
Order No.	Diameter D1	Tip Diameter D4	Flute Length L1	O.A.L. L2	Shank Dia D2
ECMV **0404**	4.0	0.2	1.5	50	4
ECMV **0406**	4.0	0.2	1.5	50	6
ECMV **0606**	6.0	0.2	2	50	6
ECMV **0808**	8.0	0.2	3	60	8
ECMV **1010**	10.0	0.2	4	75	10
ECMV **1212**	12.0	0.2	5	75	12

C.pro

ECR

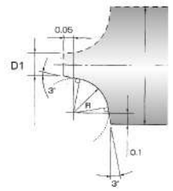
MG | 2 | HRC 55 | Finishing Semi-Finishing

Chamfering series / 2 Flute / Corner Rounding H P K M S N



- **FEATURES**
  - 2 Flute Corner Rounding for HRC55.
  - Radius design can do chamfering R0.5 ~ R6.0.

- **ITEMS**



unit: mm

Order No.	Radius R	Pilot Diameter D1	O.A.L. L2	Shank Dia D2
ECR **0104**	R0.5	1.5	50	4
ECR **0154**	R0.75	1.5	50	4
ECR **0204**	R1.0	1.5	50	4
ECR **0256**	R1.25	1.5	50	6
ECR **0306**	R1.5	1.5	50	6
ECR **0356**	R1.75	1.5	50	6
ECR **0406**	R2.0	1.5	50	6
ECR **0508**	R2.5	1.5	60	8
ECR **0608**	R3.0	1.5	60	8
ECR **0812**	R4.0	2.0	75	12
ECR **1016**	R5.0	3.0	100	16
ECR **1216**	R6.0	3.0	100	16

EMCR

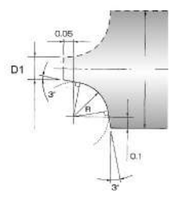
MG | 2 | HRC 55 | Finishing Semi-Finishing

Chamfering series / 2 Flute / Micro Diameter Corner Rounding

H P K M S N

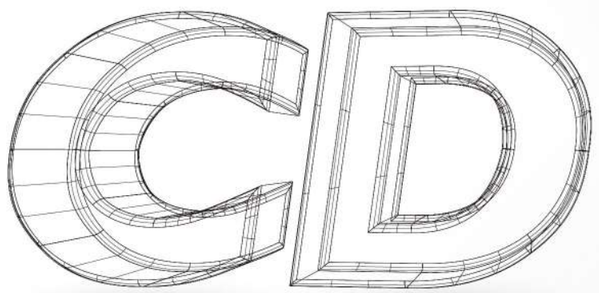
- **FEATURES**
  - 2 Flute Micro Diameter Corner Rounding for HRC55.
  - Radius design can do chamfering R0.25 ~ R0.45.

- **ITEMS**



unit: mm

Order No.	Radius R	Pilot Diameter D1	O.A.L. L2	Shank Dia D2
EMCR **0054**	R0.25	1.1	50	4
EMCR **0064**	R0.3	1.2	50	4
EMCR **0074**	R0.35	1.3	50	4
EMCR **0084**	R0.4	1.4	50	4
EMCR **0094**	R0.45	1.5	50	4



CARBIDE DRILLS SERIES

CD

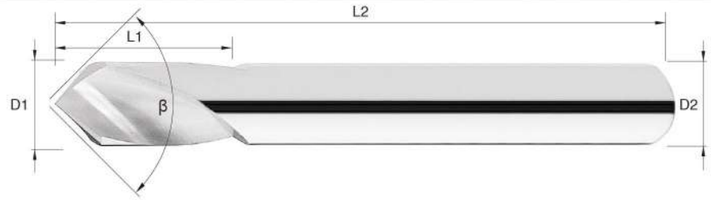
CD

CD

ESD

MG | 90° ß | HRC 40 | Finishing / Semi-Finishing

Carbide drills series / Spot Drills H P K



- **FEATURES**
  - Point angles design brings outstanding hole position accuracy.
  - Cutting edge design can do chamfering.
- **ITEMS**

unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
ESD **0303**	3.0	6	50	3
ESD **0404**	4.0	8	50	4
ESD **0606**	6.0	12	50	6
ESD **0808**	8.0	16	60	8
ESD **1010**	10.0	20	75	10
ESD **1212**	12.0	24	75	12
ESD **1616**	16.0	30	100	16
ESD **2020**	20.0	30	100	20

CD

ESD2

MG | 120° ß | HRC 40 | Finishing / Semi-Finishing

Carbide drills series / Spot Drills H P K

- **FEATURES**
  - Point angles design brings outstanding hole position accuracy.
  - Cutting edge design can do chamfering.
- **ITEMS**

unit: mm

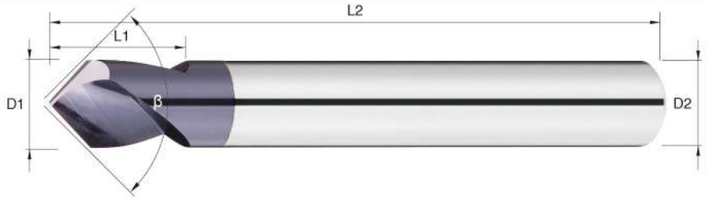
Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
ESD2 **0303**	3.0	6	50	3
ESD2 **0404**	4.0	8	50	4
ESD2 **0606**	6.0	12	50	6
ESD2 **0808**	8.0	16	60	8
ESD2 **1010**	10.0	20	75	10
ESD2 **1212**	12.0	24	75	12
ESD2 **1616**	16.0	30	100	16
ESD2 **2020**	20.0	30	100	20

CD

ESDC

MG | 90° ß | HRC 40 | TiaLN | Finishing / Semi-Finishing

Carbide drills series / Spot Drills — H P K



- **FEATURES**
  - Point angles design brings outstanding hole position accuracy.
  - Cutting edge design can do chamfering.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
ESDC **0303**	3.0	6	50	3
ESDC **0404**	4.0	8	50	4
ESDC **0606**	6.0	12	50	6
ESDC **0808**	8.0	16	60	8
ESDC **1010**	10.0	20	75	10
ESDC **1212**	12.0	24	75	12
ESDC **1616**	16.0	30	100	16
ESDC **2020**	20.0	30	100	20

CD

ESDA

MG | 120° ß | HRC 40 | TiaLN | Finishing / Semi-Finishing

Carbide drills series / Spot Drills — H P K

- **FEATURES**
  - Point angles design brings outstanding hole position accuracy.
  - Cutting edge design can do chamfering.

- **ITEMS**

unit: mm

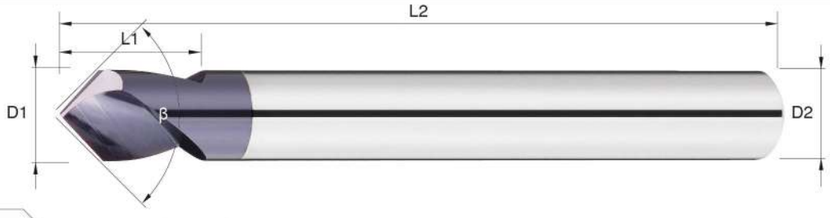
Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
ESDA **0303**	3.0	6	50	3
ESDA **0404**	4.0	8	50	4
ESDA **0606**	6.0	12	50	6
ESDA **0808**	8.0	16	60	8
ESDA **1010**	10.0	20	75	10
ESDA **1212**	12.0	24	75	12
ESDA **1616**	16.0	30	100	16
ESDA **2020**	20.0	30	100	20

CD

ESDS

MG | 90° ß | HRC 40 | TiaLN | Finishing / Semi-Finishing

Carbide drills series / Long Shank Spot Drills — H P K



- **FEATURES**
  - Point angles design brings outstanding hole position accuracy.
  - Cutting edge design can do chamfering.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
ESDS **0606**	6.0	12	100	6
ESDS **0808**	8.0	16	100	8
ESDS **1010**	10.0	20	100	10
ESDS **1212**	12.0	24	100	12
ESDS **1616**	16.0	30	150	16
ESDS **2020**	20.0	30	150	20

CD

ESDL

MG | 120° ß | HRC 40 | TiaLN | Finishing / Semi-Finishing

Carbide drills series / Long Shank Spot Drills — H P K

- **FEATURES**
  - Point angles design brings outstanding hole position accuracy.
  - Cutting edge design can do chamfering.

- **ITEMS**

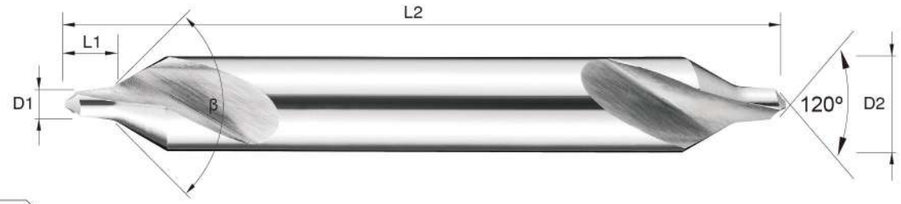
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
ESDL **0606**	6.0	12	100	6
ESDL **0808**	8.0	16	100	8
ESDL **1010**	10.0	20	100	10
ESDL **1212**	12.0	24	100	12
ESDL **1616**	16.0	30	150	16
ESDL **2020**	20.0	30	150	20

CCD

MG | 60° ß | HRC 55 | Finishing Semi-Finishing

Carbide drills series / Center Drills H P K



- **FEATURES**
  - Point angles design brings outstanding location and hole position accuracy.
  - 0.6μm Carbide material with excellent toughness.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
CCD **0050**	0.50	0.8	38	3
CCD **0080**	0.80	1.1	38	3
CCD **0100**	1.00	1.3	38	3
CCD **0125**	1.25	1.6	38	3
CCD **0160**	1.60	2.0	38	4
CCD **0200**	2.00	2.5	50	5
CCD **0250**	2.50	3.1	50	6
CCD **0315**	3.15	3.9	60	8
CCD **0400**	4.00	5.0	75	10
CCD **0500**	5.00	6.3	75	12

CD

CCDA

MG | 90° ß | HRC 55 | Finishing Semi-Finishing

Carbide drills series / Center Drills H P K

- **FEATURES**
  - Point angles design brings outstanding location and hole position accuracy.
  - 0.6μm Carbide material with excellent toughness.

- **ITEMS**

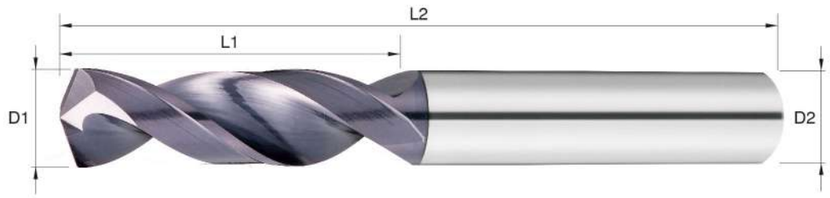
unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
CCDA **0050**	0.50	0.8	38	3
CCDA **0080**	0.80	1.1	38	3
CCDA **0100**	1.00	1.3	38	3
CCDA **0125**	1.25	1.6	38	3
CCDA **0160**	1.60	2.0	38	4
CCDA **0200**	2.00	2.5	50	5
CCDA **0250**	2.50	3.1	50	6
CCDA **0315**	3.15	3.9	60	8
CCDA **0400**	4.00	5.0	75	10
CCDA **0500**	5.00	6.3	75	12

CD

MG | DIN 6539 | 30° | h6 | h7 | 140° CD020~130 | TiaLN | 3xD | Finishing Semi-Finishing | Cutting Data P.253

Carbide drills series / Carbide Drills H P K



- **FEATURES**
  - Allow stable chip formation to prevent cutting edge from cracking.
  - Special flute shape design can make chips into small pieces and remove chips quickly.

unit: mm

Order No.	Dia D1	Flute Length L1	O.A.L. L2
CD **020**	2.0	12	38
CD **021**	2.1	12	38
CD **022**	2.2	13	40
CD **023**	2.3	13	40
CD **024**	2.4	14	43
CD **025**	2.5	14	43
CD **026**	2.6	14	43
CD **027**	2.7	16	46
CD **028**	2.8	16	46
CD **029**	2.9	16	46
CD **030**	3.0	16	46
CD **031**	3.1	18	49
CD **032**	3.2	18	49
CD **033**	3.3	18	49
CD **034**	3.4	20	52
CD **035**	3.5	20	52
CD **036**	3.6	20	52
CD **037**	3.7	20	52
CD **038**	3.8	22	55
CD **039**	3.9	22	55
CD **040**	4.0	22	55
CD **041**	4.1	22	55
CD **042**	4.2	22	55
CD **043**	4.3	24	58
CD **044**	4.4	24	58
CD **045**	4.5	24	58
CD **046**	4.6	24	58
CD **047**	4.7	24	58
CD **048**	4.8	26	62
CD **049**	4.9	26	62
CD **050**	5.0	26	62
CD **051**	5.1	26	62
CD **052**	5.2	26	62
CD **053**	5.3	26	62
CD **054**	5.4	28	66

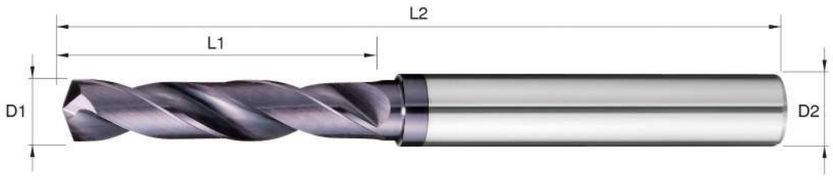
Order No.	Dia D1	Flute Length L1	O.A.L. L2
CD **055**	5.5	28	66
CD **056**	5.6	28	66
CD **057**	5.7	28	66
CD **058**	5.8	28	66
CD **059**	5.9	28	66
CD **060**	6.0	28	66
CD **061**	6.1	31	70
CD **062**	6.2	31	70
CD **063**	6.3	31	70
CD **064**	6.4	31	70
CD **065**	6.5	31	70
CD **066**	6.6	31	70
CD **067**	6.7	31	70
CD **068**	6.8	34	74
CD **069**	6.9	34	74
CD **070**	7.0	34	74
CD **071**	7.1	34	74
CD **072**	7.2	34	74
CD **073**	7.3	34	74
CD **074**	7.4	34	74
CD **075**	7.5	34	74
CD **076**	7.6	37	79
CD **077**	7.7	37	79
CD **078**	7.8	37	79
CD **079**	7.9	37	79
CD **080**	8.0	37	79
CD **081**	8.1	37	79
CD **082**	8.2	37	79
CD **083**	8.3	37	79
CD **084**	8.4	37	79
CD **085**	8.5	37	79
CD **086**	8.6	40	84
CD **087**	8.7	40	84
CD **088**	8.8	40	84
CD **089**	8.9	40	84

Order No.	Dia D1	Flute Length L1	O.A.L. L2
CD **090**	9.0	40	84
CD **091**	9.1	40	84
CD **092**	9.2	40	84
CD **093**	9.3	40	84
CD **094**	9.4	40	84
CD **095**	9.5	40	84
CD **096**	9.6	43	89
CD **097**	9.7	43	89
CD **098**	9.8	43	89
CD **099**	9.9	43	89
CD **100**	10.0	43	89
CD **102**	10.2	43	89
CD **105**	10.5	43	89
CD **110**	11.0	47	95
CD **115**	11.5	47	95
CD **120**	12.0	51	102
CD **125**	12.5	51	102
CD **130**	13.0	51	102

CDA

MG | DIN 6537 | 30° | h6 | h7 | 140° | TiAlN | 3xD | Finishing Semi-Finishing | Cutting Data P.253

Carbide drills series / Carbide Drills H P K



- **FEATURES**
  - Allow stable chip formation to prevent cutting edge from cracking.
  - Special flute shape design can make chips into small pieces and remove chips quickly.

unit: mm

Order No.	Dia D1	Flute Length L1	Overall Length L2	Shank Dia D2
CDA **030**	3.0	20	62	6.0
CDA **031**	3.1	20	62	6.0
CDA **032**	3.2	20	62	6.0
CDA **033**	3.3	20	62	6.0
CDA **034**	3.4	20	62	6.0
CDA **035**	3.5	20	62	6.0
CDA **036**	3.6	20	62	6.0
CDA **037**	3.7	20	62	6.0
CDA **038**	3.8	24	66	6.0
CDA **039**	3.9	24	66	6.0
CDA **040**	4.0	24	66	6.0
CDA **041**	4.1	24	66	6.0
CDA **042**	4.2	24	66	6.0
CDA **043**	4.3	24	66	6.0
CDA **044**	4.4	24	66	6.0
CDA **045**	4.5	24	66	6.0
CDA **046**	4.6	24	66	6.0
CDA **047**	4.7	24	66	6.0
CDA **048**	4.8	28	66	6.0
CDA **049**	4.9	28	66	6.0
CDA **050**	5.0	28	66	6.0
CDA **051**	5.1	28	66	6.0
CDA **052**	5.2	28	66	6.0
CDA **053**	5.3	28	66	6.0
CDA **054**	5.4	28	66	6.0
CDA **055**	5.5	28	66	6.0
CDA **056**	5.6	28	66	6.0
CDA **057**	5.7	28	66	6.0
CDA **058**	5.8	28	66	6.0
CDA **059**	5.9	28	66	6.0
CDA **060**	6.0	28	66	6.0
CDA **061**	6.1	34	79	8.0
CDA **062**	6.2	34	79	8.0
CDA **063**	6.3	34	79	8.0
CDA **064**	6.4	34	79	8.0

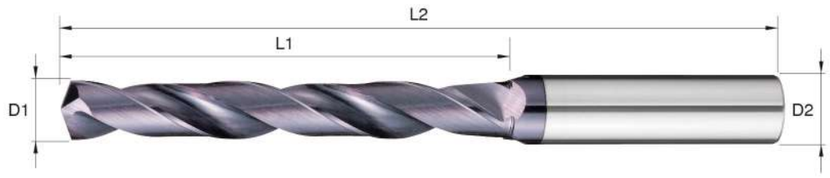
Order No.	Dia D1	Flute Length L1	Overall Length L2	Shank Dia D2
CDA **065**	6.5	34	79	8.0
CDA **066**	6.6	34	79	8.0
CDA **067**	6.7	34	79	8.0
CDA **068**	6.8	34	79	8.0
CDA **069**	6.9	34	79	8.0
CDA **070**	7.0	34	79	8.0
CDA **071**	7.1	41	79	8.0
CDA **072**	7.2	41	79	8.0
CDA **073**	7.3	41	79	8.0
CDA **074**	7.4	41	79	8.0
CDA **075**	7.5	41	79	8.0
CDA **076**	7.6	41	79	8.0
CDA **077**	7.7	41	79	8.0
CDA **078**	7.8	41	79	8.0
CDA **079**	7.9	41	79	8.0
CDA **080**	8.0	41	79	8.0
CDA **081**	8.1	47	89	10.0
CDA **082**	8.2	47	89	10.0
CDA **083**	8.3	47	89	10.0
CDA **084**	8.4	47	89	10.0
CDA **085**	8.5	47	89	10.0
CDA **086**	8.6	47	89	10.0
CDA **087**	8.7	47	89	10.0
CDA **088**	8.8	47	89	10.0
CDA **089**	8.9	47	89	10.0
CDA **090**	9.0	47	89	10.0
CDA **091**	9.1	47	89	10.0
CDA **092**	9.2	47	89	10.0
CDA **093**	9.3	47	89	10.0
CDA **094**	9.4	47	89	10.0
CDA **095**	9.5	47	89	10.0
CDA **096**	9.6	47	89	10.0
CDA **097**	9.7	47	89	10.0
CDA **098**	9.8	47	89	10.0
CDA **099**	9.9	47	89	10.0

Order No.	Dia D1	Flute Length L1	Overall Length L2	Shank Dia D2
CDA **100**	10.0	47	89	10.0
CDA **101**	10.1	55	102	12.0
CDA **102**	10.2	55	102	12.0
CDA **103**	10.3	55	102	12.0
CDA **104**	10.4	55	102	12.0
CDA **105**	10.5	55	102	12.0
CDA **106**	10.6	55	102	12.0
CDA **107**	10.7	55	102	12.0
CDA **108**	10.8	55	102	12.0
CDA **109**	10.9	55	102	12.0
CDA **110**	11.0	55	102	12.0
CDA **111**	11.1	55	102	12.0
CDA **112**	11.2	55	102	12.0
CDA **113**	11.3	55	102	12.0
CDA **114**	11.4	55	102	12.0
CDA **115**	11.5	55	102	12.0
CDA **116**	11.6	55	102	12.0
CDA **117**	11.7	55	102	12.0
CDA **118**	11.8	55	102	12.0
CDA **119**	11.9	55	102	12.0
CDA **120**	12.0	55	102	12.0
CDA **125**	12.5	60	107	14.0
CDA **130**	13.0	60	107	14.0
CDA **135**	13.5	60	107	14.0
CDA **140**	14.0	60	107	14.0
CDA **145**	14.5	65	115	16.0
CDA **150**	15.0	65	115	16.0
CDA **155**	15.5	65	115	16.0
CDA **160**	16.0	65	115	16.0
CDA **165**	16.5	73	123	18.0
CDA **170**	17.0	73	123	18.0
CDA **175**	17.5	73	123	18.0
CDA **180**	18.0	73	123	18.0
CDA **185**	18.5	79	131	20.0
CDA **190**	19.0	79	131	20.0
CDA **195**	19.5	79	131	20.0
CDA **200**	20.0	79	131	20.0

CDB

MG | DIN 6537 | 30° | h6 | h7 | 140° | TiAlN | 5xD | Finishing Semi-Finishing | Cutting Data P.253

Carbide drills series / Carbide Drills H P K



- **FEATURES**
  - Allow stable chip formation to prevent cutting edge from cracking.
  - Special flute shape design can make chips into small pieces and remove chips quickly.

unit: mm

Order No.	Dia D1	Flute Length L1	Overall Length L2	Shank Dia D2
CDB **030**	3.0	28	66	6.0
CDB **031**	3.1	28	66	6.0
CDB **032**	3.2	28	66	6.0
CDB **033**	3.3	28	66	6.0
CDB **034**	3.4	28	66	6.0
CDB **035**	3.5	28	66	6.0
CDB **036**	3.6	28	66	6.0
CDB **037**	3.7	28	66	6.0
CDB **038**	3.8	36	74	6.0
CDB **039**	3.9	36	74	6.0
CDB **040**	4.0	36	74	6.0
CDB **041**	4.1	36	74	6.0
CDB **042**	4.2	36	74	6.0
CDB **043**	4.3	36	74	6.0
CDB **044**	4.4	36	74	6.0
CDB **045**	4.5	36	74	6.0
CDB **046**	4.6	36	74	6.0
CDB **047**	4.7	36	74	6.0
CDB **048**	4.8	44	82	6.0
CDB **049**	4.9	44	82	6.0
CDB **050**	5.0	44	82	6.0
CDB **051**	5.1	44	82	6.0
CDB **052**	5.2	44	82	6.0
CDB **053**	5.3	44	82	6.0
CDB **054**	5.4	44	82	6.0
CDB **055**	5.5	44	82	6.0
CDB **056**	5.6	44	82	6.0
CDB **057**	5.7	44	82	6.0
CDB **058**	5.8	44	82	6.0
CDB **059**	5.9	44	82	6.0
CDB **060**	6.0	44	82	6.0
CDB **061**	6.1	53	91	8.0
CDB **062**	6.2	53	91	8.0
CDB **063**	6.3	53	91	8.0
CDB **064**	6.4	53	91	8.0

Order No.	Dia D1	Flute Length L1	Overall Length L2	Shank Dia D2
CDB **065**	6.5	53	91	8.0
CDB **066**	6.6	53	91	8.0
CDB **067**	6.7	53	91	8.0
CDB **068**	6.8	53	91	8.0
CDB **069**	6.9	53	91	8.0
CDB **070**	7.0	53	91	8.0
CDB **071**	7.1	53	91	8.0
CDB **072**	7.2	53	91	8.0
CDB **073**	7.3	53	91	8.0
CDB **074**	7.4	53	91	8.0
CDB **075**	7.5	53	91	8.0
CDB **076**	7.6	53	91	8.0
CDB **077**	7.7	53	91	8.0
CDB **078**	7.8	53	91	8.0
CDB **079**	7.9	53	91	8.0
CDB **080**	8.0	53	91	8.0
CDB **081**	8.1	61	103	10.0
CDB **082**	8.2	61	103	10.0
CDB **083**	8.3	61	103	10.0
CDB **084**	8.4	61	103	10.0
CDB **085**	8.5	61	103	10.0
CDB **086**	8.6	61	103	10.0
CDB **087**	8.7	61	103	10.0
CDB **088**	8.8	61	103	10.0
CDB **089**	8.9	61	103	10.0
CDB **090**	9.0	61	103	10.0
CDB **091**	9.1	61	103	10.0
CDB **092**	9.2	61	103	10.0
CDB **093**	9.3	61	103	10.0
CDB **094**	9.4	61	103	10.0
CDB **095**	9.5	61	103	10.0
CDB **096**	9.6	61	103	10.0
CDB **097**	9.7	61	103	10.0
CDB **098**	9.8	61	103	10.0
CDB **099**	9.9	61	103	10.0

Order No.	Dia D1	Flute Length L1	Overall Length L2	Shank Dia D2
CDB **100**	10.0	61	103	10.0
CDB **101**	10.1	71	118	12.0
CDB **102**	10.2	71	118	12.0
CDB **103**	10.3	71	118	12.0
CDB **104**	10.4	71	118	12.0
CDB **105**	10.5	71	118	12.0
CDB **106**	10.6	71	118	12.0
CDB **107**	10.7	71	118	12.0
CDB **108**	10.8	71	118	12.0
CDB **109**	10.9	71	118	12.0
CDB **110**	11.0	71	118	12.0
CDB **111**	11.1	71	118	12.0
CDB **112**	11.2	71	118	12.0
CDB **113**	11.3	71	118	12.0
CDB **114**	11.4	71	118	12.0
CDB **115**	11.5	71	118	12.0
CDB **116**	11.6	71	118	12.0
CDB **117**	11.7	71	118	12.0
CDB **118**	11.8	71	118	12.0
CDB **119**	11.9	71	118	12.0
CDB **120**	12.0	71	118	12.0
CDB **125**	12.5	77	124	14.0
CDB **130**	13.0	77	124	14.0
CDB **135**	13.5	77	124	14.0
CDB **140**	14.0	77	124	14.0
CDB **145**	14.5	83	133	16.0
CDB **150**	15.0	83	133	16.0
CDB **155**	15.5	83	133	16.0
CDB **160**	16.0	83	133	16.0
CDB **165**	16.5	93	143	18.0
CDB **170**	17.0	93	143	18.0
CDB **175**	17.5	93	143	18.0
CDB **180**	18.0	93	143	18.0
CDB **185**	18.5	101	153	20.0
CDB **190**	19.0	101	153	20.0
CDB **195**	19.5	101	153	20.0
CDB **200**	20.0	101	153	20.0

CDC

MG | DIN 6537 | 30° | h6 | h7 | 140° | TiAlN | 8xD | Finishing Semi-Finishing | Cutting Data P.253

Carbide drills series / Carbide Drills H P K

- **FEATURES**
  - Allow stable chip formation to prevent cutting edge from cracking.
  - Special flute shape design can make chips into small pieces and remove chips quickly.

unit: mm

Order No.	Dia D1	Flute Length L1	Overall Length L2	Shank Dia D2
CDC **030**	3.0	34	72	6.0
CDC **031**	3.1	34	72	6.0
CDC **032**	3.2	34	72	6.0
CDC **033**	3.3	34	72	6.0
CDC **034**	3.4	34	72	6.0
CDC **035**	3.5	34	72	6.0
CDC **036**	3.6	34	72	6.0
CDC **037**	3.7	34	72	6.0
CDC **038**	3.8	43	81	6.0
CDC **039**	3.9	43	81	6.0
CDC **040**	4.0	43	81	6.0
CDC **041**	4.1	43	81	6.0
CDC **042**	4.2	43	81	6.0
CDC **043**	4.3	43	81	6.0
CDC **044**	4.4	43	81	6.0
CDC **045**	4.5	43	81	6.0
CDC **046**	4.6	43	81	6.0
CDC **047**	4.7	43	81	6.0
CDC **048**	4.8	57	95	6.0
CDC **049**	4.9	57	95	6.0
CDC **050**	5.0	57	95	6.0
CDC **051**	5.1	57	95	6.0
CDC **052**	5.2	57	95	6.0
CDC **053**	5.3	57	95	6.0
CDC **054**	5.4	57	95	6.0
CDC **055**	5.5	57	95	6.0
CDC **056**	5.6	57	95	6.0
CDC **057**	5.7	57	95	6.0
CDC **058**	5.8	57	95	6.0
CDC **059**	5.9	57	95	6.0
CDC **060**	6.0	57	95	6.0
CDC **061**	6.1	76	114	8.0
CDC **062**	6.2	76	114	8.0
CDC **063**	6.3	76	114	8.0
CDC **064**	6.4	76	114	8.0

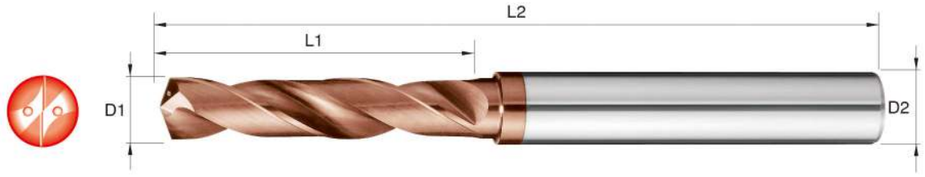
Order No.	Dia D1	Flute Length L1	Overall Length L2	Shank Dia D2
CDC **065**	6.5	76	114	8.0
CDC **066**	6.6	76	114	8.0
CDC **067**	6.7	76	114	8.0
CDC **068**	6.8	76	114	8.0
CDC **069**	6.9	76	114	8.0
CDC **070**	7.0	76	114	8.0
CDC **071**	7.1	76	114	8.0
CDC **072**	7.2	76	114	8.0
CDC **073**	7.3	76	114	8.0
CDC **074**	7.4	76	114	8.0
CDC **075**	7.5	76	114	8.0
CDC **076**	7.6	76	114	8.0
CDC **077**	7.7	76	114	8.0
CDC **078**	7.8	76	114	8.0
CDC **079**	7.9	76	114	8.0
CDC **080**	8.0	76	114	8.0
CDC **081**	8.1	95	142	10.0
CDC **082**	8.2	95	142	10.0
CDC **083**	8.3	95	142	10.0
CDC **084**	8.4	95	142	10.0
CDC **085**	8.5	95	142	10.0
CDC **086**	8.6	95	142	10.0
CDC **087**	8.7	95	142	10.0
CDC **088**	8.8	95	142	10.0
CDC **089**	8.9	95	142	10.0
CDC **090**	9.0	95	142	10.0
CDC **091**	9.1	95	142	10.0
CDC **092**	9.2	95	142	10.0
CDC **093**	9.3	95	142	10.0
CDC **094**	9.4	95	142	10.0
CDC **095**	9.5	95	142	10.0
CDC **096**	9.6	95	142	10.0
CDC **097**	9.7	95	142	10.0
CDC **098**	9.8	95	142	10.0
CDC **099**	9.9	95	142	10.0

Order No.	Dia D1	Flute Length L1	Overall Length L2	Shank Dia D2
CDC **100**	10.0	95	142	10.0
CDC **101**	10.1	114	162	12.0
CDC **102**	10.2	114	162	12.0
CDC **103**	10.3	114	162	12.0
CDC **104**	10.4	114	162	12.0
CDC **105**	10.5	114	162	12.0
CDC **106**	10.6	114	162	12.0
CDC **107**	10.7	114	162	12.0
CDC **108**	10.8	114	162	12.0
CDC **109**	10.9	114	162	12.0
CDC **110**	11.0	114	162	12.0
CDC **111**	11.1	114	162	12.0
CDC **112**	11.2	114	162	12.0
CDC **113**	11.3	114	162	12.0
CDC **114**	11.4	114	162	12.0
CDC **115**	11.5	114	162	12.0
CDC **116**	11.6	114	162	12.0
CDC **117**	11.7	114	162	12.0
CDC **118**	11.8	114	162	12.0
CDC **119**	11.9	114	162	12.0
CDC **120**	12.0	114	162	12.0

CDAC

MG | DIN 6537 | 30° | h6 | h7 | 140° | i8 | 3xD | Finishing Semi-Finishing | Cutting Data P.253

Carbide drills series / Internal coolant / Carbide Drills H P K



- **FEATURES**
  - Allow stable chip formation to prevent cutting edge from cracking.
  - Special flute shape design can make chips into small pieces and remove chips quickly.
  - Double helix coolant hole to bring down machining temperature and help chip removal.

unit: mm

Order No.	Dia D1	Flute Length L1	Overall Length L2	Shank Dia D2
CDAC **030**	3.0	20	62	6.0
CDAC **031**	3.1	20	62	6.0
CDAC **032**	3.2	20	62	6.0
CDAC **033**	3.3	20	62	6.0
CDAC **034**	3.4	20	62	6.0
CDAC **035**	3.5	20	62	6.0
CDAC **036**	3.6	20	62	6.0
CDAC **037**	3.7	20	62	6.0
CDAC **038**	3.8	24	66	6.0
CDAC **039**	3.9	24	66	6.0
CDAC **040**	4.0	24	66	6.0
CDAC **041**	4.1	24	66	6.0
CDAC **042**	4.2	24	66	6.0
CDAC **043**	4.3	24	66	6.0
CDAC **044**	4.4	24	66	6.0
CDAC **045**	4.5	24	66	6.0
CDAC **046**	4.6	24	66	6.0
CDAC **047**	4.7	24	66	6.0
CDAC **048**	4.8	28	66	6.0
CDAC **049**	4.9	28	66	6.0
CDAC **050**	5.0	28	66	6.0
CDAC **051**	5.1	28	66	6.0
CDAC **052**	5.2	28	66	6.0
CDAC **053**	5.3	28	66	6.0
CDAC **054**	5.4	28	66	6.0
CDAC **055**	5.5	28	66	6.0
CDAC **056**	5.6	28	66	6.0
CDAC **057**	5.7	28	66	6.0
CDAC **058**	5.8	28	66	6.0
CDAC **059**	5.9	28	66	6.0
CDAC **060**	6.0	28	66	6.0
CDAC **061**	6.1	34	79	8.0
CDAC **062**	6.2	34	79	8.0
CDAC **063**	6.3	34	79	8.0
CDAC **064**	6.4	34	79	8.0

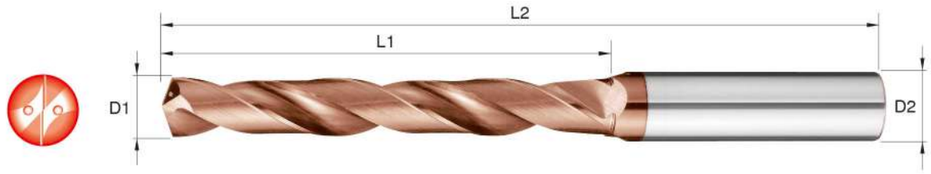
Order No.	Dia D1	Flute Length L1	Overall Length L2	Shank Dia D2
CDAC **065**	6.5	34	79	8.0
CDAC **066**	6.6	34	79	8.0
CDAC **067**	6.7	34	79	8.0
CDAC **068**	6.8	34	79	8.0
CDAC **069**	6.9	34	79	8.0
CDAC **070**	7.0	34	79	8.0
CDAC **071**	7.1	41	79	8.0
CDAC **072**	7.2	41	79	8.0
CDAC **073**	7.3	41	79	8.0
CDAC **074**	7.4	41	79	8.0
CDAC **075**	7.5	41	79	8.0
CDAC **076**	7.6	41	79	8.0
CDAC **077**	7.7	41	79	8.0
CDAC **078**	7.8	41	79	8.0
CDAC **079**	7.9	41	79	8.0
CDAC **080**	8.0	41	79	8.0
CDAC **081**	8.1	47	89	10.0
CDAC **082**	8.2	47	89	10.0
CDAC **083**	8.3	47	89	10.0
CDAC **084**	8.4	47	89	10.0
CDAC **085**	8.5	47	89	10.0
CDAC **086**	8.6	47	89	10.0
CDAC **087**	8.7	47	89	10.0
CDAC **088**	8.8	47	89	10.0
CDAC **089**	8.9	47	89	10.0
CDAC **090**	9.0	47	89	10.0
CDAC **091**	9.1	47	89	10.0
CDAC **092**	9.2	47	89	10.0
CDAC **093**	9.3	47	89	10.0
CDAC **094**	9.4	47	89	10.0
CDAC **095**	9.5	47	89	10.0
CDAC **096**	9.6	47	89	10.0
CDAC **097**	9.7	47	89	10.0
CDAC **098**	9.8	47	89	10.0
CDAC **099**	9.9	47	89	10.0

Order No.	Dia D1	Flute Length L1	Overall Length L2	Shank Dia D2
CDAC **100**	10.0	47	89	10.0
CDAC **101**	10.1	55	102	12.0
CDAC **102**	10.2	55	102	12.0
CDAC **103**	10.3	55	102	12.0
CDAC **104**	10.4	55	102	12.0
CDAC **105**	10.5	55	102	12.0
CDAC **106**	10.6	55	102	12.0
CDAC **107**	10.7	55	102	12.0
CDAC **108**	10.8	55	102	12.0
CDAC **109**	10.9	55	102	12.0
CDAC **110**	11.0	55	102	12.0
CDAC **111**	11.1	55	102	12.0
CDAC **112**	11.2	55	102	12.0
CDAC **113**	11.3	55	102	12.0
CDAC **114**	11.4	55	102	12.0
CDAC **115**	11.5	55	102	12.0
CDAC **116**	11.6	55	102	12.0
CDAC **117**	11.7	55	102	12.0
CDAC **118**	11.8	55	102	12.0
CDAC **119**	11.9	55	102	12.0
CDAC **120**	12.0	55	102	12.0
CDAC **125**	12.5	60	107	14.0
CDAC **130**	13.0	60	107	14.0
CDAC **135**	13.5	60	107	14.0
CDAC **140**	14.0	60	107	14.0
CDAC **145**	14.5	65	115	16.0
CDAC **150**	15.0	65	115	16.0
CDAC **155**	15.5	65	115	16.0
CDAC **160**	16.0	65	115	16.0
CDAC **165**	16.5	73	123	18.0
CDAC **170**	17.0	73	123	18.0
CDAC **175**	17.5	73	123	18.0
CDAC **180**	18.0	73	123	18.0
CDAC **185**	18.5	79	131	20.0
CDAC **190**	19.0	79	131	20.0
CDAC **195**	19.5	79	131	20.0
CDAC **200**	20.0	79	131	20.0

CDBC

MG | DIN 6537 | 30° | h6 | h7 | 140° | i8 | 5xD | Finishing Semi-Finishing | Cutting Data P.253

Carbide drills series / Internal coolant / Carbide Drills H P K



- **FEATURES**
  - Allow stable chip formation to prevent cutting edge from cracking.
  - Special flute shape design can make chips into small pieces and remove chips quickly.
  - Double helix coolant hole to bring down machining temperature and help chip removal.

unit: mm

Order No.	Dia D1	Flute Length L1	Overall Length L2	Shank Dia D2
CDBC **030**	3.0	28	66	6.0
CDBC **031**	3.1	28	66	6.0
CDBC **032**	3.2	28	66	6.0
CDBC **033**	3.3	28	66	6.0
CDBC **034**	3.4	28	66	6.0
CDBC **035**	3.5	28	66	6.0
CDBC **036**	3.6	28	66	6.0
CDBC **037**	3.7	28	66	6.0
CDBC **038**	3.8	36	74	6.0
CDBC **039**	3.9	36	74	6.0
CDBC **040**	4.0	36	74	6.0
CDBC **041**	4.1	36	74	6.0
CDBC **042**	4.2	36	74	6.0
CDBC **043**	4.3	36	74	6.0
CDBC **044**	4.4	36	74	6.0
CDBC **045**	4.5	36	74	6.0
CDBC **046**	4.6	36	74	6.0
CDBC **047**	4.7	36	74	6.0
CDBC **048**	4.8	44	82	6.0
CDBC **049**	4.9	44	82	6.0
CDBC **050**	5.0	44	82	6.0
CDBC **051**	5.1	44	82	6.0
CDBC **052**	5.2	44	82	6.0
CDBC **053**	5.3	44	82	6.0
CDBC **054**	5.4	44	82	6.0
CDBC **055**	5.5	44	82	6.0
CDBC **056**	5.6	44	82	6.0
CDBC **057**	5.7	44	82	6.0
CDBC **058**	5.8	44	82	6.0
CDBC **059**	5.9	44	82	6.0
CDBC **060**	6.0	44	82	6.0
CDBC **061**	6.1	53	91	8.0
CDBC **062**	6.2	53	91	8.0
CDBC **063**	6.3	53	91	8.0
CDBC **064**	6.4	53	91	8.0

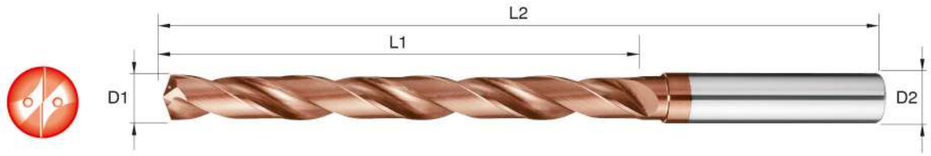
Order No.	Dia D1	Flute Length L1	Overall Length L2	Shank Dia D2
CDBC **065**	6.5	53	91	8.0
CDBC **066**	6.6	53	91	8.0
CDBC **067**	6.7	53	91	8.0
CDBC **068**	6.8	53	91	8.0
CDBC **069**	6.9	53	91	8.0
CDBC **070**	7.0	53	91	8.0
CDBC **071**	7.1	53	91	8.0
CDBC **072**	7.2	53	91	8.0
CDBC **073**	7.3	53	91	8.0
CDBC **074**	7.4	53	91	8.0
CDBC **075**	7.5	53	91	8.0
CDBC **076**	7.6	53	91	8.0
CDBC **077**	7.7	53	91	8.0
CDBC **078**	7.8	53	91	8.0
CDBC **079**	7.9	53	91	8.0
CDBC **080**	8.0	53	91	8.0
CDBC **081**	8.1	61	103	10.0
CDBC **082**	8.2	61	103	10.0
CDBC **083**	8.3	61	103	10.0
CDBC **084**	8.4	61	103	10.0
CDBC **085**	8.5	61	103	10.0
CDBC **086**	8.6	61	103	10.0
CDBC **087**	8.7	61	103	10.0
CDBC **088**	8.8	61	103	10.0
CDBC **089**	8.9	61	103	10.0
CDBC **090**	9.0	61	103	10.0
CDBC **091**	9.1	61	103	10.0
CDBC **092**	9.2	61	103	10.0
CDBC **093**	9.3	61	103	10.0
CDBC **094**	9.4	61	103	10.0
CDBC **095**	9.5	61	103	10.0
CDBC **096**	9.6	61	103	10.0
CDBC **097**	9.7	61	103	10.0
CDBC **098**	9.8	61	103	10.0
CDBC **099**	9.9	61	103	10.0

Order No.	Dia D1	Flute Length L1	Overall Length L2	Shank Dia D2
CDBC **100**	10.0	61	103	10.0
CDBC **101**	10.1	71	118	12.0
CDBC **102**	10.2	71	118	12.0
CDBC **103**	10.3	71	118	12.0
CDBC **104**	10.4	71	118	12.0
CDBC **105**	10.5	71	118	12.0
CDBC **106**	10.6	71	118	12.0
CDBC **107**	10.7	71	118	12.0
CDBC **108**	10.8	71	118	12.0
CDBC **109**	10.9	71	118	12.0
CDBC **110**	11.0	71	118	12.0
CDBC **111**	11.1	71	118	12.0
CDBC **112**	11.2	71	118	12.0
CDBC **113**	11.3	71	118	12.0
CDBC **114**	11.4	71	118	12.0
CDBC **115**	11.5	71	118	12.0
CDBC **116**	11.6	71	118	12.0
CDBC **117**	11.7	71	118	12.0
CDBC **118**	11.8	71	118	12.0
CDBC **119**	11.9	71	118	12.0
CDBC **120**	12.0	71	118	12.0
CDBC **125**	12.5	77	124	14.0
CDBC **130**	13.0	77	124	14.0
CDBC **135**	13.5	77	124	14.0
CDBC **140**	14.0	77	124	14.0
CDBC **145**	14.5	83	133	16.0
CDBC **150**	15.0	83	133	16.0
CDBC **155**	15.5	83	133	16.0
CDBC **160**	16.0	83	133	16.0
CDBC **165**	16.5	93	143	18.0
CDBC **170**	17.0	93	143	18.0
CDBC **175**	17.5	93	143	18.0
CDBC **180**	18.0	93	143	18.0
CDBC **185**	18.5	101	153	20.0
CDBC **190**	19.0	101	153	20.0
CDBC **195**	19.5	101	153	20.0
CDBC **200**	20.0	101	153	20.0

CDCC

MG | DIN 6537 | 30° | h6 | h7 | 140° | i8 | 8xD | Finishing Semi-Finishing | Cutting Data P.253

Carbide drills series / Internal coolant / Carbide Drills H P K



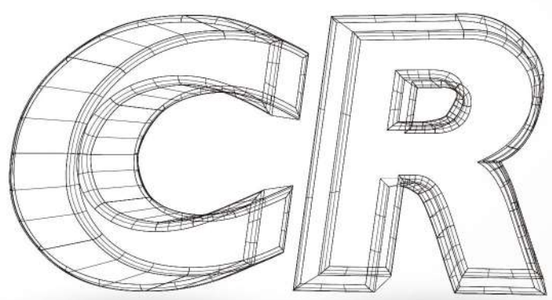
- **FEATURES**
  - Allow stable chip formation to prevent cutting edge from cracking.
  - Special flute shape design can make chips into small pieces and remove chips quickly.
  - Double helix coolant hole to bring down machining temperature and help chip removal.

- **ITEMS**

unit: mm

Order No.	Dia D1	Flute Length L1	Overall Length L2	Shank Dia D2
CDCC **030**	3.0	34	72	6.0
CDCC **031**	3.1	34	72	6.0
CDCC **032**	3.2	34	72	6.0
CDCC **033**	3.3	34	72	6.0
CDCC **034**	3.4	34	72	6.0
CDCC **035**	3.5	34	72	6.0
CDCC **036**	3.6	34	72	6.0
CDCC **037**	3.7	34	72	6.0
CDCC **038**	3.8	43	81	6.0
CDCC **039**	3.9	43	81	6.0
CDCC **040**	4.0	43	81	6.0
CDCC **041**	4.1	43	81	6.0
CDCC **042**	4.2	43	81	6.0
CDCC **043**	4.3	43	81	6.0
CDCC **044**	4.4	43	81	6.0
CDCC **045**	4.5	43	81	6.0
CDCC **046**	4.6	43	81	6.0
CDCC **047**	4.7	43	81	6.0
CDCC **048**	4.8	57	95	6.0
CDCC **049**	4.9	57	95	6.0
CDCC **050**	5.0	57	95	6.0
CDCC **051**	5.1	57	95	6.0
CDCC **052**	5.2	57	95	6.0
CDCC **053**	5.3	57	95	6.0
CDCC **054**	5.4	57	95	6.0
CDCC **055**	5.5	57	95	6.0
CDCC **056**	5.6	57	95	6.0
CDCC **057**	5.7	57	95	6.0
CDCC **058**	5.8	57	95	6.0
CDCC **059**	5.9	57	95	6.0
CDCC **060**	6.0	57	95	6.0
CDCC **061**	6.1	76	114	8.0
CDCC **062**	6.2	76	114	8.0
CDCC **063**	6.3	76	114	8.0
CDCC **064**	6.4	76	114	8.0

Order No.	Dia D1	Flute Length L1	Overall Length L2	Shank Dia D2
CDCC **065**	6.5	76	114	8.0
CDCC **066**	6.6	76	114	8.0
CDCC **067**	6.7	76	114	8.0
CDCC **068**	6.8	76	114	8.0
CDCC **069**	6.9	76	114	8.0
CDCC **070**	7.0	76	114	8.0
CDCC **071**	7.1	76	114	8.0
CDCC **072**	7.2	76	114	8.0
CDCC **073**	7.3	76	114	8.0
CDCC **074**	7.4	76	114	8.0
CDCC **075**	7.5	76	114	8.0
CDCC **076**	7.6	76	114	8.0
CDCC **077**	7.7	76	114	8.0
CDCC **078**	7.8	76	114	8.0
CDCC **079**	7.9	76	114	8.0
CDCC **080**	8.0	76	114	8.0
CDCC **081**	8.1	95	142	10.0
CDCC **082**	8.2	95	142	10.0
CDCC **083**	8.3	95	142	10.0
CDCC **084**	8.4	95	142	10.0
CDCC **085**	8.5	95	142	10.0
CDCC **086**	8.6	95	142	10.0
CDCC **087**	8.7	95	142	10.0
CDCC **088**	8.8	95	142	10.0
CDCC **089**	8.9	95	142	10.0
CDCC **090**	9.0	95	142	10.0
CDCC **091**	9.1	95	142	10.0
CDCC **092**	9.2	95	142	10.0
CDCC **093**	9.3	95	142	10.0
CDCC **094**	9.4	95	142	10.0
CDCC **095**	9.5	95	142	10.0
CDCC **096**	9.6	95	142	10.0
CDCC **097**	9.7	95	142	10.0
CDCC **098**	9.8	95	142	10.0
CDCC **099**	9.9	95	142	10.0
CDCC **100**	10.0	95	142	10.0



CARBIDE REAMERS SERIES

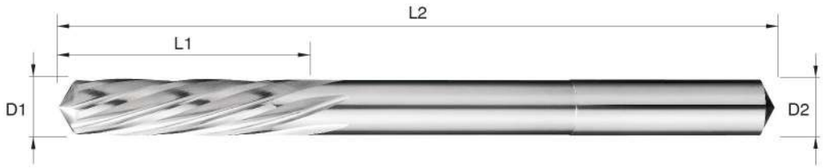
CR

CRA

MG | 7° | m5 | HRC 45 | Finishing | Cutting Data P.253

Carbide reamers series / Carbide Reamers

H P K



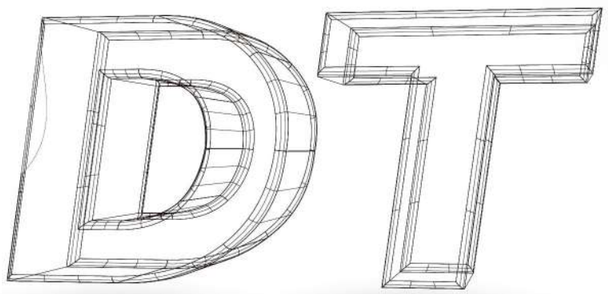
- **FEATURES**
  - The cutting edge with designed angles to reduce cutting force for better anti-vibration.
  - Precision ground cutting edge for higher accuracy. Fine surface after finishing.

unit: mm

Order No.	Dia D1	Flute Length L1	Overall Length L2	Flutes
CRA 020	2.0	11	49	4
CRA 021	2.1	11	49	4
CRA 022	2.2	12	53	4
CRA 023	2.3	12	53	4
CRA 024	2.4	14	57	4
CRA 025	2.5	14	57	4
CRA 026	2.6	14	57	4
CRA 027	2.7	15	61	4
CRA 028	2.8	15	61	4
CRA 029	2.9	15	61	4
CRA 030	3.0	15	61	4
CRA 031	3.1	16	65	4
CRA 032	3.2	16	65	4
CRA 033	3.3	16	65	4
CRA 034	3.4	18	70	4
CRA 035	3.5	18	70	4
CRA 036	3.6	18	70	4
CRA 037	3.7	18	70	4
CRA 038	3.8	19	75	4
CRA 039	3.9	19	75	4
CRA 040	4.0	19	75	4
CRA 041	4.1	19	75	4
CRA 042	4.2	19	75	4
CRA 043	4.3	21	80	4
CRA 044	4.4	21	80	4
CRA 045	4.5	21	80	4
CRA 046	4.6	21	80	6
CRA 047	4.7	21	80	6
CRA 048	4.8	23	86	6
CRA 049	4.9	23	86	6
CRA 050	5.0	23	86	6
CRA 051	5.1	23	86	6
CRA 052	5.2	23	86	6
CRA 053	5.3	23	86	6
CRA 054	5.4	26	93	6

Order No.	Dia D1	Flute Length L1	Overall Length L2	Flutes
CRA 055	5.5	26	93	6
CRA 056	5.6	26	93	6
CRA 057	5.7	26	93	6
CRA 058	5.8	26	93	6
CRA 059	5.9	26	93	6
CRA 060	6.0	26	93	6
CRA 061	6.1	28	101	6
CRA 062	6.2	28	101	6
CRA 063	6.3	28	101	6
CRA 064	6.4	28	101	6
CRA 065	6.5	28	101	6
CRA 066	6.6	28	101	6
CRA 067	6.7	31	101	6
CRA 068	6.8	31	109	6
CRA 069	6.9	31	109	6
CRA 070	7.0	31	109	6
CRA 071	7.1	31	109	6
CRA 072	7.2	31	109	6
CRA 073	7.3	31	109	6
CRA 074	7.4	31	109	6
CRA 075	7.5	31	109	6
CRA 076	7.6	33	117	6
CRA 077	7.7	33	117	6
CRA 078	7.8	33	117	6
CRA 079	7.9	33	117	6
CRA 080	8.0	33	117	6
CRA 081	8.1	33	117	6
CRA 082	8.2	33	117	6
CRA 083	8.3	33	117	6
CRA 084	8.4	33	117	6
CRA 085	8.5	33	117	6
CRA 086	8.6	36	125	6
CRA 087	8.7	36	125	6
CRA 088	8.8	36	125	6
CRA 089	8.9	36	125	6

Order No.	Dia D1	Flute Length L1	Overall Length L2	Flutes
CRA 090	9.0	36	125	6
CRA 091	9.1	36	125	6
CRA 092	9.2	36	125	6
CRA 093	9.3	36	125	6
CRA 094	9.4	36	125	6
CRA 095	9.5	36	125	6
CRA 096	9.6	38	133	6
CRA 097	9.7	38	133	6
CRA 098	9.8	38	133	6
CRA 099	9.9	38	133	6
CRA 100	10.0	38	133	6
CRA 101	10.1	38	133	6
CRA 102	10.2	38	133	6
CRA 103	10.3	38	133	6
CRA 104	10.4	38	133	6
CRA 105	10.5	38	133	6
CRA 106	10.6	38	133	6
CRA 107	10.7	41	142	6
CRA 108	10.8	41	142	6
CRA 109	10.9	41	142	6
CRA 110	11.0	41	142	6
CRA 111	11.1	41	142	6
CRA 112	11.2	41	142	6
CRA 113	11.3	41	142	6
CRA 114	11.4	41	142	6
CRA 115	11.5	41	142	6
CRA 116	11.6	41	142	6
CRA 117	11.7	41	142	6
CRA 118	11.8	41	142	6
CRA 119	11.9	44	151	6
CRA 120	12.0	44	151	6



DENTAL END MILLS

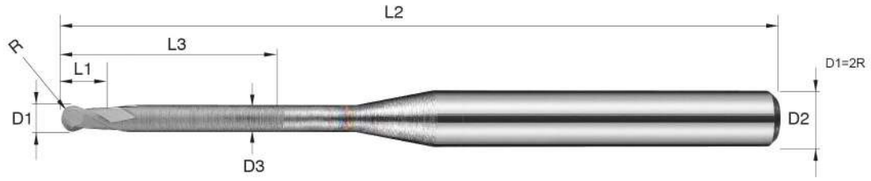
DEN.pro

DT DEN.pro

TOBF

G MG | 2 | 30° | Diamond | Finishing Semi-Finishing

Dental end mills / 2 Flute / Long Neck / Ball Nose / for ZrO2



unit: mm

• ITEMS Order No.	Radius R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
TOBF **00610.3**	R0.3	0.56	2.5	10	50	3
TOBF **00812.3**	R0.4	0.76	3.0	12	50	3
TOBF **01016.3**	R0.5	0.95	4.0	16	50	3
TOBF **01018.3**	R0.5	0.95	4.0	18	50	3
TOBF **01518.3**	R0.75	1.45	4.0	18	50	3
TOBF **02020.3**	R1	1.92	4.5	20	50	3
TOBF **02025.3**	R1	1.92	4.5	25	50	3
TOBF **02522.3**	R1.25	2.40	4.5	22	50	3
TOBF **02525.3**	R1.25	2.40	4.5	25	50	3
TOBF **03025.3**	R1.5	2.90	6.0	25	50	3
TOBF **00610.4**	R0.3	0.56	2.5	10	50	4
TOBF **01018.4**	R0.5	0.95	4.0	18	50	4
TOBF **02020.4**	R1	1.92	4.5	20	50	4
TOBF **02522.4**	R1.25	2.40	4.5	22	50	4
TOBF **00610.6**	R0.3	0.56	2.5	10	50	6
TOBF **00812.6**	R0.4	0.76	3.0	12	50	6
TOBF **01016.6**	R0.5	0.95	4.0	16	50	6
TOBF **01018.6**	R0.5	0.95	4.0	18	50	6
TOBF **01518.6**	R0.75	1.45	4.0	18	50	6
TOBF **02020.6**	R1	1.92	4.5	20	50	6
TOBF **02025.6**	R1	1.92	4.5	25	50	6
TOBF **02522.6**	R1.25	2.40	4.5	22	50	6
TOBF **02525.6**	R1.25	2.40	4.5	25	50	6
TOBF **03025.6**	R1.5	2.90	6.0	25	50	6

DEN.pro

TTBF

T MG | 2 | 30° | G-plus | Finishing Semi-Finishing

Dental end mills / 2 Flute / Long Neck / Ball Nose / for CoCr . Titanium

unit: mm

• ITEMS	Order No.	Radius R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
	TTBF **00810.4**	R0.4	0.76	3.5	10	50	4
	TTBF **01012.4**	R0.5	0.95	3.5	12	50	4
	TTBF **01514.4**	R0.75	1.45	4.0	14	50	4
	TTBF **02016.4**	R1	1.92	4.0	16	50	4
	TTBF **02518.4**	R1.25	2.40	4.5	18	50	4
	TTBF **03022.4**	R1.5	2.90	5.5	22	50	4
	TTBF **00808.6**	R0.4	0.76	3.5	8	50	6
	TTBF **01008.6**	R0.5	0.95	3.5	8	50	6
	TTBF **01010.6**	R0.5	0.95	3.5	10	50	6
	TTBF **01012.6**	R0.5	0.95	3.5	12	50	6
	TTBF **01512.6**	R0.75	1.45	4.0	12	50	6
	TTBF **01516.6**	R0.75	1.45	4.0	16	50	6
	TTBF **02012.6**	R1	1.92	4.0	12	50	6
	TTBF **02016.6**	R1	1.92	4.0	16	50	6
	TTBF **02514.6**	R1.25	2.40	4.5	14	50	6
	TTBF **02518.6**	R1.25	2.40	4.5	18	50	6
	TTBF **03015.6**	R1.5	2.90	5.5	15	50	6
	TTBF **03017.6**	R1.5	2.90	5.5	17	50	6
	TTBF **03022.6**	R1.5	2.90	5.5	22	50	6

DEN.pro

TTFA

T MG | 2 | 35° | G-plus | Finishing Semi-Finishing

Dental end mills / 2 Flute / Long Neck / Square / for CoCr . Titanium

unit: mm

• ITEMS	Order No.	Diameter D1	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
	TTFA **00505.4**	0.5	0.46	1.0	5	50	4
	TTFA **00808.4**	0.8	0.76	1.2	8	50	4
	TTFA **00910.4**	0.9	0.85	1.2	10	50	4
	TTFA **01015.4**	1.0	0.95	1.5	15	50	4
	TTFA **01215.4**	1.2	1.15	1.5	15	50	4
	TTFA **01516.4**	1.5	1.45	2.0	16	50	4
	TTFA **01616.4**	1.6	1.54	2.5	16	50	4
	TTFA **01816.4**	1.8	1.92	2.5	16	50	4
	TTFA **02016.4**	2.0	1.92	3.0	16	50	4
	TTFA **02518.4**	2.5	2.40	3.0	18	50	4

DT DEN.pro

TTRA

T MG | 2 | 30° | R | G-plus | Finishing Semi-Finishing

Dental end mills / 2 Flute / Long Neck / Corner Radius / for CoCr . Titanium

unit: mm

• ITEMS

Order No.	Diameter D1	Corner R R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
TTRA **01015.4**	1.0	0.1	0.95	1.5	15	50	4
TTRA **01215.4**	1.2	0.1	1.15	1.5	15	50	4
TTRA **01516.4**	1.5	0.2	1.45	2.0	16	50	4
TTRA **01816.4**	1.8	0.2	1.73	2.5	16	50	4
TTRA **02016.4**	2.0	0.2	1.92	3.0	16	50	4
TTRA **02518.4**	2.5	0.2	2.40	3.0	18	50	4

DT

TTRB

T MG | 4 | 30° | R | G-plus | Finishing Semi-Finishing

Dental end mills / 4 Flute / Long Neck / Corner Radius / for CoCr . Titanium

unit: mm

• ITEMS

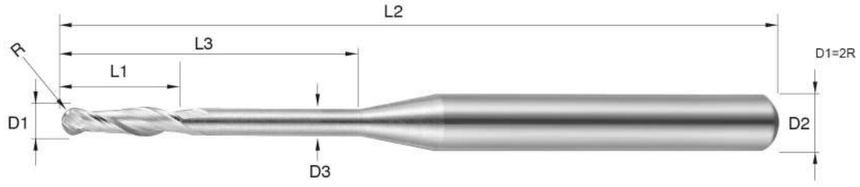
Order No.	Diameter D1	Corner R R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
TTRB **02012.6**	2.0	0.2	1.92	4.0	12	50	6
TTRB **03014.6**	3.0	0.3	2.90	5.0	14	50	6
TTRB **03018.6**	3.0	0.3	2.90	5.0	18	50	6
TTRB **04016.6**	4.0	0.4	3.88	6.0	16	50	6

DT DEN.pro

TWBF

T MG | 2 | 30° | Finishing Semi-Finishing

Dental end mills / 2 Flute / Long Neck / Ball Nose / for PMMA. Wax



unit: mm

• ITEMS

Order No.	Radius R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
TWBF **00812.4**	R0.4	0.76	3.5	12	50	4
TWBF **01016.4**	R0.5	0.95	3.5	16	50	4
TWBF **01518.4**	R0.75	1.45	4.0	18	50	4
TWBF **02020.4**	R1	1.92	4.0	20	50	4
TWBF **02525.4**	R1.25	2.40	4.5	25	50	4
TWBF **03025.4**	R1.5	2.90	5.5	25	50	4

Compatible with:

Amann Girrbach

TAZ

Order No.	Cut Diameter D1	Neck Length L3	O.A.L. L2	Shank Dia D2	End Type	Number of flutes	Coating	Application
TAZ-00610	0.6	10	47	3	Ball Nose	2	Diamond	Zirconia
TAZ-01016	1.0	16	47	3	Ball Nose	2	Diamond	Zirconia
TAZ-02518	2.5	18	47	3	Ball Nose	2	Diamond	Zirconia

unit: mm

TAT

Order No.	Cut Diameter D1	Neck Length L3	O.A.L. L2	Shank Dia D2	End Type	Number of flutes	Coating	Application
TAT-01008	1.0	8	43	3	Ball Nose	4	G-plus	CoCr./Titanium
TAT-02008	2.0	8	43	3	Ball Nose	4	G-plus	CoCr./Titanium

unit: mm

Compatible with:

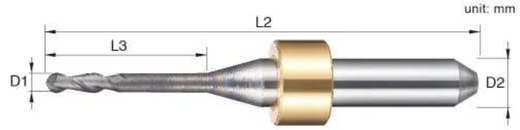
imes-icore

TIZ3

Order No.	Cut Diameter D1	Neck Length L3	O.A.L. L2	Shank Dia D2	End Type	Number of flutes	Coating	Application
TIZ3-00610	0.6	10	48	3	Ball Nose	2	Diamond	Zirconia
TIZ3-01016	1.0	16	48	3	Ball Nose	2	Diamond	Zirconia
TIZ3-02518	2.5	18	48	3	Ball Nose	2	Diamond	Zirconia

unit: mm

TIZ6



Order No.	Cut Diameter D1	Neck Length L3	O.A.L. L2	Shank Dia D2	End Type	Number of flutes	Coating	Application
TIZ6-01016	1.0	16	53	6	Ball Nose	2	Diamond	Zirconia
TIZ6-02520	2.5	20	53	6	Ball Nose	2	Diamond	Zirconia

unit: mm

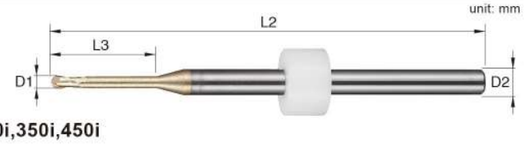
TIT6

Compatible with machine models / CORITEC 350i.450i(do).650i

Order No.	Cut Diameter D1	Neck Length L3	O.A.L. L2	Shank Dia D2	End Type	Number of flutes	Coating	Application
TIT6-00604	0.6	4	50	6	Ball Nose	2	G-plus	CoCr./Titanium
TIT6-01010	1.0	10	50	6	Ball Nose	2	G-plus	CoCr./Titanium
TIT6-01512	1.5	12	50	6	Ball Nose	2	G-plus	CoCr./Titanium
TIT6-02012	2.0	12	50	6	Ball Nose	2	G-plus	CoCr./Titanium
TIT6-03016	3.0	16	50	6	Ball Nose	2	G-plus	CoCr./Titanium

unit: mm

TIT3



Compatible with machine models / CORITEC one,150i,250i,350i,450i

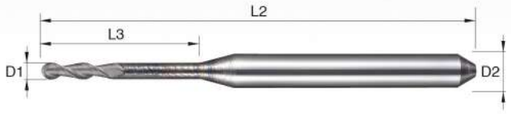
Order No.	Cut Diameter D1	Neck Length L3	O.A.L. L2	Shank Dia D2	End Type	Number of flutes	Coating	Application
TIT3-00616	0.6	16	50	3	Ball Nose	2	G-plus	CoCr./Titanium
TIT3-01010	1.0	10	50	3	Ball Nose	2	G-plus	CoCr./Titanium
TIT3-01512	1.5	12	50	3	Ball Nose	2	G-plus	CoCr./Titanium
TIT3-02012	2.0	12	50	3	Ball Nose	2	G-plus	CoCr./Titanium
TIT3-03016	3.0	16	50	3	Ball Nose	2	G-plus	CoCr./Titanium

unit: mm

Compatible with:

Roland

TRZ



Compatible with machine models / DWX-4/50/51/52

Order No.	Cut Diameter D1	Neck Length L3	O.A.L. L2	Shank Dia D2	End Type	Number of flutes	Coating	Application
TRZ-00610	0.6	10	50	4	Ball Nose	2	Diamond	Zirconia
TRZ-01014	1.0	14	50	4	Ball Nose	2	Diamond	Zirconia
TRZ-02018	2.0	18	50	4	Ball Nose	2	Diamond	Zirconia

unit: mm

TRT

Compatible with machine models / DWX-4/50/51/52

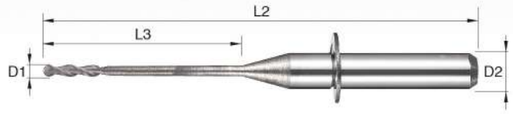
Order No.	Cut Diameter D1	Neck Length L3	O.A.L. L2	Shank Dia D2	End Type	Number of flutes	Coating	Application
TRT-00606	0.6	6	50	4	Ball Nose	2	G-plus	CoCr./Titanium
TRT-01012	1.0	12	50	4	Ball Nose	2	G-plus	CoCr./Titanium
TRT-02014	2.0	14	50	4	Ball Nose	2	G-plus	CoCr./Titanium

unit: mm

Compatible with:

vhf

TVZS

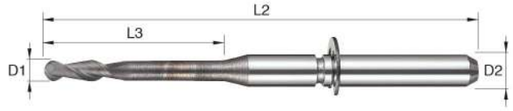


Compatible with machine models / K1,K3,K4,N4+,Z4

Order No.	Cut Diameter D1	Neck Length L3	O.A.L. L2	Shank Dia D2	End Type	Number of flutes	Coating	Application
TVZS-01016	1.0	16	35	3	Ball Nose	2	Diamond	Zirconia
TVZS-02018	2.0	18	35	3	Ball Nose	2	Diamond	Zirconia

unit: mm

TVZM



Compatible with machine models / S1,S2,S5,K5+,R5,E5

Order No.	Cut Diameter D1	Neck Length L3	O.A.L. L2	Shank Dia D2	End Type	Number of flutes	Coating	Application
TVZM-01016	1.0	16	40	3	Ball Nose	2	Diamond	Zirconia
TVZM-02020	2.0	20	40	3	Ball Nose	2	Diamond	Zirconia

unit: mm

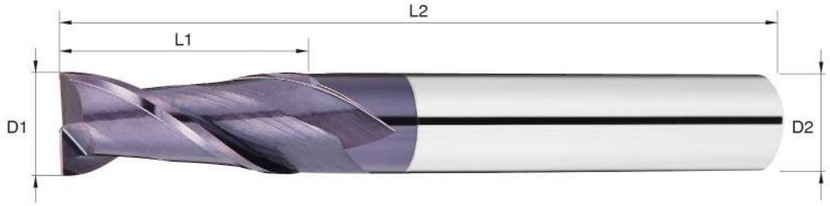
SOLID CARBIDE TOOLS

INCH SPECIFICATION

INCH IEA

MG | 2 | 35° | HRC 55 | TiaLN | Finishing / Semi-Finishing

Efficiency end mills series / 2 Flute / Square P K



- **FEATURES**
  - 2 Flute Square for up to HRC55.
  - Low/High alloy steel, cast steel, tool steel, and Cast iron.
  - TiaLN Coating for General steel.

- **ITEMS**

unit: inch

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
IEA **031A**	1/32	3/32	1-1/2	1/8
IEA **046A**	3/64	7/64	1-1/2	1/8
IEA **062A**	1/16	1/4	1-1/2	1/8
IEA **078A**	5/64	3/16	1-1/2	1/8
IEA **093A**	3/32	3/8	1-1/2	1/8
IEA **109A**	7/64	3/8	1-1/2	1/8
IEA **125A**	1/8	1/2	1-1/2	1/8
IEA **140A**	9/64	1/2	2	3/16
IEA **156A**	5/32	9/16	2	3/16
IEA **171A**	11/64	5/8	2	3/16
IEA **187A**	3/16	5/8	2	3/16
IEA **203A**	13/64	5/8	2-1/2	1/4
IEA **218A**	7/32	5/8	2-1/2	1/4
IEA **234A**	15/64	3/4	2-1/2	1/4
IEA **250A**	1/4	3/4	2-1/2	1/4
IEA **312A**	5/16	13/16	2-1/2	5/16
IEA **375A**	3/8	1	2-1/2	3/8
IEA **437A**	7/16	1	2-3/4	7/16
IEA **500A**	1/2	1	3	1/12
IEA **625A**	5/8	1-1/4	3-1/2	5/8
IEA **750A**	3/4	1-1/2	4	3/4

- **TOLERANCE**

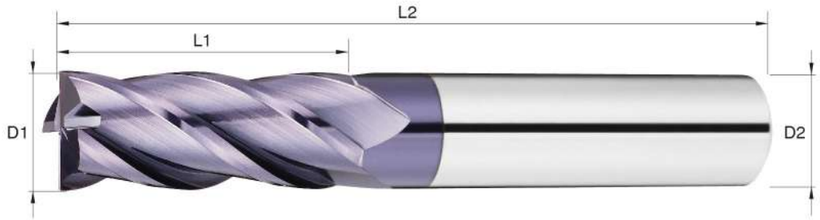
unit: inch

D1	Tolerance	D2	Tolerance
1/32 ~ 3/4	+0.000 / -0.0012	.1182 ~ 1.000	h6

INCH IEB

MG | 4 | 35° | HRC 55 | TiaLN | Finishing Semi-Finishing

Efficiency end mills series / 4 Flute / Square P K



- **FEATURES**
  - 4 Flute Square for up to HRC55.
  - Low/High alloy steel, cast steel, tool steel, and Cast iron.
  - TiaLN Coating for General steel.

- **ITEMS**

unit: inch

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
IEB **031A**	1/32	3/32	1-1/2	1/8
IEB **062A**	1/16	1/4	1-1/2	1/8
IEB **078A**	5/64	3/16	1-1/2	1/8
IEB **093A**	3/32	3/8	1-1/2	1/8
IEB **109A**	7/64	3/8	1-1/2	1/8
IEB **125A**	1/8	1/2	1-1/2	1/8
IEB **140A**	9/64	1/2	2	3/16
IEB **156A**	5/32	9/16	2	3/16
IEB **171A**	11/64	5/8	2	3/16
IEB **187A**	3/16	5/8	2	3/16
IEB **203A**	13/64	5/8	2-1/2	1/4
IEB **218A**	7/32	5/8	2-1/2	1/4
IEB **234A**	15/64	3/4	2-1/2	1/4
IEB **250A**	1/4	3/4	2-1/2	1/4
IEB **312A**	5/16	13/16	2-1/2	5/16
IEB **375A**	3/8	1	2-1/2	3/8
IEB **437A**	7/16	1	2-3/4	7/16
IEB **500A**	1/2	1	3	1/2
IEB **562A**	9/16	1-1/8	3-1/2	9/16
IEB **625A**	5/8	1-1/4	3-1/2	5/8
IEB **750A**	3/4	1-1/2	4	3/4

- **TOLERANCE**

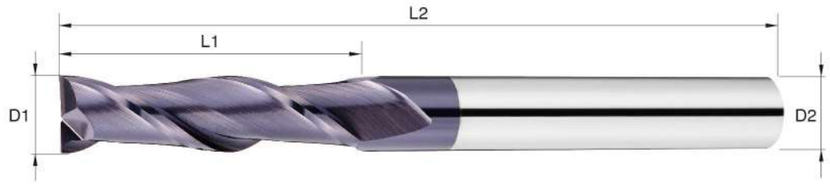
unit: inch

D1	Tolerance	D2	Tolerance
1/32 ~ 3/4	+0.000 / -0.0012	.1182 ~ 1.000	h6

INCH IELC

MG | 2 | 35° | HRC 55 | TiaLN | Finishing Semi-Finishing

Efficiency end mills series / 2 Flute / Long Flute / Square P K



- **FEATURES**
  - Long Flute 2 Flute Square for up to HRC55.
  - Extended flute length (L1) suitable for deep side milling.
  - TiaLN Coating for General steel.

- **ITEMS**

unit: inch

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
IELC **125A-S**	1/8	3/4	2	1/8
IELC **187A-L**	3/16	1-1/8	3	3/16
IELC **250A-S**	1/4	1-1/8	3	1/4
IELC **312A**	5/16	1-5/8	4	5/16
IELC **375A**	3/8	2	4	3/8
IELC **500A**	1/2	2	4	1/2
IELC **625A**	5/8	3	6	5/8
IELC **750A**	3/4	3	6	3/4

- **TOLERANCE**

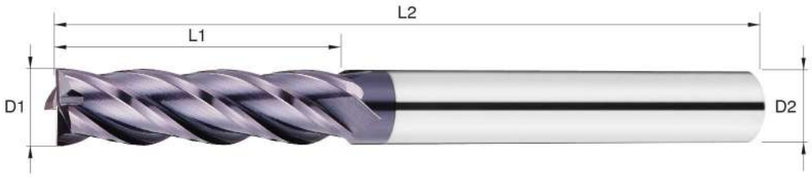
unit: inch

D1	Tolerance	D2	Tolerance
1/32 ~ 3/4	+0.000 / -0.0012	.1182 ~ 1.000	h6

INCH IELD

MG | 4 | 35° | HRC 55 | TiaLN | Finishing / Semi-Finishing

Efficiency end mills series / 4 Flute / Long Flute / Square P K



- **FEATURES**
  - Long Flute 4 Flute Square for up to HRC55.
  - Extended flute length (L1) suitable for deep side milling.
  - TiaLN Coating for General steel.

- **ITEMS**

unit: inch

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
IELD **062A**	1/16	0.312"	3	1/8
IELD **093A**	3/32	0.55"	3	1/8
IELD **125A-S**	1/8	3/4	2	1/8
IELD **156A**	5/32	1-1/8	3	3/16
IELD **187A-L**	3/16	1-1/8	3	3/16
IELD **250A-S**	1/4	1-1/8	3	1/4
IELD **312A**	5/16	1-5/8	4	5/16
IELD **375A**	3/8	2	4	3/8
IELD **500A**	1/2	2	4	1/2
IELD **625A**	5/8	3	6	5/8
IELD **750A**	3/4	3	6	3/4

- **TOLERANCE**

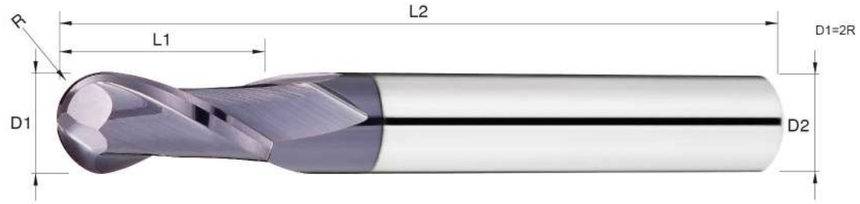
unit: inch

D1	Tolerance	D2	Tolerance
1/32 ~ 3/4	+0.000 / -0.0012	.1182 ~ 1.000	h6

INCH IBA

MG | 2 | 30° | HRC 55 | TiaLN | Finishing / Semi-Finishing

Efficiency end mills series / 2 Flute / Ball Nose P K



- **FEATURES**
  - 2 Flute Ball Nose for workpiece up to HRC55.
  - Low/High alloy steel, cast steel, tool steel, and Cast iron.
  - TiaLN Coating for General steel.

- **ITEMS**

unit: inch

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
IBA **125A**	1/8	1/2	1-1/2	1/8
IBA **156A**	5/32	9/16	2	3/16
IBA **187A**	3/16	5/8	2	3/16
IBA **218A**	7/32	5/8	2-1/2	1/4
IBA **250A**	1/4	3/4	2-1/2	1/4
IBA **312A**	5/16	13/16	2-1/2	5/16
IBA **375A**	3/8	1	2-1/2	3/8
IBA **437A**	7/16	1	2-3/4	7/16
IBA **500A**	1/2	1	3	1/2
IBA **625A**	5/8	1-1/4	3-1/2	5/8
IBA **750A**	3/4	1-1/4	4	3/4

- **TOLERANCE**

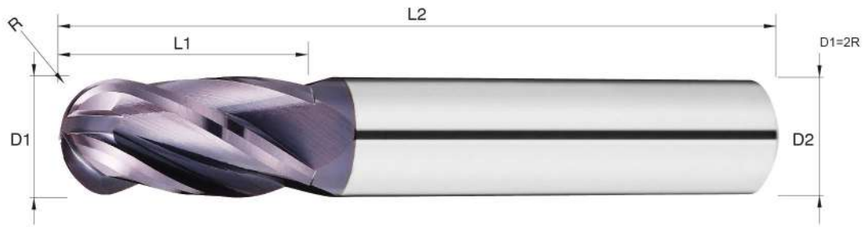
unit: inch

D1	Tolerance	D2	Tolerance
1/32 ~ 3/4	+0.000 / -0.0012	.1182 ~ 1.000	h6

INCH IBB

MG | 4 | 30° | HRC 55 | TiaLN | Finishing / Semi-Finishing

Efficiency end mills series / 4 Flute / Ball Nose P K



- **FEATURES**
  - 4 Flute Ball Nose for workpiece up to HRC55.
  - Low/High alloy steel, cast steel, tool steel, and Cast iron.
  - TiaLN Coating for General steel.

- **ITEMS**

unit: inch

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
IBB **046A**	3/64	7/64	1-1/2	1/8
IBB **062A**	1/16	1/4	1-1/2	1/8
IBB **125A**	1/8	1/2	1-1/2	1/8
IBB **156A**	5/32	9/16	2	3/16
IBB **187A**	3/16	5/8	2	3/16
IBB **218A**	7/32	5/8	2-1/2	1/4
IBB **250A**	1/4	3/4	2-1/2	1/4
IBB **312A**	5/16	13/16	2-1/2	5/16
IBB **375A**	3/8	1	2-1/2	3/8
IBB **437A**	7/16	1	2-3/4	7/16
IBB **500A**	1/2	1	3	1/2
IBB **625A**	5/8	1-1/4	3-1/2	5/8
IBB **750A**	3/4	1-1/2	4	3/4

- **TOLERANCE**

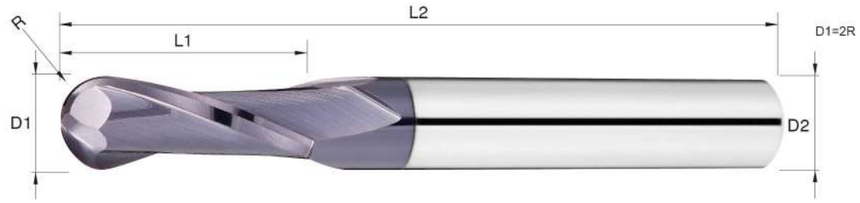
unit: inch

D1	Tolerance	D2	Tolerance
1/32 ~ 3/4	+0.000 / -0.0012	.1182 ~ 1.000	h6

INCH IBALF

MG | 2 | 30° | HRC 55 | TiaLN | Finishing / Semi-Finishing

Efficiency end mills series / 2 Flute / Ball Nose P K



- **FEATURES**
  - Long Flute 2 Flute Ball Nose for workpiece up to HRC55.
  - Low/High alloy steel, cast steel, tool steel, and Cast iron.
  - TiaLN Coating for General steel.

- **ITEMS**

unit: inch

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
IBALF **125A-S**	1/8	3/4	2	1/8
IBALF **187A-L**	3/16	1-1/8	3	3/16
IBALF **250A-S**	1/4	1-1/8	3	1/4
IBALF **312A**	5/16	1-5/8	4	5/16
IBALF **375A**	3/8	2	4	3/8
IBALF **500A**	1/2	2	4	1/2
IBALF **625A**	5/8	3	6	5/8
IBALF **750A**	3/4	3	6	3/4

- **TOLERANCE**

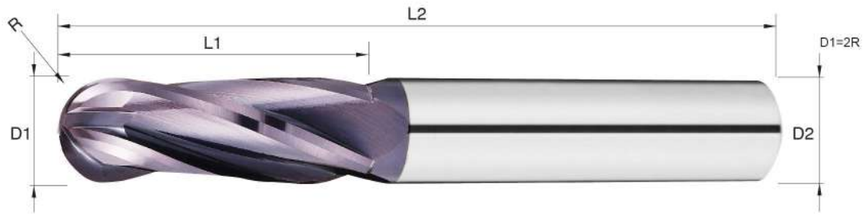
unit: inch

D1	Tolerance	D2	Tolerance
1/32 ~ 3/4	+0.000 / -0.0012	.1182 ~ 1.000	h6

INCH IBBLF

MG | 4 | 30° | HRC 55 | TiaLN | Finishing Semi-Finishing

Efficiency end mills series / 4 Flute / Ball Nose P K



- **FEATURES**
  - Long Flute 4 Flute Ball Nose for workpiece up to HRC55.
  - Low/High alloy steel, cast steel, tool steel, and Cast iron.
  - TiaLN Coating for General steel.

- **ITEMS**

unit: inch

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
IBBLF **125A-S**	1/8	3/4	2	1/8
IBBLF **187A-L**	3/16	1-1/8	3	3/16
IBBLF **250A-S**	1/4	1-1/8	3	1/4
IBBLF **312A**	5/16	1-5/8	4	5/16
IBBLF **375A**	3/8	2	4	3/8
IBBLF **500A**	1/2	2	4	1/2
IBBLF **625A**	5/8	3	6	5/8
IBBLF **750A**	3/4	3	6	3/4

- **TOLERANCE**

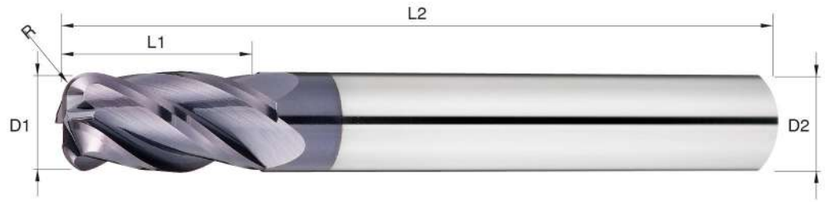
unit: inch

D1	Tolerance	D2	Tolerance
1/32 ~ 3/4	+0.000 / -0.0012	.1182 ~ 1.000	h6

INCH IRB

MG | 4 | 35° | R | HRC 55 | TiaLN | Finishing Semi-Finishing

Efficiency end mills series / 4 Flute / Corner Radius P K



- **FEATURES**
  - 4 Flute Corner Radius for up to HRC55.
  - Low/High alloy steel, cast steel, tool steel, and Cast iron.
  - TiaLN Coating for General steel.

- **ITEMS**

unit: inch

Order No.	Diameter D1	Corner R R	Flute Length L1	O.A.L. L2	Shank Dia D2
IRB **125R015**	1/8	0.015	1/2	1-1/2	1/8
IRB **125R030**	1/8	0.03	1/2	1-1/2	1/8
IRB **187R015**	3/16	0.015	5/8	2	3/16
IRB **187R030**	3/16	0.03	5/8	2	3/16
IRB **250R015**	1/4	0.015	3/4	2-1/2	1/4
IRB **250R030**	1/4	0.03	3/4	2-1/2	1/4
IRB **250R045**	1/4	0.045	3/4	2-1/2	1/4
IRB **312R015**	5/16	0.015	13/16	2-1/2	5/16
IRB **312R030**	5/16	0.03	13/16	2-1/2	5/16
IRB **312R045**	5/16	0.045	13/16	2-1/2	5/16
IRB **375R015**	3/8	0.015	1	2-1/2	3/8
IRB **375R030**	3/8	0.03	1	2-1/2	3/8
IRB **375R045**	3/8	0.045	1	2-1/2	3/8
IRB **375R060**	3/8	0.06	1	2-1/2	3/8
IRB **437R015**	7/16	0.015	1	2-3/4	7/16
IRB **437R030**	7/16	0.03	1	2-3/4	7/16
IRB **437R045**	7/16	0.045	1	2-3/4	7/16
IRB **437R060**	7/16	0.06	1	2-3/4	7/16
IRB **437R090**	7/16	0.09	1	2-3/4	7/16
IRB **500R015**	1/2	0.015	1	3	1/2
IRB **500R030**	1/2	0.03	1	3	1/2
IRB **500R045**	1/2	0.045	1	3	1/2
IRB **500R060**	1/2	0.06	1	3	1/2
IRB **500R090**	1/2	0.09	1	3	1/2
IRB **500R125**	1/2	0.125	1	3	1/2

- **TOLERANCE**

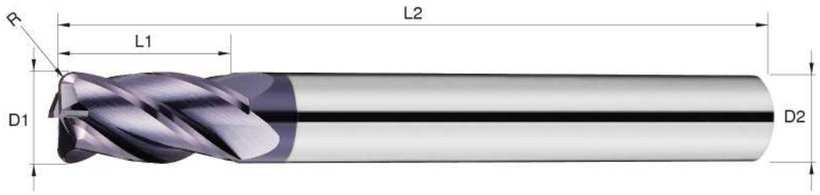
unit: inch

D1	Tolerance	D2	Tolerance
1/32 ~ 3/4	+0.000 / -0.0012	.1182 ~ 1.000	h6

INCH IRC

MG | 4 | 35° | R | HRC 55 | TiaLN | Finishing Semi-Finishing

Efficiency end mills series / 4 Flute / Long Shank Corner Radius P K



- **FEATURES**
  - Long shank 4 Flute Corner Radius for up to HRC55.
  - Extended overall length for greater depth of cut.
  - TiaLN Coating for General steel.

- **ITEMS**

unit: inch

Order No.	Diameter D1	Corner R R	Flute Length L1	O.A.L. L2	Shank Dia D2
IRC **250R020**	1/4	0.02	3/4	4	1/4
IRC **250R030**	1/4	0.03	3/4	4	1/4
IRC **250R045**	1/4	0.045	3/4	4	1/4
IRC **312R020**	5/16	0.02	13/16	4	5/16
IRC **312R030**	5/16	0.03	13/16	4	5/16
IRC **312R045**	5/16	0.045	13/16	4	5/16
IRC **375R020**	3/8	0.02	1	4	3/8
IRC **375R030**	3/8	0.03	1	4	3/8
IRC **375R045**	3/8	0.045	1	4	3/8
IRC **375R060**	3/8	0.06	1	4	3/8
IRC **375R090**	3/8	0.09	1	4	3/8
IRC **375R125**	3/8	0.125	1	4	3/8
IRC **500R020**	1/2	0.02	1	4	1/2
IRC **500R030**	1/2	0.03	1	4	1/2
IRC **500R045**	1/2	0.045	1	4	1/2
IRC **500R060**	1/2	0.06	1	4	1/2
IRC **500R090**	1/2	0.09	1	4	1/2
IRC **500R125**	1/2	0.125	1	4	1/2

- **TOLERANCE**

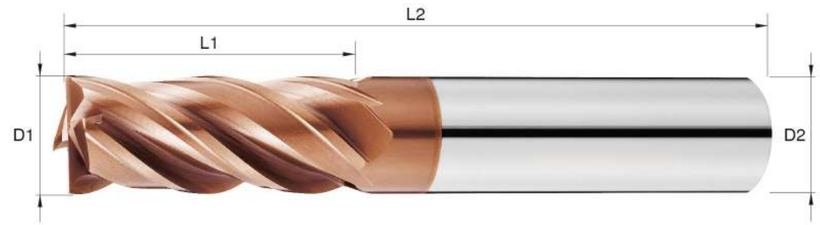
unit: inch

D1	Tolerance	D2	Tolerance
1/32 ~ 3/4	+0.000 / -0.0012	.1182 ~ 1.000	h6

INCH ISW

S MG | 4 | 35°/38° | α°≠β° | HRC 60 | i8 | Finishing Semi-Finishing

HSC & HHC series / 4 Flute / Square H P K



- **FEATURES**
  - 4 Flute Square for up to HRC60.
  - Variable helix angle and unequal flute spacing designed for stability and anti-vibration.
  - i8 Coating: High temperature and low wear resistance.

- **ITEMS**

unit: inch

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
ISW-**062**	1/16	11/64	2	1/8
ISW-**125**	1/8	3/8	2	1/8
ISW-**187**	3/16	7/16	2	3/16
ISW-**250**	1/4	5/8	2-1/2	1/4
ISW-**312**	5/16	13/16	2-1/2	5/16
ISW-**375**	3/8	7/8	2-1/2	3/8
ISW-**500**	1/2	1-1/4	3	1/2
ISW-**625**	5/8	1-5/8	3-1/2	5/8
ISW-**750**	3/4	1-3/4	4	3/4

- **TOLERANCE**

unit: inch

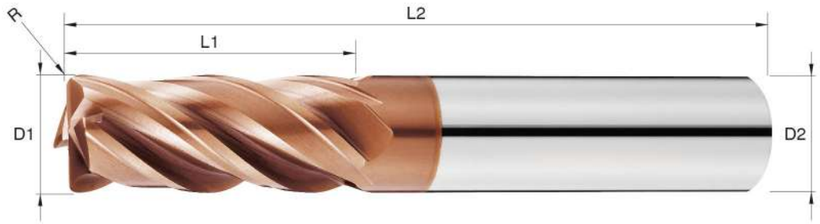
D1	Tolerance	D2	Tolerance
1/32 ~ 3/4	+0.000 / -0.0012	.1182 ~ 1.000	h6

S SUPER MILL

INCH ISWR

S MG | 4 | 35°/38° | α°≠β° | R | HRC 60 | i8 | Finishing Semi-Finishing

HSC & HHC series / 4 Flute / Corner Radius — H P K



• **FEATURES**

- 4 Flute Corner Radius for up to HRC60.
- Variable helix angle and unequal flute spacing designed for stability and anti-vibration.
- i8 Coating: High temperature resistance and low wear.

• **ITEMS**

unit: inch

Order No.	Diameter D1	Corner R R	Flute Length L1	O.A.L. L2	Shank Dia D2
ISWR-**062R020**	1/16	0.02	11/64	2	1/8
ISWR-**125R020**	1/8	0.02	3/8	2	1/8
ISWR-**187R020**	3/16	0.02	7/16	2	3/16
ISWR-**250R020**	1/4	0.02	5/8	2-1/2	1/4
ISWR-**312R020**	5/16	0.02	13/16	2-1/2	5/16
ISWR-**375R020**	3/8	0.02	7/8	2-1/2	3/8
ISWR-**500R020**	1/2	0.02	1-1/4	3	1/2
ISWR-**625R020**	5/8	0.02	1-5/8	3-1/2	5/8
ISWR-**750R020**	3/4	0.02	1-3/4	4	3/4

• **TOLERANCE**

unit: inch

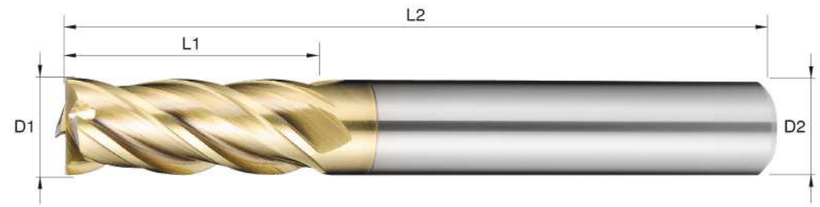
D1	Tolerance	D2	Tolerance
1/32 ~ 3/4	+0.000 / -0.0012	.1182 ~ 1.000	h6

I I.pro

INCH IIA

S MG | 4 | 37°/40° | α°≠β° | G-plus | Finishing Semi-Finishing

Titanium & Stainless cutting series / 4 Flute / Square — M S



• **FEATURES**

- 4 Flute Square for Stainless Steel, Titanium & Ti alloys, and High temp. alloy.
- Variable helix angle and unequal flute spacing offer great stability and anti-vibration.
- G-plus Coating: Excellent wear resistance and heat resistance.

• **ITEMS**

unit: inch

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
IIA-**125**	1/8	3/8	1/8	2
IIA-**187**	3/16	7/16	3/16	2
IIA-**250**	1/4	5/8	1/4	2-1/2
IIA-**312**	5/16	13/16	5/16	2-1/2
IIA-**375**	3/8	7/8	3/8	2-1/2
IIA-**500**	1/2	1-1/4	1/2	3
IIA-**625**	5/8	1-5/8	5/8	3-1/2

• **TOLERANCE**

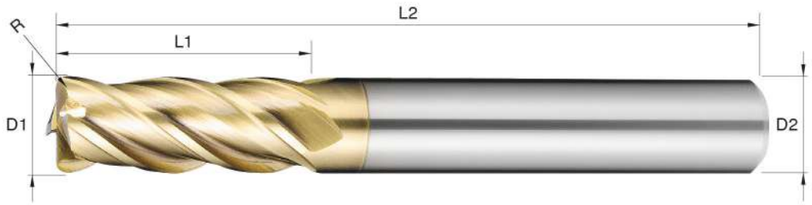
unit: inch

D1	Tolerance	D2	Tolerance
1/32 ~ 3/4	+0.000 / -0.0012	.1182 ~ 1.000	h6

INCH IIAR

S MG | 4 | 37°/40° | α°≠β° | R | G-plus | Finishing Semi-Finishing

Titanium & Stainless cutting series / 4 Flute / Corner Radius M S



- **FEATURES**
  - 4 Flute Corner Radius for Stainless Steel, Titanium & Ti alloys, and High temp. alloy.
  - Variable helix angle and unequal flute spacing offer great stability and anti-vibration.
  - G-plus Coating: Excellent wear resistance and heat resistant.

- **ITEMS**

unit: inch

Order No.	Diameter D1	Corner R R	Flute Length L1	O.A.L. L2	Shank Dia D2
IIAR-**125R020**	1/8	0.02	3/8	2	1/8
IIAR-**187R020**	3/16	0.02	7/16	2	3/16
IIAR-**250R020**	1/4	0.02	5/8	2-1/2	1/4
IIAR-**312R020**	5/16	0.02	13/16	2-1/2	5/16
IIAR-**375R020**	3/8	0.02	7/8	2-1/2	3/8
IIAR-**500R020**	1/2	0.02	1-1/4	3	1/2
IIAR-**625R020**	5/8	0.02	1-5/8	3-1/2	5/8

- **TOLERANCE**

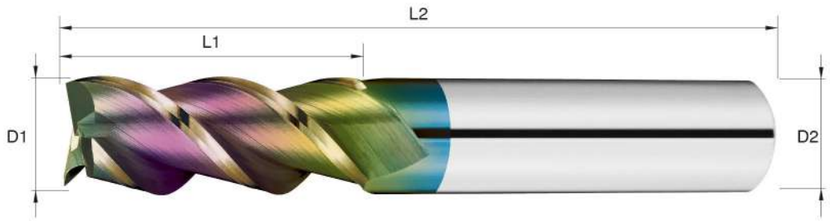
unit: inch

D1	Tolerance	D2	Tolerance
1/32 ~ 3/4	+0.000 / -0.0012	.1182 ~ 1.000	h6

INCH IAES

S MG | 3 | 45° | DLC-X | Finishing

Aluminum & Copper cutting series / 3 Flute / Square N



- **FEATURES**
  - 3 Flute Square End for Aluminum.
  - Helix Angle: 45°
  - Planing, Slotting, and Side Milling.
  - DLC-X Coating: Reduce friction coefficient and improve chip removal efficiency.

- **ITEMS**

unit: inch

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
IAES **125**	1/8	3/8	2	1/8
IAES **187**	3/16	7/16	2	3/16
IAES **250**	1/4	5/8	2-1/2	1/4
IAES **312**	5/16	13/16	2-1/2	5/16
IAES **375**	3/8	7/8	2-1/2	3/8
IAES **500**	1/2	1-1/4	3	1/2
IAES **625**	5/8	1-5/8	3-1/2	5/8

- **TOLERANCE**

unit: inch

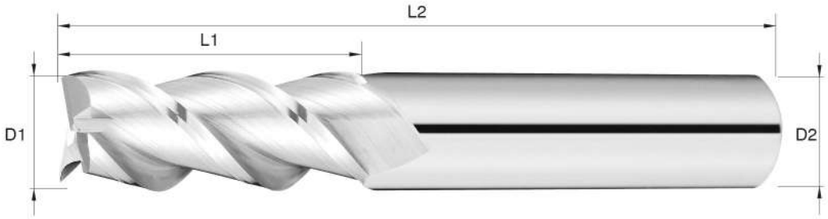
D1	Tolerance	D2	Tolerance
1/32 ~ 3/4	+0.000 / -0.0012	.1182 ~ 1.000	h6

INCH IAE

S MG | 3 | 45° | Finishing

Aluminum & Copper cutting series / 3 Flute / Square

N



- **FEATURES**
  - 3 Flute Square for Aluminum.
  - Helix Angle: 45°
  - Planing, Slotting, and Side Milling.

- **ITEMS**

unit: mm

Order No.	Diameter D1	Flute Length L1	Shank Dia D2	O.A.L. L2
IAE **125**	1/8	3/8	1/8	2
IAE **187**	3/16	7/16	3/16	2
IAE **250**	1/4	5/8	1/4	2-1/2
IAE **312**	5/16	13/16	5/16	2-1/2
IAE **375**	3/8	7/8	3/8	2-1/2
IAE **500**	1/2	1-1/4	1/2	3
IAE **625**	5/8	1-5/8	5/8	3-1/2

- **TOLERANCE**

unit: inch

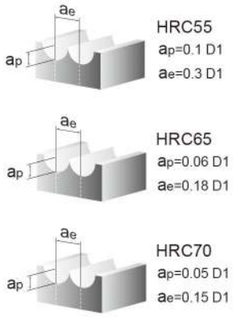
D1	Tolerance	D2	Tolerance
1/32 ~ 3/4	+0.000 / -0.0012	.1182 ~ 1.000	h6

V70 HARDENED STEELS HRC70 SERIES

- *Recommended cutting condition for V70B*

MATERIAL	Hardened Steels SKD61 , SKT4		Hardened Steels SKD11 , SKH51		Hardened Steels SKH , HAP	
HARDNESS	~HRC55		~HRC65		~HRC70	
Radius (R)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
R1.5	22000	2200	18000	1800	10500	850
R2	16500	2200	13500	1800	8000	850
R2.5	13400	2200	11000	1850	6400	850
R3	11300	2300	9100	1850	5500	850
R4	8600	2350	7000	1900	4100	850
R5	7000	2350	5600	1900	3200	850
R6	5800	2300	4700	1850	2700	850

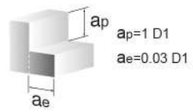
- *Depth of cut*



- *Recommended cutting condition for V70R*

MATERIAL	Hardened Steels SKD61 , SKT4		Hardened Steels SKD11 , SKH51		Hardened Steels SKS , SKH	
HARDNESS	~HRC55		~HRC65		~HRC70	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
6	5050	420	4000	260	3500	200
8	3800	400	3000	250	2700	180
10	3050	360	2400	240	2100	160
12	2520	360	2000	230	1800	150

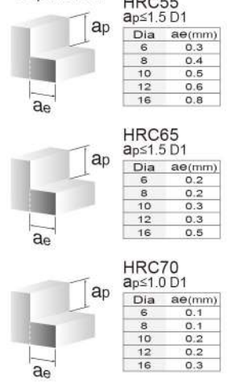
- *Depth of cut*



- *Recommended cutting condition for V70E*

MATERIAL	Hardened Steels SKD61 , SKT4		Hardened Steels SKD11		Hardened Steels SKS , SKH	
HARDNESS	~HRC55		~HRC65		~HRC70	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
6	13000	4600	6400	2400	4200	1450
8	10000	4600	4800	2400	3200	1450
10	7700	4600	4000	2400	2600	1450
12	6400	3800	3200	1900	2200	1200
16	4800	2900	2400	1400	1600	900

- *Depth of cut*

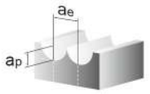


MAGIC CUT HARDENED STEELS HRC65 SERIES

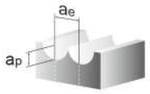
- *Recommended cutting condition for* ***QBMS***

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Radius (R)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
R0.1	32000	500 - 600	32000	400 - 500	25000	300 - 400
R0.15	32000	500 - 600	32000	400 - 500	25000	300 - 400
R0.2	32000	500 - 600	32000	400 - 500	25000	300 - 400
R0.25	32000	600 - 700	32000	500 - 600	25000	400 - 500
R0.3	32000	600 - 700	32000	500 - 600	25000	400 - 500
R0.35	32000	700 - 800	32000	600 - 700	25000	500 - 600
R0.4	32000	900 - 1000	32000	800 - 900	25000	600 - 700
R0.45	32000	1000 - 1100	32000	900 - 1000	25000	600 - 700

- *Depth of cut*



ap≤0.06R
ae≤0.1R
HRC45 ↓

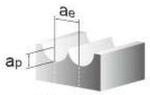


ap≤0.03R
ae≤0.05R
HRC45 ↑
R=Radius

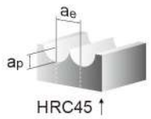
- *Recommended cutting condition for* ***QB, QBGS. QBN, QBX, QBHN, QBHX, QBLS.M.L, QBLSX.MX.LX***

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Radius (R)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
R1	23000	2000	22000	1800	16000	900
R1.5	16000	2000	15000	1800	11000	900
R2	15000	2400	14000	2000	10000	1300
R3	17000	5500	14000	5000	9000	1500
R4	12000	4000	9000	3000	6200	1400
R5	9000	3500	7000	2800	5200	900
R6	8000	2800	6500	1800	4300	800
R8	7000	2000	5000	1500	3300	700

- *Depth of cut*



ap≤0.04R
ae≤0.06R
HRC45 ↓

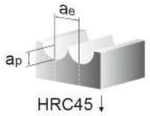


ap≤0.02R
ae≤0.03R
HRC45 ↑
R=Radius

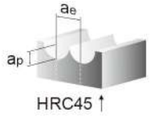
- *Recommended cutting condition for* ***QBP***

MATERIAL	Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Alloy Steels . Tool Steels SKD61		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Radius (R)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
R1	45000	2000	18000	1500	12000	1200
R1.5	42000	2000	18000	1500	12000	1200
R2	15000	3000	18000	1500	12000	1200
R3	13000	5000	11000	3500	8000	1700
R4	9000	3000	8000	2000	4000	1400
R5	7500	2500	6500	1800	3500	1300

- *Depth of cut*



ap≤0.04R
ae≤0.06R
HRC45 ↓

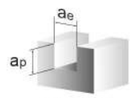


ap≤0.02R
ae≤0.03R
HRC45 ↑
R=Radius

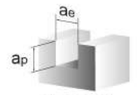
- *Recommended cutting condition for* ***QEMS***

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
0.2	40000	100 - 300	30000	80 - 250	15000	50 - 150
0.3	40000	100 - 350	30000	80 - 300	15000	50 - 200
0.4	40000	100 - 400	25000	80 - 350	10000	50 - 250
0.5	40000	100 - 500	25000	80 - 400	10000	50 - 250
0.6	38000	100 - 600	25000	80 - 500	8000	50 - 250
0.7	36000	100 - 700	20000	80 - 600	8000	50 - 250
0.8	34000	100 - 800	20000	80 - 700	8000	50 - 250
0.9	32000	100 - 1000	20000	80 - 800	8000	50 - 250

- *Depth of cut*



ap≤0.1 D1
ae≤D1
HRC45 ↓



ap≤0.02 D1
ae≤D1
HRC45 ↑

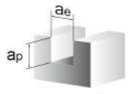
- *Recommended cutting condition for* ***QEB, QEBGS, QEBN***

	MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
	HARDNESS	~HRC30		~HRC50		~HRC60	
	Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
Side Milling	3	20000	2000	16000	1000	9000	500
	4	19000	2000	12000	1300	6000	550
	5	13000	1800	10000	1400	5000	500
	6	10000	3000	8000	1500	4500	700
	8	8000	3200	5000	1300	3500	600
	10	7000	3000	4500	1200	3000	500
	12	5000	2000	4000	1100	2000	500
	16	4000	1800	3500	1000	1800	450
	20	3500	1600	3000	1000	1300	450
Grooving	3	20000	2000	20000	1200	16000	1200
	4	16000	2000	16000	1200	12000	1300
	5	13000	1800	13000	1100	10000	1400
	6	10000	3000	10000	2100	8000	1500
	8	8000	2900	8000	1800	6000	1400
	10	7000	2800	6000	1700	5000	1300
	12	5000	2300	5500	1700	4500	1200
	16	3500	1800	4500	1800	3500	1200
	20	3000	1400	3000	1500	2600	1100

- *Depth of cut*

HRC45 ↓
D1 6mm ↓ ap=1.5 D1 ae=0.02 D1
D1 6mm ↑ ap=1.5 D1 ae=0.05 D1

HRC45 ↑
D1 6mm ↓ ap=1.5 D1 ae=0.01 D1
D1 6mm ↑ ap=1.5 D1 ae=0.02 D1

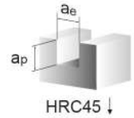


HRC45 ↓ ap≤0.2 D1
ae=D1

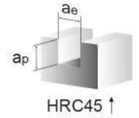
- *Recommended cutting condition for* ***QEX***

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
3	9000	600	5500	310	3500	220
4	6000	600	5000	400	2200	220
5	4800	750	4000	400	1700	240
6	4500	800	3800	420	1600	300
8	3500	820	2800	420	1000	300
10	3000	820	1800	420	900	300
12	2000	820	1600	350	800	300
16	1500	650	1000	300	500	150
20	1200	600	900	300	400	150

- *Depth of cut*



ap≤0.1 D1
ae=D1
HRC45 ↓



ap≤0.02 D1
ae=D1
HRC45 ↑

• Recommended cutting condition for *QELB*

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
6	4500	800	3800	420	1600	300
8	3500	820	2800	420	1000	300
10	3000	820	1800	420	900	300
12	2000	820	1600	350	800	300

• *Depth of cut*

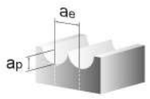
ap=1.5 D1
ae=0.1 D1
HRC45 ↓

ap=1 D1
ae=0.05 D1
HRC45 ↑

• Recommended cutting condition for *QBF*

MATERIAL		Alloy Steels . Tool Steels . Hardened Steels S45C , SCM , S50C , SKS , SCr , SNCM , SKD11 , SKD61 , NAK80		
Radius(R)	EFFECTIVE LENGTH	SPEED (min^{-1})	FEED mm / min	DEPTH OF CUT ap (mm)
R0.25	4	30000 - 40000	200 - 650	0.015
	6	30000 - 40000	200 - 650	0.013
R0.3	4	27000 - 40000	180 - 650	0.025
	6	27000 - 40000	180 - 650	0.015
R0.4	6	25000 - 40000	400 - 750	0.025
	8	25000 - 40000	400 - 750	0.025
R0.5	6	20000 - 32000	300 - 750	0.04
	8	20000 - 32000	300 - 750	0.03
	10	20000 - 32000	300 - 750	0.025
	12	20000 - 32000	300 - 750	0.015
R0.6	8	22000 - 25000	500 - 600	0.05
	12	22000 - 25000	500 - 600	0.03
R0.75	8	18000 - 20000	350 - 550	0.07
	12	18000 - 20000	350 - 550	0.04
	16	18000 - 20000	350 - 550	0.03
	20	18000 - 20000	350 - 550	0.02
R0.8	8	13000 - 18000	350 - 800	0.08
	12	13000 - 18000	350 - 800	0.06
	16	13000 - 18000	350 - 800	0.05
R1.0	8	12000 - 17000	500 - 900	0.1
	12	12000 - 17000	500 - 900	0.1
	16	12000 - 17000	500 - 900	0.07
	20	12000 - 17000	500 - 900	0.04
R1.5	8	8000 - 11000	500 - 700	0.17
	10	8000 - 11000	500 - 700	0.15
	16	8000 - 11000	500 - 700	0.14
	20	8000 - 11000	500 - 700	0.12
	25	8000 - 11000	500 - 700	0.1
R2.0	10	5000 - 8000	400 - 600	0.18
	15	5000 - 8000	400 - 600	0.17
	20	5000 - 8000	400 - 600	0.16
	25	5000 - 8000	400 - 600	0.15
	30	5000 - 8000	400 - 600	0.14

• *Depth of cut*

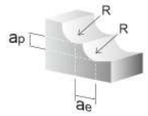


R<1 ae<0.1R
R>1 ae<0.2R
R=Radius

• Recommended cutting condition for *QRD, QRDGS, QRDN, QRHN, QRHX, QERC, QRHLX*

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
2	26000	1600	16500	1000	7500	300
3	19000	1800	12000	1200	5400	360
4	16000	3200	10000	1900	4800	480
5	14000	3300	8000	2000	3800	500
6	12000	3600	7200	2200	3500	650
8	9600	4000	5600	2200	2700	750
10	7000	3400	4400	1700	2100	650
12	6000	2800	3600	1400	1800	600

• *Depth of cut*



ap≤0.02R
ae≤0.02R
HRC45 ↓

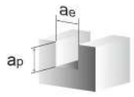
ap≤D1
ae≤0.02 D1
HRC45 ↑

R=Corner R

• Recommended cutting condition for *QEFAS*

MATERIAL		Alloy Steels . Tool Steels . Hardened Steels S45C , SCM , S50C , SKS , SCr , SNCM , SKD11 , SKD61 , NAK80		
Dia.(D1)	EFFECTIVE LENGTH	SPEED (min^{-1})	FEED mm / min	DEPTH OF CUT ap (mm)
1	4	25000	1500	0.05
	6	25000	1500	0.03
	10	25000	1500	0.01
1.5	4	15000	1200	0.10
	8	15000	1200	0.05
	10	15000	1200	0.025
	12	15000	1200	0.018
2	8	12000	900	0.20
	10	8800	700	0.12
	12	7500	600	0.05
	16	7000	500	0.02
3	8	8000	600	0.50
	12	8000	600	0.45
	16	5500	450	0.18
	20	4000	300	0.15
	10	6000	400	0.70
	16	6000	400	0.40

• *Depth of cut*

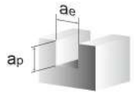


ae=D1

• Recommended cutting condition for *QRFAS*

MATERIAL		Alloy Steels . Tool Steels . Hardened Steels S45C , SCM , S50C , SKS , SCr , SNCM , SKD11 , SKD61 , NAK80		
Dia.(D1)	EFFECTIVE LENGTH	SPEED (min^{-1})	FEED mm / min	DEPTH OF CUT ap (mm)
1	4	30000	2200	0.15
	6	30000	2200	0.12
	8	30000	2200	0.12
	10	30000	2200	0.12
1.5	4	25000	1800	0.20
	6	25000	1800	0.18
	8	25000	1800	0.15
	10	25000	1800	0.15
	12	25000	1800	0.15
2	8	20000	1500	0.30
	10	20000	1500	0.30
	12	20000	1500	0.25
	16	20000	1500	0.25
3	8	12000	900	0.40
	12	12000	900	0.40
	16	12000	900	0.30
	20	12000	900	0.30

• *Depth of cut*



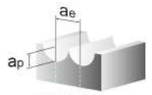
ae=D1

SUPER MILL FOR HRC60 STEELS SERIES

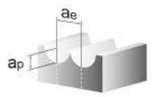
- *Recommended cutting condition for* ***SBM. SBMV***

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Radius (R)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
R0.1	32000	500 - 600	32000	400 - 500	25000	300 - 400
R0.15	32000	500 - 600	32000	400 - 500	25000	300 - 400
R0.2	32000	500 - 600	32000	400 - 500	25000	300 - 400
R0.25	32000	600 - 700	32000	500 - 600	25000	400 - 500
R0.3	32000	600 - 700	32000	500 - 600	25000	400 - 500
R0.35	32000	700 - 800	32000	600 - 700	25000	500 - 600
R0.4	32000	900 - 1000	32000	800 - 900	25000	600 - 700
R0.45	32000	1000 - 1100	32000	900 - 1000	25000	600 - 700

- *Depth of cut*



ap≤0.06R
ae≤0.1R
HRC45 ↓

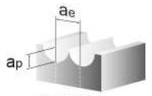


ap≤0.03R
ae≤0.05R
HRC45 ↑
R=Radius

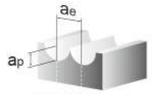
- *Recommended cutting condition for* ***SB, SBK, SBX, SBLS.M.L, SBLSX.MX.LX***

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Radius (R)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
R0.5	45000	2000	45000	1800	28000	1000
R1	23000	2000	22000	1800	16000	900
R1.5	16000	2000	15000	1800	11000	900
R2	15000	2400	14000	2000	10000	1300
R3	13000	3200	11000	2000	9000	1500
R4	9000	2300	8000	1500	6200	1400
R5	7500	1900	6500	1200	5200	900
R6	6300	1600	5500	1000	4300	800
R8	4500	1200	3800	800	3300	700

- *Depth of cut*



ap≤0.04R
ae≤0.06R
HRC45 ↓

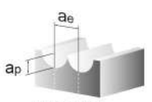


ap≤0.02R
ae≤0.03R
HRC45 ↑
R=Radius

- *Recommended cutting condition for* ***SBB***

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Radius (R)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
R2	15000	3000	14000	2600	10000	1700
R3	13000	4000	11000	2600	9000	1900
R4	9000	2900	8000	1900	6200	1800
R5	7500	2400	6500	1500	5200	1100
R6	6300	2100	5500	1300	4300	1000
R8	4500	1500	3800	1000	3300	900
R10	3700	1200	3200	750	2600	600

- *Depth of cut*



ap≤0.04R
ae≤0.06R
HRC45 ↓

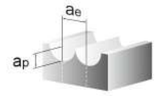
ap≤0.02R
ae≤0.03R
HRC45 ↑
R=Radius

- *Recommended cutting condition for* ***SBC, SBCX***

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Radius (R)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
R1	23000	2000	22000	1800	16000	900
R1.5	16000	2000	15000	1800	11000	900
R2	15000	2400	14000	2000	10000	1300
R3	13000	3200	11000	2000	9000	1500

- *Depth of cut*

HRC45 ↓
ap≤0.04R
ae≤0.06R

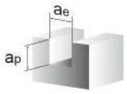


HRC45 ↑
ap≤0.02R
ae≤0.03R
R=Radius

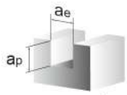
- *Recommended cutting condition for* ***SEA, SELA***

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
1	20000	80	15000	45	11000	30
1.5	13600	135	10000	60	9000	40
2	9600	150	8500	50	6000	45
3	6500	200	5800	75	4000	60
4	5500	250	4000	80	3200	60
5	4500	300	3000	80	2500	70
6	4000	300	2500	80	2200	70
8	3500	350	2200	90	1700	70
10	3000	400	2000	90	1500	70
12	2500	400	1500	100	1000	70
16	2000	400	1200	100	800	70

- *Depth of cut*



D1<3 ap=0.15 D1
D1>3 ap=0.25 D1
ae=D1
HRC45 ↓



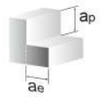
D1<3 ap=0.05 D1
D1>3 ap=0.1 D1
ae=D1
HRC45 ↑

- *Recommended cutting condition for* ***SEB. SEK, SEX, SELB***

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
1	22000	400	18000	200	9000	140
1.5	12000	500	11000	280	5200	150
2	10000	550	10000	280	4600	170
3	9000	600	5500	310	3500	220
4	6000	600	5000	400	2200	220
5	4800	750	4000	400	1700	240
6	4500	800	3800	420	1600	300
8	3500	820	2800	420	1000	300
10	3000	820	1800	420	900	300
12	2000	820	1600	350	800	300
16	1500	650	1000	300	500	150
20	1200	600	900	300	400	150

- *Depth of cut*

ap≤1.5 D1
ae≤0.1 D1
HRC45 ↓



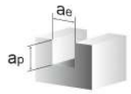
ap≤D1
ae≤0.05 D1
HRC45 ↑

CUTTING CONDITION

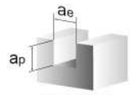
• Recommended cutting condition for *SEM, SEMV*

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
0.2	40000	100 - 300	30000	80 - 250	15000	50 - 150
0.3	40000	100 - 350	30000	80 - 300	15000	50 - 200
0.4	40000	100 - 400	25000	80 - 350	10000	50 - 250
0.5	40000	100 - 500	25000	80 - 400	10000	50 - 250
0.6	38000	100 - 600	25000	80 - 500	8000	50 - 250
0.7	36000	100 - 700	20000	80 - 600	8000	50 - 250
0.8	34000	100 - 800	20000	80 - 700	8000	50 - 250
0.9	32000	100 - 1000	20000	80 - 800	8000	50 - 250

• *Depth of cut*



ap≤0.1 D1
ae≤D1
HRC45 ↓

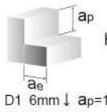


ap≤0.02 D1
ae≤D1
HRC45 ↑

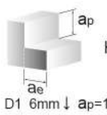
• Recommended cutting condition for *SEP*

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
Side Milling 3	20000	2000	16000	1000	9000	500
4	19000	2000	12000	1300	6000	550
5	13000	1800	10000	1400	5000	500
6	10000	3000	8000	1500	4500	700
8	8000	3200	5000	1300	3500	600
10	7000	3000	4500	1200	3000	500
12	5000	2000	4000	1100	2000	500
16	4000	1800	3500	1000	1800	450
20	3500	1600	3000	1000	1300	450
Grooving 3	20000	2000	20000	1200	16000	1200
4	16000	2000	16000	1200	12000	1300
5	13000	1800	13000	1100	10000	1400
6	10000	3000	10000	2100	8000	1500
8	8000	2900	8000	1800	6000	1400
10	7000	2800	6000	1700	5000	1300
12	5000	2300	5500	1700	4500	1200
16	3500	1800	4500	1800	3500	1200
20	3000	1400	3000	1500	2600	1100

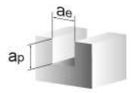
• *Depth of cut*



HRC45 ↓
D1 6mm ↓ ap=1.5 D1 ae=0.02 D1
D1 6mm ↑ ap=1.5 D1 ae=0.05 D1



HRC45 ↑
D1 6mm ↓ ap=1.5 D1 ae=0.01 D1
D1 6mm ↑ ap=1.5 D1 ae=0.02 D1



HRC45 ↓ ap≤0.2 D1
ae=D1

• Recommended cutting condition for *SEW*

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
3	22000	1800	16000	1300	10000	800
4	15000	1400	12000	1250	7000	700
5	13000	1600	10000	1400	6000	650
6	11500	1650	8500	1300	5000	800
8	8000	1800	6500	1350	3500	700
10	7000	1800	5000	1400	2800	750
12	6000	1700	4000	1300	2300	650
16	3560	1500	3000	1250	1800	700
20	3000	1450	2500	1250	1500	780

• *Depth of cut*

ap≤1.5 D1
ae≤0.4 D1
HRC45 ↓

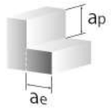
ap≤1.5 D1
ae≤0.2 D1
HRC45 ↑

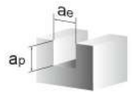
• Recommended cutting condition for *SEPC*

MATERIAL	Carbon Steels/Alloy Steels/Cast Irons SS/S45C/SCM/FC		Pre-Hardened Steels SKD11/SKD61···		Stainless Steels SUS304/SUS316L···	
Depth of cut	ap:1.0D1 ae:0.5D1		ap:1.0D1 ae:0.3D1		ap:1.0D1 ae:0.2D1	
Dia. (D1)	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min
Side Milling 2	19100	860	12740	380	9550	430
2.5	15280	915	10200	300	7640	460
3	12740	955	8490	765	6370	570
3.5	10920	980	7280	655	5460	570
4	9550	1140	6370	760	4780	570
4.5	8490	1020	5660	760	4250	640
5	7640	1030	5090	680	3800	680
6	6370	1140	4250	640	3200	670
8	4780	1140	3180	480	2390	570
10	3820	1140	2550	460	1910	510
12	3180	950	2120	440	1590	470

MATERIAL	Carbon Steels/Alloy Steels/Cast Irons SS/S45C/SCM/FC		Pre-Hardened Steels SKD11/SKD61···		Stainless Steels SUS304/SUS316L···	
Depth of cut	ap:1.0D1		ap:0.5D1		ap:0.3D1	
Dia. (D1)	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min
Slotting 2	19100	510	12740	300	9550	345
2.5	15280	640	10200	240	7640	370
3	12740	660	8490	530	6370	450
3.5	10920	680	7280	460	5460	450
4	9550	800	6370	530	4780	450
4.5	8490	710	5660	530	4250	510
5	7640	720	5090	470	3800	540
6	6370	800	4250	510	3200	530
8	4780	800	3180	380	2390	450
10	3820	800	2550	370	1910	400
12	3180	670	2120	350	1590	380

• *Depth of cut*





ae=D1

• Recommended cutting condition for *SELD*

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
4	2000	80	1700	70	700	30
5	1800	110	1500	85	600	40
6	1500	110	1400	75	550	50
8	1300	110	1100	75	450	50
10	1000	110	800	75	300	50
12	900	110	700	75	250	40

• *Depth of cut*

ap≤2.5 D1
ae≤0.05 D1
HRC45 ↓

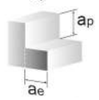
ap≤2D1
ae≤0.02 D1
HRC45 ↑

• Recommended cutting condition for *SHA*

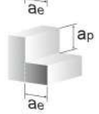
MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
6	12000	3000	8000	2000	5600	1400
8	9000	2400	6700	1900	3600	1200
10	6900	2100	5000	1600	3000	900
12	6000	2400	4300	1700	2400	1000
16	4500	2100	2500	1000	1600	700

• *Depth of cut*

HRC30
ap≤D1
ae≤0.02 D1



HRC50
ap≤D1
ae≤0.015 D1

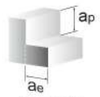


HRC60
ap≤D1
ae≤0.01 D1
Max 0.2mm

• Recommended cutting condition for *SEZ*

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
4	6000	600	5000	400	2200	220
5	4800	750	4000	400	1700	240
6	4500	800	3800	420	1600	300
8	3500	820	2800	420	1000	300
10	3000	820	1800	420	900	300
12	2000	820	1600	350	800	300

• *Depth of cut*



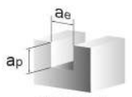
ap≤1.5 D1
ae≤0.1 D1
HRC45 ↓

ap≤D1
ae≤0.05 D1
HRC45 ↑

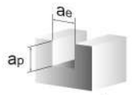
• Recommended cutting condition for *SRA, SRC*

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
3	7600	180	4800	120	2900	50
4	6500	260	4000	160	2500	55
5	5500	270	3200	160	2000	60
6	4800	300	2900	170	1800	70
8	3700	325	2200	170	1500	85
10	2900	280	1700	140	1100	70
12	2400	230	1400	120	1000	65
16	1800	170	1100	90	700	45

• *Depth of cut*



ap≤0.3 D1
ae=D1
HRC45 ↓

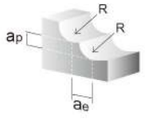


ap≤0.15 D1
ae=D1
HRC45 ↑

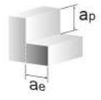
• Recommended cutting condition for *SRW, SRB, SRD, SRDX, SRK, SERC, SERCX*

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
2	26000	1600	16500	1000	7500	300
3	19000	1800	12000	1200	5400	360
4	16000	3200	10000	1900	4800	480
5	14000	3300	8000	2000	3800	500
6	12000	3600	7200	2200	3500	650
8	9600	4000	5600	2200	2700	750
10	7000	3400	4400	1700	2100	650
12	6000	2800	3600	1400	1800	600
16	4500	2000	2800	1000	1400	450

• *Depth of cut*



ap≤0.02R
ae≤0.02R
HRC45 ↓



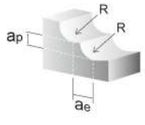
ap≤D1
ae≤0.02 D1
HRC45 ↑

R=Corner R

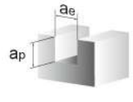
• Recommended cutting condition for *SRP*

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
6	12000	12000	8000	8000	5000	4000
8	10000	10000	8000	8000	6000	4800
10	7000	5000	6000	4000	4500	2000
12	5000	7000	4000	5000	3000	3000

• *Depth of cut*



ap≤0.02R
ae≤0.02R
HRC45 ↓



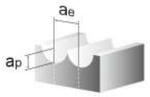
ap≤0.3 D1
ae=D1

R=Corner R

• Recommended cutting condition for *SBF . SBFV*

MATERIAL		Alloy Steels . Tool Steels . Hardened Steels S45C , SCM , S50C , SKS , SCr , SNCM , SKD11 , SKD61 , NAK80		
Radius(R)	EFFECTIVE LENGTH	SPEED (min^{-1})	FEED mm / min	DEPTH OF CUT ap (mm)
R0.25	4	30000 - 40000	200 - 650	0.015
	6	30000 - 40000	200 - 650	0.013
R0.3	4	27000 - 40000	180 - 650	0.025
	6	27000 - 40000	180 - 650	0.015
R0.4	6	25000 - 40000	400 - 750	0.025
	8	25000 - 40000	400 - 750	0.025
R0.5	6	20000 - 32000	300 - 750	0.04
	8	20000 - 32000	300 - 750	0.03
	10	20000 - 32000	300 - 750	0.025
	12	20000 - 32000	300 - 750	0.015
R0.6	8	22000 - 25000	500 - 600	0.05
	12	22000 - 25000	500 - 600	0.03
R0.75	8	18000 - 20000	350 - 550	0.07
	12	18000 - 20000	350 - 550	0.04
	16	18000 - 20000	350 - 550	0.03
	20	18000 - 20000	350 - 550	0.02
R0.8	8	13000 - 18000	350 - 800	0.08
	12	13000 - 18000	350 - 800	0.06
	16	13000 - 18000	350 - 800	0.05
R1.0	8	12000 - 17000	500 - 900	0.10
	12	12000 - 17000	500 - 900	0.10
	16	12000 - 17000	500 - 900	0.07
	20	12000 - 17000	500 - 900	0.04
R1.5	8	8000 - 11000	500 - 700	0.17
	10	8000 - 11000	500 - 700	0.15
	16	8000 - 11000	500 - 700	0.14
	20	8000 - 11000	500 - 700	0.12
	25	8000 - 11000	500 - 700	0.10
R2.0	10	5000 - 8000	400 - 600	0.18
	15	5000 - 8000	400 - 600	0.17
	20	5000 - 8000	400 - 600	0.16
	25	5000 - 8000	400 - 600	0.15
	30	5000 - 8000	400 - 600	0.14

• *Depth of cut*

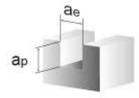


R<1 ae<0.1R
R>1 ae<0.2R
R=Radius

• Recommended cutting condition for *SEFA, SEFAV*

MATERIAL		Alloy Steels . Tool Steels . Hardened Steels S45C , SCM , S50C , SKS , SCr , SNCM , SKD11 , SKD61 , NAK80		
Dia.(D1)	EFFECTIVE LENGTH	SPEED (min^{-1})	FEED mm / min	DEPTH OF CUT ap (mm)
1	4	25000	1500	0.05
	6	25000	1500	0.03
	10	25000	1500	0.01
1.5	4	15000	1200	0.10
	8	15000	1200	0.05
	10	15000	1200	0.025
	12	15000	1200	0.018
2	8	12000	900	0.20
	10	8800	700	0.12
	12	7500	600	0.05
	16	7000	500	0.02
3	10	8000	600	0.50
	12	8000	600	0.45
	16	5500	450	0.18
	20	4000	300	0.15
	25	6000	400	0.10

• *Depth of cut*

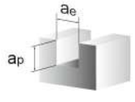


ae=D1

• Recommended cutting condition for *SEF . SEFV*

MATERIAL		Alloy Steels . Tool Steels . Hardened Steels S45C , SCM , S50C , SKS , SCr , SNCM , SKD11 , SKD61 , NAK80		
Dia.(D1)	EFFECTIVE LENGTH	SPEED (min^{-1})	FEED mm / min	DEPTH OF CUT ap (mm)
1	4	30000	2200	0.15
	6	30000	2200	0.12
	8	30000	2200	0.12
	10	30000	2200	0.12
1.5	4	25000	1800	0.20
	6	25000	1800	0.18
	8	25000	1800	0.15
	10	25000	1800	0.15
	12	25000	1800	0.15
2	8	20000	1500	0.30
	10	20000	1500	0.30
	12	20000	1500	0.25
	16	20000	1500	0.25
3	8	12000	900	0.40
	12	12000	900	0.40
	16	12000	900	0.30
	20	12000	900	0.30

• *Depth of cut*



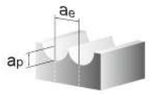
ae=D1

EFFICIENCY MILLS FOR HRC55 STEELS SERIES

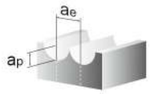
• *Recommended cutting condition for* ***BM***

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Radius (R)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
R0.1	32000	500 - 600	32000	400 - 500	25000	300 - 400
R0.15	32000	500 - 600	32000	400 - 500	25000	300 - 400
R0.2	32000	500 - 600	32000	400 - 500	25000	300 - 400
R0.25	32000	600 - 700	32000	500 - 600	25000	400 - 500
R0.3	32000	600 - 700	32000	500 - 600	25000	400 - 500
R0.35	32000	700 - 800	32000	600 - 700	25000	500 - 600
R0.4	32000	900 - 1000	32000	800 - 900	25000	600 - 700
R0.45	32000	1000 - 1100	32000	900 - 1000	25000	600 - 700

• *Depth of cut*



ap≤0.06R
ae≤0.1R
HRC45 ↓

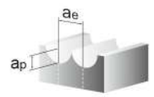


ap≤0.03R
ae≤0.05R
HRC45 ↑
R=Radius

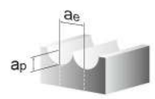
• *Recommended cutting condition for* ***BA, BS, BLS, BLM, BLL***

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Radius (R)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
R0.5	45000	800	35000	600	20000	200
R1	23000	800	18000	600	10000	200
R1.5	16000	1000	12000	600	6500	200
R2	12000	1000	9500	700	5000	300
R3	8000	1100	6000	700	3500	300
R4	6000	1200	5000	800	2500	350
R5	5000	1100	4000	800	2000	350
R6	4000	1000	3000	700	1500	300
R8	3000	1000	2000	700	1000	300

• *Depth of cut*



ap≤0.05R
ae≤0.1R
HRC45 ↓

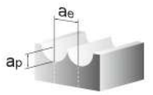


ap≤0.04R
ae≤0.06R
HRC45 ↑
R=Radius

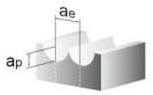
• *Recommended cutting condition for* ***BB***

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Radius (R)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
R2	12000	1200	9500	900	5000	400
R3	8000	1400	6000	900	3500	500
R4	6000	1600	5000	1000	2500	600
R5	5000	1400	4000	1000	2000	600
R6	4000	1200	3000	900	1500	500
R8	3000	1200	2500	900	1000	500
R10	2500	1000	2000	600	900	300

• *Depth of cut*



ap≤0.15R
ae≤0.04R
HRC45 ↓

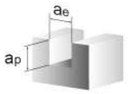


ap≤0.05R
ae≤0.02R
HRC45 ↑
R=Radius

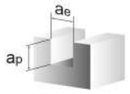
• *Recommended cutting condition for* ***EM***

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
0.4	40000	100 - 400	25000	80 - 350	10000	50 - 250
0.5	40000	100 - 500	25000	80 - 400	10000	50 - 250
0.6	38000	100 - 600	25000	80 - 500	8000	50 - 250
0.7	36000	100 - 700	20000	80 - 600	8000	50 - 250
0.8	34000	100 - 800	20000	80 - 700	8000	50 - 250
0.9	32000	100 - 1000	20000	80 - 800	8000	50 - 250

• *Depth of cut*



ap≤0.1 D1
ae≤D1
HRC45 ↓

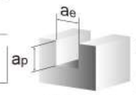


ap≤0.02 D1
ae≤D1
HRC45 ↑

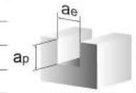
• *Recommended cutting condition for* ***EA, ES, ELA***

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
1	20000	80	15000	45	11000	30
1.5	13600	135	10000	60	9000	40
2	9600	150	8500	50	6000	45
3	6500	200	5800	75	4000	60
4	5500	250	4000	80	3200	60
5	4500	300	3000	80	2500	70
6	4000	300	2500	80	2200	70
8	3500	350	2200	90	1700	70
10	3000	400	2000	90	1500	70
12	2500	400	1500	100	1000	70
16	2000	400	1200	100	800	70

• *Depth of cut*



D1<3 ap=0.15 D1
D1>3 ap=0.25 D1
ae=D1
HRC45 ↓



D1<3 ap=0.05 D1
D1>3 ap=0.1 D1
ae=D1
HRC45 ↑

• *Recommended cutting condition for* ***EB, ELB***

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
1	22000	400	18000	200	9000	140
1.5	12000	500	11000	280	5200	150
2	10000	550	10000	280	4600	170
3	9000	600	5500	310	3500	220
4	6000	600	5000	400	2200	220
5	4800	750	4000	400	1700	240
6	4500	800	3800	420	1600	300
8	3500	820	2800	420	1000	300
10	3000	820	1800	420	900	300
12	2000	820	1600	350	800	300
16	1500	650	1000	300	500	150
20	1200	600	900	300	400	150

• *Depth of cut*

ap≤1.5 D1
ae≤0.1 D1
HRC45 ↓

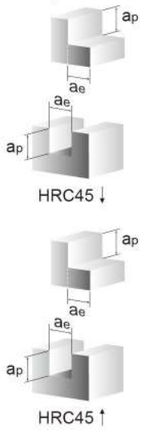
ap≤D1
ae≤0.05 D1
HRC45 ↑

• Recommended cutting condition for *EC, EP*

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
3	8000	550(300)	5500	300(100)	3500	200 (95)
4	6500	550(300)	4500	300(100)	2200	200 (95)
5	5000	800(400)	3600	350(120)	1800	210(100)
6	4000	800(400)	2800	350(120)	1500	210(110)
8	3500	800(400)	2600	350(120)	1300	210(100)
10	2500	800(400)	2000	350(120)	1100	210(100)
12	1800	750(350)	1500	350(120)	700	210(100)
16	1400	700(300)	1000	300(100)	500	170 (70)

( ):Grooving

• *Depth of cut*



$a_p \le 1.5$ D1
$a_e \le 0.2$ D1

$a_p \le 0.5$ D1
$a_e \le$ D1

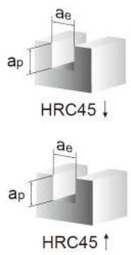
$a_p \le$ D1
$a_e \le 0.05$ D1

$a_p \le 0.05$ D1
$a_e \le$ D1

• Recommended cutting condition for *ELC*

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
2	3000	25	1700	20	1000	15
3	2300	35	1900	25	800	10
4	2000	45	1600	35	650	15
5	1800	40	1400	40	600	20
6	1700	60	1300	50	550	25
8	1300	60	1000	50	450	25
10	1000	60	800	50	350	25
12	800	60	700	50	300	25

• *Depth of cut*



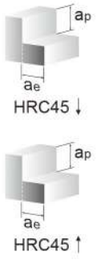
$a_p \le 0.15$ D1
$a_e =$ D1

$a_p \le 0.02$ D1
$a_e =$ D1

• Recommended cutting condition for *ELD*

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
2	3000	50	2500	40	1000	15
3	2500	60	2000	50	800	20
4	2000	80	1700	70	700	30
5	1800	110	1500	85	600	40
6	1500	110	1400	75	550	50
8	1300	110	1100	75	450	50
10	1000	110	800	75	300	50
12	900	110	700	75	250	40
16	800	95	500	70	150	20
20	500	80	400	60	120	20

• *Depth of cut*



$a_p \le 2.5$ D1
$a_e \le 0.05$ D1

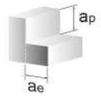
$a_p \le 2$D1
$a_e \le 0.02$ D1

• Recommended cutting condition for *ED*

MATERIAL	Carbon Steels.. SS/S45C/SCM/FC		Stainless Steels SUS304/SUS316L		Titainium Ti6AL-4V	
Depth of cut	ap:1D1 ae:0.5D1		ap:1D1 ae:0.5D1		ap:1D1 ae:0.5D1	
Dia. (D1)	Speed (min^{-1})	Feed mm/min	Speed (min^{-1})	Feed mm/min	Speed (min^{-1})	Feed mm/min
Side Milling						
3	12730	1020	8490	440	8490	440
4	9550	1150	6370	500	6370	500
5	7640	1220	5095	510	5095	510
6	6370	1220	4250	510	4250	510
8	4780	1150	3185	550	3185	550
10	3820	1220	2550	580	2550	580
12	3180	1020	2125	510	2125	510
16	2390	960	1595	450	1595	450

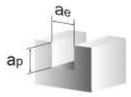
• *Depth of cut*

▶ **Side Milling**



MATERIAL	Carbon Steels.. SS/S45C/SCM/FC		Stainless Steels SUS304/SUS316L		Titainium Ti6AL-4V	
Depth of cut	ap:1D1		ap:1D1		ap:1D1	
Dia. (D1)	Speed (min^{-1})	Feed mm/min	Speed (min^{-1})	Feed mm/min	Speed (min^{-1})	Feed mm/min
Slotting						
3	11450	590	7400	240	7400	240
4	8590	680	5600	250	5600	250
5	6870	750	4500	300	4500	300
6	5730	840	3700	330	3700	330
8	4300	820	2800	330	2800	330
10	3430	850	2200	340	2200	340
12	2860	760	1900	310	1900	310
16	2150	720	1400	280	1400	280

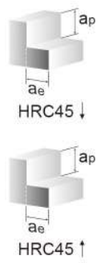
▶ **Slotting**



• Recommended cutting condition for *EH*

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
6	5500	1000	4500	850	3800	650
8	4000	1000	3500	850	3000	650
10	3300	1000	3100	850	2400	650
12	3000	900	2500	700	2000	600
16	2500	700	2000	550	1500	450
20	1800	550	1500	420	1200	380

• *Depth of cut*



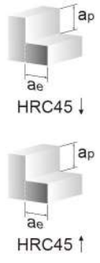
$a_p \le 1.5$ D1
$a_e \le 0.1$ D1

$a_p \le$ D1
$a_e \le 0.05$ D1

• Recommended cutting condition for *EHL*

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
6	1900	400	1500	300	1200	220
8	1500	380	1100	280	900	200
10	1200	360	850	260	750	190
12	1000	340	700	230	650	180
16	750	280	550	200	450	150
20	600	240	450	170	350	120

• *Depth of cut*



$a_p \le 3$ D1
$a_e \le 0.01$ D1

$a_p \le 3$ D1
$a_e \le 0.005$ D1

• Recommended cutting condition for *EG, EGA*

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
Side Milling						
6	5500	550	3000	310	1150	120
8	4600	550	2500	310	920	120
10	3700	550	2000	310	730	120
12	3000	500	1700	310	600	120
16	2300	520	1200	310	460	120
Grooving						
6	4400	440	2400	250	920	100
8	3600	440	2000	250	730	100
10	3000	440	1600	250	580	100
12	2400	440	1350	250	480	100
16	1800	440	960	250	370	100

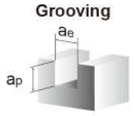
• *Depth of cut*

Side Milling

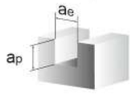
ap≤1.5 D1
ae≤0.3 D1
HRC45 ↓

ap≤D1
ae≤0.05 D1
HRC45 ↑

Grooving



ap≤0.6 D1
ae=D1
HRC45 ↓



ap≤0.2 D1
ae=D1
HRC45 ↑

• Recommended cutting condition for *ET, ETL (Dia 1-4)*

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
1	12000	65	6800	40	2500	15
1.5	9600	70	5200	45	2000	15
2	7500	85	4000	48	1500	18
2.5	6800	100	3700	60	1700	20
4	3500	120	1800	60	600	20
6	2500	150	1600	80	550	25
8	2000	150	1200	80	450	25
10	1500	150	1000	80	350	25

• *Depth of cut*

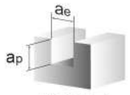
ap≤2.5 D1
ae≤0.02 D1
HRC45 ↓

ap≤2.5 D1
ae≤0.01 D1
HRC45 ↑

• Recommended cutting condition for *ERA*

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
3	7600	180	4800	120	2900	50
4	6500	260	4000	160	2500	55
5	5500	270	3200	160	2000	60
6	4800	300	2900	170	1800	70
8	3700	325	2200	170	1500	85
10	2900	280	1700	140	1100	70
12	2400	230	1400	120	1000	65
16	1800	170	1100	90	700	45

• *Depth of cut*



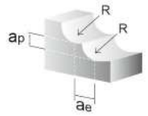
ap≤0.3 D1
ae=D1
HRC45 ↓

ap≤0.15 D1
ae=D1
HRC45 ↑

• Recommended cutting condition for *ERB, ERC*

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
3	9500	450	6000	290	3600	120
4	8000	800	5000	480	3200	160
5	6800	820	4000	500	2500	170
6	6000	900	3600	530	2300	220
8	4600	1000	2800	530	1800	250
10	3500	850	2200	420	1400	220
12	3000	720	1800	350	1200	200
16	2300	520	1400	250	900	150

• *Depth of cut*



ap≤0.02R
ae≤0.02R
HRC45 ↓

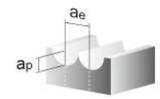
ap≤D1
ae≤0.02 D1
HRC45 ↑

R=Corner R

• Recommended cutting condition for *BF*

MATERIAL		Alloy Steels . Tool Steels . Hardened Steels S45C , SCM , S50C , SKS , SCr , SNCM , SKD11 , SKD61 , NAK80		
Radius(R)	EFFECTIVE LENGTH	SPEED (min^{-1})	FEED mm / min	DEPTH OF CUT ap (mm)
R0.5	6	20000 - 32000	300 - 750	0.04
	8	20000 - 32000	300 - 750	0.03
	10	20000 - 32000	300 - 750	0.025
	12	20000 - 32000	300 - 750	0.015
R0.75	8	18000 - 20000	350 - 550	0.07
	12	18000 - 20000	350 - 550	0.04
	16	18000 - 20000	350 - 550	0.03
	20	18000 - 20000	350 - 550	0.02
R1.0	8	12000 - 17000	500 - 900	0.10
	12	12000 - 17000	500 - 900	0.10
	16	12000 - 17000	500 - 900	0.07
	20	12000 - 17000	500 - 900	0.04
R1.5	8	8000 - 11000	500 - 700	0.17
	10	8000 - 11000	500 - 700	0.15
	16	8000 - 11000	500 - 700	0.14
	20	8000 - 11000	500 - 700	0.12
	25	8000 - 11000	500 - 700	0.10
R2.0	10	5000 - 8000	400 - 600	0.18
	15	5000 - 8000	400 - 600	0.17
	20	5000 - 8000	400 - 600	0.16
	25	5000 - 8000	400 - 600	0.15
	30	5000 - 8000	400 - 600	0.14

• *Depth of cut*

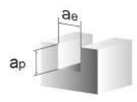


R<1 ae<0.1R
R>1 ae<0.2R
R=Radius

• Recommended cutting condition for *EFA*

MATERIAL		Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...	Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...	Hardened Steels SKD11
Dia.(D1)	EFFECTIVE LENGTH	SPEED (min^{-1})	FEED mm / min	DEPTH OF CUT ap (mm)
1	4	25000	1500	0.05
	6	25000	1500	0.03
	10	25000	1500	0.01
1.5	4	15000	1200	0.10
	8	15000	1200	0.05
	10	15000	1200	0.025
	12	15000	1200	0.018
2	8	12000	900	0.20
	10	8800	700	0.12
	12	7500	600	0.05
	16	7000	500	0.02
3	8	8000	600	0.50
	12	8000	600	0.45
	16	5500	450	0.18
	20	4000	300	0.15
4	10	6000	400	0.7
	16	6000	400	0.4

• *Depth of cut*

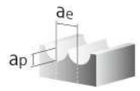


ae=D1

- *Recommended cutting condition for* ***SBBIV***

Material	Carbon Steels Alloy Steels/Cast Irons		Pre-Hardened Steels		Stainless Steels		Titanium Alloys		Superalloy	
	SS/S45C/SCM/FC		SKD11/SKD61···		SUS304/SUS316L···		Ti6AL-4V···		Inconel 718···	
Depth of cut	ap:0.25-1.2mm ae:0.75-3mm		ap:0.25-1.2mm ae:0.75-3mm		ap:0.25-1.2mm ae:0.75-3mm		ap:0.25-1.2mm ae:0.75-3mm		ap:0.13-0.6mm ae:0.3-1.2mm	
Radius (R)	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min
R1.5	19100	2900	19100	2900	12740	1500	12740	1500	3180	254
R2	14330	2500	14330	2500	9550	1350	9550	1350	2390	191
R2.5	11460	2230	11460	2230	7640	1190	7640	1190	1910	191
R3	9550	1900	9550	1900	6370	1110	6370	1110	1590	160
R4	7160	1700	7160	1700	4780	1090	4780	1090	1190	140
R5	5730	1600	5730	1600	3820	1030	3820	1030	960	135
R6	4780	1590	4780	1590	3190	1020	3190	1020	800	110

- *Depth of cut*



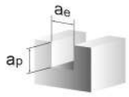
- *Recommended cutting condition for* ***SEIV***

MATERIAL		Stainless Steels		Titanium alloy		Inconel 718	
Depth of cut		ap=1D1 ae=0.05D1		ap=1D1 ae=0.05D1		ap=1D1 ae=0.05D1	
	Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
Side Milling	6	4600	590	4600	590	2600	230
	8	3500	560	3500	560	2000	220
	10	2700	535	2700	535	1600	200
	12	2400	520	2400	520	1400	170
	16	1700	450	1700	450	1000	130
	20	1400	450	1400	450	800	100

MATERIAL		Stainless Steels		Titanium alloy		Inconel 718	
Depth of cut		ap=0.5D1 ae=1D1		ap=0.2D1 ae=1D1		ap=0.2D1 ae=1D1	
	Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
Slotting	6	3000	375	2600	335	1200	105
	8	2200	360	2000	320	900	90
	10	1800	335	1600	310	750	80
	12	1500	330	1300	300	600	70
	16	1100	290	1000	250	450	50
	20	900	290	800	250	360	40

- *Depth of cut*
- **Side Milling**

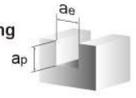
- **Slotting**



- *Recommended cutting condition for* ***SEPS***

MATERIAL		Carbon Steels..		Alloy Steels.Tool Steels		Stainless Steels	
		SS/S45C/SCM/FC		SCr.SNCM.SKD11.SKD61.NAK80···		SUS304/SUS316/Ti6AL-4V..	
	Dia. (D1)	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min
Slotting	3	11000	770	9100	400	7700	350
	4	8400	1000	6700	500	5600	370
	5	7000	1000	5300	500	4500	380
	6	5600	1000	4500	540	3700	400
	8	4200	900	3400	500	2800	420
	10	4000	800	2700	440	2300	470
	12	2800	700	2300	400	1900	460
	16	2100	600	1700	350	1400	340
	20	1800	500	1400	280	1100	270

- *Depth of cut*
- ▶ **Slotting**



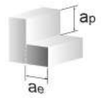
Diameter (D1)	ap(mm)
3	1.5
4	2.0
5	2.5
6	3.0
8	4.0
10	5.0
12	6.0
16	6.0
20	6.0

- *Recommended cutting condition for* ***SEPIV***

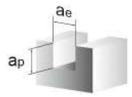
MATERIAL		Stainless Steels		Titanium alloy		Inconel 718	
Depth of cut		ap=1D1 ae=0.05D1		ap=1D1 ae=0.05D1		ap=1D1 ae=0.05D1	
	Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
Side Milling	6	4600	590	4600	590	2600	230
	8	3500	560	3500	560	2000	220
	10	2700	535	2700	535	1600	200
	12	2400	520	2400	520	1400	170
	16	1700	450	1700	450	1000	130
	20	1400	450	1400	450	800	100

MATERIAL		Stainless Steels		Titanium alloy		Inconel 718	
Depth of cut		ap=0.5D1 ae=1D1		ap=0.2D1 ae=1D1		ap=0.2D1 ae=1D1	
	Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
Slotting	6	3000	375	2600	335	1200	105
	8	2200	360	2000	320	900	90
	10	1800	335	1600	310	750	80
	12	1500	330	1300	300	600	70
	16	1100	290	1000	250	450	50
	20	900	290	800	250	360	40

- *Depth of cut*
- **Side Milling**



- **Slotting**

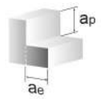


- *Recommended cutting condition for* ***SIBV***

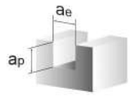
MATERIAL		Stainless Steels		Titanium alloy		Inconel 718	
Depth of cut		ap=1D1 ae=0.05D1		ap=1D1 ae=0.05D1		ap=1D1 ae=0.05D1	
	Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
Side Milling	6	4600	740	4600	740	2600	290
	8	3500	700	3500	700	2000	275
	10	2700	670	2700	670	1600	250
	12	2400	650	2400	650	1400	210
	16	1700	560	1700	560	1000	160
	20	1400	560	1400	560	800	120

MATERIAL		Stainless Steels		Titanium alloy		Inconel 718	
Depth of cut		ap=0.5D1 ae=1D1		ap=0.2D1 ae=1D1		ap=0.2D1 ae=1D1	
	Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
Slotting	6	3000	470	2600	420	1200	130
	8	2200	450	2000	400	900	110
	10	1800	420	1600	390	750	100
	12	1500	410	1300	370	600	85
	16	1100	360	1000	310	450	60
	20	900	360	800	310	360	50

- *Depth of cut*
- **Side Milling**



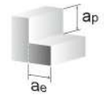
- **Slotting**



- *Recommended cutting condition for* ***SHAIV***

MATERIAL		Stainless Steels		Titanium alloys		Superalloy	
		SUS304/SUS316L..		Ti6AL-4V..		Inconel 718..	
Depth of cut		ap:D1 ae:0.05D1		ap:D1 ae:0.05D1		ap:D1 ae:0.05D1	
	Dia. (D1)	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min
Slotting	6	4250	920	3700	800	2100	320
	8	3200	900	2800	790	1600	300
	10	2550	760	2200	670	1300	260
	12	2100	840	1850	740	1100	230
	16	1600	740	1400	640	800	180

- *Depth of cut*
- **Side Milling**



• Recommended cutting condition for *SEGIV*

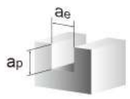
MATERIAL		SUS304/SUS316L		Ti6AL-4V		Inconel 718	
Depth of cut		ap=1D1 ae=0.3D1		ap=1D1 ae=0.3D1		ap=1D1 ae=0.2D1	
	Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
Side Milling	6	2650	210	1590	125	1060	65
	8	1990	240	1200	120	800	50
	10	1590	255	960	155	640	50
	12	1330	240	800	160	530	55
	16	990	200	600	130	400	50
	20	800	165	480	110	320	50

MATERIAL		SUS304/SUS316L		Ti6AL-4V		Inconel 718	
Depth of cut		ap=1D1 ae=D1		ap=0.5D1 ae=D1		ap=0.3D1 ae=D1	
	Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
Slotting	6	2650	210	1590	125	1060	65
	8	1990	240	1200	120	800	50
	10	1590	255	960	155	640	50
	12	1330	240	800	160	530	55
	16	990	200	600	130	400	50
	20	800	165	480	110	320	50

• *Depth of cut*

• **Side Milling**

• **Slotting**



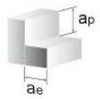
• Recommended cutting condition for *SRIPV*

MATERIAL		Stainless Steels		Titanium alloy		Inconel 718	
Depth of cut		ap=1D1 ae=0.05D1		ap=1D1 ae=0.05D1		ap=1D1 ae=0.05D1	
	Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
Side Milling	6	4600	590	4600	590	2600	230
	8	3500	560	3500	560	2000	220
	10	2700	535	2700	535	1600	200
	12	2400	520	2400	520	1400	170
	16	1700	450	1700	450	1000	130
	20	1400	450	1400	450	800	100

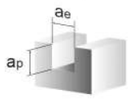
MATERIAL		Stainless Steels		Titanium alloy		Inconel 718	
Depth of cut		ap=0.5D1 ae=1D1		ap=0.2D1 ae=1D1		ap=0.2D1 ae=1D1	
	Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
Slotting	6	3000	375	2600	335	1200	105
	8	2200	360	2000	320	900	90
	10	1800	335	1600	310	750	80
	12	1500	330	1300	300	600	70
	16	1100	290	1000	250	450	50
	20	900	290	800	250	360	40

• *Depth of cut*

• **Side Milling**



• **Slotting**



• Recommended cutting condition for *SIVV*

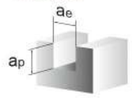
MATERIAL		Carbon Steels Alloy Steels/Cast Irons		Pre-Hardened Steels		Stainless Steels		Titanium Alloys		Superalloy	
		SS/S45C/SCM/FC		SKD11/SKD61···		SUS304/SUS316L···		Ti6AL-4V···		Inconel 718···	
Depth of cut		ap:1D1 ae:0.2D1		ap:1D1 ae:0.2D1		ap:1D1 ae:0.2D1		ap:1D1 ae:0.1D1		ap:1D1 ae:0.05D1	
	Dia. (D1)	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min
Side Milling	3	12730	1530	8490	510	6370	440	6370	440	3200	90
	4	9550	1530	6370	510	4780	500	4780	500	2400	96
	5	7640	1530	5100	510	3820	510	3820	510	1910	96
	6	6370	1530	4250	680	3180	510	3180	510	1595	96
	8	4780	1530	3180	760	2390	550	2390	550	1195	100
	10	3820	1530	2550	710	1910	580	1910	580	955	110
	12	3180	1270	2120	590	1590	510	1590	510	800	96
	16	2390	1145	1590	510	1190	450	1190	450	600	96
	20	1910	1070	1270	460	955	410	955	410	480	96

MATERIAL		Carbon Steels Alloy Steels/Cast Irons		Pre-Hardened Steels		Stainless Steels		Titanium Alloys		Superalloy	
		SS/S45C/SCM/FC		SKD11/SKD61···		SUS304/SUS316L···		Ti6AL-4V···		Inconel 718···	
Depth of cut		ap:1D1		ap:0.5D1		ap:0.5D1		ap:0.1D1		ap:0.05D1	
	Dia. (D1)	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min
Slotting	3	11450	590	6660	270	5830	200	5830	200	2880	35
	4	8590	680	5040	320	4380	200	4380	200	2160	43
	5	6870	750	4050	360	3500	240	3500	240	1720	48
	6	5730	840	3330	400	3700	270	3700	270	1440	56
	8	4300	820	2520	410	2190	270	2190	270	1080	50
	10	3430	850	1980	420	1750	280	1750	280	860	48
	12	2860	760	1710	370	1460	250	1460	250	720	46
	16	2150	720	1260	340	1095	220	1095	220	540	43
	20	1710	680	990	320	875	215	875	215	430	41

• *Depth of cut*

• **Side Milling**

• **Slotting**



ae=D1

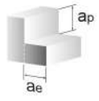
• Recommended cutting condition for *SIRVV*

MATERIAL		Carbon Steels Alloy Steels/Cast Irons		Pre-Hardened Steels		Stainless Steels		Titanium Alloys		Superalloy	
		SS/S45C/SCM/FC		SKD/NAK		SUS304/SUS316L···		Ti6AL-4V···		Inconel 718···	
Depth of cut		ap:1.5D1 ae:0.2D1		ap:1D1 ae:0.05D1		ap:1D1 ae:0.1D1		ap:0.8D1 ae:0.05D1		ap:0.8D1 ae:0.05D1	
	Dia. (D1)	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min
Side Milling	2	19900	1200	11150	800	10350	415	10350	415	5890	190
	3	13270	1330	7430	595	6900	550	6900	550	3930	250
	4	9950	1190	5570	670	5180	520	5180	520	2950	240
	5	7960	1270	4460	625	4140	500	4140	500	2360	230
	6	6630	1460	3710	670	3450	520	3450	520	1960	300
	8	4970	1390	2780	700	2590	465	2590	465	1470	280
	10	3980	1270	2230	625	2070	480	2070	480	1200	250
	12	3320	1260	1860	560	1730	450	1730	450	980	220

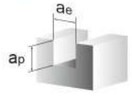
MATERIAL		Carbon Steels Alloy Steels/Cast Irons		Pre-Hardened Steels		Stainless Steels		Titanium Alloys		Superalloy	
		SS/S45C/SCM/FC		SKD11/SKD61···		SUS304/SUS316L···		Ti6AL-4V···		Inconel 718···	
Depth of cut		ap:0.8D1		ap:0.2D1		ap:0.4D1		ap:0.2D1		ap:0.1D1	
	Dia. (D1)	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min
Slotting	2	17500	700	8760	420	9550	230	9550	230	4780	115
	3	11670	700	5840	420	6370	230	6370	230	3180	115
	4	8750	700	4380	350	4780	215	4780	215	2390	105
	5	7000	840	3500	420	3820	230	3820	230	1910	115
	6	5840	840	2920	410	3180	240	3180	240	1590	120
	8	4380	875	2190	395	2390	215	2390	215	1190	104
	10	3500	880	1750	370	1910	230	1910	230	950	115
	12	2920	800	1460	350	1590	215	1590	215	800	105

• *Depth of cut*

• **Side Milling**



• **Slotting**



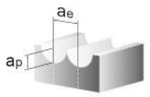
ae=D1

D MILL ALUMINUM & COPPER CUTTING SERIES

- *Recommended cutting condition for* ***DB, DBX***

MATERIAL	Aluminum 1070		Aluminum alloy 2014 / 4032 / 5052 / 6061 / 7075		Aluminum alloy AC85	
Radius (R)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
R0.5	50000	2300	37000	2000	50000	1400
R0.75	50000	3000	28000	2000	50000	1800
R1	44000	4000	18500	2000	44000	2500
R1.5	28000	4000	11500	2000	28000	2500
R2	22000	4000	8800	2000	22000	2500
R3	16000	4000	6400	2000	16000	2500
R4	12000	4000	4800	2000	12000	2500
R5	10000	4000	4000	2000	10000	2500
R6	8000	4000	3200	2000	8000	2500

- *Depth of cut*



ap≤0.1R
ae≤0.2R

R=Radius

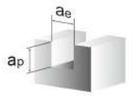
- *Recommended cutting condition for* ***DEA, DEB***

MATERIAL	Aluminum 1070		Aluminum alloy 2014 / 4032 / 5052 / 6061 / 7075		Aluminum alloy AC85	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
2	37000	2000(800)	16000	850(350)	20000	1100(450)
3	35000	2000(900)	14000	850(450)	18000	1100(550)
4	26000	2000(1100)	11000	850(550)	13000	1100(660)
5	21000	2000(1100)	9000	850(550)	10000	1100(660)
6	17000	2000(1100)	7000	850(550)	9000	1100(660)
8	13000	2000(1100)	5500	850(650)	7000	1100(800)
10	11000	2000(1300)	4400	850(650)	5500	1100(800)
12	8800	2000(1300)	3600	850(800)	4500	1100(800)
16	6500	2000(1100)	3000	850(550)	3500	1100(900)

( ):Grooving

- *Depth of cut*

ap≤1.5 D1
ae≤0.1 D1



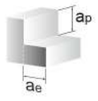
ap≤0.1 D1
ae=D1

- *Recommended cutting condition for* ***DEC, DED, DEDP, DEDX***

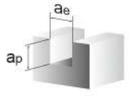
MATERIAL	Aluminum 1070		Aluminum alloy 2014 / 4032 / 5052 / 6061 / 7075		Aluminum alloy AC85	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
2	37000	2400(950)	16000	1000(380)	20000	1300(500)
3	35000	2400(1050)	14000	1000(500)	18000	1300(600)
4	26000	2400(1200)	11000	1000(600)	13000	1300(720)
5	21000	2400(1200)	9000	1000(600)	10000	1300(720)
6	17000	2400(1200)	7000	1000(600)	9000	1300(720)
8	13000	2400(1200)	5500	1000(700)	7000	1300(880)
10	11000	2400(1400)	4400	1000(700)	5500	1300(880)
12	8800	2400(1400)	3600	1000(880)	4500	1300(880)
16	6500	2400(1200)	3000	1000(600)	3500	1300(1000)
20	5300	2400(1200)	2200	1000(600)	2500	1300(700)

( ):Grooving

- *Depth of cut*



ap≤1.5 D1
ae≤0.2 D1



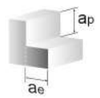
ap≤D1
ae=D1

- *Recommended cutting condition for* ***DEL***

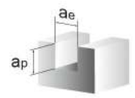
MATERIAL	Aluminum 1070		Aluminum alloy 2014 / 4032 / 5052 / 6061 / 7075		Aluminum alloy AC85	
Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
2	30000	600(500)	15000	250(250)	18000	300(300)
3	26000	600(500)	11000	250(250)	13500	300(350)
4	20000	600(550)	8500	250(250)	10000	300(350)
5	15600	600(550)	6700	250(200)	8000	300(350)
6	13500	600(550)	5500	250(200)	6700	300(350)
8	10000	600(600)	4200	250(200)	5000	300(350)
10	7500	600(600)	3300	250(200)	4000	300(350)
12	6700	600(600)	2700	250(200)	3400	300(350)
16	5000	600(500)	2300	250(200)	2500	300(350)
20	4000	600(500)	1700	250(200)	2000	300(350)

( ):Grooving

- *Depth of cut*



ap≤2.5 D1
ae≤0.15 D1



ap≤0.6 D1
ae=D1

- *Recommended cutting condition for* ***DEPW, DEPWS***

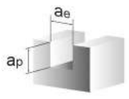
MATERIAL	Aluminums		Aluminum Alloys		Aluminum Alloy Castings	
	A1050/A1070		A2017/A5052/A7075		AC/ADC	
Depth of cut	ap:1.5D1	ae:0.3D1	ap:1.5D1	ae:0.3D1	ap:1.5D1	ae:0.3D1
Dia. (D1)	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min
Side Milling						
3	20000	3600	20000	3000	20000	3600
4	20000	3600	20000	3000	19900	3600
5	20000	3600	17200	3000	15920	3600
6	15920	3340	14330	3000	13270	2790
8	11940	2860	10750	2580	9950	2380
10	9550	2580	8600	2400	7960	2150
12	7960	2390	7160	2150	6630	1990

MATERIAL	Aluminums		Aluminum Alloys		Aluminum Alloy Castings	
	A1050/A1070		A2017/A5052/A7075		AC/ADC	
Depth of cut	ap:1.0D1	ae:0.3D1	ap:1.0D1	ae:0.3D1	ap:1.0D1	ae:0.3D1
Dia. (D1)	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min
Slotting						
3	18000	2700	19100	2700	14860	2700
4	15920	2300	15920	2300	11140	2300
5	12740	2300	14000	2000	8920	1600
6	10620	1910	11670	1750	7430	1330
8	7960	1910	8750	1750	5570	1330
10	6370	1720	7000	1680	4460	1200
12	5300	1590	5840	1570	3710	1110

- *Depth of cut*
- **Side Milling**

ap≤2.5 D1
ae≤0.15 D1

- **Slotting**



ap≤0.6 D1
ae=D1

ae=D1

CUTTING CONDITION

• *Recommended cutting condition for* ***DEG***

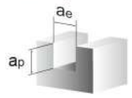
	MATERIAL	Aluminum Alloys		Aluminum Alloy Castings	
		A2017/A5052/A7075		AC/ADC	
	Depth of cut	ap:1D1 ae:0.5D1		ap:1D1 ae:0.5D1	
	Dia. (D1)	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min
Side Milling	6	32000	9200	16000	3700
	8	24000	9000	12000	3600
	10	18000	8200	9000	3200
	12	15000	7800	7600	3000
	16	11500	7200	5700	2900

	MATERIAL	Aluminum Alloys		Aluminum Alloy Castings	
		A2017/A5052/A7075		AC/ADC	
	Depth of cut	ap:1D1		ap:1D1	
	Dia. (D1)	SPEED (min^{-1})	FEED mm/min	SPEED (min^{-1})	FEED mm/min
Slotting	6	32000	7400	16000	3000
	8	24000	7200	12000	2900
	10	18000	6500	9000	2600
	12	15000	6200	7600	2500
	16	11500	5800	5700	2300

• *Depth of cut*

• **Side Milling**

• **Slotting**



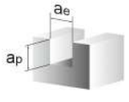
ae=D1

• *Recommended cutting condition for* ***DRC***

	MATERIAL	Aluminum 1070		Aluminum alloy 2014 / 4032 / 5052 / 6061 / 7075		Aluminum alloy AC85	
	Dia. (D1)	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
Side Milling	3	25000	1000	25000	1000	9000	350
	4	18000	1200	18000	1200	7000	400
	5	15000	1300	15000	1300	6000	450
	6	12000	1400	12000	1400	5000	500
	8	9000	1500	9000	1500	4000	550
	10	7000	1800	7000	1800	3000	600
	12	6000	1900	6000	1900	2500	650
	16	4500	1900	4500	1900	1500	650
Grooving	3	25000	800	25000	800	9000	350
	4	18000	800	18000	800	7000	400
	5	15000	900	15000	900	6000	450
	6	12000	1000	12000	1000	5000	500
	8	9000	1000	9000	1000	4000	550
	10	7000	1200	7000	1200	3000	600
	12	6000	1300	6000	1300	2500	650
	16	4500	1300	4500	1300	1500	650

• *Depth of cut*

ap≤1.5 D1
ae≤0.1 D1



ap≤0.2 D1
ae=D1

MAGIC SHANK EXCHANGEABLE HEAD END MILLS SERIES

• *Recommended cutting condition for* ***EX2SB*** *(HRC30~HRC60)*

Item No.	R	O.A.L	HRC30 - HRC60 SPEED min^{-1}	HRC30 - HRC60 FEED mm / min
EX2SB 1010	R5	150	6000	1200
EX2SB 1212	R6	150	5500	1500
EX2SB 1212	R6	200	4000	1000
EX2SB 1616	R8	150	5500	2000
EX2SB 1616	R8	200	3800	1000
EX2SB 2020	R10	150	4800	2000
EX2SB 2020	R10	200	4000	800
EX2SB 2020	R10	250	2600	500

Depth of cut: 0.15mm

• *Recommended cutting condition for* ***EX2SRD*** *(HRC30~HRC60)*

Item No.	D x R	O.A.L	HRC30 - HRC60 SPEED min^{-1}	HRC30 - HRC60 FEED mm / min
EX2SRD 1005	10.0 x 0.5	150	5800	1000
EX2SRD 1205	12.0 x 0.5	150	5500	1200
EX2SRD 1205	12.0 x 0.5	200	4000	350
EX2SRD 1605	16.0 x 0.5	150	5000	2000
EX2SRD 1605	16.0 x 0.5	200	3800	800
EX2SRD 2010	20.0 x 1.0	150	4500	2000
EX2SRD 2010	20.0 x 1.0	200	3800	800
EX2SRD 2010	20.0 x 1.0	250	2600	400

Depth of cut: 0.15mm

• *Recommended cutting condition for* ***EX2SEB*** *(HRC30~HRC60)*

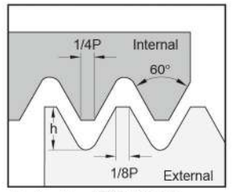
Item No.	D	O.A.L	HRC30 - HRC60 SPEED min^{-1}	HRC30 - HRC60 FEED mm / min
EX2SEB 1010	10.0	150	5000	800
EX2SEB 1212	12.0	150	4800	1000
EX2SEB 1212	12.0	200	3800	400
EX2SEB 1616	16.0	150	4200	1000
EX2SEB 1616	16.0	200	3600	400
EX2SEB 2020	20.0	150	4200	1500
EX2SEB 2020	20.0	200	3200	600
EX2SEB 2020	20.0	250	2500	300

Depth of cut: 0.15mm

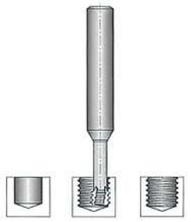
T.pro THREAD MILLING SERIES

- *Recommended cutting condition for* EMT

Work Hardness (HRC)	Vc (m/min)	Tool Dia (mm) / Feed f (mm/tooth)								
		2.2	3.1	3.6	4.0	5.0	7.0	8.0	10.0	14.0
HRC45-55	50-60	0.015	0.02	0.025	0.03	0.035	0.05	0.055	0.07	0.1
HRC55-60	40-50	0.012	0.015	0.02	0.025	0.03	0.035	0.04	0.05	0.08



Denfined by: R262 (DIN 13)
Tolerance class: 6g/6H



- *Recommended cutting condition for* EMTS

Work Hardness (HRC)	Vc (m/min)	Tool Dia (mm) / Feed f (mm/tooth)				
		3.5	3.1	3.8	4.65	5.95
HRC45-55	50-60	0.015	0.02	0.025	0.03	0.035
HRC55-60	40-50	0.012	0.015	0.02	0.025	0.03

- *Recommended cutting condition for* EMTF

Work Hardness (HRC)	Vc (m/min)	Tool Dia (mm) / Feed f (mm/tooth)						
		2.35	3.1	3.8	4.65	5.95	7.8	9.0
HRC45-55	50-60	0.015	0.02	0.025	0.03	0.035	0.05	0.055
HRC55-60	40-50	0.012	0.015	0.02	0.025	0.03	0.035	0.04

C.pro CHAMFERING SERIES

- *Recommended cutting condition for* ECMP

MATERIAL	Carbon Steels/Cast Irons	Alloy Steels	Stainless Steels	Aluminum Alloys
	SS/S45C/FC	SCM/SKD	SUS304/SUS316L···	A2017/A5052/A7075
Cutting Speed (V)	50~80 m/min	35~60 m/min	20~40 m/min	100~150 m/min
Dia. (D1)	fz mm/min	fz mm/min	fz mm/min	fz mm/min
4	0.03~0.04	0.02~0.03	0.015~0.03	0.04~0.07
6	0.03~0.04	0.02~0.03	0.015~0.03	0.04~0.07
8	0.03~0.07	0.03~0.05	0.025~0.05	0.07~0.09
10	0.03~0.07	0.03~0.05	0.025~0.05	0.07~0.09
12	0.03~0.07	0.03~0.05	0.025~0.05	0.07~0.09

fz = Feed per Tooth

- *Recommended cutting condition for* ECMV

MATERIAL	Carbon Steels/Cast Irons	Alloy Steels	Stainless Steels	Aluminum Alloys
	SS/S45C/FC	SCM/SKD	SUS304/SUS316L···	A2017/A5052/A7075
Cutting Speed (V)	50~80 m/min	35~60 m/min	20~40 m/min	100~150 m/min
Dia. (D1)	fz mm/min	fz mm/min	fz mm/min	fz mm/min
4	0.03~0.04	0.02~0.03	0.015~0.03	0.04~0.07
6	0.03~0.04	0.02~0.03	0.015~0.03	0.04~0.07
8	0.03~0.07	0.03~0.05	0.025~0.05	0.07~0.09
10	0.03~0.07	0.03~0.05	0.025~0.05	0.07~0.09
12	0.03~0.07	0.03~0.05	0.025~0.05	0.07~0.09

fz = Feed per Tooth

CD CARBIDE DRILLS SERIES

- *Recommended cutting condition for* CD CDA CDB CDAC CDBC

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	HRC35		HRC45		HRC55	
DIAMETER	Vc (m / min)	FEED (mm / rev.)	Vc (m / min)	FEED (mm / rev.)	Vc (m / min)	FEED (mm / rev.)
2	110-140	0.05-0.08	85-115	0.05-0.07	25-50	0.02-0.03
3	110-140	0.12-0.15	85-115	0.08-0.11	25-50	0.04-0.48
4	110-140	0.16-0.20	85-115	0.10-0.15	25-50	0.05-0.06
5	110-140	0.16-0.20	85-115	0.10-0.15	25-50	0.05-0.06
6	110-140	0.20-0.24	85-115	0.12-0.18	25-50	0.06-0.08
8	110-140	0.25-0.30	85-115	0.16-0.23	25-50	0.08-0.11
10	110-140	0.31-0.32	85-115	0.20-0.30	25-50	0.10-0.12
12	110-140	0.31-0.38	85-115	0.20-0.30	25-50	0.10-0.12
16	110-140	0.40-0.48	85-115	0.25-0.38	25-50	0.12-0.15
20	110-140	0.50-0.65	85-115	0.30-0.48	25-50	0.16-0.20

- *Recommended cutting condition for* CDC CDCC

MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	HRC35		HRC45		HRC55	
DIAMETER	Vc (m / min)	FEED (mm / rev.)	Vc (m / min)	FEED (mm / rev.)	Vc (m / min)	FEED (mm / rev.)
3	110-140	0.08-0.11	85-115	0.05-0.08	25-50	0.02-0.03
4	110-140	0.10-0.15	85-115	0.06-0.11	25-50	0.03-0.04
5	110-140	0.10-0.15	85-115	0.06-0.11	25-50	0.03-0.04
6	110-140	0.12-0.18	85-115	0.08-0.15	25-50	0.05-0.06
8	110-140	0.16-0.23	85-115	0.11-0.18	25-50	0.06-0.07
10	110-140	0.20-0.30	85-115	0.14-0.24	25-50	0.07-0.09
12	110-140	0.20-0.30	85-115	0.14-0.24	25-50	0.08-0.10

CR CARBIDE REAMERS SERIES

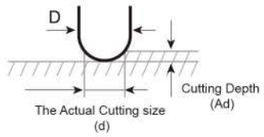
- *Recommended cutting condition for* CRA

Dia. (mm)	Vc (m/min)		Dia. (mm)	Feed (mm/rev)	
	Carbon Steels, Alloy Steels ~HRC40	Alloy Steels, Tool Steels HRC45~		Carbon Steels, Alloy Steels ~HRC40	Alloy Steels, Tool Steels HRC45~
2.0	14	8	2.0	0.05	0.04
3.0	14	8	3.0	0.08	0.06
4.0	14	8	4.0	0.10	0.08
5.0	14	8	5.0	0.10	0.08
6.0	14	8	6.0	0.12	0.10
8.0	14	8	8.0	0.16	0.12
10.0	14	8	10.0	0.20	0.16
12.0	14	8	12.0	0.20	0.16

Ball Nose End Milling Real Diameter

		(Ad) Depth Of Cut (mm)														
Ball : R	Dia.	0.01	0.02	0.03	0.04	0.05	0.08	0.1	0.15	0.2	0.3	0.5	0.8	1.0	2.0	3.0
0.1	0.2	0.087	0.12	0.143	0.16	0.173	0.196	0.2	------	------	------	------	------	------	------	------
0.2	0.4	0.125	0.174	0.211	0.24	0.265	0.32	0.35	0.39	0.4	------	------	------	------	------	------
0.3	0.6	0.154	0.215	0.262	0.299	0.332	0.41	0.45	0.52	0.57	0.6	------	------	------	------	------
0.4	0.8	0.178	0.25	0.304	0.349	0.387	0.48	0.53	0.62	0.69	0.77	0.77	------	------	------	------
0.5	1	0.199	0.28	0.341	0.392	0.436	0.54	0.6	0.71	0.8	0.92	1	------	------	------	------
1	2	0.282	0.398	0.486	0.56	0.624	0.78	0.87	1.05	1.2	1.43	1.73	1.96	2	------	------
1.5	3	0.346	0.488	0.597	0.688	0.768	0.97	1.08	1.31	1.5	1.8	2.24	2.65	2.83	2.83	------
2	4	0.399	0.564	0.69	0.796	0.889	1.12	1.25	1.52	1.74	2.11	2.65	3.2	3.46	4	------
2.5	5	0.447	0.631	0.772	0.891	0.995	1.25	1.4	1.71	1.96	2.37	3	3.67	4	4.9	4.9
3	6	0.489	0.692	0.846	0.977	1.091	1.38	1.54	1.87	2.15	2.62	3.32	4.08	4.47	5.66	6
4	8	0.565	0.799	0.978	1.129	1.261	1.59	1.78	2.17	2.5	3.04	3.87	4.8	5.29	6.93	7.75
5	10	0.632	0.894	1.094	1.262	1.411	1.78	1.99	2.43	2.8	3.41	4.36	5.43	6	8	9.17
6	12	0.693	0.979	1.198	1.383	1.546	1.95	2.18	2.67	3.07	3.75	4.8	5.99	6.63	8.94	10.39
7	14	0.748	1.058	1.295	1.495	1.67	2.11	2.36	2.88	3.32	4.05	5.2	6.5	7.21	9.8	11.49
8	16	0.8	1.131	1.384	1.598	1.786	2.26	2.52	3.08	3.56	4.34	5.57	6.97	7.75	10.58	12.49
9	18	0.848	1.199	1.468	1.695	1.895	2.39	2.68	3.27	3.77	4.61	5.92	7.42	8.25	11.31	13.42
10	20	0.894	1.264	1.548	1.787	1.997	2.52	2.82	3.45	3.98	4.86	6.24	7.84	8.72	12	14.28

Calculation of Real Dia. $d=2\sqrt{Ad\,(D-Ad)}$



Spindle Speed Table

Dia	V (m/min)														
ø	20	30	40	50	60	70	80	90	100	120	150	180	200	250	300
0.5	12740	19110	25480	31850	38220	44590	50960	57320	63690	76430	95540	114650	127390	159240	191080
0.6	10620	15920	21230	26540	31850	37150	42460	47770	53080	63690	79620	95540	106160	132700	159240
0.7	9100	13650	18200	22750	27300	31850	36400	40950	45500	54590	68240	81890	90990	113740	136490
0.8	7960	11940	15920	19900	23890	27870	31850	35830	39810	47770	59710	71660	79620	99520	119430
0.9	7080	10620	14150	17690	21230	24770	28310	31850	35390	42640	53080	63690	70770	88460	106160
1	6370	9550	12740	15920	19110	22290	25480	28660	31850	38220	47770	57320	63390	79620	95540
2	3180	4780	6370	7960	9550	11150	12740	14330	15920	19110	23890	28660	31850	39810	47770
3	2120	3180	4250	5310	6370	7430	8490	9550	10620	12740	15920	19110	21230	26540	31850
4	1590	2390	3180	3980	4780	5570	6370	7170	7960	9550	11940	14330	15920	19900	23890
5	1270	1910	2550	3180	3820	4460	5100	5730	6370	7640	9550	11460	12740	15920	19110
6	1060	1590	2120	2650	3180	3720	4250	4780	5310	6370	7960	9550	10620	13270	15920
8	800	1190	1590	1990	2390	2790	3180	3580	3980	4780	5970	7170	7960	9950	11940
10	640	960	1270	1590	1910	2230	2550	2870	3180	3820	4780	5730	6370	7960	9550
12	530	800	1060	1330	1590	1860	2120	2390	2650	3180	3980	4780	5310	6630	7960
14	450	680	910	1140	1360	1590	1820	2050	2270	2730	3410	4090	4550	5690	6820
15	420	640	850	1060	1270	1490	1700	1910	2120	2550	3180	3820	4250	5310	6370
16	400	600	800	1000	1190	1390	1590	1790	1990	2390	2990	3580	3980	4980	5970
20	320	480	640	800	960	1110	1270	1430	1590	1910	2390	2870	3180	3980	4780
25	250	380	510	640	760	890	1020	1150	1270	1530	1910	2290	2550	3180	3820

Calculation for Cutting Speed, Spindle Speed and Feed

Cutting Speed $V = \frac{\pi \times D \times N}{1000}$

Spindle Speed $N = V \div \pi \div D \times 1{,}000$

Feed $F = N \times fz \times Z$

Feed per Tooth $fz = \frac{F}{N \times Z}$

V = Cutting Speed (m/min)

π = 3.14 The Circular Constant

D = Diameter (mm)

N = RPM (min^{-1})

F = Feed (mm/min)

fz = Feed per Tooth (mm/tooth)

Z = Number of Flutes

Selection of Number of Flute

	2 Flutes	3 Flutes	4 Flutes	6 Flutes
Slotting	◎	◎	○	×
Side Milling	○	◎	◎	◎

Generally 2-flutes and 3-flutes are selected for slotting because of the larger chip pocket.
4-flutes and 6-flutes are recommended for side milling as no problem of chip disposal.

Cutting Speed (V)

Appropriate Cutting Speed should be decided by parameters such as tool material, diameter, length of cut, work material, cutting machine, rigidity of tool holder, machining configuration, accuracy, cutting fluid, and etc.
Generally tool material and work material are main factors to determine the Cutting Speed.

Work Materials	Cutting Speed (m/min)	
	Carbide	Coated Carbide
Carbon Steels (S50C)	20~40	40~80
Alloy Steels (SCM.SKD)	20~35	35~60
Prehardened Steels (NAK.HPM)	15~30	30~50
Stainless Steels (SUS304)	5~20	10~30
Hardened Steels (SKD61.HRC60)	-	20~40

Feed per Tooth (fz)

Feed per Tooth is an important element for efficient machining which should be determined by parameters such as tool diameter,type, work material, cutting machine, rigidity of tool holder, machining configuration, accuracy and cutting depth.

Diameter(mm)	Feed per tooth (mm/tooth)	
	2-Flutes	4-Flutes
1	0.001~0.005	
6	0.02~0.04	0.01~0.03
10	0.04~0.08	0.03~0.06
20	0.08~0.12	0.06~0.1

Comparison Table of Hardness

Rockwell Hardness C Scale 150kg Brale (HRC)	Diamond Pyramid Hardness Number, Vickers (HV)	Brinell Hardness Standard 10mm Ball 29.42kN (HB)	Rockwell Hardness A Scale 60kg Brale (HRA)	Shore Scleroscope Hardness Number (HS)	Approx Tensile Strength N/mm²
68	940	-	85.6	97	-
67	900	-	85.5	95	-
66	865	-	84.5	92	-
65	832	-	83.9	91	-
64	800	-	83.4	88	-
63	772	-	82.8	87	-
62	746	-	82.3	85	-
61	720	-	81.8	83	-
60	697	-	81.2	81	-
59	674	-	80.7	80	-
58	653	-	80.1	78	-
57	633	-	79.6	76	-
56	613	-	79.0	75	-
55	595	-	78.5	74	2079
54	577	-	78.0	72	2010
53	560	-	77.4	71	1952
52	544	500	76.8	69	1883
51	528	487	76.3	68	1824
50	513	475	75.9	67	1755
49	498	464	75.2	66	1687
48	484	451	74.7	64	1639
47	471	442	74.1	63	1578
46	458	432	73.6	62	1530
45	446	421	73.1	60	1481
44	434	409	72.5	58	1432
43	423	400	72.0	57	1383
42	412	390	71.5	56	1334
41	402	381	70.9	55	1294
40	392	371	70.4	54	1245
39	382	362	69.9	52	1216
38	372	353	69.4	51	1177
37	363	344	68.9	50	1157
36	354	336	68.4	49	1118
35	345	327	67.9	48	1079
34	336	319	67.4	47	1059
33	327	311	66.8	46	1030
32	318	301	66.3	44	1000
31	310	294	65.8	43	981
30	302	286	65.3	42	952
29	294	279	64.7	41	932
28	285	271	64.3	41	912
27	279	264	63.8	40	883
26	272	258	63.3	38	863
25	266	253	62.8	38	843
24	260	247	62.4	37	824
23	254	243	62.0	36	804
22	248	237	61.5	35	785
21	243	231	61.0	35	775
20	238	226	60.5	34	755
(18)	230	219	-	33	736
(16)	222	212	-	32	706
(14)	213	203	-	31	677
(12)	204	194	-	29	647
(10)	196	187	-	28	618
(8)	188	179	-	27	598
(6)	180	171	-	26	579
(4)	173	165	-	25	549
(2)	166	158	-	24	530
(0)	160	152	-	24	520

Factors for End Mill Operation

Factor	Instruction and Advice
Rigidity of Machine	1.Use a right machine. 2.Adjust cutting conditions according to the rigidity of machine.
Collet Chuck and Runout of End Mill	1.Use a right and precise collet chuck. 2.Minimize the runout of end mill.
Work Clamp	1.Work piece must be firmly clamped. 2.In case work piece cannot be firmly clamped, relieve cutting condition.
Cutting Fluid and Chips	1.Give a sufficient cutting fluid. 2.Recommend water-base cutting fluid for heavy cutting. 3.Some end mills apply dry cutting only. 4.Use air blow for dry cutting. 5.Remove chips from working area.
Selection of End Mill	1.Select most suitable end mills according to work material and dimension. 2.Refer to the index table on front page.
Cutting Conditions	1.Refer to recommended milling condition table. 2.It is necessary to adjust conditions according to the machine rigidity and clamping condition of work piece.
Overhang of End Mill from tool holder	1.Overhang of end mill must be as short as possible from tool holder. 2.In case overhang cannot be shorten, relieve cutting condition.

Troubleshooting for End Mill Operation

Symptoms of troubles	Cause	Solution
Chattering	·Excessive spindle speed ·Excessive feed ·Excessive long of effective length or overhang of end mill ·Work piece is not firmly clamped ·Wear of cutting edge progressed ·Excessive chucking runout	·Reduce spindle speed ·Reduce feed ·Adjust effective length and overhang as short as possible ·Clamped work piece firmly ·Use new end mill or regrind ·Adjust chucking runout
Breakage of end mill	·Excessive depth of cut ·Chips clogged ·Excessive feed per tooth ·Wear of cutting edge progressed	·Reduce depth of cut ·Adjust coolant nozzle to right direction to dispose chips ·Reduce feed per tooth ·Use new end mill or regrind
Chipping of cutting edge	·Excessive depth of cut ·Excessive feed ·Work piece is not firmly clamped ·Excessive spindle speed ·Excessive long of effective length or overhang of end mill ·Wear of cutting edge progressed ·When processing, the workpiece will be dissolved then stick on the tool flute ·Excessive cooling	·Reduce depth of cut ·Reduce feed ·Clamped work piece firmly ·Reduce spindle speed ·Adjust effective length and overhang as short as possible ·Use new end mill or regrind ·Choose appropriate coating ·Use air blow or oil mist
Abnormal wear	·Excessive spindle speed ·Tool low feed	·Reduce spindle speed ·Increase feed
Clogging and Depositing	·Chips are not well disposed ·Excessive feed ·Excessive depth of cut ·Inappropriate number of flute ·Wear of cutting edge progressed	·Adjust coolant nozzle to right direction to dispose chips ·Reduce feed ·Reduce depth of cut ·Use fewer flutes end mill ·Use new end mill or regrind
Deflection of end mill	·Excessive feed ·Excessive depth of cut ·Excessive long of effective length or overhang of end mill ·Large helix angle of flutes	·Reduce feed ·Reduce depth of cut ·Adjust effective length and overhang as short as possible ·Use smaller helix angle
Burr on finished surface	·Wear of cutting edge progressed ·Small helix angle of flutes ·Excessive depth of cut	·Use new end mill or regrind ·Use smaller helix angle ·Reduce depth of cut
Poor surface roughness	·Wear of cutting edge progressed ·Chips bite ·Excessive feed ·Excessive long of effective length or overhang of end mill ·Too low spindle speed ·Stock removals vary for finishing ·Excessive chucking runout	·Use new end mill or regrind ·Use coolant to remove chips ·Reduce feed ·Adjust effective length and overhang as short as possible ·Increase spindle speed ·Improve semi-finishing process ·Adjust chucking runout
Poor machining accuracy	·Inconsistent thermal extension of spindle ·Stock removals vary for finishing ·Excessive feed ·Excessive chucking runout	·Warm up spindle by idling before starting operation ·Improve semi-finishing process ·Reduce feed ·Adjust chucking runout